Further Section		
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Foreword		
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The Administrators of Universities and Medical Centers should be, insofar as possible, members of the profession and scholars. They should not be mere figure heads who welcome participants in symposia or scientific conferences. They should do that but again, if possible, contribute to the thought being instigated.

I should like to suggest that some of us are anatomists, others are physiologists, behavioral scientists, psychologists. At such meetings as this, an attempt should be made to perceive and possibly expand the limitations of our habitual ways of thought.

First, I would like to emphasize that we are about to begin consideration of the thalamus, although as individuals we have no direct awareness of possessing a thalamus. We are relatively sure that the thalamus contributes to the perceptions of the presence of other organs and body parts which do impinge upon our consciousness. I regard those of you who are present here to be relatively well integrated beings in which chains of reactions flow to relate your behavior to experiences of the past and to prepare you for the immediate and distant future. I sometimes wonder if the past experience or state of my thalamus determines what I perceive or fail to become aware of. I hope I am talking about the right part of the brain and the topic of the symposium by referring to the changing and individualized thalamus. To what degree is the thalamus responsible for what I have become? I believe I have seen pictures of our features laid out within the thalamus - we have as unique a sensory as motor being, do we not? It probably is highly improper for me to personalize things thus. Neurophysiologists usually think that if they study one thalamus, hypothalamus, cerebral cortex, cerebellum, they have studied all others.

Foreword

Some of you are ready to object because you do know there are differences in the thalamic components of the brains of various orders of animals. To what degree have you thought that the cells comprising the brain are as unique as the structures? Possibly we have not progressed far enough in our technical abilities to make such differentiations. Possibly we could not work with the required confidence if we accepted what we all know - we are individuals and not identical in any part. We do occasionally seem to see the same things and reach the same conclusions, usually for different reasons. Are we more similar or more different? Why should we conclude that our individualities reside in one part of the brain such as the cerebral cortex and not at all within the thalamus? I insist I have a very unique thalamus and in this symposium you will not be talking about you or me except in grossest approximations. Possibly we are studying or constructing the animal which does not exist at all because our concepts and techniques are not adequate to cope with reality.

Second, I should like to acknowledge that this may be the kind of conversation one gets from a fellow who has gotten so far away from science into administration that he is either silly or has some perspective; I hope it is the latter. At any rate, symposia are designed to help people obtain perspective and to find out what is going on. There is a great deal going on and we have difficulty keeping track of what is occurring. Possibly we need a good depression to stop all this work so we can catch up with what has recently been accomplished. Incidentally, a 'good depression' is one in which you have grants and the other fellow does not - otherwise it is a bad depression and we do not need that but we seemingly are getting it.

Prosperity and poverty are both problems. What we need is quiet, isolation, time to think and study. We must not drop out of society and forego mutual aid. We must know what others are doing; we cannot start from the beginning, nor can we alone advance knowledge unaided. I welcome you but I can tell you this - if you are on a symposium team rushing from one meeting to another you are sick as a scholar. I say this with a degree of comfort because I am having the pleasure of greeting old friends I have not seen for some while. Also you are a new mixture.

There is another question we might deal with in our own minds as we begin and end our conversations. Some, who often speak with authority, say we are merely elaborating with more costly experiments what was essentially known a hundred or, at least, twenty years ago. Really I am sure we have made tremendous progress - look at all the meetings, read News-week, look at the great confidence the community and students have in

Foreword

us, look at how eager the Government has suddenly become to support basic research. But I am loyal - we are progressing and I am sure this symposium will add to knowledge. These are dangerous times for the scholar and the scientists. We are not going to be permitted to just play around in a kind of paradise we call 'academic freedom'. If we do not come up with some good ideas at this conference and if we do not produce something helpful to others, we will be culpable.

Third, let us get back to the thalamus which is our topic. I am certain that the thalamus cannot do anything at all by itself but neither could we do much without a thalamus. Is it not somewhat artificial to have a conference on the thalamus? The thalamus may be an entity but it is only a part of a continuum, man defined and man delimited. To confine thought only to the thalamus would be an error but not to consider it would be equally nonsensical. We cannot think of a totality; we must divide it because, though we are a unity, we are completely periodic in thought and communication. Similarly we cannot define the function of any part without reference to the whole - its importance or its role in total function. I really think it is all right to have a conference on the thalamus and I believe none of us will be warped or injured thereby. I do, however, wish to propose a few questions.

The first of these relates to the common thought that the thalamus is sensory and not motor. This division is certainly convenient as well as true but is not there a good deal of similarity? To what extent is individuality, learning, behavioral potentiality determined in the afferent complex. We know there is some feedback which determines what ascending signals will get through. We know now that the autonomic and somatic responses 'tune' or affect reception. Is all learning, imprinting or whatever we call those processes which modify our potentialities, operational only in the cortex or motor brain? I believe we should consider at least the possibility that we 'learn' in all parts, that we are as individualized in our reception as we are in our response abilities.

Another question arises from the fact that inhibition is as important as excitation. We generally think positively, which is good, I am told. We follow responses in tracts and put patterns of discharge into computers to reveal the secrets of perception and response. Is it not true, however, that each positive has its inhibitory counterpart? Reciprocal action is essential to motor performance. Is it not true that reception requires selection and every 'through' signal must be protected by a shell of inhibition? Possibly the inhibitory surround provides the sophistication, not the primitive sig-

nal. This has been considered before and I am not pretending you do not know. I am just reminding our subconscious minds not to neglect a consideration which may reveal more than our present stimulus - positive response orientation.

Another suggestion is that we look at the total thalamus. What is the total thalamus? I am not suggesting an argument over boundaries, semantics, territorial claim; I am asking if the only things which count are tracts and neurons. Can nothing at all of an integrative nature happen outside the confines of cells and their extensions? Is everything not included in a cell membrane just lipid excelsior? Of course, much happens within extracellular space in fluids but I am not sure that we ever think of integrative action or fixation (learning, etc.) occurring there. Cytoplasm is the internal environment protected and established by a membrane. What is the difference between that and the controlled, fixed external environment?

I am not sure man will be able to do more than somewhat retard the degradation of his environment, but in neurophysiology, neuroanatomy, neurochemistry let us not be blinded by concentration on cells, cell mass or the structured communication system. We say we do not yet know which *cells* produce the releasing factors extractable from the tuber cinereum - why must they be manufactured in cells? I am not suggesting a Gandhi - like reversion to the days before the cell theory but I am suggesting we accept no limitation to thought.

I now wish to make a *fourth* and final point. I believe it is a good practice to turn things about and look at them from the other side. It would be rather unproductive to reverse our normal concepts of evolutionary development and cephalization, considering the brain stem and cord as 'higher' or more elaborate and the cerebral cortex as primitive. There is one realization, however, which might be suggested by such a thought. It is that the cord probably has not remained fixed. All that the higher centers can perceive and all they can deliver must pass through the primitive. Either the primitive has changed too or it has had within it the potential for dealing with the elaborate. Again, I will point out we are not dealing with a man's brain superimposed on an opossum's chassis or cord. We are totalities and no structure of ours belongs to either another species or even another individual. Each of us is unique in potentiality and experience and what has resulted. That is no reason, however, for saying we possess no commonness which can be studied. In studies of men, uniqueness and similarity must both be considered.

I regard it a privilege to greet you and to speak at a symposium to which I would otherwise not be invited. Due to misfortune rather than design, I have been acting as President of this Center for what now seems an ^terminable period of time. I am not sure that the thalamus has been of much help. To be sensitive is a handicap to a Dean or President in this modern era and to be perceptive is usually useless. Nonetheless there are advantages. It was possible to provide resources which permitted Dr. Riss with some help from Dr. KOIZUMI and our reliable staff to plan and do all the work any symposium requires. It is gratifying to see that we have the honor of your presence and that we will have the opportunity of hearing what you say. It is indeed a pleasure to welcome you to this Center on behalf of the School of Graduate Studies and the College of Medicine. I trust you shall have a profitable and enjoyable time while you are our guests and that the published results of this symposium will be valuable to many and a source of satisfaction to you.

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