

Capsule

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Miss Kakali Banerjee of Ramkrishna Sarada Mission Sister Nivedita Girls' School was the topper in the West Bengal State Level Seminar.

NATIONAL SCIENCE SEMINAR-1988 -a meet of budding thinkers

Thirtyone students, representing all the States and Union Territories of India will assemble at the FICCI Auditorium in New Delhi in December 1988, for the final round of interaction in the seminar. A major annual event of NCSM, organised in collaboration with the State Education Departments, this seminar has a kind of multi-tier, pyramid-like system: on a given theme or topic of national relevance, thousands of students all over India start interacting at Block level, and gradually go up to the National level, through the successive stages of District and State level contests.

NCSM's such annual programmes endeavour to develop resourcefulness in the participating students across the country, provide them with a platform where they can interact with one another on topics, not only of scientific but of socio-economic importance also. All that is expected of them is that they will take their turn to disseminate the benefits in every walk of life.

'Information Revolution' is the topic of the year, given to the school students to deliberate on, and it got thousands of young thinkers all over the country into involved, intimate and nevertheless critical

discussions. It is always interesting to observe them—so young, yet so reflective.

All the constituent Units of NCSM all over India take part to organise the seminars in a well-co-ordinated way. Birla Industrial & Technological Museum in Calcutta organised 17 District level seminars in various parts of the State of West Bengal during August 1988. On 26 August 1988 was held the West Bengal State level seminar at BITM, in which 34 students took part.

NCSM SPEAKS

Completing thirty years in one place may be boring to many a person, but not to Dr. Saroj Ghose, who now completes thirty years of service in 19A, Gurusaday Road, Calcutta, the cradle of science museum movement in India.

Joining as a Junior Scientific Officer in Birla Industrial and Technological Museum on September 1, 1958, when the first major science museum in India was yet to open, Dr. Ghose has grown with the Organisation. In 1965 he took over the steering of the BITM and in 1979 the newly formed National Council of Science Museums as its Director and later as the Director General. Under his control, the science museum movement in the country has undergone a phenomenal growth in the last nine years.

Dr. Ghose attributes this progress to the dedication and team spirit of hundreds of his colleagues, who, like him, have devoted all their time and energy to the challenging job of opening new science centres

(Continued in page-8)

PROJECT SCHOOL SCIENCE CENTRE

Science museums' activities and programmes had always been largely directed towards the benefit of the students' community. A variety of such programmes are regularly conducted by the NCSM's constituent science museums and centres in different parts of the country, for fostering in the students a spirit of scientific inquiry and creativity. NCSM's endeavour is to reach out to more and more students, and with this aim in view, a novel new concept, "School Science Centre", has been put on the anvil.

THE PLAN

NCSM plans to help 1000 schools in the next five years to set up such science centres for developing creative abilities in their students. Such school science centres are essentially required to attain a self-generating status, so that around a set of nucleus exhibits, teaching aids, kits and audio-visuals provided by NCSM, the schools are able to build up the momentum for generating new concepts and activities through the combined efforts of the teachers and the students. Each such centre shall become a source of inspiration for other schools in the locality.

AREAS OF ACTIVITY

A School Science Centre will have two broad categories of activities : (i) School Science Programmes, dedicated to the mission, "Build up Your Own Laboratory", and (ii) Community Science Programmes, with the motto, "Service before Self". The former includes creative activities like development of kits and teaching aids with locally available materials and without using sophisticated machines; building up a low-cost laboratory

for supplementing classroom teaching of science; organising educational programmes like quiz, seminar, science fairs and camps, film shows, nature study camps, science demonstration lectures, and teachers' training programme. The latter incorporates programmes on themes pertaining to everyday life in the rural community like agriculture, water management for drinking and irrigation purposes, soil testing and preservation, food testing and preservation, pest control, tool making, crafts, vocational training, child-care and nutrition, public health, ecology and environment, conservation and recirculation of energy etc. Organisation of mobile science exhibition and demonstration, periodic camps for public education, science, film shows, audio-visual shows, science drama, seminar, workshop, popular lecture etc. also come under the purview of this category.

FINANCIAL INPUT

Financial input per centre for the first year will be to the tune of Rs. 30,000, divided equally between school science programmes and community programmes. The respective State Government and Education Board shall select appropriate schools and provide a one-time grant to each school for initial purchase of kits and tools for school programmes. The respective State Council for Science & Technology shall provide :—

- an appropriate one-time grant to each selected school for initial purchase of tools, audiovisual equipment and sound-slide sets for community programmes, and
- a suitable recurring grant to such centres for supporting the programmes.

ROLE OF THE SCHOOL

The schools, willing to establish such science centres are required to

- provide a room, worktables, electricity where available, and other facilities for the functioning of the centre which will be located inside the school building,
- depute two science teachers for running the centre and its programmes,
- mobilise a group of 20—25 students of higher classes to work in their off-time for the centre.

ROLE OF NCSM

The role of NCSM will be largely of catalytic support. NCSM shall—

- continuously develop new concepts on kits and activities and disseminate them to all school science centres,
- regularly organise training programmes and workshops for teachers,
- continuously develop synchronized sound-slide sets,
- institute regular monitoring and follow-up activities,
- render technical expertise and guidance required for sustaining the activities in school science centres.

The project of school science centre is initially being launched in the States of Madhya Pradesh, Bihar, Uttar Pradesh, West Bengal and Orissa. Madhya Pradesh State Council for S & T has already earmarked 65 schools in their State. Planning is ahead with other State Governments who have shown favourable response to this project.



NEW SCIENCE CENTRES ACROSS THE COUNTRY

NCSM is going through an unprecedented developmental programme across the country which will enable the Council to open in the coming years, many new facilities for the people. Construction of new centres are in various stages of completion at Delhi, Bhubaneswar, Guwahati, Lucknow, Nagpur, Calcutta, Patna and Bhopal. Activities are expected to start in Goa, Calicut and Imphal very soon.



DELHI

The first phase of the proposed 30,000 sq. mt. building is scheduled to be opened to the public on 5 December 1988, with a 350 capacity auditorium equipped with simultaneous demonstration facilities; three seminar rooms; a 3000 sq. mt. exhibition and a 5000 sq. mt. exhibit development unit. The Centre, scheduled for completion in March 1990, will provide necessary infrastructure for launching a massive outreach programme all over Northern India. The Children's Outdoor Science Park of the National Science Centre is also gradually taking shape in the North Delhi Campus, with many new and interesting exhibits. When complete, the centre, along with the Science Park has the promise of being one of the major attractions of the Capital City.



CALCUTTA

Central Research & Training Laboratory, a unique facility for research and development of exhibit prototypes and training of museum personnel in all disciplines, is coming up fast at the Salt Lake

City in Calcutta. Commissioning of equipment and machinery has been initiated at the lower floors. Expected to be fully operational by November 1988, CRTL will be the first of its kind, training science communicators of the world over. Along with the 10 storied main building, construction of a 6 storied trainees' hostel and a 10 storied residential apartment block are also complete in the same campus.



GUWAHATI

The main building of the Regional Science Centre in Guwahati is nearing completion. The science park is also coming up in an idyllic setting. Exhibit design and development are also in an advanced stage. The Centre is slated for opening in the middle of 1989.



LUCKNOW

The upcoming Regional Science Centre at Lucknow is the first of its kind in the State of Uttar Pradesh. First phase of the Science park is developed. The main building of the Centre is nearing completion, and simultaneously work is in progress for permanent galleries. The Centre is scheduled for inauguration in 1989.



NAGPUR

Raman Science Centre in Nagpur of which the science park and the

mobile science exhibition were inaugurated in April 1987, is also rapidly nearing completion. Building construction and exhibit development are in an advanced stage. The Centre will open to the public by March 1989.



PATNA

Shrikrishna Science Centre in Patna is being largely expanded with a new extension building which will accommodate exhibits on different subjects. The Government of Bihar is sharing 50% of the expenditure with the Government of India. Architectural planning being complete, construction of the building will start soon.



BHUBANESWAR

The Children's Science Park of the Regional Science Centre in Bhubaneswar was inaugurated in February 1987 and within a year and a half it has become quite an attraction of the town. The museobus, launched at the same time, has brought vast areas of the State under the mobile science exhibition network.

The main building of the Centre is now ready and exhibit installation is also going on in full swing. The Centre is scheduled for inauguration during the current year. A plan for setting up two District Science Centres in Orissa during the 8th Five Year Plan has been taken up.

NEW PROGRAMS

International Workshop on Formative Evaluation

20-24 September 1988

Venue—Musée National de
Automobile, Mulhouse, France.
Sponsored by—International
Laboratory for Visitor Studies,
and the Centre de Culture
Scientifique, Technique et
Industrielle de Mulhouse, France.

Workshop on Astronomy and Planetary Science

4 July 1988

Venue—B M Birla Planetarium,
Madras.

Organised by—Tamil Nadu
Science and Technology Centres,
Madras.

District Science Fair—1988

1—3 September 1988

Venue—Tirunelveli, Tamil Nadu.
Organised by—District Science
Centre, Tirunelveli in collaboration
with Department of Education,
Govt. of Tamil Nadu.

Southern India Science Fair—1988

3—10 October 1988

Venue—Pondicherry, Madras.
Organised by—Visvesvaraya
Industrial & Technological
Museum, Bangalore and State
Governments of Tamil Nadu,
Karnataka, Kerala, and Andhra
Pradesh.

Celebration of the Birth Centenary of Prof. C V Raman and Diamond Jubilee of "Raman Effect".

2—6 November 1988

Venue—Calcutta.

Organised by—Indian Association
for the Cultivation of Science,
Calcutta.

Second World Congress on

Heritage, Presentation and Interpretation—1988.

Preparing for the 90s.

30 August—4 September 1988.

Venue—University of Warwick,
Conventry, England.

Organised by—The Centre for
Environmental Interpretation (CEI);
The Society for the Interpretation
of Britain's Heritage (SIBH) in
association with University
of Surrey.

National Science Seminar—1988 on

Information Revolution

20 December 1988.

Venue—National Science Centre,
Pragati Maidan, New Delhi.

Organised by—National Council of
Science Museums in collaboration
with State Education Departments.

ICOFOM MEETING PROGRAMME 1988

ICOFOM (ICOM's International
Committee on Museology) is
organising their annual meet in
India during 19 November—
4 December 1988. The meeting
comprises the following pro-
grammes at different venues—

* ICOFOM Symposium 1988—on
*Museology and developing
countries—help or mani-
pulation?*
Venue—Hyderabad, during 21—
25 November.

* ICOFOM Case Study—1988 on
*The heritage, museums,
museology and the Indian
Cultural Policy.*
Venue—Varanasi, during
27 November—1 December.

The meeting, the symposium and
the case-study will be concluded
at New Delhi, during 2—4 Decem-
ber 1988.

ICOM India and various museums
and institutions are actively taking
part in these programmes.

PET CLUB FAMILY DAY CALCUTTA

Birla Industrial & Technological
Museum in Calcutta had
recently launched a Pet Club for
very young school children. Mem-
bers of the Club can take home
pet animals like rabbits, birds, and
aquarium fish on loan for one
month. While in their custody, they
take care of the animals, study
their behaviour and note down the
observations on the activity sheets
provided by the museum.

On 13 August 1988 was organised
a Pet Club Family Day in which 60
parents and teachers took part. It
provided a platform for the children
to share among themselves their
experiences about pets. During the
programme the children and their
parents alike listened to an expert
giving tips on pet care; enjoyed a
live show with snakes and tor-
toises; and a "Fun with Science"
presentation by the museum's staff
members. The day's programme
was rounded off with a visit to the
new Children's Gallery of the
museum.

FIREWORKS IN SPACE

The new planetarium programme
thus named and developed by
Nehru Planetarium in Bombay,
acquaints the visitors with a multi-
tude of phenomena related to
Space. After a primary introduction
with the stars and constellations,
the visitors are taken on a fasci-
nating "random walk in the sky",
guided by the Pole Star. In the
course of this Space Odyssey they
are vividly given an idea of the fact
that our galaxy, the Milky Way,
with its multibillion stars is just a
small brick in the cosmic architec-
ture of the Universe. Going on sail-
ing through the ocean of stars, the
visitors come across Magellanic
Clouds, and then Supernovas. The
mystery of the death and birth of
stars through these explosive
phenomena is explained in all its
astronomical grandeur. A brief
history of the discovery of Super-
novas is also narrated.

INTERNATIONAL CONFERENCE ON BIODETERIORATION OF CULTURAL PROPERTY

An International Conference on
this theme is going to be held
at the National Research Labora-
tory for conservation of Cultural
property, Lucknow, India, during
20—25 February 1989. The Con-
ference is sponsored by *Inter-
national Centre for the Study of
the Preservation and Restoration
of Cultural Properties* (ICCROM).
The Conference will take note of
the new techniques in the studies
of biodegradation of cultural prop-
erties, locate uncovered areas
and try to focus attention on
achievements and formulate further
plans for action.

Papers submitted in the conference
by the participants will broadly
cover the following areas—

- * effect of micro-organisms on
plant growth.
- * insects and rodents.
- * different art materials like wood,
lather, parchment, fur, paper,
photographic materials, textiles,
metals, wall-paintings, oil-paint-
ings, building materials and
monuments.
- * use of chemicals, radiation and
other techniques for control of
micro-organisms and insects in
museums.

FUN SCIENCE

As the name rightly implies, here science is not a "subject", but a thing to play with. Here is an array of 100 fully participatory exhibits on a wide variety of topics, strewn all over a floorspace of 1000 square metres. When interacted with, they seem to be extremely quizzical and paradoxical in their manifestations, but reveal their inherent principles of science only to a probing, questioning mind.

NCSM has developed this set of exhibits for rendering catalytic support to the science centres in India and abroad who are in the budding and without ready infrastructure for exhibit development. NCSM supplies this set of International quality exhibits on cost basis, which as on date is Rs. 40,00,000/- (USD 300,000). The price includes cost of exhibit design, layout design for specific exhibition hall(s), complete catalogue and instruction manual, free installation within India and free training at Central Research & Training Laboratory (CRTL) of NCSM.

100 exhibits comprise the following topics :

- Defying Gravity ?
- Mathematics
- Fluidics
- Pendulum
- Rolling Balls
- Sound
- Perpetual Motion ?
- Optical Illusion
- Fun with Electricity
- Light
- Magnetism
- Mirrors
- Chemistry

Mounted on anodised extruded aluminium structure, these exhibits are easy to set up and shift. Exhibits come complete with illustrated text, supporting graphics and attractive motifs, colourfully painted on PVC coated panels. They operate on 220V/50Hz or 110V/60Hz A.C.

Presented here are a few of the representative exhibits :

THE GRAND SHUTTLE

What is more fun than driving a shuttle back and forth by merely pressing two buttons ! This 'Fun Science' exhibit is a new variation



of the old 'Jumping Disc' exhibit where interaction of an induced field with the one causing it makes the shuttle move from one end of a bent guide to the other. The 'Grand Shuttle' as we call it is one of the eight exhibits in the group "Defying gravity ?"

ALL ROADS LEAD TO ROME

Have you ever played carom ? Well, you might have but certainly not with a board having an elliptical periphery. In this exhibit one hits the striker from its marked initial location to the elliptical periphery, and lo ! it always goes to another point ! The best of the carom players may try their hands

but everytime, every hit goes back to the same point. After all, you



cannot change the characteristics of an ellipse what is exactly this exhibit tells you about.

PRESSURE AND TEMPERATURE

Focus strong lights on the two glass bulbs painted black and white. They get heated but not equally. The black bulb attains a temperature higher than that of the white one. Air inside the bulbs tries to expand but is opposed to do so freely by the liquid columns inside the Manometers. The resulting increase in air pressure inside the bulb is clearly shown by the difference in the heights of the



liquid columns in the Manometers. The two Manometers fitted with the two bulbs give a relation between temperature and pressure.

SCIENCE MUSEUMS WITHOUT WALLS -exhibits to go.

An eight-day international workshop on the above theme is going to be held during 5-13, December 1988 at Delhi, Bombay, Bangalore and Calcutta, the four major metropolises of India. The workshop is being jointly sponsored by the National Council of Science Museums (NCSM), Indo-US Sub Commission on Education and Culture, United Nations Educational, Scientific and Cultural Organisation (UNESCO) and International Council of Museums (ICOM). About 80 participants from all over the world will take part in this workshop which envisages development of new concepts and techniques for science museum exhibits and activities, oriented towards outdoor facilities like Science Parks, Travelling Science Exhibitions, Loan Kits and various other outreach activities.

PLAN OF THE WORKSHOP

The workshop comprises eight Sessions, divided as such:—

- Session I—School Programmes**
—including Science Demonstration Lecture, Loan Kit, Discovery Room, Teachers' Training Programme, Hobby Centre, Computer Awareness Programme and similar other programmes.
- Session II—Travelling Exhibits—**
including Museobus, Science Train, Science Circus, Exhibits at Shopping Malls, Circulating Exhibits etc.
- Session III—Community Programmes—**on Health, Food and Nutrition, Family Maths, Vocational Training, Adult Training, Rural Programmes and similar other programmes.
- Session IV—Outdoor Exhibits—**
including Science Park, Nature Park, Ecology Park, Theme Park etc.

- Session V—Mass Communication**
—including Science Drama, Science Films, Video Tapes, Interactive Video Programmes, Participatory Science Quiz, Television Programmes.



Putting a thing together by collaborative efforts—an artist's design of the cover of the First Circular for the proposed Workshop.

- Session VI—Camp Activities—**
including Science Camp, Science Fair, Nature Camp, Space Camp and similar other activities.
- Session VII—Interactive Planetarium Programme—**
including Portable Planetarium, Sky Observation, Telescope Making, Astronomy and Space Programmes.
- Session VIII—Summing up Session**
—suggestions for preparation of a handbook on Science Museum Outreach Programmes.

OTHER RELEVANT INFORMATION

Audio Visual Aids—Participants are requested to bring with them films, video tapes, slides and other audio-visual aids for supplementing their presentations.

Technical Equipment—the following equipment will be available in all workshop venues:

Super 8 mm Projector, 16 mm Movie Projector, 35 mm Slide Projector, Overhead Projector, 1/2" VHS PAL Video Cassette Player with Colour Monitor.

The following countries are participating in the Workshop:

Argentina
Australia
Bangladesh
Brazil
Bulgaria
Czechoslovakia
Denmark
F R G
France
Hungary
Indonesia
Israel
Japan
Malaysia
Mali
Mexico
Nepal
Netherlands
Norway
Pakistan
Philippines
Spain
Sri Lanka
Sweden
Thailand
U K
U S A
U S S R

XPERIMENT!

A New interactive science centre at the Greater Manchester Museum of Science & Industry (U. K.) opens on 17 November 1988. Although not a conventional gallery, Xperiment! is an integrated part of the museum, and as for its future growth, it is hoped that Xperiment! will become one of the most important science and technology centres in Britain.



A mirror exhibit.

Xperiment! aims to present, at an elementary level, fundamental principles of science and technology that are relevant, both to the various historical collections in the museum, and to everyday life. This is achieved by means of interactive exhibits that show striking, readily appreciated physical phenomena in a thoroughly enjoyable, friendly, non-intimidating environment. Full advantage is taken to establish strong conceptual links among Xperiment!, various historical collections and the museum's education department, in order to optimize the usefulness to schools and general visitors.

INDO-UK COLLABORATION

Established in 1943, the Nuffield Foundation of the U. K. is working for the following objectives:—

- * advancement of health and prevention and relief of sickness, particularly by medical research and teaching;
- * advancement of social well being, particularly by scientific research;
- * advancement of education;
- * care and comfort of the aged poor.

Approximate annual grants expenditure of the Foundation is above three million pounds, one fourth of which is spent on education. Educational programmes concern development of Integrated Schools and curriculum development in science and mathematics; public understanding of science and developments involving interactive science centres. Presently, the prospect of collaboration in these spheres between the Foundation and NCSM is being explored in both the countries.

RENOVATION IN CHICAGO

The "Heart" exhibition of the Museum of Science & Industry in Chicago, which first opened in 1982, has been completely revamped and updated prior to its February 1988 opening.



The giant walk-thro' heart.

In keeping with the museum's long-played role in promoting health-education among the public, this new permanent exhibition is an excellent example of the Museum's commitment to the cause.

Here a visitor can see how the heart works and how to take care of it. He can view its parts in close up, see the heart as a whole or stand back for a different view. At computer terminals scattered throughout the 3000 sq. ft. exhibition a visitor can input personal information and get a reading on his risk of heart disease. He also can mount a bicycle whose handlebars contain sensors that register the rider's heart beat rate and display it as a digital readout. The greatest attraction is the giant walk-thro' heart—a 16 ft. tall replica of the human heart which can be seen from inside.

SYSTEMATICA



"Systematica" exhibit on the move.

Systematica, an exhibition on the exploration of different kinds of systems and how they work, has been produced by the Museum of History and Science in Louisville, USA. The exhibition is designed to tour among the member museums and centres of the Exhibit Research Collaborative, and currently it is on display at Discovery Place in Charlotte.

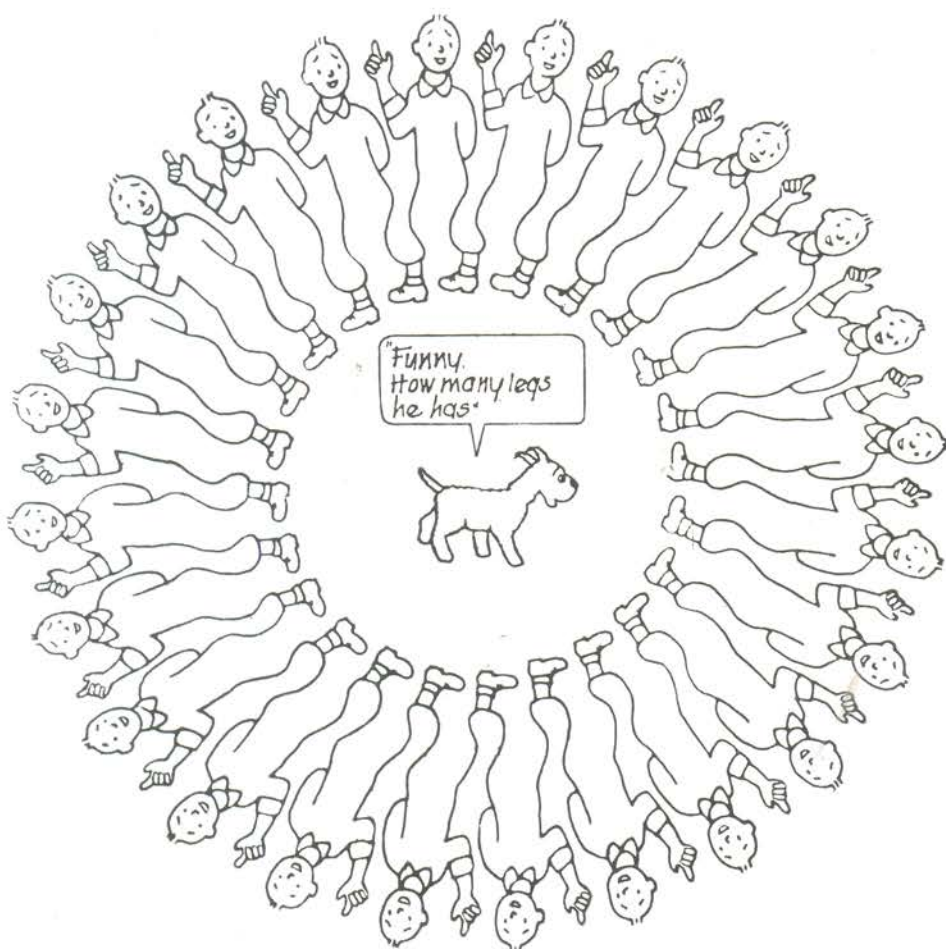
NCSM SPEAKS

(Continued from page-1)

one after another. Setting up nine science centres in nine years and setting a stage for many more to come up in the next five years, is a rare opportunity and privilege, enjoyed by few persons in the world. The excitement for creation has instilled absolute job-satisfaction in the minds of his colleagues, many of whom have completed twenty of even twentyfive years in NCSM science museums and centres.

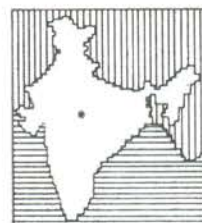
Science centres in India now-a-days have become a playground for not only children and adult visitors but for young scientists, engineers, artists and administrators, who are joining the profession every year as members of staff of NCSM. The profession is getting more and more lucrative because of freedom of thought and action, national and international exposure and over-all popularity of science centres. The increasing popularity of CAPSULE is an indication of the popularity of science centres in general.

For development of a chain of science centres, the NCSM is looking for talented commercial artists, electronic and mechanical engineers and M. Sc. degree holders in Physics. All benefactors of NCSM are requested to advise such young people, who would like to work in the NCSM playground of science and technology, to write to us in plain paper.



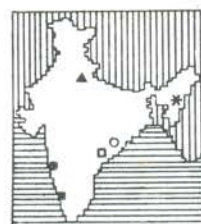
NEW SCIENCE CENTRES

(Continued from page-3)



BHOPAL

A Regional Science Centre is being set up at a total outlay of Rupees 125 lacs. The Government of Madhya Pradesh is sharing 50% of the expenditure. Architectural planning for the Centre has already started.



- * IMPHAL • GOA
- CALICUT
- VIJAYAWADA
- ◻ TIRUPATI
- ▲ SIMLA

Planning is ahead for setting up six Sub-Regional Science Centres in diverse corners of the country. Assurance of financial participation from the respective State Governments have been obtained, and the process of identification of suitable lands is going on.

WE NEED.....

EDITOR, CAPSULE is looking forward to your sending by October 31, 1988 publication materials for the next issue of CAPSULE. Please send short notes, photographs, problems, suggestions, cartoons and puzzles.



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