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EMPLOYMENT PROBLEMS IN THE DEFENSE INDUSTRY

**PROCEEDINGS OF A CONFERENCE ON ECONOMIC SECURITY
IN THE AEROSPACE AND DEFENSE RELATED INDUSTRY
IN CALIFORNIA**

February, 1970

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Contract cancellations and heavy cutbacks in government expenditures in the aerospace and defense related industries in California have caused widespread layoffs among engineers, production workers, and other employees in many companies. As a result, these workers and their families have been faced with increasing hardships, and many California communities are staggering under the mounting pressures of recession. There is no doubt that the present decline of these industries is of foremost concern to the affected workers as well as to the economic outlook of our state in general.

In this Conference on Employment Problems in the Defense Industry, the Institute of Industrial Relations at UCLA sought to assess the general employment situation of workers in these industries, and to explore future possibilities as well as reconversion plans and potentials in this vital sector of our economy. This volume contains diverse views on these problems, including those of the Honorable Alan Cranston, who discussed the responsibility of the federal government in planning for reconversion. In addition, statistical data and a survey conducted by the Joint Committee on Economic Conversion of the California State Legislature provide detailed information and valuable insights into the complex factors and considerations that make up Defense Employment in California.

Ted Ellsworth
Administrator of Public Programs
Institute of Industrial Relations
University of California, Los Angeles

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THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT
IN PLANNING FOR RECONVERSION

Alan Cranston

I appreciate the opportunity to be with you and to talk about a very severe problem that we face together in the aerospace, defense, and related industries in California and elsewhere across this country. When peace really breaks out, quite plainly, California will be the first to feel it. When the nation sets new priorities, California industry can and should be the first to respond. When the promise of the sixties becomes the reality of the seventies, the California aerospace industry can and must play a major role. And the course our nation takes in the seventies will very profoundly affect the men and women who work in defense and aerospace.

The sixties was a very sobering decade, one that began with hope and confidence but ended in confusion, discontentment and, for some, despair. I do not join, however, in the chorus of critics who see the sixties in terms of national failure and disgrace. The sixties, for all their turbulence, were years of growing maturity on the part of the American people. We have only just begun to understand the reality of the crisis in race relations and poverty in our land, but we are at last becoming aware of the need to correct the imbalance that threatens black and white, rich and poor, city and country dweller--all people everywhere. We have begun to raise serious and disturbing but very fundamental questions about the quality of our lives both as individuals and as members of a democratic society. We have stripped away some of our more romantic illusions concerning our role in this world. We have learned something about the limitations of the power that we possess and the dangers of the powers on the loose in this world of ours. All of this is no cause for despair, for out of these discoveries of the sixties come the goals of the seventies to build a just and freer society, to create an environment that will sustain health and human life and lead to a new and higher quality in the human experience, and to devise a reasonable foreign policy that will lead the world to peace.

These words are easily said and the goals are easily set. To determine the method, to muster the required resources, and to overcome all obstacles is, of course, more difficult. But we have no choice. We must succeed. I am convinced that Americans know this and are prepared to pay the costs.

A recent questionnaire put out by the Xerox Corporation urging people to forward their views to Congress is typical, I think. The returns were strikingly identical. The ten thousand

or so Californians who communicated with me wanted less spent on the arms race and more spent on domestic needs. They asked for higher allocation of their dollars for cleaner air and water, for social and educational and urban problems. I believe that these feelings are reflected and shared by countless Americans who are convinced that the time has come for a reordering of our national priorities. I am convinced that they will not accept endless engagement and slaughter in a Viet Nam war.

The American people, and I suspect the Russian people too, will not put up forever with defense policies based on an overkill capacity that today would enable us to kill every Russian something like 15 times, and that would enable them to kill every American something like 8 times. I sense rising American skepticism about devices like MIRV that would increase our overkill power to something like 41. I have a hunch that there is rising Russian doubt of their need for a MIRV that would boost their overkill account to somewhere around 25. Certainly, there is need here for mutual understanding and forbearance that could come out of the SALT talks, the Strategic Arms Limitation Talks at Helsinki and at Vienna. Our society and the Russian society both have countless urgent and diverse domestic needs that can be dealt with adequately only through a reallocation of time, talent, resources, and money.

Since World War II, we Americans have spent ten times more on warfare and defense than on the social and economic needs of our people. To cite two examples: we have spent hundreds of millions since World War II on the cost of war, but only \$48 million on the cost of new schools and a mere \$2.5 billion on rapid transit systems. Out of all our federal taxes, fifty cents of every dollar is allocated to pay for defense or wars, past or present. We have created a new and huge industry to produce modern weapons and all their components. In California, almost a million jobs are in defense and aerospace. Additional employment generated by the spending activities of these workers has been conservatively estimated at between 500,000 and one million more jobs. Between $1\frac{1}{2}$ million and two million workers then have a direct stake and interest in defense spending. California's dependence on the defense and aerospace industry for new manufacturing jobs is illustrated by the fact that toward the end of the sixties four of every five of our new manufacturing jobs were in this field.

Clearly, this is not a healthy situation. No state and no group of people should be so dependent on one element of federal spending. It is dangerous for those who rely for employment so heavily on defense spending as we are all learning from current cutbacks in defense and space spending. It is also dangerous because some of those dependent on the arms race may unknowingly seek contracts for weapons systems that ultimately actually

weaken rather than strengthen us--weapons systems that can cause international imbalances and countermoves by other nations, thus escalating still further world competition in arms, increasing international instability, and heightening the danger of all-out war.

As a senator deeply involved and devoted to the cause of peace, I first saw war as a young foreign correspondent in Ethiopia, in Mussolini's days. As a senator who represents the state with more defense contracts than any other state, I am often asked if this constitutes a severe political problem for me. My answer is, no; it gives me instead a unique and tremendous opportunity. I am often asked, don't you find yourself under terrific political pressure to work for defense contracts you may not believe in and to vote for defense items you are really against. Not once have I been subjected to what I call pressure. On the contrary, the heads of some of our biggest defense companies, physicists, engineers, managers, and others on corporate payrolls have repeatedly said to me something like this: "Don't quote me, because it might cost us in defense contracts we are trying to land, but keep on working to scale down the defense budget; I admired your stand against the ABM, and there is a lot else we could eliminate without weakening ourselves one bit." Frankly, these people say they would much rather be using their own abilities and their company's skills to produce some of the things that we need so badly here at home.

That's the unique and tremendous opportunity I referred to that I feel I have, and that is really also an opportunity for those in our aerospace and defense industries. I assure you that I will do all within my power to expand and not diminish opportunities for those whose creative capabilities and technological skills have been devoted to national defense. I envisage a role for you and others that will be more rewarding, more satisfying, and far more constructive than devising ways and means of producing or preventing destruction.

Certainly, no group is more aware of the problems caused by overdependence on defense contracts than managers, workers, and stockholders in the defense industries and in the communities in which the plants are located. Many firms have already made substantial progress in reducing their dependence on Pentagon contracts. Until recently the amount of the government contracts held by any one firm has tended to remain constant for these companies while the private percentage of their total business has been expanding. We are obviously now heading into a time when there will be a shrinkage in the dollar volume of available and likely defense and state contracts.

It is not enough, however, to think and plan in terms of conversion, a term that seems to apply to steps that should be

taken some time in the future after drastic defense cutbacks have occurred. A better term, I think, is diversification, something that should be happening right now; but it is not for firms to think and plan simply in terms of achieving a better balance between military and domestic contracts and sales. Some firms are doing very well in commercial sales, mostly selling components to someone building something larger. But the industry generally must carve out a larger role in grappling with our domestic needs, problems, and crises.

There is an unhappy history of failure, as you know, in attempts by industry to apply systems engineering to social problems, along with some remarkable successes. The failures have occurred in good part, I believe, because the federal government has not played the significant role it could and should have played in this field. If we are to progress in solving our domestic and environmental problems, we must find ways to encourage and assist private defense and space industries to move in and capture a substantial share of nondefense, federal, and other types of government contracts. Some of these contracts unfortunately are nonexistent now, for we have not yet tackled some of our most urgent domestic problems in any significant way. But the men who decided that it would be a realistic role to design and construct Poseidon submarines to carry men under the ocean and fire missiles through the atmosphere to strike distant targets with incredible accuracy can also help figure out a feasible technical and scientific approach to controlling poisoning and pollution of the sea and the sky. Men who planned and executed our earth satellite orbiting moon landing can also master the technological side of mass-transit crises in urban America, and I disagree with those who say that this task is easier than putting a man on the moon--it isn't, it's tougher. NASA didn't face the problem of political subdivisions, divided jurisdiction, private interests and public pressure that we face in our cities. There weren't people by the millions, poor people and rich people, people with property and people with no property at all living on the paths to the moon who had to be persuaded not only to get out of the way but to go along for the ride. Together, however, those in industry and labor, in government and in politics can and must surmount these and other problems relating to the difficult unpredictable human equation--and that is far tougher than pure science, as you well know.

Those who serve in firms with defense and aerospace-contract experience can make a particularly important contribution by helping to improve federal contracting regulations, procurement regulations, and other administrative procedures, as the U.S. government approaches the time when it will be moving into some wholly new fields. I strongly support present DOD regulations and I will be testifying in their behalf shortly before the Armed Services Committee; they permit defense contractors to

charge as overhead on defense contracts a certain amount of independent research-and-development bid and proposal expenses together with other technical-cost efforts. These regulations were worked out by some of the best minds in government and industry, after years of trial and error, to encourage innovation and to increase competition. We need similar regulations by other agencies to encourage independent research, creativity, competition in present and impending areas of nondefense, non-space federal investment.

No official, however dedicated, can judge finally and definitely which research will pay off and which will not pay off. This is true whether the research is on a communication system for a spaceship or on a communication system for a city or state police force. This is true whether the research is funded by NASA or HUD or DOD or DOT. Let's encourage innovative approaches to all our problems, not just to some of them, as we seem to have done until now. If every research project had to be cleared by a bureaucrat we might still not have polio vaccine today. Dr. Jonas Salk told me when I was with him as he testified before the Committee that was considering the tax bill last year that he couldn't get a federal grant to cover research on his vaccine because the government thought he was going off in the wrong direction. If he had been totally dependent on government we might still have polio taking the lives of our children. We can all be grateful that a private foundation took a more favorable view of his work and advanced the necessary funds.

I also believe that procurement regulations on major non-defense items should be simplified and standardized to lessen the distinction between competing for Pentagon and other federal contracts. We need uniformity and most allowable standards and recognition of these standards by IRS.

The whole question of these dimensions of nondefense contracts cries out for serious study, and beyond study, action. Obviously, it is far more attractive and practical to bid on one two-billion dollar contract than it is to bid on many separate, five, ten or fifteen-million dollar contracts. Our federal, state, and local governments, along with the business community must develop a coordinated approach to the vital tasks of increasing the appeal, profits, and effectiveness of work related to our domestic needs. We urgently need, for example, improved police computer systems that can instantly analyze crime, detect patterns, and aid with officer placement. Our electronics industry has the capability to build the necessary system, but it makes little business sense for a firm to do all the required research if the hardware payoff at the end is merely the privilege of installing the system in one city. It would be much more attractive to bid in a contract sponsored by the Department of Justice to provide many major urban areas with the same system,

along with federal funding for some of the necessary research and production costs. One problem that I am devoting major attention to in Washington is seeking to bring about that approach. It could lead to truly significant breakthroughs in developing systems and services that local taxpayers and communities cannot now afford, and that industry cannot now afford to research and produce. It would mean great progress at long last in the preventive aspects of the war on crime.

Current conditions cry out for similar advances in airport control and safety--you know the hazards of flying nowadays--and in true innovations in hospital care with computers. There can be great progress and savings in medical care that is now so outrageously high, and we can make great forward steps in countless other areas where progress waits upon the application of federal leverage to utilize the abilities of defense and aerospace industries, the abilities of those who have been put out of work recently due to cutbacks, and the creative capacity of others who are maintained on the payroll but whose capabilities are not fully utilized under the present contract circumstances. I am eager to study every sound approach to putting our defense and space experience to work in ways responsive both to the legitimate needs of private industry and to the domestic progress that the public is demanding. I want to work effectively with you to put them into effect, and I look to you for advice and counsel to think through and spell out action based upon the concept that I am discussing with you.

New procedures and regulations, however, will do nothing unless we funnel substantial money into needed nondefense programs. The present sketchy, spotty system of grant contracts is piteously inadequate in the areas it touches and in many areas that it doesn't even touch. Only very heavy federal funding in areas that have been too long neglected will suffice. We must develop a formula for federal funding that will be based upon substantial centralized contract authority. An example of where this is needed is rapid transit, and I am leading the fight in the Senate and in Congress for far more money than is presently committed to that. Plainly, property owners cannot put up the money through bonds or otherwise to develop rapid transit adequately; plainly, 25-cent fares cannot finance or hope to finance what we need. The federal government has now come up with a program of \$3.1 billion over 5 years or more, which is totally inadequate. We need at least \$10 billion to begin with. I offered just such an amendment. We got 24 votes; we didn't have enough support from industry and from others who know we need that money to really get moving. Had we committed the \$10 billion we would be well on our way to a vast program needed in our cities, needed by those of you in this industry and perfectly suited to the capabilities of many of you.

I expect politicians to be judged in the years ahead on the willingness to face the issues of priorities head-on, and to make tough decisions about programming, budgeting, and taxing. There is a great deal of loose talk about spending on defense and space exploration and their effects on our failure to meet other pressing needs. The salient point, I think, was very aptly and acutely covered by a NASA official who was queried about sending people to the moon when we have among us more than ten million hungry Americans. He replied, "Lady, we wouldn't be going to the moon if not going to the moon meant that we would feed those hungry people, but it doesn't." I believe that we will meet our domestic needs only if they are shown to be complimentary not contradictory or competitive to our defense and space efforts. We will succeed in meeting and mastering those domestic needs only if we muster the will to meet them. When we realize that building a sound and solid society at home is just as important to our national security and our survival as our military strength, we will be on our way. It is now time for us to get moving, but it will require a substantial degree of the time and talent, of resources and dollars that have been committed to defense and aerospace.

This is not a partisan issue. President Nixon is joining Congress in cutting back the defense budget. He is heeding the country and pulling us back from Viet Nam. These budget reductions, reallocations really, must also occur if we are to win the war against inflation. In my opinion, the prime cause of the inflation that is devouring the value of our dollars lies in our pouring so many billions of dollars into defense and into Viet Nam--programs and efforts that do not produce goods or services that can be purchased by those who get their profits and salaries from those programs. I know that the severe inflation we are now suffering dates back precisely to the moment when we plunged into Viet Nam. I do not believe that the correct way to curb inflation is the Administration's prescription of tight money, curtailment of desperately needed programs like research in cancer and heart disease, and not putting enough money up for rapid transit, for air control or safety, for oceanographic exploration, for poison and pollution programs; it is not in programs and policies that discourage business investment and expansion and consequent increases in unemployment. I think that this is the wrong way to go. A sounder way would be to make a substantial switch with the emphasis going to government expenditures and peaceful and productive purposes, a switch that happily is now beginning but does not yet have the required emphasis that we must achieve.

The Viet Nam war, so costly to us in blood and treasure, has served at least one useful purpose: it has shattered some of our most cherished illusions about our role in the world and the nature of the threat hostile powers pose to our national security. The overall world situation has brought the lesson

of Viet Nam into sharper focus; the Soviet Union and the United States now have the capacity to destroy each other, as I said earlier, in a nuclear war, no matter who strikes first. It is unlikely that either side could ever develop an adequate first-strike capability, no matter how many billions were spent. Both sides have an interest in reaching serious agreement on arms limitations or at least in reciprocal moves not necessarily based upon binding agreements that actually lead to a situation where both sides can reduce their expenditures on advanced military hardware. It makes no sense for either side to pour billions into uneconomic weapons systems that don't produce more security, and in some instances really produce less.

The same holds true for weapons needed to fight a conventional war. The possibility of a conventional war between the Soviet Union and the United States is becoming more and more remote, and military planners on both sides are going to have an increasingly difficult time justifying new planes for war purposes, new tanks, or new ships. As you know, we have vast needs for more planes for domestic purposes, and again that fits into the capabilities of so many of you, but we are not developing airports and the air safety procedures that would enable the expansion that we should and could have if we were to meet our domestic needs on that front. Now that we have learned the folly of commitment to limited wars like Viet Nam, the only remaining justification of new conventional weapons might be to equip allies. But surely somebody in the Kremlin has noted that providing new planes and tanks to Arab nations is a singularly uneconomic use of Russian resources, and we are rapidly discovering the same thing to be true in other parts of the world.

All this is not to say that peace is about to break out like the cherry blossoms in Washington. The world and the men in it are too complicated and perhaps too perverse for that. We will in all probability be spending substantial sums on defense for many years to come. Certainly, as long as it is necessary we must maintain the capacity to defend ourselves against strongly armed potential foes, and here those of you in related industries have a tremendous responsibility for years to come. I assure you that I will do my part to see that we have what we need for assured defense, but I don't think it is unrealistic to assume that as we phase out of Viet Nam our defense budget will fall to around \$60 billion--accompanied by a rise, not a fall, in our prestige and in our power. Various knowledgeable sources make many estimates as to the size of the post-Viet Nam dividend, anywhere from 8 to 43 billion dollars. We could, of course, use the dividend to cut taxes and thus fuel a whole new boom in the domestic sector, but that would not bring us pure air and water and less noise,

nor better police and transportation and educational systems, better housing, better health care and new recreation opportunities.

I believe we will move to meet these needs. The American people are rapidly learning that pouring money into things that create urban and suburban slums, foul our air and water, is as uneconomic as building weapons we don't need. We are fast becoming less a nation of separate consumers and more a nation of united conservationists dedicated to improving the quality of the total environment that we share together. We are coming to realize that the solution to our domestic and environmental problem is as important to the quality of our lives as the creation of an international environment in which a secure peace can become a reality. In our lifetime, the sad fact is man has become a self-endangered species threatened with self-extinction. We are all in dire double jeopardy. We have developed the capacity not only to foul our own environment but also to destroy the human race with the weapons we have produced. Worse yet, we possess this combined ability before we have learned to control the dark and irrational impulses that spring from our clouded past.

However, our realization of this double jeopardy may be our salvation. We have somehow survived a very dangerous decade. We have learned a bit, we have matured a bit. Together we still have time, and the opportunity is there to be seized by those whose knowledge and skills--as training in defense and aerospace equips you--equip them to lead our society in a great technological assault on society's greatest plagues and problems. I am in that effort with you, and I believe that if we focus our ability and our skills and our talents wisely we can move in this direction and solve the problems that are plaguing you in this industry, plaguing all of our society, and plaguing all of mankind. Thank you.

DEPENDENCY OF THE CALIFORNIA ECONOMY ON THE AEROSPACE INDUSTRY

Kerry Napuk

Perhaps the talk this morning should be retitled. Instead of "Dependency of the California Economy on the Aerospace Industry," it should read "The Military Albatross Around California's Neck: What Happens When the Balloon Bursts?"

This morning we will look at how dependent the state is upon defense dollars, what might happen if that dependency is threatened and, more to the point, what can the state do about it, in view of economic and ideological considerations.

DEFENSE DEPENDENCY

Two leading journalists, in a timely book called "Scandal in the Pentagon," establish the dimensions of dependency problems thusly:

Fueled by huge and virtually uncontrolled appropriations that constitute the lion's share of the federal budget, defense contractors have assumed a dominant role in the nation's economy. Lured by almost limitless public subsidies, many of the country's best scientific minds have been persuaded to devote their time and talent to the development of new devices of death and destruction. Encouraged by the easy availability of government grants, universities have lent their faculties and facilities to programs of military research. Seduced by the expanding payrolls of defense-related industries, labor leaders have acquiesced willingly--cheerfully--in the headlong militarization of American society. Supported by a people searching frantically for 'security' in an age of constant nuclear danger, the military have steadily extended their power within the Federal Government and their influence in the body politic, exercising increasing jurisdiction even in such traditionally civilian preserves as the formulation of foreign and domestic policy.

These, then, are the parameters of impact: employment, community growth, politics, personal freedom, university life, scientific inquiry and national priorities. All these have been shaped, one way or another, by defense spending. Even though most of these issues are exceedingly important and raise crucial questions, we will content ourselves to discussing the economic aspects today. Among these, employment dependency and what can be done about it is of paramount importance.

During the last fiscal year, about \$77 billion dollars were 11
spent by the Defense Department. This military budget is larger
than that of any other nation spent on war. In fact, it is larger
than the total Gross National Product of all but eight countries in
the world. As might be expected, its impact on employment is great.
Defense is the nation's largest industry and biggest employer, accounting
for one job in every nine. If you add nearly 4 million servicemen
and women to 1.3 million Defense Department employees and 3.8 million
workers on payrolls of the top 100,000 defense-related firms and
consider the families of these workers, nearly one-fifth of our
total population depends directly or indirectly on the military
establishment for their livelihood.

Some states are more dependent than others. While the defense
budget represented 10 percent of Gross National Product, it produced
more than 20 percent of personal income in Connecticut and almost 30
percent in Alaska. More than half of all defense dollars went to
ten states: California, Texas, New York, Connecticut, Pennsylvania,
Ohio, Virginia, Massachusetts, Georgia, and Missouri.

Let's look at the number one state on that list--California. In
1967, California with 10 percent of the people had 18 percent of
defense contracts worth \$6.7 billion. Moreover, California grabbed
one-third of all research and development, the most profitable of
defense business, which totaled nearly \$2 billion. Almost one-third
of California's defense business went for missile and space systems
(\$2.1 billion), while one-seventh went for aircraft (\$1.0 billion)
and another seventh for electronics and communication equipment
(\$1.0 billion). The next largest category was ships for 7 percent
and almost \$500 million.

Of more interest, California missile and space system contracts
were 46 percent of the U.S. total, military building supplies were 38
percent, petroleum was 21 percent, electronics were 21 percent, and
ships were 20 percent. Surprisingly, only 10 percent of all aircraft
contracts ended up in California.

The biggest defense contractor was Lockheed. Between 1961 and
1967, Lockheed was awarded \$10.62 billion in contracts, which
represented 88 percent of all its business. Lockheed received \$709
million for R&D, with \$150 million going to California plants. Other
companies with more than \$100 million in R&D flowing into California
were McDonnell Douglas, North American, and Hughes.

Space contracts further increased federal dependency in
California. North American received almost \$1 billion in 1966, one-
fourth of all NASA awards, McDonnell Douglas accounted for \$244
million, followed by Aerojet-General with almost \$100 million.

As would be expected, there are indications that California has pulled scientists to the state in disproportionate numbers to its population. An incomplete survey by the National Science Foundation in 1966 found California with 27,641 scientists or 11.4 percent of the U.S. total. But, this state accounted for almost 16 percent of all mathematicians and statisticians, 15 percent of all physicists, 13 percent of all psychologists and 12 percent of all earth scientists. One easily could expect similar figures for engineers to show an even greater magnetic attraction.

Employment: While only 9.9 percent of all manufacturing workers in the United States were employed in defense-aerospace industries (aircraft, electronics, instruments, and ordnance), 37.4 percent of California's manufacturing workers were so dependent in 1966. Put another way, four times as many workers in California are employed in defense-related activities than the country's average. Moreover, there are strong indications that California's dependency is increasing. From 1965 through 1967, three out of every five new manufacturing jobs were in defense-aerospace. More recently, from 1966 to 1967, four out of every five new manufacturing jobs were in this group. This ratio increased as a direct result of the Vietnam escalation.

How many Californians depend on defense spending for their livelihoods? A legislative study, entitled "The Impact of Federal Spending in California," came to the following conclusions using 1963 figures:

Directly employed by the federal government in California are some 266,000 civilians and 320,000 military personnel. Another 484,000 Californians work in space and defense related industries and military institutions which derive 95 percent of their business from the federal government. Thus, approximately 1,060,000 California residents are on the federal payroll, either directly or through contractual arrangements. This accounts for more than 20 percent of all nonagricultural workers in the state. And the federal impact goes further. Every federally supported job generates other jobs in service and support functions. Some economists estimate that as many as one-half of all jobs in California are attributable to defense and space activities.

Our estimates prepared for the Joint Economic Conversion Committee were 964,000 jobs or 15 percent of the state's total employment of 6.4 million people in 1967. In addition, indirect employment generated by spending of these 964,000 workers created

another 500,000 to 1,000,000 jobs. When the families of these workers are considered, more than one-fifth of California's population depends on the continued flow of defense dollars into California.

Problem Areas: We anticipate between 128,000 and 156,000 jobs will be threatened with a cessation of hostilities in Vietnam. Also, some 80,000 servicemen are expected to return to the state and re-enter the labor market. If these estimates hold true, more than 200,000 fully employable workers will be seeking work. This could result in a sixty-percent increase in the state's jobless rate.

Particularly hard hit will be the quarter of a million employees at defense installations throughout the state. Eighty-two military installations comprise another major industry. The following counties are vulnerable: Alameda with four installations; Los Angeles with nine; Monterey with four; Orange with four; San Bernardino with five; San Diego with seventeen; San Francisco with five; Solano with four; and Ventura with four.

Much more attention should be devoted to understanding the economic impact of these installations, because they often are located in rural areas which have smaller employment bases than urban areas and, therefore, can be hurt more.

During fiscal 1968, four of the top ten defense contractors had many plants in California. The leader, General Dynamics, with \$2.2 billion in defense contracts, had 6 California plants. Lockheed, number two in the nation with \$1.9 billion in defense business, had 5 plants; McDonnell Douglas, with \$1.1 billion in defense awards, had 6 plants, and North American Rockwell with \$700 million had 5 plants. Fluctuations in the fortunes of warfare over war contracts literally can add or subtract points on California's unemployment index because major defense contractors have so many of their plants in this state.

Five geographical areas of the state are most vulnerable and accounted for 93 percent of all defense-aerospace employment. They were: Los Angeles-Long Beach with more than half of the state's defense employment and with seven of every ten new manufacturing jobs in defense; Santa Clara County with 70,500 defense jobs and four of every five new manufacturing jobs in defense; Anaheim-Santa Ana-Garden Grove with 72,900 defense workers and three out of every four new jobs in defense; San Diego County with seven out of ten new manufacturing jobs in defense and the greatest dependency on military installations; and San Francisco-Oakland with 20,500 jobs traced to Vietnam activities, especially on the waterfront, and major defense installations constantly threatened.

Because California gets most of the defense action, it also inherits more potential problems; disproportionate dependency is evidenced in many different ways. For example, with 10 percent of the population, California accounts for 17 percent of all U.S. defense-generated employment and 13.5 percent of all military personnel (June 1966). California accounts for almost 26 percent of all employment generated by defense subcontracts. And so on and so on.

Capital: Nobody has attempted to calculate the investment in defense activities throughout California. My guess would be that it ranges between 30 and 50 billion dollars when land and buildings and equipment are considered. Some 82 military installations and 98 major private defense plants represent a monstrous investment of public and private capital.

Growth: Considering California's position, it is not surprising that its postwar economic development was, and still is, tied directly to defense-aerospace. Witness Assemblyman Crown's concern in his introduction to an important legislative report:

The prospect of a decline, or even a leveling off, of federal defense and space expenditures in California poses serious questions for the state's continued economic growth. For it is clear that this growth in recent years has been largely dependent upon federal government spending.... In the past decade (1953-1963), defense spending in California has risen 57 percent to keep pace roughly with the state's population growth of 50 percent. The federal government is, in fact, the largest single employer within the state. Moreover, over one-third of all manufacturing employees work in space and defense industries which operate almost wholly under federal contract. Obviously, any change in federal spending habits would deeply affect the California economy.

While many people point to agriculture--with about \$3.8 billion in sales--as the state's leading industry, defense-aerospace produces twice the revenues. Clearly, the state's past and future depends on defense. But, what will that future bring?

WHO CARES?

So, we have an industry representing, say, \$50 billion invested capital, bringing in \$6.7 billion a year in sales and another \$1.3 billion in profits, employing about one million people and providing the backbone of the state economy.

Everybody in this room knows how dependent California is on defense dollars. Nobody will challenge the overriding importance of this industry. But, who cares? Where is the concern over the nature of such dependency? Where is the courage to recognize the problem and the motivation to do something about it? Assemblyman John Burton holds economic conversion hearings in San Francisco and Los Angeles, but only one other committee member bothers to attend.

Defense related firms are threatened by Vietnam dislocations and a \$5.1 billion cutback in the defense budget, but where is management's concern? Only one representative, Dr. Harry Biederman of Lockheed, even bothered to show up at the recent legislative hearings.

The federal government probably pours \$15 billion a year into California including defense and space contracts and transfer payments, but where is the federal concern?

Arms Control and Disarmament, charged with responsibility for impact studies, turned down a Burton request for \$70,000 in federal funds to study California's problems and prepare contingency plans. No representative from the Department of Defense's Office of Economic Adjustment considered the recent hearings important enough to attend.

Here is Burton's proposal that seeks to study a basic, pressing economic problem. Here is a study that goes far beyond mere research to present clearly elucidated and carefully developed strategies to deal with a real problem. Here is a Joint Committee that is working on a crucial problem affecting one-fifth of its citizenry. Here is an attempt to initiate local action before federal effort.

But, where is the national concern over defense dependency? Where is the will to even find out how serious the problem is?

As incredulous as it may seem, the problem appears too enormous to consider, let alone confront. What other explanation could there be for so little concern and certainly no plans for problems created if peace really broke out?

When I visited the nation's capitol last June, I was stunned to discover that less than \$200,000 was allocated out of a 200 billion-plus budget to prepare for economic problems of peace. The Defense Department had eliminated its meager \$600,000 allocation for impact studies, while the Arms Control Agency had its economic impact research funds sheared to \$110,000. Is this any way to approach the problems created by an \$80 billion a year institution called the Pentagon?

One witness at the San Francisco hearings alluded to a recent 16
conversation he had with a ranking economist in Washington, who sits
on President Nixon's post-Vietnam Impact Council. Well, this economist,
who shall go unnamed--as do most Washington news sources--told the
witness that no specific plans had been made for readjustment after
Vietnam, even though the Nixon Administration is actively de-escalating
our involvement and pursuing an armistice in Paris! What insanity!
How can you talk peace when you do not take it seriously enough to
plan for a smooth transition? Does anyone believe that two million
returning servicemen and spending cuts of \$15 to \$30 billion a year
won't present some problems? Who's kidding who?

We have to face certain realities. The most crucial is this
lack of concern. No one wants to know the extent of the problem.
Perhaps people fear that once the problem is known answers will have to
be found. These answers will tax the most enlightened of our
legislators and will strike a raw nerve in many corporate headquarters.
These answers will upset our views about the social and economic system
in which we function. These answers will be hard to swallow because
we are past the point for a few, isolated economic bromides. But,
the answers must be found if we are to respond to the problems in a
planned, rational manner and not to be panicked by economic pressures
into half-thought reactions.

SOME ECONOMIC CONSIDERATIONS

This very event, a conference on economic problems facing
defense-related employees, is a step in the right direction. Those
vitaly affected by a problem should be the first to call attention
to the crisis. You must admit there is something wrong and then try
to convince your fellow workers and other workers that action is
needed.

But, you should be aware of certain things. These economic
considerations may seem a little far afield to you, but they are
important from political viewpoints.

First, who is responsible? Several national administrations--
and neither party has a claim on virtue--have declared defense a
national goal, that security is a social cost to be borne by taxpayers
for the common good. Managements and workers have responded by laying
aside fairly safe civilian products and occupations to meet this national
need. If this need changes and causes dislocations, the social costs
involved in economic dislocations must and rightly should be borne by
the seducing party--the federal government. This argument must be
made, and it must be accepted if the right party is to acknowledge its
real responsibility. In plain words, the federal government created
the dependency and is responsible for all parties injured in the

process of meeting the national need which caused the dependency in 17
the first place.

Second, management cannot evade all responsibility. Management owes its employees some economic security. Managements have not fought for employee security with government representatives. In fact, most defense managements have copped out by pointing to contract cancellations as justification for layoffs and plant closings. As long as profits run 70 percent higher, on the average, in defense firms compared to nondefense firms, as long as a firm like Boeing can earn 21 percent profit AFTER TAXES on the Minuteman missile, as long as competitive-bidding protection for taxpayers applies to only 12 percent of Pentagon contracts, and as long as overruns average 200 percent, management cannot plead poverty and irresponsibility. Let us all understand and recognize that fact.

Third, the professionals of aerospace--the scientists and engineers--have to share some of the blame for their misfortune. They have failed to organize and collectively to secure economic protection. For the sake of some pride and allusion to professionalism, they have allowed themselves to become the pawns in the game. They are the last ones to be considered, but they are the first to suffer. They have buckled to industry demands for specialized education, making them dependent solely on aerospace employment. They have let companies break down their occupational skills until an experienced technician must return to school to qualify for reemployment in nondefense work. They have let the government and their employers off the hook.

Fourth, state administrations have evaded their responsibility. Some administrations, like the present one in Sacramento, have ignored the problem, refusing to acknowledge that it even exists. Witness the testimony of representatives from the State Department of Commerce at the Burton Hearings to the effect that the state is not dependent on defense and that no dislocations will occur after a Vietnam peace. They have recognized, however, that the state would be better off with more nondefense industry. So, they have directed their five-man industry promotion department to keep a sharp eye out for nondefense plants. While past state leaders have sacrificed California's economic balance to attract, by whatever means necessary, defense industry for growth, others shrug the responsibility by passing the buck to the federal government, claiming the state is impotent. Creative leadership concerned with real problems will find a definite role for state and local government.

Fifth, who really thinks that all firms prosper from defense spending? A leading economist in the Nixon Administration, Dr. Arthur Burns, of the Chicago school and now chairman of the Federal Reserve Board, who is not known for his radicalism, has stated:

If the defense sector has stimulated economic development in some directions, it has retarded growth in others.
Many civilian-oriented laboratories or business firms have

found it difficult to match the salaries or the equipment that subsidized defense firms offer to scientists and engineers. Research and development work in behalf of new products and processes for the civilian economy has therefore been handicapped. Small firms have derived little benefit from military or space contracts.

Sixth, who seriously considers defense spending to be healthy or productive? To quote again leading conservative economist, Dr. Burns, from a 1967 lecture at New York University:

The military-industrial complex has drained needed manpower from the nation's work force and has led to the rise of a "new class" of business executives...men whose understanding of marketing and cost controls is often deficient, but who know how to negotiate effectively with government officials. Moreover, unlike investments in education or new factories, expenditures for weapons add nothing to the nation's capacity to produce.

Guns, ammunition and bombs are not productive goods, but rather are consumables that possess no productive ability.

Consider, for a moment, what our Gross National Product and per capita income would be if the \$1.25 trillion dollars spent on defense outlays since World War II had been spent instead on plant and equipment. What about the impact from the \$551 billion spent between 1959 and 1968? All our known social problems today, including environmental pollution, education, poverty, inadequate health, urban sprawl, mass transit, and anything else you could name, could have been solved or nearly solved if that money were allocated to people instead of national "security." There are some basic questions about values that allow such a misallocation of national resources.

Seventh, defense outlays are inflationary and lead to instability in our economy and lack of faith in the dollar. Louis Stone, an economist for a leading securities firm, expresses this concept as follows:

When money is spent for productive purposes, theoretically there is just as much supply created as demand; when the money is spent for war...no marketable supply is created to offset the demand side of the equation, and the result is a bidding up of prices.... For example, Mr. Jones who builds washing machines and Mr. Smith who builds bombs for the Air Force both earn \$200 a week. But neither uses his income to buy bombs and both need washing machines. Result: Washing machine prices are bid up as the supply of funds available to buy washers grows much more rapidly than the supply of machines.

A similar competition occurs among firms for resources, such as 19
raw materials, machines, and manpower, and defense firms usually win
because they are subsidized through contracts and can thereby pay more,
and because they can always get "national" priorities from their sponsor,
the federal government. In this way, the "free" market place cannot
function in a free manner, which means it fails to allocate resources
along laissez faire lines. Perhaps our economic political conservatives
would be distressed at this news if they are not tied to lucrative
defense common stocks.

For the President to come on national television and tell the
American people, with a straight face, that \$1.9 billion additional funds
for health, education, and welfare would be inflationary, when that
same man directs a war effort costing \$30 billion a year which is
maddeningly inflationary, is simply incredible. Our price stability of
1.5 percent increase per year between 1960 and 1965 was unmatched in the
western world. But in mid-1965, coincidentally the time when President
Johnson embarked on the Vietnamese War, our price stability went whacky,
and it has stayed wild since then. There is only one major explanation--
mounting defense expenditures competing with nondefense work at home.
In addition, the balance of payments crisis, affecting international
faith in the dollar, is being fueled by the same culprit--the Vietnam
War. It is about time the American people realize the cost of this
war--in terms of human life, in terms of wasted national resources, in
terms of inflation, in terms of social dislocation, and in terms of taxes.

Eighth, it should be recognized that there are vested interests
in maintaining the status quo and there always will be. The four key
congressional defense committees are staffed by southern congressmen
who are returned to power in election after election because they
run in one-party districts. These four are aging men, not enamored with
the elan of youth. These four men, as would be expected, are well
rewarded for loyalty to the defense establishment, as defense
installations and private defense firms within their districts attest.
Private companies keep that military-defense department link well
greased. In fact, the top 10 defense contractors who enjoyed \$9.5
billion in defense business during fiscal 1968, or one-fourth of all
contracts, also employed 1,065 retired high-ranking military officers.
Lockheed with \$1.9 billion employed 210 senior retired military
personnel; General Dynamics employed 113 ex-officers but received \$2.2
billion in contracts, so their ex-officers were more productive than
Lockheed's; Boeing has \$762 million in contracts and 169 ex-military
men; McDonnell Douglas had \$1.1 billion and 141 ex-officers; and North
American Rockwell had \$669 million and 104 ex-officers. This
phenomenon is not surprising when you realize that less than 12 percent
of all defense contracts are competitive and awarded to the lowest
bidder.

Ninth, private enterprise is stifled by defense business, and
undue political influence misshapes national priorities and allocation
of national resources. Use of military personnel, retired but still
in possession of active contacts, can hardly be considered free enter-
prise. Further, limited cost competition is not conducive to

efficient production or cost effectiveness of taxpayer dollars. And when the Pentagon employs 339 people and spends \$4 million a year solely on lobbying at Capitol Hill, it is bound to have some political influence. Another \$7 million is available for public relations and the media to influence the public. All in all, then, the Pentagon maintains the largest single lobby effort in the United States. Add the lobby of private defense contractors and you have an overwhelming political force that shapes our national priorities and application of resources.

Tenth and finally, this notion that America needs a war and a defense industry to keep the economy going must be dispelled. We have seen that the defense budget causes inflation, attracts a disproportionate number of scientists and engineers, does not produce goods that add to the nation's productive capacity--yet this notion still persists. It has acquired mythical proportions. If the truth be known, this is not a free-enterprise nor a pure capitalistic economic system. Rather, we live and function in a mixed economy that depends on governmental spending for one-third of its gross national product. The federal government alone spends \$200 billion a year, of which \$80 billion is spent on defense. The private sector is underpinned by that enormous defense allocation. But, could not companies be supported to cleanse the environment, end urban sprawl, eliminate starvation, end illness and disease and perform other technological wonders to improve the quality of life on this earth? Of course they could if they were directed toward these ends. Industry has boasted about its systems approach developed in aerospace and its ability to do something about big social problems. But, nobody has let a \$1 billion contract to develop a clean automobile engine, which would prove or disprove that ability. So, the question in a mixed economy is not whether it is free enterprise, capitalistic or socialistic, but rather what kind of government subsector do we want. Will it be one producing unproductive goods for destruction or one producing goods to better human life, not destroy it. Either one is possible, if we have the will, as a people, to demand it.

WHAT DO WE MEAN BY CONVERSION

The figures and economic considerations discussed earlier provide some dimension to the problem. The problem is dependency on defense dollars from outside the state, which are constantly affected by international relations and pressures and politics in the national capitol. The problem also lies in the type of dependency--one of which is so specialized that it can perform only one type of work. If the dollars stopped flowing, many companies would suffer drastic cutbacks and some would even fail. Because the work is so specialized, we have developed a specialized labor force that is highly mobile and moves from contract to contract not unlike migratory farm workers move from crop to crop. This has a number of ramifications: First, more professionals are affected than in other industries because,

as early as 1964, nearly 53 percent of all space and defense workers were classified as white-collar compared to 28 percent in all other manufacturing categories combined. Second, salaries and wages averaged higher than pay in other manufacturing jobs; therefore job losses in space and defense have a more pronounced impact than like numbers of job losses in other industries. Third, occupational changes have occurred over time, making transferability of skills nonexistent in many cases. 21

It may well require a massive reeducation program to make many of these professional and highly skilled workers employable in nondefense work. Moreover, it would require an expansion in nondefense work, which may or may not be available. California's expansion was tied to aerospace and still depends on aerospace. The state has failed to diversify its industrial base to the extent that it would be insulated from an economic downswing, a severe recession, and possibly a depression.

While the most immediate problem is dislocation from a Vietnam settlement and from legions of returning servicemen, the long-range problem--the real conversion issue--is altering the industrial mix which would permit future growth to be more evenly balanced. The long-run solution to defense dependency, then, is to lessen that dependency.

THE OUTLOOK AND SOME RECOMMENDATIONS

It would be remiss on my part to tell you what is wrong without offering some concrete proposals to alleviate the problems. However, much of what will be done, if the will to act exists, depends on prevailing sentiment. The outlook of defense officials and aerospace management is not encouraging for new approaches to old problems, nor does the state administration offer much hope.

Regarding the national administration, one is left with the horrible thought that it will be "business as usual." The new Secretary of Defense does not appear to be disposed to convert defense firms to nondefense activities. The President does not appear to be taking economic preparation for a Vietnam peace very seriously. Finally, the governor of this state has not officially recognized that there even is a problem.

Industry apparently is not upset by recent developments. If the outlook of the electronics industry is any indication, most defense-related firms are not worried. In a study of the "Post Vietnam Defense and Space Market Environment," the Electronics Industries Association concluded in 1968 that arms control agreements "during the next decade are unlikely," that the "likelihood of limited war will increase," and that "thus for the electronics firms the outlook is good in spite of the end of hostilities in Vietnam." Further, many

industry people are banking on an end to Vietnam for the release of research and development funds because demand for conventional weaponry will disappear. This is the main problem, because as long as the money looks like it will continue to flow nobody will get concerned. Without concern for the future, no defense-related firm will plan for conversion and/or diversification. That fear of the future is not evident.

Of all policy decision-making areas, legislative chambers are the most hopeful. Senate leadership in Washington has focused on military shortcomings and, more important, has discussed national priorities and reallocation of federal resources. At the state level, Assemblyman John Burton has waged a single-handed effort to gain public attention and galvanize public concern. For a single legislator's efforts, as this very conference demonstrates, he has been effective.

But, it will take much more effort on the part of legislators, public administrators, and the public. Efforts only flow from concern and worry. At this point in time, the public does not realize there is a problem. The reason for this, I believe, is that dislocations, especially plant closings, have occurred over time and, for the most part, were scattered throughout the country. Like animals in a herd, one is downed by gunfire but the others continue to feed because it has not happened to them. Much the same way, communities were lulled into a false sense of security until it happened to them. In effect, then, no postwar crisis has occurred because no mass terminations and closings were ordered. As we are creatures of experience, especially equipped with ephemeral memories, we do not remember the trouble caused years ago.

The most sensible solution to dependency is a gradual phase-out of federal support, replaced by industry conversion and/or diversification subsidized by federal funds, including additional contracts for social problems, and then massive reallocation of national resources.

There are a number of things that could be done:

First, and hopefully, a study will be made of the problem, and legislative and policy recommendations will be made. Burton's proposal, developed by Scientific Analysis Corporation, will perform that task. It represents the first comprehensive attempt at the state level to evaluate economic dependency on defense spending and to plan legislative responses if that dependency relationship is altered. A set of strategies will be developed to assist legislators in making a rational and logical response to economic dislocation fostered by declining defense spending. This study deserves your endorsement and support. It should be submitted to the U.S. Department of Labor within a week.

Second, after documenting the problem, a legislative package should evolve. The primary emphasis of this legislation should be softening the impact on workers, including such measures as guarantees of mortgage payments, moving expenses, increased job-locational assistance, abundant and relevant retraining, and other assorted assistance programs. Scientists and engineers should be provided with an educational assistance program, allowing them to return to school if their skills are not readily transferable to nondefense work.

Third, a new state agency should be formed to handle emergency problems affecting 100 or more workers. This agency should have the authority to administer aid on an individual basis, regardless of what state department is involved. This agency should coordinate all federal and state efforts for reemployment of dismissed workers, including operation of a national network of job openings in defense industries. This agency should be funded by a special tax on all defense prime contracts flowing into the state. If one percent, or one cent on the dollar, were allocated to this agency, some \$67 million a year would be raised in appropriations. This agency also would operate an active research section, which would continually gather employment data, make predictions, and provide essential information for legislative and administrative action. This agency, then, would function as a permanent Commission on Economic Conversion.

Fourth, a state economic development plan should be implemented as soon as possible. One major consideration would be to attract more nondefense industry to the state, which would dilute the dependency on defense. An effective state plan also would seek to locate plants fairly evenly throughout the state, avoiding congestion and a magnification of potential problems.

Fifth, the state should test the claim that system approaches developed in aerospace could be utilized to deal with pressing social problems. A major test, using millions of dollars, should be undertaken to prove or disprove this claim. Prior experiments under the Brown Administration were wholly inadequate. A possible test would be the award of a \$10 million contract to develop a pollution-free engine to replace the internal combustion engine. State funds could be diverted for this purpose. If it proved successful, California again would have led the way for federal involvement.

Sixth, industry dependency on defense spending should be actively encouraged to plan for conversion and/or diversification. Some incentives could be provided to plan for this transition, and the carrot at the end of the road could be state contracts to solve state problems. While the state cannot compete with the federal government on the same scale, it could make a start in the right direction.

Seventh, a change in attitudes is needed. The state administration and legislature should recognize the problem for what it is and act accordingly. The federal government should be pressed to acknowledge its responsibility and provide funds, as social costs, to assist dislocated workers and disrupted companies. Part of the planned \$10 billion cut in defense budgets by fiscal 1971 should be set aside to assist the 1.25 million workers expected to lose their jobs.

Eighth, the defense contractors, assisted by state and federal governments, must be encouraged to increase the economic security of their employees. Adequate severance and pension plans should be established. Administrative disruptions, such as proving manpower capabilities before contracts are awarded, should be eliminated. Management and government must become aware that employment instability and insecurity is not healthy and can be minimized with proper planning.

Ninth, the state should press the federal government to adopt a conversion plan, as recently recommended by Walter Reuther. Senator McGovern's bill to establish a national commission on economic conversion, Senate Bill Number 1285, should be enacted. A national mechanism should be established to parallel the state agency discussed earlier. This national agency would act along similar lines and would have a governing board representing management and labor from affected firms. Rather than financing this agency from after-tax profits of private contractors, I would recommend that a percentage of each defense contract be set aside for employee technical-adjustment payments and other dislocation assistance. This would assure more funds, which would be easier to collect and administer. In addition, it would label these dislocations as social costs to be borne the same way defense expenditures were accepted.

Tenth, and really the most important, a national reordering of priorities is needed. We must realize that the price we paid for the illusion of national security was too much. Or, as the authors of "Scandal in the Pentagon" have expressed it:

The distortion of national priorities, the neglect of pressing social needs, the concentration of corporate power, the growing dependency of millions of Americans on the military-industrial complex, the erosion of liberty, the intrusion of the military into areas that have been and should be under civilian control--all these might be regarded as part of the price America must pay for survival in a dangerous age; they have, indeed, been routinely rationalized on just those terms by the supporters of the military establishment.... Such astronomical military expenditures (\$1.25 trillion since the end of World War II) might be justifiable, or at least more acceptable, if they had done what they were supposed to do: purchase "security" for the people of the United States. Obviously, they have done no such

thing. Although it has been estimated that the United States and the Soviet Union have accumulated the equivalent of fifteen tons of high explosives for every human being on the face of the earth, though each of the superpowers now possesses the nuclear potential to obliterate its rival several times over, the goal of "security" is as elusive as it was at the outset of the frantic arms race.

This is the real tragedy. All of those funds expended in the past are not recoverable, nor were they productive. Rather, there is every indication that they were counter-productive because they starved the public nondefense sector where increasing social problems have disrupted and terrified the domestic scene. Are we to continue this incredible situation? Will we produce more and more new weapon systems while our inner cities burn to the ground?

About 55 cents of every appropriated dollar of federal expenditure was paying for current military costs, another 20 cents was spent for past and future wars including veterans' benefits and interest on war-incurred debt--making 75 cents of every federal dollar traced to defense. On a per capita basis, each man, woman, and child was assessed \$400 a year for military "necessities," an increase of 60 percent in each citizen's bill during the last five years.

Compare that \$400 per capita figure to Senator Fulbright's statement that "less than \$39 per capita is being invested by the Federal Government in the education and training of our citizens, about one-tenth the amount going to the military." Fulbright felt that this wasn't "an accurate reflection of the real desires of the American people, but it does reflect the present distribution of power among the bureaucracies of Washington."

Such an ordering of priorities is based upon twisted values. These values must change before any reordering is possible. And, the reordering of priorities must occur before real conversion can transpire. At key is the will of the American people and their desire to force changes, to redistribute power and to initiate new commitments.

Each journey begins with that first small step. We, hopefully, have begun that journey today. The question now is whether we keep our heads buried in the sands of ignorance or whether we lift our sights to the sun and confront reality.

THE CHANGING ECONOMIC STATUS OF DEFENSE EMPLOYEES
INCOME AND EMPLOYMENT OPPORTUNITIES

J. Morley English

The title that was suggested for my talk was "The Changing Economic Status of Defense Employees - Income and Employment Opportunities." I thought long and hard on how I could best orient my talk towards the question which is uppermost in the minds of you people here. As I see the problem, it is essentially concerned with the effect of transition, change, or cutback in the defense and aerospace industries, particularly as it relates to California.

I think one of the things that was brought out by the last speaker, and which I sensed reflected a feeling that permeates the group, was whether a serious cutback or transition is really necessary. Certainly, from the point of view of the person who is about to be laid off as a result of a cutback in employment, there is a question whether it is all very necessary. Still, whether or not we as a society are really focusing on the right priorities is always going to be a question for debate. However, there is an interesting phenomenon which I have noticed on many other occasions over the years. The American public has a tendency to shift attitudes rather quickly, and such change is not necessarily triggered by crisis. As one of the gentlemen here observed, crisis is the thing that causes people to make changes, and I am inclined to agree with him in large part. Nevertheless, there are other situations where we can look back and see how our attitudes have changed very dramatically and very quickly. The institution of the space program, for example, triggered perhaps by Sputnik, launched a whole series of activities in the aerospace industry that has carried through the past decade. And now, apparently, we are suddenly concerned with ecology--the problem of the quality of our environment.

This, of course, is a problem with which many people have been concerned for a long time. But there has not been any drama associated with it and so people have tended to ignore it. Today my feeling is that the problem of the environment is probably a genuine shift in sentiment and that the decade of the seventies is going to see a tremendous emphasis on this problem. I may be wrong, of course, and this concern may be a flash-in-the-pan that will not be sustained. But I suspect very strongly that there will be a genuine emphasis on improving the quality of our life. I really don't think that this was necessarily triggered by a realization of a crisis, although a crisis may be in the offing. Hopefully we may be able to refocus our attention on problems without crisis,

and hopefully to the extent that human knowledge keeps expanding over the ages we should be able to anticipate more and more problems that we are going to face.

If we are going to focus our interest and attentions on improving the quality of our lives, we must sacrifice something else that we have been doing. Our economy for 10 years, in fact ever since World War II, has been operating at a pretty high level. There have been some minor recessions, but essentially they were negligible. We have been going full blast. And now we are going to allocate a lot of our resources to the quality of environment. Furthermore, it is a foregone conclusion that we cannot direct all of our efforts to one thing without cutting back on others. So, without a doubt, this new aspiration for a better environment means that there will be cutbacks in something else, and that something else is undoubtedly going to be space and defense-related industries. This means that there is going to be a transition of jobs for people now working in the aerospace industry into jobs pertaining to ecology. This we can take as axiomatic.

Actually, all during the past 20 years the aerospace industry and the defense-oriented industry have been concerned with some rather violent ups and downs, but these have been largely localized. One company gets a contract for a big new program and is immediately off and running on a hiring program while another company is cutting back. This has tended to balance out the overall employment and the disturbances have not been particularly great, even following the Korean war. During all of this time the emphasis on defense as a needed part of our economy was fairly significant. There weren't really any big cutbacks. Some people are of the opinion that at the conclusion of the Viet Nam war this may also be the situation, but this remains to be seen. I myself think not so much that we need less defense, which is a debatable point, but that we are going in any event to put our emphasis on the quality of the environment.

Going back and thinking a little about what this industry was confronted with following World War II, I recall my own experience at that time. I happened to be associated with the Lockheed Corporation. It was during the war years but at the tail end of the war, when it became apparent the war was going to be concluded and there would have to be a transition from the tremendous economic activity associated with the war effort into something else. At that time the Lockheed management was quite concerned about the problem of transition and its effect on the survival of the company. Management was considering all sorts of alternatives. In fact, I happened to be associated with a committee that was set up to look at this problem of reconversion to peace-time activities. The sum

and substance of that particular exercise was a feeling of helplessness that there was so little that could be done. Nobody faced up to the problem until the crisis occurred. It is interesting also to remember that the level of employment at the peak of World War II in the industry and the level of employment a few years later before the pickup occurred in the Korean war had dramatically changed. It is my recollection that Lockheed, for example, had something like 96,000 employees in 1944-45, and that it went down to somewhere near 12,000 to 13,000 employees at the low, roughly one-eighth of what its work force had been.

The transition that we were confronted with as a nation at that time may have looked much more frightening than the transition we are facing now. In the first place, the transition was from an allocation of close to half of our GNP for defense in one form or another, depending on how one had arrived at it, to something we felt would be a reasonable defense level in the post-war period. Our naive approach at that time was that once the war was over, all the necessity for defense would evaporate. Obviously, it didn't; indeed it may have reached a point of overcompensation. Nevertheless, we were essentially facing a transition from an effort that represented a very high percentage of GNP to one that represented a smaller percentage of GNP, but today the defense budget, even with Viet Nam, is really a very small percentage of GNP. Also, the transition that might occur today from the standpoint of the gross economy of the state of California is much less than it was back in the post World War II days. The concern about the economic chaos that might have resulted following World War II may have been appropriate at that time. Interestingly, the reality of what happened surprised everybody; we didn't have economic chaos following the war. We made this transition from a defense-oriented activity to a peacetime activity remarkably smoothly, much smoother than, I think, anybody would have prognosticated at the time.

Today we are confronted with a situation where we have a defense budget which is in the order of 8 or 9 percent of our GNP, let's say 10 percent to be on the liberal side; a relatively negligible portion of the total GNP is represented by the Viet Nam war. So, if the Viet Nam war were to be concluded right away, we are talking about a 2 to 4 percent change in our defense budget at the most. This is very small. However, we in California are much more subject to the effects of this than the nation as a whole.

Perhaps one of the reasons that the transition was so smooth following World War II was the fact that there was a tremendous pent-up demand for consumer goods, essentially hardware items, toasters, automobiles and the like. There was a demand for housing too, due to an extremely acute shortage at that time. Further,

the financial and monetary situation was rather conducive to a rapid transition; people had built up large savings accounts since there had been nothing to spend their money on during the war. Prices were controlled rather rigidly and this induced savings that provided large credit balances that were immediately available for expansion in the industry necessary to provide consumer goods. Today we are talking about a transition from a defense-oriented activity to a quality-of-life oriented activity.

While the magnitude of the problem that I have just described appears not to be so great, there are certain similarities and certain dissimilarities. One very important similarity is a tremendous pent-up demand; this time it is for improved quality of our lives. This is going to create tremendous job opportunities. We have ignored this problem when it could have been handled piecemeal. Individuals and companies could have been doing more about the problem of pollution or life quality than they have been doing. This neglect has made the problems immense, and it will require an attack on a scale that is truly enormous and perhaps beyond the capacities of individual companies.

One important dissimilarity is the fact that in the transition from World War II to a peace-time economy, we were confronted with a demand for individual goods as opposed to social goods. Essentially defense is a social or a public good (though you may argue that defense is not a good--that it is a necessity). When the economic system is providing individual or personal goods, the market place operates very effectively in distributing or allocating our resources to accommodate these needs. To a very large extent (and I don't really have any idea what relative magnitude I am talking about here) the transition we are faced with today is going to be from one kind of social good--the provision of defense--to an entirely different kind of social good, the quality of life.

Now, traditionally we have looked to government to provide social goods for us of all kinds, with the notable exception of defense. Defense is a social good that has been provided by private corporations working as contractors for the government, but in a sense it is all part of a government-industrial complex. Essentially it is part of a system set up to provide social goods. But we are confronted now with a completely different mechanism in government for buying social goods other than defense. The transition from the activities of defense with its particular organization for procurement to an entirely different pattern for buying the new social goods is one of the really significant challenges that we may have to face. This is one of the serious problems the aerospace industry would encounter if it were to accept a role in providing the new social goods. The institutions which exist

today for providing things other than defense are completely different, and to change is going to be a cause of some dislocation. It may well be that we will adapt our procurement system to solving these new environmental problems by expanding the types of government-industrial activities that we have employed for providing defense. It may well be that we could adopt the defense model of contracting for engineering and building of the things that will improve the quality of our life. But I will leave this an open question and as a matter of fact, the point of my talk here today is to raise questions for later discussion.

Now let us view the problem from the point of view of the individual. The individual engineer or scientist who is now working in the aerospace industry on a defense program must, in a fairly short period of time, change to work in some industry or in some type of organizational system addressing itself to these other problems. Thus, he as an individual has the problem of transition from one type of work to another. One of the aspects of such a transition will be a changed orientation in his career. I think this is inescapable. There will be a different way in which he will work, and there will be a different skill that he will have to use. But again, there are certain things that the two situations, the old and the new, have in common. One of the most significant aspects of the space program was the organization of a systems approach to large-scale problems. The aerospace industry is credited with developing this approach. You had to attack the space problem from a systems point of view in order to place a man on the moon within the time limit that was set to accomplish this. In other words, we had to look at the problem from a systems point of view rather than from a component or evolutionary point of view. I think that in looking back from the twenty-first century to the decade of the sixties -- the space decade -- it will be considered as having provided a training ground for the development of the engineers and the organization of engineers to accomplish the more difficult systems problems associated with our ecology.

These new problems are more difficult. I think one disillusionment that has occurred with the aerospace involvement in social problems is a direct result of the naivete of the engineers who moved into these areas of work. They did not consider these problems to be particularly difficult technically. After all, the technology associated with them was already established, so there was no new technology that was needed to be developed. But the actual situation is much more difficult and engineers have been found lacking in two important areas in attacking such problems. First, it probably is fair to say that engineers by and large have little appreciation of sociological and political problems, and secondly they have perhaps even less appreciation of the

importance of economics. The aerospace industry has not really been conscious of economics. I think I can say that without causing too much dispute. The average engineer, working on design, didn't fully realize the significance and the value of the work he was doing on his project relative to the ultimate value of the product he was creating. This is one of the economic aspects of the problem that I think is important to keep in mind.

But there is another important economic element that will affect the aerospace industry, as far as the future is concerned, if this tremendous drive to improve the quality of our life develops as I think it will. Not only will we be questioning whether we should be buying more or less defense; we will buy less of things that we consider necessary normal consumption. For example, we might buy fewer automobiles and hardware elements that have become an integral part of our life. Perhaps we will shift our priorities to better housing. Whatever it is, the interesting aspect here is that we will place a smaller emphasis on purchases of hardware items. Thus manufacturing as an industry will employ fewer and fewer people. In fact, the trend of relative employment in manufacturing has been going down in the last ten years. And this is essential, by the way, for an increased standard of living, just as it was essential for an increased standard of living that the percentage of the labor force involved in farming had to go down. In effect, this tendency reflects the proportion of our consumption represented by food relative to other things. As the standard of living grew during this past century, it meant that we wanted and could have more of the hardware elements and proportionately less food. So the labor component had to drop in the production of food, and indeed it has. The percentage of the labor force in farming has dropped from about 17 percent in 1940 to about 6 percent at the present. This same tendency is true of manufacturing, meaning that the quality of our life will be requiring more in the nature of services and less in manufacturing. And it is for this reason that we cannot expect the aerospace industries to speed up manufacturing consumer goods to compensate for a reduction in the manufacturing of defense hardware.

Furthermore, there is another interesting point that I feel is important. Our comparative world trade advantage in manufacturing together with our higher labor costs will almost surely decline relative to the rest of the world. I predict we will increase our buying of manufactured goods from abroad. Our comparative advantage will be in engineering and in managerial skills that we have developed and in which unquestionably we have far exceeded the rest of the world. Even if individually we may be no better than European engineers, we have more engineers, and just the sheer weight of

numbers of trained men in the United States gives us a tremendous advantage compared to the world as a whole.

Now, this implies that our comparative advantage must be exploited in the engineering skills that we have available to sell. One of the ways in which that could be done will perhaps be through direct engineering services for foreign countries. Perhaps the most significant will be in the engineering content of the high-technology products that we make. In other words, more and more of our products that will be competitive in the world market will be those in which there is a very large engineering-cost content relative to the total cost.

One product in particular in which there have been outstanding accomplishments, though partly because of the indirect and hidden subsidies provided by the defense program, has been the airplanes. In fact, we have established dominance in the world market for airplanes, and we control it basically because nobody can compete with us. The manufacture of airplanes includes a tremendous amount of engineering skills that other countries cannot possibly hope to match. The high-technology airplane industry, producing the privately produced airplane for the consumer market, has benefited from the defense "market." Thus, in a letdown in the space program, along with a letdown in the defense program, we have to make sure that we don't lose this comparative advantage in those products that we can sell best. And this is something that we ought to be concerned about.

Let us now return to the problem of transition in engineering employment. Regardless of what type of organization may evolve and in which the engineers will work, there are certain deficiencies that they will have and that need to be rectified. The nature of the cutback in defense and the nature of the buildup of the systems approach to the environmental problem provide us with an opportunity, if only we can take advantage of it. I say this at the same time that I question whether the institutions that we have available are really politically organized to enable us to take full advantage of this opportunity. Essentially the problem, as I see it, is this: once we as a society decide we don't want more defense, we will stop defense-spending. Once you decide you don't want something that is in the process of being designed and built, the thing is very easily stopped -- you cut it off. So we cancel contracts or don't complete building of certain things that were started. This means that all those engineers, as well as certain others who have been working in these discontinued activities, suddenly find themselves with more leisure time.

But at the same time it takes time to get a program started for the improvement of our environment. It takes very few people to start the planning process and the organizing of groups to approach these problems. So the buildup in this other area of vital necessity is going to be slow. Even though we try to build it up rapidly, want to build it up rapidly, it can't be build up rapidly. So there is a transition time, and when I say we can't employ all the people released from aerospace and defense work in the new program, that is, we can't employ them directly in the new program, it is because we need better knowledge, more knowledge, more skills. This is the development of the tooling for the new program, and it can start right away. We can do this in the form of educational programs.

Another important point in this connection is the effect of such changes on the economy as a whole -- the impact of unemployment and forced unemployment on individuals who immediately suffer a reduction in income even though they may have unemployment insurance that alleviates the situation somewhat. Here is a man who is working in the aerospace industry, making \$15,000 a year, and suddenly his income is cut to \$65 a week while he is on unemployment insurance. He is going to stop buying automobiles, new furniture, and just about everything you want to name. He is going to curtail his expenditures significantly, which means that there will be a reflective effect throughout all of the civilian economy that we would rather not have. He is unemployed not because of any incapacity on his part, but because we as a society want to top one thing and build up another. If we said, O.K., let's pay him the same salary (and I'm not arguing that we should do this from the standpoint of just paying people for nothing) until the new programs can absorb him, then there would be no effect on the economy as a whole and we could make the transition without a drop in our overall economy. Unfortunately, of course, if we were to do this, the time that he had available might or might not be spent in a profitable way. He might spend part of the time for leisure, perhaps a vacation or a trip around the world, and that would be an economic gain, at least for him.

What is significant in the suggestion that I have made is that when the engineer is needed for the new program he must have a knowledge base that is somewhat different from the one he has at the present time. Therefore, the thing to do is to continue to pay him to go to school and to organize the schooling around the problems to be solved in the future.

This gentleman over here from Lockheed pointed out his company's experience with employees transitioning from one type of engineering to another; it was not particularly successful and

it turned out to be very expensive. True, I am suggesting an expensive program, but it is really less expensive than to leave people unemployed. My suggestion is to build up knowledge-capital, and this would take literally some billions of dollars. But it should not be expensive in the long run, because we will be in a better position to realize the benefits of an improved environment the faster we can transition people into new activities.

Unfortunately the aerospace industry, again, is not really well-gearred to handling this sort of thing. In fact, quite a number of years ago I gave a talk and published a paper on the subject of "Capital Investment in Professional Knowledge." This was long before the problem that we are faced with today ever entered people's minds. The problem is that in the aerospace industry the whole way in which we account for engineers' time is wrong. Basically engineering activity should be considered as an overhead activity. But the way in which we have to account for spending on defense contracts prohibits engineering being treated as an overhead activity. Most of the engineering activity and most of the work that the engineer does when he works for Lockheed or MacDonal-d-Douglas or somewhere else is learning something. But the accounting system attempts to relate his time to the project in a very dubious way. In reality there is a capital investment being made in knowledge as part of the development of any program. Part of that capital investment is not only in the individual knowledge of the man but in the group knowledge of the team that he is working with. It is a fixed cost, not a variable cost.

If we had moved more in the direction of trying to put engineering on overhead in the aerospace industry, we would be in a better position today. The aerospace industry is in reality an overhead industry, and the direct cost is often insignificant. But we fudge the figures to make the direct cost look like a big portion because we look at the ratio of direct to indirect costs, saying that we have to keep that ratio as high as possible. What we should do is strive to maximize the overhead cost in order to minimize total cost in that industry. If we had done so, the transition needed now would be somewhat more easily accomplished.

Well, I see that I have run out of time. I will leave you with the notion that here is the way we have to go. How do we finance it? Do we look to the federal government to provide the funds? Or do we look in some new way to industry, which could recognize that it has a capital investment in knowledge? However, the political side of the problem, educating the public to this approach, may be much more difficult.

THE CHANGING ECONOMIC STATUS OF DEFENSE EMPLOYEES
FRINGE BENEFITS

Yung-Ping Chen

Judging from the applause that Senator Cranston received, I am on sure footing here because I too am for portability of pensions. The subject assigned to me was "Changing Economic Status of Defense Employees: Fringe Benefits." I have thought about this, and I believe that perhaps it would be useful to address myself to the topic, "Changing Economic Status of Defense Employees (or Engineers and Scientists in the Defense Industry): Beyond Fringe Benefits." The reason I did a little surgery to the assignment is that I thought it would be less meaningful and less informative to just talk about what fringe benefits aerospace engineers and scientists get now. In the course of my discussion, I will touch upon some of these anyhow.

As I see it, our concern here is with economic security, and our concern with economic security is heightened because of cut-backs in defense contracts. If we had proceeded as we have in the past in terms of contracts and projects received by aerospace companies, there would not be as much concern as we have demonstrated here. The economic security of the defense employees, as indeed of all employees in all walks of life, is a very personal and very important question. As I look at the fringe benefits in the aerospace industry, as elsewhere, I think that one of the major problems has to do with forfeiture of benefit rights at the time of employment termination. If we could prevent this type of interruption in the accumulation of pension credits, at least one-third of our concern with fringe benefits would disappear.

The reason I use the expression "one-third" is that roughly one-third of the cost of fringe benefits which American industries or firms pay out relates to pension payments. Beyond that we have the legally required benefits, such as Social Security, unemployment compensation and the like. Of course, Social Security is universally portable, but beyond Social Security, unemployment compensation, and private pensions which include life insurance, we have another category of major fringe benefits which has to do with what is generally known as health and welfare funds. Here we have major-medical plans and we cover physicians' visits, drugs, prescription drugs, and in some instances psychiatric or mental-health care.

This is an important area of insurance that gives people peace of mind. People would wish they never utilize these services or benefits, but in case they do, these can be very helpful. When someone is terminated from employment, it is the usual practice after a short time that these policies lapse, and this occurs at a time when the worker has lost his job as well as his income (or at least the income that he is accustomed to). If an illness

strikes, the unemployed person will sustain a great deal of financial and psychological cost. So, I believe this would be an area of concern, and beyond that there are other fringe benefits such as sick leave, holiday pay, paid vacations, jury duty pay, coast guard duty pay, funeral service pay, and the like. But these are, I think, relatively minor in nature.

Now, what solutions do I intend to discuss? I believe, first of all, there should be a workable mechanism to have all pensions among related companies in the defense industry or for the engineering profession or scientific profession pulled together. There are precedents for this. As some of you undoubtedly know, teachers and researchers in many colleges and universities in the United States have an organization called TIAA, Teachers Insurance and Annuity Association. This was started in 1905, and in the mid-fifties a companion institution was set up called CREF, College Retirement Equity Fund. Together these two institutions provide financial security for college-related teachers and researchers by making pension rights portable everywhere; you carry not only your own contribution but those of your employers from one college to another as you move.

There is another organization, which was set up in 1945 mainly for social workers, called National Health and Welfare Retirement Fund. This enables workers in the health and welfare field to carry their pension credits from one employer to another and from one geographic area to another. It is national in scope and I see no compelling reason why a similar organization cannot be set up for engineers and scientists if you so desire. Undoubtedly there are organizational and technical problems and issues involved, but I see no reason why a similar organization cannot be put up. In fact, in the 90th Congress, Senator Javits of New York proposed, as many of you know, a national private pension commission to enable private-pension right holders to carry their credits from one employment to another. I am sure that all of you are well aware of the arguments for and against such portability of private pensions, and I will not go into them now. Should you be interested later on, we could talk about them during the discussion period.

Next, let me move on to health insurance and health and welfare in general. I think this is a very difficult problem to cope with under present circumstances, but as some of you may know a comprehensive national insurance plan is to be expected in the next three to five years. We do not have such a plan at the moment, but people at HEW and in the academic community as well as elsewhere have given this program a good deal of research and thought. The American Medical Association has come up with a tax-credit plan for national health insurance, and this is most encouraging. There are other individuals and organizations which have proposed plans to institute national health insurance

for the entire country. Should this become a reality, the health and welfare problems of many workers, and indeed anybody in the economy, will begin to be taken care of at least in financial terms. Of course, many times when we discuss health insurance we are mainly concerned with the payments for health care rather than the quality of health care or service that we get. And that is an additional issue.

Third, let us turn to the transitional problem for engineers and scientists who go from one job to another, or, more importantly, the problem between job periods. I think that from a manpower utilization point of view, there is certainly room for scientists and engineers to go on with retooling of their skills or to get additional education. Now, I do not say this in any derogatory sense; I don't want people to interpret this to mean that many engineers and scientists today are not up to snuff in terms of their skills. We live in a fast-moving world and everyone needs to retool. We, on the faculty of the University, get retooled everyday by our students. Retooling of our skill is the essence of progress and I believe that every person needs to acquire new skills or sharpen the old skills that he has.

In that connection I would say that one of the approaches that is possible for any industry, and in particular the engineering and science field, is to enable its employees to go back to school on a much more systematic basis, with a well-coordinated program of instruction. I came in when Dr. English was referring to the same point, and I heard Senator Cranston speak of redirecting the talents and skills and energies that scientists and engineers have, away from defense-related activities to social problems. I, of course, also belong to the group of people thinking in that direction. I think most people in the country share the view that we ought to divert our attention from military to non-military activities. Here I can see great opportunities for scientists and engineers to be making substantial contributions to the solution of many of our urban problems. I might say that, in that connection, scientists and engineers ought to join hands with economists and political scientists, psychologists and sociologists, to mount a massive attack on the solution of our urban problems.

Finally, let me conclude my brief presentation from the standpoint of economic conversion, which Senator Cranston alluded to in terms of diversification. I think this is a matter of semantics. The important thing is that the federal government, having been involved so heavily in defense outlay, ought to be engaged in efforts to make transition for the engineers and scientists in the aerospace industry into civilian walks of life or activities much more smoother. And the government can do this with the requirements under contracting, as the Senator has stated. I might say that this is not a brand-new idea; this has been on the books, but it has not been

carried out to any great extent. So, I think, for instance, if the federal government in letting contracts can require the companies to specify what capabilities they must have in converting the skill for military purposes to civilian usage, that would be a great step forward. I think I could probably be more useful to you if I stopped here and pick up questions.

REPORT ON A SURVEY OF UNEMPLOYED WORKERS IN
THE AEROSPACE-DEFENSE INDUSTRY

Rolfe Thompson

I would like, first of all, to thank the Institute of Industrial Relations at UCLA for its sponsorship of this conference. I also want to convey John Burton's regrets for not being able to be here, as well as his best wishes for this effort today. In addition, I want to commend Senator Cranston for his participation; I think a lot will emerge from the conference today. I believe any solution to the problems of economic conversion has got to have the support of Washington.

I regret that I don't have copies of the questionnaires used in the survey for everyone, but I just brought them for the panel discussants. I will comment only briefly on the questionnaire and then throw the meeting open to the discussants to raise any comment or any particular question they may have.

I am a consultant on the Joint Legislative Committee on Economic Conversion. The Committee was established by the California Legislature in 1968 and owes its existence almost solely to the efforts of Assemblyman John Burton. It was he who first introduced legislation in 1965, calling for the establishment of an economic conversion commission similar to the commission--even at that time--that was being called for by Senator McGovern. The legislation was reintroduced in 1967 in the California Legislature, but it failed to pass both times. Finally, in 1968, the legislation called for a joint committee rather than an economic conversion commission, and it was successful and became a reality in November of 1968. Since then the Committee has devoted most of its time to the development of a proposal that calls for a one-year comprehensive study of conversion as it relates to California.

This proposal was submitted in November of last year to the Arms Control and Disarmament Agency. The Agency, however, has recently notified us that they are sorry but they are not able to fund the study. We asked for three-fourths of the funds to be put up by the federal government; the California Legislature was going to put up one-fourth. Their official reason for not funding the study was twofold: one was lack of research funds and the other was reluctance to fund a study that essentially was being sponsored by a political body like the California Legislature. The proposal, however, has been rewritten and will be submitted this week to the Department of Labor. I really have no feeling as to what the prospects of its passage are.

The survey results that I am going to give you today are still very much in the raw-data stage. In fact, all that has really been done is the tabulation of the responses. We have yet to be able to make any kind of manipulation with the data to answer the question, for example, whether engineers and scientists over fifty years of age who were laid off have experienced more difficulty in getting reemployment than other age groups. Things of this kind haven't been done primarily because of our lack of resources up here. Hopefully we will have this done in the not too distant future.

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Last summer, the Defense Department took action on several procurement contracts which adversely affected a number of employees in an economy measure, as you are all aware of. DOD abruptly terminated two contracts to Manpower Laboratory and McDonnell Douglas--prime contractors out here. As a result of these contract cancellations, 2,500 people were laid off; they were either laid off, forced to accept early retirement, or accept some job dislocation. But in addition to contract cancellation, as you all know, the award of a DOD contract is likely to result in layoffs at those firms which were unsuccessful in being awarded the contract, because of the gear-up process and the requirement to demonstrate the ability to perform.

In an effort to ascertain the impact on a person or persons who suffer dislocation, the Joint Committee on Economic Conversion, in cooperation with the Southern California Professional Engineers Association, the Engineers and Scientists Guild, and the Institute of Industrial Relations at UCLA, undertook to survey a sample of the affected employees through two mail questionnaires. The people who were questioned for the most part were those who had been laid off because of DOD action and who were members of either SPECA or the Engineers and Scientists Guild. No attempts were made to sample members of those two organizations who were not laid off. Nor was there any effort made to sample engineers and scientists who were laid off but were not members of either of these two groups.

There is reason to believe that the people sampled differed in characteristics from those who generally suffered employment dislocations. In the first survey, a total of 459 questionnaires were mailed out; 281 were returned at the time this information was prepared, and we have had some additional questionnaires still trickling in. I think this is a very good response on a mail survey. I think it is partially explained by the fact that the questionnaire dealt with a recent employment layoff and indicated, among other things, that the California Legislature as well as the Institute and employee organizations were interested in this problem.

8. If you are presently employed, please indicate your approximate weekly salary or hourly salary, whichever applicable, including job shop rate if job shopper.

| | |
|-------------------------------------|-------------------|
| <u> </u> per week. | <u>36%</u> Higher |
| <u> </u> per hour. | <u>18%</u> Lower |
| <u> </u> per week - job shopper. | <u>46%</u> Same |
| <u> </u> per hour - job shopper. | |

9. Please indicate the nature of your present employment.

| |
|---|
| <u>43%</u> Defense oriented. |
| <u>9%</u> Government non-defense oriented. |
| <u>46%</u> Private sector, commercial products. |
| <u>2%</u> Other; please specify _____ |

10. Please indicate your appropriate degree status.

| |
|--|
| <u>54%</u> B.A. or B.S. |
| <u>9%</u> M.A. or M.S. |
| <u>1%</u> Ph.D. |
| <u>36%</u> Semester hours toward degree. |

11. Please indicate the institution(s) from which you received your degree(s) and the field(s) of study. (Coded only those responses which indicated public supported institutions in California)

| |
|----------------------------------|
| <u>41%</u> B.A. or B.S. |
| <u>10%</u> M.A. or M.S. |
| <u>2%</u> Ph.D. |
| <u>47%</u> Units, but no degree. |

12. Please indicate your present age.

| |
|---------------------|
| <u>19%</u> Under 30 |
| <u>31%</u> 31-40 |
| <u>32%</u> 41-50 |
| <u>18%</u> Over 50 |

13. Please indicate your family status.

| |
|--------------------------------------|
| <u>16%</u> Single |
| <u>20%</u> Married with no children. |
| <u>64%</u> Married with children. |

14. At time of lay off, did you own your home?

| |
|----------------|
| <u>72%</u> Yes |
| <u>28%</u> No |

15. If the answer to question (14) is yes, please indicate the effect, if any, on your home ownership from a change in your employment status.

7% Forced to sell house and move due to obtaining employment elsewhere.

37% It is likely that I will be forced to sell house and move due to obtaining employment elsewhere.

48% I was not forced to sell my house, but commuting to work is significantly greater due to obtaining employment elsewhere.

8% Other.

16. Have you ever been laid off in the past (more than three months ago) as a result of the cancellation, cutback, or non-award of a Defense Department contract?

39% Yes
61% No

17. If the answer to question (16) is yes, please indicate the length of time before you obtained new employment for each lay off by the year of the lay off.

18. If the answer to question (16) is yes, please indicate the increase or decrease in weekly salary of the new job as opposed to the old job for each lay off by the year of the lay off.

19. If the answer to question (16) is yes, please indicate any loss in pension benefits for each lay off by the year of the lay off.

20. If you had any children, would you encourage them to consider engineering and science, especially as it relates to defense oriented work, as a profession?

15% Yes
85% No

21. Please make any comments you desire concerning the nature of this questionnaire and the covering letter which briefly outlines the interests of the groups mentioned.

SECOND QUESTIONNAIRE

1. Did you respond to the first questionnaire?

63% Yes
37% No

2. Has your employment been affected recently by a Defense Department contract cancellation or the failure of your firm to be awarded a contract? (Recently means the last twelve months).

96% Yes
4% No

3. If the answer to Question 2 was yes, please indicate the date your employment was terminated or affected.

| | |
|-----------------------|-----------------------|
| <u>3%</u> Jan - Mar | <u>29%</u> Jul - Sept |
| <u>61%</u> Apr - June | <u>7%</u> Oct - Dec |

4. If the answer to Question 2 was yes, please indicate the manner in which your employment was affected.

35% Laid off and still seeking other employment.
42% Laid off but secured other employment.
15% Transferred within the firm to another division or project
8% Other.

5. If you were laid off and you secured other employment, please indicate the date you secured that employment.

21% 0-14 days
22% 15-30 days
30% 31-60 days
27% 60 + days

6. If you were transferred within the firm to another division or project, please indicate the length, if any, in your break in service that occurred.

70% No break in service.
10% Break in service of less than one week.
1% Break in service of one to two weeks.
3% Break in service of two to three weeks.
16% Break in service of three or more weeks.

7. If your answer to Question 2 was yes, please indicate your approximate weekly gross salary at the time your employment status was affected.

3% Less than \$150.
19% \$151 - \$200.
31% \$201 - \$250.
26% \$251 - \$300.
21% \$301 - \$301 or more.

8. If you are presently employed, indicate the relationship of your present salary to the weekly salary checked in Question 7. (Deduct 15 per cent from your weekly gross salary if you are not a job shopper because of loss of benefits, etc.)

24% Higher
41% Lower
35% Same

9. Please indicate the nature of your present employment.

41% Defense oriented, government contracts.
10% Non-defense oriented, government contracts.
34% Commercial products, no government contracts.
15% Other, please specify _____

10. Please indicate your present age.

20% Less than 30.
30% 31-40.
32% 41-50.
18% 51 or over.

11. At the time of lay off, did you own or were you buying a home?

64% Yes
36% No

12. If the answer to Question 11 was yes, please indicate the effect, if any on your home ownership from a change in your employment status.

6% Forced to sell house and move due to obtaining employment elsewhere.

24% It is likely that I will be forced to sell house and move due to obtaining employment elsewhere.

30% I was not forced to sell house, but my commute to work is significantly greater due to obtaining employment elsewhere.

37% The change in my employment status has not affected my home ownership.

3% Other.

APPENDIX

Conference on
Economic Security of Employment in Defense
Related Industries

Presented by:

Institute of Industrial Relations, UCLA
Wednesday, February 11, 1970

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Some pertinent information concerning the Aerospace industry
from a talk by J. Leland Atwood, President, North American
Rockwell Corporation on October 29, 1969

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1. Size of the Aerospace Industry

It is the largest manufacturing employer in the U. S. Aerospace employs about 1.3 million people. Aerospace sales are currently running about \$29 billion per year, consisting of \$16 billion of aircraft, \$5 billion of missiles, \$5 billion of space vehicles, and \$3 billion of products such as ocean engineering, air and water pollution control, etc. Aerospace now employs about 27% of the nation's scientists and engineers, and is the nation's largest single employer of research and development scientists and engineers. Of the nation's 1.3 million aerospace workers, well over half a million are in California. The seven southernmost counties of the state account for 80% of California's aerospace employment. There are over 350,000 aerospace jobs with an annual payroll of over three and a half billion dollars.

2. Defense Expenditures

U. S. defense expenditures were about \$50 billion per year before the Vietnam buildup began in 1965, increased to about \$78 billion last year, and are expected to decrease to about \$75 billion this year, including \$25 billion for the Vietnam War. As military budgets have grown because of Vietnam, the percentage of prime Department of Defense contracts awarded to California has actually been decreasing--from 22% in 1965 to 17% in 1968. On balance the aerospace industry appears to have been hurt more than helped by the Vietnam War. It therefore seems reasonable to expect the end of the war to improve the industry's prospects. At the beginning of the decade about three-fourths of the aerospace industry's sales were to the Department of Defense. Just before the beginning of the Vietnam buildup, the proportion had fallen to about two-thirds. Today it is little more than half. The second point is that cuts in the defense budget are not necessarily cuts in the industry's defense market. In 1969 the total defense budget was \$78 billion, of which R & D and procurement accounted for \$32 billion, of which the aerospace industry captured \$17 billion. Moreover, defense

2. Defense Expenditures (continued)

budget cuts have not all been across the board. Significant reductions have been based on cutting manpower and mothballing ships--not on cutting procurement and R & D. The third point is that the growing strength of both Russia and China will make further cuts in R & D or procurement extremely difficult. For strategic offensive and defensive forces, the Soviet Union in 1968 spent about \$2 for every dollar spent by the United States. The last point is that we are running out of leadtime to replace the major U. S. weapon systems that have grown old. The latest U. S. fighter came off the drawing boards in the mid-1950's. Because of these points, I believe that defense aerospace markets may decrease somewhat in the next year or two, but that this reduction, short of major changes in international relations, will be more of a breather than a trend.

3. Commercial Aviation Expenditures

After defense, the second largest aerospace market is commercial aviation. Until 1966, U. S. Government orders for aircraft overshadowed all the aerospace industry's other aircraft orders combined. Since then, the non-Government orders have grown to the point of representing 60% of the industry's \$20 billion aircraft backlog at the beginning of this year. Over the past 5 years, sales of commercial transports increased from less than \$1 billion annually to almost \$4 billion in 1968. One of the rosier spots of the aerospace picture is the unfilled orders for jet transports: As of last June, they were at an all-time high of more than \$10 billion. In 1970 we expect to see first flights of our local industry's next-generation airliners--the Lockheed L-1011 and the McDonnell Douglas DC-10. The other major commercial transport manufacturer--Boeing in Seattle--utilizes the expertise of Southern California aerospace firms for much of its subcontracting. Boeing's commitments to California suppliers and subcontractors have grown from \$432 million in 1967 to \$760 million for the first half alone of 1969.

4. The Space Program

After defense and commercial transports, the third largest aerospace market is the nation's space program. The most recent figures indicate that California receives 36% of the NASA contracts awarded. Our local industry's employment for NASA programs actually peaked in 1966. The NASA budget has decreased each year from the peak of \$5.8 billion in fiscal year 1966 to about \$4 billion for fiscal 1969. The proposed budget for the coming year is down to about \$3.7 billion. In the next years the benefits of the space program will become increasingly evident, which will weigh strongly in favor of an expanded program. An Earth resources satellite already under

4. The Space Program (continued)

development for forecasting weather and uncovering new food and mineral resources can add more than \$6 billion a year to America's economy. A balanced future space program will probably include continuation of the scheduled Apollo moon flights, launch of an orbital workshop in 1972, an advanced orbital space station, and a space shuttle service.

5. Science-Engineering Products Expenditures

After defense, commercial aviation, and space markets comes a smaller and newer market area that might be called science-engineering products. Sales in this area are only 9-10% of the aerospace industry's total, but they are growing and they represent a large potential.

6. The Aerospace Outlook

For three of the industry's four markets--defense, space, and science-engineering fields--the budget squeeze resulting from Vietnam will be a continuing constraint in 1970. But despite this restraint, 1970 should be a changeover year for a new generation of products in all major aerospace markets. In weighing the overall prospects for Southern California aerospace, it should be remembered that a sizable retrenchment has already been completed. Aerospace employment in the L.A.-Long Beach area has been declining since December 1967. From that peak, employment decreased 36,500 through July 1969. This downtrend should be about bottomed out. The clouds of uncertainty about domestic and foreign policy (particularly Vietnam) obscure any crystal-clear visibility of the 1970 aerospace picture. Nevertheless, during 1970 it does appear that we shall see changeovers to significant new generations of products in every major aerospace market. Therefore, on balance, I would expect Southern California aerospace industry to complete 1970 at about the same level of activity that it begins 1970. Beyond that, the prospects for aerospace should continue to brighten throughout the decade.

EMPLOYMENT IN DEFENSE RELATED INDUSTRIES IN SOUTHERN CALIFORNIA

Comparison of Peak Employment Figures with September 1969 Figures

| | <u>Month</u> | <u>Peak Employment Number of Employees</u> | <u>Sept. 1969 Number of Employees</u> |
|--|----------------|--|---------------------------------------|
| Los Angeles County--Aircraft and Parts | December 1967 | 166,700 | 138,500* |
| Los Angeles County--Electronics | November 1967 | 125,000 | 119,400 |
| Los Angeles County--Ordnance (Missiles) | April 1966 | 50,000 | 36,000* |
| Los Angeles County--Instruments | May 1969 | 21,900 | 21,100 |
| Los Angeles County--Total Aerospace | December 1967 | 359,100 | 315,000 |
| Orange County--Aerospace | November 1967 | 76,100 | 67,600 |
| San Diego County--Aerospace | July 1969 | 42,100 | 42,400 |
| San Bernardino & Riverside Counties--Aerospace | November 1968 | 12,600 | 11,000 |
| Ventura County--Aerospace | September 1968 | 8,600 | 7,700 |
| Santa Barbara County--Aerospace | November 1966 | 6,100 | 6,000 |
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| TOTAL SEVEN SOUTHERN COUNTIES | December 1967 | 499,500 | 449,700 |
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| TOTAL CALIFORNIA AEROSPACE | December 1967 | 615,400 | 557,700 |

* OCTOBER 1969 figures for Aircraft and Parts--137,600; Ordnance--35,400

Source: California State Department of Industrial Relations