

INDUSTRY'S VIEWS ON DEFENSE PROCUREMENT

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NOTICE

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Mr. Walter G. Bain, vice president, Defense Electronic Products, Radio Corporation of America, was born in Springfield, Illinois, 20 June 1910. He graduated from the University of Colorado in 1932 with a B. A. degree and in the same year began his Air Force service as an aviation cadet. He was commissioned and released from active duty in 1933 and entered Massachusetts Institute of Technology from which he received a B. S. degree in Engineering in 1936. Upon graduation from M. I. T. he joined Allis Chalmers Manufacturing Company, serving as Plant Metallurgist and Superintendent of the Heat Treating Department at its Springfield, Illinois plant until recalled to active duty in July 1940. During World War II, Mr. Bain served in various engineering and technical executive assignments at Wright Field, Ohio and as Chief of Quality Control in the Procurement Division of the Air Force. Following World War II he entered private industry and became General Production Manager of the Ladish Company, Cudahy, Wisconsin. In 1951, he was recalled to active duty as Chief, Quality Control Division, in the Directorate, Procurement and Industrial Planning at the Air Materiel Command; in August 1952 he was named Chief of the Procurement Division and in April 1953, Director of Procurement and Production. Having been released from active duty with the USAF in the rank of Major General, he associated with Republic Aviation Corporation in September 1953. From 1954 until joining RCA in January 1959, he was vice president and general manager and a member of the Board of Directors. Before assuming his present position, Mr. Bain served as vice president, Communications and Aerospace, Defense Electronic Products. Mr. Bain is a member of the Air Force Association, Association of the U. S. Army, Society of Automotive Engineers, Institute of Radio Engineers, Army Ordnance Association, Institute of Aerospace Sciences and the American Society of Naval Engineers. This is Mr. Bain's first lecture at the Industrial College.

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29 January 1964

ADMIRAL ROSE: First, I would like to welcome all our many visitors today. I am sure your trip will be well worthwhile.

In the last few days we have been hearing from top level representatives of the nation's large and influential corporations, labor unions, and government activities. Mostly we have listened as interested observers of other people's problems in management.

This morning we turn the camera around and examine ourselves; how the Department of Defense procurement officials look, through the eyes of industry. We are fortunate in having a most qualified speaker. He spent the war and the Korean emergency years in an Air Force uniform, and became a Major General. He is now vice president, Defense Electronics Products, of the Radio Corporation of America.

Mr. Bain will address us on the subject, "Industry's Views on Defense Procurement." It is a pleasure to welcome you here to the school, Mr. Bain.

MR. BAIN: It is indeed a pleasure to be here and have a chance to express my views on Defense Procurement. I am a little bit overawed by the size of the crowd here this morning; the Admiral tells me that you have an unusually large visitors' list, and this does not help to put me at ease either. I had a couple of calls from friends of mine at the Pentagon who noted that my name was coming up out here and who said they would be on hand to heckle me. I am sure they will take the opportunity to do it.

This is a very serious subject that we are discussing this morning. It is a rapidly and radically changing subject. I remarked this morning that probably the reason that there were no textbooks written on this subject was that the thing changes so fast that nobody could ever get out an up-to-date one. This, I think, is characteristic of the

business as it is going now. It is characteristic of the technological advances that we are going through. The rapidly spiraling rate of technological progress and improvement is almost unbelievable when you chart it out.

Defense Secretary McNamara testified before the House Armed Services Committee last year that our defense program was now geared to our global requirements over the long term, and not simply to the immediate situation. International developments and events which vitally affect our national security are occurring with such a dizzying and kaleidoscopic rapidity these days, that we can only hope that Mr. McNamara is correct. We simply cannot improvise with sufficient haste to maintain a viable position.

Democracy itself is being tested in a death struggle all over the world on a daily basis. We shift from a global and strategic threat one day to local and limited wars on the next day. And even many of us who are close to defense problems are sometimes thoroughly confused. Well, it is against this backdrop of world events that I am going to try to comment on the industry-government relationship involving defense procurement. At such a moment in our history it is a matter of utmost public concern that we not only have a sound global strategy, but a mutually cooperative relationship between government and industry, if we are to maintain an optimum defense posture.

Whenever I think of weapons acquisition process or the defense procurement problems I am reminded of Winston Churchill's comment on democracy. He said, "It's the worst system of government imaginable, except for all those other systems."

Stirling Livingston--I am sure you have all heard of him--has a description of defense procurement. He says, "It's a hell of a poker game, but it's the only one in town."

Claude Ryan, of Ryan Aeronautical, in a speech awhile back, in a masterful understatement, remarked as follows: "The defense business is not all bad; it has its good features. But you get discouraged."

Now, I am going to leave it to you to determine as my talk develops, which of these most closely reflect my personal attitude. In the three short years that Robert F. McNamara has been in

office he has wrought a revolution in the Defense Establishment. This is a remarkably brilliant and energetic man. And he has redefined the roles and the missions of the services. He has reorganized the Army; reshaped the Air Force; and the Navy has not been left untouched either.

Many common service functions such as intelligence, communications, and supply have been centralized at the DOD level. Field contract management will come under DOD direction in a short while. Mr. McNamara has introduced numerous changes in defense procurement policies and practices, scoring cost overruns, delivery slippages, and technical shortcomings, and has sought to improve the management performance both in the services and in the industry.

The influence of Dr. Harold Brown's Defense Research and Engineering shop is enormous. Without its approval the services cannot initiate any significant new programs. Under the comptroller, Charles J. Hitch, the orderly approach of program package budgeting has been introduced. Projections are made on the total probable cost of programs from start to finish. Next, cost effectiveness studies are prepared and comparisons are made between alternate solutions to the operational requirements.

Prior to the selection of a system, program definition contracts are usually awarded to a few contractors. These contractors are required to spell out in great detail the design or configuration costs; and schedule parameters in elaborate PERT or line-of-balance networks specifying critical milestones that must be met for successful accomplishment of the program.

CPFF contracts which share the blame for much mismanagement are being bypassed in favor of multiple incentive fee contracts which are supposed to reward the outstanding and penalize the poor performer. Program definition, PERT Time, PERT Cost and configuration control will be further reinforced by the Defense Contractor Performance Reporting System which is to be operational shortly. Evaluation in accordance with this system is to weigh heavily in the selection of the winners in future competitions.

Mr. McNamara's drive toward central defense management is understandably unpopular with the services which are pressuring Congress to resist and hold the tide. They seem to have little chance of success. Whether Mr. McNamara remains after next

fall's election or not won't change matters very much. The methods of analysis and control being pursued by his aids seem certain to be continued and extended by their successors, because they have resulted in a major advance in the efficient operation and management of the Defense Department.

I think industry, generally speaking, is pleased with the progress that has been made. I think we have confidence in the direction, at least, that Mr. McNamara is going. But many voids have been created and much work is still to be done in connecting the past with the present and the future. I mean that new philosophies have been developed and new directives have been written. In most cases the old philosophies and the old directives still stand even though they might not only be at cross-purposes with one another, but incompatible with present conditions.

Further, the timespan between the conception and birth of new programs has increased manyfold and this has resulted in an extremely high stillborn rate. This, of course, poses a problem to the contractor much the same as that of a man at a roulette wheel. Of all the numbers, combinations and colors, where do I place my money?

Still further, I am sure that industry is not completely happy and satisfied with the area of Government control, and the meager profits in the industry. I will come back to that later.

Let us look at some of the voids and incompatibilities that I mentioned earlier. As you know, the cost principles set forth in ASPR-15 specify which of a contractor's costs of performance are allowable and which are unallowable. These principles are an outgrowth of Treasury Department 5,000 and the Green Book under which we operated in 1920, 1930, and 1940. The basic philosophy behind all these regulations has always been that the Government had the right to select and reimburse only those costs which it considered applicable to, and necessary for, the performance of its own work.

There was perhaps some merit to this concept during the days when the Government supplied the financing and the facilities for its work which it parcelled out on a comparatively risk-free basis. Today, however, we are expected to finance ourselves; build our own buildings; reserve our commercial capacity; bid in open competition for extremely risky commitments; and then be satisfied

with less than 2 percent profit net after taxes. If they ever had the right, is it reasonable to say that the Government can still elect not to pay otherwise completely legitimate everyday costs of doing business?

The more flagrant examples of arbitrary disallowance--I am sure you are familiar with--borrowing expense, advertising costs, contributions et cetera. Is it possible to conceive of a business today that need not legitimately incur each of these expenses? Practically every modern business today borrows short and long term to maintain cash for its day-to-day operations. We, as everyone else, have millions of dollars outstanding to cover inventories and payrolls while we await payment on our fixed price contracts and the progress payment differentials.

Normal pricing of our commercial products absorbs interest on these borrowings, and as the Government turns more and more away from Cost Plus Fixed Fee (CPFF) and low-risk contracts we would expect them to absorb these routine business costs.

Do you think RCA, DEP, in Camden or any of the other communities where we operate could, or would, resist the community pressures if we did not make sizeable contributions to the Community Fund, the Red Cross, and the other charitable organizations? These make up part of our commercial price. Why not our Government sales? Advertising in the same way builds our image with the people. It helps attract better engineers and workmen and makes us a better and more efficient contractor for the Government.

These represent only a few of the ever-increasing contract disallowances, and the net effect can only be a further credit deterioration of any company engaged in defense work.

One of the biggest voids that has been created is in the area of fixed price contracting. In the old days--and note I don't say the "good" old days--you either went for an advertised bid, IFB, or CPFF contract. The difference was like that between day and night. In the old IFB you got a complete package of specs and drawings which any competent manufacturer could estimate, bid and produce. It only took him as long to get the award as it took the clerk at the contracting office to open the bid and determine who was low man. He went back to his factory, built the articles, presented them for inspection. If they passed inspection he was paid.

If they did not he reworked them until they met the specs. This was, of course, in the days when the military service knew exactly what it wanted. It was before IFB's were issued for experimental work, R. & D. work, feasibility studies, prototypes, and production articles that have never really been fully developed or produced in quantity.

In this new age where contracting officers have to meet quotas for fixed price contracts, practically anything is bait for the IFB trap. More than occasionally now the winner is not determined at the bid opening, but only after weeks of review by higher headquarters for socioeconomic and other evaluations. You no sooner get the award than you also get the services of a nonprofit helper, or a technical monitor. He is assigned to the project to help the contractor interpret the specifications and supply all the ground rules that now somehow apply to this fixed price contract.

You find, for example, that the AN-Specified Subsystem that you must buy from a subcontractor was never really a production item "on-the-shelf," as the boys are wont to say now, but was delivered to the services as a prototype including a list of waivers a yard long. Your sub assumed that you would get the same waivers and he bid it that way to you. Your technical monitor, however, insists that on the full specification and on your fixed price contract you have to finish that development for the Government at no increase in price on your contract, but at a substantial unplanned increase in your costs.

I am sure you are all aware than on the IFB type contract anyone who takes any exception to the specifications or terms of the contract is automatically disqualified as nonresponsive. You find that submittal of a test plan really means submittal and documentation of detailed test procedures involving thousands of man-hours of paperwork and additional reams of recorded data that end up in the circular file. After all this, you find that when the tests are over and one component or small subsystem fails you must repeat the thousand-hour test on the entire system because the language of the IFB is so interpreted.

Reliability in one case meant that 20,000 wires had to be serially numbered 1-1/2 inches apart on every wire because this contributed, in the eyes of the monitor, to high reliability. When the performance is not met, even though the detailed drawings are identical with what was specified, contractors are expected to give

the Government consideration in the form of a reduction in your fixed price contract. Such phrases as "fair and reasonable" and "substantial modification and alteration," take on vastly different meanings under the fixed price type of contract than under a cost-reimbursable one.

If we are going to use the IFB or advertised bid for R. & D., and the like, let us rewrite the ground rules for today's application. Let's play the new game by some new rules.

I would like to look now for a moment at incentive contracts. Incentives, both fixed price and cost-reimbursement types, were hurriedly conceived and implemented, and in many instances became merely penalty contracts for the contractor. I have often stated that, had the incentive methods been subjected to a systems study similar to that applied to our weapons systems programs, many of the pitfalls and failures would have been avoided. I do not think it is too late yet to subject this to a systems-type study.

In the first place, new ASPR's would have been written to cover the void areas and old ones would have been scrapped or modified to suit the new conditions. Let's take a couple of real examples. First, failure of the Government to make timely delivery of GFE; sure, we get reimbursed for cost, but no provision has been made to protect the incentive. Acts of God, strikes and the like, are similarly protected on cost. But again, no provision is made to adjust the incentive. We try many times to get the contracting officers to accept clauses of our own making so that we would have protection on the incentive for these things that are beyond our control, but in nine cases out of ten have been unsuccessful in these efforts.

In most cases the answer from the contracting officer is that if the Government wanted to do that they would put out an ASPR to cover it, and it is not within the C.O.'s prerogative to write such a clause into the contract.

Secondly, we should have high-risk incentives and meaningful rewards and penalties. Let us have them with freedom of trade-off for the contractor; between cost, performance, and delivery. We have so many rigid Government controls in each one of these areas now that we are prevented from using the business acumen that we have developed over the years in the competitive market, and it actually defeats the purpose of incentives. There is practically no way that you can make a trade-off of cost versus reliability, or cost versus performance, or schedule versus one of the others, because you

are tied down so closely in each area.

The pricing of an incentive contract cannot be on the basis of using the lowest CPFF negotiated cost as the basis for a target. I think the DOD is getting away from it a little now, but the old ploy was that the contracting officer would ask you for a quote on the basis of a CPFF contract, and then, using the automatic formula, every contract is 15 percent high; knock that off and then negotiate it down another 5 percent, and you get down to a bare bones figure for CPFF contracting; and then, "Now we'll talk about the incentive contract; you now have your target price." This is a sure loser, and in actuality, an extremely high-risk endeavor.

Environmental tests alone can kill you. We once had a complete satellite on a shaker for a vibration test. At the peak amplitude of vibration the power company had an outage and the resulting transient literally tore that satellite all to pieces. Of course, this does not happen every time. You can't put this kind of a contingency into your incentive, but some of it has to go in on every job to average out over all the jobs. Nothing of this nature obviously can be figured in a CPFF cost estimate.

Most of all, to make the incentive contract more meaningful--and I think this is probably the most important thing--the Government must make a greater effort to crystallize and define its requirements before soliciting proposals from industry. The current increased emphasis on project definition is a step in the right direction. This will not only permit the contractors to prepare more realistic price estimates, but will reduce the need for high-cost design changes in the performance of a contract; and these always reduce the available incentive.

But most of all, I think you fellows have to know what you want and you have to be able to define it right down to the last letter. We had a fixed-price contract--one of which I am extremely proud--and unfortunately this would be the one I cannot talk about because of its extreme classification. But this was a complete satellite system; the first of its kind, and one which of course had never been built before. It was, in a way, similar to the TIROS and relay satellites in that it was a complete unit.

In this instance the project officer only had a limited amount of money and he was told that he could carry out this project provided

he had no overrun. The minute that he had an overrun his whole project would be terminated. Now, this included the booster as well as the satellite system. He sat down with us and jointly we wrote the specification and the work statement. He gave us milestones to meet as indicators on delivery and on performance--not on cost--and told us to go ahead. We took the contract, firm fixed price; we charged him 15 percent; we actually made 12 percent; we delivered it on time; and this is one of the most successful systems we have. The key to it? We did not have one change in the contract, and we did not have nonprofit helpers and technical monitors telling us how to do the job. We did the job ourselves. We are extremely proud of that job and we are doing another one right now under the same conditions.

Now as to the increased time span in the procurement cycle. There is a painfully slow gestation period for almost all new programs; TFX, RS-70, MAULER, FABMIDS, MTE and innumerable others have been around for years. It is anybody's guess where any of them will go. Yet, we must maintain a massive human effort and we must invest substantial noncontract funds to keep our chances alive on these or similar programs if we are going to survive. There is a great uncertainty about any new project or program which industry must pursue despite the always-present possibility that the program will never get beyond the study or feasibility phase. Dyna-Soar, Mil-Com-Sat, and Skybolt fell into this category.

By the time we have been through the study phase, the feasibility phase, the program definition phase, the R. & D., phase, and get, finally to the production phase, the program itself is either obsolete or bears no resemblance to the original RFQ for the first study phase. Of course, the real heartbreaker here is when the thing finally ends up in somebody else's hands and when you look at it, sure enough it turned out to be the thing that you suggested for the original study phase, but your price tag was too high at that time.

Despite all this, each program enables you to acquire valuable experience in new technologies; and programs of this sort obviously must be undertaken. There should, however, be a better way to preserve the integrity of the organization, and the know-how that is developed, than is usually the case when the termination axe falls. Contractors these days would seem to require a new clairvoyance in selecting particular programs to pursue. In addition to virtual miraculous prevision one must possess utmost patience, infinite

endurance and determination, and plenty of money.

Now I want to discuss the Government controls placed on industry. Old directives never die, and they don't even fade away. I will venture to say that we are operating today under 99 percent of all the procurement regulations, directives, and controls that have been written since 1920. A list of those controls was recently prepared by a DIAC Committee working on the problem of control analysis and the list covered four single-spaced sheets of paper. I doubt if they had all of them.

Such controls were originally conceived to permit the Government to police costs incurred in the performance of CPFF contracts; and redeterminable fixed price contracts when the government provided both facilities and financing in risk-free ventures. As of 1 December 1963, CPFF contracts accounted for only 12 percent of defense procurements, and the old unlimited upward redeterminations have been out for quite a number of years. Instead, we now have such things as maximum competition; minimum directed procurement; contractor performance evaluation, based to a large extent on his ability to control costs; certification of cost data; increased and almost unlimited right of audit; et cetera. All this with 88 percent of defense procurement today either on flat fixed price or incentive-type contracts.

What more does the Government need to insure that industry will control its own costs and perform with maximum efficiency? Today we have sufficient motivation and no longer need the regulation, limitation, and surveillance that we are getting by our customer. As a matter of fact, under the present contracting ground rules, these operate in exactly the reverse way they were intended; they increase our costs; they decrease our efficiency; and they destroy a great deal of the motivation and potential gain that would otherwise be present in incentive contracts.

In conclusion, on this major problem area, I would suggest that we review the existing DOD practices and regulations in light of present-day conditions and needs. I believe that the Government thinking on the subject of defense procurement needs modernizing and updating just as much as it does on the subject of defense weaponry. I suggest that continued neglect of the former can only serve to hurt the latter.

This brings me to my favorite subject--profits. I think that if

the industry had been called upon to write the preamble to ASPR 3-808 it could not have improved upon the general policy laid down by the Department of Defense. It is too long to read it here, but let me quote some excerpts.

"(1) Profit, generally, is the basic motive for business enterprise.

(2) Low average profit rates on defense contracts overall are detrimental to the public interest.

(3) Negotiations aimed at merely reducing costs by reducing profits with no realization of the function of profits cannot be condoned."

This was written by you fellows; not us. We could not have done it any better. I held a symposium on this Weighted Guidelines subject for all of our people in DEP and I pointed out the preamble to this ASPR 3-808. I gave it to every one of our marketing people; every one of our contract negotiators; and made them memorize it. Because, we could not have done a better job of stating our case than the Department of Defense did in this document. If you have not read it, I urge you to read it.

The effective operation of these Weighted Guidelines for profit determination is eagerly awaited by those of us in industry. We sincerely hope that the contracting officers down the line accept this ASPR in the spirit in which it is written and give it a good college try. The big danger, of course, lies with the unbeliever or the lazy fellow--and there are those--who will mentally predetermine the rate based on historical averages and then shape the profit Guidelines to fit. I am sure you all know what I mean.

Why is this a sore subject to us--the subject of profits? As evidence of the need for improving industry's profits to some extent, without arguing about how much, I offer the following data extracted from the Renegotiation Board's 1962 report. This is industry profit on all renegotiable sales, before tax and before renegotiation:

"1956, 3 percent; 1958, 2.3 percent; 1960, 1.9 percent; 1962, .5 percent." I would be willing to bet that 1963 will even be under the 1.5 percent for industry. In 1962, out of 3,000 defense contractors reviewed for renegotiation, 1,000 performed defense work at a loss. Again, in 1962 those 3,000 contractors gave back to the Government, \$8 million. I'll bet you it cost 10 times that much to find that \$8 million to get back for the Government. This is a pretty minuscule

amount when you compare it to the total deal, and when you further look at the profits that the industry was able to make in the Year 1962.

The cost-price squeeze is becoming worse. Not only are interests on borrowing and advertising, both normal commercial expenses, disallowed, but industry is compelled to share an increasing amount of overhead costs that were formerly recoverable. Examples of recent activity in this cost area are the proposed ASPR revisions on rental costs; relocation expense; air travel; bidding expense; independent R. & D., et cetera.

One group of aerospace companies studied by the Stanford Research Institute has been investing over \$200 million a year in plant and equipment since 1955 as compared with less than \$50 million prior to 1950. SRI further found that the excessive outlays for plant and equipment above annual depreciation and amortization charge is equivalent to 36 percent of the companies' net profit during the Years 1947 to 1961.

Government supplied plant and equipment and Government furnished facilities have shrunk to a fraction of their former level. It is certainly an anomaly to reduce the Government support in these areas while at the same time shrinking profits and increasing the risk of contracting. I think I need not dwell on this subject any longer. I am sure you know how all of us in industry feel about it.

Well, referring back to Claude Ryan's remark that I gave in the opening of my talk, "The defense business is not all bad; it has good features," we like many of the things that are being done in the Department of Defense and in the Military Services. We like the new Weighted Guidelines for Profit Determination that I referred to above. With proper application of this ASPR we can get a new lease on life. We particularly like the letter written to the military departments by Tom Morris and Gene Fubini, on cost sharing. This insidious practice would shortly have brought all of us to our knees. I recommend it to you for outside reading. If you want a reference I have a copy of it that I carry around with me at all times. This absolutely prohibits the vicious practice of cost sharing that has come to be so common.

I would hope that the new Defense Contract Management Organization growing out of Project 60 would help to eliminate a lot of unnecessary administrative controls; excess audits; and almost obsessive demands for excess visibility. Greater consistency and application of the procurement laws, regulations and policy should also be

the result of this highly sound move. We like the Hitch program package plan, and we hope that earlier determinations can be made on programs that are really never going to survive. You in the service will never know how frustrating it is to be \$300 or \$400 million down the road on a program, spending money like mad, suddenly to have it terminated with all of the attendant heartbreaks, dislocations, and intangible losses. On top of that you spend the next 12 to 18 months arguing about \$200 or \$300 thousand in disputed termination claims.

Finally, we like the program definition because it gives you a better chance to write a more complete work statement and to better define the overall specifications. Here we would hope that the hiatus periods between phases would be cut to an absolute minimum to avoid the expense of keeping superior engineering teams together. After all, sometimes you do not win them, and these losses and maintenance of teams over periods of evaluation of 1 to 4 months are tremendously expensive to the industry and to the Government.

Well, this gives you some of the ideas that I have on defense procurement. You asked for it; you got it. Thank you for inviting me over.

QUESTION: Mr. Bain, 3 years ago the late Mr. Gross made the statement that he was very disturbed over the fact that the Defense Department was making its great fight on profits when at that time the emphasis was not the fight on profits, but the fight on costs. Why is it that industry continues to want the profit aspect without taking into consideration the fight on costs, accepting the incentive approach as the methodology by which increased profits can result, and at the same time refuse to accept the Government's investment in facilities which continue even though they have been reduced? It seems to me that if industry would increase its acceptance of its own responsibility insofar as facilities are concerned, accept the matter of increased incentives, and place its great fight on costs; that the Renegotiation Board, then, would be more receptive to increased profits in the end, for industry. Would you comment, please?

MR. BAIN: Maybe I'd better give this over again. Well, that is worthy of comment. We have here a sort of chicken and egg situation, really. We did have a suitable profit structure 10 years ago. Now, it is true that this was abused by industry. On the other hand, the abuse was not one way. I think the real basic answer to

your question is in the Government knowing what it wants when it goes out to buy. If you go out to buy an automobile, and it gets halfway down the assembly line and you decide you want a new transmission, or a different configuration of upholstery, or something like that, this automobile is not going to cost you twice as much; it's going to cost you ten times as much.

I am sure that in their zeal and eagerness to be a little ahead of the parade, technically, that many of your engineers see something that has just been developed, or that is just down the road a little way, and "Gee, we can make this a lot better for just a little money if we change the configuration and put it in." Now, this may get you a modern product--a more modern product--but it is going to be a lot later and it is going to be much, much more costly. Any work that you take on that you can completely plan from start to finish on the day you take it is going to cost the absolute minimum amount of money.

I do not know what Mr. Gross was talking about. If he was defending the lack of profits this is a new philosophy. I do know that costs are the determining factor. Profits are relatively insignificant in total when you compare them to total costs. Costs go up for two reasons: One is that the contractor really does not know how to do the thing that he promised to do; or two, the Government does not know what they want when they specify it and hope that something will come out of it. Until this situation is solved--and I think that the definition phase type of thing and the 5-year program plan are on the way to, if not curing this evil, then to shedding a lot of light on it.

I can just name any number of programs--you know them as well as I do--that have been launched, and after this long period of time, that finally end up as something entirely different from what was started. I do not think it is a fantastic amount of profit that we want. If you look at what the industrial companies today are making--and you are not really going down the road full-blower unless you are over 5 percent net after taxes--this is a far cry from 1-1/2 percent.

We are investing our money in facilities. We put in several facilities in the last 5 years. We put in a big space facility. We put it in primarily for the Saint Program--a large environmental chamber that is 26 feet high and 13 feet in diameter, I believe, or 16 feet in diameter. It goes down to 10, or the minus 8th or 9th mm Hg. It is a real big deal and that thing is still spanking new. It has

never been christened. We got right down to the end of the line on the Saint Program and they terminated it. Now the Termination and Contracting Officer says we cannot write off any part of that in our termination because we never used it.

But we built it for that and we are going to use it. We are going to use it on our other programs. But this is the type of thing you are faced with; you cannot make these investments in facilities and resources unless you get the profit to do it. That is where the money comes from.

I probably have not answered your question. It is a question of which came first, the chicken or the egg. Obviously, costs have to come down. Costs have to come down by writing clearer specifications delineating what you want. The instance of the satellite system that I talked to you about was an example of how costs can be kept well down. It was a sole-source contract, I'll grant you, but it was subject to audit and that thing was audited six ways from Sunday. And nobody found that we had made an excessive amount of money on it. In fact, we made less profit than we negotiated for. But we were happy with the profit.

QUESTION: (Inaudible for most part).

MR. BAIN: Well, one of the recommendations in my talk was that we review all of the existing policies, directives and controls, to bring them in line with the present-day procurement practices. When most of these were written it was a CPFF world. Except for that IFB classification, certainly what you met was different from what it is today. Audit, for instance, has become just terrific. Everything we do is audited; not that we fear that, but it takes a lot of time. The auditor wants us to conform in our accounting procedures and practices, to be like everybody else. Well, we cannot be like everybody else. Because, once everybody gets like everybody else, then you do not have any competition, but rather a controlled industry.

So, there are a lot of things we do that others do not do, and vice versa. We do many things to keep costs down; to reduce overhead, et cetera. Many of these controls were put in to control the old redeterminable upward contract and the CPFF Contract. If you fellows are serious about the incentive contract, and if you do write specifications and work statements that are complete, there is no need for these controls, because we have our own incentives in

addition to the incentive contract idea.

We would rather do--at least from RCA's standpoint--fixed price contracting than any other kind of contracting. This is our meat. But we cannot do it under CPFF rules applied to fixed price contracts. We have one now that we are really stuck with. This thing has already cost us \$2-1/2 million, and before it is over it will cost another million I am sure. This comes out of our pocket. We are doing exactly as I said; we are completing development on a lot of subsystems that never were completely developed by the Government. It was a firm fixed price IFB--\$13-1/2 million. We were assigned a technical monitor; and understand, legally if you take any exception on an IFB--this is the old 1920 ground rule--you are disqualified. The thing automatically goes to the low bidder who takes no exceptions.

So, you assume that if a fellow calls out an AN Spec. Item or some other piece of gear, that this is a piece of gear that you can go out and buy. But you cannot. So, you are stuck with it. This is the type of thing that has to be changed. You have got to look at the new procurement philosophies and set up rules to govern them.

QUESTION: With reference to your comment on the nonprofits, do you feel that the functions they perform are unnecessary, or do you feel that the Government should develop its own in-house capability for these functions? Or, do you think the contractor should perform their functions?

MR. BAIN: I am glad this is a privileged meeting. I think that the Government needs the in-house capability that you have hired the nonprofit people to perform. I do not think industry needs them to help them out in their plant and show them how to do the job, and continually interpret the specifications and rewrite the language after you have gotten your contract. I think the biggest function that they could serve right now would be to sit down and write the RFQ for you; write the specification and the work statement; and then stay out of the picture; let the contractor do the job that is called out.

They sort of try to do everything right now. They get in in the early stage; they come into your plant and they do not like doing it this way; they do not really have any authority over you, but boy they can sure clobber you if they do not like what you are doing and

if you do not follow the ground rules that they lay down. This is just murder.

QUESTION: Do these people have the authority of an inspector? This is news to me. I haven't been a contracting officer recently, but can the representative of a nonprofit really exercise the authority that the local inspector does who represents the Government?

MR. BAIN: No. The rules are written in such a way that they are prohibited from doing this. However, they come into your plant; they look at what you are doing; and they make recommendations to the engineering people in the service, and the contracting people.

QUESTION: On what is being done, or how?

MR. BAIN: Well, this high reliability instance I used is an example. This was before we got an MTBF put together for the particular product. In the contract wording it said this had to have extremely high reliability. Well, this fellow's idea of extremely high reliability was to number serially, every wire, and there were 20,000 of them that went up into the nosecone of this thing, an inch-and-a-half apart--a separate serial number.

I walked into our plant one day where this was being done, and the whole wall of a high bay building was covered with a pegboard. And it had these thousands of wires. Some of them were 2 inches long; some of them were 20 feet long; and they were all hung over pegs. I said, "What is this?" They said, "That's to enhance the reliability." This is real costly.

When the contracting officer reads the contract he says, "Sure, Aerospace said this contributed to reliability and we agree with them;" this type of thing.

QUESTION: Sir, I would like to ask one more question about this. I do not want to run it into the ground, but you mentioned in your talk the profit free people who help, and yet you talk about interference. In the contract that you write with the service do these people--Rand, Aerospace, or whomever they may be, -- have the authority to be in your plant? If not, why do you let them in? I do not yet understand this.

MR. BAIN: When the customer says, "I want some of my boys to come down and look," you don't say "no" to the customer. You say, "Send your boys down to look." We used to have monthly management meetings, but it finally got to the point where there were 120 people at these meetings. This included about 15 of our fellows who were our managers on the project.

QUESTION: Mr. Bain, if you had as much trouble with a private customer of yours and as low a profit margin on sales as you get from the Government, would you refuse to do business with him without knowing if you had other customers who would come in?

MR. BAIN: You added a funny tag line there. I worked for a company in Milwaukee. This was a very substantial privately owned company and the old gentleman who ran that company had a few basic rules. One of them was we would never do more than 15 percent Government work, because that way we would keep the Renegotiation Board out. That was a ground rule.

Another one was that we would not take on any customer except with a triple A credit rating with Dunn and Bradstreet. It depends on the kind of business you are in. If you are in a business like TV you do not mess around with a guy who does not want your TV set. You cannot do anything for him. If he does not like it he goes out and buys a Zenith. Or, if he does not like a Cadillac he buys a Lincoln. It is a different world.

In industry we pretty much tell the customer what he wants. Because, we build what we think the majority are going to want. If they do not like that they do not buy it. I do not exactly know the answer to your question when you say we are faced with the loss of a lot of customers. We do a lot of listening when we are in that situation; and we do a lot of changing.

Now, we have the opportunity, of course, of making up our losses. We are making a lot of money this year--and I was sure that somebody was going to remind me that this was the highest profit year, of the Radio Corporation in its history and that we are, as of this morning, by golly, splitting our stock three to one. So, why should we worry about the meager little Government business we have? I hope I have heard this one for the last time.

But, the reason we are making money right now is because General Sarnoff about 15 years ago decided that he was going to give

the American Public color TV; and he put \$140 million into color TV out of our profits. This is why the corporation has only made about 2-1/2 percent to 3 percent for the last few years. It is because we have been pouring that money into color TV. But now we are selling color TV and we are setting the price. We are setting the price on tubes for the rest of the industry and we are setting the price for the public. And we are going to get our \$140 million back.

We are going to put more than that into our commercial computer business. We started this about 5 or 6 years ago and we are well down the road on it. We expect to turn the corner this year. By the end of the year we expect to be in the black in our computer business, and we expect, hopefully, to give our major competitor a run for their money. We expect to end up as one of the three or four major computer factors in this country. But we will set our own price. We will sell a computer that we build in our own way. Now, maybe everybody does not want that one. But we are going to break our neck to sell it.

QUESTION: Mr. Bain, maybe I have missed part of your presentation, but going back to this item that you called out in the specifications that you finally found out was not fully developed, as a contracting officer I would have assumed or made the assumption that you would have looked into this and you would have known the state of the development at the time that you bid. Now, this may be erroneous, but would you comment on that, please?

MR. BAIN: Yes. In this particular system there were about six or eight major subsystems. One part was a GCA system; another was a radar ILS system; others were communications systems, et cetera. What good does it do you to look? I mean, you may as well not bid. On an IFB you cannot take exception anyway. Now, you have to assume that if the Government puts out an IFB and calls out one of their own products in the thing, that the product is available. You cannot go down and check every one of them to begin with; if you do, there is no use bidding, because you cannot take exception.

Now, you assume at least that if it is not developed or that if the Government has bought it before with waivers, that these waivers would be called out. I mean, you have got to assume that you are going to get reasonable treatment. Under the laws you cannot get reasonable treatment if you follow the IFB procedure strictly. This is one of the things you ought to take a look at I think.

The law says that the clerk at the contracting office will open all the bids and award the job to the low bidder. I have been to dozens of bid openings. They open it up; you stand there with your pen, and as soon as the last price is read off, you go up, sign the thing, take it out and take it home with you. Not anymore.

We've waited 6 weeks for IFB's, just for a thousand radio sets or something. It has to be investigated by small business, the unemployment people, et cetera. It gets kicked around and finally you get an answer. But then, if you get thrown out on account of one of these socioeconomic things, you have got to rebid it all over again. Everybody gets another cut at it. Because, this is the rule.

QUESTION: (This was an extensive question, major portions of which were inaudible.)

MR. BAIN: Well, having been on your side of the fence too I know what Congressional pressure is. Our corporation frowns on that procedure. I know the reason why others do it, though; it is because a guy is committed to the military business; he has a plant and facilities. He hasn't any business and he gets desperate. He loses a few awards and then he does one of two things; he either goes to his Congressman and tries to get pressure put on to give him some business, or he bids the thing so low that he gets the contract and nine times out of ten he has a miserable time after that.

QUESTION: (Same question continued and still inaudible.)

MR. BAIN: It's a dilemma for a person who is committed pretty much to the defense business. Admiral Rose asked me why did I stay in this poker game; why play poker? I think I can sincerely speak for General Sarnoff in this area. He is not going to spend much time with me because I do not contribute much to the profits of the corporation, and believe me, that is where he spends his time. He would not let me or the Radio Corporation get out of the defense business because he thinks that American Industry, and particularly those who are as qualified technically and scientifically as we are, should make a contribution.

This is not just a lot of loyalty talk and patriotism; the old gentleman really feels this way. He would not get out even if we were losing money, because he thinks we owe it to the country. Now, it is not because the defense work is contributing so much to our commercial products. In our case, I think, from what I have been

able to gather, and in retrospect to see, our commercial developments have contributed more to the military than the military has contributed to our industrial or commercial products. I mean, such things as TV tubes, transistors, all this type of thing; we developed those for commercial use and we apply them to military use.

QUESTION: Mr. Bain, when you mentioned declining profits would you differentiate between the profits of the parent company in their direct operations, and the profits of the subcontractors in their operations, and then overall profits for the total industry on a particular contract thing?

MR. BAIN: I am not sure I understand what you mean.

QUESTION: Well, recently, a witness testifying in Congress made the point to the committee; that profits--that the purported decline in profits ignored some very good profits being made by subcontractors, in many cases controlled by parent companies.

MR. BAIN: Oh, I see. Well, let me tell you what RCA's policy is on that--and we never deviate from it. We never charge the Government more than one profit on any particular system, subsystem, element or component. If we buy tubes, for instance, from our tube division, to put into your equipment, we put them in at the exact price that they would sell to the government. We do not get a profit in our division on that. The tube division gets the profit, but they get the same profit as if they had sold it direct. This goes for our computers and for everything else that we do.

This battle was fought by a major automobile company years ago and they finally lost. I do not know what the other corporations are doing now, but as far as our corporation is concerned we have one profit only. We sell the services, for instance, of our service company in conjunction with our work, but we take no profit on the service company's endeavor. We make almost as much money for the service company as they make from us or as they do from their outside business, because we pass that profit on to them and take no profit in DEP. There is one profit only, for the Corporation.

Does this answer your question? You mentioned subcontractors and that is why I was a little confused. You meant inter-divisionally, within the corporation.

QUESTION: Sir, you mentioned in your talk that you were in favor of centralization of DOD procurement. Won't this widen the gap between the man who states a sophisticated requirement, and the man who signs the contract?

MR. BAIN: It could never be widened far enough so they would let us alone, but the reason that I favor this--and you are talking now about Project 60, I presume; the central contract management. We have a plant in Hightstown, New Jersey, just outside Princeton; it does about \$40 to \$50 million a year. That is where we built the Tiros Satellite, the Relay, and all these others. It has about 2,000 or 2,200 people. We have in residence 150--between 145 and 150 Government people--all the time.

Now, there are auditing teams going in and out. It's the NASA; it's the GAO; it's the Air Force; it's the Army; it's everybody else who has anything to do with our plant at all. We have representations from this procurement office; in Newark that procurement office; one in Philadelphia; another in Middletown; another one in Washington--150 people all the time, that we have to provide service, space, desks, and everything else for. This we could do without, and we feel that things will improve in this area if Project 60 works and we can have one office handling our inspection, our audit and all of the other functions that have to be handled, I am perfectly willing to handle the engineering separately.

But as far as all the rest of these service functions, if we can boil these down to one group, then we can make better use of a lot of excess furniture and space that would become available to us.

QUESTION: Sir, would you please tell us what your return on investment capital was; I believe you quoted your profits in terms of return on sales? I would like to hear what the return was for your company and in the industry as a whole.

MR. BAIN: I'll tell you I am not proud of it. This last year we had a 4.8 percent return on investment. The industry generally--our industry--is probably between 5 percent and 6 percent. Commercial industry should be at least 10 percent.

QUESTION: You spoke of the excessive interference by the government, et cetera in the contract administration phase. Would you nail down a little more specifically as to what industrial security is concerned and give us your comment on whether there is

so much extension into this area, and if there is, what would you do to provide industrial security with less inspection?

MR. BAIN: I do not think there is too much. We have just a very small industrial security force. We have always had good marks with them. We do a lot of highly classified work and we realize that you have to live by the rules, rope off the areas and have guards, et cetera. But I do not think it is overwhelming. I think it is a lot better than it has been in the past; a lot better. I would not say that it was burdensome. You are talking about edges and keeping people out of areas; the classification of documents, et cetera. No, I do not think it is too much.

QUESTION: Mr. Bain, how do the abilities of the Government contracting officers compare with those of industry? I am thinking particularly of the experience they have and the authority they have, to perform a contract.

MR. BAIN: I would say about the same, I do not think industry has any better than anyone else. Some companies do. I had a rule when I was at Wright Field that nobody negotiated with certain large company unless I was there and I had the top guys here, because they had the best negotiators in the country. They could outfox my boys nine times out of ten.

On the other hand, I had some pretty smart guys and when we got into trouble we put in the first team. We did all right. So, I would say it is a tossup. They have to live by a lot more rules than we do and this is their problem. They have to document all their stuff, and a lot of times I think we feel they do this out of ignorance when actually they are doing it because they are so closely regulated.

QUESTION: Sir, going back to the problem of the language between the user, the engineer and the and the contract administrator, would you call contract administrators for research and development contracts be engineers too?

MR. BAIN: It makes you shudder a little bit. I wish more engineers knew more about contract administration and management than they do. No, I do not think that they necessarily have to be. I think they have to be people who are understanding and knowledgeable; who have to be mature enough to recognize a situation that is completely incompatible and not try to push something that is a complete impossibility.

I do not think you have to be an engineer to be a contract administrator. I think you have to have sense enough to go to the engineers for advice, and furthermore, have sense enough not to listen to everything they say and do everything they tell you to do.

QUESTION: (First part of question inaudible.) - - - - Could you tell us what percentage of your total activity is devoted to private industry as opposed to government contracts?

MR. BAIN: Yes. During last year what we call the "total government effort"--and this includes the tube division, the service company, the Electronic Data Products (EDP) and my own DEP end of the business, as well as whatever else we sell to any government agency, either commercial products or otherwise--was about 36 percent. That will shrink this year to probably something pretty well under 30 percent. This is between us and inside these doors.

Our defense work has fallen off very badly this past year, but I think we are in about the same boat that the rest of the people are. There just are not enough jobs coming. Our business under solicitation is down in one of my divisions to a fourth of what it was last year. Overall I would say we are down to well below half on government business under solicitation. When you figure as I was telling Admiral Rose a little while ago, 22 percent of all the Government business on which we quoted last year was never awarded to anybody. The procurement was killed for one reason or another.

So, all that bidding expense and everything else went into bidding on jobs that were doomed to failure even before they got off the ground; no contracts were given to anyone. So, when you knock that out it makes pretty slim picking.

QUESTION: Sir, you have told us all your problems this morning. What have you and your fellow people in industry done to really objectively point these problems out to the Secretary of Defense, who should be sympathetic? Have you done this, and has he taken any action? Or, have you not done it?

MR. BAIN: I have personally talked, on a number of occasions, to Tom Morris and to others in the Department of Defense. I have talked to the people in the Pentagon--Gig Smith, Bill Thurman and Tom Gerrity; in industry we are doing it. I am sure that it was an industry reaction that prompted this letter on cost-sharing.

Admiral Rose had a question on that. If I could spend a minute to say something about that, I have the reference here for you because the Admiral asked for it. This is a memorandum to the Assistant Secretary of the Army, Navy, Air Force, R. & D., L&L, Materiel and DSA; Subject: Policy Concerning Use of Cost-Sharing on DOD Contracts. It is undated. It is signed by Fubini and Morris. Oh yes! The date is stamped on here--2 October 1963. The date is stamped on the bottom. I think this is a draft, to answer your question about whether we see them or not.

However, this was issued and the problem there was that it got to be kind of a game between the contracting officers and the industry, in what we call the "Auction Block." We get an RFQ for a study or an R. & D., type of work and we would bid maybe \$200,000. By our superior espionage system we would find out that we were high technically, and low in price. So, we would go in to pick up the contract and the contracting officer would say, "Oh, oh; wait a minute. One of your competitors was in yesterday, and although he was higher in price than you he offered to do this work for a service contribution of \$150,000; he will put in the other \$50,000." Then the contracting officer says, "How much are you willing to share on this particular project?"

Well, before I found out about it, some of our people would say, "We'll share so much," and they finally worked it down to where we were all working for nothing. This became a real way to effect savings in the budgets out in the procurement centers. They could get a contractor to come in and put up \$100,000, \$150,000, or \$200,000 on a program, and they could use that for something else or they could hire another contractor to do some more studying.

This got to the point where it was really killing us in industry, and on this particular one we raised violent objections with the Department of Defense. Fubini and Morris put out this letter, which, now for all practical purposes prohibits it completely.

I got to the point that I told two or three procuring agencies that I was through; I was not going to share anymore. And this deprived them, at least of our services. I do not know how many other companies came to that ultimate conclusion, but it was pretty vicious.

CAPTAIN O'TOOLE: Mr. Bain, on behalf of the entire audience we want to thank you for sharing your time, and for your very straightforward opinions, with us.

(9 July 1964--7, 600)H/ss:syb

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NOTICE

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INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

The Honorable Eugene M. Zuckert, Secretary of the Air Force, was born in New York City, 9 November 1911. He received a B.A. (1933), LL.B. (1937) from Yale with a certificate for completion of the combined law-business course at Harvard and Yale. In 1937, he began his government career as attorney for the U.S. Securities and Exchange Commission, Washington and New York, remaining there until 1940 when he became instructor in relations of government and business Harvard Graduate School of Business Administration, advancing to assistant professor and later assistant dean of the school. During this period he also served as administrative head of the first advanced management course ever given at the Harvard Graduate School of Business Administration. In addition, while a member of the Harvard faculty, he served as a special consultant to the Commanding General of the Air Force in developing statistical controls. He was an instructor in the Army Air Forces Statistical Control School at Harvard and has served at various Air Force bases in the United States on special assignments for the Commanding General of the Air Force. From 1944 to 1945, he served in the Office of the Chief of Naval Operations as a lieutenant (j.g.) and was released from the Navy, September 1945 to become executive assistant to the Administrator of the Surplus Property Administration, Mr. Stuart Symington. In February 1946, he became Special Assistant to the Assistant Secretary of War for Air, Mr. Symington. He became his Assistant Secretary of the Air Force in September 1947, when the National Security Act of 1947 became effective. In July 1948, he served on a committee set up by the then Secretary of Defense Forrestal to unify the court-martial code for the military services. In January 1952, he was appointed a member of the U.S. Atomic Energy Commission and served until June 1954. He then became an atomic energy consultant and attorney, remaining in that field until accepting his present assignment in January 1961. Mr. Zuckert is a member of the bar in Connecticut, New York, and the District of Columbia. He is co-author with Arnold Kramish of "Atomic Energy for your Business," published by David McKay Company, 1956. This is Mr. Zuckert's third appearance before the combined Colleges.

AN ADDRESS

13 February 1964

GENERAL STOUGHTON: Gentlemen: The time devoted to the introduction of a speaker is well known to us all. For Secretary Zuckert it is not necessary, but I would like to take just a moment to express the appreciation of both Colleges to the Secretary for giving us his prepared remarks in advance and thus providing for an ample question period. However, there will not be a joint discussion group, as the Secretary has to get back to his job.

It is an honor for me to present the Secretary of the Air Force, the Honorable Eugene M. Zuckert.

SECRETARY ZUCKERT: Gentlemen: I want to discuss things here today in terms which reflect not so much the professional military thinking of this audience as they do the broad and deep concerns of that ultimately decisive audience, the American people, who pay the defense bill.

We start from the premise that the American people are prepared for any sacrifice to preserve their freedom and their national being. "Millions for defense, but not one cent for tribute," was more than a slogan to rally a struggling young nation. In effect, it is true today.

There is a corollary, with roots just as deep in the basic idealism of these people. It is the aversion of the American people to the use of their military force for acquisitive national purposes. They have shown an historic restraint of this kind.

These premises, of course, are fixed. We probably could not change them if we wanted to. They give any adversary who is not so restrained a very great advantage. Our job as the defender is much tougher than that of the would-be aggressor who can manage his military investment to suit definable aggressive or expansionist objectives.

We therefore have to maintain a military establishment of an unprecedented quality. Our primary military requirement is for professionalism of the highest order.

Changing Standards of Professionalism

Last year I spoke at the War College on the subject of military professionalism, citing Huntington's three characteristics--corporativeness, responsibility, and expertise.

Corporateness and responsibility really do not change. The bonds, the corporateness that binds you together, that make for service loyalty and teamwork, remain the same. Responsibility need be defined but once because there is only one possible relationship between the military and the free state, and the obligation of the individual in the military service is unalterable.

But expertise does change. I want to say a few things today about the demands for a new order of expertise in today's world.

It seems to me military expertise is spread over four major areas. One is the conduct of operations and the organizing and training of men for the job. Another is planning all aspects of operations to carry out the designed strategy. Still a third is the design of strategy and the forces to carry it out, and the fourth is the management of the resources required.

Of course, these areas are not as separate as this listing may sound, but these are the areas in which specialized expertise is required. I believe the day is gone when professional military men would say any officer is qualified for any job in his grade. At any rate, qualifications vary. We know some men are born combat leaders, some are naturally qualified planners, others have unique qualifications for strategic studies and the synthesis of action courses called strategy, and still others are experts in the business side of the military which is the management of resources.

The application of the specialized talents, however, is never confined to one field. All of the fields demand all talents but the central function of each calls for the heaviest investment of the related talent.

In all of these areas, we have shown great strength in the development and practice of running large organizations, and in the development and use of the tools required. We have also produced men who can provide leadership for the work in all four areas combined.

We have not shown a comparable strength in the prophetic aspects of the business of planning. One aspect of planning is the organization and alignment of known quantities. Another is the prophesying from the known to align the unknown.

It is not enough to say that technological advances have revolutionized war. The point is that the revolution is continuous and is probably speeding up. What we have to do now is take the knowns, the technological data acquired up to now, analyze them for trends or direction signs, and project the course of progression of technology for as far ahead as we can see.

The process involves projection with reasonable accuracy and dependability for the immediate future, and less and less accuracy as the projection is extended. The problem is to mobilize every possible applicable talent and skill to help outline the future as it affects military preparedness as accurately as possible.

This is what the Air Force tried to do last year in Project FORECAST. We brought together qualified people from the military--all three services--from Government, from industry, and from the academic world, including the nonprofit Government study organizations.

Their job was to examine the state of technology with a view to determining several things:

In what way will the indicated directions of technological development influence weapon systems of the future.

What might technology permit us to do in the next 10 years that we want to do now and cannot.

Where should we concentrate our research and development efforts in order to produce the greatest military advantage from technology within the same time period.

Believe me, this is hard work. It illustrates very clearly the expansion in military expertise. We think of FORECAST now not so much as a project as a process. It goes on. We will do more and more of it. We are looking for people with imaginative and probing minds in order to stimulate the prophetic side of the planning business. They must be skilled observers and objective analysts. They must overcome service bias, military bias, and every other kind of bias. They must respond intellectually, not emotionally, to the threat of change and the hazards of their profession.

This work calls for both specialists and generalists, and every military organization as well as every big corporation, must have both. It also offers military people an opportunity for an overview of the whole business in lieu of the segment to which a job in such a big organization usually confines one.

All of the returns are not in on FORECAST, but the work served to validate the reshaping of our forces to provide effective deterrence across a broader range of possible conflicts. It also emphasized the importance of intensified efforts on the part of the Air Force to expand its capabilities in support of ground combat.

U.S. Defense Goals

Now, I want to try to define our own military defense job in terms of the most basic of America's national defense goals. They are our overall military objectives. There are two which overlap to such an extent they are almost but, not quite, one and the same, and there is an emerging third which I will discuss later.

The first is to protect and defend the United States and, in conjunction with allies, the free world against military aggression by keeping military forces ready and able to overcome any attack.

The second is to deter war by denying to any would be aggressor the margin of power necessary to employ military force--or the threat of it--as a means of attaining his ends.

In one sense, there is no difference between the two, because, as General White said, a force which cannot win, will not deter. In another sense, there is a difference because we can have deterrence at the top of the ladder of intensity, and war at the other end.

The reason this is possible is related to a change in the units of measure of explosive power. Until near the end of World War II, we used the pound as the basic unit of measure of the explosive power of weapons. Today, we use the megaton. A megaton is two billion pounds.

The consequences of a full scale war of megaton dimensions are such that it is to the interest of all possible antagonist to avoid it. The degree and probability of broadcast destruction in any megaton war are sufficient to undermine the reward of victory. A megaton war is just a bad bet.

The fact remains, of course, that the aggressor who attains a really credible superiority in power to wage such destructive war may have the rest of the world at his mercy, particularly if such power includes defense against any method of response available to his would-be victims.

Even such an aggressor, however, inevitably comes to weigh the cost of attaining and holding this superiority against the cost of using other means, i.e., methods other than megaton nuclear war, for attaining expansionist goals.

The defender has to be prepared to stay the hand of aggression not only at the top of the scale of intensity of war--first there, yes--but also at every other point at which military forces might be applied as a means of attaining aggressive national goals.

If the defender has confidence in the effectiveness of his deterrent power at all of the probable levels of conflict, he is then in a position to take the initiative in pressing the search for other than violent means and methods for settling disputes or differences between nations.

It is just such a position of confidence in our strength which the United States has sought and pretty well maintained--perhaps unevenly--for about a decade and a half. We had it unquestionably until at least 4 years after World War II. This was the period when we worked so hard to get the United Nations into full operation and sought through the Baruch Plan a system for the control of destructive potentials of atomic energy.

The point of progress which I believe we have attained in 1964 is the point of our strongest military posture, with a margin of

superiority over the Soviets over the widest range of combat intensities. This is true despite the fact that the U.S.S.R. is also stronger than ever before in history.

It seems to be only wise and realistic for us to acknowledge the fact that the tables might be turned if space should become a medium of offensive military activity. As of today, the space threat to our security is hard to define because we do not know enough about operating in space.

This is one reason for the new Air Force MOL project-- Manned Orbiting Laboratory. We must learn how to live in the space environment, in case we need to for purposes of defense and in order to broaden the base of our peaceful exploitation and utilization of space. The earth orbital sphere, out to the synchronous distance of about 22,000 miles, is the place to start.

As long as we maintain today's relative strength, throughout both the range of intensity of conflict and the levels of aerospace operations, we can properly and safely take the initiative in proposing among the nations agreements which might relieve some small, but welcome part of both the tension and cost burden of the arms race.

To paraphrase an historic and dramatic statement of U.S. policy, we are in a position to talk sense to our adversaries, speaking firmly with a very big stick.

This is the basis on which our representatives participate in the 17-nation disarmament negotiations in Geneva. We certainly must remain at full ready with the stick. We must continue to improve our relative security.

But we must also apply our energies and competence to the search for means of preventing war, not just deterring it. It would not be strange at all to have come out of the American military some really useful and effective ideas in the field of arms control, because I believe our military is beginning to think of it as it should be thought of, as the problem of war control. This is our business.

Military men, certainly military men raised in the high tradition and integrity of the American military, do not accept the argument that the presence of arms per se is a major cause of war and, therefore, we must have disarmament. This is the factor at

the root of any apparent lack of enthusiasm for and confidence in disarmament proposals to date.

The American military man certainly is interested and prepared to work, however, on problems of war control in order to supplement war preparedness. He has committed his life to the proposition that war control is possible through preparedness. Preparedness can include investment in surveillance and control systems as well as in weapon systems. The great reservoir of 20th century technology may contain as many ideas and as much data applicable to the machinery of preventing organized violence as it does for producing it.

This idea could well lead to the oft-repeated experience of military life that just when it appears everything is settling down to routine methods of handling familiar jobs, the future prospect explodes into a whole new field of endeavor.

Our Third Objective

Now, the fact that the two most powerful adversaries in the world today, and most of the other nations, are willing to talk disarmament, and, or--this is one of those places where that wonderful legalism "and/or" seems to fit--disarmament and/or other methods of reducing the probability of a nuclear holocaust does not mean that all warlike friction between nations will be reduced.

Agreement on nuclear arms means just that, agreement on nuclear arms. It does not cover anything else. Treaty definitions of the hazards of nuclear warfare and even effective controls and inspection do not remove the historic causes of war. These agreements relate to how wars are fought, but not why. The why's are all the historic and some new differences among nations. There remain the pressure points, the ancient prejudices, the areas of economic envy, the material imbalance between peoples, and the abrasive variations in behavior patterns--some of them newly festered by Communist injections. Experience around the world in social exchange and governmental mechanisms is quite disparate, so that wars may erupt with bows and arrows and poisoned darts, or with sharpened sticks and Molotov cocktails, as well as with rockets and missiles.

Whatever the agreement last year in Moscow, or this year in Geneva, military force is going to continue to be necessary in order to maintain peace. This is the third objective of American military policy which I said is emerging.

There will have to be military forces in the world adequate to prevent the spread of those conflicts which, while high in bitterness and determination of the antagonists, are still low on the ladder of technological intensity. At the top rung of the ladder are thermonuclear missiles.

There is always the danger that the power leaders who wage war well up the ladder will become involved in the conflicts which start at the bottom. I believe the Soviets recognize the danger and will be ready to reinforce peace at selected points--but not too much.

If the contending power leaders, however, are interested in avoiding thermonuclear war--enough to enter into agreements with each other for that purpose--they do not want to be cheated of the gain of being dragged into or engulfed by conflicts started by small fry.

This could result in a possible increase in what have been euphemistically called police actions, employing multinational forces in order to avoid direct involvement.

Controls on megaton war do not in any way preclude the possibility of small-fry contests fostered and fomented by the expansionists, fought by proxy, and labeled cold war in order not to interrupt the peace or disarmament conference sessions on how to prevent hot war.

Clearly, the Communist expansionists suffer no restraint by high power agreements aimed at restraining the use of megaton weapons. Expansion may also be accomplished by trickery and terrorism, with or without tanks.

We have recognized the danger of a thermomusclebound posture, and our forces have been designed to respond promptly and appropriately to a wide range of expansionist provocation.

The emerging new objective of American defense policy, then, in addition to defense and deterrence, is pacification, if not policing,

and our armed forces must be designed with the necessary mobility, flexibility, and weapon adaptability. We have to be able to teach and advise indigenous forces, and to supply them with weapons they can use. This requirement could make very significant changes in our military activities. It could also involve new concepts and substantial increases in military assistance in the civil works field, that is, in transportation, communication and sanitary engineering, for example.

There is a continuing requirement for a strong military assistance program, alongside an equally strong and oftentimes larger, economic and educational assistance program to all the friendly free nations needing help and willing to accept it from us directly.

Those governments needing help and preferring the ways of freedom but who, for a variety of reasons may prefer to take our help through the U.N.'s channels, should be heartily welcomed as friends, and encouraged to help themselves through U.N. technical assistance which we generously support. This is also a military requirement.

Our military policy response to all of these environmental factors and conditions was summed up in the national defense section of President Johnson's message presenting the budget of the United States for FY 1965. He said:

To preserve freedom and protect our vital national interests in these recent years of uneasy peace, this nation has invested heavily in the improvement of its defenses. We have chosen not to concede our opponents supremacy in any type of potential conflict, be it nuclear war, conventional war, or guerrilla conflict. We have now increased the strength of our forces so that, faced with any threat of aggression, we can make a response which is appropriate to the situation. With present forces and those now planned, we will continue to maintain this vital military capability.

The President also said that although we continue to seek a relaxation of tensions, we cannot relax our guard, and that while the nuclear test ban treaty is a hopeful sign, neither that nor other developments to date have, by themselves, reduced our defense requirements.

PROBLEMS AND PROGRESS

Decision-making

One of the hardest perennials of big organizations is the recurring problem of the proper levels for decision-making.

It is one that interests me because from 1947 to 1952, the first 5 years of the Department of Defense, I was in a position as an Assistant Secretary of the Air Force to see the beginnings of the problem, and I have been able to keep up with the fluctuations since.

Tomorrow, I will have served 3 years and 3 weeks as Secretary of the Air Force, longer than any of my predecessors. A service secretary sometimes gets rolled around between the decision layers below and above, but he has an exciting job--sometimes frustrating, sometimes rewarding, sometimes abrasive, but never dull.

Some of the abrasiveness stems from the fact that there are a number of facets to the three-department form of organization of defense which are not smooth and shiny. Nevertheless, the net effect is a stronger and more progressive defense organism. I believe the problems of three services are more solvable than the problems of a single service.

Some of the arguments between the services for greater roles or greater shares of the defense dollar can become pretty heated sometimes, but there is a surprising amount of light generated along with the heat and, some issues are properly aired that would not be otherwise.

We have a strong competition in ideas, which is good. At the same time, we preserve the stimulative and cohesive qualities needed by a fighting outfit, probably best understood as esprit de corps. Three military departments make more manageable operating units, avoiding some of the objectionable aspects of just bigness itself. These among others, are on the credit side of the separate military service form of organization.

On the debit side of a tri-service system is one problem which should have been anticipated and solved when the Department of Defense was created. It has been substantially helped by taking

into the Office of the Secretary of Defense the final decision making authority in those areas in which service affiliation or bias might seriously affect either the speed or the quality of decisions.

I think it only fair to point out that the planning and operational aspects of the three services are better coordinated than ever before in our history.

What is of equal importance, under the direction of Secretary of State Rusk and Secretary of Defense McNamara, our military response to the requirements of foreign policy is better coordinated and more effective than ever before in our peacetime history.

For many reasons, including these less visible reasons which do not fly or shoot, our military posture is stronger than ever before, and unquestionably more powerful than any military organization has ever been in history.

The Strategic Air Command is the commonly cited example of our power. I mention SAC not because of its megaton firepower capabilities but because it is a marvel of good organization, efficient procedures, and disciplined devotion to purpose.

All of our strength is not in nuclear explosives. It is also in the phenomenal Air Force capability, for example, to communicate around the world. It is in the best run airline in the world, MATS, and in the managerial competence which brought the Minuteman missile system from the starting line to operational readiness in 5 years. The Polaris is another example. A key part of our strength is the pride which the men of each service feel in such accomplishments.

Do not think for a moment that the Secretary of Defense is not impressed by some of the competence he sees demonstrated in the services, or that he does not understand the morale-building effect of demonstrated good management within the military. Furthermore, he is aware that decision-making in key areas has been pulled up to the top level. Some of the decision-making was pulled out of the military departments in order to speed up the process and relieve its compromise-prone aspects.

The quality of decisions is more important than the centralization of their making. It is my feeling that when less strong managers than McNamara, Vance, and Brown, for example, are in the Office

of the Secretary of Defense, the level of decision-making will change again.

It is worthwhile noting, too, that the quality of the decisions made at lower level has improved because of the insistence by OSD on analysis in depth and thorough justification. I know from where I sit that there has been a tremendous improvement in the form in which recommendations come from the staff and major commands.

The management area of organization and decision-making is so broad and has so many facets that I would like to take advantage of the discussion period to treat them more fully, and to deal with those aspects of greatest interest to the class. I look forward to getting some of the views of the classes of both Colleges in the questions.

Program Packages

In all the years we had only two services, the problems of coordination never became too serious, even though they were sometimes a bit sticky within the departments, for example, among the Technical Services of the Army. One reason is that preparedness did not cost so much. We were not maintaining a war-ready military machine year-in and year-out of relative peace. The jobs of each of the services were separated to such an extent, or at least they seemed to be, that there were few problems of deciding which service should perform a particular function, and one medium, the aerospace, did not even mature until World War II. Finally, and probably most important, we needed the military services, we thought, only when war came.

Now, everything has changed. We keep a war-ready military machine as a means of keeping peace. We see no end to the job. This is the all important factor underlying that big new problem that I said was the third point of my talk. I will come back to it.

Despite the indicated advantages of separate services, there remains the apparent contradiction of modern military science that no one service can fight alone today. It is difficult to imagine a sizable war situation which would involve but one service.

There is another factor of major importance here. As a result of the development of engines of war which permit real

strategic operations, first the airplane and then the missile, it is possible to have a terribly destructive war without any frontal engagement of military forces. The intercontinental ballistic missile is just what its name says it is, intercontinental.

The net consequence of these changes is that war is no longer planned, and military forces are not funded, strictly on a service basis. The commitment of national resources is vastly greater and the myriad military aspects of war are interlaced with each other and with civil problems. Our defenses therefore have to be budgeted on a job, or a mission basis, instead of on an organizational basis. The program package budget process is designed to do this and is as revolutionary a change as any Secretary of Defense has wrought in our national defense setup.

The change is permanent. No future Secretary of Defense, and, I feel quite certain, no future service secretary nor any military chief, will really want to change it. The reason: it makes sense.

As a matter of fact, by this pattern of relationships of forces, we get many of the administrative advantages of unification, yet preserve all the advantages of service affiliation of the men in uniform.

There is another possible gain, the effective removal of many responsibilities for allocation of resources from the channels of the Joint Chiefs of Staff may be a substantial contribution to the efficiency and workability of the Joint Chiefs' concept.

The new pattern of resources allocation is responsive to the changing environment. The emphasis given the respective combat force program packages reflects the probabilities as to the type of fighting we may be called upon to do within the foreseeable future. One evidence of this is seen in the build up over the past 3 years of the so called General Purpose forces.

Army-Air Force Relations

An area of employment of General Purpose forces which is getting concentrated attention through the program packaging concept--and showing progress--is in the air support of the ground combat. The long-range transport capability was demonstrated

last October in Big Lift, the precision movement of the personnel of an augmented armored division to Europe in less than 64 hours. It could have been done in less, if the Army had required it.

Big Lift also included sending a Composite Air Strike Force to Europe in support of the armored division. Its deployment of TAC fighters and reconnaissance aircraft, with the help of SAC tankers both for refueling and navigation assistance, was completed in 48 hours--the aircraft were combat-ready shortly after arrival to support the armored division which moved at the same time.

There is no question but that air support requirements of the Army are increasing. Fortunately, technological advancements permit changes in traditional concepts which give new mobility and flexibility to ground combat units.

The Army now has a requirement to get off the ground, and to utilize technological advances in, for example, power units, in order to do things that could not have been done in World War II or the Korean action.

The Air Force has developed over a half century the critical techniques of employing aerospace power--keeping aircraft operational, exploiting aerial firepower through central flight control, and extending airpower resources by centralized management. This experience, of course, is applicable to the mounting requirements for ground combat support.

A very important test program is now being worked up under the general supervision of General Paul Adams of the Strike Command. His objective is to compare the combat and cost effectiveness of a type of air assault division having its own air elements with a more standard Army division receiving air support primarily from the Air Force.

The approaches of both the Army and the Air Force to the use of airpower in ground combat have changed with the times. There are, of course, obvious differences of opinion as to how it should be procured, managed, and directed in use. We are seeking a sound and mutually acceptable solution to the problem. The Air Force is cooperating in every possible way to assure the Army the air support it feels it should have, and certainly will try to do it with the most efficient utilization of the airpower portion of the defense dollar.

The General Purpose Force budget package encourages new approaches. There was a day--and this is a hazard of pie-cutting by service--when any greater investment in ground combat support would have had to be at the expense of the strategic deterrent force, which in the early and mid-fifties had the priority mission. Now the ground support mission has equivalent status as a part of the General Purpose Force package.

Cost Compel Changes

The rate of advance of technology applicable to military requirements is so rapid that a weapon system can become technologically obsolescent during the period of the leadtime needed to bring it into the inventory. Even more serious is the steep uptrend of costs, which inevitably limits the number of systems which can be even tried. You cannot replace a system just to be up-to-date. You have to consider how well the existing system does its job. You can always improve. The question is whether the improvement is worth the cost. Somehow, the costs of new systems and of improvements to old systems seem to keep pace with the fast-moving technology.

The cost of weapon systems has reached the point that no military organization can make very many heavy bets on new systems. Very difficult choices have to be made, and the time devoted to painstaking analysis will be well worthwhile in terms of making the right selection.

As a result, the rate of succession of operational weapon systems almost has to slow down. This will not be due to any dearth of ideas but because each new generation becomes more costly and complex.

As a consequence, the mission and method of employment of each proposed new weapon system must be defined as thoroughly as our foresight will permit. Use by more than one service is always an objective. Both the time and resources required to bring it into the inventory must be determined, then weighed against other possible ways of performing the same mission. I believe we are developing workable techniques for doing this, but there are no easy or automatic solutions.

One part of the solution has been greater centralization of authority in the Office of the Secretary of Defense. It has been brought about in two ways, one procedural, such as the changes in the budget and financial control process, the other, organizational.

The organizational changes involve the consolidation of procurement of common items in the Defense Supply Agency, which reports to the Secretary directly, and the consolidation of intelligence functions in the Defense Intelligence Agency. The latter, like its predecessors, the 5-year-old Defense Communications Agency, and the 18-year-old Defense Atomic Support Agency, report to the Joint Chiefs of Staff.

The procedural changes insure that one service cannot develop a new weapon system without consideration of the roles, the possible contribution, and the requirements of the other services.

The principle of dual use of weapon systems was highlighted last summer in the course of discussions of the source selection procedure for a new fighter, the F-111, then better known as the TFX. This point was forgotten, almost, in the headline preoccupation with who got the contract instead of who gets the airplanes. Nevertheless, the plane is a significant first, a major dual-service weapon system.

The program package concept of budgeting does not guarantee but it makes possible multiple service participation in new weapon investments. It is consistent with the operations concepts of the unified and specified commands. As I said, it is clearly the most significant of the changes instituted by Mr. McNamara, and the effects go very deep into all the services.

The military departments have had to improve their cost estimating procedures all along the line, and of equal importance, they have had to improve their presentation of the programs they want funded. They have to make more critical analyses of projects, and apply more rigid tests of all kinds to the ideas and proposals whose continuing flow keep the services up-to-date.

Civilian-Military Relationships

We hear a good deal of discussion these days of the extent to which civilians have taken over military decision-making in the

Pentagon. If we examine the matter closely, we will find several things.

I believe you will find that in the primary field of military professionalism, the training and organizing for combat and the conduct of military operations, there is no danger of civilian takeover.

Next closest to this function is that of military planning, the continuing process of planning for contingencies of all kinds, determining military requirements, and providing both combat and logistics plans for established force levels. This, again, is the field of expertise of the military man. Here, there is a feeling on the part of the military of invasion by the civilians, however, because of the effect of fiscal controls. It is not an invasion of a field of military expertise, but it is the first area to feel the money pinch.

After these two, the conduct of operations and planning, comes the determination of strategies. Here the responsibility as well as the participation in the job spreads. It is an area in which the military can use, and in our country, always has used, civilian as well as military brains. I believe the military man has the initiative, but in this area, both for reasons of the system and for reasons of his own, he wants to test his concepts against the best brains he can find, and he must be prepared to listen to ideas other than those that come out of the military.

This, of course, is one of the reasons why the services have set up the nonprofit study groups sometimes referred to as "think factories." There is a right and a wrong way to use them, however, and I have taken steps in the Air Force to see that we do not pass on to these groups, problems that we should decide ourselves. On the other hand, we do not want to discourage the flow of new and even strange ideas out of the groups such as RAND.

Strategies stem from national policy objectives. In our country, the military does not make national policy. To be sure, in ours or any other country, the civilian leaders had best not finalize national policy without consideration of the military factors. Similarly, responsibility is mutual in the determination of grand strategy, against which the planners plan and for which the commanders organize and train fighting units, even though it is an area of military initiative.

Now, what is left after we consider the three elements of determination of strategy, planning, and the training and conduct of operations. The fourth element of the defense job is management of resources. This cannot possibly be exclusively a military responsibility.

The place of ultimate responsibility was confirmed by President Eisenhower, who said in support of the 1953 defense reorganization plan:

"Basic decisions relating to the military forces must be made by politically accountable civilian officials. Conversely, professional military leaders must not be thrust into the political arena to become the prey of partisan politics."

The same views were reflected in the 1954 law which added a civilian Assistant Secretary for Financial Management to each service and provided that the respective Military Comptrollers report to him directly.

It is almost inevitable, and certainly natural, that the field of management of resources would be a fertile one for the roots of concern on the part of the military man for his authority and stature. Aside from the myriad of possible bureaucratic or emotion considerations, there is the primary question of effective control by the military man over the flow of material resources which sustain him in battle.

The accountable civilian official cannot work without military guidance and assistance. Direct military management of the flow of materiel to the using arm is desirable. As a matter of fact, I believe that the strictly nonmilitary, or noncombat side of the business, in research and development, procurement, and all phases of Z. I. administration, whether it be real estate or transportation, is better handled at lower cost over the long haul by the military managers than it would be by an all-civilian setup. There are many reasons, a principal one being related to motivation.

In accord with the basic principles of our government, any handler of public funds is subject to controls. The handler must in all cases be accountable, as well as responsible, whether military or civilian. That point is not at issue, nor is the principle of civil authority over the military. The problems stem from the application of this principle to the division of responsibilities between the military and the civilian elements in the defense structure.

It all sounds fine, you say, but isn't the civilian invading the jurisdiction of the military when budget limitations determine force objectives. The answer can be yes, no, or maybe, depending on the circumstances. If you ask isn't he getting into the sphere of professional military expertise, the answer is, "Yes." Since there is no way this can be avoided, we have to live with it and make it workable through the good will, grace, and good sense of the civilians who exercise fiscal control.

I have discussed this problem of civil-military relationships at length but far from exhaustively because it is going to be always with us. It will be with us as long as we have a free society and constitutional definition of the relationship of civil and military authority. We will never have any serious problems with it as long as we keep it under open discussion.

There is a constructive discussion of it in the January issue of "Foreign Affairs," entitled, "The Challenge to Military Professionalism." I urge you to read it. It was written by Colonel Robert Ginsburgh, who was in the 1963 War College Class. He takes a sound approach to the matter and has some worthwhile recommendations for the professional military man.

Almost any discussion of the problem is better than none, because as long as we have it out on the table and in full view, it will not cause us any trouble. It is when we hide such problems and pretend they do not exist that they become serious. This is why it was a service to our military people when President Eisenhower, in his "Farewell Address," cited the dangers of the growth of undue influence in our government by any combination of industrial and military interest. As long as so many billions go into military spending, the danger is going to be there. Just be sure we keep it flagged.

The quality of professionalism in the military life depends upon the fact and acknowledgment of the civil authority over the military. I said in my talk here last year on military professionalism that without adherence to such a principle, military professionalism loses its integrity. Where military power is supreme, it becomes an end in itself and the practice of its expertise is self-serving. By definition, a profession must serve the society of which it is a part and which gives it status.

This concept of military professionalism has always been the standard of the U.S. military officer. He has honored it in a way which marks him among all the military men of history, and in a way which in turn honors the nation he serves. The years ahead, however, will test the professionalism of the American military in a way it has not been tried before.

This brings me to the third of the three points I wanted to discuss today. The first dealt with the environmental conditions which determines our military posture. The second covered the internal conditions which so affect the life of the military man. An objective awareness of both of these points is necessary to an understanding of the third.

THE GREAT CHALLENGE

Historic Military Problem

My third point, the problem which I said no other military had ever faced, is this:

How does the world's most powerful military establishment keep itself war-ready for decades and generations when its purpose in being is to prevent war, its design wholly defensive, eschewing aggression, and having no acquisitive goals, and do this without either deteriorating in military quality or growing out of its proper role and relationship to the society it serves and protects?

This is the challenge of the ages. No military organism in history has ever been put to such a test.

Look first at the conditions.

The requirement that it be the world's most powerful military establishment is a prerequisite of the objective of deterrence.

The absence of any acquisitive national purpose deprives it of the traditional planning and rallying point.

Being "war-ready" in an age of intercontinental ballistic missiles, megaton military explosives, and an emerging new medium of potential operations in space, means ready by the minute for a man's whole lifetime.

Maintaining quality means competing with every other area of demand and of opportunity for men with vision and brains.

Being war-ready means being up-to-date in relation to every other military machine which could threaten the security of the nation.

It means competing for funds with every other area of demand and opportunity for the expenditure of public funds for other socially beneficial and nationally worthy purposes.

But it also means recognition on the part of the nation as well as the military that preserving something to defend and husbanding the resources of defense, are part of being ready to defend. The military must recognize the restraints imposed by other national goals and limitations on the means available for their accomplishment.

Our Antimilitary Beginnings

The American military man can do these things if he continues the great work of the men who have elevated his profession above the colonial background of suspicion and mistrust of things military, stemming from England's long struggle for parliamentary supremacy and ending in the civil authority feature of the American Constitution.

The American system at the outset was a military but not a militaristic system. It conceived of the military as an agency of civil power. Thanks to the quality of American military professionalism, the tradition stands stronger than ever.

President Kennedy emphasized what this relationship really means in his remarks to the men of the First Armored Division during a field exercise just about a year before his death.

He said that regardless of how persistent our diplomacy may be in activities stretching all around the globe, our prestige and constructive effect in world affairs depends in the final analysis upon the military power of the United States, adding:

The United States is the guarantor of the independence of dozens of countries stretching around the world,

and the reason that we are able to guarantee the freedom of those countries and to maintain that guarantee and make it good is because of you and your comrades in arms on a dozen different forts and posts, on ships at sea, planes in the air, all of you. And there are a million of your comrades in uniform outside of the United States who are also part of the keystone of the arch of freedom throughout the globe.

Test of Professionalism

In this role, however, the American armed forces are being called upon to do something which is unprecedented. Indeed, the country itself is embarked on a course never before attempted. The problem thus created is difficult to describe precisely, but it is essential that it be explained and understood.

Historically, armies have been organized and maintained for conquest rather than defense. The Egyptians, the Assyrians, the Persians, the Macedonians, and the Romans lived by military power. It was military power used for acquisitive purposes.

True military professionalism is of comparatively recent origin. Roman soldiery, like many of its predecessors, reflected some characteristics of professionalism, but its acknowledgement of the civil authority broke down when Caesar crossed the Rubicon. The Roman military subsequently failed the test of sustained quality.

It is interesting to study the military establishments of more recent times, the last 500 years for example, and apply the test of sustained quality and integrity in relationship to the state. None of them, Spain, France, Austria-Hungary, Germany nor Britain, had quite the conditions surrounding the U.S. military.

The United States maintains in peacetime the strongest military force ever assembled in all recorded time--not for conquest, but for defense. This is the salient truth of America's awesome responsibility. The worth of this force for the long term defense of the Nation depends entirely on the professional vision and integrity of its military members.

Several strange difficulties or hazards confront the professional soldier in equipping himself for command. The profession is unique in that he may never exercise his full skill. Or he may do it only once in his lifetime. It is as if a surgeon had to practice throughout his life on dummies for one possible operation, or as if a barrister appeared only in mock trials until taking on the most difficult and important case on record in the highest court.

Another strange occupational hazard is that the complex problem of running a military organization is likely to occupy the professional soldier's mind and skills so completely that he or others may forget what it is being run for. The demands of military management and administration--for example, the maintenance and supply, the discipline and the human attentions required by an organization as big as a fair-sized town--are in peacetime enough to occupy the senior officer to the brink of war. A commissary general was reported to have complained bitterly in 1898 when the Spanish-American War came along and disrupted his splendid organization.

The story may be apocryphal, but it illustrates a not too unreal type of deterioration of a military organization. It can happen many ways. Most of you have had enough experience to understand all the things that can happen to undermine the morale, the subtle and invisible ways esprit can decay, and the pleasant diversions that can occupy otherwise industrious officers if they do not have enough to do.

There are a number of safeguards against the other type of hazard to military professionalism, stepping out of role or extending influence beyond the military realm. One is the specific constitutional provision, another a free press, the most important one probably being the awareness on the part of the military of the hazard. The extreme form was journalistically dramatized in "Seven Days in May," but nobody believes we have to worry about anything like that. There are other more subtle things that can happen which are not so easily detected and countered.

Eisenhower's warning about undue influence provided an example of a subtle hazard. He realized the possibilities of the pressures which could be generated if the military threat were ever described in a manner to serve economic ends. As I say, this is one of those hazards we do not have to worry about as long as we talk about it.

This principle of objective and frank discussion of all problems of human behavior and its consequences applies to our basic problem of maintaining military professionalism. I hope the subject becomes and remains an important part of the curricula of service schools at all levels.

CONCLUSION

The principle of open discussion applies to the great challenge of your professionalism that the coming years present--maintaining military quality and constitutional integrity. Remember, we are talking about generations.

History indicates pretty clearly that there is a real problem. It must be difficult to keep a dynamic and war-ready military establishment as a proper servant of the state in a society of free men over a long period of years because it has never been done.

I have talked about the threat to our security and certain problems of running the defense business because these are the things which mark if not determine the direction of the hazardous road ahead. I have tried to discuss them not from the standpoint of any of the military services nor as a civilian head of service, but as they possibly appear to an informed and intelligent public. It is important that we, as responsible managers of the defense business, always try to think of the way it looks to the people of the United States.

I say this for two reasons. One is that unless the threat to our security appears basically the same to them that it does to us, the professionals, you can be sure they will not continue to listen to our recommendations as to the forces needed to cope with that threat.

You can also be sure, therefore, that the longer the burden of \$50 billion annually continues, the harder their look will be.

The second reason is that trying to see things through the eyes of the long-suffering but still defense-minded public, will help us respond more constructively to their growing urge for solutions to the basic problem of war.

We must understand the reasons why the American people will continue to press for some form of arms control or disarmament. It is up to us to direct our energies and competence in that direction.

Perhaps progress in this field could also be a helpful safeguard against the occupational hazards of an unused military machine, loss of quality internally, or loss of perspective on its role as servant of the state.

They are as much hazards to democracy as to military professionalism. When military professionalism grows out of its role of service to the free state, it is the end of both. Similarly, when democracy's military defense begin to deteriorate, the end of both is in sight.

It will not happen in America if our military continues to exercise the degree of vision and intelligence and integrity which has earned it its professional standing. It will not happen if there is enough confidence in themselves and faith in democracy on the part of our professional military men to keep the subject out on the table and in full view.

One point I want to emphasize. It cannot be done from the outside. No legislation, no protective laws, no act of civilian authority can be effective. The only capability for this defense of democracy, like the visible and tangible defense, is within the military profession.

Thank you.

COLONEL LAKE: Mr. Secretary, on behalf of both Colleges, thank you very much for an interesting and stimulating morning. We regret that your time does not permit you to carry this on a little further.

(18 March 1964--7, 600)O/pd:syb