

SCIENCE AND CULTURE

SEPTEMBER-DECEMBER 2002/VOLUME 68/NOS. 9-12

A JOURNAL OF NATURAL & CULTURAL SCIENCES

PUBLISHED BY THE
**INDIAN SCIENCE
NEWS ASSOCIATION**

EDITORIAL BOARD

R. K. Mandal
Editor-in-Chief
Amalendu Bandyopadhyay
Julie Banerji
Syamal Chakraborty
Ajit Kumar Danda
N. C. Datta
Amit Krishna De
Vinod Kumar Gupta
N. D. Paria
S. C. Roy

COLLABORATORS

S. Aditya
Amiya Bagchi
B. B. Biswas
R. N. Chatterjee
D. P. Chattopadhyay
Mihir Chowdhury
D. P. Duary
D. Ganguli
S. K. Ghaswala
Irfan Habib
A. K. Hati
S. B. Karmohapatro
Balaram Majumdar
C. H. Meheta
A. S. Mukherjee
Biswapati Mukherjee
S. K. Mukherjee
S. P. Mukherjee
R. P. Purkayastha
P. K. Ray
Parimal Sen
S. P. Sen
S. P. Sengupta

INTRODUCTORY REMARKS

- *A P Mitra* ... 213
- The Indian Summer Monsoon : Past, Present and Future
— *K. Rupa Kumar, R. G. Ashrit and G. B. Pant* ... 217
- Study of Methane Emission From Paddy Fields : Is Rice Harvesting under Danger
— *A P Mitra and D C Parashar* ... 225
- Impact of Climatic Variability and Climate Change on Soil and Crop Productivity
— *Naveen Kalra, P. K. Aggarwal, Y. P. Abrol H. Pathak, Anita Chaudhary, Subhash Chander, Mukesh Sehgal, Sujith Kumar, U. A. Soni, Santosh, H. K. Rai, Kalpana Kumari, J. Sindhu, Anil Sharma, Anish Chatterjee, Sumant Puri, M. Z. Hussain and S. A. Khan* ... 233
- Water Resources and Climate Change
— *S. Pentu Saheb and R. N. Singh* ... 244
- Rural India and Environment
— *C. Sharma, Prabhat K. Gupta and A. P. Mitra* ... 257
- Climate Change and Human Health
— *Sumana Bhattacharya, Chhemendra Sharma, K. Krishna Kumar, R. S. Parmar and A. P. Mitra* ... 264
- Climate Change, Forestry and Environment
— *N. H. Ravindranath and Indu K. Murthy* ... 278
- Mega-Cities : Are these Eco-Hazards or Eco-Devices ?
— *A. P. Mitra and C. Sharma* ... 285
- Indian Auto-Fuel Policy and its Role in Environment
— *Mukesh Saxena, A. K. Jain and Sudhir Singhal* ... 292
- Land use in Indo-Gangetic Plains Vis-à-Vis Atmospheric Carbon Dioxide Emissions
— *Vinay K. Dadhwal and Yash P. Abrol* ... 303
- Sea Level and Associated Changes in the Sundarbans
— *Sugata Hazra, Tuhin Ghosh, Rajashree Dasgupta and Gautam Sen* ... 309

Contd. next page.



Indian Science News Association

President

Dr. A. P. Mitra

Vice-Presidents

Dr. S. K. Bhattacharya

Professor M. M. Chakrabarty

Professor (Mrs.) Asima Chatterjee

Professor M. K. Das Gupta

Professor Asis Datta

Dr. S. C. Pakrashi

Secretaries

Professor (Mrs.) Julie Banerji

Professor Naresh Chandra Datta

Treasurer

Professor Amalendu Bandyopadhyay

Council Members

Professor Basudeb Barman

Professor Sujit Kumar Basu

Dr. A. N. Bhaduri

Professor Jagadish Chandra Bhattacharyya

Professor Samir Kumar Brahmachari

Professor Dipankar Chakraborty

Dr. D. P. Duari

Professor Sudhendu Mandal

Professor Ananda Deb Mukherjee

Professor Biswapati Mukherjee

Dr. Debasish Mukherjee

Dr. G. B. Pant

Professor H. S. Ray

Professor Nityananda Saha

Professor Parimal Chandra Sen

Professor M. Siddiqi

Professor D. K. Sinha

Professor S. K. Talapatra

**Members of the Editorial Board are also
members of the Council**

NOTES AND NEWS ... 322

BOOKREVIEW
S. C. Roy ... 325

LETTERS TO THE EDITOR

Discrepancies in the Morphological Characters of
Two Varieties of *Madhuca Longifolia* J. Koenig.
— R. Kannan and M. Jegadeesan ... 327

On the Coastal Protection of Digha Through
Afforestation
— Ram Kumar Bhakat ... 329

A New Record for the Aquatic Angiospermous
Seeds From the Eocene of India
— R. P. Tripathi ... 331

Impact of Cadmium, Activated Charcoal, EDTA
and Single Superphosphate on Variation in
Limnological Parameters
— Satabdi Das and Anilava Kaviraj ... 333

Cover : MID FACE facility at Indian Agricultural Research Institute,
New Delhi.

**Members of the Advisory Committee
of
Indian Science News Association**

Professor Padmanabham Balaram	Bangalore
Professor B. B. Baliga	Mangalore
Professor Ashok Nath Basu	Kolkata
Dr. Sandip Kumar Basu	New Delhi
Professor Jagadish Chandra Bhattacharyya	Bangalore
Dr. S. Datta Gupta	Kolkata
Dr. H. K. Gupta	Hyderabad
Dr. K. Kasturirangan	Bangalore
Dr. R. A. Mashelkar	New Delhi
Professor M. G. K. Menon	New Delhi
Professor Yash Pal	New Delhi
Dr. R. S. Paroda	New Delhi
Dr. V. S. Ramamurthy	New Delhi
Dr. C. N. R. Rao	Bangalore
Professor (Mrs.) Manju Sharma	New Delhi
Professor P. N. Tandon	New Delhi

SCIENCE & CULTURE

ADVERTISEMENT

RATE

	Single Insertion	
	(Full Page)	(Half Page)
COVER (Back)	Rs. 3,000/-	×
COVER (Front Inside)	Rs. 2,000/-	×
COVER (Back Inside)	Rs. 2,000/-	×
PAGE FACING EDITORIAL	Rs. 1,500/-	Rs. 800/-
PAGE FACING CONTENTS	Rs. 1,200/-	Rs. 700/-
OTHER PAGES	Rs. 1,000/-	Rs. 600/-

N.B. : For colour or any other special types of advertisement—rates may be negotiated.

A discount of 20% for insertions in all issues in a year and of 15% for atleast three insertions will be allowed.

TO OUR READERS

Your appreciation of the journal makes us bold to suppose that some of your friends would also like to read SCIENCE & CULTURE, the premier scientific monthly of India devoted to the publication of the progress in pure and applied sciences. The Indian Science News Association has been conducting the journal for over 67 years with the editorial co-operation of eminent scientists of India with the object of promoting and diffusing knowledge laying special stress on the progress of scientific studies here and abroad, and advocating methodical application of science to problems of national regeneration.

Editorial correspondence should be sent to the Editor, *Science and Culture*, 92, Acharya Prafulla Chandra Road, Kolkata : 700 009. Manuscripts prepared in accordance with the Instruction to Contributors should be submitted in **Triplicate** and will not be returned unless accompanied with return postage.

Correspondence relating to subscription, advertisement and other matters should be addressed to the **Hony. Secretary, Indian Science News Association, 92, Acharya Prafulla Chandra Road, Kolkata : 700 009, Phone :- 350-2224.**

MEMBERSHIP FEE

Life Member	:	Rs. 1000.00
Ordinary Member	:	Rs. 100.00

ANNUAL SUBSCRIPTION

Inland (Institution)	Rs. 500.00
Foreign	U.S.\$ 75.00
Inland (Individual)	Rs. 250.00
Single Copy (Inland)	Rs. 120.00
Single Copy (Foreign)	\$ 30.00

SCIENCE AND CULTURE

Published by :— INDIAN SCIENCE NEWS ASSOCIATION
92, Acharya Prafulla Chandra Road, Calcutta-700 009

AN APPEAL

The Indian Science News Association (ISNA) was established in the year 1935 by eminent scientists Professor Meghnad Saha and Acharya P. C. Ray, and was sustained by Professor S. K. Mitra, Professor B. C. Guha, Professor D. S. Kothari, Professor S. S. Bhatnagar, Professor P. C. Mahalanobish, Prof. D. M. Bose and many other stalwarts. The main objective of the Association is to promote and disseminate knowledge, laying special stress on scientific studies in India and abroad and to advocate the methodical application of science to problems of national regeneration. The Association provides a platform to the growing scientific knowledge vis-a-vis the culture of our country. The first President of the Association was Acharya P. C. Ray and the founder secretaries were Professor Meghnad Saha and Professor B. B. Roy.

The 'Science and Culture' is the mouth piece of the organization. With the above objectives in view, the Association has been publishing 'SCIENCE AND CULTURE' monthly, since 1935. Not only scientific articles but also articles on social and cultural aspects of the country are published in the journal. Many important articles on nationally important events, conservation and developmental aspects have been published in the journal.

Besides the publication of the journal, the Association holds a number of memorial and endowment lectures throughout the year. Since 1983, an annual course (of 10-12 weeks duration) on Science Communication and Media Practices is held to train young aspirants.

During its long period of existence, the Association witnessed several financial crises as it is autonomous and depends on grants and donations, both from government and charitable organizations. However, the slump during 1992-95 was acute and affected the publication of the journal. It was decided during that time to publish the journal bimonthly and keep the continuity. Since then, by acquiring some funds, an endowment has been created and the journal is brought out on the interest proceeds of the fund. Recent years have witnessed an increasing popularity of the (truncated bimonthly) journal and there is a demand amongst readers for monthly publication.

However, the funds position do not permit this. As more and more well written and thought provoking articles are arriving at our office for publication in the journal, it is all the more tempting to revamp the journal and bring it back to monthly publication. Hence this appeal to you to donate generously to ISNA to help us put our plans into action in the new millennium.

The donation will be exempt from income tax vide U/S 80G of I.T. Act 1961, Order No $\frac{\text{DIT (E)/548}}{8\text{E}/87/99-2000}$
Dated- 23.09.99.

Any donation/contribution should be issued by crossed cheque/draft drawn in favour of Indian Science News Association.

We trust your liberal participation and patronage will help us to restore the heritage (running into 68th year) of Indian Science to new heights of glory.

Thanking you,

President : Dr. A. P. Mitra, F.R.S.

Vice-Presidents : Dr. S. K. Bhattacharya
Prof. M. M. Chakrabarty
Prof. (Mrs.) Asima Chatterjee
Prof. M. K. Das Gupta
Prof. Asis Datta
Dr. S. C. Pakrashi

Honorary

Secretaries : Prof. (Mrs.) Julie Banerji
Prof. Naresh Chandra Datta

Honorary

Treasurer : Prof. Amalendu Bandyopadhyay

Members of the

Editorial Board: Prof. R. K. Mandal (Editor-in-Chief)
Prof. Amalendu Bandyopadhyay
Prof. (Mrs.) Julie Banerji
Dr. Syamal Chakraborty
Prof. Ajit Kumar Danda
Prof. N. C. Datta
Dr. Amit Krishna De
Prof. Vinod Kumar Gupta
Prof. N. D. Paria
Prof. S. C. Roy