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VP News

Inside

Vigyan Prasar Activities in Tripura

For quite some time Vigyan Prasar has been trying to initiate various science popularisation activities in Tripura. For two years (July 1999-February 2001) Shri Sanjay Banerjee was working as Fellow of Vigyan Prasar. Shri Banerjee initiated a number of activities. A three-day workshop on science communication was organised by Vigyan Prasar at Agartala during March 22-24, 2000. The objective of the workshop was to assess the current status of popular science activities in Tripura and to identify the organisations/individuals engaged in science popularisation activities with whom Vigyan Prasar can join hands. As a follow up of the workshop Vigyan Prasar continued interacting with different organisations and individuals. As a result the following three activities have been initiated.

- A three month long (13 episodes) radio programme (jointly with AIR, Agartala) explaining scientific basis of miracles. It will be a weekly programme of half an hour duration. To finalise the topics of different episodes and to identify the script writers, a workshop was organised at Agartala on 30th June, 2001. The workshop was inaugurated by Prof. Mihir Kanti Dev Vice Principal, MBB College, Agartala and Chairman, Tripura State Pollution Control Board. Representatives from different drama groups of Agartala namely Natyabhumi, Roopam, CILPA, Patabhumi, Dakshini, Kabitalok, Cinedelve and Kabyalok attended the workshop. It is expected that the programme will go on air by the end of September 2001. A Committee of experts from Agartala will monitor the contents of the programme. Tripura Science Forum, a voluntary organisation engaged in science popularisation activities, has agreed to help Vigyan Prasar in monitoring the programmes.
- A 26-episode quiz programme jointly with Doordarshan Kendra, Agartala and Tripura Science Forum.
- Science pages in Newspapers.

EDITORIAL

**Malaria –
The Mosquito
Connection**



**Intellectual
Property Rights
(Part-IV : Glossary and
Sources)**

**Recent developments in
Science & Technology**



Prof. M.K. Deb delivering his inaugural speech. Also seen Dr. S. Mahanti of Vigyan Prasar

A section of the audience

... think scientifically, act scientifically ... think scientifically, act scientifically ... think scientifically, act...

Clones – It's Human Beings Now

The term clone, in everyday usage, refers to a group of organisms that are genetically identical. Most such clones result from asexual reproduction, a process in which a new organism develops from only one parent. Thus, all the offspring of a single parent form a clone. An experimental technique developed involves destroying the nucleus of an egg cell of the species to be cloned. The nucleus is then removed from a body cell of an animal of the same species. This donor nucleus is injected into the egg cell. The egg, with its new nucleus, develops into an animal that has the same genetic make up as the donor. If a number of eggs receive transplants from the same donor, the resulting offspring form a clones. This technique was used to clone such amphibians as frogs and salamanders as early as 1950's. However, the source for body cells and the nuclei was an embryo consisting of only a few thousand cells, because at that stage of development an embryo's cells are relatively unspecialized. As an embryo develops into a completely developed organism consisting of billions of cells, its cells become increasingly specialized. Some cells become skin cells, while others become blood cells. Skin cells can normally make only more skin cells, and blood cells can normally make only blood cells. By contrast, each of the unspecialized cells of an early embryo is capable of producing an entire body. In 1996, however, researchers led by embryologist Ian Helmut of the Roslin Institute near Edinburgh, Scotland, found a way to do the seemingly impossible. Mammary-gland cells from an adult sheep were placed in a solution that essentially starved them of nutrients and caused them to stop growing for a few days. Then, they fused each mammary cell with an egg cell from which nucleus was removed. The resulting cells were allowed to grow into embryos, which were then transplanted into a surrogate mother ewe (female sheep) to complete their development. Nearly 300 attempts resulted in failure. Some eggs did not accept mammary cell nuclei, embryos that were produced died, and lambs that were born were abnormal and died. But, one lamb, apparently healthy, survived the procedure: Dolly, who was born in July 1996. Later, besides pigs and sheep, scientists in different parts of the world cloned other animals, including cows, pigs and mice.

Surely, it is only a matter of time before human cloning becomes a reality. Well, the day does not seem to be very far. Two maverick scientists have unveiled their plans to produce the first cloned human beings by the end of 2002. They declared their plans recently at a panel brought together by the U.S. National Academy of Sciences for a report exploring the use of human cloning in basic science and medicine, such as the creation of tissues for transplants. The group led by Severino

Antinori, an Italian fertility specialist, and his colleague Panos Zavos of the Andrology Institute in Kentucky, formally announced that his team would begin creating cloned embryos within a month or so. They would treat 200 couples suffering from fertility problems starting in November 2001. This generated a heated debate on ethical and legal issues related to human cloning. But, safety emerged as the key issue.

Many scientists felt that human cloning would be a hasty step before mastering the techniques of animal cloning and solutions to the health problems often exhibited by the cloned animals, as it happened during the trials before Dolly's birth. Again, Ian Helmut gave examples of two animals, one sheep and one cow, that appeared healthy at birth, but later died from lung and immune system disorders respectively. These would have been nearly impossible to diagnosis in utero. Because of such and several other unresolved issues, many scientists feel that human cloning should be postponed until these questions were answered.

Would a human clone tend to have a diminished sense of individuality? Would cloning undermine basic elements of a loving nurturing family, such as the acceptance of each child as a unique individual? What would happen to a world that separated reproduction from love and other human relationships? Would society use cloning to modify the human race, say, for warfare or slavery? Would doctors use clones as sources of organs for organ transplants? True, these concerns are genuine, but, we have no answer to them as of now. Perhaps the strongest argument advanced in favour of human cloning is that cloning could provide the only avenue available to some infertile couples for producing children. In cases of fertile couples in which one member carries a gene for a disease, cloning using a cell from the other member could assure that the couple has a healthy child of its own. Further, a clone would not really be a duplicate, but, only a delayed identical twin because environmental factors would mould him or her into a unique individual.

This is where we have arrived at from the days of Darwin. Cloning technology like any other technology, has two facets. How do we ensure that human cloning technology turns out to be a blessing? How would it affect the Indian society? It is only a few years before human cloning becomes a part of our lives. How shall we cope with it then? Before deciding a course of action, it would be imperative to take people in confidence and involve them in the decision making process. This topic must, therefore, be dealt with as part of peoples' science movement. Let us talk to the people, initiate debates and then arrive at a consensus. Human clones are round the corner!

□ V.B. Kamble

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