

Death knell for dolphins?

KULSI river is one of the tributaries of Brahmaputra in Assam. The river harbours the endangered river dolphin, *Platanista gangetica*. It is a very interesting dolphin as it is blind but has perfected its biosonar or echolocation ability to capture food and navigate. The dolphins or the *Shihu* as they are locally known are found in a stretch of about 2.5 km. The

from one square metre area about 1.25 tonnes of sand is removed annually. It is indeed a heavy unsustainable sand extraction which will ultimately cause irreparable damage to the ecology of the river. Already there are visible signs of degradation of the ecology of the river with the formation of river islands in the middle of the river, heavy siltation in many parts of the river and even a change in the course

of the river. The quality of the sand has also come down due to over exploitation.

Due to siltation the velocity of the water flow becomes less in the lower reaches. This will affect the well being of the dolphins. Besides, sand extraction increases the turbidity of the river blocking light which is essential for photosynthetic activities. This will reduce the fish population in the river which will mean less food for the dolphins.

River Kakadanga, another tributary of the Brahmaputra near Jorhat, also had a sizeable population of dolphins. G. Pilleri, a Swiss scientist from the Brain Institute, University of Brene, Switzerland had even collected a few specimens of the dolphins from the river in 1960 and made detailed investigations of their sonar mechanism. But today the dolphins are nowhere to be seen as the

river is heavily silted. The same fate should not befall the dolphins of the Kulsi river too.

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Controlling 'new genes'

RECENT reports of cloning sheep and monkey and developments in genetical engineering raise some questions about the safety of our environment, ecological balance and human institutions at large. We have a long vivid history of research in nuclear energy and its many good and bad uses. It took about 30 years for a few nations to build huge stocks of nuclear bombs and missiles. It took about equal time to diffuse the cold war and to bring down the nuclear armoury to an 'under control' level. Now, it might take a few decades more to fully disarm the world of nuclear arms, if actively pursued.

Should this not serve as an example to scientists and national policy-makers for research in relation to cloning and genetical engineering? One striking point common to both fields of nuclear and genetical engineering is the fundamentality of the things under study—atoms in nuclear physics and cells and genes in biology, with vast and not fully known or unpredictable consequences in many domains of human life. This warrants holistic approaches and evaluations. What nuclear



population of the river dolphins in the Kulsi river was 24 in 1990 but in 1997 it has come down to 11. Habitat degradation caused by intensive sand removal from the dolphin habitat is the main reason for the population depletion. If urgent steps are not taken to stop this degradation the dolphin may soon be completely wiped off.

Annually about 12,500 tonnes of sand is taken from the river bed. The sand is transported by lorries to Guwahati and other places. It has been estimated that



research did by opening up a new microworld of big potentials many decades is being, perhaps, done now in genetics. But this field is more prone to dangers and unpredictable consequences. Let us not repeat the mistakes. There is no doubt that studies on genes and cloning should continue for beneficial purposes. But they have to be necessarily monitored and controlled by international and national agencies comprising of scientists, human rights workers, environmentalists, moralists and statesmen.

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Methyl bromide

MAY I add some information to the article on methyl bromide in the **Poison Sleuths** column in the August 1997 issue of *Science Reporter*.

The burning sensation in the eyes experienced in the event narrated by the author was possibly due to the presence of chloropicrin in the atmosphere. At low concentrations, methyl bromide is odourless. Hence, a warning agent, usually 2 per cent chloropicrin, is added to it which acts as a lachrymatory (tear causing) agent.

Because chloropicrin is phytotoxic methyl bromide containing this chemical is not used on living plants. Some fruits or certain varieties are susceptible to

injury by methyl bromide. Cereals and milled products are extensively fumigated with methyl bromide.

A fumigant similar to methyl bromide is ethylene dibromide which is a liquid at room temperature. The ease of handling ethylene dibromide popularised its use as a household grain fumigant made available in ampoule packing. Methyl bromide is also imported in one pound cans which are simply punctured and placed at different points in the area to fumigate. Heavy cylinder movement is thus avoided.

Finally, it is useful to note that a flame in contact with a clean piece of copper will burn with a green to blue hue in the presence of an organic halide in the surrounding air. Thus if Sita, the victim's mother in the story, had lighted the brass burner of her gas stove it would have effectively performed as a methyl bromide 'leak detector' by showing the marked change in colour of the flame to a bright green (or greenish-blue in higher concentrations).

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History of maths

IN this review of the book **The Development of Mathematics—1900-1950** (SR, June 1997) P. K. Mukherjee writes apropos of Prime Number Theorem,

the proof of this theorem was first given by Jacques Hadomard in 1866 and independently by Charles-Jean de la Vance Pouisson. The date actually is 1896.

Mukherjee also regrets that no abstract in English to papers in German language is included. Be that as it may, the fact is that a knowledge of German is quite essential for any serious student of the history of mathematics.

I believe the book will be a most useful reference if read along with Felix Klein's *Entwicklung der Mathematik* as also E. T. Bell's *The Development of Mathematics*.

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Unsafe vaccines

SCIENCE is going ahead with various researches and new vaccines are being created. At times we do buy vaccines for rabies, typhoid and anti D for rh -ive mothers. But how are we to be sure that the cold chain so necessary for the efficacy of the vaccines has been maintained right from the manufacturers to the retail chemist. In these days of frequent power failures it becomes almost impossible to maintain the cold chain for vaccines. Does this not affect the quality of the vaccines.

The life-saving vaccines must be stored at a central place having generators or UPS. The government should evolve a mechanism

to make sure this is being done.

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Show business

MADE for each other in the April 1997 issue of *Science Reporter* made interesting reading. The way the angiosperms exploit the services of the insect community is simply astounding. This show business of the flowering plants raises many questions in ones mind.

Taking the example of *Ophrys speculum* flowers resembling the female wasp



of *Campsoscolia ciliata* giving off the same odour even. Does this not imply the presence of some sort of intelligence and other sensations such as sight in whatever form during its course of evolution which helped it in providing a dummy mate for the male wasp and thus getting its work done. Otherwise how such a thing could have happened!

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