

**Presidential Address delivered by Dr. C.G. Pandit at the
Inauguration of the IAMS on December 19, 1961**

Mr. Prime Minister, Ladies and Gentlemen,

In the unavoidable absence of the President of the Academy, Dr. Khanolkar, the task of delivering the Presidential Address at this inaugural function has fallen upon my shoulders. While I deeply appreciate the honour that has been bestowed upon me, I am equally conscious of my shortcomings. On this inaugural day, are assembled here, teachers of medicine, medical research workers, persons concerned with the promotion of public health and workers derived from ancillary medical disciplines. Each one of us represents one or the other of the innumerable specialties into which medicine is being increasingly fragmented today. Some of us are physicians, some Surgeons, some Anatomists, Physiologists, Biochemists, Pathologists, Microbiologists, Genetists, Orthopedists and so on. What is it that binds us all together? The reason for the formation of this Academy, I should like to think, is that there is an essential unity of purpose in all the work that we do. It is this unity of purpose which is a reflection of the cohesiveness of medicine that I want to discuss further on this occasion.

I would like to define our purpose as the acquisition of knowledge and its application to human needs. Both these endeavours imply the inter-dependence of the various specialties of medicine and public health, however, separate and compartmental they may look. We are interested not only in the divergent forces at work in producing disease patterns but also in the beginnings and modes of progression of such forces. In looking for origins of disease, we must project our minds far beyond the confines of our hospitals and laboratories, out into the community and even across the national boundaries into the world at large. We have to keep shifting our emphasis on disease in lines with the changes in the morbidity patterns of the Community. Again, in looking for early signs of disease, we have to refine our methods of study and draw upon the techniques of physics, chemistry, physiology, biology in an increasing measure. Medicine has become increasingly dependent upon fundamental and basic sciences. In fact, it is regarded today as the biggest parasite on branches of natural and biological sciences outside medicine itself. The natural sciences, the social sciences and the humanities have made and are continuing to make important contributions to the progress of medicine. It is not simply enough to utilize the most recent advances in physics and chemistry for the solution of medical problems. Biology and medicine have a larger and wider pattern to interpret because living matter is so much more complicated. We need ways of examining and marshalling the facts of biological sciences and, in interpreting biological activity, we have to deal with the inter-action of the environment on the organism. We need to understand, as Lord Adrian has said, *'how society is organized and how to live together. We require a great deal of observation and experiment in social sciences. In medicine, we are learning to plan experiments so that the result is not too greatly changed by the presence of the observer'*. In brief, my thesis is that, for the progress of medicine and for its application to human needs. Which is the purpose of this Academy, there are no more frontiers within and no more frontiers in between.

Medical science is a synthesis of all those disciplines that have as their ultimate aim the health of man. A discovery in one field may spark a new pathway in another, and equally, the lagging behind of any one branch may affect the progress of the other. It is, therefore, essential for the progress of medicine to break the traditional divisions which have become a necessary evil in the course of the growth of medical knowledge and to once again re-group the intellectual relationships of the various specialties of medicine. This would in its wake bring about a free communication of ideas and knowledge between the specialists in many branches of medicine. The formation of this Academy represents, to my thinking, a recognition of this fundamental need of free and frequent intercommunication.

The fluidity of the frontiers of medicine is best illustrated by reference to an event that occurs as a routine, say, in a department of pathology and bacteriology. Having worked in such a department, I

am sure you will understand my partiality to this medical discipline. A specimen of brain tissue is received and sections show evidence of damage to nerve cells, proliferation of glial tissue and perivascular cuffing, features which point to a diagnosis of inflammation of the brain, what we designate as encephalitis. In view of the symptoms noted by the clinician, virus etiology is suspected and this is confirmed in due course. My contention is that the work of the Pathologist does not stop with making this diagnosis, although by doing so, he might have discharged his formal obligations to his institution. He has to set his mind thinking on a journey that might take him far beyond the confines of his laboratory, his community or even his country. He will first ask the question, what virus is responsible for the infection? Is the virus endemic there? If so, how does it manage to survive? How did it reach the community, what factors influenced its spread, and, if it proves to be one of the viruses transmitted by the bite of an insect, then the whole chain of inter-related events has to be visualized in a complicated cycle of man, insect and animal reservoir. In other words, in studying that single section of brain tissue, the Pathologist comes face to face with clinical medicine, with epidemiology and even with factors such as climate, geography, rainfall, the type of afforestation in an area, the ecology of animals and birds and so on. The community is a large laboratory where nature makes her experiment. It is from where the patient comes and to where the patient returns, that is to say if he is lucky. A review of the present state of knowledge regarding virus diseases transmitted by insects, particularly of knowledge recently gathered in this country on the new virus disease in Mysore State, demonstrates clearly the rich harvest medicine has reaped as a result of the ability of scientists and doctors looking beyond the confines of their disciplines and even national boundaries to work together in a spirit of cooperation. The story of yellow fever is yet another example wherein the elucidation of the whole disease and the success in delimiting it are the result of a global effort and coordination.

I have so far indicated how pathology, microbiology, epidemiology and clinical medicine are inseparable, even when you think of single disease entity. Similarly, biochemistry today is profoundly influencing our concepts not only of diseases, but also of our understanding of the mechanisms underlying a variety of other biological processes, inheritance, human behavior and the like. Many of the mental illnesses are being traced to hormonal and biochemical changes. Scientists are now talking in terms of distorted thoughts being the result of distorted molecules.

Going beyond the murals of a medical college I could take any traditional discipline of a university, apparently unrelated to medicine to show how important an association with such a discipline is for the progress of medicine itself. For example studies in zoology have contributed to the understanding of a cell as a unit and its functions. Studies on fruit flies elucidated the role of chromosomes in the transmission of genetic characters. Quest for medicinal plants led to the development of botany as a science, while the studies on plant biology led to the understanding of protoplasmic structure, metabolic processes, respiration and enzyme action. I need hardly refer to the numerous drugs and potent therapeutic agents like antibiotics which have come out as a result of a systematic study of herbs, moulds and the like. Thus *“botany, zoology and medicine exert a reciprocal influence in our common search for the metabolic mechanisms, whether in plant or animal tissues, that will explain the maintenance of the living state.”* Physics and chemistry have become an essential core of medicine and it is needless to dilate on their role.

I think I have said enough to indicate that the non-medical and basic science departments of universities form the advancing front of medicine. I would very humbly suggest that there is a need for a careful evaluation of the type of association that now exists between these disciplines in a medical college and between the medical college and the university. It is obvious that there is need for greater collaboration between the concerned disciplines and this is possible through the sincere application of that greatest ideal and attribute of mankind, namely, the ability to work together in a common endeavour.

While this is all true, there are other important factors which influence the progress of medicine. They are the availability of men of genius and a proper environment in which they can unfold their

talent. Szent-Gyorgyi, the Nobel Laureate, expressed it correctly when he said that human progress has been due in the past to a large extent to the work of a relatively small number of creative minds and it is likely that this will also be true in the future. It is perhaps true to say that the fate of any nation depends on the extent to which it is able to produce creative brains. Creative geniuses exist in all countries, and at all times, but many of them, as he stated, are wasted. For the development of a genius a favourable environment is necessary. Men of genius are not lacking in this country, but I wonder whether we have the proper environment assured for them. All of us are aware that many a young scientist leave our shores to seek a scientific career elsewhere, not necessarily because of inadequate emoluments, but because of lack of facilities, opportunities and a suitable intellectual atmosphere. The example of late Yellapragada Subba Row, is an outstanding one. To be creative as we all know, a scientist needs new conceptions, new tools, encouragement and a proper climate for research. Few men can give their best if they are set to work in an environment which is either indifferent or discouraging to their efforts. It is, therefore, essential that for the progress of knowledge and for the discovery of new facts all possible handicaps are removed.

I would like to conclude this Address by reverting back to the beginning of this discussion, namely, the twin purposes of the Academy – the promotion of knowledge and the application of knowledge to human needs. In fulfilling these objectives, I have outlined the need for bringing about a greater collaboration between universities, medical schools and research institutions, because teaching and research cannot be separated from one another. I have also stressed the importance of discovering men of genius, encouraging the creativity of individual scientists and providing them with equipment and intellectual environment for fruitful and productive activities. It is my hope that the formation of this Academy will go a long way towards the fulfillment of these objectives. We have in a way the great fortune of starting this academy, unfettered by traditions, free to develop in a climate where there is so much of constructive and nation building activity going on all around us.