

o Plastics Bicycle for Children**Student: B.K. Chakravarthy
Guide: A.G. Rao**

A plastics bicycle, suitable for manufacture by small scale industries, has been designed for the children in the age group 5 to 8 years. The frame, seat and the wheels are all made of blow moulded HDPE, which makes the bicycle light weight, inexpensive and easy to maintain.

An important feature of the bicycle is its lateral compactness. The pedals fold, the handle also turns 90° to give laterally a flat surface. This enables easy carrying & storage of the bicycle which can be hung on a wall, or kept under a sofa or bed when not in use. The solid tyres are made of special low filler natural rubber, to avoid filling air and the problem of punctures. The use of nylon bushes for the front crank and back axles is intended for long life and easy maintenance.

The bicycle shape has been designed to project a futuristic, friendly and inviting look, with use of bright colours and simple geometric shapes.



6 Data Phone

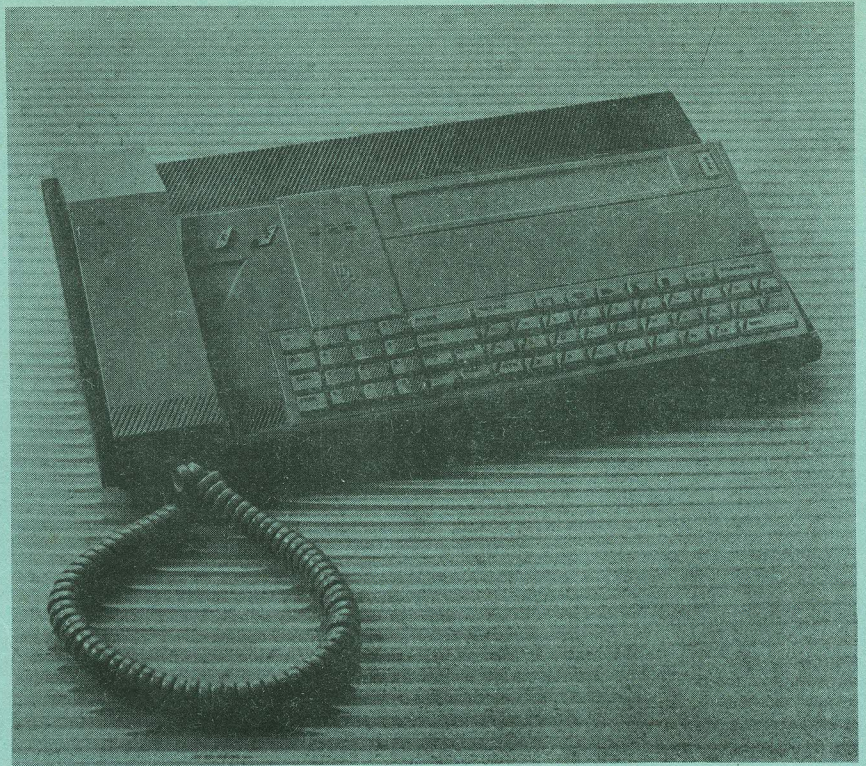
Student: Prashant Ahir
Guide: U.A. Athavankar

Often some information is required to be referred, before using a telephone (and also during a phone call) - like referring to a telephone directory before dialling or a personal diary before fixing an appointment, or a register before placing an order for out-of-stock articles.

In the new 'Data Phone' design proposed, alphanumeric programming and retrieval facility is used to programme all such information related to phone, into two folders: one for personal use and the other for business matters. The user segment for the dataphone would be executives, businessmen, doctors etc. for whom special application areas were studied. The features are selected based on the needs of the user segment.

The graphics and colour scheme for the keys show the groups and relationships of keys; which have been organised for easy and efficient operation. A deliberate attempt has been made to take the product away from the typical telephone look as is is much more than a telephone. The formal treatment aims at giving it the look of an electronic business machine.

The 'Data Phone' body is designed to be injection moulded in ABS.



6 Electronic Cash Register for Jewellers

'Jewelcash' - a new product for the jewellery trade is proposed in the project, which incorporates an electronic cash register with an electronic weighing balance.

The cash register part of the product has usual functions like a Calculator, Paid, No Sale, Clerk Keys, Department Keys, X & Z functions etc. Other important features are a management report printer, two LED displays and a mode

control security lock. The two departmental memory of the cash register is useful to record the gold and silver transactions separately.

The electronic weighing balance works on the strain gauge principle for accuracy and readability upto .01 gm. The balance also has a six digit LED display. The small dish on the pan is useful for weighing small articles. A transparent

enclosure covers the whole pan area. The weight of the article on the weighing pan is directly fed to the cash register for carrying out further price calculations. Gold and Silver inventory can also be maintained.

The two units - cash register and the balance - can be sold together or separately as required.



Student: Vinay Mundada
Guide: S. Nadkarni

① Xerox Machine

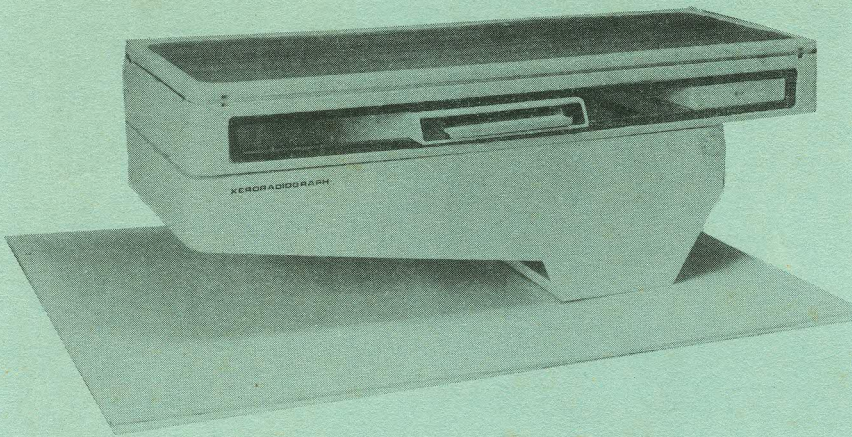
Student: J.R. Mehta

Guide: V.P. Bapat

On exploring the various extensions of applications of a xerox machine, one of the applications to which this project was directed was xeroradiography - the use of xerox process to give X-ray output on plain paper instead of conventional X-ray film. The unit can be used for tomographic X-rays which constitute about 20% of the total X-rays taken. The cost of the X-ray would reduce from Rs.22/- to less than one rupee by use of this process.

The unit is fully automatic except paper feeding which is done manually. The flat plate of manual xerox machine is retained in the proposed design, but the cascading process of the manual machine is replaced by the toner drum technology of the plain paper copiers. The image is transferred on to the paper which has been wrapped around the drum, which rolls over the plate. Provision is made to allow the unit to hold conventional film bucky for taking normal trays.

The unit is designed to be sold either as a separate unit which can go under conventional X-ray tables or a full system of X-ray table and xerox machine.



② Dental Unit

Student: C. Suresh

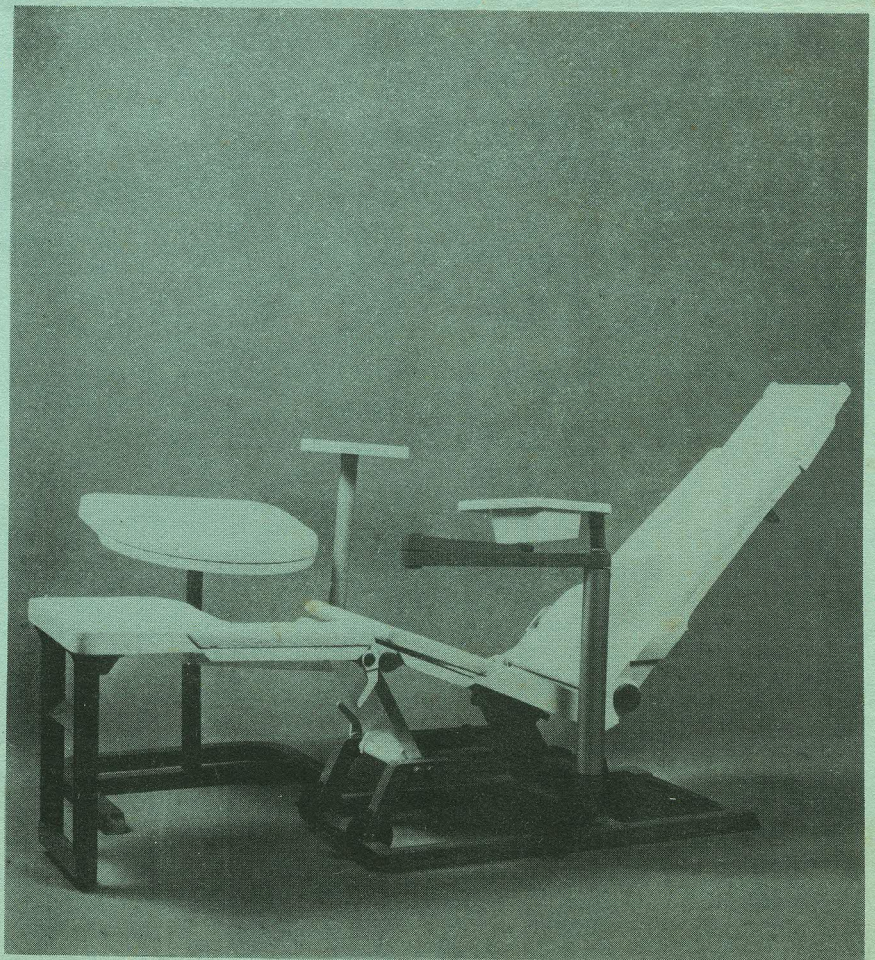
Guide: U.A. Athavankar

The dental unit has been designed to suit the need of doctors working in municipal hospitals, private practitioners in villages, small towns, and in dental campus. The unit aims at offering the patient and the doctor the comforts of automatic units at lower costs - by making all operations manual. Easy to operate mechanisms are proposed for manual adjustments.

Some of the main features of the product are:

- unique shape of back-rest giving arm movement and easier access to wash basin for the patient
- unique shape of the footrest for comfortable ingress and outgress. Wash basin with a handle allows the patient to bring it closer for spitting
- The provision of instrument tray along with the doctors seat eliminates the problem of wires and tubes falling over the patient's body during operation
- the eccentric and slightly inclined doctors seat allows the doctor to come closer to the patient during operation
- Sliding back of the seat makes the unit compact for easier storage & transport
- wheels in front for easier transport.

FRP is proposed for the seat, back rest, footrest and headrest; while the base frame is to be sand cast in aluminium alloy.



Computer Support Furniture for Offices

Student: Vani Sheshadri
Guide: Ravi Hazra

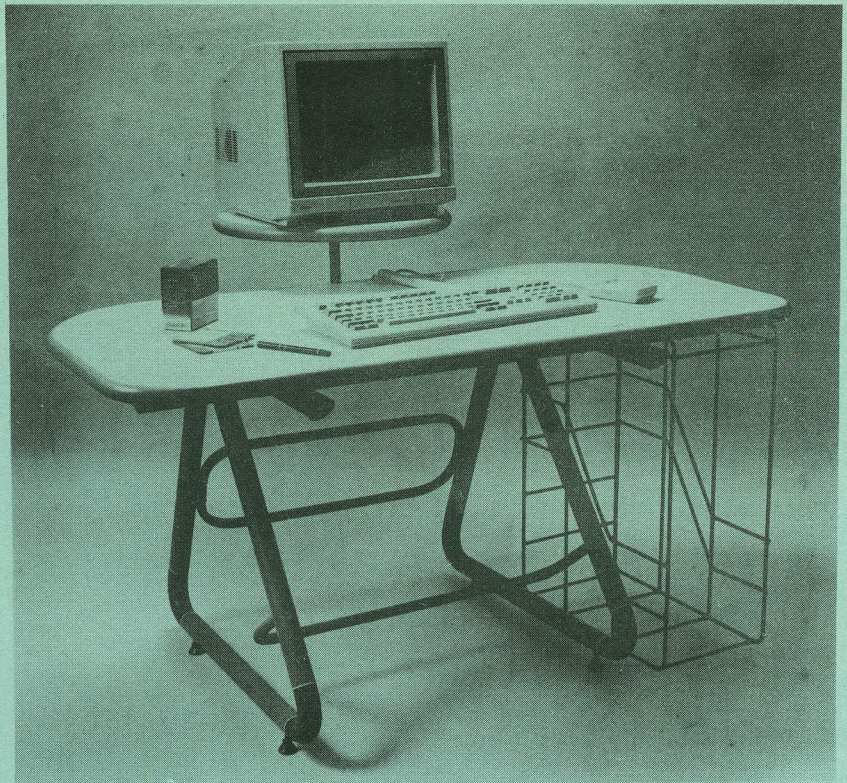
Introducing a computer system into an office environment raises a number of organisation and workspace design issues. The whole set of activities associated with this have to be integrated with other office tasks.

Providing flexibility for the variation of usage in computerised offices was one of the main aims of this computer furniture project.

A system of modular, knockdown units have been designed based on ergonomic, functional and aesthetic consideration. The new system creates a separate identity of its own and has the following features:

- Work surface at convenient working height for keyboard
- a movable monitor arm to allow the user to rearrange the workplace in a comfortable position
- Worksurfaces and accessories in simple modular units using knockdown fittings
- Economy of workspace through housing of CPU vertically in specially designed units.

The basic frame structure remains constant for a range of terminal tables with additional worksurfaces for larger units.



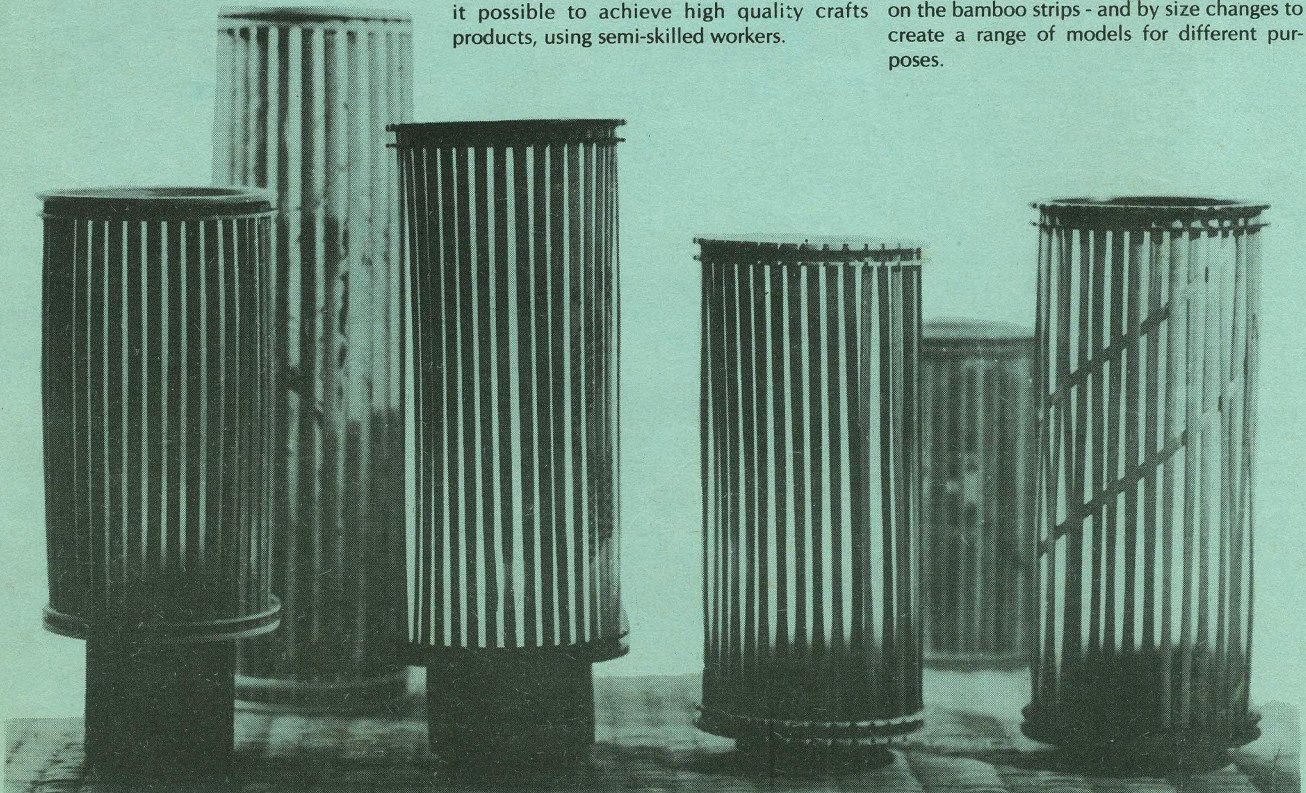
Products in Bamboo

Student: Boban Verghese
Guide: A.G. Rao

India has large resources of bamboo as, also large unemployment. The craft-skills in bamboo are highly developed in North-Eastern parts of

India, but the skills are of low order in other parts. The products developed under the bamboo project use industrial processes like 'injection moulding' for certain parts to make it possible to achieve high quality crafts products, using semi-skilled workers.

After initial exploration of different product ideas in bamboo, a range of lamps and lampshades using bamboo have been proposed. Variations in design can be created by painting on the bamboo strips - and by size changes to create a range of models for different purposes.

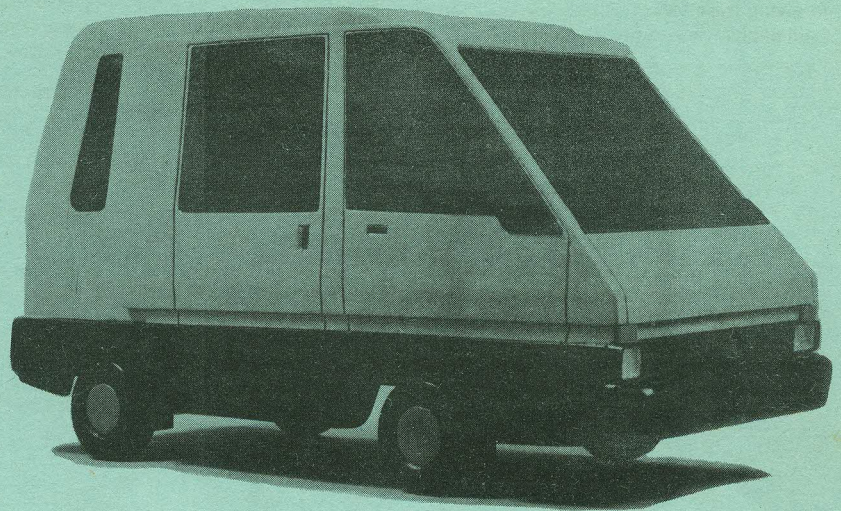


Taxi

Student: K. Srinivasan
Guide: K. Munshi

A new design for a taxi has been proposed based on the Maruti 800 van structure and engine. Before designing the new body and interior an analysis of various user requirements was conducted including space requirements, luggage requirements, passenger profile, passenger utilisation (1.6 per vehicle) etc. Traffic & parking problems and RTO regulations were also studied. Based on these requirements a new design has been proposed which makes entry/ exit easier. The interior was created for relaxed travelling conditions and passenger comfort was improved.

Driver ergonomics was also given due consideration resulting in improved driver compartment, dashboard and seat design. Luggage space was organised for maximum utilization and separated from passenger compartment. For keeping hand luggage, a hammock has also been provided.



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Battery Powered Aircraft Towing Vehicle

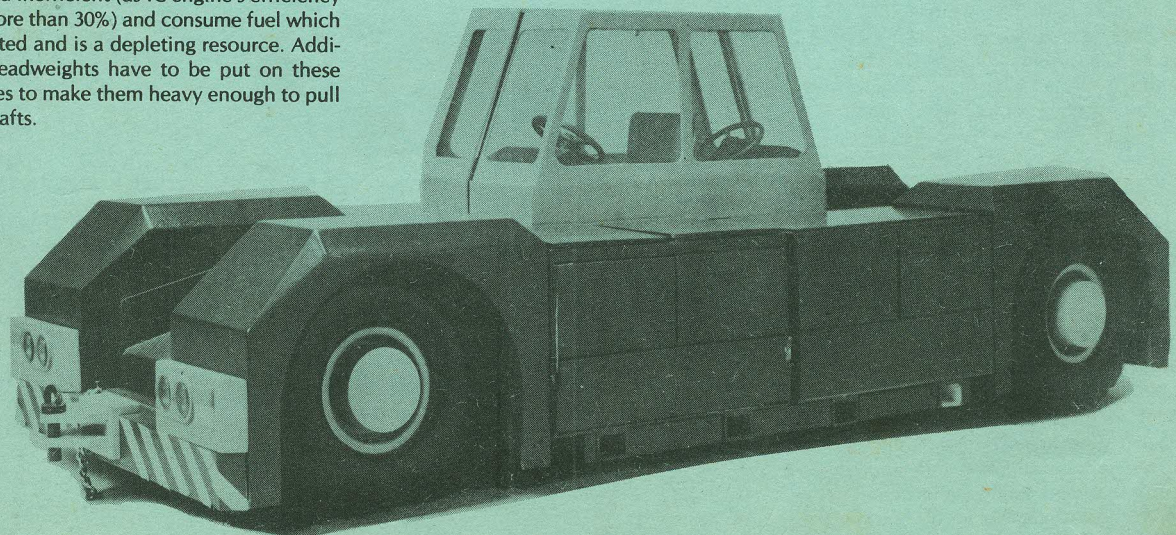
Student: Anupam Shukla
Guide: K. Munshi

In modern airports the aircrafts are generally parked in parking bays and brought from there to terminals for passenger embarkation. They are also taken to other points within the airport like hangars, repair bays, or from one terminal to another. Aircraft tuggers are used for this movement of aircrafts within the airport from one point to another.

In Indian airports generally diesel driven imported tuggers are used. These have many disadvantages, i.e., they cause pollution, are noisy and inefficient (as IC engine's efficiency is not more than 30%) and consume fuel which is imported and is a depleting resource. Additional deadweights have to be put on these structures to make them heavy enough to pull big aircrafts.

A battery driven tugging design is proposed to solve these problems. The electric motor is used as the prime mover, which is nonpolluting, highly efficient, noiseless and less expensive. The batteries act as dead weights also - so that additional weights are not required. The batteries are evenly distributed on the chassis and can be replaced with freshly charged ones like a cassette.

The driver's cabin has been placed in the centre with a clear view of towing pins; and a seat which turns 180°. Dual controls are provided for easy trouble-free back and forth towing operation. The overall form and colour scheme is developed to suit the airport environment.



ĀKĀRA

'Akara' - an exposition of world calligraphy was held from 19th November to 31 December 1988, under the sponsorship of the Indira Gandhi National Centre for Arts, New Delhi. The exhibition was designed by Prof. R.K. Joshi of IDC.

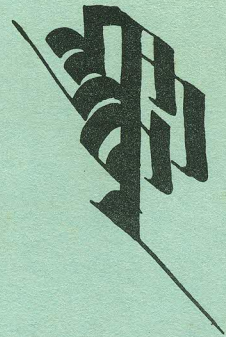
'AKARA' attempted and admirably succeeded, in giving fresh form to the living tradition of Calligraphy - the art of arts.

Organised in three distinct stages, the first stage projected the metaphysical inner processes that kindle the deep, universal human urge for expression - from the fullness of the silent void, through the awareness of primal energy and cosmic sound (nada), to the emergence of sound, language and writing.

The second section explored the universality of using the written symbol for meditation, ideation, cognition and communication, by various cultures, in different epochs, with special emphasis of India. This was done through a display of calligraphic work from all over the world - primitive scripts such as Hieroglyphs and Cunei form, Graeco-Roman, Perso-Arabic, Hebrew, Chinese, Japanese, Siddham, Tibetan, South-East Asian and various Indian scripts.

The third section highlighted the technology of handwriting in relation to modern tools and needs, and the interconnections between calligraphy and typography, computography, patterned texts, figured verse, cartography, musical notions and calligraphic poems. The section

also included a selection of modern calligraphy, a Kinetic Kaleidoscope display, a computer room and an audio-visual presentation.

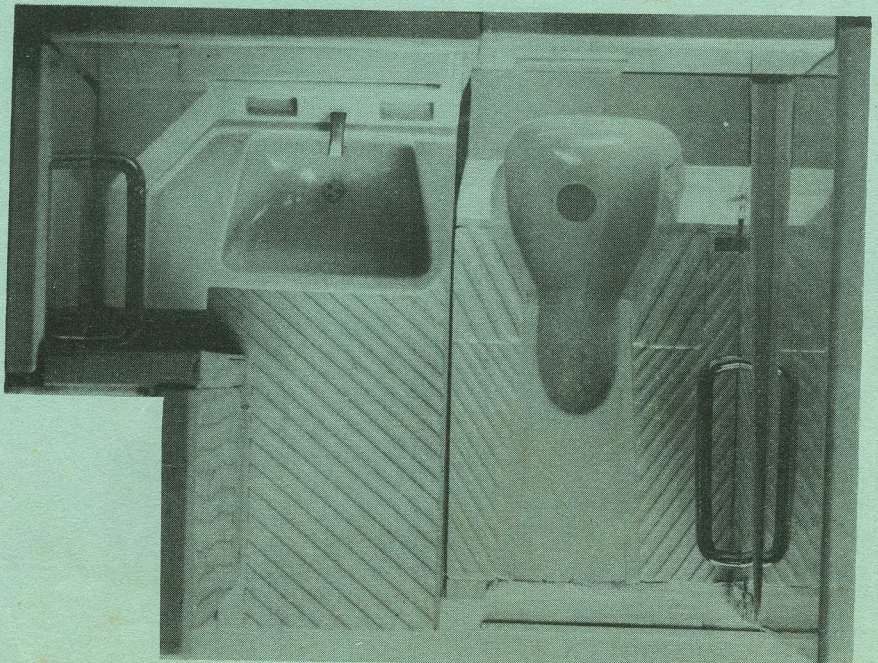


Train Toilet

Student: Sanjay Jain
Guide: Kirti Trivedi

The toilets in Indian railway coaches have a large number of problems - being difficult to clean, they are usually dirty and unhygienic; there are many ergonomic problems with the location of pan, wash basin and watertaps and hand rails; the overall interior arrangement is clumsy and full of projections. These drawbacks prompted the taking up of this project to develop a new toilet for Indian railways.

Assuming the constraints of existing interior floor area (1.65 sq.mt.) and supporting structure of the cubicle; a new design has been proposed after a thorough investigation of requirements. The new design utilizes FRP panels to create smooth, easy to clean surfaces. As all fittings are integrally moulded-in from behind, pilferage possibilities are reduced. The stepped construction of toilet pan platform prevents water spillage in other areas, Integrated mirror, foot-operated taps, occupation indication, towel rack and storage shelves and conveniently located support handles are other features of the design - which has a clean, hygienic look.



IDC lost a number of close associates and colleagues in rapid succession during last few months: Pandit Narendra Sharma, Prof. B.S. Jagadish, Manu Desai and Fujio

Watanabe. We deeply mourn their passing away. IDC was enriched by their association, and their loss leaves a vacuum which cannot be filled easily.



Pandit Narendra Sharma

The eminent Hindi poet, philosopher, writer Pandit Narendra Sharma passed away on 11 February 1989. He was 76.

Pandit Sharma was a rare being. In him was combined a contemporary outlook with all the wisdom of ancient rishis. He was a constant source of inspiration and guidance for IDC's projects on Indology and Indian Philosophy. The memories of his profound speeches at the Seminars on Indian Symbolology and Indian Calligraphy, will always be cherished by those of us who were fortunate enough to have heard them.



Manu Desai

The well-known art director and design symbology expert Manu Desai died of a sudden heart attack on May 9, 1989. He was 69.

Besides his work as an advertising art director, Mr. Desai was involved in research in Indian graphic symbols and folk forms. He had published many papers and books on these subjects, as well as a number of illustrated books for children. Manu Desai was a visiting faculty at IDC in the field of 'Indian Symbolology'. His passing away leaves a gap which will be impossible to fill.



Prof. B.S. Jagadish

Prof. B.S. Jagadish of the Department of Mechanical Engineering, IIT, passed away on 16 April 1989; after a prolonged illness. Prof. Jagadish was closely connected with IDC as collaborator and adviser as a heat transfer and appropriate technology expert, in many different projects, including design of solar cookers, solar heaters, high-efficiency stoves, potter's wheel, bicycle project etc.



Fujio Watanabe

The well-known young Japanese illustrator and designer Fujio Watanabe expired in Tokyo in May 1989. Mr. Watanabe had visited IDC as a UNDP consultant for the workshop 'Designing for Children' held at IDC.

A versatile illustrator with perfect command over many different techniques, Mr. Watanabe was associated with the Japanese graphic designer Kohei Sugiura in creating some of the most outstanding visual images of our times.

Ergonomics News

ISE

An Indian Society of Ergonomics (ISE) has been founded and registered under the West Bengal Societies Registration Act. Dr. R.K. Sen is the chairman of the society, which has its head office at 11 A, Mohan Bagan Lane, Calcutta 700004.

ISE - OH - SE

An International Symposium on Ergonomics, Occupational Health, Safety and Environment will be held at Bombay, January 2-6, 1991 under the auspices of ISE. Further details can be had from Dr. G.G. Ray, IDC, IIT, Powai, Bombay 400 076.

New Equipment

IDC's ergonomics laboratory has acquired the following new equipment under the MHRD and DST sponsored projects:

VITALOG - physiological monitoring system, Apple II-e microcomputer; FOR-A Video Analyzers for photogrammetry; Oxylog for oxygen consumption determination; Tektronix - TM 504/506 power module with ten AM-502 differential amplifiers for determining/recording electro-myographic signals; Data Precision, Model 6100 universal waveform analyser with dual floppy drive and HP 7475A graphics plotter for EMC analysis.

Cycle Rickshaw Project

The Government of Maharashtra has sanctioned a project on design of Cycle Rickshaw, to be carried out by Prof. V.B. Bapat of IDC.

Being a cheap, economical and pollution free means of transport and a self-employment product, the cycle rickshaw is expected to continue to be used in smaller cities at least for next 50 years. The one-year project, scheduled to start in July '89; will aim at designing a lighter weight, cheaper and more comfortable cycle rickshaw for passenger transport as well as many other applications.

New Students

24 students were admitted to IDC's Master of Design degree programme for the 1988-90 session. The students are:

Product Design: Shankar A.V., Sunil Gadgil, Raj Gopal, S.V. Perumal, Sankumani Sarma, M.M. Simha, Sangeeta Hiray, Nikhil Khosa, V.V. Dixit, Debasis Mandal, M. Gokul Krishnan and Adurthi Srinivasa Rao.

Visual Communication: Raghavendra Reddy, Smita Sawai, Punyashloke Mishra, Rajeev Prakash, Raja Mohanty, S.K. Mohanty, Pratima Rawat, Swapan Mankekar, Arlene Rajaboo-shanam.

Symmetry Symposium

'Symmetry of Structure' an international interdisciplinary symposium will be held from August 13-19, 1989 at Budapest, Hungary. The symposium is organised by the Hungarian Academy of Sciences; and will include workshops, art exhibitions and performances related to the theme of symmetry. Details from Dr. Gyorgy Darvas, Institute for Research Organisation of the Hungarian Academy of Sciences, P.O. Box 4, H-1361, Budapest, Hungary.

expo

id

Expo-ID

Exposure to Industrial Design - a 3-day course for industries was organised at IDC from 15 to 17 March 1989. The course covered various aspects of Industrial Design like Design Process, Design Management, Product Planning, Product Ergonomics, Aesthetics, Creativity, Product Graphics etc.

Twenty-six participants from various leading industries like Crompton Greaves, Siemens, CMC, Hindustan Motors, Josts Engineering, Toshniwal, Ion Exchange, Milton, Prince Plastics etc. participated in the programme.

Course for SAC

IDC conducted a 3-day in-house training programme on Industrial Design for R&D staff engineers of the Space Application Centre, Ahmedabad in April '89. The programme consisted of lectures on basic concept of Industrial Design; and design clinic sessions in which design proposals for improving some of the existing SAC products were worked out.

Postage Stamp on Sankaracharya

Prof. R.K. Joshi of IDC designed a commemorative stamp on Sankaracharya which was released by the Department of Post on 12 May 1989. The stamp carries the word 'Advaita' in Devanagari Calligraphy. The first day cover issued on the occasion was also based on the design by Prof. Joshi.



Exhibitions

Shri S.K. Mohanty, a student of the VC programme at IDC held an exhibition of his calligraphic works at Jehangir Art Gallery, for one week from 22 April 1989.

An exhibition of Computers Art created by Shri Arun Kalwankar of IDC, was also held at Art Plaza, Bombay from 25 to 30 May 1989.

K. Munshi

Prof. K. Munshi presented a paper 'Dynamics of Design and Technology with an Indian Overview' at the conference 'Design and Development in South and South-East Asia' in Hong Kong from 5-8 December 1988. The conference was organised by the Centre for Asian Studies, University of Hong Kong and the Swire School of Design. Economists, planners, demographers, engineers, architects & designers from almost all the countries of the region (India, Pakistan, Sri Lanka, Singapore, Thailand, Indonesia, Philippines, and also Australia & China) attended the conference.

Prof. K. Munshi conducted a 4-day course on Product Design at Electronic Design Laboratory (EDC) in Chulalongkorn University, Bangkok, Thailand from 12-15 December 1988. This programme was specially designed for electrical/electronic engineers and laid emphasis on electronic equipment design, mechanical and structural unification of components, layout of controls and displays keeping in view the use and environment and also ergonomics of maintenance. The EDC at Bangkok is being set up with Indian assistance on the pattern of CEDTS.

Ravi Hazra

Prof. Ravi Hazra delivered a paper entitled 'Colour in Traditional Indian Architecture and Current Trends' at the symposium 'Colour in Environmental Design' organised by International Colour Association at Winterthur Polytechnic, Switzerland, from 7 to 11 August 1988.

Trends in Architecture

A National Seminar on 'Trends in Architecture and Problems of Restoration' was organised by IDC in collaboration with INTACH and the Festival of India, from 2 to 4 August 1988. Over 30 architects/planners from India & USSR participated in the seminar. Many INTACH projects of conservation and restoration were presented. Russian architects, experts in the field of restoration, presented actual restoration projects highlighting the technical as well as legal and social problems connected with restoration. Prof. Ravi Hazra of IDC presented a paper on 'Semantic Aspects of Architecture' at the Seminar.

Brno Biennale '88

Prof. Kirti Trivedi participated in the International Symposium on 'Books, Magazines, Newspapers - Technology and Art', organised along with the XIII Biennale of Graphic Design in Brno, Czechoslovakia from 15-17 June 1988. He presented a paper on 'Book Design in India' at the Symposium.

BIENALE UŽITÉ GRAFIKY
BRNO

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20 Years of IDC

IDC shall be completing 20 years in December, 1989. A number of activities and events are planned to mark this occasion. These include an exhibition of IDC work in Bombay; a series of publications by IDC Faculty; a directory of IDC; and an International Seminar called 'Design Education; Ulm and after'.

The three-day Seminar to be held on 27, 28 and 29 December 1989 is intended to be a gathering of all those connected with HfG, Ulm and IDC. A number of eminent designers, design thinkers and teachers including those who taught at HfG, Ulm are expected to take part.

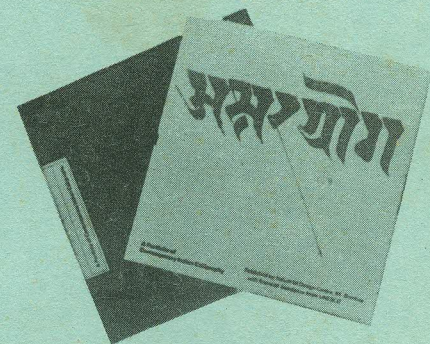
The themes for the three days are: 1. Design Education at HfG, Ulm; 2. Design Education after Ulm; and 3. Design Education - the Future. To participate in the Seminar and to receive further details, please write to the Convener, Ulm, Seminar at IDC.

DESIGN EDUCATION

ulm and after

Aksharayoga Port Folio

IDC has brought out a portfolio of contemporary Indian Calligraphy, containing screen printed samples of 50 selected recent calligraphic works by India's leading calligraphers. The limited edition portfolio was published with a financial grant from UNESCO. To obtain a copy, please write to IDC/NEWS.



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