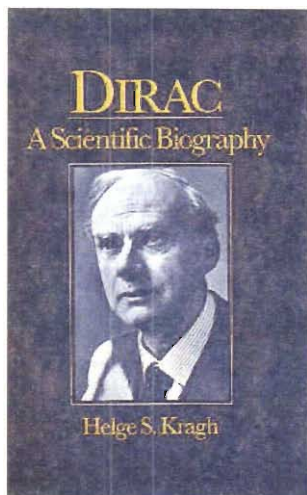


100



**GENERAL ARTICLES**

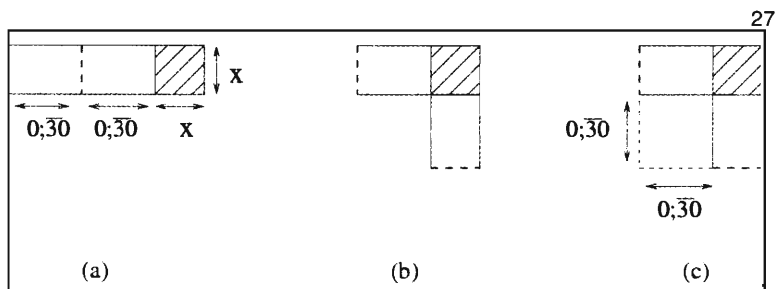
- 10 Quantization of the Radiation Field**  
Avinash Khare
- 17 Dirac's Conception of the Magnetic Monopole, and its Modern Avatars**  
Sunil Mukhi
- 27 On Ancient Babylonian Algebra and Geometry**  
Rahul Roy
- 43 Wollemi Pine: Living Fossil from Jurassic Landscape**  
N S Leela
- 48 All about the Dirac Delta Function (?)**  
V Balakrishnan
- 59 The Discovery of Dirac Equation and its Impact on Present-day Physics**  
G Rajasekaran
- 75 The Quantum Poisson Bracket and Transformation Theory in Quantum Mechanics: Dirac's Early Work in Quantum Theory**  
Kamal Datta



This Swedish stamp celebrates the discovery of antimatter.

**Inside Back Cover**

Flowering Trees  
(Credits: K Sankara Rao, IISc)





### Classics

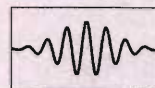
XI. The Relation between Mathematics and Physics *P A M Dirac* 102



### Information and Announcements

Winter School on Coding Theory 111  
Refresher Course on Earth Sciences

## DEPARTMENTS



### Editorial

01

Editor's Column  
*G Nagendrappa*

### Article-in-a-Box 02

Paul Adrien Maurice Dirac – An Appreciation  
*N Mukunda*

Dirac's Large Numbers Hypothesis  
*Biman Nath*

## RESEARCH NEWS

**86** **Determination of Structures of Proteins in Solution using Nuclear Magnetic Resonance**  
Siddhartha P Sarma

## BOOK REVIEWS

**100** **An Inspiring Biography** Vasant Natarajan

### Front Cover



### The First Observation of an Antiparticle

In 1932 Carl Anderson observed an intriguing particle in the cloud chamber which he was using to study cosmic radiation. In the cloud chamber charged particles give rise to a trail of condensed droplets with which many properties of the particle can be determined. There were several interpretations possible. With the assumption that it was a well-known particle, it was either an electron moving downwards or a proton moving upwards. After careful investigations it was possible to exclude both possibilities. The electric charge was determined to be positive, that is opposite to the charge of the electron. This positive particle had a mass close to that of the electron. Carl Anderson had actually identified the first antiparticle, the positron as he called it, the antiparticle of the electron. In 1936 he received the Nobel Prize for his discovery of the positron.

The positron moves upwards through a horizontal 3 mm lead plate and its trajectory is curved by a magnetic field. The direction was determined from the observation that the particle had lost energy going through the lead plate and was therefore curving more in the magnetic field.

(Colour scheme for cover by Jayant Rao)

### Back Cover



Paul Adrien Maurice Dirac  
(1902 – 1984)

