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ORO-3992-114

TOWARDS EXCELLENCE IN SC

by

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Inaugural Address by Prof. E. C. G. Sudarshan
Seminar on Unsolved Problems in Physics
Centre for Theoretical Studies
Indian Institute of Science, Bangalore

I am honored and pleased at this opportunity to inaugurate the Seminar on Unsolved Problems in Physics and with it the activities of the Centre for Theoretical Studies. Both the Seminar and the Centre had been conceived several years ago; yet like the birth of a long awaited baby this is a joyous occasion. It is said in Unnāyi Variar's "Irupāthinaluvruttam" that in his joy at the birth of his son, King Dasaratha gave away all his wealth as gifts that the king was left only the ceremonial silken umbrella and a couple of other symbols of his office! I leave it to you to decide who is the proud parent who finds himself in the same position in the present case.

This Seminar addresses itself to "Unsolved Problems". It has long been true of Science in India that it has shown itself capable of attacking even the most complex problems and this is true especially of theoretical physics where equipment and foreig exchange to not seriously handicap the pursuit of truth. Yet, in the land where giants like Bōse, Sāhā, and Bhābhā solved problems before the general body of scientists could define them,

*Presented July 17, 1972 at the Seminar on Unsolved Problems in Physics, at the Centre for Theoretical Studies, Indian Institute of Science, Bangalore, India.

we now find the paradox that competence and currency are more prized than depth and insight. One finds that many young scientists in the theoretical sciences "toil in other people's vineyards" rather than plant their own vines. This observation has been made by many a thoughtful scientist and several of them are gracing this audience. This Seminar has been planned with the thought that focussing attention on basic unsolved problems is a way out of this malaise. Professor D. S. Kothāri has been an enthusiastic proponent of this theme. It is a personal disappointment to several of us that he could not be here today.

As originally conceived this Seminar was to address itself to the most pressing unsolved problems including the role of science in a developing society and the possible involvement of the scientist as a nation builder, the problem of unemployment or underemployment of highly qualified and gifted scientists and the problem of mobility of scientists between institutions and between disciplines were also to be examined. But it was not to be: Some people propose and other dispose. More than one responsible and influential scientist considered the issue so important that they felt an examination of such issues should be postponed by several years! But perhaps the Centre should allow itself be persuaded to consider these larger questions in

Centre for Theoretical Studies. The Centre has had a "garbha" life of several years and was conceived in the context of the thought that there is a unity of the basic theoretical disciplines and that the roaming of the fertile mind of the creative theorist should not be fettered by arbitrary boundaries imposed for historical reasons. In creative work much of the work is the formulation and articulation of the problem; and many of us have found that an essential part of the work is finding a suitable scientist with whom one can discuss the problem and from whom one obtains clarity. This clarity sometimes comes about by actual information being supplied, but often it turns out that two men of goodwill can solve a problem when separately neither one knew the answer. The Centre is dedicated to the promotion of such encounters.

Thus by its very nature the work of the Centre involves interdisciplinary programs; not because it is fashionable or new but because it is natural. As presently envisaged the proper field of activity embraces Elementary Particle Physics, Statistical Mechanics, Theoretical Astrophysics, Cosmology, Chemical Physics, Solid State and Manybody Theory, Nuclear Theory, Applied Mathematics, Systems Analysis, Linguistics, Theoretical Biology and the Foundations of Physical Science. The Centre would provide a nucleus of outstanding theorists of broad

Visiting Scientists.

The Visiting Scientists are to be people actively engaged in theoretical studies without regard to the specific classification of their specializations. The Centre seeks to provide a haven for examination in depth of diverse problems and the emphasis is to be on insight and illumination. It is upto the young scientists to demonstrate by their acceptance and participation in this venture the merits of these concepts. It is hoped that the flow of scientists through the Centre would begin within the year.

It has been said by the late Professor Haldane that in a country where the gāyatri is recited it is impossible for one not to be a scientist, to search for truth and seek illumination. The rishi of gāyatri is Visvāmitra, the noble rebel among sages and the one who exhorted Rāma to waken and do good to the world since the dawn is breaking out in the east. I like to take that this is an exhortation to all of us and that the Centre would ever keep this as its raison d'etre.

I am tempted to take liberties with grammar to deal with another point. This is the question of social relevance versus depth of insight in one's scientific work. In the preamble to the gāyatri is a line identifying the rishi, Ōm Visvāmitra rishih. I like to take it to mean in this context that the seer is one

it will accelerate Bangalore realizing its potential as an intellectual centre.

In the Indian tradition the adoration to the well spring of all illumination is said: To that Source, which provides answers to all questions and welds together all insights to enable me to see the Truth, my adoration. To that Source I dedicate this venture and express the hope that this Seminar provides some glimpses of that unified vision of Truth.