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"SCIENCE AND SERVICE"\*

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"SCIENCE AND SERVICE"

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There was an article in a recent issue of Science on "The Art of Talking about Science." The author--a distinguished British scientist--discussed the oral transmission of scientific information in a manner that is devastating to those, like myself, who have been called on to make general presentations. His penetrating comments on the foibles of lecturers are even more apt for those who would engage in a luncheon talk such as I am about to make.

In fact, I was embarrassed to read this article at the very time that I was preparing for today.

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His first rule is that a 'talk'--as distinguished from a 'paper'--should never be read. He made the point that it is simpler to read than to listen and understand--implying, though not precisely saying, that to take the time of a captive audience to read a dissertation came perilously close to insulting their intelligence even though the thoughts expressed are suitably profound. He argued that to deliver a tightly argued thesis in well-rounded phrases conceived in the leisure of one's study does not give the audience time to think and is like asking a friend to go for a walk while you drive along beside him in a car.

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His second point was that only a limited number of points should be made, and few of these should be supported in great detail. He suggested that the effectiveness of the discussion could best be judged by the extent to which the selected points presented could be recalled when talking to one's wife or husband at breakfast the following day.

I suppose that the author has heard, as have you and I, many brilliant presentations of complex subjects in which a clever and intelligent speaker builds a complex structure in a manner that enables us

- . . . to follow the construction point by point,
- . . . to understand the transition from one level of complexity to another, and
- . . . to have the feeling, at its end, that we have participated in a satisfying intellectual tour de force

only to find the next day that we really do not remember much about the presentation except the name of the lecturer, the title of his talk, and the brilliance of his performance. At best we may remember some of the major points made but not the logic of the setting in which they were contained nor the way in which the major threads of thought were woven into a significant and logical pattern. I suspect that, if we remember the pattern at all, it is because it may be inferred from the title.

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The author recommends that a lecture be loosely constructed of few parts. It should

- . . . start from a base of knowledge shared by the audience,
- . . . build the basic structure of thought,
- . . . provide for its elaboration within the time available, and
- . . . most importantly, allow time to summarize the major thoughts or ideas one wishes the audience to retain.

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The author made many other pertinent points but one I remember very well. He recalled the practice of the Royal Institution, from whose directorship he has just retired, of giving the speaker some 30 or 40 minutes of solitude prior to his discussion--even to the extent of placing a guard at the door to prevent any intrusion into the privacy of the speaker's thoughts as he composed himself for his presentation.

Now I want to make three points.

1. The article is commended to you for reading--it is serious but presented in a light, readable fashion;
2. the adoption of its principles would make for less slumber during presentations such as this; and, finally,
3. my inability to match what he considers the minimal excellence of performance can be rationalized, in part, by my inability to have the 30 minutes or so of solitude which he so strongly recommends.

I shall, however, in a rather halting fashion, attempt to abide by some of his imperatives. Incidentally, he was not opposed to the use of notes.

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I shall start from a common base of understanding.

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Medical services at the community level have a lesser degree of perfection than would be possible if all the available information were at the disposal of the physician treating the individual patient and if the physician was supported by all the diagnostic and therapeutic resources that are needed to apply this body of old and recent information to the problems presented.

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A further point of general understanding is our common appreciation of the fact that in our advanced institutions, especially in our better university hospitals, there is little useful knowledge lying undisclosed in laboratory note-books or unread in journals and books in the library. Knowledge that can help to solve a patient's problems is, indeed, utilized in the day-to-day work of university-based physicians in such a medical center.

However, a comparable situation does not exist in many communities--though I do not say all--where the physician has been out of the mainstream of learning for a considerable period of time and where the diagnostic and therapeutic resources are less than optimal.

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The next relevant fact is that through legislation--and particularly through Titles 18 and 19 of the Social Security Amendments of 1965--the nation has asserted that each individual has a right to superior medical care and has begun to provide, through many Federal, State and private mechanisms, for payment systems by which this right may be secured. We are agreed, however, that such systems must not interfere with our general private base for the delivery of medical services. It is the national purpose to correct deficiencies in the delivery of medical services by using the present system as the core structure for social embellishment rather than by attempting to build a new system.

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Finally--and still within our base of common understanding--you are with us for a few days to examine the circumstances developing in relation to the Regional Medical Programs in order to determine how, within a broad segment of medicine, certain moves be made, in accordance with the intentions of the law, to facilitate the development of excellence in our handling of a series of so-called dread diseases--heart disease, cancer, stroke and related medical disabilities. You will be asked to comment, for the ultimate benefit of the President and the Congress, on the adequacies of the initial moves that are now being made or that are immediately in prospect. You will also be asked to anticipate some of the problems, assess the likelihood of success of current strategy, and on this basis, advise the Division of Regional Medical Programs on how they may best project their action into the immediate future.

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More importantly, you will be asked to assess, on the basis of an informed professional judgment, the extent to which the Division should seek simple extension of present legislative authority or seek its modification in order to heighten the prospect of success for the program.

Now, you will not be asked at this time for specific recommendations but, in view of the complexity of the undertaking, to comment on the problems of applying the proposed strategy to your own regional situation whether this be rural or metropolitan and whether it be rich or poor in medical resources.

A sifting of your informed discussion will be a major input of information to the National Advisory Council which will advise and to the Division which must act.

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You may well ask, at this point, "Of what concern is all this to the NIH?"--an organization which, in recent years, has been largely concerned with the development of new knowledge rather than the delivery of services.

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One can give either of two answers to such a question--either would appear to be correct and, indeed, each is in fact partially correct.

The first answer would be that the creation of Regional Medical Programs permits a large social experiment to determine what is needed to facilitate the rapid use of available knowledge in the solution of serious disease problems in the setting in which these problems generally occur--that is, in a typical community. In this sense it is straight forward operational research.

The second answer reflects the fact that in the best of our university medical centers we have a unique mix of professional talents. This consists of scientists engaged in fundamental research, physicians eagerly attempting to apply such fundamental information to the solution of disease problems, and physicians primarily concerned with the problems of medical care and the education of young physicians. This combination of skills and interests makes possible the delivery of medical services in a professional setting that approaches the ideal. It is in such a setting that the best of medical services are delivered or can be delivered. The problem is to determine how such know-how and such excellence can be exported for use by the community at large. Or, to put it another way, how can the university-type hospital--and there are many of these that are not, in fact, part of or closely associated with a university or medical school--how can such an institution yield the isolation that protects and fosters scholarly activity and assume a larger social function without, at the same time, placing in jeopardy its present purposes.

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As the one single institution most concerned with these present purposes--that is research and education--the NIH has been given the task of working with groups, such as you, in developing programs, suitable for regions of quite diverse character and medical resources, that will

- . . . preserve the excellence of the present programs, and, indeed, foster and develop institutional excellence in science and education where it is now lacking,
- . . . provide for the discharge of a largely new social responsibility in a manner that will strengthen, rather than weaken, the current institutional programs, and
- . . . provide, under suitable auspices, for the linkage between these science based programs and the community apparatus within which medical services are delivered.

We believe that we can do the first of these three--given adequate funds.

We look to you to help us do the latter, two.

Let me hasten to add that, in our view, the full elaboration of the new mechanisms we seek will not be achieved in a year or two.

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We also expect that not all of your strivings will be successful. There will come a time in some--and, perhaps, many--of your programs when it will be more appropriate to take your losses and begin anew, profiting by your own experiences and those of others. If this were not the case, our problems and yours would be very simple. Unfortunately they are not.

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The problem will be made both more difficult and more urgent by the rapid evolution of the medical scene. I believe that we are fast entering a period of really rapid pay-off from our large investment in the biomedical sciences. Advances have been substantial in the past two decades but they are only a harbinger of what is to come.

The biomedical science establishment, in its present magnitude and diversity, is something less than 5 years old. This is a fact that is frequently overlooked. However, scientists now capable of entering the field, at either the laboratory or clinical level, are better trained and generally more capable than was true heretofore. It is predictable that as the biomedical sciences move from the empiricism so characteristic of the past to the clarification and generalization of our understanding of biological phenomenon, their impact on the day-to-day happenings in medicine will be profound.

This transition will result in an even higher rate of professional obsolescence for practicing physicians and will require a much more purposeful system of professional renewal in the future than in the past.

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And this brings me to my final point. Each regional advisory group must concern itself as much with the maintenance of the professional capabilities of local physicians in a rapidly changing and increasingly complex situation as with arrangements for improving the support for and utilization of these capabilities.

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Now, following my British mentor's advice, I shall remind you of the points I would have you remember.

1. The delivery of services is less than optimal for many segments of our population.
2. The financial barriers to good services are being rapidly removed as a consequence of state and national judgments that every individual has a right to excellence in the medical care he requires.
3. In a privately-based system for the delivery of medical services, general excellence is now most frequently found in a situation where there is a mix of science, education and service.
4. Although we must contend with many diverse geographic and social circumstances, NIH, in administering the Regional Medical Programs, will strive to preserve existing centers of excellence in science, education and service while, at the same time, working with State and local forces, evolve a system that will make available to the bulk of the population medical services that are excellent in quality and adequate in quantity--at least in a major segment of the diseases that plague us all.

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NIH does not have the responsibility of achieving these desirable ends alone but in conjunction with a series of other programs with similar objectives. But I believe that the Regional Medical Programs, properly developed, is the keystone of a structure which will permit the delivery of the type of medical care services we all desire.