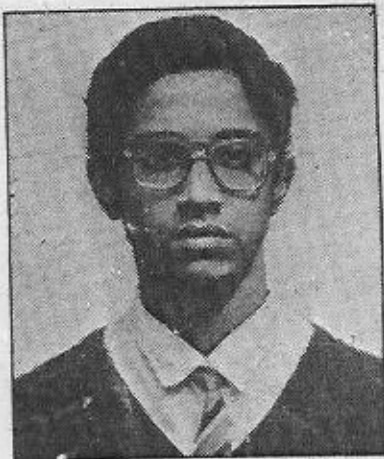


Puzzling over cosmic riddles at 14



Abhijnan Rej, a class IX student, spoke like a trained astrophysicist at the Forum of Science for School Students. His calculations are checked by Jayant Vishnu Narlikar, he told DM

What is the theme of your paper?
The central theme of my paper is the Standard Model of cosmology that is being presented and which was initiated by George Gamow. My paper pointed out several flaws in the light of recent observation like the evidences from Hubble (telescope). Although a lot of research has been done on this model, I feel there are quite a few flaws that remain in its basic postulates.

Why are you interested in cosmology?

Actually, my basic interest is in mathematics. From my early childhood I was quite fascinated by numbers. I remember when I was in class VIII (he is now a student of class IX), someone introduced me to a book by Albert Einstein — *Ideas and Opinions*.

In a sense, that was my introduction to the world of modern physics. I realised, how numbers manifest themselves in the Universe and they can analyse our place in this big Cosmos.

So that was how you began. Now, a question on your current obsession. What do you think is the possible answer to the question posed by the Hubble telescope or how the Universe came into being?

I think the originative theories are not quite suited for analysing the Universe. At the beginning when the GTR (General Theory of Relativity) was formed in 1916, Einstein said the Universe was static and was in a steady state. Afterwards, it was Alexander Friedman of Russia, who modified the equations of Einstein and said the Universe was expanding. Initially, Einstein was very hostile to this idea but later agreed with it. I believe, cosmology operates on a single mathematical tool, the 'lambda'

KNOWHOW

ABHIJNAN

Continued from page 18

State theory, which Bondi, Gold and Hoyle propounded. Unfortunately, their theory has been questioned and Hoyle now talks of a Quasi Steady State (QSS) theory...

QSS in my opinion is a cookery book-type of theory. It is just trying to fit in the evidences that have come up in light of new observations such as the COBE observations (which showed that the temperature of background radiation, believed to be the tell tale signs of the Big Bang, is not uniform everywhere).

So, how do you propose to clear up this muddle?

I think, the Steady State (SST) model of the Universe still holds but with some modifications. In the SST there was something called the C-field (a mathematical novelty, believed to be responsible for 'continuous creation of mass' in the Universe). Which was rejected later by Prof. Hoyle. I have corresponded with Prof. Narlikar in this regard and he says that Prof. Hoyle is now saying that C-field is valid. In fact, the particle physicists are now talking about zero rest mass scalar fields of negative stresses. And already we know there is a mass field called, Higgs-field which gives you an idea how particles acquire mass. Now, if we could explain all the interactions in terms of C-field, Higgs-field and the Grand Unified Theory then I believe we will have an answer to the Hubble question.

Who helps you to tackle the