In this issue

Pollution Policies

Controlling noise levels

Modern city life makes us immune to noise. Our nervous system is endowed with the ability to shut out the din made by refrigerators, washing machines, vacuum cleaners, TV and radio sets. When we get out of our house, we may complain about the noise of traffic, blaring horns, factories, construction equipment,... But a person who has to survive on the roadside barely notices the noise.

Habituation.

It does not mean that our ears are immune to noise. Our brain has to overwork to keep us from noticing noise. Besides hearing impairment, suppressing the annoyance leads to hypertension, cardiovascular diseases, immune impairment and a host of other problems.

Noise pollution is defined as a part of air pollution. So besides the Ministry of Health, the Ministry of Environment and Forests should be concerned. The Central Pollution Control Board and State Pollution Control Boards should be taking action. The National Committee on Noise Pollution Control should be making recommendations about measures to control the menace.

But first, we need data. Where should we take immediate action? Thus it is that a National Ambient Noise Monitoring Network was set up for mapping and monitoring noise pollution. Starting in 2011 with 35 locations, the network to measure noise levels expanded to cover 70 locations in 7 metro cities in 2014.

Real-time noise monitoring data from major cities of India has identified six locations with ambient noise levels of more than 70 dB(A). And many more that may not be as deafening, but need noise abatement measures for the welfare of the public.

Data is important to make informed decisions. But are our policies and legal framework adequate to address the issue? A General Article on **page 29** in this issue examines present policies and suggests the need for revisions.

The Tale of Two Lakes

Scientists seek sediments' stories

There are two lakes in Palani Hills, Tamil Nadu: Berijam and Kukkal. Both lakes are surrounded by the Shola forests. The surrounding soil is also similar. But the lakes are evolving in different ways.

Plant detritus and sediments determine the nutrient budget of the lakes and hence their ecology, trophic status and rate of evolution. Physical and chemical erosion of rocks in the catchment area are transported by streams and deposited in the lakes. Particulate detritus of plants is the main source of total organic carbon and only a small percentage is from animals and other sources. So examination of the organic matter, total organic carbon, total nitrogen, the ratio of carbon and nitrogen and texture of lake-floor sediments can reveal a lot about the history of lakes. Geologists from the Anna University, Chennai, dug into the depths of the two lakes to bring out samples, in an attempt to compare the stories of the two lakes. And they present their data in a Research Article in this issue. Read on from **page 168**.

Moon Echoes

Man-made frequencies

The National Atmospheric Research Laboratory, Gadanki, has a 53 MHz radar that was designed for the study of the Mesosphere, Stratosphere and Troposphere; the MST radar, they call it. A set of 32 high power transmitters coordinating with each other send radio signals upwards, using an array of 1024 antennae. Each antenna looks more or less like the rooftop TV antennas of yesteryears. But the array is spread over an area much bigger than a football field, giving the radar a very large aperture: 17,000 square meters. The same array detects the reflections. The MST radar has been used to study atmospheric dynamics for more than two decades now and many are the research papers based on the results of the installation.

Now, the scientists there used it for a totally different purpose: to study the moon. On a fine December day, when the moon was over the radar field of view, they sent high power radio pulses. The echoes of the pulses from the surface of the moon were detected by the antenna after about 2.5 seconds.

The moon traverses the beam in 15 minutes. The data was collected for the entire period. The antenna positions were changed to another angle, to collect the data again. Thus data was collected from five different directions to study the echoes from the moon's surface.

The technique is very useful to get high resolution maps of the moon and provide independent, earth-bound observations that can be correlated with the data from Chandrayaan and other explorations of the moon's surface. The experiment 'provided us measurements of echo power and spectral properties at every 4.8 km interval from different parts of the moon' say the researchers in a Research Article on **page 141** in this issue. But they have an even more important ulterior motive: to fine tune their confidence in the system to explore other astronomical objects.

Breaking News

Scientific advances in India

Regular readers of *Current Science* might have noticed that the journal has started presenting news items related to the research being done in various parts of India, in a new column: 'Science Last Fortnight'. You might have been disappointed at not seeing the column in the two issues of last month. We make amends in this issue by increasing the column to four pages. Turn to **page 13**.

The reports in the column of this issue are from fifteen people who were trained in a workshop on science writing, held in Bengaluru last month. We have thus expanded the manpower for reporting science in India.

We look forward to hearing your feedback for improving the column.

K. P. Madhu
Science Writing Consultant
kp.madhu2000@gmail.com