

In this issue

Indian Chemists' Contribution

A century of Chemical Reviews

A hundred years ago, the journal, *Chemical Reviews*, started publishing authoritative, critical and readable reviews on advances in chemistry. Today, it is a leading journal in chemistry. What have Indian scientists published in the journal during the century? How has the number of publications by Indian scientists changed over time? How comparable are the numbers with publications by other countries? Who were the most prolific contributors? Which institutions contributed most? What categories of content were published by Indians? And how has all this changed over time? Which countries had the most collaborations with Indian authors? Which journals did they cite most? These and other questions are answered by a General Article in this issue.

Most importantly, the article has some recommendations to Indian chemists for future publications in the journal. Turn to **page 128**.

Smart Farming

With Internet of Things

The development of algorithms to tease out the type of vegetation and its health, soil moisture and fertility and to predict agricultural productivity from satellite imagery gave some broad strokes of information needed to make regional decisions related to agriculture. Algorithms to identify moisture, fertility, plant diseases, weeds and pests from images captured by drones have now started giving field-level information to farmers to take appropriate action in time. More detailed and more specific information became possible with the development of various types of sensors for measuring various agriculturally relevant data on a real-time basis. Then came actuators that can control the amount of water, fertilisers and

other inputs needed based on the data gleaned from different sources. Tractors, drones and machines that can be controlled by data inputs for the precise application of irrigation and fertilisers as well as for harvesting have also come up. Now it is time to link and interconnect all the data inputs for decision making and for appropriate action in agriculture. A Review Article gives us a preview of the future of smart farming enabled by the Internet of Things.

To help you anticipate the next revolution in agriculture, read on from **page 137** in this issue.

Oxbow Lake in Sersa

Remains of a river

Aneesh Sriram's interest was piqued by a Twitter post about an oxbow lake in Sersa, in the Sonipat district of Haryana. The post relied on imagery from the US Geological Survey data of more than half a century ago. Such oxbow lakes are usually left behind when meandering rivers change their path. So perhaps it is a remnant of the path of the ancient Yamuna. Since ancient settlements were always close to rivers, there should be some archaeological remnants too in the area. The archaeologist in Aneesh was energised, especially since the location was close to Ashoka University where he worked.

Though the National Institute of Hydrology had documented a large number of oxbow lakes in the region while mapping the Yamuna basin, this one was left out. So Aneesh went for a recce to check out the lake, armed with Google Earth Pro and Google street view for cross verifying the satellite data. Since Google Earth Pro images extend back to only the 1990s, he had to depend on the Corona satellite images of 1965 available with ISRO.

The location of the oxbow lake is between the Sersa residential zone to

the east and the Kundli industrial zone. Evidently most of the archaeological remains would now be under buildings and other infrastructure. But all is, of course, not lost. Additions to the rich archaeological heritage of Sonipath is still possible if an interdisciplinary team can come together.

For details of the discovery, turn to the Research Communication on **page 271** in this issue.

Resources from Oceans

Sustainable management

Oceans have vast resources, some of which are overexploited and some, underexploited, and yet others, unexplored. While new technologies to explore and exploit marine resources are being developed, we need to ensure that common resources are not overexploited, that oceanic resources are managed in a sustainable manner. To strategically govern the resources to make informed decisions and to implement those decisions, there is a need for a variety of data and reliable knowledge of the oceans and their bounties. The Special Section on Blue Economy caters to this need.

Besides analysing the dynamics of marine fisheries, ports and shipping operations, the economics and accounting practices within marine contexts, it examines the rich reservoirs of marine minerals and marine biodiversity with economic value and provides insights on their extraction and preservation. The extraction of energy and freshwater from oceans is also dealt with.

The Special Section with eleven articles, starting from **page 153** is a collector's item for not only researchers, but also industry stakeholders, environmental advocates and policymakers.

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