INATION OF RICHARD D. DELAUER TO BE UNDER ECRETARY OF DEFENSE FOR RESEARCH AND GINEERING

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

FIRST SESSION

ON

NOMINATION OF

ARD D. DELAUER, OF CALIFORNIA, TO BE UNDER SECRE-
TARY OF DEFENSE FOR RESEARCH AND ENGINEERING

MAY 4, 1981

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MONDAY, MAY 4, 1981

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, D.C.

The committee met, pursuant to notice, at 10:16 a.m., in room 212, Russell Senate Office Building, Hon. John Tower, chairman, presiding.

Present: Senators Tower, Thurmond, Warner, and Stennis.

Also present: Senator Cranston.

Staff present: Rhett B. Dawson, staff director and chief counsel; Francis J. Sullivan, minority staff director; Paul C. Besozzi, minority counsel; William L. Ball III, chief clerk; Christine E. Cowart, assistant chief clerk; Frank J. Gaffney, Edward B. Kenney, Ronald F. Lehman, and E. George Riedel, professional staff members; Carol J. Rudolph, staff assistant.

Also present: Dennis P. Sharon, assistant to Senator Goldwater; Chris Lehman, assistant to Senator Warner; Jim Dykstra, assistant to Senator Cohen; and Bill Furniss, assistant to Senator Quayle.

Chairmen TOWER. The committee will come to order.

OPENING STATEMENT BY SENATOR JOHN TOWER, CHAIRMAN

Chairman TOWER. The committee will come to order.

We are delighted to welcome this morning Dr. Richard D. DeLauer of California who has been nominated to be the Under Secretary of Defense for Research and Engineering, the position that was ably filled by Dr. William J. Perry. Dr. DeLauer comes highly recommended, is known to a number of members of this committee, and we are delighted that such a man of distinction and capability is willing to serve in this post.

Without objection, your nomination reference and your biographical sketch will be entered in the hearing record at this point.

[The information follows:]

NOMINATION REFERENCE

SENATE OF THE UNITED STATES,
April 23, 1981.
(Under authority of the order of the Senate of April 8, 1981.)

Ordered, That the following nomination be referred to the Committee on Armed Services:

Richard D. DeLauer, of California, to be Under Secretary of Defense for Research and Engineering, vice William J. Perry, resigned.

BIOGRAPHICAL SKETCH OF RICHARD D. DELAUER

Dr. Richard D. DeLauer was nominated by President Ronald Reagan to be Under Secretary of Defense for Research and Engineering on March 3, 1981.

As the USDRE, Dr. DeLauer will be the principal advisor and Assistant to the Secretary of Defense for Department of Defense scientific and technical matters; basic and applied research; development and acquisition of weapons systems; communications, command and control; atomic energy; and intelligence resources. He will serve as the focal point for all test and evaluation matters. He will also be designated the Defense Acquisition Executive. As such, he will be responsible for effectively integrating the acquisition of defense systems and equipment within the Department of Defense.

Dr. DeLauer joined TRW in 1958 following a 15-year career as a Naval Aeronautical Engineering officer. In 1960 he was named director of the Titan ICBM development program and three years later was made director of Ballistic Missile Program Management. Dr. DeLauer was named vice president and general manager of the Systems Engineering and Integration Division in 1965 and assumed the position of vice president and general manager of TRW Systems Group in 1968. He was elected an executive vice president of TRW Inc. in 1970 and to the board of directors in 1972.

Prior to his nomination as Under Secretary of Defense for Research and Engineering, Dr. DeLauer was responsible for TRW's Systems and Energy activities which were performed by the Defense and Space Systems, and Energy Systems and Equipment Groups. These operating units employed more than 20,000 people and provided a wide variety of products and services for aerospace, electronic, industrial, civil and commercial markets.

He is a fellow of both the American Institute of Aeronautics and Astronautics and the American Astronautical Society, and a member of the National Academy of Engineering, American Association for the Advancement of Science, New York Academy of Science and Sigma Xi. Dr. DeLauer was director of Ducommun Inc. and Cordura Corporation. He was also a director of the LA Area Chamber of Commerce.

He is a former member of the Board of trustees of the University of Redlands, the Defense Science Board, Naval Research Advisory Committee, Board of Governors of the Aerospace Industries Association. Dr. DeLauer is also a member of the Engineering Advisory Council of the University of Southern California, the Advisory Committee of the Institute for the Advancement of Engineering, the Stanford Cabinet, and a member of the Associates of the California Institute of Technology. He is Chairman of the LA Chamber of Commerce Aerospace Committee, founding Chairman of the Board of Governors of the American League for Exports and Security Assistance, and national chairman for Corporations of Stanford University.

Dr. DeLauer is the co-author of two books, "Nuclear Rocket Propulsion" and "Fundamentals of Nuclear Flight," and has served as visiting lecturer at UCLA on nuclear rocketry.

Dr. DeLauer graduated from Stanford University in 1940 with an A.B. in mechanical engineering. He received a B.S. in Aeronautical Engineering in 1949 from the U.S. Naval Postgraduate School and an aeronautical engineering degree and a Ph.D. in Aeronautics and Mathematics from the California Institute of Technology in 1950 and 1953 respectively.

Dr DeLauer was born in Oakland, California on September 23, 1918. He and his wife, the former Ann Carmichael, have one son.

Chairman TOWER. Before I recognize Dr. DeLauer, I would like to recognize the distinguished senior Senator from California, Mr. Cranston, who will present Dr. DeLauer to the committee.

Senator Cranston?

STATEMENT OF HON. ALAN CRANSTON, A U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator CRANSTON. Thank you very much, Mr. Chairman and Senator Stennis. I appreciate this opportunity.

It is my pleasure to come before your committee for the third time in the 97th Congress. I believe that makes me as frequent a witness

as Secretary Weinberger himself has been. But that is only because President Reagan wisely has nominated three outstanding Californians to key positions in the Department of Defense.

It is a special honor for me to introduce Dr. Richard DeLauer to you today, as that third outstanding Californian and as nominee for Under Secretary of Defense for Research and Engineering.

As each of you has a lengthy biography listing all of Dr. DeLauer's achievements, I will not repeat those details now. Rather, I will state my emphatic support for Dr. DeLauer as a man of high intelligence and personal integrity, and with extensive experience commensurate with the position of Under Secretary, and I will share with the committee my own hopes and expectations for what he will be able to accomplish.

First, it is my hope that Dick DeLauer will help the Department of Defense reform its acquisition policies and operations. This is an area in which all, starting at the top with Cap Weinberger, acknowledge that there is room for improvement. And, at a time when substantial real growth in the Defense budget is planned, it is ever more urgent that the public and the Congress have confidence that we are getting the most for those many dollars spent.

I am very pleased and encouraged by Secretary Weinberger's commitment to improve Defense management and efficiency and Defense acquisition policies, and I am delighted that he will have someone of Dick DeLauer's talents and experience to advise him in that area.

As a former high ranking executive in the major defense company, TRW, Inc., and as an active member in the leading defense industry associations, Dick will bring a realistic view of what policies will work in the real world of business. But, as important, Dick has had substantial experience in considering the question from the point of view of the Government because he has been active in studying the issues of how the Government should acquire defense systems for many years. That involvement culminated in 1977 with his services as chairman of the Defense Science Board's Acquisition Cycle Task Force. The 1978 report of that task force is considered the seminal work on problems and solutions of defense acquisition policy. It is only fitting that he should now have both the opportunity and the responsibility for implementing solutions which we all hope will result in a better return on the taxpayer's dollar, and in maintenance of a strong defense industrial base.

Second, it is my expectation that Dr. DeLauer will use his extensive knowledge and experience in defense systems development to manage the vigorous research and development effort needed to keep this country strong. A sound research and development policy is as vital to our defense posture as are any new weapons systems we may build. Our history of maintaining a superior technological base in both the military and civilian sectors has been an important factor in the military balance and in convincing the Soviet Union of the desirability of negotiating arms control agreements with us. The task before us and before Dr. DeLauer is to keep that technological edge.

Mr. Chairman, without further ado, I recommend Richard DeLauer wholeheartedly to you, and I thank you for your courtesy in allowing me to come before you today.

Thank you very, very much.

Chairman TOWER. Thank you, Senator Cranston.

Dr. DeLauer, before I present you, I would like to present your wife Anne. Mrs. DeLauer, we are delighted to have you here this morning.

Dr. DeLauer, I am sure there are some questions that members of this committee would like to ask.

I would first like to recognize the distinguished ranking member of the committee, Senator Stennis, for any questions he may have.

Senator STENNIS. Mr. Chairman, I certainly thank you.

President Reagan and Senator Cranston have been bringing these people in here from California since January. I must say they are bringing in good stock. You have a very impressive background of experience, Doctor. We really feel you are succeeding one very fine man and entering into a highly important position. You have the background and the experience. You have the qualifications to carry you through.

I have asked other nominees this question, and I would like to ask you since I'm sure you have good reason for it. Why are you willing to undertake this job with the vast and massive problems that you will be facing? Knowing all of the chances for disappointment in the various programs and because, everything is on a touch and go basis. How do you feel about that?

STATEMENT OF DR. RICHARD D. DE LAUER, NOMINEE TO BE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

Dr. DELAUER. Mr. Chairman, Senator Stennis, I have asked that same question of myself. Certainly Anne has asked it of me three or four times. I have been in the defense business all my life. I started as a young designer in aircraft in 1940 and then spent 15 years in the Navy as an air engineering officer. The Navy sent me to graduate school. I got out of the Navy and I stopped flying because I couldn't see very well anymore, went into the Air Force on the ballistic missile program, and then had an industrial career which I enjoyed very much.

I am now reaching toward the end of that career and felt while I still have the energies and perhaps the wherewithal that I would come in and do some of the things that I have been advocating through the Defense Science Board activities for the last decade, I believe I can help the administration do some of the things I've been advocating. I think that particularly right now I am very lucky, with the emphasis on readiness and the desire of Congress, certainly of this committee, to do something about rebuilding our capability vis-a-vis the Soviets to have such a great opportunity. Why wouldn't I want to do it?

So I enter with a certain amount of trepidation because the system is like a supercarrier going 40 knots: there is not much I am going to be able to do to change its course, but if I lean long enough I will move it a slight amount. That is what I am going to try to do.

Senator STENNIS. That is a fine statement. I think you are the best example of the resources of America. We are rich with the experience

of competent men like you who are willing to get out and take responsibility. I was thinking while you were talking that, it hasn't been but a few years since we had very few R. & D. programs. There were very few programs that were passed on directly by this committee. Now I think all of us believe this is one of the most important positions in the entire defense establishment.

I don't have any hesitancy at all on giving you my strong support, as well as appreciation for your work in this field.

Dr. DeLauer. Thank you very much, sir.

Senator Stennis. I may have a few questions for the record, Mr. Chairman. Thank you.

Chairman Tower. Thank you, Senator Stennis.

Dr. DeLauer, I understand that you have met with members of the committee staff, that you have indicated your understanding of the committee's rules with respect to conflict of interest and financial disclosure.

Are you prepared to inform the committee as to whether or not you will be able to comply with these requirements?

Dr. DeLauer. Yes, sir, I am, and I have submitted a letter to you outlining just what the situation is. I hope it will satisfy you and the rest of the members.

Chairman Tower. Dr. DeLauer, if you are confirmed, will you respond to all requests for information directed to you and your staff by this and other appropriate committees in a full, thorough, and expeditious fashion?

Dr. DeLauer. Absolutely. That's the only way I can do my job.

Chairman Tower. It's the only way we can do ours, too. If past experience is any indication, we will be spending a lot of time with you. We will be asking you to brief us from time to time on developments in your area of responsibility and in order to keep us informed.

Dr. DeLauer. Yes, sir.

Chairman Tower. In that we have, I think, a responsibility commensurate with that of the executive branch that is conferred on us by the Constitution, in maintaining a capability of defending the United States against its external enemies and protecting vital interests abroad. We, of course, would like to see as much application of technology to our warfighting capability as possible. We cannot hope to overtake the Soviets numerically. We are not prepared to dedicate that percentage of out resources to arms. So it is essential that we maintain a qualitative edge over the Soviet Union, and I have infinite confidence that we can do that.

We hear a lot of talk these days about gold-plated systems and a lot of suggestions that we ought to have very simple, easily maintainable systems that are easy to operate.

It occurs to me, however, that we could carry this business of simplicity too far.

But I just wonder what your views are on this business of how simple we can get and still be able to meet the threat posed by Soviet power, numbers, and actually the qualitative improvements the Soviets have made in their own systems. They have not accepted the technological gap laying down. I wonder what your views on that are.

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Dr. DeLauer. Mr. Chairman I would refer to the report that Senator Cranston referred to, the 1977 Acquisition Defense Science Board Report that we put together, as well as a report some 3 years earlier from a summer task force that I chaired that looked at the nonmajor systems and the electronic subsystems. The recommendations out of both of those reports followed this pattern, that maturity in systems tends to permit you to have a higher availability and reliability, and so therefore we should be looking at extensions of existing systems in order to fill the requirement. In itself advanced technology isn't the problem; it is the way it is implemented, and what time scale, what degree of testing, and the amount of investment we make in it. We have some very, very highly complicated subsystems that have a tremendous mean time between failure. I will give you an example. The NS–20 guidance system on Minuteman that is now in the field has a mean time between failure now in the 7,000 hour range. Even though the missiles live in a benign environment, that is a very long time. But the way that system was developed and acquired, involved a lot of front end resources.

I intend to look at some of these activities. Certainly our space systems have longevity that is beyond what you would expect, and yet all of them have the latest advances, particularly in microelectronics. I don't think that we can be simplistic and call high-technology systems gold plated. I think whether they are gold plated or not depends on how we acquire them, how much effort we put in design for longevity and inservice capability and how well we trade that off against what it is going to cost us to field and to maintain the systems. That is going to be the direction I am going.

We should try to use our existing systems to maturity first, and then be sure that our major subsystem improvements are ready to go into the field. The present guidance system on MX has been in development since the midsixties, and now it has reached the point where we are putting it in production. I have every expectation that the reliability and maintainability of that system will be just as good as the NS–20 system in the present Minuteman system, or the guidance system in our SLBM's.

Chairman Tower. So you feel that there is actually no conflict between advanced technology and simplicity—that we actually can use technology to make things maintainable and more reliable.

Dr. DeLauer. We had better because that is essential to the exploitation of much of our new technology. We have some good technology coming down the street that we have to have applications of, and some of it is very, very, very good for military applications.

Chairman Tower. Senator Warner, would you like to pose some questions to Dr. DeLauer?

Senator Warner. Thank you, Mr. Chairman.

We understand that a major reorganization of the Department of Defense is now under way. The management authority is being conferred to a greater degree upon the services, possibly at the expense of other DOD agencies. There is some concern that under the proposed new organizational structure agencies like the Defense Advanced Research Projects Agency, and the Defense Nuclear Agency, will have a reduced capability to perform their missions.

Do you intend to insure that these agencies continue to receive supervision and support at your level, notwithstanding their changed position in this reorganization?

Dr. DeLauer. Senator Warner, I certainly do. DARPA and the Defense Nuclear Agency are doing the things we need to do to keep a cutting edge on the future. If anything, they are going to be enhanced, not reduced.

If you review some of these changes that are taking place right now, one in the program budgeting system and the other in the program acquisition system itself, you will find that there are some significant changes being made, particularly in the front end planning. In the past there were plenty of complaints that the acquisition system the DSARC system as they called it, was uncoupled from the planning and budgeting system. One of the planning things being done right now is to couple them up to provide a better check and review of the programs that will now indeed be delegated to the services, both for their initiation and definition, as well as for their implementation.

In the initiation and definition phase it turns out that R. & E. policy has a review of programs before they enter into the planning process. We also have a review for integration of common systems across the services after they have been presented. These reviews will be in our future planning. This is where we will be able to come over and sit down with you and other Members of Congress to say here is why we are building these systems, here is what they are supposed to do, and here is why we think we can afford them.

That close coupling was not the case in the past. They had the process but it was more ad hoc, less formalized.

On the acquisition side we are trying to do is the same thing. We are trying to do a better job in the planning and promote the services to do the implementation, but with strong checks and balances that they themselves have set down as a requirement.

Does that answer your question?

Senator Warner. Thank you, Mr. Chairman.

Chairman Tower. If you would yield on that point, we have got to reduce the time that expires between concept and IOC. It seems to get longer all the time. We need to be able to get these new systems implemented faster. I hope you can work on that.

Dr. DeLauer. As you well know, the time from a program go-ahead to, say, first flight or first article delivery hasn't changed a lot since the Wright brothers, give or take 6 or 7 months. The front-end business of getting programs started, has really lengthened the process out. So addressing the front end is probably one of the most important things we could be doing.

Chairman Tower. I think it is one of the most critical problems we have.

Dr. DeLauer. Absolutely.

Senator Warner. Just to wrap up on that subject, I presume, therefore, that these agencies will continue to have the capability and the flexibility to lend direct support, where needed, to the theater commanders.

Dr. DeLauer. We are sure going to try. Right now they are working on some things, as you know, for the RDF in the mobility area.

Senator WARNER. In your opinion, is there a problem of obsolescence in the area of automatic data processing equipment which is adversely affecting the ability of the armed services and the Department of Defense to perform their missions?

Dr. DELAUER. Yes, sir, there is.

Senator WARNER. Let's describe the magnitude and what would you propose to do to correct it or seek our assistance?

Dr. DELAUER. Well, as you know, starting about 1965 there was a marked change in automatic data processing, which is too loose or too general a category for things that are needed in the services for either computation or signal processing or checkout. Machines to do all of those tasks fell under one heading which came out of what is known as the Brooks bill. Since that period of time there have been tremendous advancements in the way you handle automatic data processing. But since 1965 the implementation of the Brooks Act has caused the acquisition process for ADP to become so cumbersome that we are losing a lot of time, money and capability. The act also has these additional requirements which put GSA into the loop. As a consequence, that front-end time that I have talked to you about is even worse for data processing equipment. As a consequence, a lot of the equipment that should have been replaced in a more timely fashion has fallen to this process of intellectual stretchout.

Senator WARNER. Do you need some help from the Congress?

Dr. DELAUER. We certainly do.

Senator WARNER. Would you care to describe it?

Dr. DELAUER. Well, last year, I guess it was in 1980, they had the paperwork bill. At that time there was an exemption granted for certain aspects of the Department to handle their own procurement. What I want to suggest to you, to the committee and to the Congress is that we are reviving our acquisition process to cure this stretchout on a broad front. Why shouldn't ADP be considered just another major subsystem that we ought to be responsible for and procure as we need it, whether it happens to be for signal processing, for a better computer, or for running a logistics system. They are all part of the mission needs, and we would like very much to be able to have the responsibility to procure these pieces of equipment just as you have given us the responsibility to acquire other aspects of the weapons system.

Senator WARNER. I put in a provision in the fiscal year 1982 DOD authorization bill. Have you seen it?

Dr. DELAUER. Yes, sir.

Senator WARNER. The chairman and the committee accepted it. It is directed primarily in the C^3 area, which is of great concern. I feel C^3 has been given a very high priority in our proposed 1982 authorization bill. I would hope that the initiative on behalf of the members of this committee will receive your support and that of the Secretary so that we can get legislation.

Dr. DELAUER. We will give it and we will advocate it.

Chairman TOWER. Dr. DeLauer, we hope that you will never hesitate to inform us when you think that congressional or statutory mandates are inhibiting you in any way, or are proscribing your effectiveness in any way. So be frank with us, and let us know what we need to do to help you.

Dr. DeLauer. I will do more than that. I will be aggressive in that respect.

Chairman Tower. Fine, we would like that.

Senator Warner, do you have any more questions?

Senator Warner. No, Mr. Chairman. We will wait until that day when reports come forward on the MX, and the proposed new manned bomber, and then we will have the opportunity to work very closely with you and your colleagues to resolve those issues.

I personally have known the nominee for many years, Mr. Chairman, and we, as Americans, are indeed fortunate to have you return to help out here at this critical time in our Nation's history.

On the subject of waste of defense dollars, I know the chairman and I have talked to each of the witnesses thus far to press our concern that that is the Achilles heel of our defense buildup. The first evidence of major waste in a procurement program, I think, is going to retard the momentum. I note the Deputy Secretary of Defense came out with a program the other day, and I presume you had a hand in fashioning that program.

Dr. DeLauer. Well, the leadership in the program says look, that is our No. 1 priority because it is still going to be a tough fight to do the job we want to do with the inflation rates the way they are today, unless we make some real productivity improvements. Much of our expense is in areas where no matter how much capital formation we put into the industrial base, it is not going to help us that much if we don't attack the biggest piece of the expense bill, which is the indirect expenses.

So we are each taking a little chore. Deputy Secretary Carlucci is looking at the whole industrial base, the taxation policy, how we are going to handle that. I have taken on, as kind of a personal assignment, the indirect expenses in the procurement process. Since this represents about 160 percent of the direct effort, if I can make a marked change in that it in turn will force industry to come back to us and tell us that the reason they are wasting money or why they are spending money is the consequences of things we are doing and asking of them. Therefore, industry and government are willing to enter into an arrangement and, if we can relax some of the requirements that generate indirect costs they will in turn show a reduction in cost. That happens to be an area I am personally familiar with. I know where all the bodies are buried in the indirect expense areas. Now is my chance to go dig them up.

Senator Warner. Successive groups of leaders in the Department of Defense have tried this, and let's hope that you have a greater degree of success. Waste will just halt the momentum that we now have in the Congress and across the Nation to build up our defenses.

Mr. Chairman, I have no further questions of the witness. I wish to indicate my support and urge that you expedite this nomination.

Chairman Tower. Senator Stennis, do you have any questions?

Senator Stennis. Mr. Chairman, I just want to mention the problem we have about the tank. You need not go into that now. The problem will be before you as part of your responsibility, Mr. Secretary, and I just want you to give it your personal attention.

I am baffled myself. This is a field that I don't have any expertise or knowledge, but there have been problems for a long time. I don't say that critically, but there is something the matter somewhere.

People are expecting us to get results, and will you give that your special attention and be prepared to give us a special report thereon?

Dr. DeLauer. Yes, sir, I will.

Senator Stennis. We are so anxious, because it is a fundamental weapon. Some say, it is so fine, and others say it's deficient. I am not making these charges. I just don't know what to believe. But we need results. Do you consider it a highly important matter that deserves special attention?

Dr. DeLauer. Yes sir. In the past, 2 years ago, I set up a task force at the request of Bill Perry to look at the powertrain problems of the XM-1 tank. That task force met, and made many suggestions which are being implemented now. Secretary Marsh and I have a date to sit down and talk about this general issue. I think it is probably prudent for that same group of people to go back and see whether they feel that progress in the transmission area is going as well as it should. It looks like one of the weakest of the subsystems, and probably improvement of that will improve everything else along with it, including the cost.

So I will personally take a look at it, sir.

Senator Stennis. That sounds good to me. The whole concept of Army strength on the ground is symbolic with the people. The strength centers around the tank, and this delay and disappointment dominates the thoughts now and leaves that uncertainty there. It is quite common. And I am not looking for any scapegoat, that is not the idea at all. We want results.

With your added authority on the premises, I don't think you can be too strong in your efforts to put an emphasis on it and, get things moving, toward a solution to the problem. That is a promise I think that has meaning with you.

I have a few additional questions, Mr. Chairman, and I ask unanimous consent that I may submit them for the record.

Chairman Tower. Without objection, they will be entered and on behalf of Senator Nunn I submit questions to Dr. DeLauer to answer for the record.

Senator Warner?

Senator Warner. Mr. Chairman, I will have a few questions also. I think it is important that this record also contain Dr. DeLauer's assessment of the relative strengths of the U.S. R. & D. program vice that of the Soviet Union. What is your judgment with respect to the presumed advantage we have in leadtime on this, and are we adequately funding this advantage? Would you give us a brief answer now and then supplement your answer for the record?

Senator Thurmond. Senator, Would you yield to me for a moment?

Senator Warner. Certainly.

Senator Thurmond. I just want to congratulate you, Dr. DeLauer, on the position to which you have been nominated. You have a fine reputation, and it will be a pleasure for me to support you. I have a few questions here which you can answer for the record.

Thank you very much, Senator Warner.

Dr. DeLauer. Thank you, Senator Thurmond.

In answer to your question, Senator Warner, I have to answer in a broad way because we could soon get into where the advantages and disadvantages lie, which would get into classified information.

Senator Warner. I understand that, but I think the American public is entitled to an explanation.

Dr. DeLauer. That's right. My feeling is that the effort that Bill Perry and previous people who have had this job in the last few years devoted to trying to turn around the technology base, to put more resources in the tech base, and to encourage the effort in the R. & D. area, particularly in the research side, has to be continued, This is what you will hear me coming and advocating.

I think if there is any weakness that is facing the country in the R. & D. sense, it is not the application or even the appropriation or even the spending of resources. It is the inadequate level of technical capability we are getting out of our supply systems, the universities, so to speak. One of the things I am really concerned about is the fact that we are not getting enough young technical graduates. We need about three times as many as we are getting, and that is not necessarily just in defense, but in the general well being of our whole industry. We ought to be addressing that.

I think I have some ideas about it. I have talked to some of the staff people about it. I think we ought to encourage a closer coupling between the Government and the universities again, but even more so the industry and the universities. I think industry to a certain degree has abdicated their responsibility to be sure that we get a viable education system that will provide us the graduates when we need them. As a consequence, that is an area that has to be worked.

If there is any weakness in our system vis-a-vis the Soviets, it is the number of people coming out of our universities who are qualified to carry on the very highly complicated and innovative work that is necessary for us to do in order to keep a qualitative edge.

Senator Warner. What is the relative factor, 2 to 1?

Dr. DeLauer. It is hard to get numbers because of how you define an engineering graduate and what are his background and his accomplishments but it is at least 2 to 1.

Senator Warner. At least 2 to 1.

Dr. DeLauer. It is the same way in Japan. Japan is turning them out at a very rapid pace.

Senator Warner. Doctor, traditionally persons in your position have given a general opinion with respect to how many years ahead of the Soviets we are across the board in R. & D. efforts. I can remember a decade ago we thought we had a comfortable 7 or 8 year lead.

Would you care to give your estimate of what lead we have today, and is that lead enlarging or is it becoming smaller?

Dr. DeLauer. It is hard for me to give you a specific answer because I may be misleading you. I really don't have the specifics to provide a definitive answer such as 5 years. I think if we can sit down and look at certain areas of development and research you will find that we have a very large lead.

Senator Warner. ADP is an obvious one, microminiaturization.

Dr. DeLauer. There is no question that the Western world has a big lead in ADP particularly in production. The fact is that we can indeed produce these integrated circuits very rapidly with a high degree of confidence in their output, and at a reasonable cost. If there is any one segment of the American industry where cost has come down over a period of years, it has been the unit cost of many of our electronic components, particularly as we go into integrated circuits, and even more so, as we go to large scale integration.

So in that area we have done very well. We have done very well in software. This country probably has the biggest lead in the whole world in being able to handle software applications.

Something I didn't mention when we talked about ADP, is the fact that the equipment is now less than half the price. It is the software that is the high, expensive cost driver. But the things that are going to happen in the next decade in that area are going to be phenomenal. There will be plain language activities in software where people write down instructions just as they do in English, and it will end up in zeroes and ones in either the main frame or in the processor.

Senator WARNER. But you don't care to give a generalization as to how far ahead you think we are across the board.

Dr. DELAUER. I think a generalization would be just that. I think we have a problem, but I think we have got a problem more on the nondefense side with some of our friendly competitors. They are going faster.

Senator WARNER. Thank you very much, Mr. Chairman.

Chairman TOWER. Dr. DeLauer, we are delighted to consider your nomination. You are eminently qualified for this position.

If there are no further questions by the members that are present here we will adjourn. If you would respond to questions submitted for the record at the earliest possible moment, we would be grateful.

[The questions submitted for the hearing record, with answers supplied follow.]

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND, ANSWERS SUPPLIED BY DR. RICHARD D. DELAUER

Senator THURMOND. Dr. DeLauer, you are especially qualified for this position. What do you believe will be your strongest qualification in executing your duties?

Dr. DELAUER. I am fortunate to have had experience on active duty as a naval engineering officer, experience in a university research environment, experience as a program manager, and experience in corporate management. This all adds up to some 40 years of experience in operation, research development, and acquisition of defense equipment. So I am personally aware of the serious problems in our defense-university-industrial base, and the steps that we can and must take to revitalize that base.

Senator THURMOND. Do you plan to emphasize or deemphasize any area under your jurisdiction?

Dr. DELAUER. There are several areas that I expect to emphasize. All of them support our fundamental objective: providing our military forces with the equipment they need to provide for our national security at minimum cost to the taxpayer.

Improving efficiency in the long term will require attention to the declining defense industrial base. Revitalizing this industrial base will be an area of primary emphasis.

I will also be emphasizing the need to rebuild our defense technology base. The previous administration—to its credit—began a program of real growth in funding for defense technology. I will support continuing this program of real growth. I will also emphasize the need to provide one of our most critical limited resources—skilled people. Doing so will require a program of closer cooperation between the Department of Defense and our universities, and also between our Defense industry and our universities.

To maintain our technological leadership, I also expect to emphasize actions needed to limit the flow of military technology to the Warsaw Pact. We will be investing heavily in military technology, and we can't afford to hand the products of our investment to potential adversaries.

Senator THURMOND. Dr. DeLauer, I would like to see you give more consideration than has been given to industrial base, hopefully through expansion by private industry as opposed to government plants. Do you have any comments on this subject?

Dr. DeLauer. Improvement in the viability of the domestic industrial base is a high priority initiative in the Department of Defense. There is an urgent need to improve the responsiveness of the base, particularly at the vendor and supplier level which are basic underpinnings of our national security. This does not necessarily require direct government investment in plant and equipment, however. We believe that as the Nation moves forward with the capital investment tax incentives set forth in the President's Ecomonic Recovery Program and defense business is made more attractive and stable, the urgently needed expansion will take place in the private sector.

A responsive U.S. industrial base is one of the key elements of our national security and is a vital part of deterrence of conflict. Government and industry must work together to achieve higher levels of industrial productivity and improved responsiveness to meet the challenges of the future.

Senator Thurmond. Do you favor direct government loan support when necessary for reestablishment of important industrial capacity such as medium to large forgings?

Dr. DeLauer. We would support government guarantees if it is determined that the private sector is unable to invest in capital equipment needed to produce national defense needs. However, we would prefer to let the needed expansions take place in the economy through tax incentives rather than direct government involvement.

Senator Thurmond. The administration has requested in the procurement bill the repeal of the Vinson-Trammell Act. What advantage do you see to repeal as opposed to another extension of the current moratorium on Vinson-Trammell?

Dr. DeLauer. It is generally accepted that the requirements of Vinson-Trammell are virtually impossible to administer. Therefore, it is expected that this law will be repealed or at least substantially revised. The current moratorium requires contractors and DoD to enter into contracts with a condition that the contracts will be subject to Vinson-Trammell or an unknown profit limitation if the contract is not completed before the expiration of the moratorium. We believe it is inappropriate to require contractors to accept an unknown profit limitation and the possible administrative burdens that might be required by an amended law.

The moratorium applies only to contracts and subcontracts for new ship and airplane construction. None of our other contracts are subject to Vinson-Trammell or the moratorium. Therefore, as a practical matter, if Congress were to repeal the Vinson-Trammell Act now and later pass a new profit limitation, only a limited number of additional contracts entered into before the effective date of the new law would escape the provisions of the new law, i.e., new ship and aircraft contracts entered into since October 1, 1976, and not completed before the effective date of the new law.

We therefore suggest that Vinson-Trammell be repealed while Congress contemplates the need for a new profits limitation law.

Questions Submitted by Senator John Warner, Answers Supplied by Dr. Richard D. DeLauer

ADP PROCUREMENT

Senator Warner. In your opinion, is there a problem of obsolescence in the area of automatic data processing equipment and services which is adversely affecting the ability of the Armed Services and the Department of Defense to perform critical Defense missions?

Dr. DeLauer. Yes, there is a very real problem of obsolescence in Defense automatic data processing. Our problem with the use of obsolescent automatic data processing equipment in performing critical Defense missions is threefold: it is unreliable, inflexible, and uneconomical.

First, the older computers are off-line more often due to breakdowns, longer scheduled and unscheduled maintenance periods, and oftentimes, an inability to operate effectively in a degraded mode.

Second, many of the older computers use obsolescent software and are incompatible with technologically improved support equipment.

Third, these older computers are economically inefficient: they require more manpower and energy to operate and maintain and higher resource expenditures for "work-arounds" due to their relatively high unreliability.

Senator Warner. Can you identify critical national security functions which are thus affected?

Dr. DeLauer. Our entire mission arena is affected by obsolete ADP equipment. Certainly, the key areas are command, control, and intelligence. These functions are at the heart of our ability to conduct successful modern warfare and are vital to the President's ability to meet his responsibilities as Commander-in-Chief.

Senator Warner. To what do you ascribe this problem of ADP obsolescence in these critical Defense mission areas?

Dr. DeLauer. While a variety of factors contribute to the problem of ADP obsolescence, the current Federal ADP acquisition program is a key factor. While laudable for 1965, it has failed to keep pace with technology and the user. It was established when equipment costs were paramount and envisioned a central buying activity capable of combining the needs of all the Federal agencies into large equipment buys. Since that time, hardware costs have plummeted and software is now the key cost ingredient. We have also gone from stand-alone computer systems to interconnected networks. The key issues today for effective and efficient management of networks of automatic data processing are interoperability—the ability of different systems to "talk" and "work" with each other; and standardization—the ability of one system to pick up the functions of another. Solutions to these issues are not reached by dividing management of individual hardware and software acquisitions from other elements of the system.

ADPE ACQUISITION PROCESS

Senator Warner. To what degree do you believe the length of time required for the acquisition of automatic data processing equipment and services is contributing to the maintenance of a Defense posture which is less capable than would be the case—in the absence of the Federal Government's ADPE procurement regulations?

Dr. DeLauer. While it is obvious to all, including the General Accounting Office, that the acquisition process is too long, it is difficult to provide a quantitative estimate for the degree of the problem. The acquisition lead time for off-the-shelf equipment to replace or augment existing equipment should be measured in months—not the years it sometimes takes to fulfill the paperwork and GSA review requirements under the current procedures. New systems and redesigns of older systems will generally take longer. Worse, under present procurement regulations, manufacturers have successfully proposed obsolescent equipment to meet the Government's needs.

In addition, there are other hidden problems—ones which are not normally measured in dollar terms. The GAO has pointed out that the relatively high unreliability of obsolete equipment means that decisionmakers will sometimes be without information that was expected. This forces either a delay in the decision process or a decision based upon less-than-acceptable information. Both alternatives have cost risks associated with them in a business environment in the national security arena, the risk is much more than cost.

Another incalculable cost of obsolete equipment is manpower losses. Not only are people used less efficiently, but skilled, dedicated people tend to prefer a modern environment. As they see ADP systems not upgraded to keep pace with technology, they recognize that their skills will also not keep pace. In this environment, the aggressive, motivated person has little incentive to stay in Government service. Not only do we suffer the loss of the top stratum of skilled engineers, but we must suffer the additional training costs to bring another up-to-speed.

Senator Warner. Do you regard the rectification of this problem as one of your most urgent priorities as you and the Department attempt to streamline the DOD's procurement procedures? How would you go about effecting such a rectification?

Dr. DeLauer. Without a doubt, the rectification of these acquisition problems will be a top priority for the Department. As I have stated previously, the key issues for effective and efficient ADP management are the broad issues, such as interoperability and standardization. Decisions on these issues, in turn, establish the constraints within which operational and program managers make their software and hardware decisions. I tend to focus on the life cycle cost issues; overall systems acquisitions must realize the best value to the Government as determined not only by acquisition price, but by operational and maintenance costs as well.

Senator Warner. Are you confident of the various procurement regulations and oversight mechanisms applied to all DOD procurement would—in the

absence of the Brooks Act—permit significantly accelerated procurement of ADPE used in critical national security missions while protecting the public interest in having competition maximized and total overall costs minimized in such procurements?

Dr. DeLauer. I am confident that the DOD procurement regulations and oversight mechanisms can and will be modified to permit accelerated procurement of ADPE. I intend, after reviewing the ADP acquisition process, to be sure that we focus on achieving lowest life cycle costs by applying the appropriate evaluation criteria within the framework of the competitive market place.

Senator Warner. Are you familiar with the statutory language adopted by this committee in its fiscal year 1982 DOD authorization bill regarding ADP procurement regulations? Do you support this initiative and do you feel that it addresses your most pressing concerns in this area?

Dr. DeLauer. Yes; I strongly support the initiative and it certainly addresses the most immediate, pressing concerns in this area.

Senator Warner. Dr. DeLauer, would you assess the strength of the U.S. research and development program vis-a-vis the Soviet R&D program; are we funding our R&D program adequately?

Dr. DeLauer. The Soviet weapons development program is characterized by a large and stable bureaucracy that produces a regular progression of weapon designs and prototypes. Associated with this bureaucracy are a set of design institutions, industrial ministeries, and production facilities characterized by stability and continuity. Such stability facilitates long range planning and the application of resources to meet long range goals.

But there are also disadvantages associated with this system. Key among them is built-in inertia. Once the Soviets commit to produce a system for deployment, it tends to be an unrevokable commitment. If carried to an extreme the result can be—and has on occasion been—inefficiency and waste. In general, Soviet development organizations have lower productivity than their U.S. counterparts. Soviet design institutions are hampered by their insularity and the environment of secrecy in which they are forced to operate. They often strive for self-sufficiency to avoid dependence on suppliers.

The strength of U.S. military R&D lies in the technical competence, productivity and competitive incentives of American industry. Competition and relatively open debate throughout the entire U.S. acquisition cycle encourages identification and development of the best ideas and end products. While our system benefits from incentives to innovate and press for maximum performance, we have on occasion done so at the expense of program cost, schedule, and the maintainability and operability of our equipment. Bringing these elements into balance will be a major objective of this Administration.

The long term result of Soviet and U.S. R&D programs will also be heavily influenced by the resources associated with military research, development test and evaluation (RDT&E). The Soviet military RDT&E program is now about twice the size of the U.S. program. But despite this imbalance, we have maintained our leadership in most of the basic technologies critical to defense. We have done so partly because of our focus on critical technology, but in large measure because of our substantial commercial technology edge, and the momentum in defense technology that remains from the lead we built up during the 1960's. But we are losing our lead in some key technologies, including electro-optical sensors, guidance and navigation, hydroacoustic technology, optics and propulsion. We are particularly concerned about the Soviet concentration on several unconventional technologies (e.g., their directed energy program) at a level far in excess of the U.S. program. We are also concerned about the momentum of their research and development program. They have a large number of new systems in various stages of development. Many of these systems are quite significant—for example a new SLBM, a new ballistic missile submarine (the world's largest), a new cruise missile submarine (also the world's largest), a new interceptor and associated look-down/shoot-down missile, a new tank, and a variety of precision-guided munitions.

Competing effectively with the Soviets will require that we exploit our technological leadership—both military and commercial—to its fullest extent. Maintaining our critical military technology lead in the future will require substantial real growth in our RDT&E program.

Questions Submitted by Senator John Stennis, Answers Supplied by Dr. Richard D. DeLauer

INFLATION RATES

Senator Stennis. Dr. DeLauer, do you have a view on how our defense-budget projection can contain realistic inflation rates—without these rates becoming self-fulfilling prophecies that, in themselves, exacerbate inflation in the defense sector?

Dr. DeLauer. The subject of how to best budget for inflation, considering the impact on inflationary expectations as well as that on defense, is an issue in the on-going review of the acquisition process. That review is not complete and I do not want to preempt the staff or bias their recommendations by taking a position at this time. Rather, I plan to carefully review the staff recommendation and to establish my views at that time.

SECOND SOURCE COMPETITION AND MULTIYEAR CONTRACTING

Senator Stennis. Dr. DeLauer, as you know, unit costs of weapons are escalating at alarming rates. The Department of Defense appears to be attempting to come to grips with this cost growth by increasing the use of two procurement policy mechanisms: Second source competition; multiyear contracting. Would you give us your general philosophy about when these two practices are most useful and when one might be preferred over the other?

Dr. DeLauer. Second sourcing is a concept to be considered in developing the business strategy of acquiring supplies where establishing a second source will introduce competition in procuring future requirements. The concept contemplates investing in a second source to develop a capability to compete with the existing source. Under the Armed Services Procurement Act of 1947 and the Defense Acquisition Regulation, there is authority to establish and fund a source or sources to meet preparedness and mobilization needs. However, investing in a second source to establish the capability for competing in future requirements is also being developed as a concept. Revision to the Defense Acquisition Regulation is being considered to authorize this approach in selected cases. We believe that the use of second source prime contractors will achieve savings and enhance productivity in programs with large production runs over a number of years. In smaller programs, second sourcing at the subcontractor and vendor levels can also be employed to improve efficiency.

Multiyear procurement is a contracting method. It involves a commitment by the Government to a contractor for the acquisition of a system over a period of more than one year. Given this commitment, the contractor has an incentive to make front-end investments in equipment that will improve productivity over the life of the contract. The net result will be lower production costs and improved productivity in our defense industrial base. Multiyear procurement can be considered for application to any supply or service requirement where stability is inherent and benefits and savings to the Government can be expected.

The conditions for application are such that the two procurement policy mechanisms do not compete, but can be complimentary in their application.

WEAPON SYSTEMS DEVELOPMENT

Senator Stennis. We seem to develop more new types of weapon systems than we can afford to buy. Do you share that view? What can you do about it?

Dr. DeLauer. We have, in the previous decade, developed many new defense systems which are in or will be entering production in the same time frame. These systems include the M–1, FVS, Blackhawk, AAH, Copperhead, MLRS, F–8, ALCM; and C–5, CH–47, and C–141 modifications. This condition is a consequence of our defering many modernizations, particularly of our ground forces, during the SEA conflict and our responding to an accelerated Soviet qualitative and quantitative weapons buildup. We cannot buy all of our urgently needed systems at optimum rates. A reduction in real buying power in the procurement accounts has accentuated the disparity between materiel requirements and fiscal resources. An increase in the procurement appropriations will certainly help relieve the situation.

We should attack the affordability problem in several ways. Improvements in long range planning will give us better visibility on our future requirements vs. projected resources and allow more realistic budgeting in the out years. We can use restraint in initiating new programs, pursuing product improvements of existing systems where possible and avoiding over-facilitization consistent with industrial

base and surge considerations. We can assure ourselves that each new system transitioning to production has sufficient priority and resources to be procured at an economical production rate.

Our goal is one of program stability in military priority, development schedule, and orderly build-ups to and sustained production rates—rates sufficiently high to attract private investment in productivity enhancements and competition at all levels.

AVOIDING TECHNOLOGY DUPLICATION

Senator STENNIS. What do you think is the most effective way of avoiding duplication among the Services as far as developing promising new technologies?

Dr. DELAUER. I believe that the avoidance of unwarranted duplication among the Services in the development of promising technologies is one of the most important functions of my office. There are several factors involved in achieving this goal. First, I intend to foster a strong sense of participatory management between the OSD staff and the Services in program formulation so that all parties are aware of program objectives and areas of potential duplication. Second, I intend to foster the lead Service concept in areas in which one Service predominates. The Chemical Warfare and DOD Food Technology programs are examples of lead Service programs, whereby the Army has primary responsibility for all efforts in these areas. Third, I intend to encourage and develop joint and cross Service programs when the nature of the objectives and the size of a program warrant. The High Energy Laser, the Very High Speed Integrated Circuits and the Rapid Solidification Technology programs are examples of joint and cross Service programs. And finally, I will use a technically competent and highly professional and motivated staff to provide OSD oversight on the technology programs under my purview.

Chairman TOWER. The Chair is prepared to entertain a motion that if no member objects, that the nomination of Dr. DeLauer be polled by the committee.

Senator STENNIS. I so move, Mr. Chairman.

Chairman TOWER. Is there any objection?

It is agreed to.

Dr. DeLauer, thank you very much.

Dr. DELAUER. Thank you.

[Whereupon, at 10:58 a.m., the committee recessed subject to the call of the Chair.]

[The nomination of Dr. Richard D. DeLauer was reported to the Senate by Senator John Tower on May 5, 1981, with the recommendation that the nomination be confirmed. The nomination was confirmed by the Senate on May 6, 1981.]

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