

SCIENCE AND CULTURE

SEPTEMBER-OCTOBER 2013/VOLUME 79/NOS. 9-10

A JOURNAL OF NATURAL AND CULTURAL SCIENCES

PUBLISHED BY THE
**INDIAN SCIENCE
NEWS ASSOCIATION**

EDITORIAL BOARD

S. C. Roy Editor-in-Chief

N. D. Paria Associate Editor

Parimal Chandra Sen Associate Editor

Syamal Chakrabarti

Barun Kumar Chatterjee

N. C. Datta

Amit Krishna De

Vinod Kumar Gupta

Sudhendu Mandal

COLLABORATORS

| | |
|--------------------------------|-----------------------------|
| S. Aditya (Kolkata) | A. K. Hati (Kolkata) |
| Amiya Bagchi (Kolkata) | S. Kailas (Mumbai) |
| D. Balasubramanian (Hyderabad) | Ananta Krishnan (Pune) |
| Biman Basu (Delhi) | Abhijit Lahiri (Delhi) |
| Indrani Bose (Kolkata) | R. C. Mohanty (Bhubaneswar) |
| Sankar Chakravorti (Kolkata) | S. P. Mukherjee (Kolkata) |
| R. N. Chatterjee (Kolkata) | B. K. Pattnaik (Kanpur) |
| D. P. Chattopadhyay (Kolkata) | V. Prakash (Mysore) |
| R. Gadagkar (Bangalore) | G. Prathap (Delhi) |
| Irfan Habib (Delhi) | R. R. Rao (Bangalore) |
| E. Haribabu (Hyderabad) | Ashoke Sen (Allahabad) |
| | S. P. Sengupta (Kolkata) |
| | P. Tandon (Shillong) |

EDITORIAL

Manipur—A Volatile Mixture
— *S. C. Roy* ... 335

LETTERS TO THE EDITOR ... 338

ARTICLE

Does India Know Itself?
— *Gopal Krishna Gandhi* ... 340

March Towards a Hunger Free India
— *Jayanta Sthanapati* ... 347

Evolution of Nuclear Fuels
— *N. R. Das* ... 356

The "Forgotten" Astronomical Society of India,
Calcutta
— *Rajinder Singh* ... 369

One Hundred Twenty Five Years of H.G.J.
Moseley : A Life Cut Short by the First
World War
— *Bhupati Chakrabarti* ... 376

FOCUS

Breakthrough in Quantum Computation
— *Indrani Bose* ... 381

INNER SPACE

Desolation Row
— *IncogRito* ... 383

RESEARCH COMMUNICATION

Novelty of Using Chlorophyll a Concentration to
Determine the Aquatic Health of Indian Sundarban
— *Sucharita Kundu* ... 384



Indian Science News Association

President

Professor B. B. Biswas

Vice-Presidents

Professor M. S. Swaminathan

Professor P. K. Ray

Professor Sankar Kumar Pal

Professor Alok Krishna Gupta

Professor Sibaji Raha

Professor S. K. Talapatra

Honorary Secretaries

Professor N. C. Datta

Professor Sudhendu Mandal

Honorary Treasurer

Professor Amalendu Bandyopadhyay

Council Members

Professor (Mrs.) Julie Banerji

Professor Kankan Bhattacharyya

Dr. Satyabrata Chakrabarti

Professor Manas Chakrabarty

Professor Dhrubajyoti Chattopadhyay

Dr. Manas Pratim Das

Dr. Dibyendu Ganguli

Dr. Balaram Majumder

Dr. Hemanta Kumar Majumder

Dr. Sisir Kumar Majumder

Professor Indranil Manna

Professor Biswapati Mukherjee

Dr. Gopeswar Mukherjee

Professor A. K. Pattanayak

Professor Siddhartha Ray

Professor Milan K. Sanyal

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

Is the Abraham-Minkowski Controversy Resolved
Finally ?

— *Pradipta Panchadhyayee* ... 387

Studies on The Vectors of Dengues in the Context
of Changing Epidemiology

— *Sajal Bhattacharya,*
Dushyant Kumar Srivastava,
Ajay Kumar Mandal ... 391

Phytogeographical Observations from the ADI
Tribes Inhabited Areas of Lower Dibang Valley
District, Arunachal Pradesh (India)

— *Ringu Ngupok, Gibji Nimasow* ... 396

BOOK REVIEW

A Random Walk in Popular Science

— *Barun Kumar Chatterjee* ... 403

Encyclopedia of Himalayan Medicinal Flora,
Volume I

— *Satyesh Chandra Roy* ... 404

OBITUARY

Samarjit Kar

— *Pathik Guha* ... 406

NOTES AND NEWS ... 408

Cover : Postage stamp issued on the occasion of food revolution.

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

| | |
|--|-----------|
| Professor Padmanabham Balaram | Bangalore |
| Professor D. Balasubramanian | Hyderabad |
| Professor Basudeb Barman | Kolkata |
| Professor A. K. Barua | Kolkata |
| Professor Ashok Nath Basu | Kolkata |
| Dr. M. K. Bhan | New Delhi |
| Professor Jagadish Chandra Bhattacharyya | Bangalore |
| Professor Samir Kumar Brahmachari | New Delhi |
| Professor Chandrashekhar Chakraborty | Kolkata |
| Dr. Purnendu Chatterjee | Kolkata |
| Professor Suranjan Das | Kolkata |
| Professor Asis Datta | New Delhi |
| Professor P. N. Ghosh | Kolkata |
| Dr. N. K. Ganguly | New Delhi |
| Professor S. N. Ghosh | Kolkata |
| Dr. H. K. Gupta | Hyderabad |
| Dr. K. Kasturirangan | Bangalore |
| Dr. R. A. Mashelkar | New Delhi |
| Dr. Govardhan Mehta | Bangalore |
| Professor M. G. K. Menon | New Delhi |
| Professor Yash Pal | New Delhi |
| Dr. T. Ramasami | New Delhi |
| Dr. Anuj Sinha | New Delhi |
| Dr. Bikash Chandra Sinha | Kolkata |

**SCIENCE & CULTURE
ADVERTISEMENT
RATE**

| | Single Insertion | |
|----------------------|------------------|-------------|
| | (Full Page) | (Half Page) |
| COVER (Back) | Rs. 10,000/- | × |
| COVER (Front Inside) | Rs. 7,000/- | × |
| COVER (Back Inside) | Rs. 7,000/- | × |
| OTHER PAGES | Rs. 5,000/- | Rs. 3,000/- |

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 bi-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 78 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-in-Chief, *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 : 2350-2224. E-mail : scie2224@dataone.in, Website : www.scienceandculture-isna.org**

MEMBERSHIP FEE

| | | |
|-----------------------------------|-----|-------------|
| Life Member | : | Rs. 2500.00 |
| Ordinary Member (without journal) | Rs. | 100.00 |
| Ordinary Member (with journal) | Rs. | 400.00 |

ANNUAL SUBSCRIPTION

| | | |
|-----------------------|--------|---------|
| Inland (Institution) | Rs. | 1500.00 |
| Foreign | U.S.\$ | 125.00 |
| Inland (Individual) | Rs. | 400.00 |
| Foreign (Individual) | US.\$ | 60.00 |
| Single Copy (Inland) | Rs. | 80.00 |
| Single Copy (Foreign) | \$ | 20.00 |

Past Special Issues

- **Glass and Ceramic Research in India** (May-June 2005)
- **Water Resources in South Asia : An Assessment of Climate Change – Associated Vulnerabilities and Coping Mechanisms** (July-August 2005)
- **Unconventional Applications of Physics** (March-April 2007)
- **Current Trends in Leishmania Research** (May-June 2007)
- **Forensic Science in Criminal Justice Delivery System** (November-December 2007)
- **Natural Products Chemistry** (January-February 2008)
- **Mysteries of the Earth's Interior** (May-June 2008)
- **Radio Science** (September-October 2008)
- **Scientific Legacy of Acharya J. C. Bose The Doyen of Indian Science** (November-December 2008)
- **Origin of Species–A Revolutionary Argument** (March-April 2009)
- **Geomagnetism and Aeronomy** (July-August 2009)
- **Cholera : A Disease that Eludes Technological Advance** (May-June 2010)
- **Fifteen years of Econophysics Research** (September-October 2010)
- **Emerging Trends in Genomics : Applications in Health and Disease** (January-February 2011)
- **Recent Trends in Tea Research** (September-October 2011)
- **Impact of CSIR-NEIST in the North East Region** (November-December 2011)
- **New Science of Synthetic and Systems Biology** (March-April 2012)
- **A Journey from Plant Physiology to Plant Biology** (May-June 2012)
- **CSIR-CSIO : Instrumental in Scientific-eco System Measurements** (September-October 2012)
- **CSIR-NML on the March** (November-December 2012)
- **Atomic Energy in National Development** (January-February 2013)