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TITLE re telecommunications

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Series:

Casual conversation.

The meeting starts.

A man speaks, suggesting that the meeting begin with referring back to some of the correspondence that they have seen between Senator Stevens and Dr. Wood. He suggests beginning with a review of legislation proposed by Senator Stevens that would aid colleges and universities in setting up telecommunications programs as well as reviewing an interim proposal or measure that the university might pursue while the senator works on the legislation.

Another man [I will call him the first speaker] agrees to begin the meeting this way and begins speaking. He says it is necessary to put this in the perspective of the national problem of telecommunications problem in the United States. He says that regulation, control and use of communication systems has gotten catastrophically out of hand.

Studies have been suggesting, for about 20 years now, that the federal government needs a new approach to the problem. The president has decided to act on this issue and reorganization plan #1 for 1970 has gotten past the congress. Congress had 90 days in which to veto this plan so in the very near future an executive order reconstituting the management of telecommunications is expected. There will be a new office in the White House known as the Office of Telecommunications Policy. This office is to contain 35 high level professionals. The speaker doubts that the office will actually have that number for some time because that putting that many professionals in the White House would exhaust the manpower pool for that sort of position in the United States; though telecommunications professionals abound, professionals who are also qualified for policy making are relatively few. [Note: In 1978, the Office of Telecommunications Policy and the Commerce Department's Office of Telecommunications were merged into the National Telecommunications and Information Administration.]

The Office of Telecommunications Policy will be backed up by a new agency, the Telecommunications Research and Analysis Center (TRAC), which will be created under the speaker's general cognizance. Budget and personnel are now being determined.

Additional money would allow TRAC to not only do policy analysis but to rectify two obvious problems in the country. The first problem is that the states are, in general, very poorly organized to manage their telecommunications work. The states are not tied together in and systematic or standardized way. For example, when one state purchases a piece of equipment, there is no simple was for the results of their testing to be transmitted to other states. The speaker gives more examples of the types of

communication there should be between the states and the benefits of that communication. The second problem is that the country is desperately short of people who are competent to work on telecommunications systems development and policy.

The speaker has included in the proposed budget about one million dollars the first year and two million dollars the second year to be given as grants to colleges and universities to develop telecommunications work in the field of telecommunications which would have two kinds of outputs 1) studies of specific issues and 2) people, who having participated in such studies, would be prepared to enter careers in the field in either industry or government.

This program is the one which the speaker discussed with Senator Stevens. The senator suggested that Alaska's telecommunications problems are significantly complex to warrant such a program at the University of Alaska.

The speaker discusses the university's ability to respond to this challenge.

The speaker also sees this as an opportunity to break out of disciplinary barriers that have locked us into the problems we have today, where people are overly-specialized in one field, yet know nothing in another area. He gives the example of a person who understands Maxwell's equations and electromagnetic theory but doesn't know or care about political process or economics. He gives another example of economists who think it is a trivial matter, easily accomplished by someone who has taken a course or two after high school, to build a transmitter and receiver to bounce signals off of a satellite. The speaker is anxious to see universities experiment and develop programs that produce people with a broad base of understanding.

Because it is difficult to procure funds, there is a possibility that the University of Alaska will have to submit a proposal less extensive than hoped for. He speaks about new NSF program dealing with interdisciplinary studies that might be work for a University of Alaska telecommunications program. The speaker encourages the audience to submit proposals for such a program.

Another man asks what sort of arrangement the state government itself should have to handle the telecommunications problem in Alaska. This man says he is the guy who knows the Maxwell's equations, but he can see that if the policy problem is not solved, there is no way the technological problems can be solved.

The first speaker responds, adding that another problem he has observes is that communications systems are fairly complex. It would be helpful to the state if there was a good computer model of the whole system. In this way predictions could be made about effects of modification to the system. If the model was easy enough to manipulate, it could be useful for economists to use as a tool to look at the profitability of the entire enterprise. The speaker would be happy to see such a model bring about interdisciplinary communication and collaboration.

Another man comments that the vastness of Alaska, the sparseness of its population and the fact that many Alaskans have arrived relatively recently in the last couple decades, have resulted in the situation that Alaskans have not learned to think together yet. This situation and the widely disparate, dispersed mix of activities make it difficult to work together. This poses serious interpersonal communications problems. The technical communication problems, the speaker says, are easily solved with the

knowhow available. The speaker believes that solving the interpersonal communications and the use of interdisciplinary cooperation are key.

Another man speaks, playing the devil's advocate. He says that they have been through this discussion before. The last occasion that involved the speaker's department directly was a collaboration with the Department of Transportation. It was a scheme for development of arctic transportation systems. However, there was a change in administration, all the contacts disappeared and the Department of Transportation was no longer interested in arctic transportation. The speaker says he has seen this sort of thing happen several times. He says that there is no question that what is being proposed now, and what was being proposed then, is absolutely needed.

Another man interrupts, saying that he is not so sure. There is a very important economic principle involved here: if you can do the same thing cheaper using another method, you will. If you plot the cost of a unit operation for labor, materials, energy, transportation, they all show an upward trend with time. If you plot the cost of the unit of operation in telecommunications, it is still a downward trend because we are in the midst of a fantastic revolution in the technology of communications. Consequently while the price of everything else is going up, the price of communications is going down. Therefore there is a move to substitute telecommunication for the other things. You don't put in a big highway if you can have a better communication system. We are seeing a shift from an emphasis on better transportation systems for Alaska to a focus on better communications systems for Alaska is because in terms of what this state can afford and in terms of what it needs, you do better to have a big bureau of telecommunications than to have a big bureau of public roads or another system like it.

The man who was playing devil's advocate responds saying he was referring to systems analysis. He says that this sort of thing is a massive amount of work. He is used to seeing interdisciplinary proposals but he thinks twice before he launches into a massive amount of work. He says he is being difficult, but what he is really asking is, "How serious is this?" He says it is possible, within the competence of this campus to do the kinds of things that are being proposed at this meeting. Outside consultants may need to be brought in for certain areas. He names several organizations which have competence in these areas that exceeds the University of Alaska's. The University of Alaska needs to think about what it specifically could contribute by putting together an interdisciplinary team. In other words, he is interested in how much of the work, in the last analysis, would actually go to one of the non-UA established laboratories.

The first speaker says he would like to respond. He feels that the man who is playing devil's advocate has conflated several issues that are worth separating and examining individually. He says they were not looking at the University of Alaska primarily as a place to establish a national laboratory, though a national laboratory might develop. The speaker has been thinking of Stanford and other places in the United States where federal money could be directed to produce a source of competence and manpower and develop a national resource. The University of Alaska should be helped now because the state needs help and it is a unique situation. So, the University of Alaska would not be in competition with the established laboratories and institutions. Secondly, this would be an experiment. The speaker does not know how much money he will be able to procure. It was because of this tight financial situation that the speaker suggested that NSF be a source of funding in the interim. The extent to which the researchers should invest their time and energy and the size of proposals that ought to be made needs to be decided in a conversation between the UA researchers and the NSF. To make NSF happy, it would be good to procure some state backing, as well. The speaker elaborates more of funding, appropriations, and proposals. Intermittently, someone will interject a comment or question.

The speaker continues, saying he is concerned over the decrease in the Department of Defense funding in the state and the colleges and university. The speaker has been encouraging his colleagues in the government to begin to incorporate university grant programs in their programs and not simply rely on the NSF to cover all costs. He has seen, more often than not, fundamental contributions coming out of mission oriented activities. When people are supposed to work on fundamentals without necessarily having a mission, they often lose their rudder and the quality suffers. The speaker fears that this is not understood outside of the scientific fraternity.

The man who was playing devil's advocate agrees, saying that he fears that by closing their contacts with universities, the military has really cut the ground out from under themselves.

Another man has a question. He asks if the first speaker would put priorities on two of the possibilities he mentioned, research and a teaching program to develop people.

The first speaker responds saying that he thinks a grant program would be one that would be made with great concern for the production of people. He says he does not know how far to go in giving his personal assessment on the state of American universities and their ability to make strong technical contributions. One indicator, he thinks, is the fact that most of the important books in technology today are not written at universities but instead mostly in industrial research labs.

A man asks, regarding the production of people idea, if the first speaker sees the kinds of people that are going to be in demand, both at the national level and here in Alaska, at a graduate program level.

The first speaker responds that he sees these people at a Master's level. He says that as a federal official he ought not to, but he needs to talk a little about educational philosophy. He is less interested n knowing that 3 people with Master's degrees are graduating each year than the program involves a number of students, some of whom, of course will not continue with the program as their profession, who, upon graduating, appreciate and respect interdisciplinary cooperation and are able to work effectively in interdisciplinary contexts.

The man with the question says that that is not what he was asking about. At the university there is already the option for a student, with his committee, to design his own interdisciplinary MA or PhD. In this case, the student, with his bachelor's degree competencies and profession experience competencies, determines what he would like to investigate further and a program is designed specifically for what the student would like to achieve.

The first speaker says that he would like to see a program developed which would attract people such as have just been described, to work in it together. There would be seminars with the different disciplines represented. The speaker describes the sort of student he would like to see in this program and the sort of theses the student would produce.

A man asks how this sort of arrangement would work when trying to meet a real situation and not just an academic study.

The first speaker brings up, as an example, the development of a communications system for educating people in the Alaskan bush. The program would work on this problem, drawing students in and paying them for their work. The key factor here, though, would be that the student would be drawn from all

different disciplines. The students interact and study a problem that the faculty had decided was a meaningful educational experience and the university is getting results from the students' work. He says that Bachelor's students in their senior year should be chosen and not wait until they are graduate students. This would give undergraduates a sense of satisfaction that they are doing something useful.

One man seconds that, saying that he can remember his student days clearly and the two groups that had the most influence over him were certain individual professors and other students who were farther along. The contact of undergraduate students with graduate students could be as useful as contact with good professors.

The tape cuts out.

(Continued on 00-00-167 PT 2)