



THE MANAGEMENT OF EDUCATION

Dr. Edward L. Katzenbach, Jr.

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Reviewed by: Colonel J. H. M. Smith, USAF, 31 October 1962

INDUSTRIAL COLLEGE OF THE ARMED FORCES
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The Management of Education

24 October 1962

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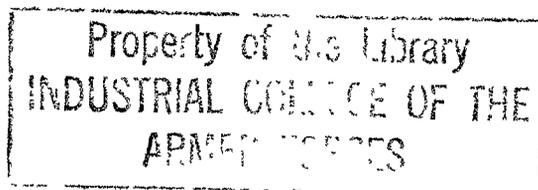
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INDUSTRIAL COLLEGE OF THE ARMED FORCES

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ADMIRAL ROSE: If education in the Department of Defense, for military and civilian personnel weren't important, you and I wouldn't be here. The man whose job it is to ride herd on education in the military is our speaker this morning. He is also, and for that reason, ex officio a Member of our Board of Advisers.

It's a great pleasure to present the Honorable Edward L. Katzenbach, the Deputy Assistant Secretary of Defense for Education and Manpower Resources. Dr. Katzenbach.

DR. KATZENBACH: Admiral Rose; Gentlemen:

Suffice it to say that I am no more interested in talking to you this morning than you are in listening to me. I'd rather be listening to the radio just as I know you would. But my job is to talk to you and I guess your job is to listen, so we'll have to bear with one another for something on the order of about 45 minutes. This speech isn't written. I've got some notes on some things that I think you might be interested in hearing, and therefore I don't know exactly how long it's going to take, but I think it's going to take a bout 45 minutes.

I'd like to say that it's broken into two parts. The first part of what I want to say this morning is about some problems in education generally, in the Department of Defense. And then what I'd like to talk about specifically is a briefing which I've been giving around the Pentagon, on education in management. In other words, directly in your business.

I'd like to say a couple of words now so that I won't have to go into this and break my talk up too much a little later on. I'd like to say that the conclusions to which I have come in studying management in schools, are not necessarily those which are official within the Department of Defense. As a result of the briefings which I have given, we now have five task forces at Mr. Gilpatric's direction, taking a look into various parts of the management education business. They are going to come up and take a look at the conclusions which I've come to and tell me whether I'm right or not. These are people from the services. These are experts from Installations and Logistics; from the Comptroller's Office; from R&D; and from a number of other different specialized sources. In other words, I'm not giving you any kind of official doctrine this morning; I'm giving you, in a sense, in the latter part of my speech, what Katzenbach thinks. I've been known to be real wrong and there's a man here this morning who can tell you about that if you're interested in listening to him. He is the director of educational programs, Colonel Bowman.

Let me tell you what I think the main problem in military education is today. It seems to me that there have been two major changes over the past 20 years in the role of an officer which requires a completely different kind of training an officer has had in the past. In the first place, even at the end of the Second World War most officers who commanded ships or planes or divisions, could field-strip most of the weapons which they commanded. This might have been less true of aircraft and less true of ships than it was of tanks, etc., but an officer really could be a specialist in his trade. Now, of course, he can't. He can't field-strip his weapons and he has got to be able to know in a quite different sense than he ever did in the

past how to be a generalist in technology.

How do you run tech refs? How do you figure out enough about technology to be able to foresee into the future the kinds of weapons that may be coming out? I want to say something more about this problem of technology a little later on, but the point that I want to make here is that I think the important problem is not really training military specialists in the sense of chemists, or physicists, or engineers - electronic engineers - it's much more a problem of training people enough technology to be able to know how to handle these kinds of people. And so far, frankly, I don't think that we've done a very good job along these lines.

Now, of course the other thing is quite evident to all of us, and that is that an officer was really a-political 20 years ago, and today we have to train political sophistication into our officers straight across-the-board, which means not only to War Colleges in terms of understanding of policy; it also means that we have really an enormous training program in terms of international relations, history, politics, etc. etc. The officer today obviously has to be one who understands politics, who is trained in areas; who understands economics not only in the sense of international economics, but also in the sense of village economics, country economics, the effects of international trade, the peculiarities of economic warfare, and a number of the things that you're studying here.

This is the first problem. In the first place, an officer from being a specialist has become a generalist; and from being a-political he has become political. Now, the second thing - and this has been just as difficult over time as it is now, but perhaps it's more difficult now than it has been over time - and that's the problem of

keeping up with the times. And now I'd like to talk a little bit about technology and where I think we've fallen down, and some of the pitfalls that we have in trying to keep education up, if you will, to technological change.

You remember before the Second World War we had radar and we had nobody trained to use it. And one always feels, somehow, that one is always a little bit brighter than one's forebears, but it's interesting to note that only recently, several loads of missiles were delivered to a base and one part of the system's management of the missiles had been forgotten, namely, training men to take the missiles off the trucks and put them into sites. Nobody knew how to get them from one place to another; a training program had to be set up, and about six weeks elapsed before the missiles got from the trucks to the place they were supposed to occupy.

So, the same problem is true today that has been true in the past. The thing, however, that bothers me a good deal is the rapidity of technological change and how one goes about keeping up with it. At one time or another, as your biography of me has probably told you, I as a political scientist have worked, say, for the National Academy of Sciences, on the impact of technology on the future of the Navy. I've worked on command and control systems for Cambridge Research Lab. So, I've had to face up, in a sense, to the problems of technology in a way in which a lot of my academic colleagues haven't had to, with, I think, purely disastrous results as far as they're concerned because political science today simply doesn't take into consideration, technological change.

But I sometimes wonder if even our military system of education takes it into consideration enough. I have a good friend who is vice president of RAD, the

Army's research organization, who makes the point that a thousand years, between 1147 and 1847 - this period of time when gunpowder was invented really starts with the capsule, through gunpowder, and all the changes of the 19th Century that the manufacturer of arms by assembly-line procedure, for example; the standardization of weapons, the introduction of engineering into military technology; all of these changes were about equal in terms of numbers and magnitude, as the changes which took place between 1847 and 1947; in other words, the era which introduced repeating weapons, armored ships, screw propellers, gasoline, tanks, aircraft and the atomic bomb. He makes the further point that the period between 1847 and 1947 in terms of magnitude really only equals, or is equaled by, rather, the period between 1947 and 1957. And if you think about it that's about true too, because you've got miniaturization, automation, the hydrogen bomb and missilery; also space.

Now, with technological change in a ratio of a thousand to one hundred ten, the question in military education, to my way of thinking, is how does one go about putting enough emphasis on this changing technology so that people like yourselves can make judgments about it. And here, as a matter of fact, although it's none of my business and I'm not trying to correct it, I would tend to be critical of the service War Colleges. And again, I don't really consider them within my bailiwick, so don't think that I'm going to institute changes; to get Mr. McNamara to give orders to the Commandant or anything of the sort.

But I would like to make the proposition for the sake of argument here today that in terms of education we take a look at the War College curriculum; that we're not doing enough in terms of trying to train our people as to what is on the horizon as

far as changes in technology are concerned. What kinds of new communications media are possible? What kinds of new transportation are possible? The pros and cons of various space systems, etc. etc. And, frankly, I worry about this. Because, again, in terms of education it goes to mid-term reports, for example, which are given by contractors for space systems. Who do you find there? I went to one recently out at Wright-Patt - an Air Force one - recently being about a year ago. A couple of Majors, a couple of Captains, a couple of GS-11s and 12s, some people from Rand who were interested, and myself; and I didn't see the Colonels or Generals there, the people whom I thought should be. I looked into it and I think one of the reasons was that they had a fear of technology because they didn't think they had enough scientific background in order to be able to understand it.

Somehow or other we've got to be able to bridge, in our educational process, the area that is strictly scientific and the other area which is strategic or tactical, or even political. And we've got to have people who can at least make judgments about the new technology and know in a general way what's coming up.

Another problem that we have along the same lines of keeping up with the times is that we really can't, in my judgment, recruit and retain specialists. It's interesting to note what the Air Force thinks is the most important in the areas of education of the people whom they want; that they have managed to retain only 7%; that is, of their officers who are trained for R&D. Recently a group of 38 officers, some of whom were from Cambridge Research Lab and others of whom were from Wright-Patt, were interviewed by the Air Force. Of these 32, nine were Bachelors of Science; I think 11 were Masters; and the rest were Ph.D.s. And of this group only

four were still thinking about staying in the Air Force.

My point is, that with this kind of retention rate we have to make, so it seems to me, greater use of outside specialists, or civilian specialists brought into the government, and we really can't afford to have officers trained except as thoughtful and imaginative generalists in order to be able to direct the work of the specialists.

Now, there's another general problem in the educational business that I'm going to speak about very briefly, and that is that I find that there are two problems from the point of view of my office, which are serious ones. One of them is prestige and degrees, and the other one is what I call "educational bureaucracy."

Let me talk for a moment about the degree problem. The degree problem, of course, is not one which is in any way particular or peculiar to the military, or to the Department of Defense. It's one which affects the nation as a whole. But as between a degree program and a non-degree program, our officers, I find, will fight desperately for the degrees rather than for the knowledge which they need to do their job. In other words, they're looking one step beyond the military career and into the civilian career. And this, I think, is causing severe strains, particularly within the Air Force, and I'm afraid that our degree consciousness has and is, and probably will, have a really adverse effect on what I call "user-oriented" education.

The second thing is that education tends to feed on itself. And I say this as someone who has been in the business for some length of time. The difficulty is that if one has had, say, a Harvard Business School education, one tends, in order to make one's Harvard Business School education/^{that}more meaningful, to advertise it as being necessary for whatever job it happens to be. So that, what one does is to

constantly raise the level of educational needs, and I sometimes think, without any real need. When I first came into this office I was bound and determined that everybody was going to get more education for the technological age, and after a year-and-a-half in it I must say that I'm getting to be very anti-education.

And also, you find a number of other peculiar things in this education business. For example, there will be suddenly felt a need for education in the Department of Defense in some particular area. You'll find that the course will be set up for Colonels. After three years there will be Lieutenants and Captains, or Lieutenant j.g.s and Lieutenant senior grades will be going to the same school with the same curriculum. Take a look, for example, at Comptroller schools in this respect, and you'll find that this is quite accurate.

Or, another thing that will happen is, there will be a sudden enthusiasm for a particular topic - counter-insurgency is the one today, for example. And I would sincerely hope that my successor in office will spend a good deal of his time routing out counter-insurgency from the courses that are being given around the country. And in this respect I would particularly like to call his attention to the instructions in counter-insurgency being given to the Chaplains' Corps. There are a lot of questions, incidentally, in my business, that could be asked. Do you know it takes 18 weeks to train an Army Chaplain and it only takes 8 weeks to train a Navy one? And that the Air Force Chaplains are trained by the JAGs; which is a case of the blind leading the blind.

Now let me talk about another problem. This is particularly, I think, applicable to the problems that you gentlemen have, and will. The users on the manage-

ment side of training in the Department of Defense - and I think I can illustrate this rapidly in a few moments - have not really done a very good job of either - in my view - of either setting up or riding herd on management training programs. They don't seem to really understand that education within the Department of Defense is a management tool and not just simply training for management. For example, the first thing that education is in the Department of Defense is a control device. It measures the kind of people that you get in, so that you can figure out who they are; it controls people's careers. It fashions them into a particular kind of person. It is user-oriented, in other words, or should be. And frequently, it's my conclusion, that the users don't really understand what the product is that their trainees are getting, in order to be able to use them well enough.

Your Personnel Officers will be sending people off to school whereas the guy who runs them and operates them doesn't really get a chance to know what they've learned at that school, or sometimes, what they haven't learned. And therefore it seems to me that we've got to do something by way of getting education, if you will, away from the Personnel-types and more into the hands of the operators on the logistics side of the house.

Also, of course, education is a tool of organization. It enables the people at the top to make sure that what they believe is taught in the schools; not necessarily that it's accepted, but at least that it's taught there. For example, one of the things I know that the R&D people would like to do is to have a school system so that they can get some of the ideas of the R&D people in Mr. Brown's Office directly into R&D and project management across-the-board, so that new directives will be

understood and new ways of thinking will be understood. And, of course, Mr. Hitch feels the same way about the new kinds of program budgeting which he has gone into. He likes his Comptrollers to know that. In other words, this is a back-up for organization and it's a back-up for thought. And again, I don't think the users pay enough attention to this.

I think my point is that education must be understood to be appreciated by the users, if it is to be used to the maximum. And in this respect I said to Colonel Smiley the other day; I'd like to repeat it here. One of the places where I believe that military management falls down, gentlemen, is in terms of supervision over the education, training and use of civilian personnel. In other words, the military accepts the maximum of civilian control but they won't accept the maximum of military control of civilians. And if I may say so, I think that this is very badly needed. I think that too frequently, officers who have been in the military all of their lives and understand, naturally, the problems of the military better, pay an insufficient amount of attention to the civilian employees on their posts, not only in terms of their morale but also in terms of their training, and indeed, in terms of their usage.

Now, gentlemen, I'd like to branch over, if I may, and go through this briefing on management, education and training, which I've been giving around the Pentagon and which has now been accepted, at least to the point, as I said at the beginning of my talk, at least to the point that Mr. Gilpatric has asked for a study of the subject and task groups are presently set up to do the studying.

Since the Second World War, I suggest, there have been many important changes in the organization of the military establishment. And considering the slow evolu-

tion of military organization over the course of U. S. history, these changes have been nothing less than startling. The establishment of a single Department of Defense; the broadening into a virtually new concept, of the Joint Chiefs of Staff; the establishment of unified commands and joint strike forces; all of these organizational entities have moved further along than any of us could have guessed 20 years ago. And one reason for this success, and possibly the main one, has been the establishment of Joint Schools such as the National War College, the Armed Forces Staff College, and the new emphasis which has been put on ICAF.

These supply, if you will, the cultural cement for the new organizational structure. And when education is user-oriented, as it should be in the Department of Defense, it also becomes much more effective in meeting the needs of the Department as a whole. Now, my fundamental assumption is that those schools and school systems which presently conduct management, education and training for the Armed Forces, have not been re-aligned in such a way as to reflect and support the changes which have been made within the Department of Defense, in the organization of management.

Overall, the changes made since a year ago January, in the organization of DOD, have been nothing short of dramatic. I think all of us will admit this. A new pattern is emerging which over the next few years will effect the entire structure of the department. And again, gentlemen, remember that in the education business, particularly in long-term education such as this, it's my job to try and think not just in terms of one year but in terms of five and indeed in terms of ten. Perhaps all of us could, for the sake of argument, agree on a bit of shorthand. We're all familiar

with the fundamental organization of the Navy, and particularly with the fact that its operational side and its support side have traditionally been separated, with the Chief of Naval Operations as operational boss of the fleet.

The bureaus, on the other hand, traditionally have been the special interest of the Under-Secretary of the Navy. The Department of Defense, as I see it, is presently, and has been, over the past several years, organizing along much the same lines that the Navy has been organized all along. The establishment of a Defense Supply Agency is only the most obvious example of this. Certainly, the concept of package budgeting which establishes at the very least, common budgeting procedures in the three departments, is another. In procurement, disposal, warehousing, a dozen other areas, the key concept is common practice.

Now, if this reorganizational realignment about which I have been speaking is as much of a reality as I believe it is, then it will undoubtedly follow as it always does with military organizational changes, that at some date in the future, perhaps at the level of Army Captain, Navy Lieutenant or above, a new career pattern - or call it what you will - will be designed in the general area of management. In some respects the new career structure may parallel the Air Force concept of rated versus non-rated officers; or, may more closely parallel the Navy's division between general line and supply service officers.

Frankly, there's no question in my mind that the cost of training and retraining is too high and the world too complicated, and the military man's life-span in service too short to be able to assure ourselves of complete job interchangeability in the future. And despite the fact that in the services generally we still pay lip-

service to this, I don't believe that we any longer really believe it ourselves. But the point is that in educational matters, as I've said, a long lead-time is the first necessity. And it's time to move forward to the education of those specialized officers who will doubtless emerge as the experts who support management over the next 10 or 25 years.

This, then, is the way that I think the organization is developing. This doesn't mean that I think we'll have a single uniform with the logistic support forces on the right-hand side here, but I do believe that these officers will be having much the same training. I think that job interchangeability between services in the logistic support area will become more and more of a reality in the future. Now, this does not mean that I'm so stupid as to think that the Navy will not continue to have need of people who are specially trained in fleet train¹ operations, for example, or that there will not be a need for Army Officers who are trained in the use of the truck-train. But it does mean that in a general way I think that these logistics support forces will be people who will be trained and go up along this line.

In considering our educational problems on the logistical support side, or the management side, if you prefer, I've kept in mind the Joint Chiefs' definition of logistics which all of you doubtless know and which I needn't go over here. Suffice it to say that logistics is everything. It is in this context that I have approached the problem of management, education and training.

Now, then. Let me show you a chart which discusses - this is over-simplified and I must admit that I cheated a bit on this; but all of us have to cheat; that's why we have these kinds of devices. But this in a general way is the way in which the

school system looks on the operations side of the house; fairly clean, all things considered. You go from OCS into branch schools and then into special schools, ranger schools, or to special kinds of tank schools, etc., and then a man, after about 10 years of service, goes to command and staff schools, or he goes to the Armed Forces Staff College, with a little bit more time in, but essentially not much. And then he goes on to the service War College. And then after that he goes on to, perhaps, the National War College, and then on to the unified command or to staff duty someplace at the apex of his career.

My point is, however, that this is a pretty clean line that goes up here. And the operational people, note, have these school systems under their direct command and they're looking at them all the time.

Now let's take a look at your side of the house and see how that actually looks. Now, last year Secretary McNamara, changed, as some of you may know, the character of the Industrial College of the Armed Forces, largely because he felt that ICAF and the National War College were moving too close together in their curricula. In his memo to the Joint Chiefs of Staff he visualized ICAF as the capstone of our military management school system. After I'd read over the memorandum and sent it on describing ICAF as the capstone of our management school system I asked Colonel Coleman what he thought it was the capstone of, and what was the system. He told me he'd tell me tomorrow morning.

Having enough degrees to sink a ship - he has a Doctor of Education, a Master of Business Administration, a Master of Public Administration, and he's a graduate of this place; I thought that he probably could tell me in no time at all. I think that

we discussed this on a Thursday and the following Tuesday he came in and said, "I not only can't find out what the structure is, I can't find anybody else who knows anything about it either." The fact of the matter is that we really don't know exactly what ICAF is the capstone of. And today what we're trying to do is to rationalize our educational pattern for professional instruction in the management of men, money and materiel. Over the past several months I've had my staff collect data on just what management education is currently available. The present pattern, as you can see, is far from clear.

An officer normally has some service before selection for professional education on the logistical side. The management schooling available, except for short special courses, is curiously varied. There is no philosophy at all. All four services have a civilian schools program varying in length from one to two years. The Navy has its ten-month management course at the post-graduate school, and the Air Force has a one-year course in advanced logistics at the Institute of Technology. These are generally available after an officer has had about five years of service. Although these programs could be considered as the middle managerial level, they are all, in effect, graduate programs, and indeed, one gets a degree for going at least to AFA and to the Navy management school. At least, they're in the process of getting degrees to be given by these schools.

The other management schools in the logistics area are the Army's ALMC at Fort Lee and ^K~~Omega~~^T at Rock Island, Illinois. Some of ALMC's courses are given at the grade level of those of AFA, but the Army's supply management course is given mainly to Lieutenant Colonels and civilians at the GS-11 to 14 level. Practic-

ally all of ^{AMECA} Omeda's courses except its five-week course on work-methods and standards, are short technical one to two-week affairs. And they've trained during the past year some 3,800 people. The other management school, incidentally, that the Army has, that is worthy of note, is the Army management school at Fort Belvoir, which does much the same thing in one of its courses as they do out at Omeda, and indeed, that is done down at ALMC.

Although officers on the logistical side of the house go to service, command, staff and war colleges, their percentage is small. And these schools are designed primarily for operational people. So, except for the Army Supply Management Course on the logistics side, there is a gap between the long management courses given to relatively junior officers and the ones given here at ICAF to relatively senior ones.

With regard to civilian schooling, during fiscal '62, the Navy sent 62 officers as you can see here, to civilian schools, to take management of one kind or another. This past summer the Army had some 203 in school; the Air Force 328. You can see the ways in which the courses are broken down. Now, I think that some of these schools are rather interesting, as a matter of fact. It's notable, for example, in the Comptroller Finance area, that the Army has a school up at Syracuse; the Navy uses GW here, and the Air Force uses a course out at Michigan State. Finding the differences between these courses is extremely difficult. The only one that has any really marked difference is the Army school. And the question, of course, that I always wonder is, not whether we can do it cheaper, because doing things cheaper just doesn't happen to be my business, but whether we can do it better by combining

these schools, and whether Comptrollers should be trained together today, or should not be.

Now, then, with regard to in-house schools, the Navy management course has graduated 90 students per year, but has recently increased the quota to 120. This, incidentally, is interesting too, because trying to get requirements on the kind of management training that is necessary is one of the most difficult things that you will find if you ever try to get hold of this particular piece of information. These are mostly Naval Officers with a few Coast Guard and Marine students in the group. The Navy has indicated that it could handle another 60 students with the addition of five more instructors. Approximately another 250 attend a four-week summer seminar. This is also an interesting evolution in service schooling, which you've probably noticed. But you always start a long course and then you take the guts out of it and make it a short course which is sometimes called a summer seminar and sometimes is called an associate course.

And for those of us who sometimes think there's a little too much schooling in the Department of Defense, one wonders what would happen if one substituted the associate course for the long course and then started paring down a boiled down associate course.

Now, AFA has programed to handle about 50 students per year in its long course in logistics management, though it is actually turning out less. This too is an interesting question. How small can one allow a school to be? All of us are so much in favor of education that I think sometimes we fail to realize that there is a point at which there is no return in terms of money spent for a few students in educational

programs. In addition, of course, about another 2,400 military and civilian personnel attend short courses, or have attended short courses in Fiscal '62. AFA undoubtedly has an expansion capability but as yet we haven't gotten our fingers on what exactly that really is.

Now, the senior course at ALMC is a 12-week course in Army Supply Management which is really a shorter version of the other two courses, and from which some 331 officers and civilian personnel were graduated in Fiscal '62. And then, at the Army Management School at Fort Belvoir we've got an entirely different proposition, with a short course for Generals, of only one week in how to manage posts and stations, etc., and then a much more general management course of three weeks for Lieutenant Colonels. It's also interesting to note that historically ALMC has nothing to do with either ^{AMETA} ~~Oneda~~ or with the Fort Belvoir operation because each one of these was under a different Army organization. So that, in a sense, the three never spoke to one another. I trust that with the reorganization of the Army things will change somewhat.

Now, a further development of the logical pattern of professional logistical education is almost impossible as I see it at the present time. Let me just show you some slides of the kinds of courses that we have in management across the country. I'll do this very quickly, but just to give you some kind of concept as to the numbers, sources and varieties of courses with which we're dealing. Incidentally, the SOL, of course, of the Air Force School of Logistics and ALMC over on the left-hand side here - and the ALMC and the ^{AMETA} ~~Oneda~~ is the Army Ordnance School. There are just enormous numbers and varieties of courses of all sorts which are all over the place

in the Department of Defense.

We counted up some 29 different courses being given in the Department of Defense, in the area of quality control alone. We really ought to have quality in this outfit. Well, that's enough.

Now, what's interesting is, in this whole setup, that nowhere in those is there a course that's really designed for joint logistics management. There is no one to train J-4s in this whole business. ICAF, as you know and as I see it, has essentially three missions, and I'm sure that the Joint Chiefs of Staff wouldn't want these changed. One is that you're taking a look at DOD management inter-relationships - the relationships between the manpower side of the house and installations and logistics, etc. Secondly, you're taking a look at the Department of Defense logistical relations to other parts of the government; in other words, the Bureau of the Budget, the Maritime Commission, the Congress, etc. Third, you're taking a look at government industry relationships in the United States. And fourth, you're taking a look at U. S. relationships with other nations from an economic point of view.

But it seems to me that somewhere just below ICAF and on a parallel line with the Armed Forces Staff College we should set up a joint logistics school giving courses concentrating on the military ramifications of logistics. Such a school would be roughly comparable to the Armed Forces Staff College and indeed might be a part of it. But it would concentrate its efforts on military logistics as opposed to operational matters. And the reason why, of course, that I would be anxious to have these schools together is because of the fact that I don't want ever to see, obviously,

the support side of the house far away from the operational side of the house. And, of course, I would insist that in terms of schooling that there be a good deal of interchange between the two.

But I say that if we're to have officers with a common appreciation of like management problems, then it follows that they must be educated in common and from the point of view of common doctrine. In one sense we have already seen them, although in another not. In the various courses at ALMC, the course at AFA and the course at Monterey, although of different lengths and possibly of different quality, all of these have like curricula, but they do not have mixed student bodies. So, it seems to me that what we need to have in a very real sense is a joint logistics school which will train a J-4. And I might say parenthetically that inasmuch as I've already mentioned education was a control device in the Department of Defense, I think it's very important indeed that there be someplace where specialists in warehousing, in transportation, in budgeting procedures, etc., know that they have a school into which they can go from their specialties, in supply or whatever it is - procurement - that there is a school to which they can go and from which they can branch out into the J-4 business so they won't be stuck as transportation officers, or supply officers, or procurement and budget officers for the rest of their lives.

In other words, there has to be some school at which a man gets a chance to broaden himself as he does at this, to go on to higher staff and command jobs.

I'd like to end up with a number of recommendations which I'm making. Incidentally, there are a lot of other areas in this management business that I think not only is there a need for a joint logistics school, gentlemen, but there are a lot of

other areas which, it seems to me, that one needs either joint or common schooling, or at least officers trained across-the-board. Transportation management is one of these. Neither Fort Eustis or Sheppard Air Force Base, nor out at Oakland at the Navy school is there any course which gives a man an opportunity to study the relationship between air transport, sea transport and land transportation; and over-the-beach transportation and all of the problems accruing to each one of these. Each has very specialized courses designed particularly, really, for the Air Force and Army, for air problems, land problems and sea problems.

A number of years ago I was working for the National Academy of Sciences on a project on the wartime uses of the Merchant Marine. They had a very distinguished group of officers there; one was General Bassin, as a matter of fact - now Lieutenant General - in charge of the Army support side. And all of the officers there were tremendous specialists in their own area. There was an MSTTS person there, for example, and then there was an air transport - a MATS fellow - there. And there was General Bassin and a number of others. But the interesting thing was that what we were trying to do was to figure out the total movement of forces in terms of a limited war, and in terms of availability of aircraft, ships - you know - all kinds of problems of this sort.

And there wasn't anybody there, really, who had the vision - General Bassin far and away was the best of us - but they had the ability and had been trained to look at the transportation problem; the movement of troops, for example, across-the-board. And it seems to me that there is a possibility that we may need a course in this area, which is joint, and which would prepare some of us for joint transporta-

tion duty at the highest levels. And incidentally, I don't think, as differentiated from the services which presently send a number of people to civilian schools, that this is an area for civilian schooling. I believe that there are a certain number of officers who ought to understand civilian rate problems and the rest, but I do believe that this is an area of military transportation which is sufficiently specialized so that no civilian educational institution can do the job.

Well, I made a number of recommendations which are only up for test, and needless to say, I won't be sticking with them until the end of time, and my mind will probably be changed by the number of reports which are coming in. But it does seem to me, as I've looked at it, that one could make the curricula of the Navy Management School, of AFA's advanced logistics course and all the courses at ALMC suitable for inter-service use. I can't see the real differences between these courses. Perhaps somebody can point out the differences, but I don't see them.

Secondly, I think that what we can do is to establish quotas at the different schools, on an inter-service basis. I think that this will be cheaper for the government, and also I think that it will create greater understanding between the services, concerning supply problems and management problems which have been becoming increasingly the same. I think that there are a number of areas where common curricula can be established. For example, I don't see any real reason why one has to have a Mess School for each of the services.

I do believe that a joint catalog of schools has got to be established. Believe me, in the last six months, trying to pull together information on management schooling, there have not been catalogs to which we could go to get definitive information.

The service catalog does not, in fact, have all the management courses in it. And it does seem to me that it would be useful to all of you gentlemen in the future, if you had a single catalog so that you'd know where you wanted to send people to be trained in what with some kind of descriptive material of the courses concerned.

For another recommendation which I have made, I do think that we ought to take another look at student eligibility requirements, because it seems to me that particularly in an advanced schooling, for example, such as the Harvard Business School, Purdue, Stanford Business School, things of this sort, that the military officer going to these schools, probably shouldn't go as young as he does. I'm a bit inclined to believe that he should go to school after he is more mature, not in order simply to get the information, but to do, for example, what the academies do; send people to school to come back and teach. The reason for this is that any military officer has a great deal more experience in terms of management than his counterpart in business.

After all, for example, when Mr. McNamara came to the Pentagon he was coming to join people who had much larger management problems than he had for a great many years. The average military officer, even as a Second Lieutenant, has control of monies and properties that are worth a good deal more than he would ever encounter in business. This being the case, I'm inclined to believe that we don't need as many officers sent out to civilian schools to study; that we could do a better job, a quicker job, and as good a job, by shortening courses and just sending certain selected officers out to civilian school programs, there presumably to learn the latest in the thinking in the business schools so that they themselves can see

what applicability this has to the military.

I also think that there's a difference, too, in terms of the way in which civilian schools teach, and the way in which the military must be taught. One of my good friends, and a former student of mine, General Ordiansky, always used to tell me that the Harvard Business School really was doing a lot of officers, in his judgment, a lot of harm rather than a lot of good. I said, "Why?" He said, "Well, the reason is that what they do is to talk about persuasion almost all together. Whereas management in the military is a command business and I think that we should realize that management simply by example of persuasion isn't the kind of management that we really go in for in the military.

Now, finally, I think we've got to find out whether or not we need a joint logistics school, as I think we do, at the same level as the Armed Forces Staff College, to indicate the void in the gap which I showed you on the chart just a few minutes ago.

Finally, I think that we must do something about sending civilian personnel to more schools. It seems to me to be patently ridiculous that inasmuch as one out of every three people in the Department of Defense is a civilian, that we should expect a civilian to come into government as a GS-3, GS-5, GS-7, and go from there to a super-grade without additional training. And at the present time all we do is to give them short courses. This is largely, it seems to me, due to the fact that the civilian Personnel Officers have blinders on as far as imaginative use of the training provisions of the legislation presently on the books is concerned.

Mr. McNamara has written a letter about this which you might be interested in,

but which does encourage the education of civilian personnel.

Finally, I do believe that we need a Board of Visitors which would annually review management schools and make a report directly to the Secretary of Defense. This, I think, is a most important thing, gentlemen, because at the present time the people in the management area haven't got enough say as to what is being taught in the schools. They haven't even got enough knowledge as to what's being taught in the schools. On your side of the house it's quite different than it is on what I call here on the chart today, the operational side where the operational people are always looking over the shoulders of the Superintendents or the Commandants, or Directors of the various service command schools and war colleges and the like.

In short, I do believe that we've got to figure out some kind of a device whereby the schools are taken out from under Personnel people and at least once a year the operators have a chance to take a look at them.

Well, I've talked about six or seven minutes longer than I intended; I'm sorry about that. I'd be only too happy to entertain whatever questions you've got afterward. I would hope that you would not take anything that I've said this morning as in any sense being gospel, because I didn't present it to you for that reason. I submitted to you what I and my staff are thinking about in terms of management schooling for your criticism, for your thought, and because I think it's important that you take a look at the future in terms of the organization of the Department of Defense.

Now, I may not approve of some of the changes that are being made in the Department. I'm not sure, really, that I do. But I don't want to argue. My job, as

somebody who is supposed to have some role in education, is simply to make sure that the education is this; the new organizational developments which are taking place in the Department of Defense. If I didn't do this I would be disloyal and ought to get out of office. So, what I'm trying to do here is to make out some new, or take a new look at management education across-the-board so that somehow or other we can make this fit the new pattern which I see emerging in the organization of the Department of Defense, and the separation, in a sense, of career lines between support on the one side and operations on the other.

Thank you very much.

QUESTION: Doctor, from something you said I gathered that it might be the thinking in your Office that ICAF is a school for the training of logisticians exclusively. Is that true?

DR. KATZENBACH: Oh no; wait a second. I was trying to make the point very strongly indeed, Colonel, that one of the things that always worries operations people; I'm sure it worries many of you in terms of setting up DIA or setting up DCA, or setting up any of these specialized agencies; that somehow or other they won't be close enough to the operators. That's why I tried to make a special point in the middle of my talk to the effect that if, as I say, we're going toward a sort of service of supply, that we've got to make sure that this service of supply sends officers to command and staff schools. In other words, those on the other side of the fence; and the people on the other side of the fence - on the operations side - have plenty of people in places like ICAF, as logisticians, and people who are logisticians

should be going to the National War College, or the service war colleges as well as to these more specialized schools. But I didn't have that in mind at all. Primarily, sure, but I'd like to have that cross-fertilization.

QUESTION: Doctor, you didn't mention anything about the cost of education. That is, cost in terms of time and manpower. Could you give us some of your thinking on that?

DR. KATZENBACH: I hardly know where to start; that's such a big subject. Let me start on the civilian side of the house if I may. During the present fiscal year there are about 12,500 officers in graduate schools for 120 days or more per year. This does not, incidentally, include language schools which would probably add something on the order of about 5,000 more. On the civilian side of the house there are only 58, including those in the room at the present time, who are going to some civilian schooling program of over 120 days. In other words, we're sadly short on the pipeline on the civilian side.

Now, I also think that there's a problem within the services themselves, between them. For example, I think that given the officer ratio of the Navy at the present time, that it really is genuinely difficult for the Navy to supply as many officers into the schools as I think they need, and indeed the Navy itself thinks it needs. I think that in terms of tied-up manpower the Air Force and the Army can afford this a good deal better than the Navy can.

Now, again, in terms of tied-up manpower, one of the things that is bound to worry anybody in my position is that we have a peculiar thing in the Department of Defense as a whole. We have probably the most over-educated group of profession-

als in the world, and in some cases we don't have anywhere near education enough. The number of officers, for example, whom we have, who don't have Bachelors degrees is shocking. But on the other hand the number that we have who have multiple graduate degrees is, from the point of view of monies expended, rather worrisome too. It seems to me that the only way in which we can possibly do anything about this problem, if you will, is to try to establish a little better than we have in the past, more closely related patterns of career development. The Air Force has gone a long way toward this, it seems to me, in the educational surveys which they have made. The Army and the Navy not anywhere near as far.

I have one very brilliant young Army Officer who is a former student of mine and a close personal friend, who has been in the service now for 11 years and he has been in school for seven. This does seem to me to be sort of out of proportion if I may say so. As a taxpayer I rather resent this. As a matter of fact, when he finally went to Germany to do a command job I wrote him a little note and asked him if he was enrolling in the University of Heidelberg. I received a postcard yesterday saying yes indeed he was. I guess my point is really that I don't like so many officers running around with so much more education than I have.

But in terms of tied-up manpower, I think that on the civilian side we're doing very badly because the pipeline isn't long enough, and I think that in the services the situation is as I have described it. We do have a very large pipeline to the schools but I think it's something we've just got to learn to afford. At the same time, I think that because we have so many people in it, that we have to do something by way of re-arranging career patterns over the next few years. All of you know how difficult

that is to do.

QUESTION: Doctor Katzenbach, you mentioned the fact that the services tend to lose their officers who are technically trained or who have some particular specialty background such as science, engineering and this type of thing. Now, we do have a policy of paying our doctors and our lawyers a little bit extra money to stay in. What changes in Department of Defense policy do you envision to overcome and correct this condition because of losing trained and qualified people?

DR. KATZENBACH: Well, as you know, Colonel, it comes up almost every year. Let me be quite candid about it, and now I'm not speaking from a departmental position or for my boss at all, but one of the things that worries me is about the increasing amount of specialized pay that we give to people in the services. In other words, I think it ought to be cut down rather than brought up. It does seem to me that it's somehow or other, kind of wrong to be training or to be giving more money to the man who runs the Naval Research Lab, for example, and who has a degree or maybe two degrees, or three degrees, or umpteen degrees in physics and mathematics, paying him more money than the fellows who are down on the Cuba blockade.

In other words, this doesn't seem to me to be quite right. Therefore, my own feeling is that increasing the amount of specialized pay is something that we should discourage rather than encourage. And my own view is that we're just simply going to have to continue to do something which I really don't like very much; we're going to have to continue to bring in our specialists from outside, our tech reps, and go to even more tech reps rather than less. And again, the military are going

to have to be trained more generally in technology, and less specifically.

QUESTION: One of our problems in the service has been a matter of identification. Having sent these people off to school, and they get this education where you frequently can't identify them through ASSD or some other way that you can get replacements, that's not what we want. Have you done any thinking along this line?

DR. KATZENBACH: Yes, all of us have, Colonel. That's a real difficult problem. And it's something which comes up all the time. Just the other day I had it called to my attention that a man who had studied Chinese for two years had been sent to Greece. In an organization that's as large as ours, I don't know really, how we're ever going to do a complete job of identification. I have done a fairly complete study of the utilization of people trained in management and then their relationship to the first tour of duty for management training. There it's pretty good the first time around. But where we don't really have any real track of these people is in the second and third tours. And that, I think, is the area in which we are going to have to do a good deal better job.

We're going to try and get ASAF in this study that we're doing at the present time. At least we're going to get the question asked, and I think the answer is going to come back negative. We don't really know how many further tours of duty the people could use in their specialty. I think that the very fact that we can get this admission will mean that we can do something in terms of better identification and better utilization of highly-trained manpower. But we don't do as good a job as we should, except on the first tour.

QUESTION: It is widely held that a great deal of our strength and formation

arises from a diversity of opinion, which resides in our diversity of backgrounds, which in turn arise from a very wide background in education. You seem to suggest that we should substitute for that a single, more or less monolithic training program as a kind of assistant to education. Do you feel we'll lose some of the benefits from the diversity that we've had?

DR. KATZENBACH: No. I say that what we'd do would be to gain a good deal in terms of diversity of opinion if we had common school programs. For example, at the present time the Air Force really doesn't have a very good idea, except at the very top, as to what kind of a job is being done in the Navy Management School, for example, out at Monterey. Nor does the Navy have a very good idea of what is going on at ALMC, for example. I would suggest that given - I'm not suggesting, incidentally, here, single schools for the sake of single schools, or combining for the sake of combining. I'm simply saying that I do believe that inasmuch as the curricula of these schools is so much the same there is no good reason why people from different services shouldn't go to them, bringing new ideas to the school.

As a matter of fact, I think that the divergence of backgrounds of people who were, for example, in the R&D field - where the philosophy of the Air Force is quite different from the philosophy of the Navy in terms of management, the very conflict of ideas and the backgrounds of the people sent to the schools would probably do a good deal to turn out better thinking in terms of R&D management, for everybody.

So, I'm not trying to discourage different backgrounds; I'm simply saying that in many of these areas where the training is roughly comparable, there is no good

reason why people from other services shouldn't go.

QUESTION: Dr. Katzenbach, I'd like to press home a point that John just touched on and you didn't catch. It's in the line of the confusion that has come to me, when you jump from the higher educational level to the lower training level. All the way through you're not distinguishing between education and training. For example, generalists are educated. I understand 179 of us here are being educated. I've talked to logistics school classes back at Wright-Patt where I'm training, even though I'm giving them a breadth of technology scope. Now, are you in laying this out, giving attention to the fundamental of whether your objective is to educate versus train before you even start out with an examination of the course content?

DR. KATZENBACH: Well, your point is a well-taken one. The difficulty, of course, is in trying to distinguish between training and education. That's where the real problem comes. Now, you train a guy in warehouse management; you train him in maintenance management; you don't train him in management; you educate him in management. I would say, for example, at logistics school - at AFA what you're doing is educating, not training. I am making that distinction, yes. I mean, it gets awfully fuzzy here.

Now, for example, there's a new course of, I think, eight weeks - unless I'm mistaken - either eight or twelve; I get these courses mixed up in my head sometimes, because there are so many of them - but eight weeks in program management is what it really boils down to - or project management. It's called a project management course, down at ALMC. The Army runs it for Army people. But the interesting thing about it is that the people who are doing the talking in this course, are

Air Force people and Navy people as well as Army people. Now, is this a course which is trying to increase the imagination, the depth of understanding, and trying to widen the perspective of the guy, or just really trying to train him as a projects manager? I'd say that this course is trying to educate him as a projects manager. But I'm sure there are those in this room who would disagree with me. So, it's just trying to figure out which is which; that's where our problem comes in.

This is even true, I think, in a staff and command school. Take the junior schools down at Quantico. Are you trying to train the man there for Battalion Commander, or are you going to educate him to be one? I don't know. As you know, many civilian educators - and I have problems with them all the time - try to make the point that in the military school system what we do is to try and mold a guy; you know, that the whole thing is built like a Prussian NCO School. And, of course, this isn't true at all because I'm unfamiliar with the school in which there isn't all kinds of argument, dissension, and the school solution doesn't go down too well.

QUESTION: Doctor, you have stated as your first proposition that education should be user-oriented. It is forgotten in most of the services that implicit in what you have said, is the second proposition that these users are the fighting forces. And, of course, shore establishments in all the services exist only to support these fighting forces. In the Navy we have no cross-fertilization problem because the same people man both, the shore establishments and the fighting forces, with alternate tours. You have indicated this cross-fertilization is desirable, but would this shore establishment still be responsive to the needs of the fighting forces if it were manned predominantly by a core of professional managers?

DR. KATZENBACH: Well, you remember I made a sort of special plea for this new logistic school. And you remember I said I thought this should go on for as long, roughly, as, and be directly in conjunction with, the Armed Forces Staff and Command. And that's exactly the reason that I made that point; because I'd like to have those people trained side by side so they wouldn't get far off. I'll tell you the thing that worries me right now is that an officer, for example, who is in transportation, or who is in the transportation corps of the Army - I can't figure out whether that still exists or not; there are lots of things about the Army these days that are a little puzzling to those of us who are trying to get information.

The Transportation Officer, or say, the Port Manager, remains in this structure. And, it does seem to me that the expert in, say, supply or procurement, or whatever it is; that there should be a career for this man which would get him into the war logistics business. That's why, it seems to me, that there is a necessity for a school that would train people across-the-board in essentially J-4 type of operations, and would get them oriented completely, to the operational forces. I don't really see problems of cross-fertilization there any more than I do in the Navy itself. In other words, I see no reason why these supply people who I see emerging here shouldn't be fully cognizant of the operational problems which they're supporting.

QUESTION: One of the problems of training civilians in the longer courses is the fact that you have to operate without replacements. If an officer goes to school you get a replacement and you can maintain your efficiency. I certainly agree with your comment that we need to think more about this, to train more of our key civil-

ians. But this presents the Chief or the Commander with a real problem here to operate the outfit on his own.

DR. KATZENBACH: This report will say - and of this I'm practically positive - there is no point in talking about training civilians until you start talking about a pipeline. I like to think in terms of an executive pool, particularly at the top. Incidentally, there's a new publication which I brought over this morning; it just arrived on my desk, which the Civil Service Commission put out, called the "University Federal Agency Conference on Career Development - which you might be interested in. It's talking in here about the relationship between sending civilian administrators, for example, to the colleges to learn more about the art of administration.

You'll find that a good many administrators in the super-grade positions today came in without any formal education at all at the GS-1 and 2 levels, and have gone up without any further education or broadening at all. But on the other hand there is no point in talking about this business of sending people back to colleges and trying to broaden the civilians in the Department of Defense, or for that matter, anywhere else in the government, until such time as we do a better job of creating a pipeline. In other words, if there's no pipeline let's forget about the whole problem.

Frankly, that's the way I look at it. If you take a look at any of the large businesses - American Tel and Tel or any of the rest of them - you'll find that all of those businesses have a fairly large training pipeline built in. We just simply don't have it. I think one of the reasons for this, incidentally, is that we're scared of

losing civilians by training or schooling them. It seems to me that the fact of the matter is that we've just got to say, "So, we lose them," and go on about our business of training. We're willing to say this about officers, so I see no reason why we shouldn't say the same thing about civilians.

It does hurt, I must admit, if you take a look at the figures of the people who go out to specialized schools. For example, I was out recently at Great Lakes while I was shipping back into training - at the electronics school out there for enlisted men - and their retention rate is only 10% after obligatory service. These are pretty highly-specialized guys. They ran a survey of all of their graduates in '59 to '60, and that amounted to about 5,000 people. I think there was only something like 29 still left in the service. We're training the nation.

This is one of the things I always say when I go up for my budget or supporting one of the service budgets. I say, "Look, it's cheap. If we didn't do it, industry would have to." This is all tax deductible.

QUESTION: Dr. Katzenbach, one of the unmistakable trends in DOD especially, these days, is cooperative logistics with our allies. Now, we have some interchange of commands, you know, etc. What is the newest thinking on cooperative logistics and education at the highest level?

DR. KATZENBACH: I'm ashamed to say I haven't thought about it, but I will. Thanks very much.

QUESTION: There are now some joint courses at ALMC. Proposals have been made in the past for additional emphasis on joint training there. I don't know how far with the fight they got before they were even stifled or maybe hanging in limbo

there even now. Is your office doing anything to put greater emphasis on joint training at any of those places?

DR. KATZENBACH: That is what I would expect to come out of this report. Incidentally, one of the things that I made it a rule to do was to spend one week out of five out of my office, so if the idea is not completely stifled, sooner or later I hear about it. I've been down there and I don't know of a franker group of people.

QUESTION: Sir, you stated that the officer today should have a better understanding and knowledge of science and technology. My question is, how do you propose to bring this about? By bringing in, for example, more engineers?

DR. KATZENBACH: No; that's not what I had in mind at all. What I have in mind is much more something like the kind of course that's given to these project managers, which not only tells them what kinds of problems are in project management, but also tells them in a sense, as I understand the course - and I haven't been through it; I've just looked over the literature on it - not only that, but it tells them how to put together various and sundry bits of scientific and technological information straight across-the-board.

One of the things that nobody in political science or public administration, and indeed very few people in business administration have done, is to try and link or do some forward thinking in terms of the impact of technology on business. I was talking the other day to some people over in the Commerce Department. They have a new scientific group over there that is trying to do something to bridge the gap between among other things, the kind of things that we're developing in the Department of Defense, and then their civilian utilization - in other words, to shorten the

gap, if you will, between the B-70 and the 707; this sort of thing.

And it seems to me that what we ought to be doing in the services is taking a further look - have a group of lecturers, for example, coming in and talking about things like earth communications; problems in terms of what can and cannot be done to solve space weapons problems, etc. My education in this - and I'm frank to admit that I don't know any math and less science, less physics, etc. etc., but I do have - having gone through these studies - some feel for where we're going, from a technological point of view. And I do think the courses can be set up so that a group of experts can come in and talk in the area of their expertise about the future of weather management, the future of communications, various types of communications, etc. And this is the kind of training that I think we need more of.

In other words, when you take a look at the list of lecturers at the War Colleges, for example, there are too many people like myself, in my view, who are talking about - well - the sort of things that I used to talk about; about the organization of the Department of Defense; about the relationship between the State Department and the Defense Department - things like that. I think there ought to be more specialists coming in who are giving some view of where technology is getting to. What is the future, for example, of containerization in ships, and roll on and roll off; in other words, somebody from the Maritime Commission should be coming in and giving you all the dope on that type of thing, etc.

Those are the kind of people that I'd like to see doing a better job. Get some of the political people like myself off of the platform and put some hard scientists on it.

QUESTION: Sir, could you tell us what the latest timetable is on the consolidation of the service research and development resources institute into a Defense Research and Development Agency?

DR. KATZENBACH: Well, now, you'll have to ask Mr. Brown that question. But let me put it this way. I have heard nothing about this at all. I'm very close to the people in R&D because I feel that as an educational manager, so to speak, I've got to be. Now, I don't see any reason, as a matter of fact, why they need this sort of thing. At the present time, as you well know, the charter of the Director of Research and Development is very different from the charter of any of the other ASDs. He does not go through the service secretary; he can go straight to the ASDs in the R&D field in the services.

It seems to me that that's a pretty close fraternity as is. I don't see what would be gained in terms of consolidating this into a new agency and I haven't heard any rumors to the effect that it would be except in terms of the question that was asked of my boss last year over here, and which I was asked to comment for my new boss on, this.

QUESTION: Sir, you mentioned some of the people who are grade managers now who have come up from Grades I, II, III and IV. I think that you will find that in the services there are a lot of other people too; in fact, that these people have been in only one area of responsibility. They have no breadth. They are not really managers. They may be specialists, but they are not managers. Sometime they have got to broaden out. Are you proposing, or are you planning any system whereby they can broaden out within the government, and also cross-train them within the special

time limit?

DR. KATZENBACH: This is just exactly what I was talking about. This is what we are thinking about. John Macy, as you know, has done a lot of pioneering work in this area. I spent a year-and-a-half trying to figure out what else could be done. I at least understand what the problem is now. But again, it gets back to this business of how many people are you going to force into the training pipeline. In other words, how big can you make that training pipeline?

Now, frankly, I think that one of the problems - and this came out recently when we were making a survey of the laboratories in the Department of Defense together with the Civil Service people, that the civilian Personnel people simply weren't using the Act which they've got, imaginatively or fully. As you know, what it says is, that training for civilians has got to be job-oriented. Well, who is to define what job-oriented is? There are a good many scientific types who are now in managerial positions who could use a little bit of information as to how the government works. Is this job-oriented? In my estimation, of course it is.

Furthermore, the Civil Service Commission which makes the final adjudication on this would say that this was job-oriented too because Mr. Macy is interested in expanding the meaning of the law and widening it as much as possible. And, at least Mr. McNamara is too, because he signed off on a letter which, in effect, tells the civilian Personnel types to get on the ball and educate some people, in three very polite pages.

CAPTAIN BOGLEY: Dr. Katzenbach, it is quite evident that you stirred our thinking with your very frank discussion of our education problems. Thank you very

much for being with us this morning.

DR. KATZENBACH: Thank you.