

Capsule

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CENTRAL RESEARCH & TRAINING LABORATORY

It is the pioneer in the entire science centre profession. Nowhere exists such a centralised, extensive facility for human resource development, for a science centre movement. From scratch to finish, it has taken NCSM just a span of two years, to fully commission at Salt Lake City in Calcutta, this impressive 10 storied, 12,000 sq. mt. laboratory building with an attached hostel for 64 persons and a staff quarter block, involving a total expenditure of Rupees 60 million.

It is a landmark in the development of Indian Science Centre Movement. NCSM, the apex body of the science museums and centres in India, has the responsibility of spreading the Movement in nooks and corners of the vast country, to reach out to more and more people. As for achievements, last 10 years saw the establishment of 10 science centres in different parts of the country, according to the national plan. Many more are

(Contd. in Page 2)



NCSM SPEAKS

Thirty years of dedicated service to the people is now bringing in



the happy rewards. On the Republic Day this year, the President of India has conferred on Dr. Saroj Ghose, the Director General of NCSM, the distinguished award of *Padmasree* for his contribution towards the popularisation of science in the country. This follows the prestigious *Indira Gandhi Award for Popularisation of Science*, conferred on him by the Indian National Science Academy (INSA) in 1988.

Dr. Ghose, a telecommunication engineer from Jadavpur University in Calcutta, completed his post-graduate studies in control engineering at Harvard University and

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SCIENCE MUSEUMS—a special feature

CENTRAL RESEARCH & TRAINING LABORATORY

(Contd. from Page 1)

in the pipeline, scheduled to come up in the next five years. Correspondingly, educational programmes and outreach activities of the science centres have changed a lot, and are changing continuously, to keep abreast of people's expectations.

Optimisation of resources, free exchange of exhibits and experts and proper coordination of activities are the prerequisites for such quick achievements, and with this aim in view the Central Research and Training Laboratory is established. It is to act as an umbrella, a catalyst, for all the existing and in the offing science centres in India.

Activities at CRTL are extensive, embracing all the vital aspects of a science centre. Activities may be broadly categorised in two parts—*R & D* and *Training*.

RESEARCH & DEVELOPMENT

- * continuous research on museology, museography, and techniques relating to development of new exhibits
- * conceptual development of new exhibits and activities for bringing in increased visitors' participation



2 The art department



The mechanical workshop

- * large-scale development of prototype exhibits for feeding different science centres and science parks across the country
- * development of mobile and travelling exhibitions for circulation in India
- * development of international travelling exhibitions
- * development of inflatable, portable planetaria and new planetarium programmes
- * generation of computer software, new video programmes, and microprocessor controlled exhibits
- * close liaison among NCSM's units in different parts of India who have infrastructure for exhibit development
- * concepts and techniques in science communication
- * development and use of teaching aids and kits for formal science education
- * development and use of audio-visuals and video programmes for nonformal science education
- * visualisation, silkscreen printing, fibreglass casting, photography and other areas of graphic design and modelling
- * electro-mechanical, optical and digital animation techniques and exhibit design
- * administration, finance control and leadership programmes

TRAINING

Year-round training facilities are available for :

- * in-service personnel at different levels in various NCSM science museums and centres
- * persons deputed by other science centres, State Councils of Science & Technology, voluntary organisations in India
- * persons on deputation from other countries.



The computer section

NCSM SPEAKS

(Contd. from Page 1)

did his Ph.D work in the Smithsonian Institution, Washington D. C. He joined the Birla Industrial and Technological Museum as Junior Scientific Officer in 1958, when the first major public science museum in India was yet to open. In 1965 he took over the steering of BITM. For about 15 years he was the head of BITM, and then Nehru Science Centre in Bombay. In 1979 he took over the newly formed National Council of Science Museums as its Director and then as the Director General.

This decade of his leadership especially has brought in some tangible changes in the Indian science museum scenario. Ten new science centres in ten years were opened in different parts of the country, and the way is paved for many more to come up within the next five years. Things have changed in qualitative terms as well. Today science museums in India are quite renowned throughout the world for their innovative exhibits, extensive educational activities and outreach programmes. *Science Park*, a unique concept in non-formal science education, was first implemented in India in 1979; and now a decade later it has become a source of inspiration and serves as a model for science centres in countries like the USA.

SCIENCE TO THE GRASSROOT LEVEL

Taking science to the grassroots level is the current preoccupation of NCSM. It plans to help, during the 8th Plan, 1000 schools to set up their own science centres, for developing creative abilities in their students. They are to be of a self-generating status, so that around a set of nucleus teaching aids, kits and audio-visuals provided by NCSM, the schools are able to build up momentum for generating new concepts and activities, through the combined efforts of the teachers and the students. They should also become a source of inspiration for the adjoining schools.

AREA OF ACTIVITY

(1) School Science Programmes, with the mission "Build Your Own Laboratory", and (2) Community Science Programmes, with the motto, "Service Before Self", are the two objectives. The former includes creative activities like development of kits and teaching aids with locally available materials and without sophisticated machines; developing low cost laboratories for supplementing classroom teaching; and organising programmes like quiz, seminar, science fair, film show, nature study camp, science demonstration lecture and teachers' training programme. The latter includes programmes on themes pertaining to rural community like agriculture, water management, soil testing and preservation, food testing and preservation, pest control, tool making, crafts, vocational training, childcare and nutrition, health, ecology and environment, conservation and recirculation of energy and so on. Activities like organising mobile science exhibition also come under this purview.

ROLE OF NCSM

It is largely of catalytic support, like—

- continuously developing new concepts on teaching aids, kits and audio-visuals and feeding the ideas to School Science Centres for developing the materials in their own places
- regularly organising training programmes for teachers

- regular monitoring and follow-up activities through a newsletter
- rendering technical expertise and guidance to schools for sustaining the activities
- mobilising necessary financial support from various sources for providing nucleus kits, tools etc. to the schools and for running the Science Centres

ACHIEVEMENTS

121 schools are primarily identified and work has started in the State of Madhya Pradesh. Teachers' Training Programme had been organised at Raipur, Jabalpur and Bhopal during January 17-31, February 3-17, and February 20 to March 5, 1989 respectively, in which 65 teachers took part. Schedule is being prepared for initiating training in Manipur, Tripura, Uttar Pradesh, Orissa and West Bengal. It is planned to start about 100 more School Science Centre in Tamil Nadu, Andhra Pradesh, Karnataka and Kerala during 1989-90.

WORKSHOP ON THE 8TH PLAN

During February 1989 NCSM organised four regional workshops at Delhi, Bombay, Bangalore and Calcutta, involving many resource personnel like eminent scientists, educationists and science communicators. The aim of these brainstorming exercises was to evolve a guideline for science museums' work in accordance with national planning. Recommendations of these workshops are—

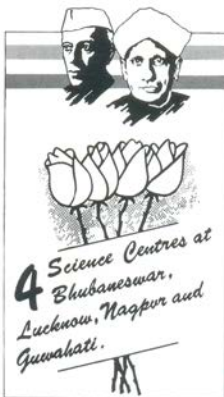
- intensive research on the development of S & T and their impact on society, with special reference to the Indian context
- development of exhibit bank for participation in various national and international exhibitions at very short notice
- launching "Science Train", the first such travelling exhibition in India, for projecting the country's rich S & T heritage and also the achievements in the post-independence period.

Much stress was also laid on generation of activities like organising exhibitions to fight superstition and prejudice; taking science to grassroots level through establishment of numerous school science centres and adequately training their teachers; formation of appropriate mechanism to encourage and strengthen science club activities; organising training programmes for science communicators; development of portable planetaria and interactive instructional programmes to create mass awareness on astronomy.

The workshops further recommended that NCSM should strengthen its in-house facilities for video production on low budget; encourage development of science centres by other organisations, and extend help for human resource development both within and outside the Council.

NEW SCIENCE CENTRES

Four regional science centres are complete at Bhubaneswar, Lucknow, Guwahati and Nagpur. Under Nehru's and Raman's birth centenary celebration programme of NCSM, these four new facilities will open for the people shortly.



COUNTRYWIDE CELEBRATION OF THE NATIONAL SCIENCE DAY

February 28, 1928. On that day a new horizon in science was opened in the country, with Professor C V Raman announcing his *Raman Effect*. For this he was awarded the Nobel Prize, the first in science in Asia.

Since 1987, the Government of India has decided to observe the day as *National Science Day*.

An event of such great magnitude and scientific importance, it is a fitting occasion for popularising science and creating science consciousness in the people. All the science museums and science centres under NCSM across the country celebrated the day, as in the previous years, in a well co-ordinated way, through elaborately planned programmes, with spontaneous involvement of thousands of school children, their teachers, science enthusiasts from science clubs, common people, eminent scientists and educationists of their respective regions. They organised colourful *Science March* in which thousands of people actively took part with banners, festoons and posters, carrying various appropriate messages of science. Songs were sung, mobile dramas were performed and the processions at their culmination were addressed by eminent scientists and educationists. In-house programmes at different museums and centres comprised science drama, science poetry, sit and draw, sit and write, show and tell, science quiz, costume parade, popular lectures, slide demonstration, astronomy workshop, spectralab and planetarium shows, and many such events.

Science March, Purulia



Tree Mapping, Calcutta



Sit & Draw, Bombay



Science Quiz, Bangalore



Sit & Write, Gulbarga

EXHIBITION ON LIFE & WORKS OF C V RAMAN—A BIRTH CENTENARY TRIBUTE

The National Science Day celebration this year took a new dimension with a unique programme of NCSM to commemorate the first birth centenary of Professor C. V. Raman, which fell on November 7, 1988. 2500 kilometres apart in two different cities, at Bangalore and at Calcutta, two like travelling exhibitions were opened to public on that day.

The exhibitions are on their travelling schedule throughout India over a period of 13 months, giving our countrymen a glimpse into our rich heritage. The programme for exhibition from Calcutta comprises places like Purulia, Bhubaneswar, Patna, Lucknow and Jaipur, before it reaches Delhi on November 7, 1989, for the valediction of the centenary celebration. Similarly, the exhibition from Bangalore will move through Gulbarga, Tirunelveli, Trivandrum, Pondicherry, Hyderabad and Nagpur, before culminating at Bombay on November 7, 1989.

Apart from the graphic panels with many rare photographs capturing and sequentially presenting the extraordinary life of this savant of science, the emphasis of the exhibition is on visitors' participation. An assortment of artefacts and participatory exhibits are there in the exhibition for the visitors to interact with, and recapitulate Raman's experiments in areas of acoustics and optics. An interesting part of the exhibition is the depiction of Raman's treatises on various topics that were published in international journals of repute, earning for him worldwide accolades.

The exhibition in Patna



EASTERN INDIA SCIENCE CAMP—1989

Thousands of school students along with their teachers and science-buffs from science clubs across the country take part in this annual NCSM programme. These fairs and camps have a multi-tier system : starting at district level, going up to state level and then culminating at the regional level. Budding scientists from nooks and corners of the country assemble in these fairs at grass-root level with their various ingenious working models and projects, and compete to rise through successively higher levels. Various study-scholarships, prizes, special awards and trophies are there, to enthuse the winners.

This programme of science fairs and camps is, in a sense, the culmination of NCSM science museums' other non-formal educational programmes. Schemes like creative ability centre or hobby centre and science demonstration lecture whet the ingrained curiosity in the youngsters, lead them to exploration into ideas and giving three-dimensional shapes to them. Precisely that is how, many models and exhibits that assemble in these fairs, come into being.

This year *West Bengal State Level Science Fair* was held in Calcutta during February 9-12. 1643 students

West Bengal Science Fair



from 403 schools and 131 science clubs took part, with 1455 models. In addition, 123 students from 15 schools and 8 science clubs in Calcutta took part in the *Calcutta District Science Fair* which was held simultaneously.



Eastern India Science Camp

Hosted by the Government of Orissa, the *Eastern India Science Camp* was held in Bhubaneswar during February 5-19, 1989. 200 participants from 122 schools and 20 science clubs with 150 models and artifacts assembled there, to mark their creative abilities. Exposure oriented training camps on photography, electronics, life sciences, utilizations of waste materials, computer literacy and creative activities were organised for observers coming from all over Eastern India.

ANNIVERSARIES

The District Science Centre in Gulbarga completed its fifth year of service to the people on January 6, 1989. District Science Centre, Tirunelveli celebrated its second anniversary on February 27, 1989. The fifth anniversary of District Science Centre, Dharampur falls on April 27 this year and it is being celebrated with the inauguration of a fascinating new gallery on 'Perception'.

On the anniversary DSC Gulbarga introduced Computer Awareness Programme for school students



THE FIRST COMPUTER FAIR IN CALCUTTA

Birla Industrial and Technological Museum in collaboration with the Directorate of School Education organised the first *Computer Fair* during January 23-29, 1989. About 175 students from 35 schools in Calcutta took part in this Fair. After a primary screening 56 students from 15 schools and 12 science clubs actually worked on 24 computers and developed softwares on Physics, Chemistry, Mathematics and Life Sciences which are to be used for class room teaching. Various prizes were there, for outstanding achievements. Students willing to join but without programming experience were given an initiation through a computer awareness programme. This week-long programme also included—

- * an exhibition prepared by the students themselves with guidance from their teachers and BITM, depicting the chronological development of computers—from ABACUS to the present day
- * computer demonstration by leading manufacturers, dealers and educational institutions like Pascal Computers, Computer Maintenance Corporation, Computer Exchange, Apple Systems, Hindu School and BITM
- * popular lectures with demonstration by eminent professionals, on topics related to computer communication, control, and education
- * regular video shows
- * a book stall

Hands-on experience in the Fair



ENTERING SPACE

Under the NCSM—USIS (United States Information Service) a new exhibition has come to India. In an interesting way this exhibition reveals and presents to the public the different chapters of space exploration carried out by the USA over the last three decades. Graphic panels with text sequentially speak of the human endeavour for leaving the Earth, its cradle, and reaching out to the unknown. The whole saga—from early unmanned lunar explorations to the present day planetary odyssey is narrated. The exhibition takes the visitors on a flight through the history of the US space programme and the achievements, while featuring half and quarter scale models of the memorabilia like Space Shuttle, upper section of Saturn V Apollo, Lunar Lander, Apollo Capsule, Mercury, Gemini, Viking, Pioneer, and Co-Orbiter.

An interesting feature of the exhibition is that all the visuals had been developed and organised in Calcutta, from negatives supplied by the USA.

Co-sponsored by the NCSM and USIS, the exhibition is a part of NCSM's year-long national project on popularisation of science.

On February 18, 1989 the exhibition was inaugurated at Birla Industrial and Technological Museum in Calcutta. Dr. A P Mitra, Director General of Council of Scientific and Industrial Research (CSIR) inaugurated the exhibition, in the presence of Mr J Kreutzler, Director of USIS in Calcutta. Dr Sankar Sen, Vice Chancellor of Jadavpur University presided over the function. NASA astronaut Ms Shannon W. Lucid was the Guest of Honour in the ceremony.

Astronaut Ms. Lucid had a conspicuous presence in the opening of the exhibition.



After March 17, 1989 the exhibition will leave for shows at Bhubaneswar, Bangalore and other places in India.

25 YEARS OF SPACE PHOTOGRAPHY



The exhibition in Kutch Museum, Gujarat.

Under the NCSM and Indo-US Sub Commission on Education and Culture's collaboration programmes this rare exhibition of 149 photographs taken by un-manned spacecrafts sent by NASA, came to India from the USA in November, 1986. Amidst tremendous popular interest and media fanfare the exhibition was opened in Calcutta. After its successful debut in Calcutta the exhibition was set on initially a year long travelling schedule through different parts of India. Overwhelming popular response everywhere prompted the organisers of the exhibition to hand it over permanently to NCSM for further shows in many more new places. An index of the exhibition's popularity is that it is in circulation till date, and not only that, it is booked well in advance upto 1992!

Since the debut in November 1986 to March 1989, the exhibition was held at 15 places all over India. Schedule has been finalised for 4 more shows, upto November 1989.

MEETING OF THE JOINT COMMITTEE ON CULTURAL HERITAGE & ENDEAVOUR

The fourteenth meeting of the Committee of Indo-US Sub Commission on Education and Culture was held in New Delhi on February 11, 1989.

Along with science centre activities, the Committee's purview includes natural history museums, art museums, conservation, libraries, archives, performing arts, crafts etc; and in the meeting a host of collaborative programmes were formulated. Those pertaining to science centre activities are:

CONCEPTUAL DEVELOPMENT OF EXHIBITS ON CHEMISTRY

The Committee approved the proposal for organising a workshop on this theme in the USA during October, 1989, in collaboration with the American Association of Chemical Science. The proposal for jointly organising an interactive presentation on collaborative efforts between India and the USA in the next ASTC Conference in October 1989 was also approved.

INFORMATION AND COMMUNICATION—A NEW APPROACH IN SCIENCE MUSEUMS

Bilateral collaboration programme between NCSM and Smithsonian Institution of the USA envisages joint development of an exhibition simultaneously in Delhi and Washington D. C. As a corollary to this programme the proposal for organising a workshop in India during the Fall of 1990 was approved.

EXHIBITION ON 'STRUCTURES'

NCSM and Archaeological Survey of India has a programme of developing an exhibition on Indian structures which, along with the American part of the exhibit, developed by the Franklin Institute will form a joint Indo-US travelling exhibition.

EXHIBITION "EARTH FROM SPACE"

As a sequel to the highly successful "25 Years of Space Photography" exhibition, this new travelling exhibition from Jet Propulsion Laboratory of the USA is expected in India during December-January 1989-90.

EXCHANGE OF PERSONNEL

Under this programme, Ms. Lin Rankin and Ms. Sally Duensing, two experts from the Exploratorium, USA, will be in India for a period of six weeks.

MUSEUMS 2000

One hundred years after the formation of the first professional body for museums, the Museums Association in London is celebrating its centenary with Museums Year.

This, then, is the time for a little thought and reflection about museums, their role in society and how they will change up to and beyond 2000. This is the time to gather together a collection of people from around the world who are interested and involved in museums and encourage them to talk, debate and swap ideas and experiences.

On the 10th and 11th May, 1989 at the Novotel in Hammersmith, London, a group of senior figures will gather round a table to discuss the role and nature of museums into the twenty-first century. There will be eight principal speakers but on each day another twelve will also be invited to take part in what will not be a series of lectures but genuine and thoughtful debate around a table. Members of the profession, public, press and politicians are welcome to come and listen to people of influence and vision and at selected times put written questions or raise further points for debate. There will be four main sessions examining museums' roles with some of their main constituents.

Topics include :

- * Politics and Museums
- * People and Museums
- * Professionals and Museums
- * Profit and Museums

Speakers already confirmed, include :

- * *Dr. Saroj Ghose*, Director General, National Council of Science Museums, India.
- * *Donald Horne*, Chairman, Australia Council.
- * *Paul Perrot*, Director, Virginia Museum of Fine Arts, U.S.A.
- * *Lorena San Roman*, Director, National Museum of Costa Rica.
- * *Tomislav Sola*, Director, Museums Documentation Centre, Zagreb, Yugoslavia.

CHINA'S NEW SCIENCE MUSEUM



A national science and technology museum has been established in Beijing during September 1988. In the first phase the museum has two sections. One section displays attractive artifacts which reflect the country's glorious tradition in science technology over a period of 7000 years. Exhibit topics include—astronomy, musical instruments, embroidery, early mechanisations, paper, silk, gunpowder, ceramics etc.

Another section of the museum displays a series of participatory exhibits on themes like electricity, magnetism, sound, optics, hologram, computer, and nuclear science.

In the subsequent phases, the museum envisages large scale expansion, which among other things, includes an OMNIMAX theatre.

NEW METHODS IN THE CLEANING OF PAINTINGS

The Getty Conservation Institute in California, USA is conducting a two week workshop on this topic during August 14-25, 1989, for experienced conservators responsible for the care and treatment of paintings.

AIM OF THE COURSE

- * To familiarise participants with procedures utilizing cross sections, fluorescent dyes and selective filters/polarising microscopes for the identification of materials usually found in easel paintings.
- * To present and demonstrate the use of enzymes, soaps and gels to remove varnishes and to clean paintings.

INSTRUCTION TECHNIQUE

- * Lectures, slide presentations, demonstration, laboratory and practical workshop sessions, supplemented by notes prepared by the instructor.
- * A visit to the J. Paul Getty Museum to view paintings cleaned with the methods mentioned above.

APPLICATION

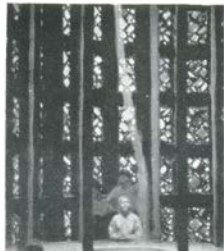
- * There is no registration fee. Deadline for application is April 14, 1989.

THE ARTS OF SPRING

To help chase away the winter doldrums and celebrate the season of rebirth, the New York Hall of Science presents its first ever art exhibition—*Spring Works*, from March 25 through April 30, 1989.

The exhibition features three works of art which use technology to interpret the sights and sounds of Nature. The pieces are diverse, covering electronics, light sculptures and air vortices. *Temple of the Whirlwind*, *Chirping and Silence* and *Lightscares*—of the three, the *Whirlwind* will become a permanent exhibit in the Hall of Science.

Temple of the Whirlwinds : using a large fan, several air blowers and three humidifiers, this 17 ft. tall tornado is created, which spins gracefully. It is the largest to date in the USA, and first to be viewed in New York.



INDIA OFFERS TO HOST THE ICOM ASIA-PACIFIC AGENCY

The Indian National Committee of ICOM has offered to host the ICOM Regional Agency in Asia and the Pacific at Calcutta from September 1989 onwards, with the following support from the National Council of Science Museums, India :

- * rent free fully furnished office space of about 500 sq. mt. with telephones and telex facilities ;
- * supporting secretarial staff ;
- * a Regional Documentation Centre with supporting staff ;
- * annual training facilities for middle level museum professionals of Asia and the Pacific in the Central Research & Training Laboratory at Calcutta.

A decision will be taken in the ICOM General Conference in The Hague during August 27—September 6, 1989.

THE FOURTH REGIONAL ASSEMBLY OF ICOM IN ASIA AND THE PACIFIC

The fourth Regional Assembly of ICOM in Asia and the Pacific was held in Beijing during March 1-7, 1989. About sixty museum professionals from 15 countries participated in the Assembly, which was co-chaired by Prof. Shen Quing-lin (China), Dr Saroj Ghose (India), Mr Tadashi Inurmaru (Japan) and Dr Donald McMichael (Australia). Among the participants were :

Prof. Geoffrey Lewis (U.K.), the President of ICOM ;

Mr Brian Arthur (Canada), Chairman of ICOM Advisory Committee ;

Mr Patrick Cardon, Secretary General of ICOM ;

Prof. Vinos Sofka (Sweden), Chairman of ICOFOM ;

Prof. Soichiro Tsuruta, member of ICOM Executive Council and chairmen and representatives of the national committees of Australia, Bangladesh, China, India, Japan, Korea (DPR), Korea (South), Malaysia, Thailand and USSR.

The Assembly started with the following four keynote addresses :

- * ICOFOM and Museology : a decade of international search for the foundations of museology—by Prof. Vinos Sofka
- * Museums and Social Education in Asia and the Pacific—by Dr. Donald McMichael
- * Relation of ICOM and Asia-Pacific Region—by Mr Brian Arthur
- * Museology in China—by Prof. Su Dong-hai (China).

The keynote addresses were followed by group discussions, resulting in specific recommendations on Museums in China, Museums and Social Education, Museums and Museology in Asia and the Pacific Region, ICOM and Asia and the Pacific, and finally on Regional Co-operation among Museums in Asia and the Pacific.

The programme included visit to Military Museum of China, Palace Museum, National Library of China, Museum of Science & Technology, the Great Wall, Ming Tombs and the Peking Opera.

The Regional Assembly was organised by Prof. Shen Quing-lin of the Museum of Chinese Revolution, the President of the Chinese Society of Museums and the Chairman of the Chinese National Committee of ICOM.

THE MUSEOLOGY KING !



Prof. Vinos Sofka, Chairman of ICOFOM, in a lighter mood in Beijing.

WE NEED.....

EDITOR CAPSULE is looking forward to your sending by April 30, 1989, publication materials for the fourteenth issue of CAPSULE. Please send short notes, photographs, problems, suggestions, cartoons and puzzles.



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