



AUDIO-VISUAL EDUCATION IN INDIA

REVISED EDITION



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With a Foreword

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Foreword

Audio-visual aids have been used in education from the earliest times. It is however only in recent years that their use has been undertaken in an organised and conscious way. The enormous expansion of education and increase in the number of pupils have compelled the use of all known devices for making education simpler and at the same time more attractive and effective.

Shri Sujit K. Chakrabarti wrote one of the first manuals on Audio-Visual Education in India. I am glad that within a short time it has become necessary to issue a revised and enlarged edition. Shri Chakrabarti is familiar with the theory and the practice of audio-visual education in other countries, but has based his book largely on experience within India. He has also included in his study an account of some of the most ancient as well as some of the most modern media of audio-visual education. This should make the book of special value to our schools and teachers at all levels.

New Delhi,
April 1, 1962.

Himayun Kabir

PREFACE AND ACKNOWLEDGEMENT

(Revised Edition)

The revision has been prompted by the need to incorporate in the text many new developments that have taken place in the field of Audio-Visual Education since the publication of the first edition. The book has therefore been practically re-written and re-illustrated. Many new aids have been described some perhaps for the first time in this country—the Tachistoscope, the Ceiling Projector, and the Overhead Projector. Equal importance has, however, been given to simple aids and traditional media which teachers and students can make themselves inexpensively. These simple and traditional media have certain points that cannot be satisfied by the modern scientific aids.

Many school teachers and training college lecturers, from Porbondar to Perianaickenpalayam, have used the first edition. The author is thankful to them. It is hoped the revised edition enlarged, re-illustrated, and brought up-to-date will prove more helpful to them.

The author wishes to thank the following persons and institutions for assistance in obtaining the illustrations for the new book : Shri G. Ghosh, Librarian, Geological Survey of India Library, Calcutta; Shri J. Ghosh, Secretary, Institute of Art in Industry, Calcutta; Shri G. K. Athalye, Director, National Institute of Audio-Visual Education, New Delhi; Shri M. B. Vajifdar, Deputy Librarian, Tata Institute of Fundamental Research, Bombay; Dr R. K. Panja, S. S. Karnani Memorial Hospital, Calcutta; Shri B. Banerjee Chaudhury, Asst. Librarian, National Library, Calcutta; Shri Samar Chatterjee, C.L.T., Calcutta; Shri Pran Krishna Pal, Asutosh Museum, Calcutta University; Shri Amiya Sen Gupta, Standard Vacuum Oil Company, Calcutta; Shri Mahendra Nath, General Secretary, Children's Film Society, New Delhi; Shri D. Bakshi, Senior Artist, National Institute of Audio-Visual Education, New Delhi; Shri Y. P. Khanna, Photographer, National Institute of Audio-Visual Education, New Delhi; Shri D. Chatterjee, Art Teacher, Hindi High School, Calcutta; Shri M. Vivekananda, Co-ordinator, Department of Extension Services, Thiagarajar College of Preceptors, Madurai; Shri K. P. Damodaran Nambissan, Co-ordinator, Depart-

ment of Extension Services, Government Training College, Calicut; Social Education Board, Government of Bihar; Tourist Office, Government of India; Central Institute of English, Hyderabad; Alliance Française, Calcutta; Philips India Ltd, Calcutta; Shri S. Kar, Imperial Chemical Industries (India) Private Ltd, Calcutta; Dunlop Rubber Co. (India) Ltd; National Cultural Association, Calcutta; Shri P. Das Gupta, Manager, Films Division, Calcutta; Shri Ananda Mukherjee, Clarion Advertising Services (P.) Ltd; Lake View High School, Calcutta; Lee Memorial Girl's School, Calcutta; Sen Raleigh Industries of India Limited, Calcutta; Pure Drug Co., Calcutta; Institute of Art in Industry, Calcutta; Statesman, Calcutta; Indian Museum, Calcutta; Asutosh Museum, Calcutta University; New York Graphic Society; Electro Engineering and Manufacturing Co., Detroit, U.S.A.; Weber Costello Co., Chicago Heights, U.S.A.; Aero Service Corporation, Philadelphia, U.S.A.; Keystone View Company, Meadville, U.S.A.; Projected Books Inc., Ann Arbor, U.S.A.; Sawyers Inc., Portland, U.S.A.

The author is indebted to Miss S. Rahman, Assistant Educational Adviser, Ministry of Education, Shri J.S. Nanda, Section Officer, Unesco Unit, Ministry of Education. Dr Kalyan Ganguli of the University of Calcutta, and Shri G. M. Primlani of the Oxford Book Co. for valuable suggestions. He especially remembers Mr G. E. Hanilton, President, Keystone View Co., U.S.A. who very kindly explained through correspondence certain points with regard to the use of Tachistoscopic materials.

Thanks are due to Shri N. K. Gossain, Director of N. K. Gossain & Co. and to his staff, especially Shri P. Ghosh and Shri Bejoy Banerjee for their great interest in the book. Thanks are also due to Shri R. C. Kapoor of the Children's Film Society New Delhi for his critical reading of the manuscript.

Finally, the author wishes to thank his wife, Mukul Chakrabarti, for her co-operation in all aspects of the preparation of this book.

NEW DELHI,
July, 1961.

S.K.C.

PREFACE AND ACKNOWLEDGEMENT

(First Edition)

The case for the increased use of audio-visual aids in all levels and fields of education in India has been established, but the number of schools making proper use of these aids is disappointingly small. Therefore, under the Second Five-year Plan there is provision not only for the supply of equipment but also for the training of teachers in audio-visual methods. Teachers and social workers must know how to make the most effective use of the various audio-visual aids particularly the simpler ones at their command. The aim of this book is to help them acquire this knowledge.

The contents of the book are based mainly on the author's study in the University of Leeds of the uses of audio-visual aids in education and on the lectures and demonstrations given by him in the Audio-Visual Education Seminar organized by the Ministry of Education in 1954. He has had unusual opportunities to try out most of the aids mentioned in this book in a variety of institutions in this country—nursery and K. G., primary, secondary, and social.

For assistance in providing illustrative material for the book, grateful acknowledgement is made to the Audio-Visual Section of the Ministry of Education, Government of India, and to the following persons: Shri P. K. Nair of General Radio and Appliances (Private) Ltd. Calcutta, Mr Alex Gleeson of the United States Information Services, Calcutta, Shri D. Sen and Mrs Margaret Fraser-Casey of the British Information Services, Calcutta, and Shri A. K. Seal, Senior Instructor, Social Education Organizers' Training Centre, Belur Math.

The author appreciates also the valuable suggestions made by Shri P. D. Khera of the Ministry of Education in connexion with Appendix A of the book. Thanks are also due to Shri Jibapriya Guha of Sree Saraswaty Press Ltd for his keen interest in the book and for many helpful suggestions.

Finally, thanks are due to the author's wife, Mukul Chakrabarti, Labour Officer, Government of India for help in selecting audio-visual materials on labour welfare and for careful and constructive criticism of the manuscript in every stage of its development.

March, 1957

S.K.C.

Foreword

(First Edition)

Audio-Visual Education is a comparatively new movement in our country but it has a very valuable contribution to make in developing good educational techniques. In recent years, its concept as well as its scope have been widened considerably and new instruments have been pressed into its service. Many of our teachers, however, are not fully aware either of what is being done or what can be done, through these aids, to make the process of learning more intelligent, interesting, and firm. This book by Mr Chakrabarti, who was a valued colleague in the Ministry for a short period, provides a brief introduction to the whole field, explaining the objectives of audio-visual education, the various types of aids employed, their special role and the conditions under which they can be used with maximum advantage. It is not a book for the specialist but for the ordinary teachers who would like to have a general view of the movement so as to participate intelligently in working it out in his or her own institution. I hope it will receive a well deserved welcome.

I should like to add a word of special commendation for the excellent get-up of the book. It is a welcome oasis in a desert of many drab, undistinguished publications.

*Ministry of Education
New Delhi
15th April, 1957*

K. G. SAIYIDAIN,
*Educational Adviser
to the Government of India*



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PART ONE

THEORY OF AUDIO-VISUAL EDUCATION

DEVELOPMENT OF AUDIO-VISUAL EDUCATION IN INDIA

AUDIO-VISUAL AIDS ARE NOW RECOGNIZED IN INDIA AS EFFECTIVE
TOOLS IN ALL LEVELS OF EDUCATION

THE case for an increased use of audio-visual aids in all levels of education, pre-primary, primary, secondary, university, and adult has been established beyond a doubt. They are being recognized as effective tools in other fields of national reconstruction as well such as health, agriculture, and community development. Many good schools now possess 16 mm. sound projectors, filmstrip projectors, and radio sets. A National Institute of Audio-Visual Education has been started and film libraries are maintained by the Central as well as State Governments. Many teachers' training colleges have introduced Audio-Visual Education as one of the compulsory subjects of study. The Central Institute of Education and the Government Training College at Jullunder have experimented in the production of cheap filmstrip projectors and epidiascopes.

The recent development of audio-visual education in our country can be given briefly. The subject was considered for the first time by the All-India Educational Conference held in January 1948, and a few months later the Government of India appointed a Committee to examine the problems of visual education in different levels of education. In April 1949 a Press Note was issued encouraging the production of educational films. About 1950 film societies and visual education centres were also organized by private institutions. In September 1950 the "Visual Education" (the magazine of the National Committee for Visual Aids in Education in Great Britain) published the activities of the Gosaba Visual Education Centre in West Bengal. It reported : "A Visual Education Centre recently started at Gosaba, the headquarters of a model agricultural estate set up by the late Sir D. M. Hamilton in Bengal, screened about 60,000 feet of British, American, and Indian films in four months. Films shown included Fenlands, Home and School, Your children and



After a special show for women at the Gosaba Visual Education Centre. The Centre was organized by the author in 1949

You, Instruments of the Orchestra, and Student Nurse...The Visual Education Centre hopes shortly to be able to provide films on geography, science, and hygiene for the school children.

About 5,000 families are settled on the Estate which covers 30,000 acres. The children are being educated at a central high school and a number of junior schools on the Estate. The education of the parents, however, is a more difficult problem. Instruction must be arranged so that it does not interfere with their occupations and home duties and it must be attractive enough to interest them after a hard day's work in the fields. Visual aids have been the most successful solution so far. Special shows are given for the women regularly. These are usually preceded by explanatory talks as very few members of the audience have a knowledge of English".

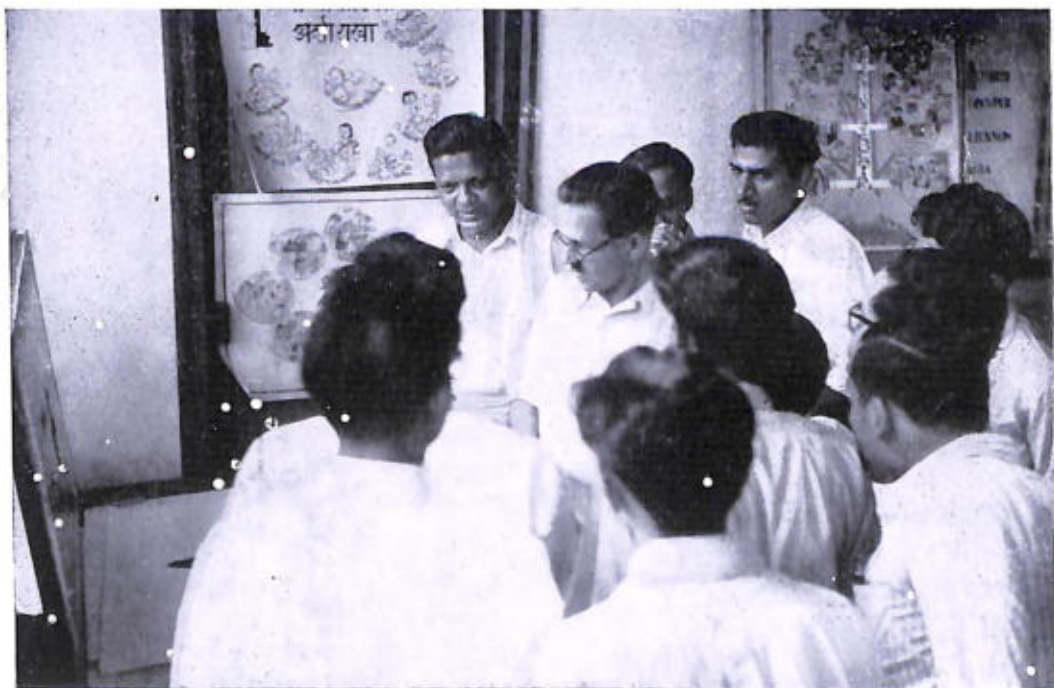
THE NATIONAL BOARD FOR AUDIO-VISUAL EDUCATION—ITS FIRST MEETING

In 1951 an All-India Conference on Audio-Visual Education was organized on the occasion of the visit of the famous audio-visual

expert Prof. T. L. Green. The Conference examined the various aspects of audio-visual education and showed the lines for subsequent development of the subject. The National Board for Audio-Visual Education was set up in 1952 and its first meeting was held in May, 1953. Amongst its important recommendations were the establishment of State Visual Boards, the production of educational films by the Films Division of the Government of India, the production of non-projected visual aids, and the use of aural aids in schools.

TWO SEMINARS ORGANIZED BY THE GOVERNMENT OF INDIA

Two seminars were organized in implementation of the Audio-Visual Scheme of the First Five-Year Plan. The first, organized by the Ministry of Education, was held at Delhi in 1954. Thirty educationists from different State Governments studied and discussed the theory and practice of audio-visual education. The second seminar on similar lines, organized jointly by the Governments of



The author showing Shri K. G. Saigudain charts and posters prepared by the trainees in the Audio-Visual Education Seminar, 1954 (Courtesy of the Ministry of Education, Govt of India)



*The Audio-Visual Education Seminar—1954—staff and trainees
(Courtesy of the Ministry of Education, Govt of India)*

India and Australia under the Colombo Plan, was held at Lucknow in November, 1955.

THE NATIONAL BOARD FOR AUDIO-VISUAL EDUCATION—ITS SECOND MEETING TO EXAMINE THE SCHEMES OF THE SECOND FIVE-YEAR PLAN

The audio-visual education in India has taken a big stride forward as a result of the Second Five-Year Plan in both quantitative and qualitative senses. The Plan included schemes not only for greater supply of equipment and expansion of film and filmstrip libraries but also the training of teachers in the making of simple aids and in the proper use of these aids as well as of the scientific ones.

The National Board for Audio-Visual Education in India in its second meeting held in May 1955 under the chairmanship of

Shri K. G. Saiyidain, Additional Secretary to the Government of India, Ministry of Education examined the following schemes for the development of audio-visual education under the Second Five-Year Plan and approved them :

- (i) Establishment of State Audio-Visual Boards
- (ii) Establishment of film and filmstrip libraries on a State-wise basis
- (iii) Introduction of Audio-Visual Education in Teachers' Training Institutes
- (iv) Supply of radio sets to High/Higher Secondary Schools
- (v) Supply of Audio-Visual Education mobile vans to all districts
- (vi) Publication of a periodical on Audio-Visual Education
- (vii) Production of 35 mm. filmstrips
- (viii) Research in the evaluation of films in education in co-operation with some select institutions
- (ix) Encouragement to private producers in the production of Audio-Visual aids and equipment.

THE THIRD MEETING OF THE NATIONAL BOARD FOR AUDIO-VISUAL EDUCATION

The third meeting was held in New Delhi in January, 1959 under the chairmanship of Shri R. P. Naik, I.C.S., Joint Secretary, Ministry of Education, Government of India. The Board examined the reports of the State Governments regarding the implementation of the schemes under the Second Five-Year Plan. Those State Governments which had not set up State Audio-Visual Boards were asked to do so without further delay.



Shri R. P. Naik (centre) presiding over the third meeting of the National Board for Audio-Visual Education. (Courtesy of the Ministry of Education, Govt of India)

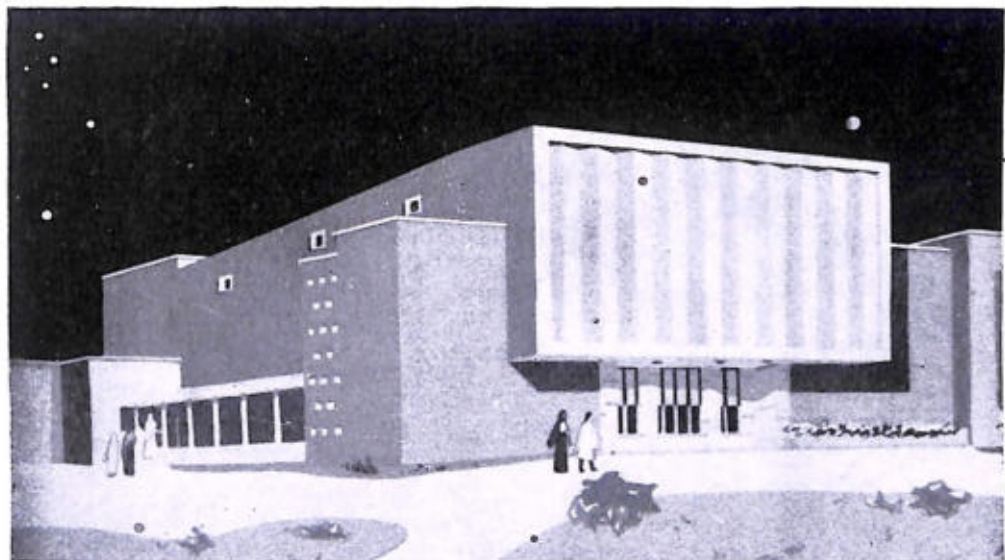
The Board approved the proposal to establish a National Institute of Audio-Visual Education. This institute is to train teachers in the making and proper use of audio-visual materials and to carry out evaluation and research in the effectiveness of these materials.

The Board decided to set up an Advisory Standing Committee of the National Board for Audio-Visual Education consisting of seven members. This Committee is to meet once in three months.

THE NATIONAL INSTITUTE OF AUDIO-VISUAL EDUCATION

The National Institute of Audio-Visual Education started functioning in its new building in New Delhi from the 1st of April, 1959. Shri G. K. Athalye, a well-known figure in the field of audio-visual education, was appointed its Director.

The Institute held its first Short Term Training Course in Audio-Visual Education in January, 1960. Dr K. L. Shrimali, Union Minister of Education, inaugurated the Course. In all 27 trainees mostly deputed by the State Education Departments attended



The National Institute of Audio-Visual Education, New Delhi. (Courtesy of the NIAVE)

the Course which consisted of lectures, demonstrations, practical work, and field trips.

Another short course of training in the proper use of audio-visual aids was organized by the National Institute for the Co-ordinators of the Department of Extension Services soon after the conclusion of the first training course. Twenty-four Co-ordinators received this training.

The Second Short Term Course in Audio-Visual Education was conducted by the Institute during the period July-September, 1960. Thirty-two trainees from different States of India attended the course. They attended 45 lectures in the theory of audio-visual education and did about 200 hours of practical work in the making of non-projected audio-visual aids and in the operation of scientific appliances.

PROGRESS OF AUDIO-VISUAL EDUCATION IN DIFFERENT STATES OF INDIA

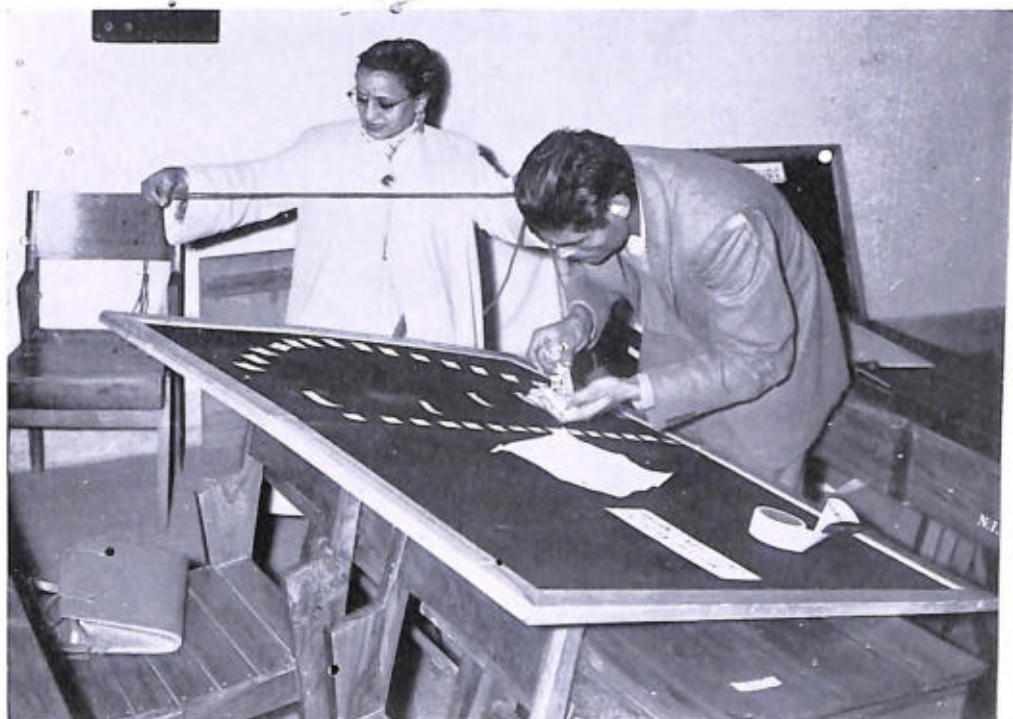
As a result of the Second Five-Year Plan, most of the States have made considerable progress in the field of Audio-Visual Education.



Inauguration of the first short term training course in the National Institute of Audio-Visual Education. (Courtesy of the NIATE)



Trainers preparing audio-visual aids in the National Institute of Audio-Visual Education. (Courtesy of the NIATE)



Trainees preparing audio-visual aids in the National Institute of Audio-Visual Education. (Courtesy of the NIAVE)

Film and filmstrip libraries have been established by sixteen States. Most of the States have also set up their Audio-Visual Boards.

In Bihar State in addition to the film library a workshop has been started for the production of inexpensive audio-visual aids like charts, posters, models, slides, and filmstrips. Some excellent charts, posters, and pictures on useful subjects produced by this workshop have already been supplied to schools and social education centres in the State. The State film library has 211 films and these are loaned to 25 authorized exhibitors of educational films and also to those institutions which possess projectors of their own. The State Government has supplied so far 156 radio sets, 107 magic lanterns, 11,310 slides, 6 sound projectors, and 2 filmstrip projectors to different institutions in the State.

The State of Orissa has also taken a big stride forward in the field of audio-visual education. The State Board for Audio-Visual

गौतम बुद्ध का चित्रित जीवन

माया का स्वप्न १



महाशिविष्क्रमण ५



गौतम का जन्म २



सुजाता की खीर ६



वैराग्य ३



धर्मोपदेश ७



पत्नी से विदाई ४



महापरिवर्तिण ८



अमल - इलम विद्या विभाग, बिहार

This excellent picture on the life of the Buddha produced by the Audio-Visual Workshop in Bihar can be effectively used in classrooms. (Courtesy of the Department of A-V Education, Bihar)



A poster on Female Education produced by the Audio-Visual Workshop in Bihar. (Courtesy of the Dept of Audio-Visual Education, Bihar)



Film shows on educational subjects are regularly arranged for children at different centres in Bihar. (Courtesy of the Dept of Audio-Visual Education, Bihar)

Education has started functioning and a film library has been established. Posters, filmstrips, and gramophone records on useful subjects have been produced in large numbers for use in Community Development Blocks in different parts of the State. Film shows and dramas are arranged at important centres in all the districts by a number of mobile vans maintained by the department.

In Madras the State Government organized a training course at Vellore to train teachers in the making and proper use of audio-visual aids. Forty trainees participated in this course. Short courses on audio-visual education were also organized by the Department of Extension Services of the Thiagarajar College of Preceptors for teachers of Secondary Schools in the three districts—Madurai, Tirunelveli, and Kanyakumari. The trainees produced a variety of slides, filmstrips, and specimen cases for use in the teaching of General Science. According to a report received from this College the teachers attending the courses also received training in the making of an inexpensive apparatus for the projection of slides and filmstrips with the help of sunlight.

In Maharashtra the State Government organized in Bombay several short courses on the making and proper use of audio-visual aids for secondary school teachers. Exhibitions of aids were also held at several places and a seminar was conducted at Baroda. Several new films and filmstrips have been produced by the Department of Audio-



Trainees preparing audio-visual aids in the course on audio-visual education organised by the Dept of Extension Services of the Thiagarajar College of Preceptors, Madurai (Courtesy of the Thiagarajar College of Preceptors, Madurai)

Visual Education. The State Film Library has now 2,200 films and about 1,500 filmstrips.

In Himachal Pradesh an Audio-Visual Education Officer has been appointed to be in charge of the Audio-Visual Section of the Department of Education. This section organized two seminar-cum-training courses for teachers of High Schools in the State, one at Solan in October-November, 1958 and the other at Nahan in August, 1960. The trainees in both the courses received practical training in the making of a variety of non-projected aids and also in the handling of scientific aids. An Audio-Visual Library has been opened with the following materials : 118 16 mm. films, 258 filmstrips, 33 charts, 47 books, one epidiascope, two 16 mm. film projectors, four filmstrip projectors, and two tape recorders. Each training institution in the State, two at Solan and one at Nahan, has also been provided with a 16 mm. film projector, a filmstrip projector, and an epidiascope. 33 High and Higher Secondary Schools have been supplied with radio sets.

In Madhya Pradesh an Audio-Visual Aids Section has been established under the Directorate of Public Instruction and all the 22 Multipurpose Higher Secondary Schools have been equipped with different types of Audio-Visual equipment. Seminars and Workshops were conducted at important centres in the State such as Bhopal Indore, Ujjain, Gwalior, and Jabalpur and more than 1500 teachers received training in the use and preparation of audio-visual aids. A sum of Rs 52,400 has been sanctioned by the State for the opening of a film library during the financial year 1961-62. 50 films and 160 filmstrips have already been acquired for the purpose.

In West Bengal a Regional Audio-Visual Board and a State Council for School Broadcasting have been set up. About 600 High and Higher Secondary Schools have been supplied with radio sets. A short Course on Audio-Visual Education for teachers of High and Higher Secondary Schools was organized by the Extension Department of David Hare Training College, Calcutta in February, 1958. 15 teachers who attended the course received training in the making and proper use of a number of aids.

In Andhra the State Government has supplied radio sets to many High and Higher Secondary Schools in the State on fifty per cent grant basis. In most of these institutions radio clubs have been organized. Two exhibitions on the educational uses of audio-visual aids, one at Kurnool and the other at Rajamundry, were also organized by the Education Department of the State.

In Kerala the State Government has established two Audio-Visual Units, one at Trivandram and the other at Ernakulam. These units are equipped with all kinds of audio-visual equipment. A seminar on Audio-Visual Education was conducted by the State at Ernakulam. At Calicut the Department of Extension Services of the Government Training College organized a number of courses and a very interesting and useful exhibition of audio-visual materials for teachers of secondary schools.



A view of the Exhibition of Audio-Visual materials organized by the Dept of Extension Services, Govt Training College, Calicut. (Courtesy of the Govt Training College, Calicut)



*A view of the Exhibition of Audio-Visual materials organized by the
Dept of Extension Services, Govt Training College, Calicut.
(Courtesy of the Govt Training College, Calicut)*

In Uttar Pradesh the State Audio-Visual Education Board has outlined various schemes for implementation during the Second Five-Year Plan and the Films Section of the Department of Education has produced several new films and filmstrips. A seminar on Audio-Visual Education and an exhibition of inexpensive aids were held at Allahabad. Several mobile vans are maintained by the Education Department for giving film shows in schools and social institutions.

In Rajasthan a wholtime officer has been appointed to be in charge of the Audio-Visual Department and the Film Library of the State. This department has acquired almost all kinds of equipment and also four mobile vans for arranging film shows at different centres of the State.

WHAT ARE AUDIO-VISUAL AIDS ?

THE EXPRESSION 'AUDIO-VISUAL'

THERE should be an understanding now of the expression 'audio-visual'. The expression 'audio-visual' has been preferred to 'visual' all through the book not simply for the importance given today to such aids as sound films, recordings, and radio broadcasts, but for the fact that all aids, whether primarily visual or aural, can be effective in the classroom mainly through the two senses—hearing and sight.

ELIMINATION OF SOME MISCONCEPTIONS ABOUT AUDIO-VISUAL AIDS

It would be well now to remove a number of misconceptions about audio-visual aids.

Audio-Visual Aids are not Concerned only with Films or Filmstrips

First, it should be noted that audio-visual aids are not concerned only with films or filmstrips. These aids are no doubt of great importance but they are by no means the only ones. There are many other audio-visual aids besides them as shown in the following list :

the chalkboard, the magnetic chalkboard, the bulletin board,
the flannel board

charts, posters, diagrams, graphs, cartoons, maps, globes

photographs, pictures, paintings, flash cards, models, mock-
ups, objects, specimens, dioramas

projections with the episcopo, the tachistoscope, the stereo-
projector, the overhead projector, the ceiling projector, and
the micro-projector, lantern slides, filmstrips, films.

tape recordings, radio broadcasts, television, gramophone records.

dramatizations : plays, pageants, tableaux, pantomimes, puppet shows, shadow plays.

It should be noted, however, that the list above is not a complete list of audio-visual aids. Indeed, it is impossible to prepare a complete list as every day that passes brings new materials and new devices to make learning meaningful, enjoyable, and effective.

There is another point. The importance to be given to films and filmstrips should not dwarf the simple aids mentioned in the list above, e.g., the chalkboard, the bulletin board, pictures, charts, maps or models which to many teachers may be of far greater moment and of easier manipulation. Proper use of these aids should, therefore, form an important part in the training of teachers.

Audio-Visual Aids are Aids to Learning Rather than to Teaching

Secondly, it should be known that audio-visual aids are aids to children rather than to teachers—aids to learning, rather than to teaching; but this does not mean that audio-visual aids lighten the work of teachers. When a teacher uses these aids he needs more planning and preparation than when he takes a lesson with the help of a text-book, but his additional labour is always rewarded with more-effective learning on the part of his pupils.

Audio-Visual Aids are but Means to an End.

Thirdly, it is stressed that audio-visual aids are but means to an end. "The educative process is a spiritual interaction between personalities : not merely a matter of communication by a teacher to a pupil. The teacher is always more important than any apparatus he uses; indeed the apparatus is of value only through the use the teacher makes of it, and the worth of that use depends not so much on the dexterity of the teacher or on his skill in manipulating the apparatus as on his sympathy with his pupils, his interest in their

problems, his knowledge of their difficulties, his own sense of values".¹

Audio-Visual Aids cannot Replace Text-Books

Finally, we should be on guard not to over-estimate the importance of audio-visual aids in general. We must not, for example, think that audio-visual materials can replace text-books or that earlier teaching methods were all wrong or inefficient. Reading shall always remain, though it may often be more effective and pleasant through a proper utilization of these aids.

¹ A Report of the Advisory Council on Education in Scotland—1948.

AUDIO-VISUAL AIDS ARE NOT A NEW THING IN EDUCATION

VISUAL AIDS IN ANCIENT INDIAN EDUCATION

Illustrated Manuscripts on Palm Leaves and Paper

ALTHOUGH audio-visual education in the modern sense of the expression is a movement of recent growth, visual aids though not devised in the manner of modern scientific visual aids were in use in old days in India as well as in other countries. Primitive men certainly knew how to convey their ideas through drawings and symbols long before they developed a vocabulary to express them orally. Even in formal education in ancient India visual aids played their part. In Vedic schools diagrams drawn on palm leaves were used by teachers to explain to the pupils the rules for the construction of altars. Story books written on palm leaves contained plentiful illustrations. This tradition of drawing pictures on palm leaves which can be traced from the 10th century A.D. continued for a long time in India. A Ramayana on palm leaves written in the eighteenth century has been found in Orissa. This book which shows illustrations only on



A page from an illustrated manuscript found in Western India. (Courtesy : Indian Institute of Art in Industry, Calcutta)



*The pictorial Ramayana on palm leaves found in Orissa.
(Courtesy : Asutosh Museum, Calcutta University)*

one side has twelve hundred leaves. Old Indian manuscripts on paper which are in existence today also show beautiful illustrations in colour. The colours used in the pictures came from things like flowers, plants, minerals, and the soot of lamps.

Carvings and Mural Paintings

The beautiful carvings which we find in ancient buildings and temples throughout the country also show clearly the importance



A painting depicting
a palace scene in
the Ajanta caves.
(Courtesy :
"India", Unesco)

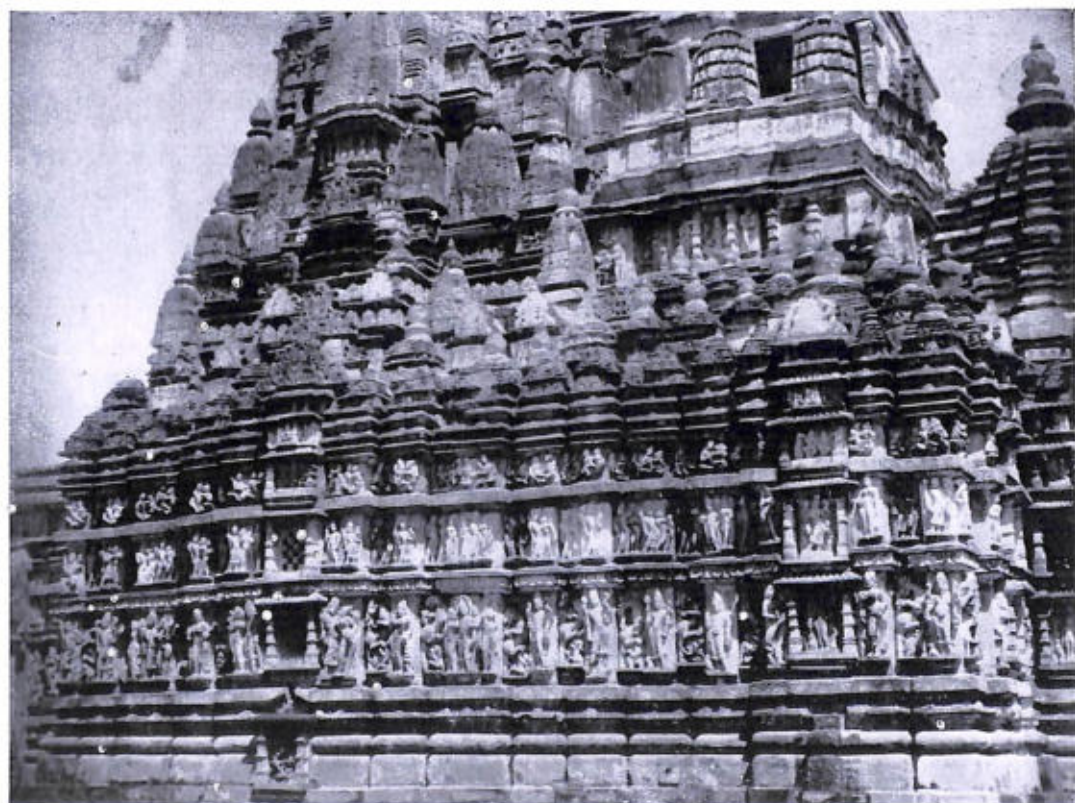


Ravana shaking the mount Kailash—wonderful carvings in the Kailashnatha temple, Ellora
(Courtesy : Tourist Office, Govt of India)



On the gateways of Sanchi artists depicted episodes in sequence from the popular Jataka stories with explanatory notes. These may be called the precursors of graphic art in India. (Courtesy of the Institute of Art in Industry, Calcutta)

which Indian educators attached to visual aids in those days. Amongst the ruins of Takshashila, the well-known centre of learning in ancient India, some rooms have been found with carvings illustrating some incidents of the history of the country. Similar carvings illustrating the life and teachings of the Buddha have been discovered amongst the ruins of the ancient Indian University of Nalanda. The carvings in frames on the life of the Buddha which we find in order even today on the gateway ('torana') pillars of the Stupa at Sanchi and the beautiful carvings in the temples of Khajuraho and Ellora and the mural paintings in the caves of Ajanta are also typical examples of the educational uses of visual aids in ancient India.



*Carvings depicting the birth and early life of Mahavira on Parsvanatha temple (Khajuraho)
(Courtesy : Shri J. Ghosh, Institute of Art in Industry, Calcutta)*

'Patras' and Picture Sets

Another remarkable instance of the use of audio-visual aids in ancient India is to be met with in 'Harshacharita', the well-known literary masterpiece of the 7th century A.D. It has been mentioned in this book that king Harshabardhana of Thaneshwar while entering the city from outside on one occasion noticed a group of people near



The traditional Yama Pata showing punishments after death to women for evil acts done in life. The woman in the chariot escapes punishment for her pious life. (Courtesy : Asutosh Museum, Calcutta University)

the city gate viewing with great interest a painted scroll shown by a man who holding the scroll in his left hand and with a stick in his right was explaining the subject matter as depicted in the paintings. The subject was of considerable importance to those people as it dealt with severe punishments given by Yama, the Lord of Death, for evil acts done in life. These Yama pictures or 'Patras'² enjoyed



A typical Bengal scroll illustrating an interesting story from the Ramayana. To the accompaniment of light background music the showmen, who happened also to be the painters of these scrolls, used to exhibit and explain the frames in strict sequence. (Courtesy : Indian Institute of Art in Industry, Calcutta)

² The word 'pata' is a Sanskrit word of considerable antiquity. It has two meanings: (i) a beautiful cloth and (ii) a picture painted on cloth. In old Sanskrit literature it is often used in the latter sense.



Part of a scroll painting depicting episode from *Krishnalila*. (Courtesy : Indian Institute of Art in Industry, Calcutta)

popularity in villages in different parts of India till recent times. The objectives of these scenes of punishment in the other world were undoubtedly to impress on a class of people the great need for leading a good life, but to what extent these were fulfilled is not known.

It is not true that the picture showmen of the past always painted the city of the dead. They had pictures also of religious stories such as the Ramayana and the Mahabharata and these were no less popular in villages. Latest researches of some scholars in this field reveal the existence in Bengal of a strong tradition of picture showing. The 'Chitrakaras' or 'Patuas' (painters) of Bengal were painters and showmen of Yama 'patas' as well as 'patas' based on the Ramayana such as 'Sindhu Badha', 'Sita Harana', and 'Ravana Badha'. The 'patuas' were generally found to live together in certain areas in important centres of Bengal. In Dacca (now in East Pakistan) a part of the town is still known as Potuatuli and in Calcutta the well-known Patuatola Street recalls an old settlement of 'Patuas'. Two other castes also in Bengal, 'Sutradharas' (wood carvers) and 'Karmakaras' (engravers), used to paint scenes from both the Ramayana and the Mahabharata and exhibit them to people in different parts of Bengal.

The painters of old days used cotton cloth for their scrolls though from the fifteenth century onwards hand-made paper was generally used. There is no mention of paintings on paper in Visnudharmottara, the oldest Indian work dealing with the techniques of painting.

A similar tradition of picture showing existed in Maharashtra. There a small community known as the 'Chitrakathis' living mostly in Ahmednagar district used to earn their livelihood through the exhibition of pictures which like the 'Chitrakaras' of Bengal they used to paint themselves. There was a strict discipline amongst the members of this caste which compelled each family to maintain at least one set of pictures. The Chitrakathis used to carry their sets of pictures from place to place in the countryside and show them to interested villagers. There was generally a light background music when they narrated their story and showed the frames to the assembled men, women, and children. Two of the favourite stories of the Chitrakathis were 'Nala and Damayanti' and 'Babhrubahana'. The

pictures of the Chitrakathis were generally popular with illiterate people in rural areas for whom the visual aids were of greater importance. These showmen are rarely found in Maharashtra today as they have changed their occupation to earn better wages, but the pictures which they painted will ever find a place in the artistic tradition of the country. Many of these were in no way inferior to the mediaeval mural paintings of rare beauty.



*Traditional
giant puppets of
Bengal used in
the play of
"Harish Chandra"*

Puppets

Puppetry was a popular art in villages in ancient India. In many old Indian texts there is mention of the use of marionette-like figures known as 'Panchalika'. The use of giant puppets manipulated by a combination of rods and strings was also very common in villages in old days. These puppets used to have attractive dresses and ornaments. Shows were generally given in 'melas' and in houses of rich people on important occasions. The plays were generally based on the Ramayana and the Mahabharata. Although the use of puppets has considerably decreased of late in India on account of the popularity of theatres and cinemas, interesting puppet shows are still seen on special occasions in villages in Bengal and Rajasthan. Even up to the end of the last century quite a number of families in these provinces used to earn their livelihood

through puppet-plays. Even today many old people in Rajasthan recollect the 'Putliwalas' with boxes of puppets on their heads moving from door to door inquiring if anyone was interested in their per-

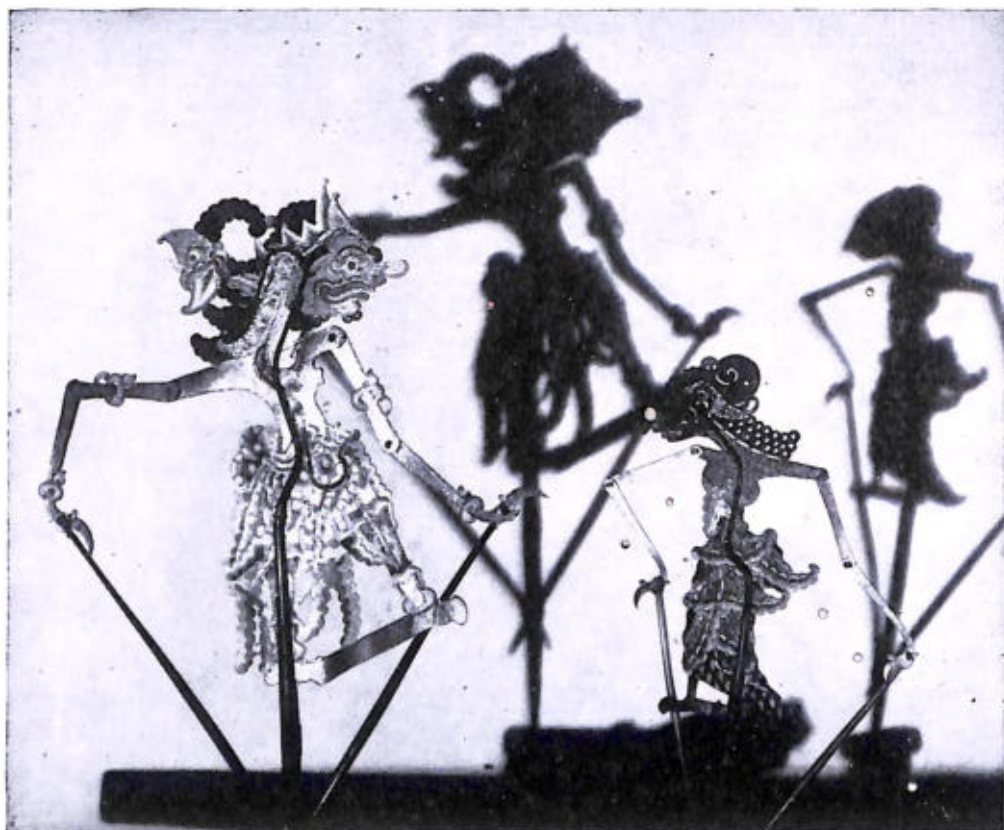


*Traditional Rajasthani puppets
(Courtesy : Indian Institute of Art in Industry.)*

formances. Their plays were interesting and were usually based on well-known events in the history of Marwar unlike the South Indian and Bengal plays based on religious stories. 'Putliwalas' or 'Putul-nachwalas' are rarely found in Rajasthan or Bengal today as their art had ceased to give them a living.

Shadow-Play

Another variety of audio-visual education in ancient India was shadow-play with thin cutout puppets made from a fine piece of cow or buffalo hide rendered translucent through scraping. In earlier



These "wayangs" with their shadows help us form an idea of traditional cutout puppets of India. (Courtesy : Asutosh Museum, Calcutta University)

days gods and goodesses were made of deer skin only as it was a sacred skin according to the Hindu religion. In later days groups of manipulators known as 'Godavaritiravasis' began to employ cow or buffalo hide. Translucent puppets were used with a view to securing different colour combinations of dresses and ornaments. The figures which were considered almost sacred were handed down from generation to generation.

The shadow-play had its origin in Maharashtra though later it spread practically to the whole of South India. It was particularly popular in Andhra and in Kerala. The plays which were generally based on religious stories were very enjoyable owing to good background music and the skill of the manipulators and their trained voices. The shadow puppets were used also to tell news stories because in those days there were no such things as newspapers or magazines. It is indeed strange for us to know that this type of shadow play which went to Bali and Java from the eastern coast of South India is still in use in Indonesia today to give illiterate villagers an idea of important events of the world. To cite an interesting example, the Bandung Conference—the meeting of leaders of all the Asian people after World War II—was shown in ‘wayang’ (the name for shadow-puppet in Indonesia) to villagers in distant parts of the country.

The shadow-play is now rarely seen in villages of South India except on rare occasions in Kerala and in Godavari and Tanjore districts of Madras.

VISUAL AIDS IN EARLY WESTERN EDUCATION

The great educators of western countries—Erasmus, Comenius, Rousseau, Pestalozzi, and Froebel stressed the need for visual aids in the teaching of young children. The Dutch scholar Erasmus (1466-1536) was against memorization as a learning method of children, and he urged that children should learn through stories, pictures, and games. Johann Amos Comenius, a bishop and teacher in Poland, prepared for the first time an illustrated text-book *Orbis Sensulium Pictus* (the world of sense objects—usually known as *Orbis Pictus*). About a hundred and fifty pictures make up the book, each being the topic of a lesson. Most of the topics deal with the practical aspects of everyday life such as gardening, making bread, and so on. In the preface to the book written more than three hundred years ago we find a number of statements which may well form the basis of the modern methods of visual instruction :

- (i) “Let it be given to children into their hands to delight themselves withal as they please, with the sight of the

- pictures, and making them as familiar to themselves as they be, and that even at home before they be put into school”.
- (ii) “Then let them be examined ever and anon (especially now in school) what this thing or that thing is, and is called, so that they may see nothing which they know not how to name and they can name nothing which they cannot show”.
 - (iii) “And let the things named be showed, not only in the pictures but also in themselves; for example, the parts of the body, clothes, books, the house, utensils, etc.”
 - (iv) “Things rare and not easy to be met withal at home might be kept ready in every great school, that they may be showed also, as often as any words are to be made of them, to the scholars. Thus at least this school would indeed become a school of things obvious to the senses, an entrance to the school intellectual.”

Though Comenius stressed the importance of pictures in the education of young children, he warned against making education merely pictorial. Children must know that pictures stand for actual objects. He suggested that schools should provide experiences not usually available to children in their homes through pictures and other aids.

Jean Jacques Rousseau (1712-1778) was so much against the verbalism of his day—the memorizing of words without understanding—that he said “Take the reverse of the current practice and you will almost always do right”.

Rousseau’s advice was followed by Johann Heinrich Pestalozzi (1756-1827) who strongly advocated that instruction should be based on sense perception. Arithmetic should be connected with the realities of life. In every occupation of life Pestalozzi insisted on an intelligent observation of common objects of nature.

From the above, it can be safely concluded that though in earlier days in western countries there were no such things as scientific audio-visual aids, educators in those days were always in favour of pictures, objects, or some other forms of simple visual aids.

CONTRIBUTION OF AUDIO-VISUAL AIDS TO LEARNING

AUDIO-VISUAL AIDS EDUCATE CHILDREN FOR LIFE IN THIS MODERN AGE

IN old days life was a much simpler affair. Children then could learn a lot of things through direct experience. They had direct experience in spinning, weaving, agriculture. But what a change has come upon us today on account of the development of science ! The modern society is a very complex one, and schools can educate children for life in this society only through improved methods of instruction using the variety of audio-visual aids which science has placed at their disposal. Indeed these aids play an important part in our daily lives today. "The newer types of magazine, the poster on the hoardings, the film in the cinema have all used the picture to convey information, to express ideas, and to rouse feeling. It was the unanimous testimony of our witnesses that it would be a great pity if in educating our young people, in school and out of it, to play their part in this modern age we did not make an increasing and more effective use of visual aids. Visual aids are attractive. They can make schools not only more efficient but happier places. They can help to increase knowledge, rouse interest and even evoke worthy emotions and enrich the imagination of our young people".³

AUDIO-VISUAL AIDS MOTIVATE THE CHILD'S LEARNING BY AROUSING HIS INTEREST

Again, one of the most important changes that have occurred in this century is the increasing importance given to the study of the child in place of the knowledge he should be acquiring. Even a few decades ago the teaching of a subject was considered from the point of view of the adult, not by whether it was appealing to the child or not. Learning was then a difficult business. But what a change has taken place in educational practice ! How much attention is now being paid to the learning activity of the child ! We now know that

³ A Report of the Advisory Council on Education in Scotland—1948.

effective learning depends to a great extent upon the child's having a strong motive for learning as well as upon his experience being made meaningful and purposeful for him.

Audio-visual aids motivate the child's learning by arousing his interest in a number of ways.

In the first place, the aids are something new for children. They provide a change from the usual activities of school, such as reading, writing, listening. The novelty of the aids makes them attractive to pupils.

Secondly, the aids provide a change in the atmosphere of the classroom. When a film or a filmstrip is screened, children talk, laugh, question, and comment upon freely as they do outside the classroom. The attitude of the teacher is also very friendly. This pleasant and natural atmosphere contributes greatly to learning.

Thirdly, audio-visual aids are comparatively easy to understand and so they interest the children more than the description of anything through a talk, interest in which can only depend on their power of understanding, knowledge of the language, and previous learnings.

In the fourth place, many of these aids give children opportunities to do something. An opportunity to touch a model, press a button, or turn a crank gives an added appeal.

AUDIO-VISUAL AIDS MAKE THE CHILD'S EXPERIENCE MEANINGFUL

Audio-visual aids make the child's experience meaningful. "Because audio-visual materials supply a concrete basis for conceptual thinking they give rise to meaningful concepts to words enriched by meaningful associations. Hence, they offer the best antidote available for the disease of verbalism."⁴ Under certain situations verbalism is quite helpless. Think of a teacher verbally attempting to give his students an idea of an animal which they have not seen

⁴ E. Dale—Audio-Visual Methods in Teaching.

before. He describes its height, colour, head, legs, ears, and other characteristics, but none of the children is able to form a correct idea of the animal. But how accurately could they form an idea of the animal by actually seeing it. It follows, therefore, that direct experience is the basis of all effective learning. "It is the rich, full-bodied experience that is the bed-rock of all education. It is the purposeful experience that is seen, handled, tasted, touched, felt, and smelled. It is the unabridged version of life itself."⁵

Although direct experience is in reality the basis of all effective learning, yet opportunities for direct experience are very limited (they could, however, be more numerous than they are). Sometimes a real thing may be too complex, too big, too small, too fast or too slow. In such circumstances learning through a model, film, or filmstrip is much easier than learning through direct experience. A model of a factory is often more helpful from the point of view of study than a visit to its various departments and sections spread over a large area. To emphasize the key points or basic mechanisms we often make use of models from which distracting details have been left out.

Again, it is not always possible to experience directly things which are far away or not easily accessible. Many successful projects in our country are too far away for many people to visit. The development and results of these projects can best be made known through audio-visual aids. We cannot have firsthand experience of what Tensing had to get to the top of Everest, but the famous British Information film "Conquest of Everest" has given many of us a clear idea of his outstanding achievement.

5 E. Dale—Audio-Visual Methods in Teaching.

MAIN POINTS IN USING AUDIO-VISUAL AIDS

THE effectiveness of audio-visual aids depends upon their proper use. There is no magic about these materials—they need only careful and intelligent planning.

PROPER SELECTION

The aid should deal with the topic under study

The first and perhaps the most important step in planning is proper selection of aids. Select the best aid or combination of aids to meet your specific objectives. Always bear in mind the exact topic under study. In a lesson on hygiene, for example, the aim of the teacher may be to give pupils an idea of areas where mosquitoes breed and of effective methods for combating the insect. He selects a famous film 'The Mosquito', but his lesson fails because the picture instead of contributing meaningfully to the topic under study presents something else, e.g., the life history of the mosquito and the effect of its poison on human blood.

The aid should not be foreign to pupils' environment

Another teacher, for example, to take a lesson on sanitation selects an excellent foreign film which covers the subject all right. The need for the provision of safe water, the protection of food and milk, the sanitary disposal of garbage, and general cleanliness of people and places are all shown in a very clear manner, but in spite of all these the lesson may not be very successful because the picture presents scenes and techniques quite foreign to pupils' environment.

The aid should be appropriate to the age and intelligence of the children

In selecting aids, the teacher should also see that they are appropriate to the age and intelligence of the children. The aids will

never be helpful unless they are suitable for the average level of the children. A filmstrip may be excellent in itself, but it may be too difficult for a junior class. The excellent Bray film "Tides and the Moon" may appear too simple to post-graduate students of geography though it is so interesting and instructive to senior pupils of a high school.

The aid should not be too old or damaged

Another point of great importance in the selection of audio-visual aids is their physical quality. When films, filmstrips, pictures, charts, maps, models, etc. are new, their condition is generally satisfactory, but when they become a little old, unless good care has been taken in handling and preserving them, their condition becomes so bad that they are not worth the time and effort involved in using them, although they may be valuable by themselves. When we select audio-visual aids for learning purposes, we must make sure they are in proper condition. It is no use selecting a film if its sound track is damaged. The photographs we show to children should be sharp and clear. Broken models, torn maps, cracked slides, and too old charts lose half their value.

Too many aids should not be used unnecessarily

As different kinds of audio-visual aids are now available, there is a possibility that some teachers, particularly those who are enthusiasts, may use too many of these unnecessarily. If a teacher, for example, without any special reason shows some pictures of cocoa trees and cocoa beans-after screening a film on cocoa which shows these things very well, it will be sheer waste of his time as well as of his pupils.

Simple aids if equally effective should be preferred to expensive aids like films

There is another important point in the selection of audio-visual aids. It has been pointed out earlier that simpler aids should not be

neglected. A film may be an excellent aid, but where equally good results can be obtained by the use of charts, models, or still pictures, there is no reason why we should spend so much time in showing an expensive aid like a film. But where a film is considered a far more effective aid, it is worth the expense and effort involved in using it.

ADEQUATE PREPARATION

Preparation on the part of pupils

In the use of audio-visual aids, preparation on the part of pupils is of no less importance than preparation on the part of teachers. Before a film or a filmstrip is shown, children's curiosity should be roused. Specific things to look for in the film or the filmstrip should be pointed out before the aid is used. If there is any point in the film that may be confusing to the children, it should be thoroughly explained before the film is screened. A school journey may be a mere sight-seeing if pupils are not adequately prepared for it and their curiosity not properly roused. When children go to visit a ship with a preparation of what they are going to see in it—the radar in the navigating room, the fire-controlling apparatus, the anti-rolling device, the plant for distilling drinking water—the visit will undoubtedly be of maximum benefit.

Preparation on the part of the teacher

After the aids have been selected, the teacher should prepare himself. He should know what the aids teach and where they fit into his plan. No film or filmstrip should be shown to children unless the teacher has previously read the teaching notes which may be available on it and has had a preview of the film or the filmstrip. The Central Film Library of the Ministry of Education, it is expected, will soon take up the preparation of teaching notes for films which can be used in classrooms. In the proceedings of the second meeting of the National Board for Audio-Visual Education in India we find : "In order to encourage the proper use of the imported film, it is proposed that the Central Film Library should take upon itself the responsibility of preparing commentaries and notes suggesting the

proper use of the film, indicating follow-up activities and other materials with which the film can be integrated. The material may assume the form of a booklet, copies of which will be circulated to all members of the library as and when they ask for a particular film. These booklets will be retained by the member institutions and constitute a reference file."

PROPER PRESENTATION

Proper presentation of audio-visual aids is as important as their proper selection. The material should be presented under the best possible conditions and in the best possible manner so that every one in the room can both see and hear in comforts. This can be ensured if four conditions are fulfilled. The equipment including the screen is a good one and in good condition. The teacher who uses it has had a thorough training in the setting up and operation of the equipment. Spares (e.g., bulbs, exciter lamps, tubes) which may be needed are at hand and in good condition. A reasonably large room with comfortable seats, adequate ventilation, suitable acoustic conditions, and proper darkening devices has been secured. There might be difficulties in fulfilling the last condition in a general-purpose classroom, but in rooms where films are shown regularly there is no reason why ideal conditions should not prevail. A few years ago in a training centre near Calcutta with which the author was associated the educational value of an outstanding film was largely lost on account of an unsatisfactory room in which it was projected. In the month of May about 3 in the afternoon without any provision for ventilation and all doors and windows closed and the roof of the room being of corrugated iron, the small accommodation became so hot and stuffy that those who were viewing the film (and the author was not an exception) were only interested in finding out how soon the picture would come to an end.

ADEQUATE FOLLOW-UP

The follow-up varies according to the nature of the subject. Generally important points are emphasized and there is a discussion on the topic. If the teacher finds that the students have not grasped

the points clearly, he might arrange for another display of the aid for a thorough understanding of the ideas. Geographical references should be pointed out on the map. If the aid used is on some crafts, the follow-up should include actual practice of techniques shown.

PART TWO

AUDIO-VISUAL AIDS

-6- JOURNEYS

SCHOOL JOURNEYS ENABLE CHILDREN TO EXPERIENCE THE REAL WORLD

ONE of the most valuable of audio-visual aids is the school journey though unfortunately in India many schools do not avail themselves of this aid to the extent they ought to do. A school journey may be defined as any excursion organized by teachers to enrich the pupils' experience. The great advantage of the school journey is that it enables children to experience the real world which they cannot experience through the best of books. What they learn about a mine or a factory by reading books or listening to talks in the classroom is quite different from what they learn by seeing the real things in a properly conducted educational journey.

DIFFERENT TYPES OF SCHOOL JOURNEY

A school journey may be of various types according to the purpose for which it is undertaken. It may be a short trip in rural areas to a paddy field or a vegetable garden; an afternoon visit to a farm or a factory or a historical monument or a museum or the zoo; a day's visit to a village or a town; a week's tour to historical places or project areas. Some schools arrange journeys for a longer period to important places in the country during vacations. A school journey may be designed to help boys and girls to select their life work. A boy visiting a medical college or an engineering firm may become ambitious of becoming a doctor or an engineer. A girl after a visit to a college of nursing may like to take up the nursing profession.

DIFFICULTIES WHICH RESTRICT THE NUMBER OF JOURNEYS

There are three main problems in our country which restrict the number of school journeys. Though in many schools there are some enterprising teachers who are quite willing and competent to organize these activities, they do not always get sufficient encourage-



Guided by their teacher some junior pupils of the Surendranath Institution, Calcutta are learning about plants in a garden by this enjoyable method of discovering things for themselves

ment from the heads of institutions particularly when they are of the old school. This difficulty, however, will gradually disappear as the educational possibilities of the school journey will be more and more realized with the general development of audio-visual education in India. The State Board of Audio-Visual Education, it is hoped, will see that a minimum programme of school excursions is carried out by every recognised high or higher secondary school in the state.

There is another difficulty. School journeys cost money, and so the idea is often dropped. This difficulty also will be got over when adequate grants will be available from the Government and schools raise their own funds to supplement these amounts.

Many state Governments now bear fifty per cent of the cost of educational excursions to distant places approved by the Director of Public Instruction of the state. A special contribution from parents can also be collected when excursions to distant places are undertaken. Children whose parents are too poor should not, however, be excluded. The poor fund which is generally in existence in our schools may be of help in such exceptional cases.

Though some schools realize well the value of educational trips, they often find difficulties in arranging for meals and sleeping accommodation for a large number of students at project centres and at many places of historic and cultural interest. The railway arrangements often cannot bring the party back home the same day. There are two solutions of this problem. Schools can take advantage under certain conditions of the newly-organized Youth Hostels in different parts of the country. Accommodation in these hostels is provided free of charge for children and the accompanying teacher. Utensils are also supplied and the party is expected to do its own cooking. The State Transport in most states now organize trips to places of interest in the state and schools can take advantage of these also. In West Bengal, for example, the State Transport organizes every year at cheap rates a number of trips to places like Diamond Harbour, Botanical Gardens, Government dairy farm at Haringhata, and the D.V.C. areas. The Delhi Transport Undertaking also organized during the past few years many trips for students and tourists to places of interest near Delhi. The Auto-India Co-operative Society of Delhi has introduced a tourist service between Delhi and Jaipur at reasonable fares. Special trips for students and tourists are also organized by the State Transport in Gujarat to places like Bhavnagar, Rajkot, Porbandar, Junagadh, and Dwaraka.

CONDITIONS ON WHICH A SUCCESSFUL SCHOOL JOURNEY DEPENDS

Whatever the purpose of a school journey may be, the following conditions must be fulfilled if the journey is to be of maximum benefit :

- (i) A school journey must be correlated with school work so that it does not become a picnic or mere sight-seeing.
- (ii) The visit must be well conducted. For this careful planning ahead is necessary. After the place to visit has been decided upon, the teacher responsible should first obtain permission (where necessary) from the authorities concerned. He should then study transport facilities. He should decide if the entire class or a selected group should go. If the visit is to a distant place, permission of the guardian should be obtained. Permission of the parents to participate in school journeys may be for each trip or it may be a general permission for the whole year. A letter as shown below may be sent to parents to obtain permission for a particular trip :

The name of the guardian
and address

Name of the institution
and date

Dear Shri/Smt.....

The students of Class.....of this institution are planning an educational visit to.....

Could you very kindly write a line to say if you permit.....to join the party ?

Yours sincerely,
(Full signature of the teacher)

The cost per child should be estimated and necessary money should be collected. Some children may not be able to afford the trip. In deserving cases the teacher may ask the institution to allot funds or, as suggested earlier, he can take the help of the poor fund. Matters such as food and accommodation must be settled by writing long before the journey is made. There should

be strict instructions to children about their dress during the journey and the things they should include in their kit. The teacher in charge should be equipped with a first-aid box. He should see that children do not get too tired and their toilet needs are attended to. It is desirable that the teacher in charge should have thorough knowledge of the things he will show to the children. In journeys to historical buildings the services of ordinary guides should be avoided.

- (iii) The pupils must be adequately prepared for a visit. They must understand its purpose and what they can expect to learn from it. Books, maps, pictures, or any other aid available should be used to arouse student interest in the trip. A list (preferably mimeographed) of things which can be seen on the way and at the place should be handed to each member of the group. Students should be encouraged to ask questions, take notes, draw maps or diagrams, and to take photographs.
- (iv) There must be an adequate follow-up to find out what has been learned from a visit. Full opportunity for thorough discussion is essential. A school journey is a mere sight-seeing unless pupils understand its relationship to school work and the value of information gained.

THE VALUE OF FIELD TRIPS IN SOCIAL EDUCATION

A journey or field trip is an audio-visual aid of great value in social education work. If selected villagers are given an opportunity to see how problems are being solved in other areas, they not only see actual operations as they are carried out, but what is more important they become conscious of problems in their own village. The presence of visitors motivates also the people who are solving problems by arousing in them a feeling of worth and importance.

THE CHALKBOARD

A NEGLECTED SCHOOL APPARATUS IN INDIA

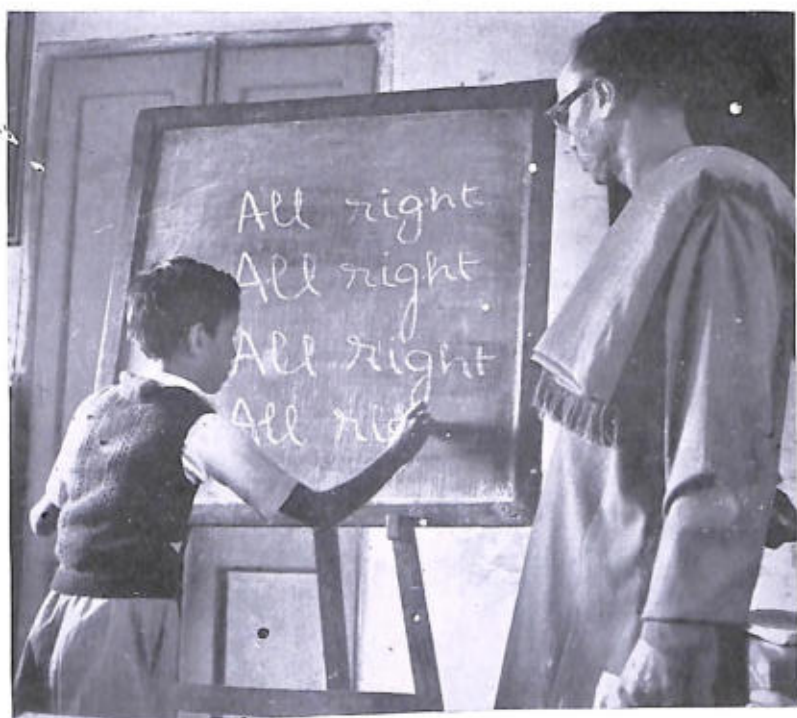
One of the most important aids at the command of teachers is the chalkboard, but unfortunately in India it is the most neglected of the school apparatus. When school houses are built, little attention is paid to providing classrooms with adequate chalkboard space. And in many schools chalkboards are not kept in the proper position and they are not kept in good repair. Erasers are not generally used, and where they exist they are either not of the desirable type or in a very neglected condition.

It is indeed a pity that in India today chalkboards are not even used as teachers used them thirty or forty years ago. This important aid will not be properly used unless training colleges in our country pay greater importance to the matter. The National Institute of Audio-Visual Education in Delhi may well arrange for special short courses on the use of the chalkboard from time to time.

IMPORTANCE OF THE CHALKBOARD

A chalkboard particularly when it is black does not look very attractive, but when it is used properly it becomes very inspiring. It is of great importance in setting standards of neatness, accuracy, and speed, and it helps children visualize spelling. An illustration drawn on the chalkboard during a lesson can restore the attention of the class. In chalkboard work the teacher can, by writing and diagram, emphasize the essential points in the lesson. He can let the children see a map or a picture built up with a few quick strokes. Moreover, the chalkboard is an aid which is always available in the classroom; for its use no technical knowledge or high artistic skill is necessary, no spares are to be kept at hand, and there is no wastage of time in making the room dark.

The chalkboard is an essential aid in the use of such aids as a film or a radio broadcast.



The Boys' Section of Lake View High School, Calcutta making an effective use of the chalkboard to teach spelling

IMPORTANT POINTS IN USING THE CHALKBOARD

The effectiveness of the chalkboard as a visual aid can be considerably increased if the following points are borne in mind in using it :

- (i) Clean the chalkboard first with a clean eraser or cloth and not with the hand or fingers.
- (ii) Write in straight rows starting at the top left corner.
- (iii) Write only a few important points bearing in mind that the chalkboard is unsuited for elaborate work.
- (iv) Write neatly in large letters making sure that the writing is easily readable from the back of the class.

- (v) Avoid abbreviations except those in common use.
- (vi) Plan ahead what you will write on the chalkboard, but never draw a map beforehand or by constant reference to a book, as these may give the impression that map-drawing is not a simple business.
- (vii) Get together everything you need for the chalkboard before the class begins—eraser, chalk, rulers, compasses, templates, stencils or any other device that may help you draw. The use of these devices is no indication of the teacher's lack of skill in chalkboard work.

If you have an opaque projector (an epidiascope) in your institution, it can be used for the tracing of outlines of maps and drawings. The tracing, however, should be completed very quickly. One should not take more than two minutes to trace the outline of a map.

- (viii) Do use a pointer to focus attention when you have drawn a map or a sketch.
- (ix) Do stand to one side of the chalkboard.
- (x) Make sure that the chalkboard is not high above the eye level of the children, it is well lighted by natural or artificial means, and that the front row of desks is at least eight feet away from it.
- (xi) Make sure that the chalkboard is serviced at least once yearly.

TEMPLATES AND STENCILS

Drawings can be made quickly and well on the chalkboard by tracing round templates. A template is a pattern which is held against the board and outlined. It can be made of tin, thin wood, or cardboard. Teachers and students of geography, science, and mathe-

matics may use templates for quick and accurate drawings though they should be able to do rough drawings of simpler things on the chalkboard without this device. Little children love to draw animals, birds, trains, aeroplanes, and other interesting things on the board with templates.

A chalkboard stencil is made by first making a drawing on paper and then making a series of holes along its lines. When the stencil is held against the chalkboard and a used eraser is patted over the perforations, a faint outline appears on the board. A chalk is then applied on this outline to produce a neat and accurate drawing.



This teacher is certainly able to draw a good map of India without any device, but he takes the help of a template for quick work. A learning situation in Lake View High School, Loys' Section, Calcutta

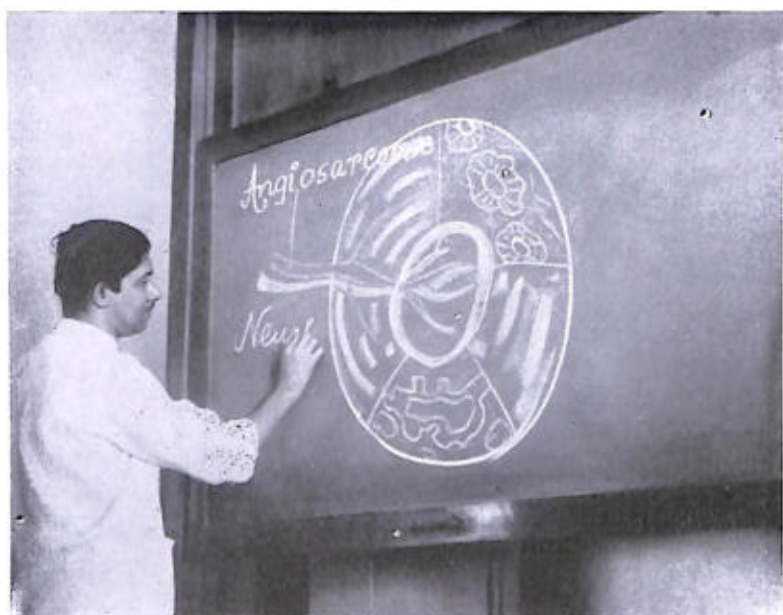
MATERIALS USED IN CHALKBOARD CONSTRUCTION

Various types of material are used in chalkboard construction—wood, slate, glass, plastic, paper, and cement mixtures. Wood is the cheapest, and so it is the most commonly used material.* Slate is widely used in America, but it is expensive, and it is difficult also to obtain a large size of the material. Where a wall chalkboard is to be erected, the use of glass might be considered. Glass chalkboards, though more expensive than wooden ones give better service and last much longer. The Report (1948) of the Advisory Council on Education in Scotland says, "We were told of blackboards made of glass which were installed in a technical college some forty years ago and are still proving most efficient."

The glass board, therefore, should be given a fair trial in our country. One great advantage of the glass board unlike the wooden board which is generally made of inferior wood is that it is not affected by weather conditions. A glass chalkboard can be inexpensively made by getting a sheet of ground glass from a glass shop and applying olive green paint on its plain surface. The rough side is used for writing. A frame for the painted glass can be made of ordinary wood.

Plastic surfaces for chalkboards have recently been developed in Great Britain and can be obtained in different colours. A roll-up chalkboard can be made of thick wrapping paper, but it does not last long and it is not easy to write on. It is, however, very easy to carry, and so social workers use it to advantage when they move from village to village conducting meetings or discussions. They can make this paper chalkboard by a simple process which is given below.

Apply French polish on both sides of a sheet of thick wrapping paper. When the paper is thoroughly dry, apply matt olive green paint to one side of the paper. After the paint has thoroughly dried, apply it for the second time. A round strip of wood about one inch in diameter is fastened to the two ends of the roll-up board.



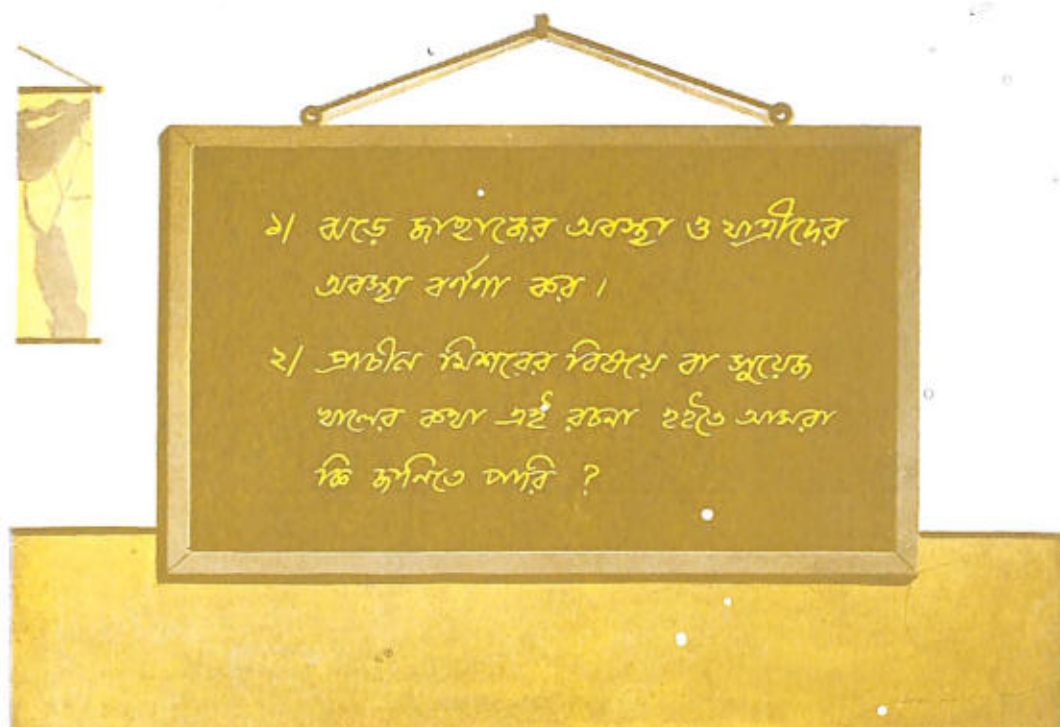
*A glass chalkboard in use in the Institute of Medical Education,
S. S. Karnani Memorial Hospital, Calcutta*

Many schools in India have wall chalkboards made of cement mixtures containing black colour, but they are generally unsatisfactory as they absorb moisture particularly during the monsoon period.

YELLOW OR OLIVE GREEN CHALKBOARD

In India chalkboards are still black, but in America and Great Britain the black colour has given place to either yellow or olive green. The National Institute of Industrial Psychology in America of late has found evidence to the effect that a blue chalk on a yellow board causes less strain on children's eyes and adds to the general cheerfulness of the classroom. The use of colour in America for the so called blackboard has given rise to the new term—the CHALKBOARD. The Advisory Council on Education in Scotland has suggested that yellow chalk on an olive green surface gives the most satisfactory result. It may be added here that in a Nursery and K. G. School, founded by the author a few years ago, at Kulti in West Bengal

olive green boards proved more satisfactory than ordinary black-boards.



Yellow chalk on an olive green surface gives the most satisfactory result

TYPES OF CHALKBOARD

The ordinary chalkboard held by an easel may be all right for the teaching of arts subjects in a small class, but it is quite unsuitable for mathematics and science. For the teaching of these subjects the roller type of chalkboard with a matt surface is far better. This type of board is very common in Secondary, Modern and Infant schools in Great Britain. If the roller type is used, a portion of the board can be appropriately lined or square marked to provide for the teaching of such subjects as handwriting, elementary arithmetic, and higher mathematics.



Our Schools for little children should have a board like this. (Courtesy : British Information Services)

THE MAGNETIC CHALKBOARD

The magnetic chalkboard is of recent origin in Great Britain. It is extremely useful and interesting. The difference between the ordinary chalkboard and the magnetic one is that the latter is made of steel on which magnets can be fixed. This board is especially useful



*A demonstration of a magnetic chalkboard lesson in the University of Leeds
(Photo by the author)*

in the primary school because when children fix something on it as an exercise in the revision of a lesson, their creative impulse is partially aroused. They learn through an interesting activity. This board is very useful from the teacher's point of view also, because he can promptly fix pictures, charts, etc. on it with the help of magnets.

A very interesting use of the magnetic chalkboard (brought by the author from England a few years ago) was made by some enthusiastic teachers of a High School in the Sundarbans who found it helpful not only in the teaching of little children but also in the teaching of subjects like science and hygiene to pupils of senior classes.

THE FLANNEL BOARD

(Also called the Felt Board)

LIKE the magnetic chalkboard the flannel board is also of recent origin in Great Britain and in the U.S.A. It is a valuable aid in many learning situations of junior as well as of senior pupils.

Pieces of flannel or sandpaper will stick to the board with a little pressure and so small pieces of these materials are pasted on the reverse side of pictures, drawings, etc. for placing on the board. If items are cut from flannel, blotting-paper, and sandpaper, no additional rough-surfaced backing will be needed.

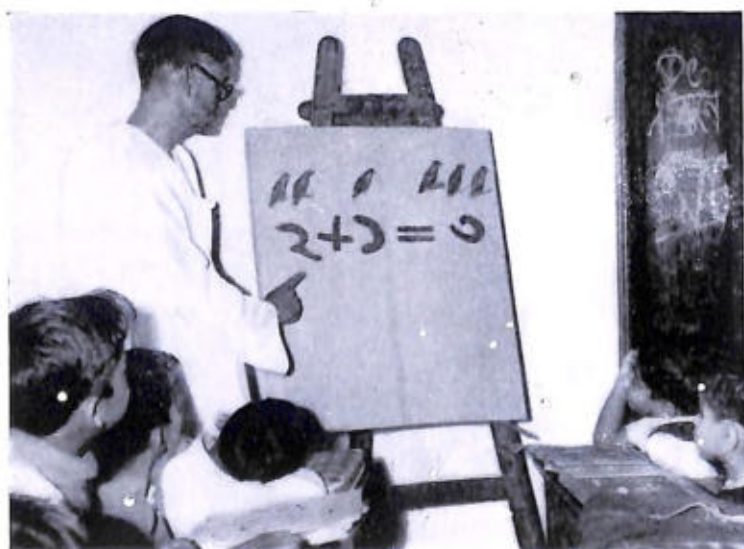
Like the chalkboard, the flannel board can be used throughout a discussion, but the difference is that on a chalkboard we write words or figures or draw pictures, but on a flannel board we place prepared items and remove them when needed. In the Primary School we often ask little boys and girls to fix these to arouse their creative impulse.

With the help of this aid subjects like arithmetic, grammar, hygiene, physiology, nature study, geography, languages can be made interesting and meaningful. Maps and stories can be built up in a dramatic way on the flannel board. To give an idea of different states of India, first a sandpaper outline of the country may be placed on the board and then the various states cut out of sandpaper placed one by one to build up the whole country. In place of sandpaper, the outline as well as the states can be of flannel of contrasting colour. Whether for children or for adults, if pictures are placed on the board as the story or the talk goes on, it becomes more meaningful and enjoyable. Make sure that the pictures to be placed are attractive and sufficiently large to be clearly seen by all who are hearing. If lighting in the room is poor, lighting on the board from a slide or filmstrip projector is helpful.

Flannel boards are not expensive and they are not at all difficult to make. A piece of felt or flannel is stretched tightly and then



A junior pupil is learning Hindi with the help of the flannel board in the Secondary Department of the Surendranath Institution, Calcutta



These attractive pictures of birds on the flannel board make arithmetic lessons real and interesting. The pictures and the figures can be quickly rearranged to change lessons. (A junior class in the Surendranath Institution, Calcutta)



Children of Lake View High School, Girls' Section, Calcutta are learning in a very interesting way names of animals in three languages (English, Bengali, and Hindi) with the help of a flannel board. Can any one suggest a better learning situation for them?

glued to thin ply wood, masonite, or heavy cardboard. A very attractive and sturdy flannel board was made for the author by a Calcutta chalkboard dealer some time ago at a cost of Rupees twenty only. Flannel boards meant for the classroom should not be smaller than 3 feet by 4 . If the board is smaller, the teacher faces the awkward situation* (and this happened a number of times to the author) of telling some eagerly awaiting children that there is not enough room on the board for the fixing of sandpaper materials they have prepared with so much interest and care. Any colour of flannel may be used, but slightly dark green or blue seems better

than others. Light colours get dirty and do not provide good contrast.

In social education work flannel boards, if effectively used, can prove very helpful in communicating a lot of useful information to adults in an interesting manner. Villagers love stories when told in an interesting manner, and Social Education Organizers, if they really want to do, can prepare with little skill in drawing interesting story items for the flannel board.



*A Village Level Worker explains with the help of a flannel board new methods of agriculture to young would-be farmers in a Community Development Block near Ranchi
(Courtesy of the United States Information Services)*

THE BULLETIN BOARD

USEFULNESS OF THE BULLETIN BOARD

The bulletin board is an audio-visual aid of great educational value, but unfortunately only in a few modern schools in our country a classroom is equipped with a bulletin board. Even in institutions in which classroom bulletin board exists, it is not generally used in a planned or systematic manner. Classrooms of colleges and schools even in cities like Calcutta, Bombay, and Delhi show a distressing absence of visual materials in connexion with learning situations on the available wall space. There is hardly any excuse for this as these materials are easily obtainable. No bulletin board in any part of the world under an earnest teacher has ever had any difficulty in getting suitable display materials. The main trouble is that few training colleges in our country today give the aid the importance it deserves. The National Institute of Audio-Visual Education in Delhi may well set apart a room to be shown as a model classroom to impress on the trainees and heads of institutions who visit the Institute the great need for at least three simple and inexpensive aids in a classroom—the chalkboard, the flannel board, and the bulletin board. These boards in the National Institute will no doubt be model from all points of view.

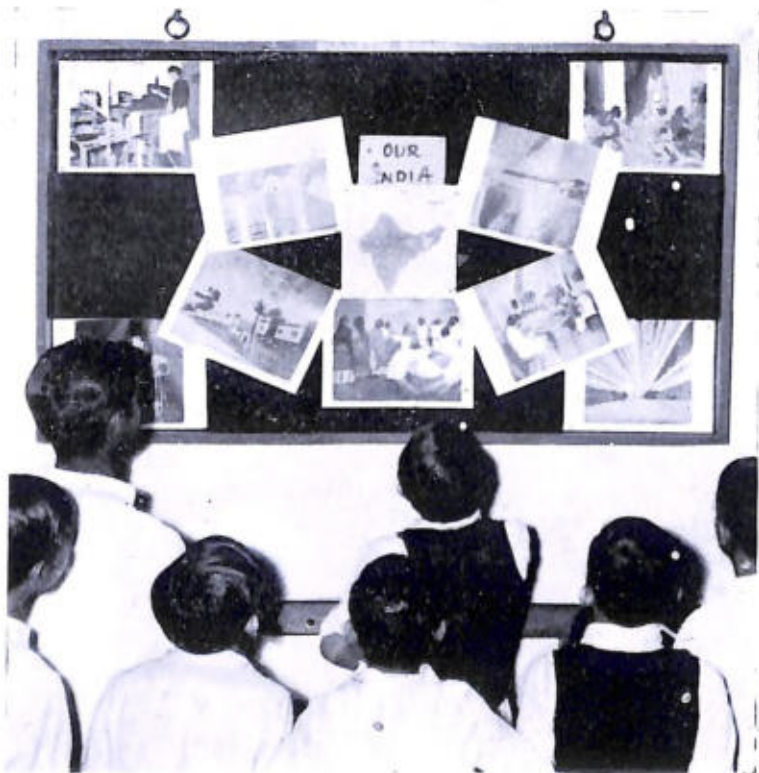
The All-India Teachers' Conference on Audio-Visual Education held in July, 1956 recommends that teachers should observe the following three principles in encouraging the use of bulletin boards by pupils:

- “(a) the bulletin board is a perpetual magazine of the class or the school, designed to give the pupils information of direct concern to them and tap their curiosity and desire for knowledge;
- (b) at any time a bulletin board should present an aesthetic unity, a harmony in the lay-out and illustration of various elements that go in its making;

- (c) the bulletin board should be entirely a result of the creative effort of pupils, may be under the general guidance of the teacher. It should be a work of the pupils, by the pupils, for the pupils."

The bulletin board is useful in a number of ways :

- (i) It provides a suitable place for the display of all kinds of creative work of students.
- (ii) It serves as a place for the display of photographs, newspaper and magazine clippings, illustrations, and small samples of products in connexion with specific lessons or topics of current interest.



*The School
Bulletin Board,
Surendranath
Institution,
Secondary Dept,
Calcutta*

- (iii) It affords a suitable place for the posting of announcements, assignments, distinctions, etc.

(iv) It enables children to work as a group.

(v) It adds to the atmosphere of the classroom.

(vi) It is a valuable aid to educate adults in villages.

PROPER PLACING OF THE BULLETIN BOARD

Like the chalkboard, the bulletin board should be fitted at a suitable well-lighted (by natural or artificial means) place in the classroom. This place should be planned when the school is built. In some institutions in India where bulletin boards are in existence, only one board is generally found near the entrance to serve the entire institution, and this board also is not fixed in a suitable place. The board should be placed at the eye level of the children. A bulletin board designed for adults in a village should be in a convenient spot so that a large number of people can see the display.



No classroom is complete without an attractive bulletin board (Courtesy of the United States Information Services)

IMPORTANT POINTS IN USING THE BULLETIN BOARD

The following points should be remembered in using the bulletin board :

- (i) Only pertinent material should be displayed.
- (ii) The material should be arranged in a neat and orderly manner.
- (iii) Avoid crowding of display materials.
- (iv) The material displayed should be large enough to be seen from a reasonable distance.
- (v) The material should be changed at not too long intervals.
- (vi) Each display should have a suitable title.
- (vii) Keep a good supply of drawing pins.
- (viii) Students should often be given responsibility for collection and display of appropriate material in connexion with specific lessons.

HOW TO MAKE A BULLETIN BOARD

Bulletin boards are very easy to make. Make a frame of $5' \times 3\frac{1}{2}'$ (the size may be larger or smaller according to the size of the classroom) and cover it with either plywood or fibre board. Apply suitable paint on the board to make it attractive. Linoleum with its variety of colours and masonite board are also suitable materials for making bulletin boards.

- 10 -

MAPS AND GLOBES

ONE of the most widely used classroom aids is the map; only with its aid can geography be properly taught and learnt. It is probably true to say that ninety-nine per cent of geography can be represented on maps. With the help of a map we know exactly where a place is, how far away it is, and what lies between. Though the map is one of the most commonly used aids in the classroom it is unfortunately the one least understood. The reason for this is that in most cases children are not helped to understand the realities behind the maps.

A SIMPLE METHOD OF INTRODUCING CHILDREN TO THE STUDY OF MAPS

There is a simple and very helpful method of introducing children to the study of maps. Let the teacher place a simple object, such as a book or a chalkboard eraser, on the chalkboard and draw round it. When the book or the eraser is removed, a drawing is seen which is not a picture. It is a plan or map. Children should be asked to draw many such plans using a variety of available objects. The next step will be to draw a plan or map of the classroom, but it is too large to be drawn full-size. So the element of reduced dimensions will naturally arise. It is important that the map of the classroom should be drawn for some purpose. The map of the classroom must not be merely a map of the room, but a map to show something about the room. It may conveniently be 'A map of the classroom where I sit'.

The test of the map is not whether it looks nice, but whether it fulfils the purpose for which it is drawn. Neatness is good, but mere neatness is not enough. Neat and correct maps are the best. Neat maps that are wrong are worse than untidy wrong maps, because more time has been wasted on useless things.

STAGES IN MAP-DRAWING

There will naturally be some mistakes in the first map; so the map is to be drawn again. It is desirable that the children

should not feel that they are doing the same work. This can be avoided by giving a new title to the same map, e.g., 'How I go to my seat'.

There should be no attempt at first to draw the maps accurately to scale. Before maps can be drawn in any way quantitatively accurate the idea of scale must be familiar. The familiarity is obtained gradually through lessons in map-drawing.

In the next step, the area mapped is increased, but the size of the paper remains the same. Things outside the classroom, e.g., the playground, the neighbouring streets are now drawn. The idea of scale becomes more prominent, and the children by thinking through a wall begin to acquire the ability to imagine the rest of the world.

Thereafter, the area mapped may be gradually extended. In a school at Delhi, for example, maps may be drawn to show "How we go to the Rashtrapati Bhawan", 'How we go to the Red Fort'.

Later, when the area is further extended, the children are introduced to areas which they do not know. This is another stride forward in the work—they begin to learn something new with the help of the map. The new area should be shown to the children in relation to the things they know to be real.

ERRORS IN INTERPRETING MAPS

Very often in our schools geography which is taught by means of maps is not real geography. The use of phrases such as 'the top of India', 'the bottom of Africa', 'going up the map' clearly shows that the maps only are thought of and not the realities behind them. Though these errors no doubt arise from the custom of hanging maps on walls, every effort should be made to avoid these unfortunate phrases.

USE OF VARIOUS TYPES OF MAPS

There is another undesirable practice. Although all good Secondary Schools generally have various types of map, too much

attention is paid to physical-political ones and too little use is made of others. It is important no doubt to know the boundaries of a country or of administrative areas within it, and mountains, rivers, and deserts there, but the maps which show the density of its population, its climate, its soil, its altitude, its vegetation, its industries are also to be studied side by side.



A relief map of the world (Courtesy : Aero Service Corporation, Philadelphia, U.S.A.)

There is need also for the use of three-dimensional relief maps for the teaching of topographical concepts.⁶ Light but sturdy relief maps in plastic are now available at comparatively cheaper prices. These maps can be made also by teachers and students at a nominal cost by using such materials as wood, clay, plaster, or modelling clay. It should, however, be clearly pointed out to children that



A pictorial map of India. (Courtesy : the Tourist Office, Government of India)

the elevations shown in relief maps are by no means correct. They are exaggerated in order to make them easily perceptible. Some geographers are against the use of these incorrect maps, but they are so realistic that we cannot do without them. No flat map however three-dimensional it may appear as a result of modern photographic techniques can take the place of a real three-dimensional relief map.

Some good Primary Schools make use of Pictorial Maps which are stimulating as well as informative. Some geographers, however, have frowned on these maps though many do not share their apprehensions. They have two important objections. A picture map is not a true thing whereas a map states things correctly. The use of picture maps as an introduction to map reading makes it more difficult to understand real maps.

BLANK OUTLINE MAPS

The great usefulness of the map which can be sketched on the board by the teacher is not always realized in Indian schools. The published map is no doubt valuable, but it has so much detail that it is difficult to read and understand. The outline map seems more useful than the published map. In the outline map, by the omission of all that is not required, proper emphasis can be secured for the topic under discussion. If small outline maps to be filled in by children are required, they can be obtained with the help of a duplicator or by asking children to make a pattern of the country with a pasteboard and draw round it.

IMPORTANT POINTS IN SELECTING MAPS

Maps which are in use in many of our schools today are either of poor quality or in a neglected condition. In some schools they are found on the floor. This is indeed most disappointing. In the general care and selection of maps, attention to the following points is helpful:

- (i) Maps should be of matt surface. The glossy surface of some wall maps may prevent children in some parts of the classroom from seeing them clearly.

- (ii) Maps should be simple, accurate, and clear.
- (iii) Maps should be sufficiently large so that they can be seen clearly from the back of the class.
- (iv) Maps should be kept in dust-proof cases.
- (v) There should be frequent checking of maps with a view to attending to minor repairs in time.

THE GLOBE IS AN INDISPENSABLE AID

In our age in which people are becoming more and more world minded on account of air travel, the globe is an indispensable audio-visual aid. For some purposes the globe is superior to the flat map. With the help of the globe we can see the physical unity of the world, the relation of one part to all the rest, and the direction of one part of the world from another. Latitude and longitude and changes in time and seasons are more easily learnt with the help of the globe.

THE RELIEF GLOBE

Some geographers, as stated earlier, are against showing the highlands in relief on a globe or a map as it is impossible to show elevations correctly on these. Even if the height of Mount Everest is to be shown correctly on a globe eighteen inches in diameter, it should be less than one-hundredth of an inch. "The globe is indeed a great deal smoother than the proverbial orange, and a totally wrong impression is given if there is any roughness at all on the surface."⁶

Though this argument is no doubt true yet it must be admitted that students can form a more clear conception of the world when a globe which uses relief and a natural colour system is shown to them.

⁶ James Fairgrieve—Geography in School.



A relief globe (Courtesy : Aero Service Corporation, Philadelphia, U.S.A.)

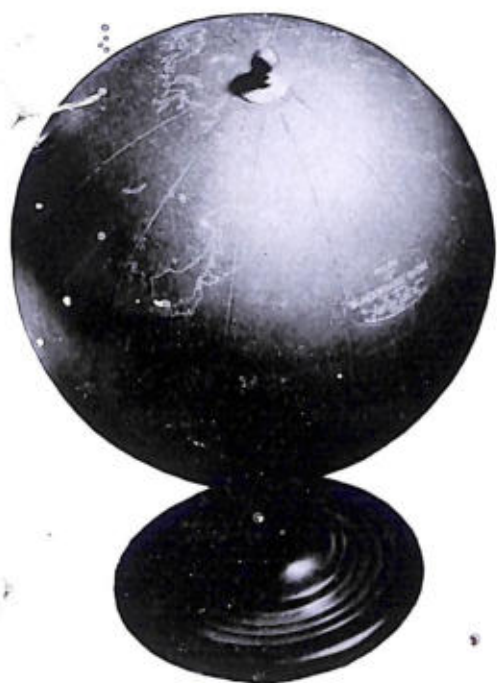
PROPER TYPE AND SIZE OF THE GLOBE

Although a globe is found in most of our schools today, it is often neither of the desirable type nor of proper size. And it is not used as frequently as it should be. The globe meant for use in a class should not be less than sixteen inches in diameter, though it must be admitted that even a 16" globe is not large enough for an entire class to see. As larger globes are not generally available in shops, teachers and students in some schools make large globes of their own. A large globe is quite easy to make and it can be made inexpensively. First, a fairly large size ball is made with straw and gunny or through some other devices. This ball is then plastered with layers of newspaper wet with flour paste. When a sufficiently large globular shape is secured, sufficient papier-mache is applied on it to make it smooth. It is then dried, painted, and drawn upon.

Papier-mache can be made by any one inexpensively. Put small pieces of newspaper in warm water adding a little bleaching powder and keep these in water for about 24 hours. Then add flour paste to the pieces after pouring off the excess water and knead until the mixture becomes a sticky lump (use a tablespoon of flour for a sheet of newspaper used.)

There are three types of globes for school use : political globes, physical-political globes, and slate-surfaced globes. A political globe with a minimum of details is used in primary classes. In senior classes we use physical-political globes which show elevations through relief or colour. A slate-surfaced globe is useful in all classes because it can be drawn upon according to the specific need.

Globes are usually mounted on a pedestal, are placed in a cradle or are suspended from the ceiling. Globes suspended from the ceiling have the maximum advantages. If this type of globe is used, make sure your own country is on the top.



*A slate-surfaced globe
(Courtesy of George Philip & Son and Orient
Longmans Private Ltd, Calcutta)*



Globes in cradle mountings. (Courtesy : Weber Costello Co., Chicago, U.S.A.)

PICTURES AND PHOTOGRAPHS

A PICTURE IS A CONVINCING EVIDENCE

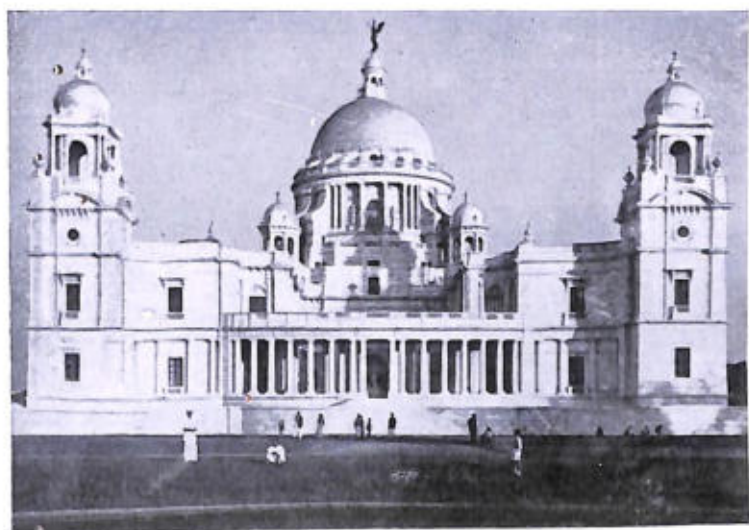
Valuable as the map or the globe is, there are occasions when the use of a photograph or a picture can make the topic clearer and add interest to the discussion. Children show a great interest in photographs particularly when they learn that they were taken by the teacher himself. To them a photograph is a convincing evidence. Teachers who can afford should, therefore, have a camera. There are numerous opportunities for taking pictures which can be used to good advantage in history, geography, or nature-study lessons. Excellent pictures have been made with a twenty-five rupee box camera by carefully following the manufacturer's directions. Indoor shots, however, require special lighting, fast film, and a camera with a good lens.



A convincing evidence to children (Photo by the author)



*The use of photographs adds
interest to the discussion
(Photos by the author)*



PICTURES ARE INEXPENSIVE AIDS

Pictures cut from newspapers and illustrated magazines or obtained from commercial sources can also make a great contribution to a lesson. Many of these pictures are in no way inferior to original photographs. Picture sets available free on request from Information Services of foreign governments are particularly useful.

South American Animals



Many interesting pictures of animals, birds, fish, flowers, transport, etc. so useful in the Primary School can be collected from cheap old magazines. These pictures of South American animals, some about 8" x 10" in size, were collected from an old magazine at a cost of 19 nP. only



Pictures available on request from manufacturers of equipment and products can make lessons in classrooms meaningful and enjoyable. These pictures on radio manufacturing much larger in size than shown here, obtainable from Philips India Ltd, can be used to good advantage in a talk on the subject. The first picture shows the inside of Philip's Radio Factory in Calcutta and the second and the third, assembly of waveband switches and valves respectively



PICTURES SHOULD BE MOUNTED, TITLED, AND FILED.

Any photograph or picture worth using should be mounted on a cardboard. This will prevent damage and facilitate filing and storage. Mounting can be done by any teacher. One of the simplest ways of mounting is to apply flour paste smoothly on the back of the picture and then to place it on the cardboard using a piece of cloth as a smoother. In mounting a picture care should be taken to prevent it from curling when the paste dries. A simple way to avoid curling is to press the mounted picture under weights for some time.

A good picture speaks for itself, but the majority of pictures used in the classroom are much more effective when they are suitably titled.

Pictures and photographs should be catalogued and filed so that those required in a lesson can be easily located. Some enterprising teachers in some of our schools take considerable trouble in collecting suitable photographs and pictures to illustrate the subjects they teach, but in the absence of a filing system many of these are lost or cannot be traced at the right time. In many cases in our schools excellent pictures are thrown into tops of almirahs only to gather dust and to be spoilt.

PROPER SELECTION AND USE OF PICTURES

The effectiveness of pictures depends upon their proper selection and use. In selecting a picture for the classroom as in selecting any teaching materials, the first question to ask is : To what extent does it meet the pupils' need ? It is no use showing pictures of things about which the class has a clear knowledge. No teacher in Kerala or in Bengal would ordinarily show pictures of coconut trees in classrooms. If the real thing can be shown, there is hardly any need for using a picture. It is certainly much better to take children to the zoo than show them pictures of animals. But opportunities for seeing real things are extremely limited and so pictures should be used whenever possible to make topics clearer and interesting.

And, as in the selection of all audio-visual aids, the picture selected should be suitable for the average level of the children. Pictures for younger children should be bright and should have fewer details. Coloured pictures are attractive but make sure they are of natural colour. For in a learning situation, pictures or photographs are to help students see what things really look like. Coloured pictures



When the real thing is not at hand, a picture in natural colour can help students see what a thing really looks like. (Courtesy : Sen Raleigh Industries of India Ltd)



The human figures in the photographs help us form an idea of the size of the 'dhandouli' (basket for the storage of paddy) and the elephant. The picture of the basket was taken by Shri J. Ghosh of the Institute of Art in Industry and that of the elephant, by the author



are plentiful, but unfortunately most of them present an unnatural picture.

There is another important question in the selection of pictures: Does the picture give an idea of relative size ? Children can form wrong idea of the size of a thing unless there is something in the picture whose size is known to them well. A good photographer is always careful to include human figures or some other things to give a rough idea of the size of the thing he is photographing.

Pictures and photographs intended for classroom exhibition should be sufficiently large and clear to be seen by all children. Many useful photographs lose their value being too small. If these are used, they should either be shown to the children individually or projected on a screen with the help of an episcopes, the apparatus for the projection of opaque material.

Another important point to be remembered in the use of pictures is that too many pictures at a time should never be used. Teachers should also bear in mind that photographs and pictures do not always tell their own story. What the children see



*The teacher must help children to see the particular things in a picture he intends that they should see.
(A junior class in the Surendranath Institution, Calcutta)*

may be quite different from what the teacher intends that they should see. It should be remembered also that pictures do not always arouse interest in children at once. Their interest should be aroused by telling before presenting pictures what they should observe in them. In the presentation of a picture it is very important to encourage the class to put questions. Any misunderstanding on the part of the viewers can be corrected through a discussion of the picture.

Again, pictures have certain aspects which students should be taught to read. It has been pointed out earlier that in a good photograph there is always something of known dimensions from which an idea can be formed of the size of a thing. It is the duty of teachers to train children to make this comparison. Similarly, students should be trained to form an idea of distance from sizes of familiar things in the picture. And students should be asked also to look out for things which suggest low or high temperature. Thinner dresses, electric fans in use (a thing in motion has certain characteristic signs which a motionless thing lacks and students should be able to find these out also), and open windows indicate warm weather while shawls or coats in dresses and chimneys (in use) in houses with windows closed generally suggest low temperature.

PICTURES IN THE EDUCATION OF VILLAGES

Social Education Organizers should be encouraged to use photographs and pictures in their teaching programmes. They need some training in still photography. A fairly good camera and some arrangements for developing and printing should exist in the block headquarters. The photographs taken in one block can be used to good advantage in another block. By posting appropriate pictures in proper manner on village bulletin boards, they can pass on a lot of useful information to the villagers about health, agriculture, and crafts. Pictures motivate also villagers to take on a new project. When they see that a work has been done successfully under conditions similar to their own, they can face the task with greater courage and confidence.

—12— POSTERS

POSTERS are widely used by almost every department of the Government and by majority of commercial firms for any campaign or publicity. It is difficult to find a spot on a main thoroughfare in cities like Calcutta, Bombay, or Delhi from where a poster cannot be seen.

FEATURES OF A GOOD POSTER

A good poster presents a single idea and keeps it simple. Too many words should never be used on a poster. The illustration used can be anything—a picture, a cartoon, a drawing—but it should be such that it can be understood at sight. A poster must tell its story at a glance. Illustrations and captions should be large enough

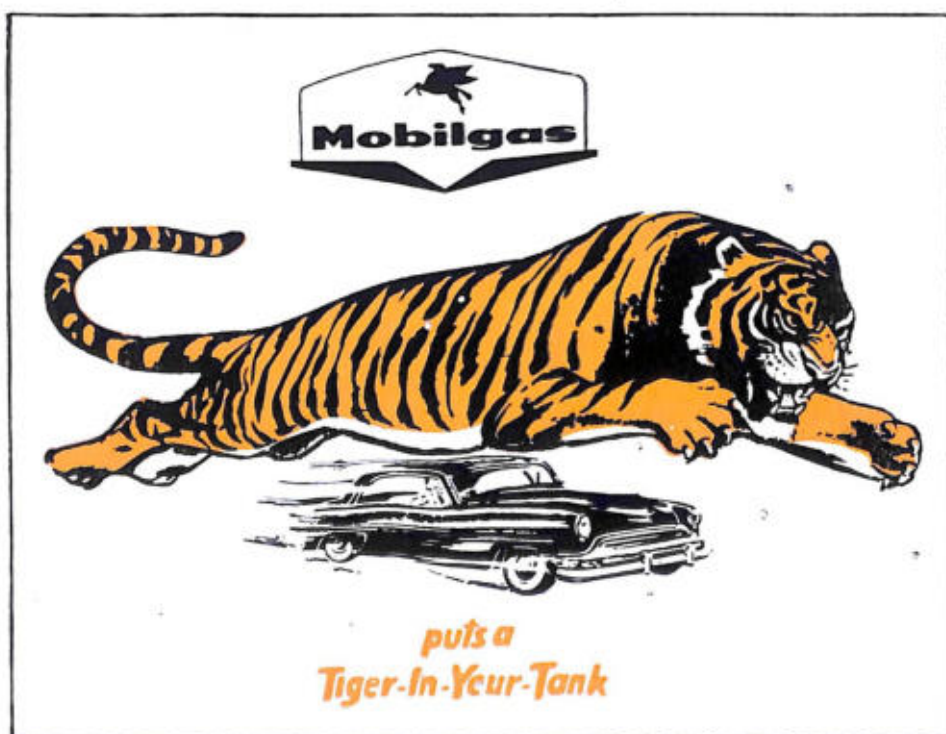


Posters are widely used every year by Calcutta Police in their Safety First and Courtesy Week

to be seen easily. The size of a poster should be at least 20"×30". Colour is helpful though not essential. A coloured poster is generally more attractive and appealing.

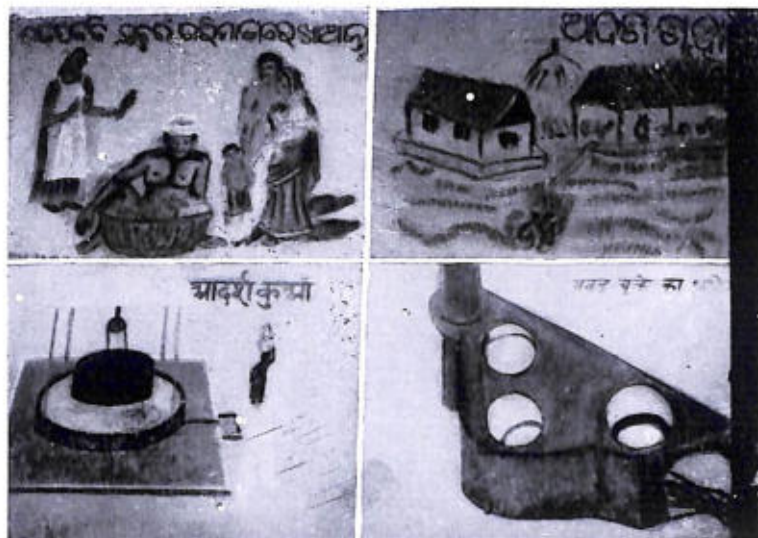
THE USE OF POSTERS IN THE CLASSROOM

Although posters have a limited use in the classroom, they are of great help in providing general motivation. In the teaching of geography the attractive posters issued by Information Services of foreign governments, travel agencies, and the Ministry of Transport can be used to good advantage. The posters issued by the Ministry of Community Development can give a lot of useful information on various projects and activities in the country. Children get valuable information also on health and nutrition from the posters issued by the Red Cross and other welfare institutions. These posters can be obtained free on request.



This poster tells its story at a glance. (Courtesy : Standard Vacuum Oil Co.)

Posters can also be used to motivate children to do something: 'Wash your hands thoroughly before meals', 'Take bath daily', 'Read newspapers regularly'.



Without high artistic skill but with a desire to succeed the trainees of the Social Education Organizers' Training Centre at Belur Math made these excellent posters. (Courtesy of the S. E. O. T. C., Belur Math)

USE OF POSTERS IN VILLAGES

When well-planned and well-made, posters are valuable teaching aids in villages. They are more effective when combined with other aids such as photographs, films, demonstrations.

Posters can be easily made by Social Education Organizers. They can be done even by those who cannot draw well. Only a few years ago at a Social Education Organizers' Training Centre near Calcutta almost all the trainees without high artistic skill prepared excellent posters by following a few simple tips. The person who makes the poster must of course have the desire to succeed.



*A poster on the utilization of leisure time prepared by Shri D. Bakshi, Senior Artist,
National Institute of Audio-Visual Education, New Delhi*

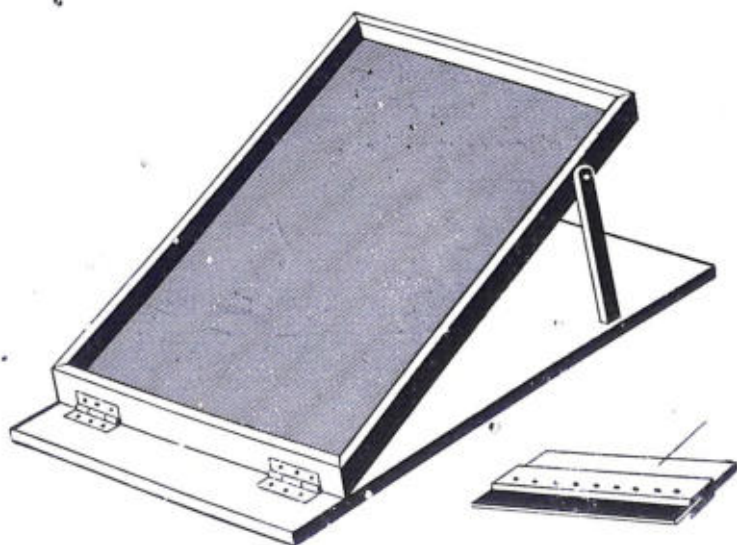
SILK-SCREEN PROCESS—*Serigraphy* (from 'seri' silk and 'graph' to draw)

Silk-screen process is a process for easy duplication of posters. Covers of magazines, invitation cards, and programmes can also be produced with the help of this technique. Silk-screen printing requires only simple equipment that can be made from inexpensive material. The frame can be made from ordinary teak wood. The squeegee with the help of which the paint is forced through the silk is just a piece of rubber fastened to a wooden handle. The silk for the screen and the stencil into which the design is cut can be purchased for a few rupees.

The stencil in which the design to be printed has been cut is adhered to the silk stretched tightly on the printing frame and through the stencil inks or paints are forced onto sheets of paper. The same silk can be used again after cleaning. For coloured posters, each colour is printed separately with the help of a separate stencil.

The following processes of silk-screen printing are in use in our country:

(i) The Paper Stencil Process



A typical silk-screen frame and the squeegee

- (ii) The Shellac-coated Paper Stencil Process
- (iii) The Tusche Method
- (iv) The Photographic Method

The Paper Stencil Process

The most simple of all the silk screen techniques is the use of paper-cut stencils, but it is not recommended if large numbers of clean prints are required. The paper used should be thin but sturdy. Draftsman's tracing paper or lightweight bond paper may be used. The design can be traced from the original onto the sheet of paper to be used for the stencil. The paper is then placed on a hard surface such as plate glass over which a greasy substance (e.g., castor oil) has been applied and then cut with a sharp knife. The printing frame is then lowered over the stencil and ink is applied on the silk with the squeegee in the normal way. This application of ink helps to fix the stencil under the silk. After this the frame along with the stencil is lifted from the glass. The frame becomes ready for printing as soon as the unwanted portions of the stencil have been removed from the silk.

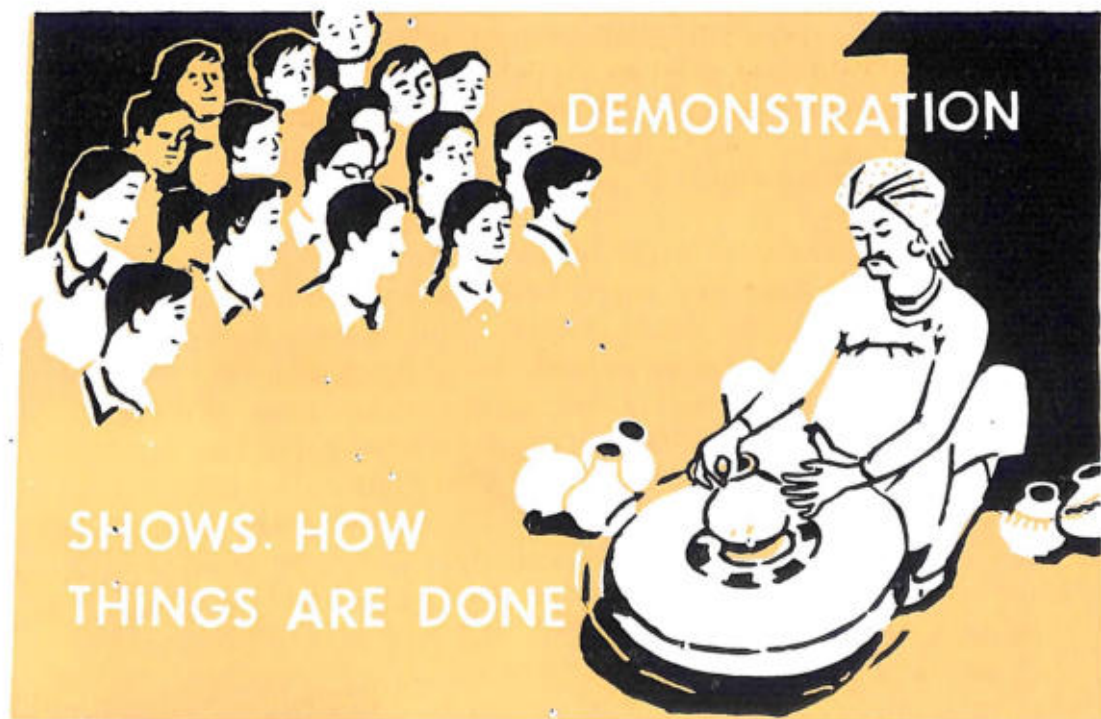
The Shellac-coated Paper Stencil Process

The Shellac-coated paper stencil can be prepared by the following method : Take two sheets of draftsman's tracing paper and stick them together by means of wax. This paper is then given two coats of shellac and allowed to dry. A few drops of castor oil added to the shellac before coating will make cutting easier. To cut the stencil, first take a piece of this shellac-coated paper two or three inches bigger on all sides than the master copy. The piece is then fastened over the master copy with the shellac-coated side up by means of adhesive tapes on four corners. Then take a sharp knife and cut the stencil very carefully so that the backing paper remains intact. After the cutting is finished, remove from the backing paper all pieces of shellac-coated paper which represent the areas that are to be printed. Make sure that centres of letters or other isolated islands of the design are not disturbed. Now place the stencil under the silk frame in proper position and after lowering the frame run a

warm iron over the screen. This will heat the shellac and cause the stencil to adhere to the silk. A small piece of cloth wet with a few drops of alcohol may be used in place of the iron. When the required portions of the stencil have been properly adhered to the silk, remove the backing paper gently. The frame is now ready for printing.

The Tusche Method (tusche—a greasy lithographic ink)

The tusche method is generally employed for pictures in which shading is required. First, the picture to be printed is traced on the screen and then liquid tusche (or crayon tusche or lithographic pencil) is applied on all parts of the design to be printed. After the tusche has dried, a coat of glue is applied over the entire screen. A second coat of glue is applied when the first coat is thoroughly dry.



An example of a print from shellac-coated paper stencils. (Courtesy : National Institute of Audio-Visual Education, New Delhi)

After the second coat has thoroughly dried, a cloth wet with turpentine is placed on the under side of the screen and the outer side directly opposite the wet cloth is rubbed with a dry cloth. This operation removes the tusche and the glue over it opening the screen wherever the tusche was applied. It should be noted that the tusche is only soluble in oil after it is dry.

The Photographic Method

Photographic stencils are used for fine commercial work. This process which needs expensive equipment is not recommended now for educational institutions in our country.

Silk Screen Inks

Silk screen inks are available in India in the following series : Gloss, Matt, and Fluoroscreen. The following colours are available in the first two series : light yellow, deep yellow, scarlet, red, magenta, deep blue, light blue, deep green, light green, black, and blue black. In the Fluoroscreen series the following extra-bright colours are available : yellow, orange, red, pink, green, and black.

CHARTS

A chart can present any information other than geographical in an easy-to-understand way. It is defined as “a visual symbol summarizing or comparing or contrasting or performing other helpful services in explaining subject matter.”⁷

IMPORTANT POINTS IN MAKING CHARTS

Like posters, little skill is necessary to make charts. In making charts the following points, however, should be remembered :

- (i) Charts like any other pictorial material should be sufficiently large to be seen easily. The producer of charts should be clear about the conditions under which they will be seen. What is the maximum distance from which the chart will be looked at ? Is it to be studied by all the children of the class all looking at it at the same time ? Is it to be seen by a small group ?
- (ii) Charts can tell a story in some detail but it should not contain too many words.
- (iii) They should be attractive to look at.
- (iv) They should be strong enough to stand rough use.
- (v) As the main point about a chart is that it should be clearly understood by all those who are intended to study it, it should not contain any picture which is not related at all to their experience.

VARIOUS TYPES OF CHARTS

Charts may be of various types, each meeting a specific need. The important ones are given below :

⁷ E. Dale—Audio-Visual Methods in Teaching.

Table Chart

This type of chart presents information in ordinary sequence. Patients' charts in hospitals showing diet and medicines given at certain points of time and historical charts giving lists of rulers or battles in chronological order with some information as well are typical examples.

Tree Chart

This is an effective way of showing development or growth of a thing. The origin is a single line or other representation of the trunk, and the various developments are shown as branches. Botanical or biological charts tracing the origin of many contemporary forms of plant or animal from a single source are good examples.

Flow Chart

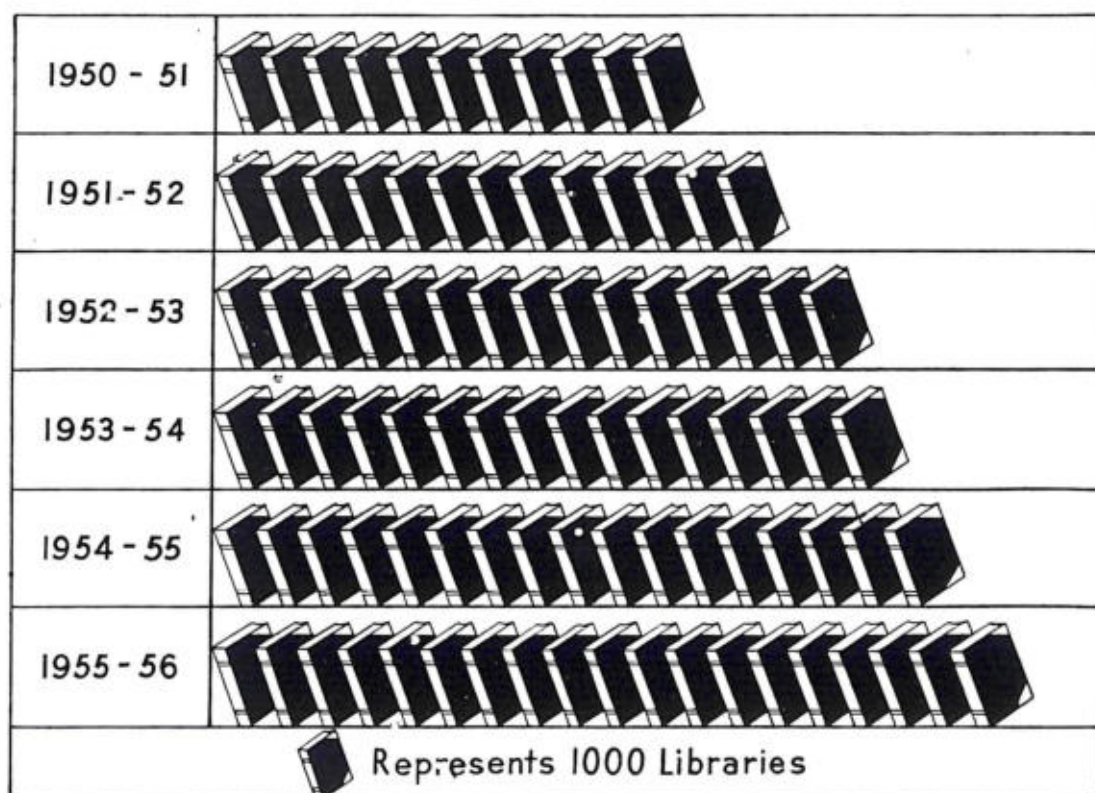
A flow chart shows by lines, arrows, rectangles, etc. the organization or structure of a government or a big institution.

Isotype Chart (Isotype—International System of Typographic Picture Education)

This is a pictorial representation of statistics. The pictographic technique for portraying statistical data was developed mainly by Dr Otto Neurath though he was not the first person to use the pictorial type of chart. In 1914 Willard C. Brinton in his "Graphic Method for Presenting Facts" showed a number of pictorial charts though he did not pursue the technique beyond his initial exposition.

With the help of this type of chart the meaning of statistics can be made clear to people or children who are not able to get information from graphs. This device, therefore, should be of great use to schools and adult education centres.

The pictorial chart should be made as simple as possible and the symbols should be self-explanatory. If the chart is concerned

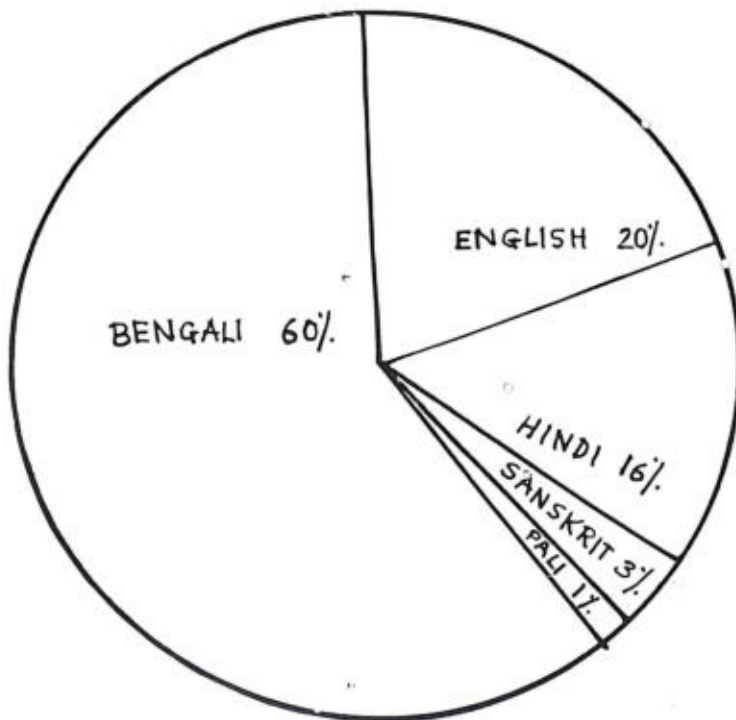


An isotype chart showing the progress of libraries in India during the period 1950—1956

with railways, an outline or a silhouette of a railway engine should be shown. If it is about population, the symbol should be an outline or a silhouette of a human figure. It should be remembered, however, that only approximate comparisons can be presented by this method and that pictorial charts are not suitable at all for showing fractional percentages of a whole for which pie charts are used.

Pie Chart

In a pie chart a pie or circle is divided into segments, each segment representing a percentage of the whole. When percentages are very small fractions, the actual percentage is indicated in each slice.



A pie chart showing percentages of books in different languages in a school library in Calcutta

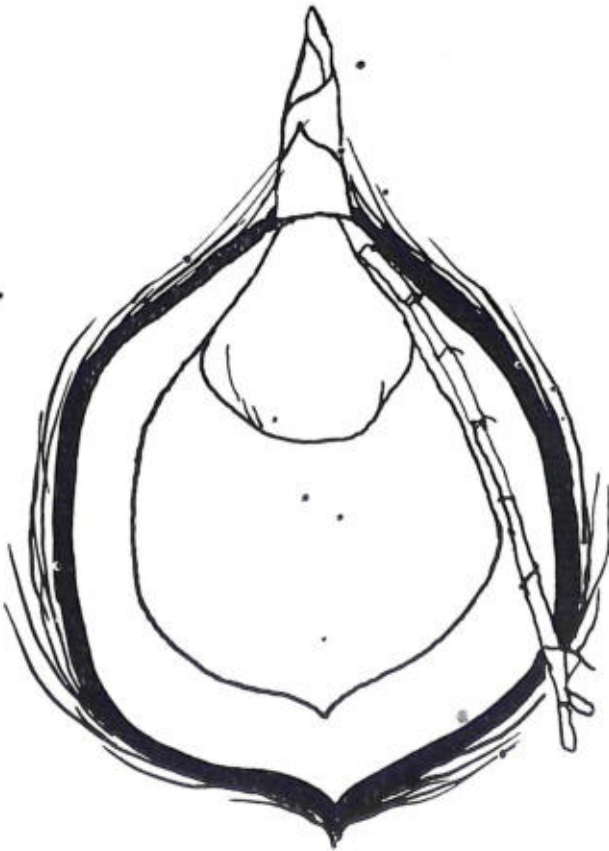
USE OF CHARTS IN CONNEXION WITH OTHER 'AIDS

When we teach with the help of charts, we follow the same principle that apply to any audio-visual aid. A chart becomes a more effective tool for learning when it is combined with other aids. A chart used with a model can often make the information clearer. Charts can be used to emphasize certain points presented in a film or a filmstrip. And there are occasions when posters and charts go hand in hand.

DIAGRAMS

A diagram is a drawing with the help of lines and geometrical forms for the purpose of explaining something. There are no pictures in diagrams.

Diagrams are used in the teaching of almost all subjects. They are indispensable in geometry. They play an important part in science and engineering to show causal relations and structures of objects and apparatus. A plan of a house and the drawing that explains the hydrogen atom are diagrams. In the teaching of geography we frequently resort to diagrams to explain production and



A diagram of the inside of a coconut to show the growth of roots when the shoot just emerges out of the husk

export or import of a commodity. In the teaching of botany we often take the help of diagrams to show cross sections of fruit, flowers, and plants.

TEACHING WITH DIAGRAMS

Before a diagram is drawn on the chalkboard or presented to make a learning situation meaningful the teacher should make sure first that his students have sufficient background knowledge to understand the drawing.

As diagrams are abstractions, whenever possible they should be used along with the original. In nature-study, for example, if you are showing the diagram of a flower, it is better to show the class the original flower at the same time. When the real object cannot be brought into the classroom, the help of other audio-visual aids such as pictures, filmstrips, films should be taken to give a complete and accurate conception of the diagram. Another important point in using a diagram is that all its items should not be shown all at once. The main outlines should be drawn first and the additional items should appear as the explanation gets on. This means that diagrams drawn in front of the class are more beneficial than those prepared before the lesson. A diagram of a complicated mechanism is generally prepared in advance.

IMPORTANT POINTS IN PREPARING A DIAGRAM

The following points should be remembered in preparing a diagram :

- (i) The diagram should be correctly and neatly drawn to scale.
- (ii) Tools like a ruler and a compass should be used as it is difficult to draw a good diagram freehand.
- (iii) The diagram should be as simple as possible, and so all non-essential things should be eliminated.

- (iv) Any important thing should be emphasized with colour, but too many colours should not be used. The objective of a diagram is to clarify meaning, not to be just a pretty picture.
- (v) Like pictures and charts, diagrams should be sufficiently large to be seen by every student in the class.

-15-

MODELS AND MOCK-UPS

It has been pointed out earlier that although direct experience is the basis of all effective learning, very often it cannot be provided in the classroom. A real thing may not be always available and it may be too complex, too big, or too small for study. In such circumstances we resort to models or some other aids.

A model is a three-dimensional recognizable imitation of an object. It may be of the same size, larger, or smaller than the thing it represents. It can be handled, operated, and seen from a number of angles, and so it is generally more interesting and instructive than a picture or a chart which is a two-dimensional representation. Models are, therefore, used in the teaching of almost all subjects, e.g., science, hygiene, history, geography, and mathematics.

Steel Projects at Durgapur, Rourkela, and Bhilai extending over many square miles can be easily and conveniently studied in a room with the help of miniature models. Similarly, things which are too small for study—an atom, a molecule, a tiny insect, and a small flower—are made meaningful through scaled-up models.

Models are used to bring to life matters involving the past. We may read pages about the condition of Calcutta hundred years ago, but the past days do not come to life till we use models or at least two-dimensional visual aids showing different parts of the city in those days. Epics of the past such as the Ramayana and the Mahabharata become enjoyable and real when they are presented through models. An interesting exhibition of models depicting the story of the Mahabharata was organized by the National Cultural Association in Calcutta last year.

In planning or presenting matters concerning the future the need for models is always felt. Models of many important projects



This beautiful model on the Mahabharata shows the testing of the wisdom of Yudhisthir by Dharmaraj in the guise of Yakshya. (Courtesy : National Cultural Association, Calcutta)

and buildings of our country were prepared and studied long before their construction was undertaken.

Many teachers of mathematics have stressed the value of models to students who have difficulties in understanding abstract constructions. Models are also used to good advantage in demonstrating



*This interesting model on the Mahabharata shows the death of Krishna from an arrow shot accidentally by a fowler when he was sitting under a tree.
(Courtesy : National Cultural Association, Calcutta)*

situations which are dangerous to experience directly. Many police departments now take the help of models to teach traffic safety to school children.

TYPES OF MODELS

Models vary greatly in form depending upon the purpose they serve. They can, however, be classified under four main types :

(i) *Scale Models*

In some study situations we need correct representation of things through exactness of scale. We have small scale models of Damodar Valley and other projects to help students as well as others form a good idea of big enterprises taken up in independent India. In the teaching of hygiene we very often use exact-scale models of the organs of the human body.

(ii) *Simplified Models*

There are, however, many learning situations in which models which show roughly the external form of an object do for children all right. The animals, birds, fish, rivers, hills which children of Primary Schools make out of clay, sand, or straw have great educational value although they are not made to exact scale.

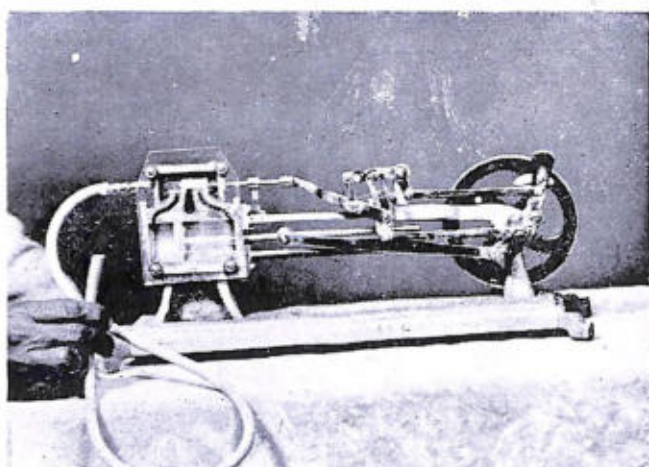
(iii) *Working Models*

In some lessons working models which show in a simple way how things function or operate are very helpful. In many cases they are used in place of real articles because they are easier to understand. A working model of the human heart gives us a thorough understanding of its various operations. Boys who look at working models of engines may

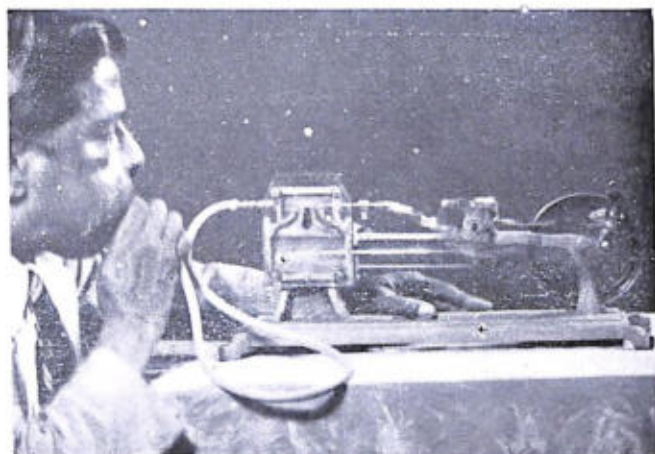
“.....see with eye serene
The very pulse of the machine”

(iv) *Cutaway or Cross-sectional Models*

These show how something looks inside. There are many situations particularly in the study of hygiene and technical subjects



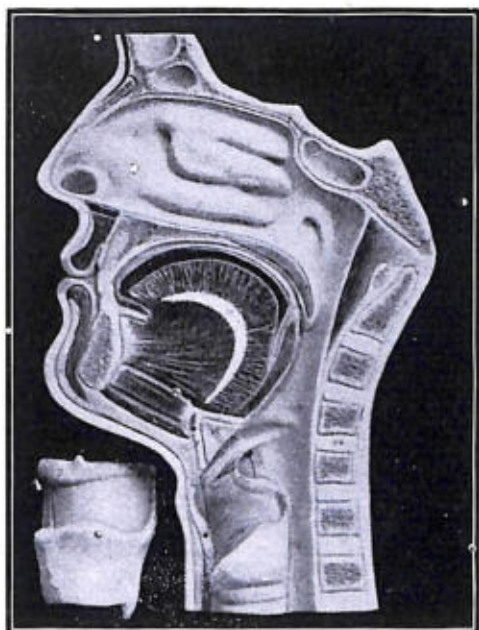
These working models show the operation of steam engines. (Courtesy : Dept of Extension Services, Thiagarajar College of Preceptors, Madurai)



where it is necessary to see the interior of an organ or a machine to understand how it works.

SOME MISCONCEPTIONS TO GUARD AGAINST IN USING MODELS

There are some misconceptions to guard against in the use of models. If the model is larger or smaller than the real thing, students should be given a clear idea of its actual size. In some cases models are oversimplified. Such models should be used with great caution. Their differences from real things should be known. In case of models of organs of the human body there are differences

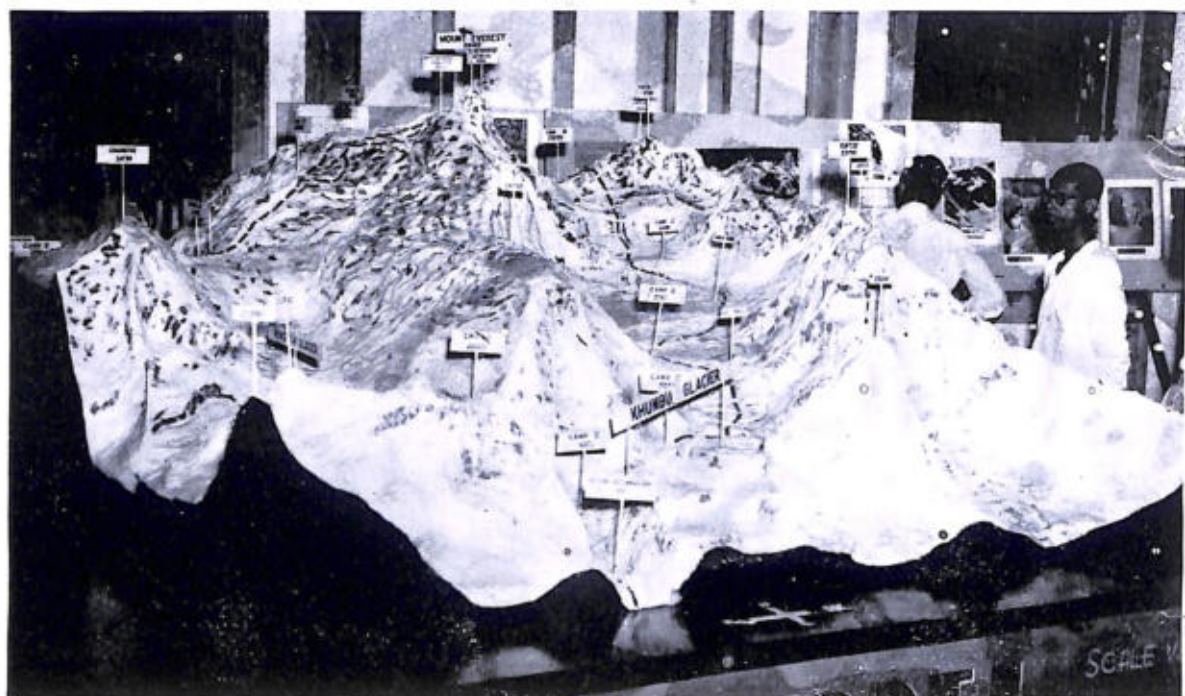


A cutaway model of head, neck, and face. (Courtesy: Calcutta Pure Drug Co.)

of a more vital nature and these should be pointed out clearly. Models of the brain or the heart, for example, studied on a table are so different from the real organs which function as parts of the entire human body. Moreover, these models are likely to be thought of as parts of a machine unless we take care to emphasize that man is not a machine though he is like a machine in some respects.

In any learning situation with a model the differences between the contrivance and the real thing must be emphasized. However perfect a model may appear it must be incomplete in certain respects. A few years ago we saw an excellent model of "Conquest of Everest" in a newspaper office in Calcutta. It showed clearly the dwellings of the Sherpas and the hazards of the way, but the white cotton representing snow did not help us feel the terrible coldness which we would have experienced if we were with the climbers even for a second. "In contrived situations we resort to an analogy, and all analogies are dangerous. But.....they are also necessary. We can make good use of analogies offered by contrived experience if we prevent misconceptions by reminding students of both the similarities and the differences between the contrivance and the real thing".⁸

8 E. Dale—Audio-Visual Methods in Teaching.



However perfect this model of 'Conquest of Everest' may appear, it does not tell the whole story. (Courtesy : Statesman, Calcutta)

PREPARATION OF MODELS BY STUDENTS

The making of models is a very useful exercise for both intelligent and backward students. Children develop their powers of expression, observation, and manual ability as they make models. Though all kinds of models cannot be made by students, we are often struck by what they do with such simple materials as old newspapers, pasteboards, pasteboard boxes, match boxes, straw, wood, and clay and with such simple tools as a ruler, hammer, and saw.

MOCK-UPS

We heard of the term mock-up very frequently during the last World War as mock-ups and models were freely brought into play in the task of training the vast army personnel within a very short period. Now, what is the difference between a mock-up and a model? We have said earlier that a model is a recognizable imi-



*Children develop their powers of expression and manual ability as they make models with clay.
(Clay modelling in a junior class in the Suréndranath Institution, Calcutta)*

tation of a thing, though it may be smaller or larger than the original thing. A mock-up is a three-dimensional imitation of a thing in certain aspects only for the purpose of learning and so it may not be similar in appearance.

In schools in India the mock-up of a clock showing the movement of the hands around the face has been in use since the beginning of the century to help children learn to tell time. In technical institutions mock-ups of engines concentrating on some special parts are often used for the purpose of training. In some automobile training institutions the mock-up of the driver's seat is first used to make the learner familiar with brakes, accelerator, and other features of a real car.



A child is learning to tell time with the help of a clock mock-up in the Primary Section of Lake View High School, Calcutta

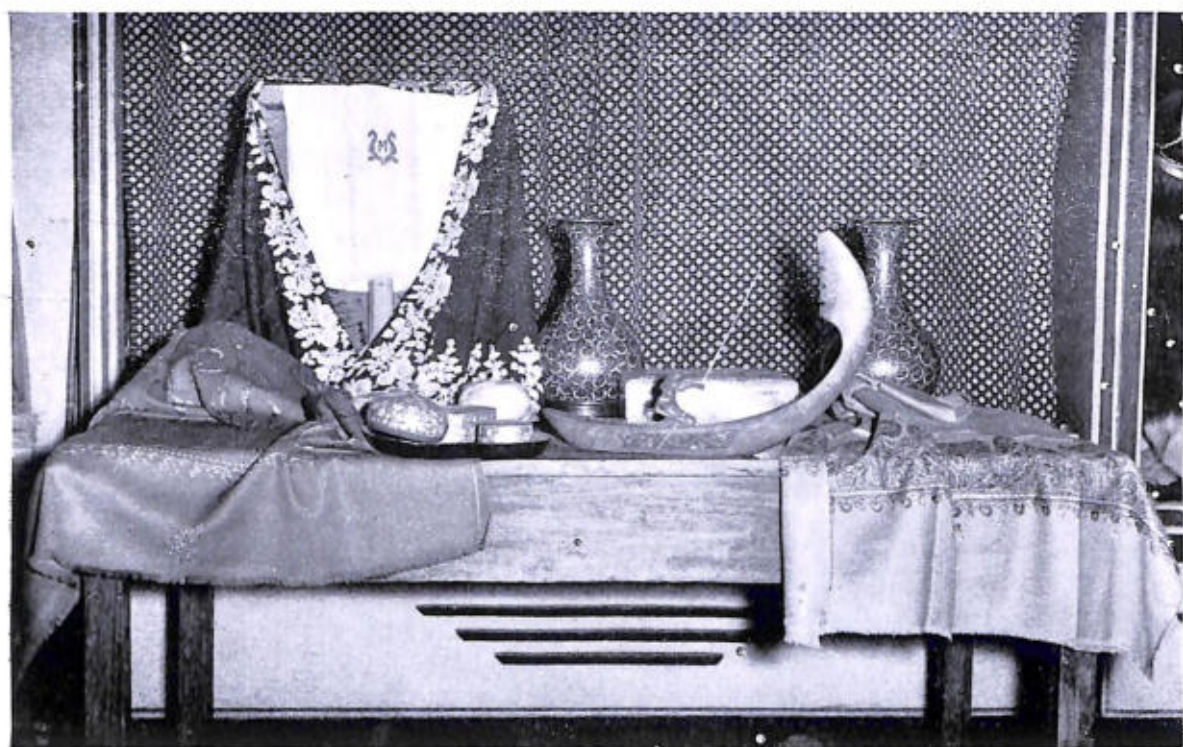
—16— OBJECTS

OBJECTS being samples of real things though minus the natural setting are valuable learning aids. Collections of bones, claws, teeth, fish, butterflies, birds, leaves, flowers, stamps, coins, weights, minerals, stones, and agricultural products are used in the teaching of different subjects. A supply, for example, of weights and measures is essential to the proper teaching of arithmetic in infant and primary classes. Samples of agricultural products and rocks and minerals add reality to geography lessons. In nature-study children draw important inferences by studying real things like flowers, leaves, mounted birds, and live or dead insects.

With many objects, the natural setting is of great importance, but we cannot have it in any case in the classroom nor can we take our students on a tour of the world to give them a complete picture of reality. Fortunately, however, we have devices like photographs, films, and models to help them form some idea of the natural setting.



These samples of rocks and agricultural products add reality to geography lessons



This exhibit table of objects from Kashmir brings a distant place into the classroom

Certain objects again though lifeless without the natural background cannot be properly studied in direct reality. Some flowers and leaves may not be at close range. Even if we found them nearer, we could not possibly examine them from different angles. You can watch a butterfly from some distance; the moment you try to get nearer for a closer study, it instinctively feels your presence and flies away.



The element of play brought into arithmetic lesson with real weights and measures makes it easier for the children to learn an arithmetic lesson in a junior class in the Surendranath Institution, Calcutta

DRAMATIZATIONS

(PLAYS, PAGEANTS, PANTOMIMES, TABLEAUX, PUPPET-SHOWS, AND SHADOW-PLAYS)

Dramatizations provide an enjoyable and meaningful learning experience in nearly all subjects of the curriculum—history, geography, civics, foreign languages, and so on. It is equally effective from the lowest to the highest level of education. In the junior classes dramatization is based on children's reading lessons; in the senior classes, on literary classics. It may be simply acting out of roles in the classroom or a carefully prepared full-length play on a proper stage.

Now, here is a question which is of importance: Do players and observers benefit equally in a dramatization? The answer is that both benefit though it can be argued that the participants benefit more because they try to get *inside the characters*. In a learning situation through a dramatization the observers can be intimately involved if they care to watch the actors closely to make sure there are no errors or omissions.

VALUES OF DRAMATIZATION

It is true a dramatization is a substitute for the real experience but in a well-acted play both the observers and the actors forget for the time being that it is something unreal. Some actors get so much inside the characters they portray that they fail to check their emotions. The observers are naturally moved in such a situation. A few years ago a boy while playing the role of "Dhruba" in a religious play in a school actually wept on the stage when he was about to leave his mother in search of God. Some observers including a number of children shared the same emotion at that moment. Such experiences create impressions in both the actors and the observers which are not easily forgotten.

Dramatizations help children get over their shyness. Some boys and girls who at first felt nervous to face the audience even for

a minute were later found to act freely on the stage for hours. This no doubt encourages other nervous children from amongst the observers to play a part on the stage.

In a school drama not only the actors, but many others work co-operatively for days together to prepare for the final show. There are lots of things to be attended to. A stage is to be built; lighting and seating arrangements are to be made; a mike is to be procured if it is not available in the school; costumes are to be made or collected; invitation cards must be printed and distributed. For such a variety of jobs the co-operation of a large number of students from different classes is essential. Besides the values discussed above there are other noticeable benefits particularly for those who participate in a drama. These are with regard to gait, voice control, and diction. Dramatizations help both participants and observers develop their aesthetic taste.

PLACE OF DRAMATIZATION IN SOCIAL EDUCATION

Dramatization has a very important place in any social education programme. Villagers have a natural liking for dramatic performances and they are prepared to work for hours after days' hard work in the fields. This natural liking of villagers should be fully exploited by Social Education Organizers. It is no doubt easy for the social worker to arrange a film show in the village which may have great educational value, but a drama serves quite a different purpose. It keeps a large number of villagers engaged in useful and agreeable activities over a period. Men and women, boys and girls, old and young work cooperatively day after day to prepare for the final show. They learn to manufacture useful articles from waste material. They cultivate self-discipline in a variety of ways. The Social Education Organizer should bear in mind that the success of his work will depend to a large extent on the tact and sympathy he shows in handling the actors and workers.

A suitable script for village audience is not generally available. In most cases it is to be written. It should be remembered that villagers like to see their daily life portrayed before them. They

are not interested in affairs of large cities. A rural drama should deal with simple problems of life which can be easily followed by all. In writing a play for villagers the vocabulary of that particular region should be used as far as practicable. And there is another important point which should be borne in mind. In our country particularly in villages people have a strong liking for religious themes. So, a religious touch in a rural drama adds to its effectiveness.

MAJOR TYPES OF DRAMATIZED EXPERIENCE

The Play

We need not discuss in detail this common form of dramatization. We have all seen carefully rehearsed plays by school children



A play by the C.L.T. children in Calcutta. (Courtesy : the C.L.T., Calcutta)



A play by the boys of the Hindi High School, Calcutta

or adults on a stage using costumes and scenery. Every participant memorizes his or her part in the plot which is predetermined. We have discussed earlier the contribution of this type of dramatization to learning situations from the lowest to the highest level of education.

The Pageant

The pageant is more spectacular than the play. In it more importance is paid to setting and action and less to speech. In schools history, geography, and civics can all contribute to build a pageant. It has no place in the classroom as it needs a great deal of time and energy. A very interesting and instructive pageant was witnessed in a Calcutta theatre a few years ago showing the machine age in India. The background music and the setting contributed equally to its success.



A pantomime by the children of the Hindi High School, Calcutta

The Pantomime

In a pantomime the performers express themselves through bodily actions only usually to the accompaniment of music. No announcement is made to give the audience any clue to what is presented.

There are many problems and situations in our everyday life which pantomimes can represent better than any other form of dramatization. Pantomimes are particularly valuable for children who are shy as they are not required to speak before the audience. This form of dramatization is also useful in developing bodily expression. One advantage of the pantomime is that it can be performed in the classroom in ordinary dress.

The Tableau

In a tableau the performers neither speak nor move. It can effectively show a historical event or a social problem if it is properly posed with appropriate costumes. Tableaux are usually accompanied with music. This form of drama is popular in France where the word 'tableau' means a picture.

A tableau like a pantomime is generally given without any announcement and the audience is to guess what is portrayed. This is very interesting and valuable.

PUPPETRY

Puppetry is an old and popular art in Indian villages though its use has considerably decreased in recent years on account of the popularity of theatres and cinemas. The use of puppets is also ancient in countries like Indonesia, China, Japan, Siam, Egypt, and Greece. Puppets were also in use in religious plays at some places in Europe during the Middle Ages. Some people believe that the word 'marionette'—puppets pulled by strings—came from the moveable wooden figures of the Virgin Mary. During the past two decades puppet-shows have grown in popularity in Great Britain and

America. Several universities in America have courses in different aspects of puppetry, and in Great Britain teachers are receiving instruction in the making and playing of puppets in training colleges.

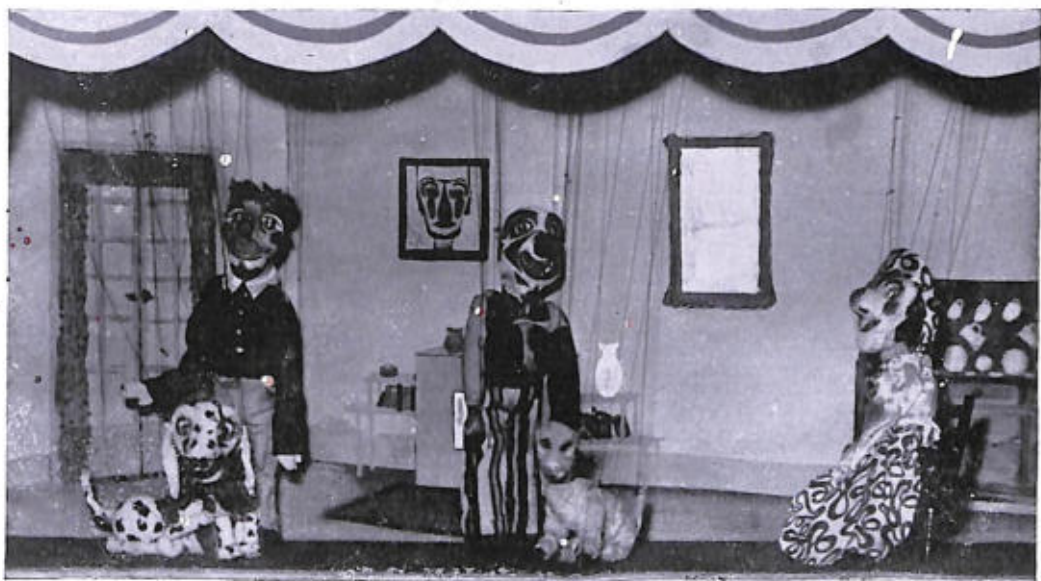
A Craft Worthy of Revival in Indian Villages

Puppetry is a craft worthy of revival in our villages. People sometimes enjoy a puppet play more than a regular drama. And a puppet play does not require expensive costumes and stage equipment. So it can be used to good advantage in the education of village people. In it a large number of people can participate as



The necessity of vaccination against small-pox is stressed by means of a puppet-show (hand-puppets) in a Community Development Block in Bihar. (Courtesy of the United States Information Services)

speakers, manipulators, and makers of puppets. The making of puppets and their dresses can be a useful leisure-time activity for both men and women.



*In Great Britain puppet-making and puppet-playing are regular features of schools.
(Courtesy Bronte House, Yorkshire, England)*

An Effective Audio-Visual Aid in Schools

The craft of puppetry can be an effective aid to learning, but unfortunately little use of puppets is made by schools in India. In Great Britain and America puppet-making and puppet-playing are regular features of schools. It is encouraging to note, however, that many educationists in India today realize the important value of puppetry in education and they are making efforts to introduce this old Indian art in schools. The Children's Little Theatre which gave a number of puppet-shows in Calcutta this cold weather organized some time ago for school teachers a short course of instruction in the making and playing of puppets. It would be very helpful, however, if the National Institute of Audio-Visual Education in Delhi could arrange similar courses to popularize this old Indian art of tremendous educational value. It is hoped also that training colleges in India will soon include puppetry in the course on Audio-Visual Education. A start has already been made in this respect by the Government Training College at Calicut.

History, geography, literature, art, and handicraft can all contribute to a puppet play. When a puppet show is given by a

class, practically all children work co-operatively for days together making puppets, costumes, scenes, and many other things for the performance. And they love to do all these which they do with simple tools and inexpensive materials.

Children develop their imagination by providing the puppets with speech ; they increase their manual dexterity through manipulation of the figures. Great benefit can be derived also from the making of puppet figures to illustrate lessons.* History lessons, for example, will gain considerably in interest if miniature figures are made to show the costumes and weapons of the period under discussion. Story lessons in the Primary School become more effective when some interesting incidents are portrayed through three-dimensional figures.

Types of Puppet

(i) Hand-puppets

Hand-puppets are the simplest of all puppets. They fit in the hand like a glove and are operated from below by fingers.



These are all hand-puppets (Courtesy : the C.L.T., Calcutta)

(ii) Rod-puppets

These are operated from below the stage by a combination of rods and strings.



The rod-puppet
(Courtesy : the C.L.T., Calcutta)



The string-puppet
(Courtesy : the C.L.T., Calcutta)

(iii) Marionettes or string-puppets

These are figures with movable limbs and are operated from above by means of strings.

Important Points in Selecting or Writing a Puppet-play

(i) In selecting a puppet-play it should first be borne in mind that puppets are suitable for those actings which are not very easy

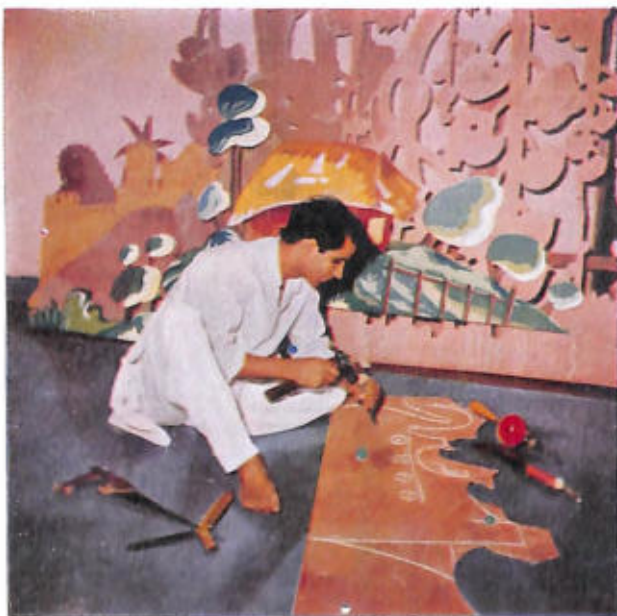
for children to perform on the stage. Our folk tales abound in characters like giants, demons, witches, and animals which puppets can represent better than living actors.

(ii) Secondly, in choosing a puppet-play we must see that there is a great deal of action in it. Children as well as adults love to see the puppets do things. A puppet-show is likely to be dull if the puppets remain stationary for long in a scene.

(iii) The play should have plenty of music and dancing as in a regular drama. A tape recorder, if available, can be used to good advantage to provide background music.

(iv) The age, background, and tastes of the students should be taken into account in writing or selecting a play.

(v) A puppet-play should be a short one. In a long play there is a risk of showing too much action. And there is another risk—if some puppets particularly marionettes are used too much, they may get out of order.



*These beautiful scenes for the stage are being made with simple tools and materials.
(Courtesy: the C.L.T., Calcutta)*



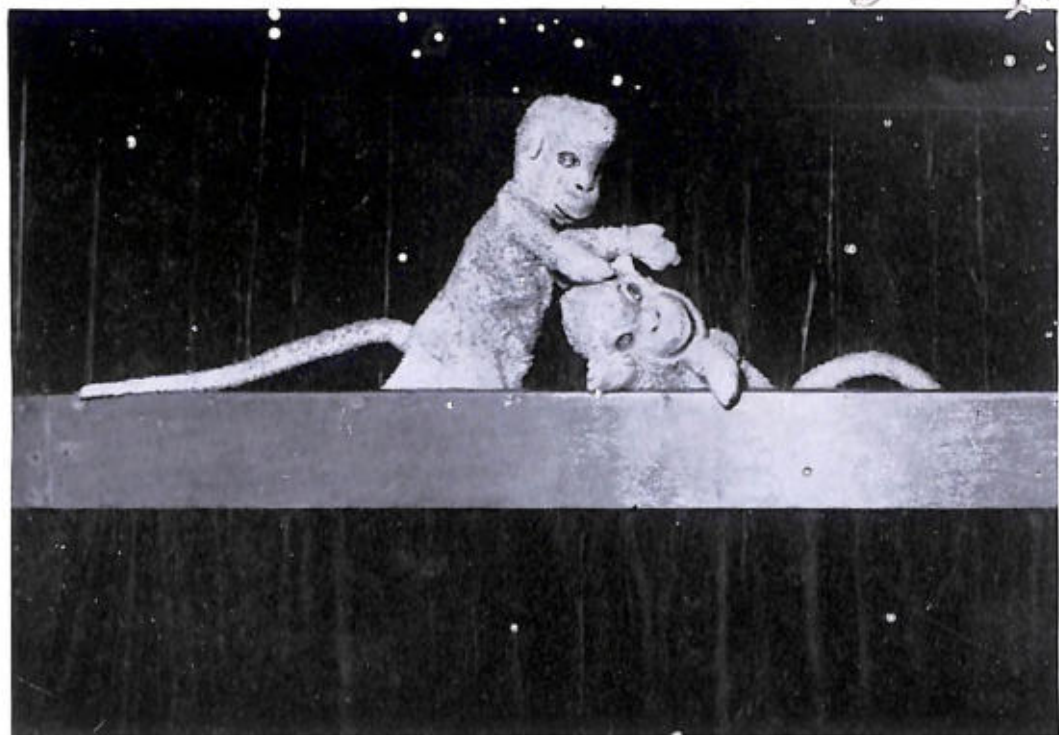
Children love to make puppets. (Courtesy : the C.L.T., Calcutta)

Construction of Puppets and Scenes

Puppets and scenes can be easily made by any one without high artistic skill if the necessary materials and tools are at hand. And these are simple and inexpensive things. Tin cans, shoe boxes, coconut shells, old newspapers, cardboard, plywood, cotton, wire, and one or two tins of paints are some of the things which are generally used in the making of puppets. And the stage and scenes can be made too by teachers and students with such simple materials as cardboard and pieces of ordinary wood and coloured cloth.

SHADOW-PLAY

Like the puppet-show the shadow-play is an old and popular art in India. It can be used to good advantage in schools both for senior and for junior pupils if it is based on lessons.



Interesting scenes from puppet-shows by the C.L.T., Calcutta



The story chosen for a shadow-play should be one with plenty of action as in a puppet-play. A proper stage with scenes adds to the effectiveness of a shadow-play. A shadow-play may be with or without speech, but music is essential to both.

Types of Shadow-play

There are two types of shadow-play. In one type shadows of men and women in action are thrown on a screen. They act in front of a light and their shadows fall on the screen. The characters keep very near the screen of course. Masks are used to show demons, witches, or other unnatural things.



A mask is used to show a demon in a shadow-play by the children of the Hindi High School, Calcutta

Another type of shadow-play which was much in use in old days in India is given with the help of thin cardboard or plywood cutout puppets (in old days as stated earlier translucent leather was used for this purpose) manipulated behind the screen with rods and strings. Movement can be shown also by keeping several cutouts of the same character in fixed positions and then throwing light on these from one end to the other.

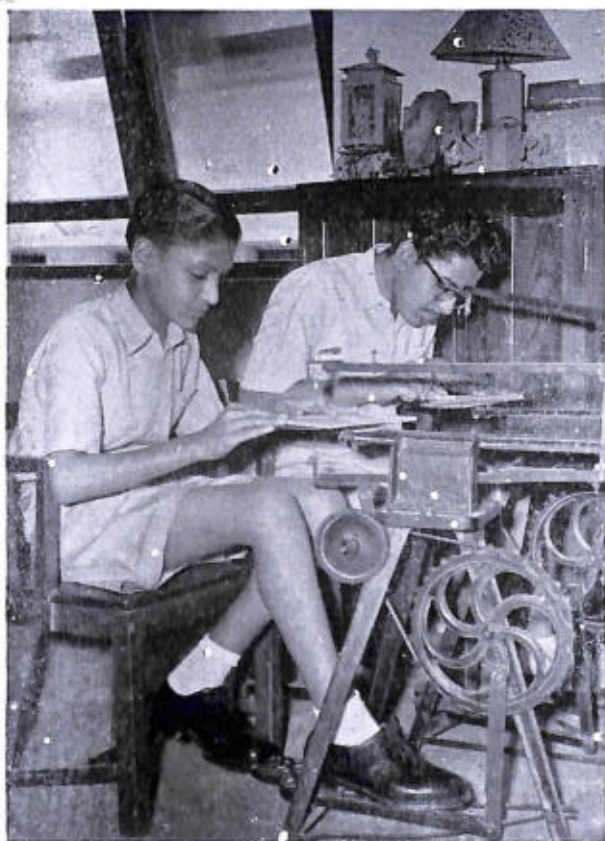
The usefulness of this type of shadow-play in education is now being realized again in this country and some schools are presenting interesting stories with shadow cutouts. One of the most magnificent shadow-plays with simple cardboard cutouts witnessed in India in recent years was presented by the children of Hindi High School in Calcutta. About sixty children of junior classes worked co-operatively for about ninety days under the able guidance of their Art Teacher. A remarkable feature of this show was the visualization of the abstract philosophical ideas of the Geeta. The unique success of this venture is a convincing proof that simpler ideas connected with ordinary school lessons can be easily portrayed through this medium.



A unique scene from Geeta-Bhava Darshan, the magnificent shadow-play staged by the children of the Hindi High School, Calcutta



Scenes from Geeta-Bhava Darshan by the children of the Hindi High School, Calcutta



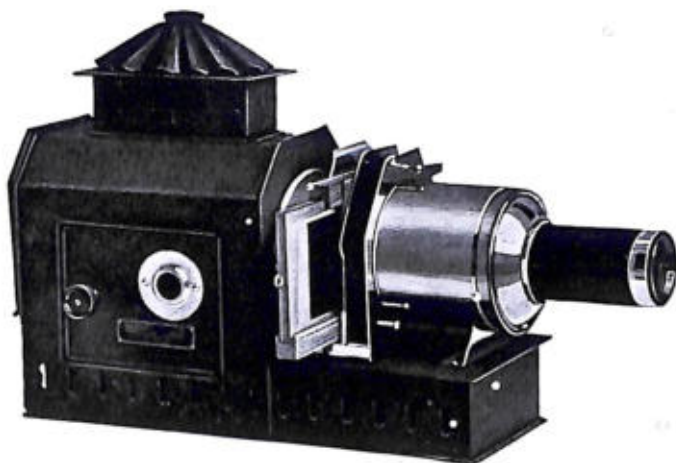
*Boys of the Hindi High School
making shadow cutouts*

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SLIDES AND FILMSTRIPS

THE MAGIC LANTERN (OR THE SLIDE PROJECTOR)

The magic lantern or, as it is sometimes called, the diascope has been used over a long period of years by many Indian schools and social education centres. It was invented about three hundred

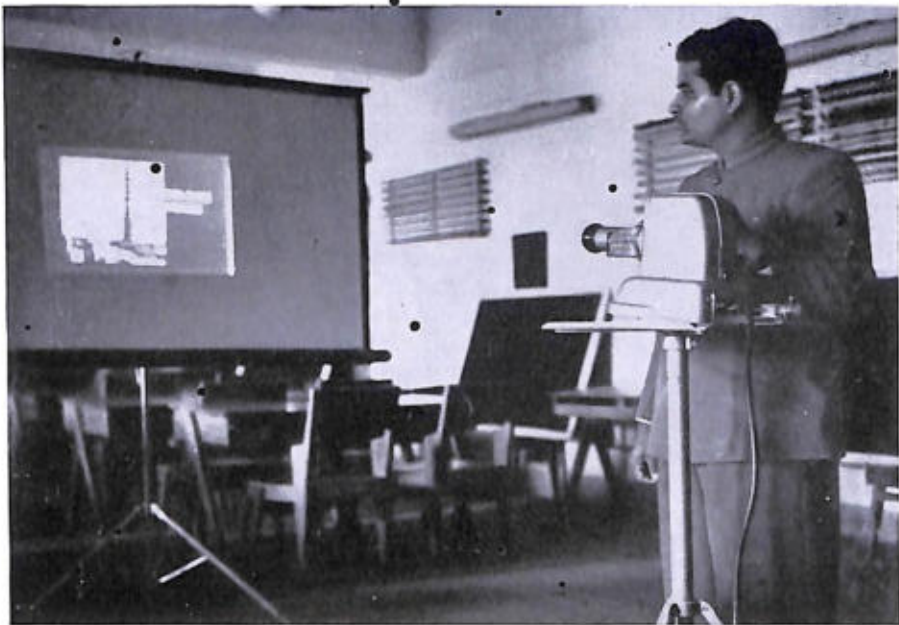


*This magic lantern can use acetylene gas as well as electric lamp.
(Courtesy : Calcutta Pure Drug Co.)*

years ago. The material to be shown is reproduced on a transparent $3\frac{1}{4}'' \times 4''$ or $2'' \times 2''$ slide. The magic lantern which generally projects $3\frac{1}{4}'' \times 4''$ slides is bulky and weighs about thirty pounds. The apparatus which takes $2'' \times 2''$ slides is much lighter and smaller and it has generally the device for the projection of filmstrips. The advantage of the apparatus big or small is that its operation is very simple and it does not require complete darkening of the room. The slides are very easy also to make. The simplicity of the instrument has led some Indian manufacturers to make miniature magic lanterns to be used by children as toys.

A Useful Aid in Village Schools in India

Though magic-lantern slides are bulky, fragile, and relatively



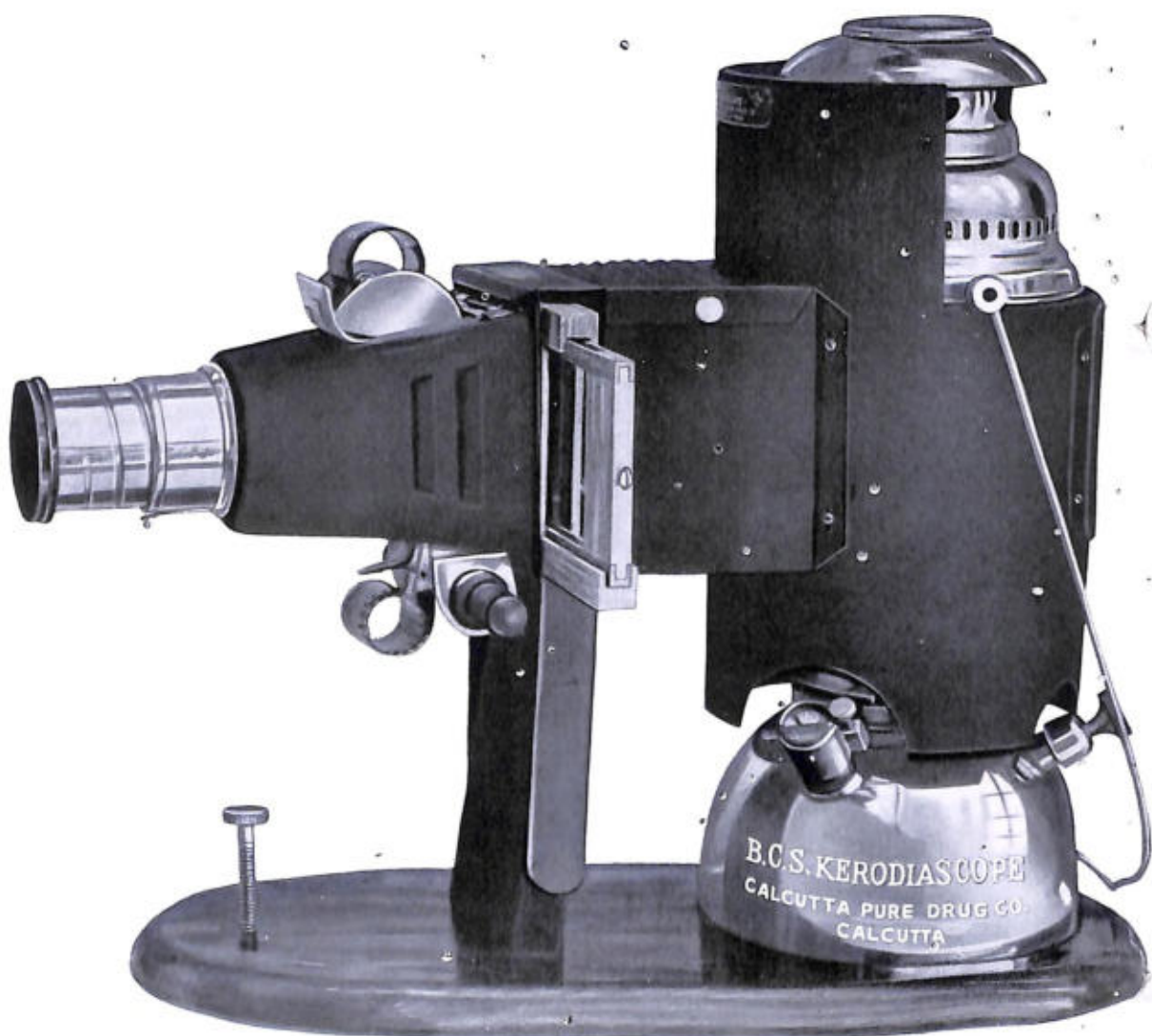
A 2" x 2" slide projector in use in the National Institute of Audio-Visual Education, New Delhi. (Courtesy : NIAVE)

expensive, the lantern with an acetylene or petromax lamp can prove very useful in village schools in India where no electricity is available. If the State Governments start slide libraries in district towns for issue of slides to neighbouring village schools, it will not be difficult for many village schools to use the apparatus regularly. Excellent slides both in colour and in black and white are now available at cheap rates from commercial sources and the bigger schools in villages might have their own library of slides.

Magic Lantern Slides in the Education of Villagers

As inexpensive slides of good quality are now available from commercial sources on a variety of rural welfare subjects, Social Education Organizers should be encouraged to make use of the magic lantern. Petromax magic lanterns of dependable quality are now manufactured in India and their prices are quite reasonable. These projectors have generally the device for the projection of filmstrips. Social Education Organizers should be encouraged also

to make their own slides to meet specific teaching situations. Little artistic ability is required in the making of slides, but a few days' training will be helpful. It is hoped the Social Education Organizers' Training Centres will include this training in the practical course on Audio-Visual Education.



A petromax magic lantern manufactured in India. (Courtesy - Calcutta Pure Drug Co.)

THE FILMSTRIP

A filmstrip is the most inexpensive medium of mass communication yet devised. It is a continuous strip of 35 mm. non-inflammable film consisting of individual frames or pictures arranged in sequence, usually with explanatory titles. The filmstrip can have as many as one hundred frames, but the usual number is about sixty. The pictures may be single or double frame. In case of single frame, the picture is about $\frac{3}{4}$ " $\times$ 1" and in case of double, 1" $\times$ 1 $\frac{1}{2}$ ". The single

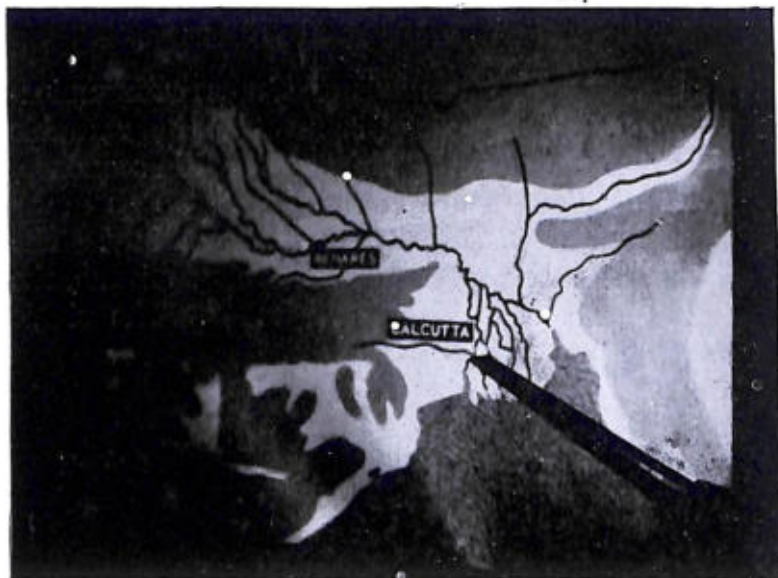


*A double-frame filmstrip
(Courtesy : the U.S.I.S., Calcutta)*



*A single-frame filmstrip
(Courtesy : the B.I.S., Calcutta)*

frame is most commonly used and it is run through the projector vertically. The double frame picture is generally printed horizontally and it is run through the projector horizontally. Some projectors have swivel heads so that pictures may be shown vertically or horizontally.

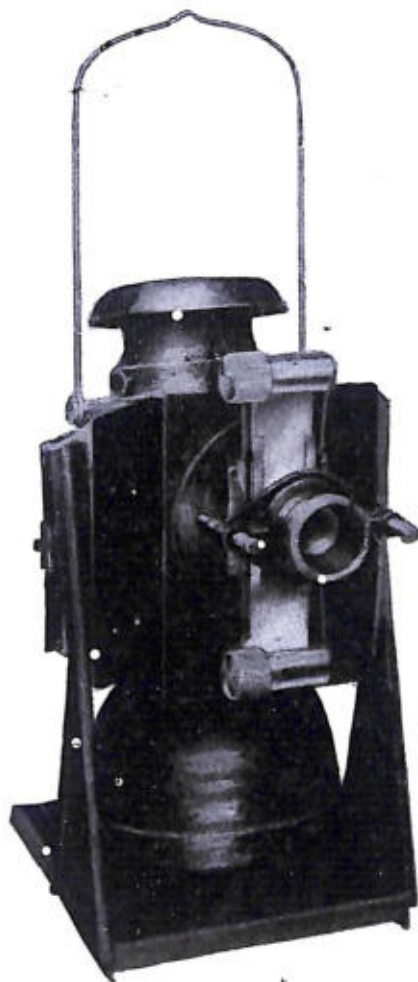


*A frame from the
Common Ground
filmstrip "The
Ganges Basin"*

The filmstrip projector came into being about 1920 and has grown rapidly in popularity. It became particularly popular during the last World War when it was widely used by army training centres.

Advantages of Filmstrips

The filmstrip is one of the finest learning aids and should be used by all educational institutions in India. The filmstrip projector is much cheaper than a film projector—a fairly good projector costs about Rs 350. There are now excellent filmstrip projectors with kerosene lamps for use in rural areas where electricity is not available. The filmstrip projector is not very different in principle from the old magic lantern, but its chief advantage is that instead of individual slides to be inserted or removed by hand, a strip of film containing a large number of pictures can be used mechanically. It is, therefore, much easier to use. The projector is much lighter also than the magic lantern, and the strip of film which is used in it, unlike heavy and bulky lantern slides, is light and compact. Moreover, the strip has no risk of breakage. The strips are inexpensive also and so many schools and social education centres can easily build up libraries of those filmstrips of which they are likely to make regular use. As



*The Keroscope (a filmstrip projector with a kerosene lamp)
ready for use*

in the case of the magic lantern, the filmstrip projector does not require complete darkening of the room, and the strips, like the slides, can be made without much difficulty if the necessary apparatus is made available.

Using the Filmstrip

Suggestions for using the filmstrip do not really differ from those already given in connexion with audio-visual aids in general. The following points may, however, be noted.

The first step in using a filmstrip is to know its content. This can be done by previewing the strip and reading the accompanying notes. The strip to be used should have definite value in relation to the topic under study. There is little point in using a strip if it just touches upon one or two unimportant points in connexion with the topic.

The strip should be properly introduced. The teacher should tell the class what the filmstrip is about, how it relates to the topic under study, why it is being shown, and what items should be particularly looked for in the strip. It is a good practice to write all the main points in the strip on the chalkboard.

The strip should be properly presented. A filmstrip projector is quite a simple machine and the person who uses it should be able



*The interest that a filmstrip can arouse in children is obvious here.
(A filmstrip lesson in the Secondary Department of the
Sugendranath Institution, Calcutta)*

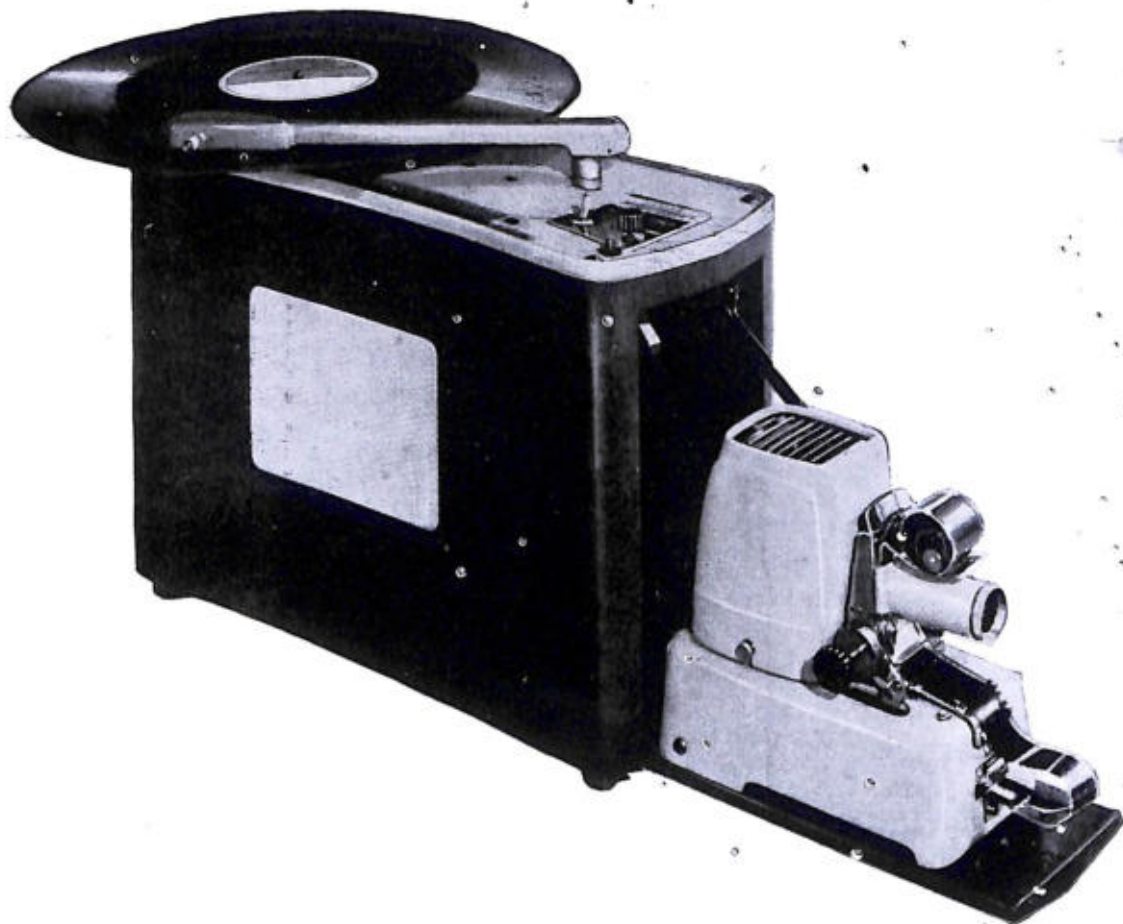
to operate it with ease and confidence. It is wise to check the projector and thread the strip before the class meets. If for the sake of ventilation the room cannot be made sufficiently dark, make the

picture smaller to ensure sharpness. And if the room cannot be darkened at all as it sometimes happens, increase the wattage of the bulb or the power of the lamp, make the picture smaller, and use a shadow box round the screen. A makeshift shadow box can be made of cardboard. These devices are better than rear projection with the help of mirrors. If available use a beaded screen, though it should be noted that a beaded screen is unsatisfactory for those seated at the sides of the room. Each picture should be on the screen long enough for thorough investigation. Some pictures of course make their point so quickly that only a glance is needed. Questions and discussion should be encouraged during the showing of the strip. This of course is not possible with sound strips.

The follow-up of a filmstrip can take many forms depending upon the nature of the subject. A general discussion and tests, oral or written, are usual follow-up activities. The filmstrip may be shown again if necessary to emphasize some special points. Sometimes a single frame is projected and used as a basis for written or oral composition. In some subjects particularly in the junior classes creative activities like drawing or painting are based on the filmstrip. If the filmstrip is on some technical subject involving demonstrations of skills, the follow-up should include actual practice of techniques shown. Sometimes in some subjects a filmstrip may arouse an interest in a school journey or a field trip. Since the desire to learn may not last long, such trips should be undertaken as early as possible.

Two Types of Filmstrip

There are two types of filmstrip—the silent and the sound. A filmstrip which has a synchronized sound recording accompanying it is called a sound filmstrip. A faint ring of a bell indicates when the picture on the screen is to be changed. The recorded voice and the music will undoubtedly arouse additional interest. The machine is under complete control at all times and so, if desired, a particular picture can be held on the screen as long as needed by stopping the record. The record can also be stopped where the teacher wants his pupils to make their own investigation without any explanation.



*Educational institutions in India which can afford to have a film projector should not miss this latest device in filmstrip projection.
(Courtesy : Electro Engineering Mfg. Co., Detroit, U.S.A.)*

The sound filmstrip was introduced in the U.S.A. about thirty years ago and since its introduction the device has been used by commercial firms and educational institutions. There is a new type of projector available now which advances frames automatically from inaudible tone signal on the record in synchronism with the spoken message without any aid or attention of the operator. The frames can be changed also manually when non-automatic records are used.

**PROJECTIONS WITH THE EPISCOPE, THE TACHISTO-
SCOPE, THE STEREOPROJECTOR, THE OVERHEAD
PROJECTOR, THE CEILING PROJECTOR, AND
THE MICROPROJECTOR**

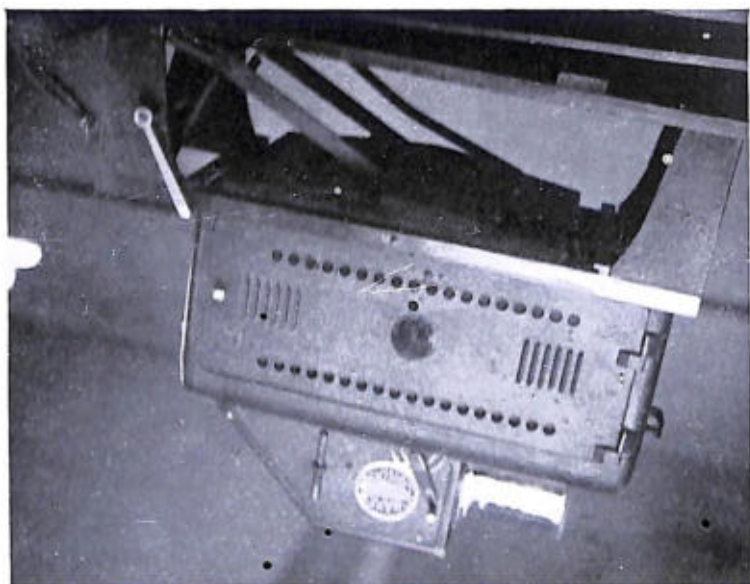
THE EPISCOPE

The episcopes, known in America as the opaque projector, is an instrument for the projection of any nontransparent material such as pictures, photographs, maps, diagrams, coins, stamps, leaves. The principle is quite simple. The flat item is placed in the projector through an opening of about 6"×6". Some episcopes have larger openings for the use of wider range of material. By means of a strong light, and a mirror placed at 45° the image is reflected on the screen.

An Aid of Great Educational Value

The instrument is of the highest value in educational work and all schools in our country where electricity is available should have it. The great advantage of the episcopes is that unlike other projectors it does not require any prepared slide or film. Anything printed, written, or drawn can be projected once the instrument has been secured. And whether for junior or senior classes there is a great mass of material in books or magazines which when projected on the screen can be of great educational value. In the Primary School, for example, a page from a book can be magnified on the screen in the classroom and all children can read it together. When children are learning to write, some of their common errors can be pointed out by projecting samples of their writing. Many Indian periodicals now abound in coloured geographical pictures and these, when projected and magnified on the screen, can be of great help in a variety of lessons. Teachers should encourage children to collect suitable material for projection.

Although the episcopes is very helpful from the educational point of view, it has some disadvantages. The apparatus is rather heavy and bulky, and so it is difficult to carry it from one room



This episcopes can project flat pictures as large as 8" x 11"

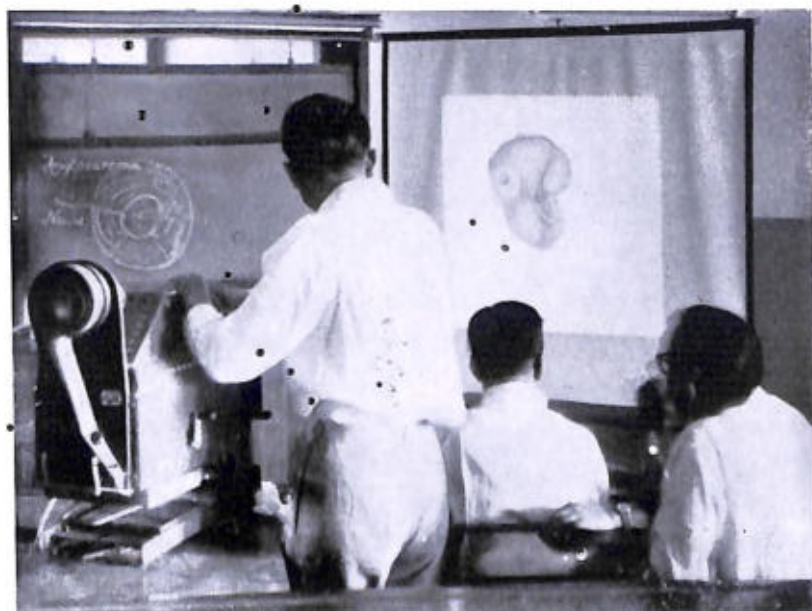
to another. This difficulty, however, can be solved by fixing the instrument in one place, e.g., the geography room or the science room. Another difficulty is that as the episcopes uses reflected light, a completely darkened room is essential to its projection. This is indeed a serious disadvantage for a hot country like India, but if the room has adequate provision for ventilation, there is no reason why it cannot be properly darkened for the short period the episcopes will be used.

THE EPIDIASCOPE

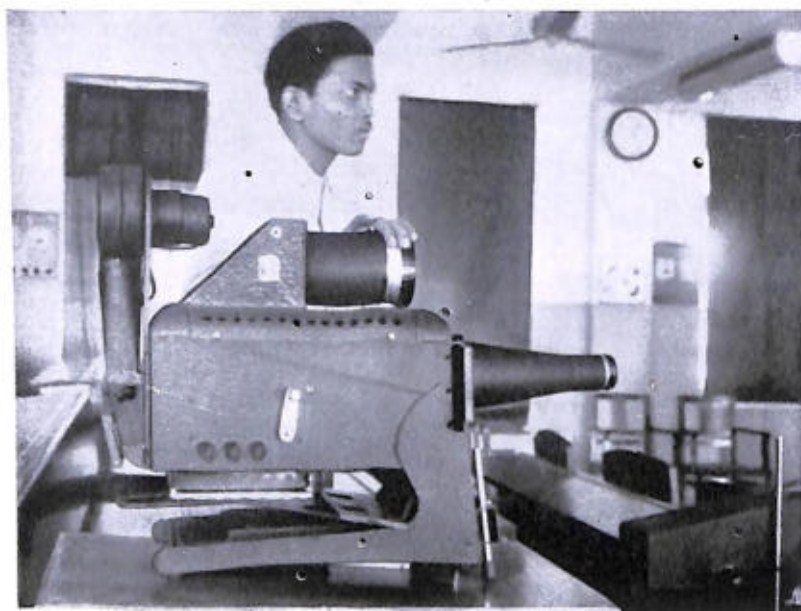
The epidiascope, as the name indicates, is a combination of episcopes and diascope (magic lantern). Though the apparatus is rather bulky and heavy, it is a great advantage to have a machine that can project non-transparent material as well as slides and filmstrips.



*These Social Education Organizers
are receiving instruction in the
operation of an epidiascope.
(Courtesy of the S. E. O. T. C.,
Belur Math)*



*An epidiascope is an invaluable teaching aid in medical, engineering,
and agricultural colleges. The Institute of Medical Education, S. S.
Karnani Memorial Hospital, Calcutta regularly uses the apparatus.*

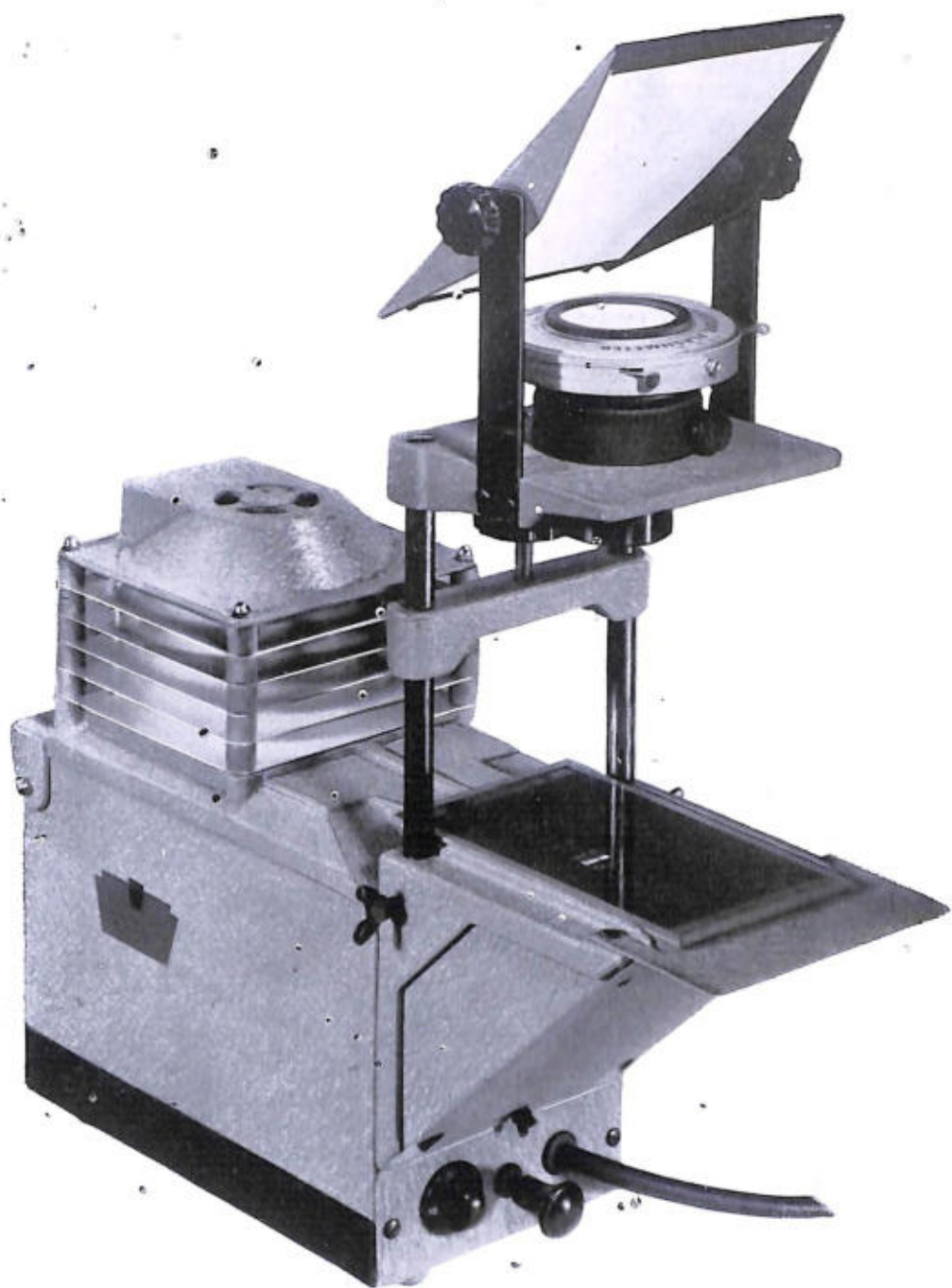


The newer models of epidiascope which use lamps of higher power do not require complete darkening of the room. (Courtesy : The Institute of Medical Education, S. S. Karnani Memorial Hospital, Calcutta)

THE TACHISTOSCOPE

The name tachistoscope is from two Greek words 'tachistos' meaning quick and 'skopein' to look at. With the help of a camera shutter (more durable than a photographic shutter) attached to a projector, this apparatus flashes exposures of words, phrases, sentences, numbers, and pictures on the screen at from one full second, through several intermediate exposure times, to $1/100$ of a second. As perceptual skill increases the speed of flash is increased accordingly with the help of the flash meter.

A scientific development of the flash card, the tachistoscope helps children perceive more at each eye fixation. The average



The Tachistoscope (Courtesy : Keystone View Co., Meadville, Pa, U.S.A.)

student can read with understanding much more rapidly if he cares to do a little practice every day and the tachistoscope is an excellent device for this purpose. Many children have got over their lazy habits of seeing with the help of this apparatus. The device is valuable also for increasing vocabulary and for teaching spelling and arithmetic. It is used also for accuracy of perception of short-hand forms.



Mask for Exposure of Quarter Section of Slide



Mask for Digit, Word, or Phrase Exposure



Mask for Full-Sentence Exposure

(Courtesy : Keystone View Co., Meadville, Pa, U.S.A.)

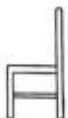
It is not at all difficult for teachers to make necessary tachistoscopic materials for use in classes. In the U.S.A. tachistoscopic slides on a variety of learning situations are available from commercial sources. These slides are for multiple exposures varying from 10 to 40 exposures of forms, digits, words, phrases, or sentences.

For the initial development of speed in perception, slides on familiar things are very useful. These are projected with the help of the quarter-size mask.

As training goes on, exposures are made of digits, words, and phrases by means of the half-slot mask.

In the final stage of training, complete sentences are exposed through the full-slot mask.

3 Keystone Tachistoscope Series
Familiar Forms



KEYSTONE VIEW COMPANY
STUDIOS, MEADVILLE, PA. - U.S.A.

4-5 Keystone Tachistoscope Series
Jumping Digits

25 8	5 0 3
7 35	2 77
60 6	3 1 2
3 94	4 11
92 5	9 3 7
8 73	6 5 1
11 4	0 8 8
25 3	1 7 3
32 1	4 1 2
4 36	7 3 2
60 9	3 1 6
98 3	6 2 3
3 05	6 0 5
00 6	2 1 9
7 03	1 6 3
69 1	7 2 8



KEYSTONE VIEW COMPANY
STUDIOS, HEADVILLE, PA. - UNIT 8

N.B.—Where there are two columns as in most cases, we simply revolve the slide around and start again with the item which is at the bottom of the right-hand column.

6 Keystone Tachistoscope Series
Perceptual-Span Development

361957	496852
819532	183746
149761	895452
276494	674531
485963	435689
143569	912345
484263	563978
836425	679154
532576	796531
548237	824793
218735	683159
239745	814563
632748	246815
763894	479231
782379	397428
364717	135697
134762	329682
376987	472747
225368	943762
924761	274379



KEYSTONE VIEW COMPANY
STUDIOS, MEADVILLE, PA. • UNIT 6

2 Minnesota Efficient Reading Tachistoscope Series
Precept: Detain

pre- means before	to keep from doing
as in prefix	holding back
prejudice	holding fast
precocious	lieutenants
premonition	sustaining
preposterous	retention
predilections	retinues
use words with pre-	tenable
going before	tenant
make ready before	to have or hold
introductory music	deprive of water
capere means	look down upon
take or seize	put down in words
as in captive	going down
receive or accept	defer and prefer
taking ways	derogatory
taking much	delirium
ability to take	deceive
eye-taking title	depose
take from bondage	away down from



KEYSTONE VIEW COMPANY
STUDIOS, MEADVILLE, PA., U.S.A.

57 Keystone Tachistoscope Series
Phrases and Sentences—Level IV

a famous dentist	without interest
however perfect	may offer to lend
ought to refuse	the French nation
to borrow a belt	to club a snake
for neat trousers	of a fierce jungle
indoors in June	within the bounds
it wasn't cloudy	for hauling lumber
even in January	tickled by a dime
to scatter crumbs	you fell in a heap
containing jelly	just as a rag doll
on a rubber mat	from the basement
in good condition	to haul my stock
that sixth slap	coffee with cream
following my yell	to offer a member
fail to discover	I'm the twelfth
loss of a mitten	to marry a sailor
or one moccasin	single and thirty
a dangerous enemy	within our firm
appeared in court	a splendid member
lest a judge growl	although backward



KEYSTONE VIEW COMPANY
STUDIOS, MEADVILLE, PA., U.S.A.

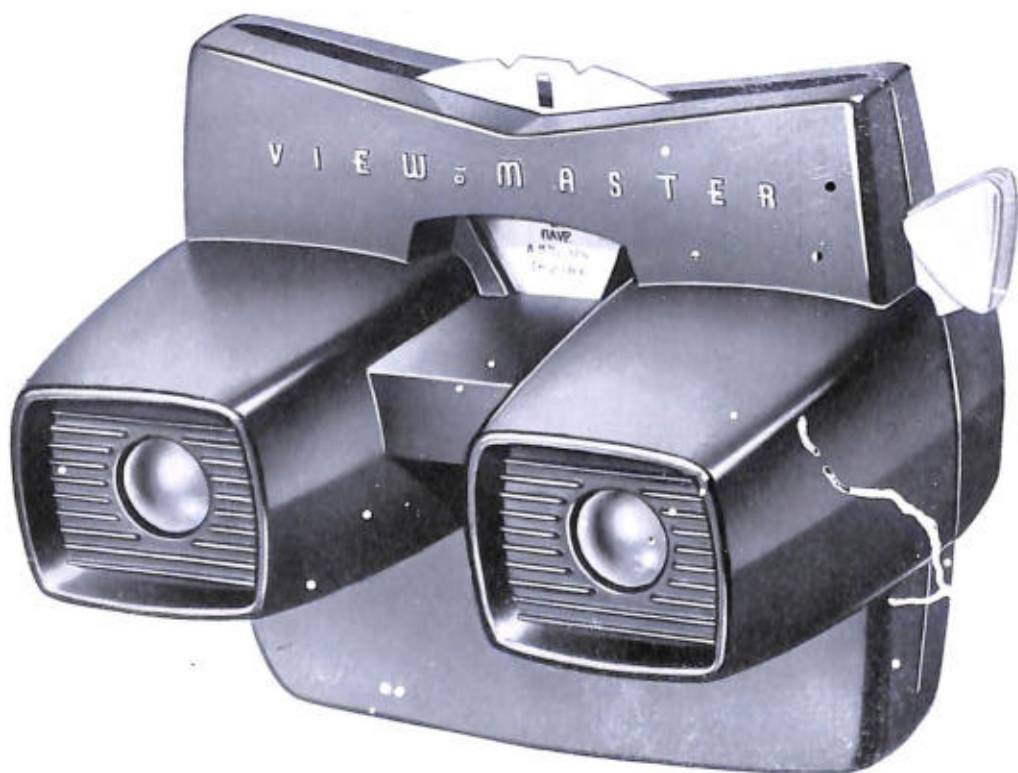
STEREOGRAPHS AND THE STEREOPROJECTOR

For about a decade after the first World War educational institutions in India as well as in other countries made considerable use of the hand stereoscope. Almost all schools in cities like Calcutta, Bombay, and Madras acquired the viewing equipment and numerous stereographs.

The stereograph consists of two pictures of the same subject taken from slightly different angles with a camera having two lenses. The lenses of the stereoscope merge the two photographs into a single highly realistic three-dimensional picture.

The use of the stereoscope declined steadily from about 1930 mainly because it was an individual equipment. After the second World War inexpensive plastic viewers and excellent 16 mm. coloured transparencies mounted on a paper disc appeared in the market, but these became popular in some homes only in this country.

A projector is now available with the help of which stereographic slides can be used for group viewing. Special polaroid glasses,



The well-known Viewmaster stereoscope (Courtesy : Sawyers Inc. Portland, Oregon, U.S.A.)

however, are to be worn to have a clear three-dimensional view. A special aluminium screen is to be used also. The special glasses and the special screen are no doubt limitations of this aid, but certain subjects particularly geography, physics, and mathematics are so wonderfully enriched through three-dimensional images that we can very well ignore these minor drawbacks. As Edgar Dale says : "why do teachers not make more adequate use of stereographs in geography, physics, social studies ? The Pyramids, the Acropolis, or Notre Dame Cathedral takes on an aspect of reality in a stereo-



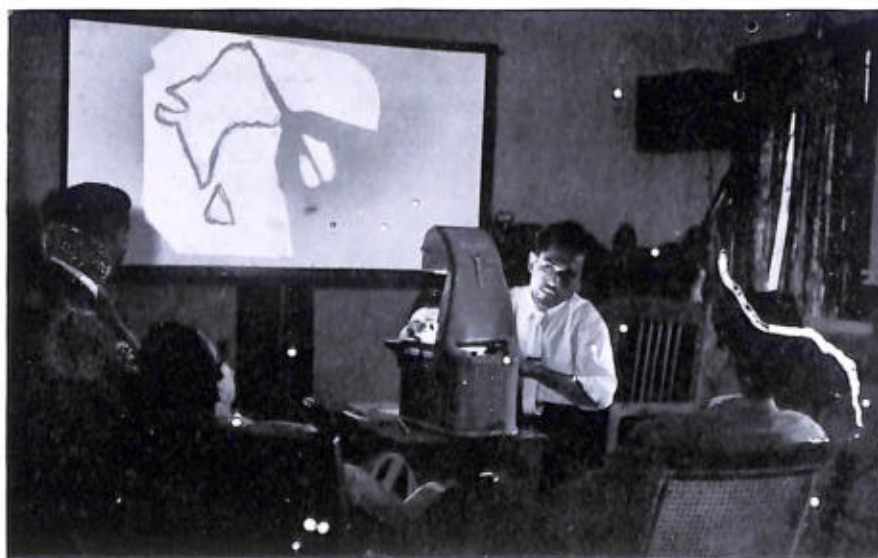
The Stereo Projector. (Courtesy : Sawyers Inc., Portland, U.S.A.)

graph that no flat pictures can rival and when color is added the student is practically there.””

A cheaper equipment including the metal screen and spectacles is now available for three-dimensional projection. There is also a comparatively inexpensive twin-lens easy-to-use camera for making 2"×2" coloured slides. The lenses can be focused simultaneously. It is hoped the National Institute of Audio-Visual Education will soon produce three-dimensional coloured slides on suitable subjects pertaining to this country to impress on our teachers the great need for the dimension of depth, in many learning situations.

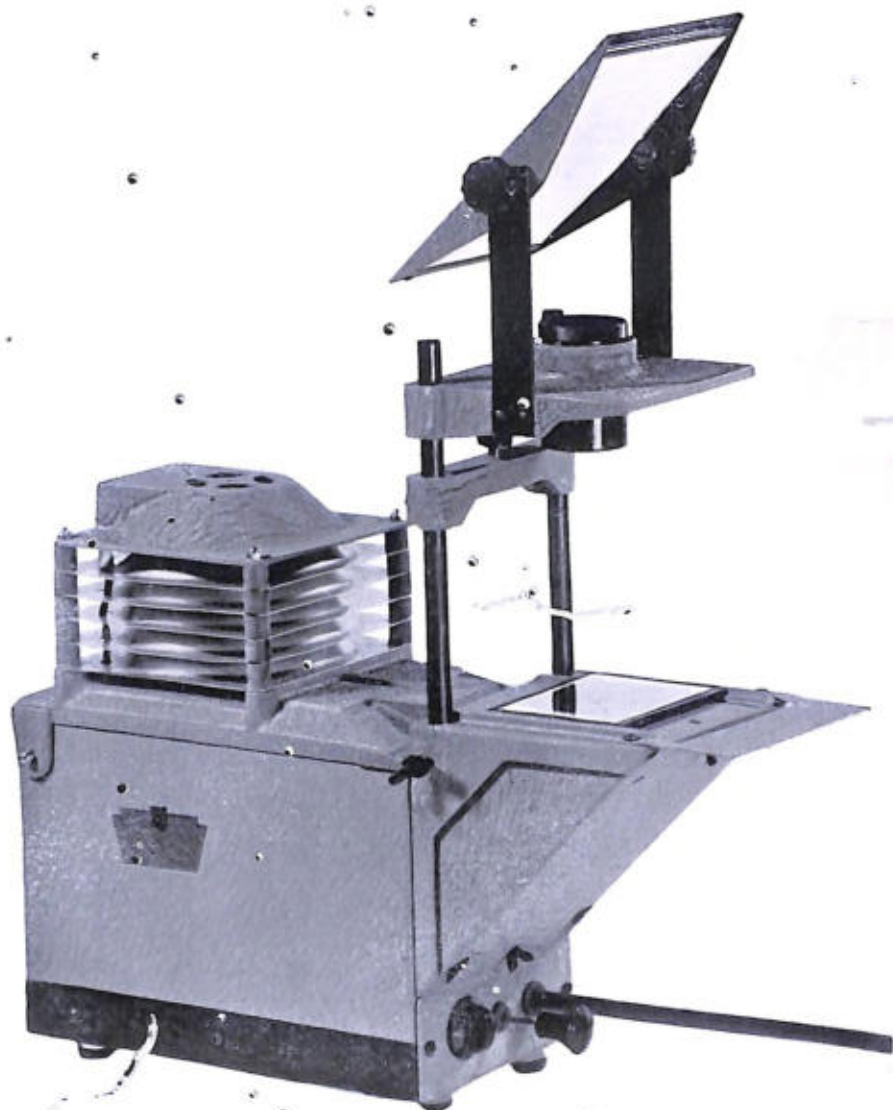
THE OVERHEAD PROJECTOR

One of the latest types of projector is the Overhead one. It enables the teacher to face his students even while projecting something on the screen behind him. He can write or draw in the course of the lesson, and this writing or drawing is shown on the screen. As light is furnished by a powerful lamp (a 750-watt or a 1000-watt lamp) the machine can be used in an undarkened room.



A small Overhead projector in use in the National Institute of Audio-Visual Education, Delhi. (Courtesy : NIATE)

g E. Dale—Audio-Visual Methods in Teaching.



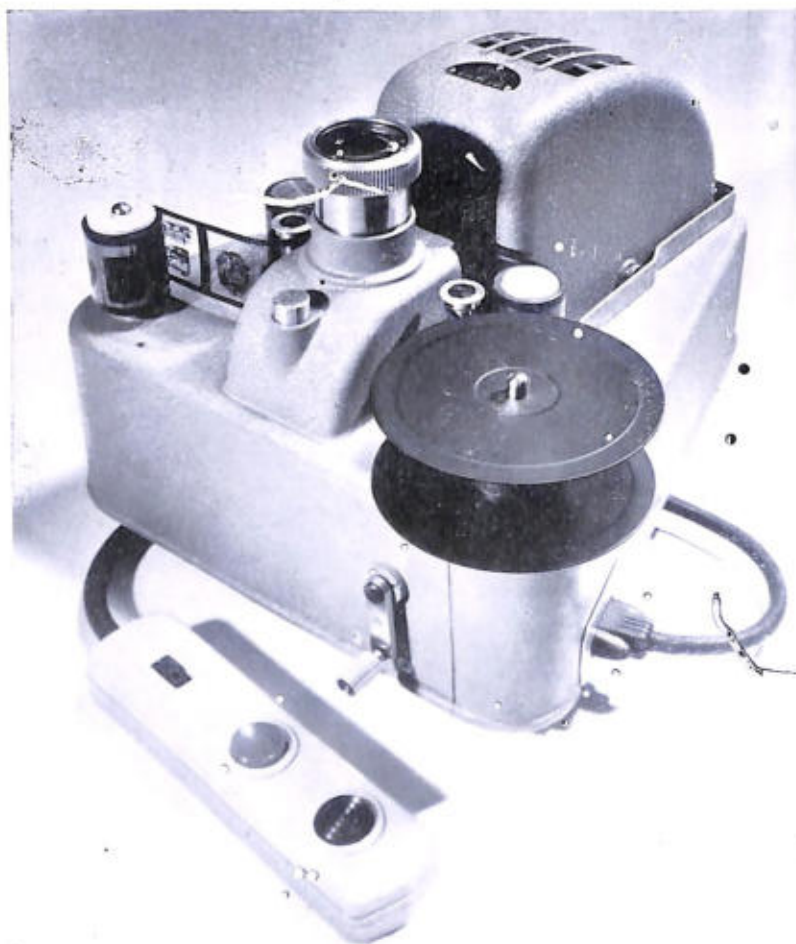
*The standard overhead projector. (Courtesy: Keystone View Co.,
Meadville, Pa, U.S.A.)*

A piece of glass varying in size $5'' \times 5''$ to $10'' \times 10''$ serves as projection stage. Drawings can be made on this glass or on a cellophane stretched over it with a wax pencil. The cellophane can be wiped easily and used again. What is shown on the screen

with the help of the overhead projector can be seen more clearly than what is written or drawn on the chalkboard. The term "Whiteboard" has been applied to this type of projection as it can take the place of a chalkboard.

THE CEILING PROJECTOR

The ceiling projector is a machine that can project microfilmed books onto the ceiling above the beds of patients who are too weak



The Ceiling Projector. (Courtesy: Projected Books Inc., Ann Arbor, U.S.A.)



*A bedridden patient reads the page of a book projected on the ceiling to a blind gentleman.
(Courtesy : Projected Books Inc., Ann. Arbor, U.S.A.)*

to hold a book and read it in the normal way. It is basically a wall projector designed to throw an image of the book page vertically on any clean light-coloured ceiling.

The pages of a microfilmed book can be easily advanced or reversed by any patient from his bed through a very simple device—a control button that can be worked with the slightest touch of the chin, the hand or foot. There is no record of a patient yet who could not operate a ceiling projector.

The idea of such a projector first occurred to Mr. Eugene B. Power, President of University Microfilms of Ann Arbor, during his visit to a military hospital in 1942 where he had noticed invalids unable to hold a book or even turn a page staring at the blank ceiling for endless days. He took his idea to the Argus Camera Company, and this firm after two years of experimentation was able to develop a satisfactory projector.

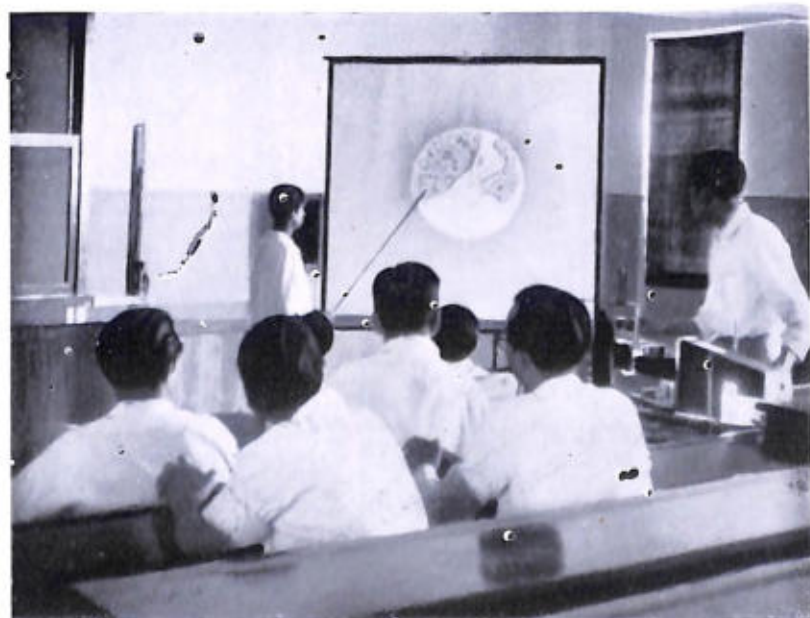
A non-profit organization under the name Projected Books Inc. was set up and this institution got permission from publishers and authors to microfilm books without paying the usual royalties. Today thousands of microfilmed books for projection on the ceiling are available in the U.S.A. on almost all subjects including textbooks for children of different age groups.

It is hoped India will soon have a similar non-profit organization for the purpose of distributing reading equipment and materials to those invalids in hospitals who have a great desire to read but are too weak to hold books in their hands. The National Institute of Audio-visual Education may well get a couple of ceiling projectors and some microfilmed books to make a start at least in the Capital. Some shows can be arranged in the Irwin Hospital which is almost next door. "Projected books are as vital to the bedridden as Braille is to the blind."

THE MICROPROJECTOR

With the help of an attachment placed on a microscope, microscopic slides can be projected so that the entire class can see what otherwise could be seen by only one person looking into the microscope. This device is of great help to teachers as without it they could never make sure that their students actually see what they intend them to see. Moreover, a microscope is not a simple equipment to handle. Students very often waste a lot of time in focusing the lens correctly and in adjusting the mirror. As the microprojector projects the things on the slide in a greatly enlarged form to the entire class, there can be useful discussion when the image is on the screen.

The microprojector has one great limitation. It needs an absolute dark room to have a clear picture. This disadvantage, however, can be got over if there is adequate provision for ventilation.



*A microprojector
in use in the
Institute of
Medical Educa-
tion, S. S. Karnani
Memorial
Hospital,
Calcutta (Photo
by Dr R. K.
Panja)*

MICROFILM AND MICROCARD

It is now possible with the help of a special type of camera to reproduce pages of books, newspapers, or manuscript on 35 mm. or 16 mm. film. The original matter is reduced to such an extent that it cannot be read without magnification. A page of a newspaper is reduced to the size of a postage stamp. To read a microfilm a reading machine is used. The operation of this machine is very simple. The user can insert the film and focus without moving from the chair. The image may be projected onto a white sheet of paper on the table or by a simple adjustment of the mirror on a screen for use by a small group.

Many libraries in India and the National Archives in Delhi have microfilmed rare and valuable books and manuscript to ensure preservation and to facilitate reading.

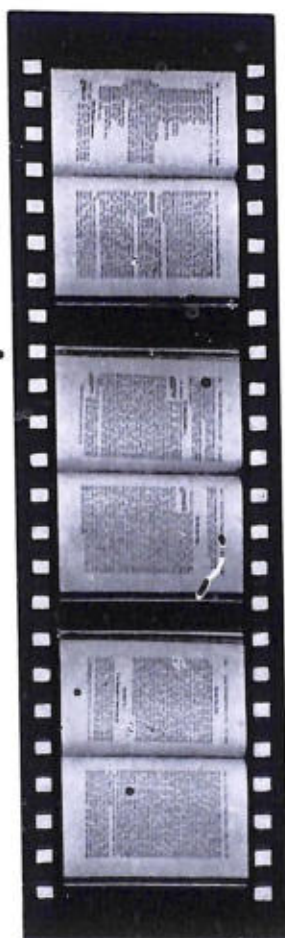


This special type of microfilm reader has the device for throwing the image on a screen for use by a small group. (Courtesy : National Library, Calcutta)

LAMS-2116 SOLUTION OF THE INITIAL VALUE PROBLEM
FOR THE LINEARIZED MULTI-VELOCITY TRANSPORT
EQUATION WITH A SLAB GEOMETRY. GEORGE H. PIMBLEY.
'57 UC-34



A microcard
(Courtesy : Institute of Fundamental Research,
Bombay)

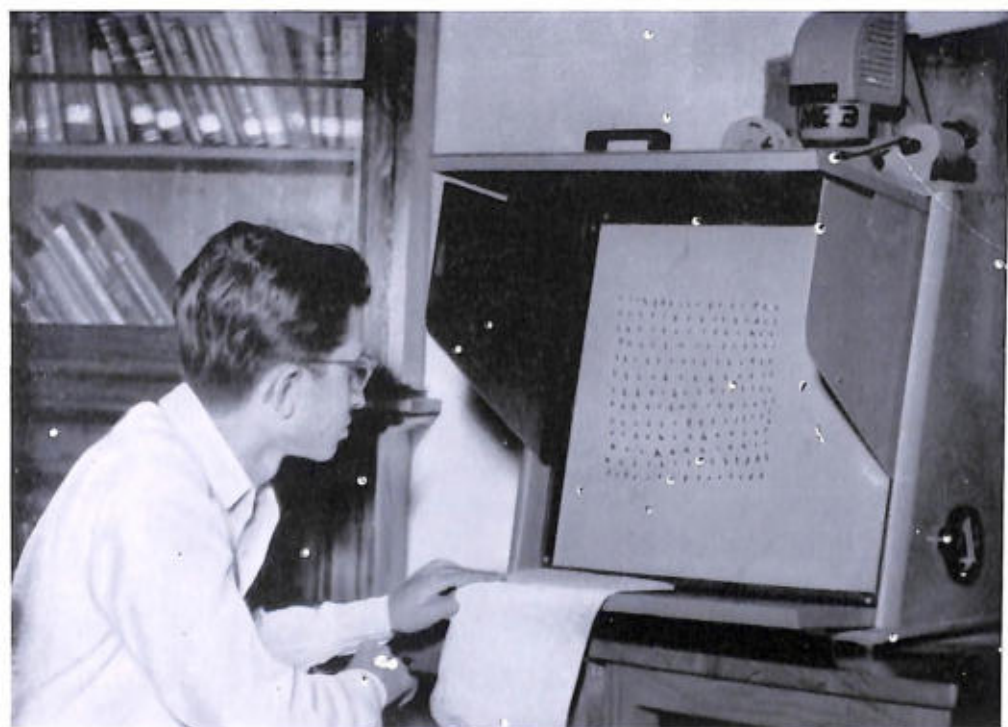


A microfilm
(Courtesy : Geological Survey Library, Calcutta)

The Documentary Reproduction and Translation Division of the Indian Association of Special Libraries and Information Centres, Calcutta microfilmed during the years 1958 and 1959 55,051 pages of various documents. In 1960 also about 40,000 pages were microfilmed. The reproduction was done at cost price mainly on requisition from research institutions and commercial organizations.

Some libraries in India have only microfilm readers for use by research workers. Nowadays it is possible to get by post micro-filmed copies of rare books of foreign countries.

A variation of the microfilm is the microcard. It is now possible to put on a microcard more than hundred pages of a book. Like the microfilm, the microcard requires a reading machine.



*A microfilm reader in use in the Geological Survey Library, Calcutta.
(Courtesy: "Indian Minerals")*

THE FILM

INCREASING USE OF EDUCATIONAL FILMS IN INDIA

Progressive educators in India have long recognized the value of films in all stages of education. Film libraries are maintained by the Central as well as State Governments, and schools, colleges, universities, and social institutions are borrowing films in an increasing number.

The Central Film Library of the Ministry of Education maintains about 4,400 films mostly 16 mm. and over 1,900 filmstrips along with their teaching notes in both Hindi and English. The films are loaned free of charge to the members. It has 1365 members and the average monthly issue of films and filmstrips is about 770. The library is planning to circulate to all its members Hindi commentaries of imported films so that these films are more widely and properly used. Arrangements have already been made to dub in Hindi a series of films on human physiology produced by Bray Studios, U.S.A. The Ministry of Information and Broadcasting and the Technical Co-operation Mission of America in co-operation with the Ministry of Education have taken up the production of educational films mainly on Indian history and the geography of India.

Film societies have been formed in all the large cities of India with a view to helping people look through rather than look at films and to making them conscious of their influence. One of these societies—the Calcutta Film Society—has recently produced a documentary film entitled "Portrait of a City." The film societies in India are assisted and guided by the Federation of Film Societies recently organized in New Delhi. In 1960 the Federation with the assistance of foreign embassies arranged for the screening of quite a number of outstanding foreign films in film societies in Calcutta, Delhi, and other places. According to the latest report the Federation is now negotiating with the Central Government for the granting of those facilities to its member-societies that are enjoyed by film societies in western countries.

A film council called the University Film Council has also been organized for the benefit of students of Indian Universities. The main objective of this Council is to advance education and culture through the medium of films.

CONTRIBUTIONS OF FILMS TO LEARNING

The ideal method of learning about anything—an industrial process, a natural phenomenon, or an important event—is to see the thing firsthand. But in many cases, as pointed out earlier, this is not possible. We must turn to indirect observation for learning, and fortunately we have so useful a means of indirect observation as the film. Even where firsthand viewing is possible one may not learn what he needs to learn on account of the non-selective and confusing nature of the situation. The firsthand experience may well need to be supplemented with film or any other audio-visual aid.

Films help education in so many ways that it is not possible to deal with them all. A few major contributions are noted here :

Films can show movement

The great difference between ordinary pictures and films is that the latter can show movement, and it is this power of showing movement that makes films so valuable. "Life consists of movement, and the introduction of movement makes the presentation of anything to do with life much more real. If geography is to deal with realities, it is obvious that the introduction of movement is necessary if we are to give the children any true conception of things with which geography deals."¹⁰ For the study of topics such as monsoons, currents and tides, glaciers, volcanoes, days and nights, no other medium is so effective as the film.

Films can show things which are too fast or too slow to be seen by the human eye

The normal speed of a silent film is 16 frames per second and that of a sound film is 24 frames. For the study of certain actions

10. J. Fairgrieve—Geography in School

which occur very swiftly, e.g., the stride of a racing horse or the kicking of a football, slow motion films can be made by increasing the number of exposures. Similarly, by decreasing the number of exposures and with the help of time-lapse photography the growth of a flower or a plant during a period of several weeks can be shown in a few minutes' time. The camera is focused on the objects and periodically with the help of special gadgets frames are exposed. When the completed picture is projected on the screen, the process of several days is seen and studied in a few minutes.

Films can show things too small to be seen by the human eye except with the help of a microscope

With the help of a microscopic lens it is possible to photograph objects, e.g., plants or cells which can be seen only with the help of a microscope. When these photographs are projected on the screen, the entire class can study them. Such films thus provide the classroom with the benefit of an expensive instrument like a microscope.

Films can show a process that cannot be seen by the human eye

A film can be made with the help of a series of drawings to show something which cannot be otherwise seen, e.g., how we hear, the action of molecules. Such films are no doubt expensive, but they are highly instructive. It is hoped the Ministry of Education will soon undertake to make a few such films for classroom use. A demonstration of how to make such films was given by Shri G. K. Athalye in the Audio-Visual Education Seminar organized by the Ministry of Education during May-July, 1954.

Films can show a technique or a process from beginning to end

In many teaching situations particularly in crafts and technical training we are to demonstrate techniques and processes: how to use a tool in agriculture, how to thread a film into a projector, how to seal a bottle in fruit preservation. If films are made of these demonstrations, we can use them conveniently and effectively. Those

who have demonstrated any manufacturing process know how difficult it is to arrange for the demonstration in the classroom.



*Through films a technique can be followed from beginning to end.
(From the film 'Highland Farming' produced by the author
at West Linton near Edinburgh)*





Films can show the incidents of the past effectively

The past cannot be seen, but with the help of films we can turn the clock back. We reconstruct it in dramatic form and photograph



A still from the film "Gotama the Buddha" (Courtesy : Films Division, Government of India)

these reconstructions. With the help of films we can see the battles on the historic field of Panipat or life in Mohenjo-Daro. Many have already seen the excellent film 'Gotama the Buddha' produced by Shri Bimal Roy with the help of dramatic reconstructions and ancient relics of India.

Films can influence attitude and shape character

Films can be used not only to increase knowledge but sometimes to bring about a change in attitudes. Films on some aspects of mines or cultivation can rouse sympathy for the miners or farmers. A film of a flooded area naturally rouses sympathy for the unfortunate people of the area. Films on some of the successful projects during the Five-Year Plans can go a long way to increase the faith of the people in the future of the country. The film is the most potent medium to bring about a change in the minds and hearts of people. When certain ideals and virtues are repeatedly portrayed through films, people and particularly children absorb them and adapt themselves accordingly. It is for this reason we find a world-wide movement to produce and use suitable films to build the character of children.

SOME CAUTIONS IN USING FILMS

An expensive aid

The film is undoubtedly an excellent audio-visual aid, but it has already been pointed out that it is an expensive aid and it should not be used if equally good results can be secured by the use of cheaper aids like filmstrips, charts, or models. A film projector costs about Rs. 3,500/- whereas a strip projector costs only about Rs. 350/-.

Films may give a wrong idea of time and size.

The formation of a flower or a fruit which takes weeks to happen is shown through time-lapse films in a minute or so, and so pupils may get a wrong idea about actual time taken in the growth. Again, as the film can make a very small thing appear to be of huge size there may be a wrong idea of size. Some natives of South America after seeing close-ups of mosquitoes in a film remarked : "We need not worry about our mosquitoes, they are so tiny. Yours in America are indeed very large and possibly very dangerous."¹¹ In using films, therefore, teachers should make sure that wrong ideas of time and size have not been formed by the viewers.

The film is not always the best aid

The film is not always the best aid though certainly it is the most valuable of audio-visual aids. In some learning situations a model or a diagram may be a better aid. For subjects which are static by their nature, filmstrips or still pictures are better aids than films. A filmstrip frame can be held on the screen for study as long as needed. It should be remembered, however, that in many teaching situations films may be profitably used to supplement another teaching aid.

THE EDUCATIONAL FILM

Educational films are those films which are produced primarily for instructional purposes. They are distinguished from Feature films which are made exclusively for entertainment. It is well-known, however, that many feature films have considerable educational value as they can increase knowledge and change attitudes. Films like 'Madame Curie', 'The Story of Louis Pasteur', and 'Sixty Glorious Years' are typical examples. Educational films may be classified under three main heads :

11. E. Dale—Audio-Visual Methods in Teaching.

- (i) *Instructional films*
- (ii) *Documentary films*
- (iii) *Newsreels*

Instructional Films

These are the films to aid the learning of specific topics in the classroom in connexion with subjects such as mathematics, physics, chemistry, botany, history, geography, and hygiene.⁹ In India most of the classroom films are imported ones. The Films Division of the Government of India has lately, however, taken up the work of producing instructional films in co-operation with the Ministry of Education. There is a great shortage of films on Indian history and the geography of India, and films on these subjects are now being produced.

Documentary Films

The word 'documentary' when applied to films means to teach (from Latin 'docere'). By dramatizing actual material the documentary film conveys information and creates attitudes. It tells its story in terms of human beings and human interests.

It is about thirty-five years from now John Grierson, the British film expert, first used the word 'documentary' to describe Robert Flaherty's film on the daily life of the South Sea Islanders. He defined a 'documentary' as "a creative treatment of actuality". Though we frequently came across the new word in the early thirties, it was only after World War II that we fully realized the importance of this medium in the field of education.

Though a documentary film aims at a truthful representation of a theme or an incident, it cannot be completely true for various reasons. In many cases technical difficulties stand in the way of a truthful representation. Though generally the actors of a documentary film are people in real life situations there are occasions when

the help of professional actors becomes a necessity. Some real people being camera shy fail to act in a natural manner.

Again, a documentary to be completely true needs exhaustive treatment and on-the-spot study, and these are hardly practicable. Further, films produced by the Government or commercial firms cannot portray the whole truth. Even if a film of a Government project gives more importance to the sweat and determination of the ordinary workers than to the visit of the Minister and the activities of the General Manager and other top executives, it does not show, and there may be good reasons for not showing, the darker aspects of the undertaking.

Robert Flaherty's 'Nanook of the North' on the daily life of Eskimos of Canada's frozen North, John Grierson's 'Drifters' on the daily life and work of Scottish fishermen, Alberto Cavalcanti's 'Rein Que Les Heurs'-a picture of French unemployment, John Heyer's 'Back of Beyond'-the story of the mail van travelling into the burning desert of Australia, Edgar Anstey's and Arthur Elton's 'Housing Problems'-a picture of London's slum houses, Flaherty's 'Man of Aran'-the story of a family struggling to survive on a barren island, and 'Louisiana Story' which describes the development of swampland oilfields in Louisiana, G. W. Pabst's 'Kameradschaft' (Comradeship) which shows amity between French and German miners during a mine disaster, Alexander Dovzhenko's 'Earth'-a film on Russian peasant life, Walter Ruttmann's 'Berlin'-the portrait of a city, Pere Lorentz's 'The Plough that Broke the Plain'-a picture of erosion in America, and 'The River' which shows the ravages of the flooding Mississippi river are some of the outstanding documentary films produced in western countries.

Very good documentary films that are in no way inferior to the outstanding documentary films of western countries have been made by the Films Division of the Government of India. Some of the well-known Indian documentaries are : "Drums of Manipur", 'Our Neighbour Nepal', 'Holy Himalayas', 'Etawah Story', 'Spring Comes to Kashmir', 'Spirit of Loom', 'Glimpses of Assam', 'Mahabalipuram', 'Bharat-Natyam', 'Khajuraho', 'Konarak', 'Madurai', The Hima-

layan Tapestry', 'Mantlu-City of Joy', 'Call of the Mountains', 'Story of Dr. Karve', 'Radhakrishna', 'Kangra and Kulu', and 'Rabindranath'.

These films which are instructive as well as interesting cover a wide variety of subjects. They give not only an idea of the various development projects under the Five-Year Plans, but what is equally important, they portray the great cultural past of our country in the realms of art, architecture, music, and dance. The Films Division of the Government of India is now one of the largest units in the world for the production of the documentary film. During the past three years it produced on an average about 100 documentaries a year. It has recently opened Documentary Theatres in Calcutta, Bombay, Delhi, and Madras for the screening of documentaries and newsreels at nominal charges.



A still from the film "Call of the Mountains". (Courtesy : Films Division, Govt of India)



A still from the film "Bharat Natyam". (Courtesy: Films Division, Govt of India)



*A still from the film "Khajuraho".
(Courtesy: Films Division, Govt of India)*



*A still from the film "Konarak".
(Courtesy : Films Division, Govt of India)*

Newsreels

These have a definite place in education as they deal with recent events, both at home and abroad. One great difficulty in using newsreels is that they are generally produced in 35 mm. It is hoped, however, that in future 16 mm. newsreels will be produced for circulation to educational institutions. It is also hoped that these reels will reach educational institutions as quickly as they reach cinema houses.

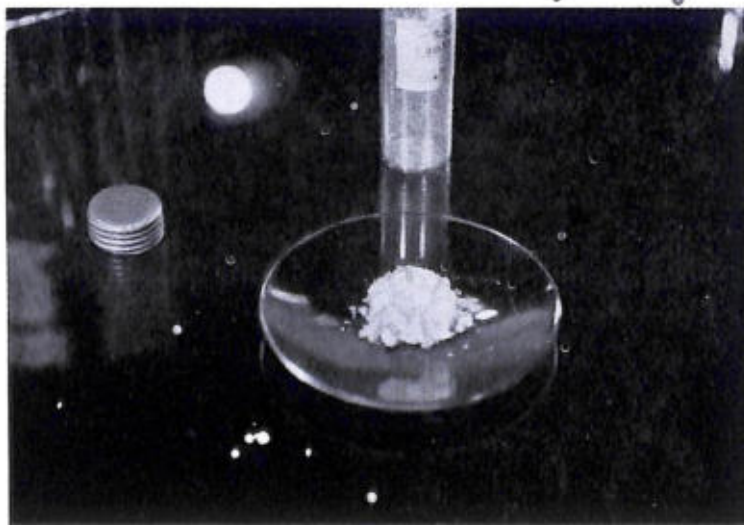
The newsreel has little in common with the characteristics of a documentary film except that they both deal with natural material.

The newsreel presents in simple descriptive terms the events of the day without any colouring or bias, but the documentary film is concerned with the purposeful shaping of the newsreel material.

FILMS PRODUCED BY COMMERCIAL FIRMS

Although films produced by commercial firms on their products or services have not been dealt with under the educational film, many of these have considerable instructional value. They are generally in colour and are excellent in photographic quality. They are usually loaned to educational institutions free of charges.

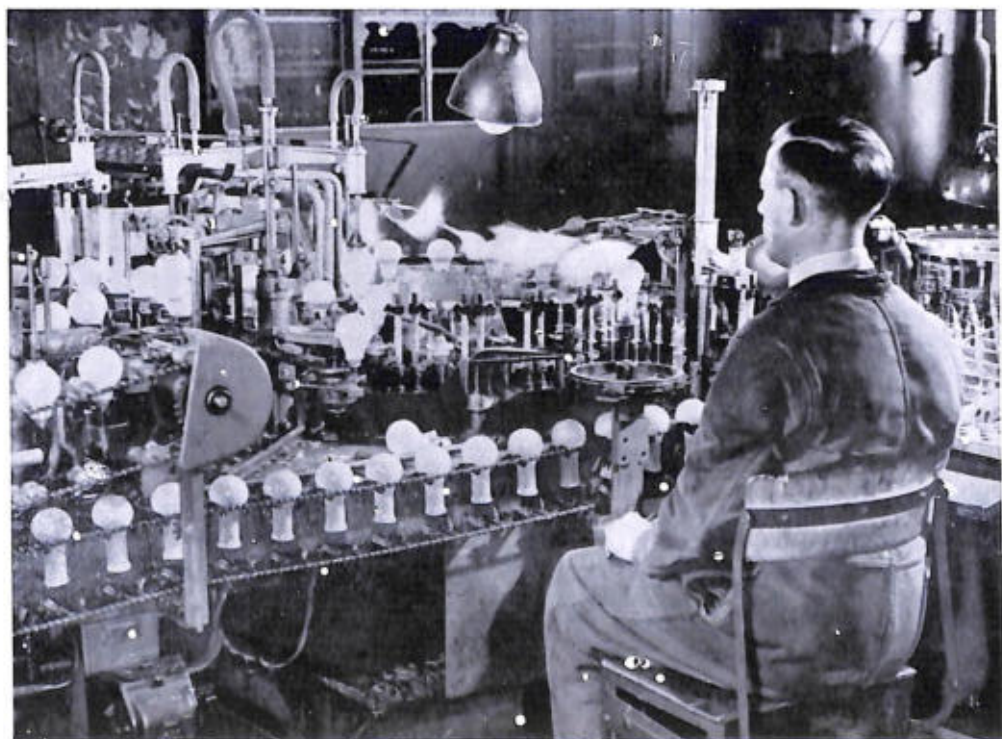
Some educationists in this country do not like to use commercial films in the classroom because they think that these films are mainly to advertise a product. It should be pointed out, however, that films are produced nowadays by leading commercial firms as part of a broad public relations programme. If there is any advertising message in a film, it is generally the name of the firm. It can be argued also that it does not matter much even if there is a bit of direct advertisement in a true story of tire or electric bulb or drug manufacturing. It is essential no doubt for teachers to make sure



*A still from the film "The Story of Penicillin".
(Courtesy : Imperial Chemical Industries (India) Private Ltd)*



*A still from the film "The Story of Penicillin"
(Courtesy : Imperial Chemical Industries (India) Private Ltd)*



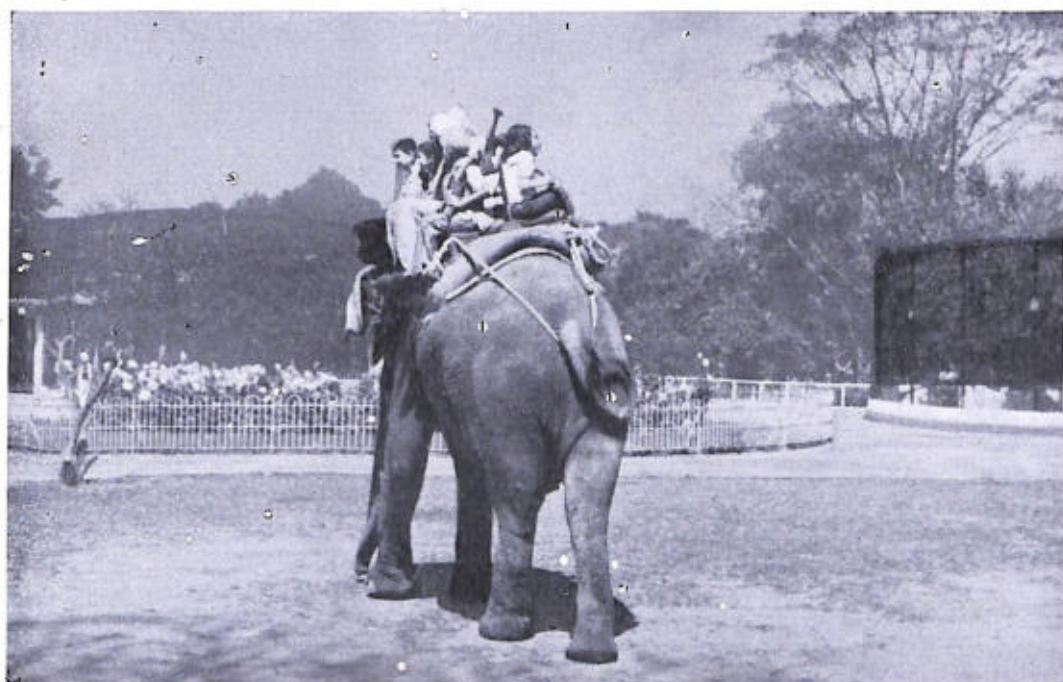
*This still from the film "Miracle of Light" shows how incandescent lamps are
manufactured by automatic machines. (Courtesy - Philips India Ltd.)*



This still from the film "Miracle of Light" shows how light from electricity is utilized nowadays for recreational purposes. (Courtesy : Philips India Ltd.)



An interesting scene from the Dunlop film "The Road to Ambattur" which shows the production of rubber products in India. (Courtesy : Dunlop Rubber Co.)



A still from the Dunlop Diamond Jubilee production "Our Children will know Each Other" which tells the story of a runaway boy's discovery of his country.
(Courtesy : Dunlop Rubber Co.)

that the commercial film used is the best available aid to make the lesson meaningful and it does not contain anything untrue.

CHILDREN'S FILMS

Though children's films have not been shown under the educational film they have an important place in education because of the great part they play in the development of the personality of the child. The future of a nation depends on how the children are nourished and fed with healthy ideas during the most formative period of their lives. The view that the human being is a finished product in his fourth or fifth year is no doubt an exaggeration, but it is certainly true that childhood is a time of the greatest susceptibility to influence and environmental conditions.

Thoughtful parents all the world over are now conscious of unhealthy influences on children of films produced from an adult

angle. Attempts have been made in countries like Great Britain and the U.S.A. to find out the extent of this influence. Those who carried on research in this field unanimously pointed out the undesirable influences of some commercial films relating to sex and crimes. Grown-ups or children whose background is sufficiently strong may not be affected by the scenes, but for bulk of the children the case is quite different. The Wheare Committee, a Committee on Children and the Cinema appointed in Great Britain, pointed out : "A large number of films are exposing children regularly to the suggestion that the highest values in life are riches, power, luxury, and public adulation and it does not matter very much how these are attained or used.....We are convinced that the regular portrayal of false values is more perverse and dangerous than the depiction of crime or impropriety".

Although censorship regulations in our country today prevent some commercial films from being shown to children, films certified for universal exhibition may have themes which may be either beyond the comprehension of children or give them a distorted sense of values. As Mary Field has aptly said : "The plots and the characters and the motives are all outside their experience. And if they cannot understand the film on the screen, they may do one of two things. They may allow their eyes to be amused and excited while their minds remain passive and blank. On the other hand, they may become boared and noisy and a nuisance to themselves and to everyone near them.But if boring the child is bad, the first alternative is far worse. It is criminal to allow children who go to the cinema in order to be active and to enjoy the film, to sit passively with their minds not working." Sir Ronald Gould, President of the World Confederation of Organizations of the Teaching Profession, in his comments in connexion with the symposium on "The Role of Children's Film in the Development of the Personality of the Child" organized by the Children's Film Society in Delhi in January 1961 quoted the following words of Dr Horace King, a Member of Parliament in Great Britain : "I can never get this out of my mind the picture of little children sitting in the cinema cowering away from the screen that was meant to entertain them and peering through

their fingers to see if the bit they didn't like was over as compared with the happiness of children looking at a film and really enjoying it, as one wants them to....."

Children must have films made specially for them. These films should not be confounded with instructional films. The main objective of children's films is to provide healthy entertainment which can improve children's minds. This is indeed a kind of informal education. Dr Radhakrishnan, Vice-President of India, very rightly observed : "Though the Five Year-Plans are important for the welfare of the nation, yet much more than changes in the environment is the need to change the nature of human beings. The transformation of man is more essential than the transformation of the environment. If we do not change the minds and hearts of people, we cannot change anything else, and to bring about a change in minds and hearts there are many media. But the most potent of them is the film itself, specially a film produced for children."

We have in India plenty of excellent material for children's films in Hitopadesh and in the stories of Vikramaditya. These stories undoubtedly suggest to children such noble virtues as love, honesty, courage, integrity, tolerance, kindness, and courtesy. It is an incontestible fact that lessons in character that we want our young children to learn are best given if they are presented to them in an indirect way. If we want our children to have a sense of consideration for others, it is not by asking them to be considerate, but it is by presenting to them concrete examples of consideration for others. There is a particular need for such a film for children of our country. Events of historical interest especially those portraying the noble deeds of our ancestors, the sacrifices made by our illustrious leaders in the historic struggle for Independence, and our progress in the economic field provide excellent themes on which very useful and interesting films for our children can be made. Films on fairy tales can influence to a great extent the development of children's imagination, but we should make sure that they do not contravene certain limits of reality so as to avoid giving a false picture of the world. Children project themselves into the

joys and sorrows of the characters by indentifying themselves with them. Adventure films on heroic achievements such as the climbing of Everest, acts of rescue against all dangers, and risking one's life to invent something for the benefit of humanity obviously arouse in children a desire to perform such deeds themselves. Again geographical films based on stories of travel and children of different parts of India and of other lands are invaluable to children. The famous British philosopher Bertrand Russel has very aptly observed : "Almost every child becomes interested in geography as soon as it is associated with the idea of travel. I should teach geography partly by pictures and tales about travellers, but mainly by the cinema, showing what the traveller sees on his journey," Such geographical films not only give geographical knowledge in a meaningful and enjoyable manner but, what is more important, they help create a common brotherhood. Commenting on some films produced by the Children's Film Society of Delhi Father Pire, a Nobel Prize winner for peace has said: "...But in the world which has suddenly become so small there remains so much prejudice and so many gulfs which divide mankind. Your films for children should not only acquaint them with world geography but, above all, with human beings. Knowing each other better will mean reduction of prejudice, gulfs, tensions, and it would also be likely to arouse an increased interest in the *other* with reciprocal sincere friendship."

The subjects which have been mentioned above as suitable for children are obviously meant for older children. Little children enjoy colour and movement without caring to understand the story. For them puppet films and cartoons as well as films on animals and birds are particularly suitable. These films should not be longer than fifteen or twenty minutes.

Children's films should be as aesthetically pleasurable as possible. It should be remembered that children are drawn to films more by the art and the movement than by the plots or the great ideas they contain. Latest techniques and equipment should therefore be brought into play in the production of children's films. And as coloured films appeal to the aesthetic sense of children,

films for children should be in natural colour as far as practicable. Pictures in natural colour are not only attractive but they appear more real.

During the past few decades a large number of good books have been produced for children. These have undoubtedly played their part in planting suggestions and values on young minds, but the need for supplementing these through the film—the most potent medium to shape the mental attitudes of children—is now keenly felt throughout the world. It is hoped suitable films for children in sufficient numbers will soon be produced for regular exhibition according to a well-planned scheme in schools and cinema houses.

There is another point of considerable importance. Although films and books may be helpful in building the character of children, it is equally important for them to receive proper guidance in homes from parents. But as parents themselves need some guidance in understanding the working of their children's minds, the need for films for parents is also felt.

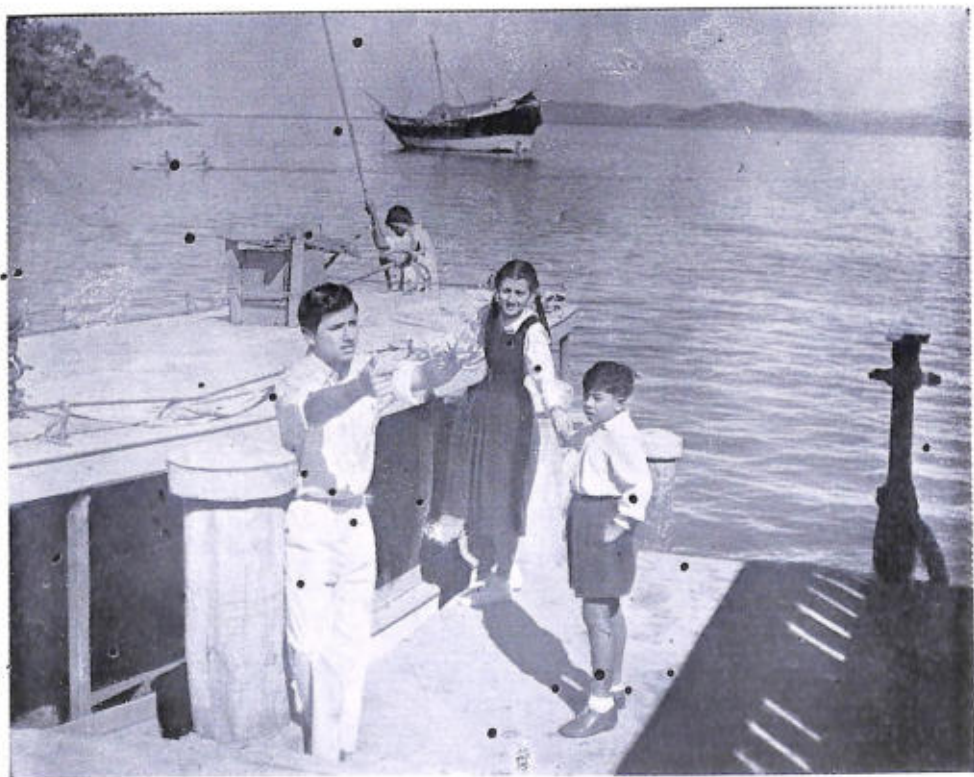
With a view to focusing the attention of the public and the Government, the Cultural Film Society, a voluntary organization in Delhi, organized a Film Festival for children in 1952. A large number of children with their parents attended the shows. A year later another festival of children's films was arranged in Delhi. Dr Radhakrishnan, who inaugurated this festival observed : "When we talk about putting before our nation certain great ideals, these ideals do not become functioning realities simply because they are stated in books or in our Constitution. They require to be assimilated by the people of the country. This assimilation takes place spontaneously, more or less unconsciously, by the way in which these ideals are portrayed in pictures, in literature, in cinemas, etc. Therefore, if you want to make the young people get some ideas of human dignity, human rights, the need for truthfulness, for integrity, it is not by asking them to be truthful or to love their neighbour but it is by presenting to them concrete examples of truthfulness and integrity by means of the films themselves."

A cinema for children was opened in the year 1954 in Delhi, but it did not prove very successful for want of suitable films. The Third Film Festival was held in December 1954 under the Chairmanship of Shrimati Indira Gandhi in the newly constructed Sapru House auditorium. At the concluding show of this festival Dr B. V. Keskar, Minister for Information and Broadcasting, announced the intention of the Government to open a society called the Children's Film Society. This society started functioning in Delhi with effect from May 1955. The Patron of the Society is Dr Rajendra Prasad, President of India, and its President is Shri R. R. Diwakar, a former Minister for Information and Broadcasting, Government of India. The Society produces suitable films for children and adolescents. The main purpose of the Society in the words of Shri Mahendra Nath, its General Secretary, is "to use films as a moral force to develop children's personalities." The Children's Film Society in the short period of its existence has made a remarkable progress and has produced quite a number of films of lasting value. The achievements of the Society have won recognition not only throughout our country but also abroad. Its very first production "Jaldeep" won the first prize at the IXth International Exhibition of Films for Children at Venice for "its charm and the exaltation of generous feelings."

The following is a complete list of films produced by the Society so far :

- (1) Jaldeep
- (2) Char Dost
- (3) Bachon Se Baten
- (4) Scout Camp
- (5) Ganga Ki Lahren
- (6) Haria
- (7) Gulab ka Phool
- (8) Yatra
- (9) Guru Bhakti
- (10) Saral Biswas
- (11) Bal Ramayan
- (12) Ramshastri Ka Nyaya

- (13) Id Mubarak (All-India Certificate of Merit)
- (14) 26th January
- (15) Panchtantra Ki Ek Kahani
- (16) Meera ka Chitra
- (17) Dilli ki Kahani (All-India Certificate of Merit)
- (18) Veer Purush
- (19) Ekta
- (20) Aladin's Magic lamp
- (21) Chetak
- (22) Nyaya



A scene from "Jaldeep". (Courtesy : Children's Film Society)

The above pictures are in Hindi, but some of the later productions are in almost all the principal languages of the country. Some have been dubbed in English also. The Society plans to dub its earlier productions also in all the major languages of the country as soon as adequate funds are available. Efforts are also being made to acquire the best children's films from different parts of the world and make Indian language versions for the benefit of children.



A scene from "Meera Pa Chitra". (Courtesy : Children's Film Society)



A scene from 'Bal Ramayana'. (Courtesy : Children's Film Society)



A scene from "Ekata". (Courtesy : Children's Film Society)



A scene from "A Tale from Panchtanta". (Courtesy : Children's Film Society)



A scene from "Gur, Bhakti". (Courtesy : Children's Film Society)



A scene from "Ramshastri ka Nyaya". (Courtesy : Children's Film Society)



A scene from "Char Dost". (Courtesy : Children's Film Society)

To organize the children's film movement throughout the country the Society has set up State Committees. These committees arrange shows in schools and cinemas in their respective State at a nominal rate of admission.

Great Britain, Russia, Czechoslovakia, and France are the early pioneers in the field of making children's films and the Film Library of the National Institute of Audio-Visual Education has acquired some of their outstanding productions. Amongst these are : 'Bush Christmas', 'Fortune-Lane', 'Jean's Plan', 'Bim', 'Circus Boy', 'Proud Princess', 'Boil, Boil, Little Pot', and 'The Boy Who Stopped Niagara'.



A scene from the film "Chuk and Gek" (Soviet). The Children's Film Society has made a Hindi version of this film.

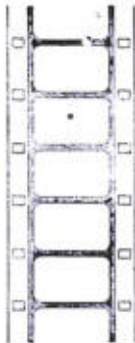
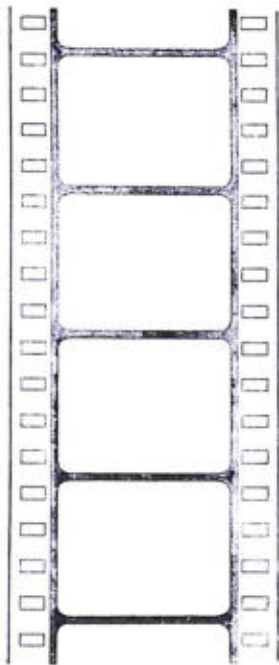


A scene from the film "Bush Christmas" (British). The Children's Film Society has made a Hindi version of this film.

SIZES AND TYPES OF FILMS

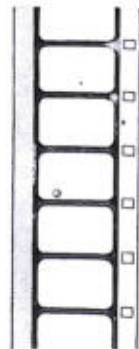
Films are of different sizes—16 mm., 35 mm., and 8 mm. The 16 mm. is now generally the standard size for educational films and the 35 mm. is the standard for films shown in the cinema. The 8 mm. film is used by amateurs for the production of home films.

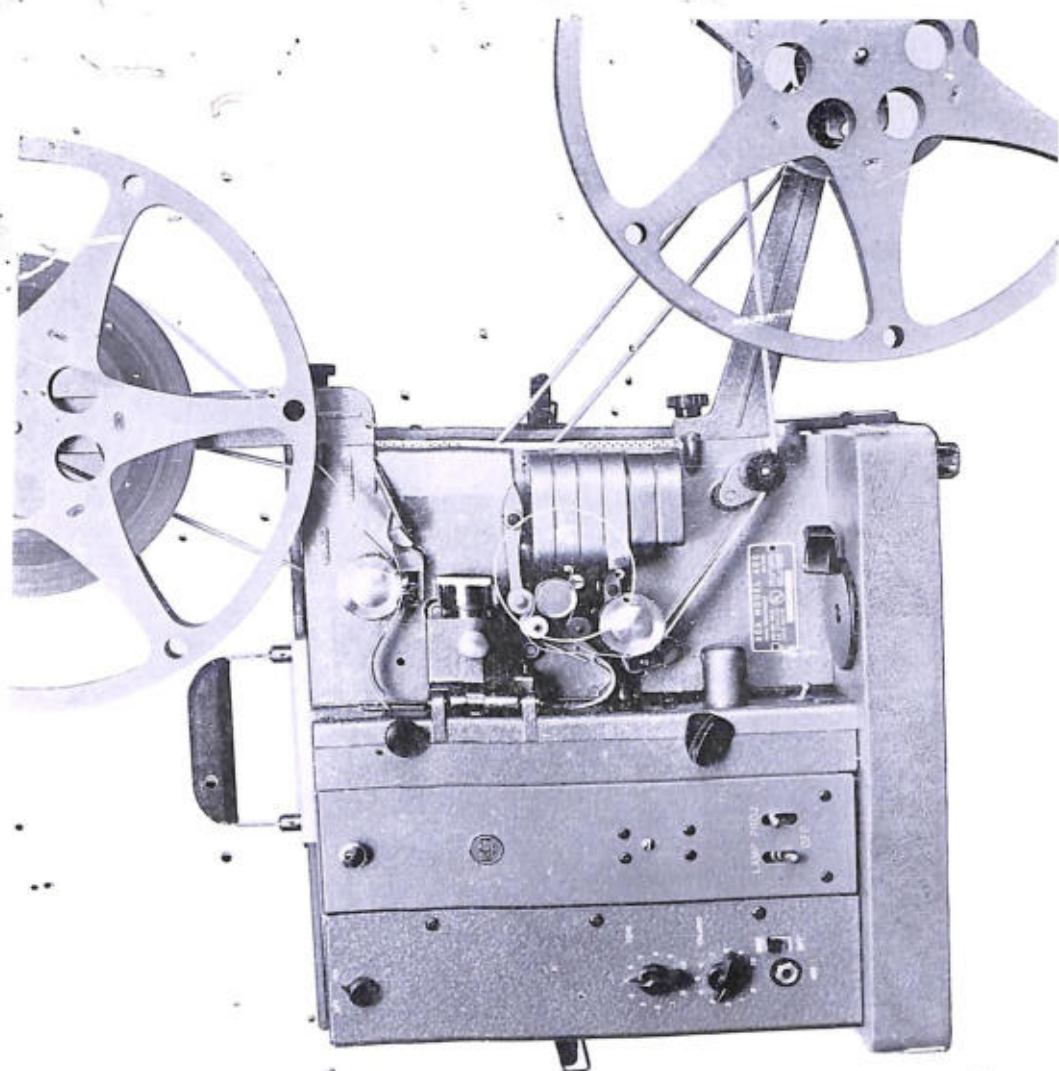
There are silent and sound films. A great advantage of the silent film is that it can be adapted to various teaching situations



35, 16, and 8 mm. films

16 mm. silent and sound films





The R.C.A. 400 Senior sound projector. (Courtesy : General Radio and Appliances (P) Ltd., Calcutta)

as the teacher can give the appropriate talk. In the sound film, the sound is recorded on one side of the film. The main advantage of the sound film is that it makes the picture more real.

SIZES AND TYPES OF PROJECTOR

As there are three sizes of films, so there are three sizes of projectors to use these films. And as the 16-mm. film is the standard

size for educational films, so the 16 mm. projector has been accepted as standard for use in educational institutions.

There are silent and sound projectors as there are silent and sound films. As most of the educational films are now sound films, few institutions are now buying silent projectors. There is no difficulty in using a silent film on a sound projector.

The portable and easy-to-operate 16 mm. sound projectors of today are in sharp contrast to the bulky and complicated machines of a few years ago. Any teacher can learn to operate these in two or three days' time by following carefully the manufacturers' instructions.

THE MAGNETIC SOUND PROJECTOR

This modern equipment enables a teacher to add his own commentary to the film. A magnetic stripe is to be added to the film for this purpose. A magnetic sound projector is not very costly, but the cost of striping at the rate of 20 nP. per foot is rather too much for educational institutions in our country. Both silent and sound films can be striped.

OPERATION OF THE 16 MM. SOUND PROJECTOR

The teacher should know the following :

- (i) how to set the machine up (the projector should be placed on a sturdy table, and the distance from the front edge of the table to the screen should be about six times the width of the screen if the projector has a two-inch lens. The speaker should be placed just behind the screen at a height of about four feet from the floor);
- (ii) how to attach the reel arms to the projector and put the spring belts on their pulleys;
- (iii) how to make connexions with the power and speaker cables;

- (iv) how to thread the film into the projector;
- (v) how to use the correct voltage;
- (vi) how to turn the projector on (turn the amplifier switch on and wait till the sound lamp lights, then switch on the motor making sure that the speed selector is at the sound position and the threading is correct, and finally turn the lamp switch on);
- (vii) how to focus (titles or other printed portions of the picture are suitable items on which to focus);



These Social Education Organizers are receiving instruction in the operation of a 16 mm. sound projector. (Courtesy: the S.E.O.T.C., Belur Math.)

- (viii) how to use the volume and tone controls;
- (ix) how to tilt the machine ;
- (x) how to rewind the film with the help of the machine and with a hand rewinder;
- (xi) how to turn the projector off (put the projector lamp off, put the amplifier switch off and bring the volume control to 'o' as soon as the sound ceases, and then after waiting two or three minutes switch off the motor);
- (xii) how to change tubes, the projector lamp, and the sound lamp, and
- (xiii) how to pack up the projector, the speaker, and the screen.

CARE AND SERVICE OF THE PROJECTOR

The projector should never be over-oiled. It should be lubricated as advised by the manufacturer. The lubricating chart generally given in the Instructions Manual of the manufacturer should be read carefully and the instructions given should be strictly carried out.

If the projector is to give consistently good service, it must be kept clean at all times. Clean all optical surfaces before each show by gently wiping them with lens tissue. Emulsion particles on the film channel should also be cleaned with a wooden scraper or some other softer-than-metal material. The power and speaker cables should be neatly coiled when not in use. It is wise to keep on hand extra bulbs, sound lamps, and tubes. The projector should be serviced once a year by a reliable firm.

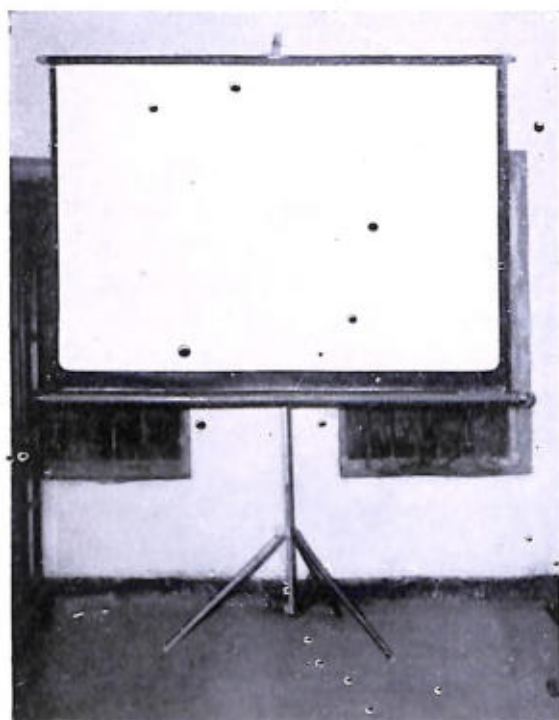
CARE OF THE FILM

Films should be handled carefully with clean hands by the edges. It is a very bad practice to allow films to trail on the floor. Periodically films should be checked for necessary repairs. When films

become dirty, they should be cleaned by passing them between folds of cloth soaked with carbon tetrachloride.

SCREENS

For both classroom and outdoor screenings, a matt screen is better than a beaded one because it presents a more uniform brightness to all the viewers. A beaded screen is brighter than a matt screen only along the line from the centre of the screen to the projector.



A glass beaded screen. (Courtesy : the S.E.O.T.C., Belur Math)

The size of the screen should be such that those sitting in the last row can read the smallest type in the title of the film. The screen should be roughly $1/6$ as wide as the distance from the screen to the last row. There is no harm if the screen is larger than the ratio given above. The distance between the front row of seats and the screen should not be less than two screen widths.

RADIO BROADCASTS

ONE of the most valuable of audio-visual aids is radio, but unfortunately in India the number of schools using it in the classroom is disappointingly small. In spite of the inherent difficulties of radio—the broadcaster cannot be in direct touch with pupils—the A.I.R. has planned its educational broadcasts in such a manner that if they are properly utilized, they can be of considerable help to educational institutions. Under the Second Five-year Plan schemes for the development of Audio-Visual Education in India, there was a proposal to instal radio sets in all High/Higher Secondary schools.

Twentyone out of the present twentyseven stations of the A.I.R. have arranged educational broadcasts for secondary schools. Every effort should be made by schools for effective use of these programmes. One great difficulty about the use of radio in schools in our country is that teachers have generally no technical knowledge about the equipment, and as a result the set very often remains in the workshop of the local dealer even for minor repairs. This problem, however, can be solved to a great extent if the Audio-Visual Department of the state arranges short courses from time to time for teachers in the maintenance of radio sets.

RADIO HELPS THE CAUSE OF EDUCATION IN A NUMBER OF WAYS

(i) It provides for educational institutions excellent performances in music and drama, performances which the schools would otherwise have never listened.

(ii) By means of dramatization it stimulates the interest and rouses the imagination of children so that topics in history, geography, nature study, science, literature, and other subjects are brought home to them in a manner almost impossible by any other aid.

(iii) The up-to-date information and news which radio brings to the classroom cannot be secured by any other means.

(iv) Radio can—and does—bring experts in various subjects to the classroom to assist teachers who are not supposed to have specialized knowledge in everything.

(v) The English programme helps both teachers and students to check up their pronunciation as well as to learn new words and modern phrases of the language.

(vi) Radio brings interesting variety in the classroom. Children love to listen to radio. They enjoy the novelty of another personality and the new type of approach.

PROPER UTILIZATION OF SCHOOL BROADCASTS

If school broadcasts are to have their full effect, the teacher must make a proper planning for their use. The procedure follows the basic principles that apply to all audio-visual aids: selection, preparation, presentation, and follow-up.

Selection

In selecting a radio programme the teacher should make sure that it can be correlated with the classroom work. This does not mean, however, that broadcasts in connexion with outstanding events or programmes of general educational value will not be utilized. It is true a radio programme cannot be prelistened as a film can be previewed, but the illustrated school broadcasts pamphlets which are issued by the A.I.R. well in advance can give a good idea of the contents of a broadcast.

Preparation

There should be preparation for each broadcast, and this should be adequate to make the broadcast meaningful. The excellent pamphlets on school broadcasts, often admirably illustrated, issued months ahead by the A.I.R. should be carefully studied by the teacher so that he can excite the class about what is to come from the receiv-

ing set. Unless children are made to wait expectantly there may not be much real listening.

Presentation

One reason for failure to obtain the maximum benefit from a broadcast is poor reception. Schools should make sure that the receiving set is of the right type and is in order. Regular servicing will help to improve the standard of reception to a great extent. The programme should be tuned in promptly depending on a reliable watch. The volume should be adjusted before the broadcast begins. The receiving set should be placed in front of the class so that all in class can see the source of sound. The part of the teacher during the reception is of great importance. He himself must be alert and interested for his attitude is an important visual aid to the broadcast



These children of Lee Memorial Girls' School, Calcutta listen to a radio broadcast with undivided attention. Their teacher is equally interested

Follow-up

The follow-up work is an important part of the school broadcast and it may vary according to the nature of the subject. Generally, important points are emphasized and there is a discussion on the broadcast. Sometimes students are referred to books or pictures on the subject. They are asked to look up dictionaries for new words used, and if there are geographical references, these are pointed out on the map. If the aim of the broadcast is to convey information, some testing of factual knowledge may be required. In certain subjects, particularly in the junior classes children may be asked to express with paint or crayon what they have listened.

TIMETABLE DIFFICULTIES WITH REGARD TO SCHOOL BROADCASTS AND THEIR SOLUTION

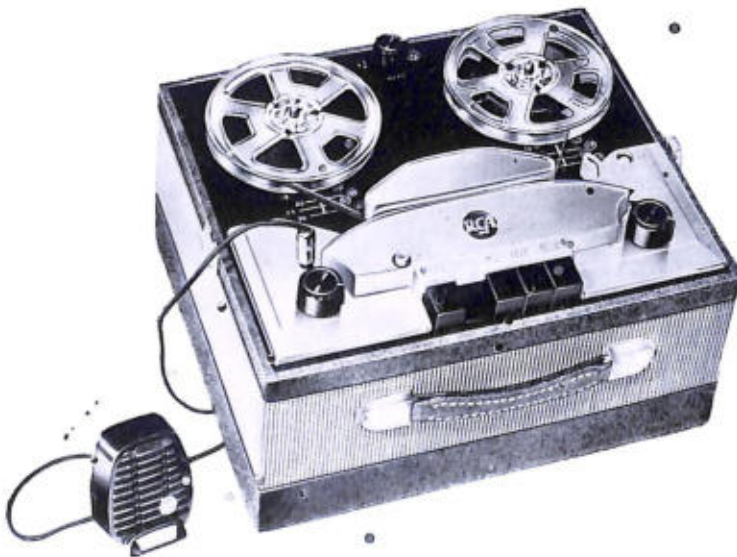
Although the A.I.R. announces its programme months ahead, educational institutions often find difficulties in synchronizing their timetable with that of the School Department of the A.I.R. There is a way, however, to solve the problem. If tape recordings of school broadcasts were available to schools, and if they were subsidized to secure the apparatus to play back these recordings, much greater use would be made of the excellent school broadcasts of the A.I.R.

TAPE RECORDINGS

ONE of the most valuable of school apparatus is a tape recorder. The different types of tape recorders on the market vary greatly in price. The expensive one may well be considered as being beyond the means of most of our schools, but there are inexpensive sets which are very easy to operate and have fairly good reproductive qualities. With the help of a tape recorder, a recording can be made continuously for two hours, used, erased, and the tape used again. An important recording can be saved to be used whenever needed.

IMPORTANT POINTS IN MAKING A RECORDING

It is easy to make a recording with the help of a tape recorder, but the equipment should be properly used. Even the most expensive equipment will not give satisfactory results if it is not used



*The R.C.A. Push-Button Tape Recorder
(Courtesy : General Radio and Appliances Private Limited, Calcutta)*

according to the instructions given by the manufacturer. The following points are particularly important in making a recording :

- (i) Make sure the correct distance and position for the speaker in relation to the microphone. A little experiment will help to find these out.
- (ii) Speak in a clear and natural conversational manner. There is no need to speak at the top of your voice.
- (iii) Make sure there is no undesired noise.
- (iv) There should be no interruptions during recording. Some teachers fix a warning notice on the door when they record.



Tape recording during a tutorial at the Central Institute of English, Hyderabad

THE USE OF THE TAPE RECORDER IN EDUCATIONAL INSTITUTIONS

One of the most valuable uses of the tape recorder is to effect an improvement in the speech of children. Complaints about defective speech amongst school students in India both in rural and in urban areas are very common. The deficiencies in our voice apparent to others are not heard by us. The tape recorder by enabling students to hear the records of their voice makes them much more critical of their own speech. At the Central Institute of English, Hyderabad, tape recorders are used for recording specimens of students' speech at the beginning and end of training courses for comparative purposes, the idea being to discover and demonstrate to the students



Students of the Alliance Francaise, Calcutta at work in the Audio-Visual laboratory in their individual cabins with individual tape recorder. (Courtesy : French Cultural Centre, Calcutta)

any improvements in their speech which have been made as a result of their studies in the institution.

The use of recordings is of great help in the learning of foreign languages. In the modern language department of the University of Edinburgh students are provided with records of their own reading of a passage in a foreign language and of an educated native's reading of the same passage to enable them to realize the differences between the readings. The Alliance Francaise in Calcutta is running attractive classes for the rapid learning of elementary French with the help of tape recorders. These classes have limited number of students and when the learners make some progress they go to the "laboratory" where each one is seated in an isolated cabin and has at his disposal a tape recorder with which he listens to the sentences he has learnt as spoken by his professor. He then repeats these



A student recording a lesson after the professor on the tape recorder specially provided for speaking practice. (Courtesy : French Cultural Centre, Calcutta)

sentences recording them on the remaining portion of the tape. He can erase his attempts until he is able to pronounce the sentences exactly as the model ones. He does this by listening repeatedly to the model sentences and to his own voice.

The tape recorder can be used to good advantage in the learning of music also. Learners can record their performances and then discuss their deficiencies with the teacher. They can have records of their own singing of a song and of an expert's singing of the same song and these can be played over and over again until their defects are completely removed.



*The tape recorder can make social workers "speech conscious".
(Courtesy: the S.E.O.T.C., Belur Math)*

THE USE OF THE TAPE RECORDER IN SOCIAL EDUCATION ORGANIZERS' TRAINING CENTRES

As a great deal of success in village work depends on the speaking power of the Social Education Organizers, they might have some practice in public speaking with the help of a tape recorder. This practice will stand them in good stead when they talk on slides or filmstrips or on any matter in villages. In America, unions of workers take the help of tape recorders for speech training of their future leaders.

TELEVISION

"Television," according to Webster, "is the transmission and reproduction of a view or scene, especially a view of persons or objects in motion, by a device which converts light rays into electrical waves and reconverts these into visible light rays." With the help of this device one can view a scene or object directly from a long distance. Hundreds of people in and around Delhi recently were able to watch the arrival of Queen Elizabeth at Palam though they were miles away from the airport. Television is an aid for the future in our country.



The broadcast of Queen Elizabeth at Palam in New Delhi televised

At present only educational institutions in Delhi area can make use of television, but it will not be long before schools and colleges in all the large cities of India will be in television areas. According to a statement made by the Minister for Information and Broadcasting in the Lok Sabha some time ago, a television centre would be established in Bombay during the Third Plan period provided the foreign exchange position remains satisfactory.

There are difficulties, however, in the utilization of this aid of tremendous educational possibilities. First of all, the cost of even

a small black and white direct-view set is prohibitive. This difficulty, however, will be solved when cheaper sets will be produced in our country. Secondly, educational institutions may have difficulties in utilizing the programmes unless they are broadcast at convenient hours. It has been pointed out earlier in our discussion on radio that important educational broadcasts can be recorded on tapes for utilization when needed. In the case of television though videotape recorders have been invented, their prices are too high for institutions in our country to afford.

Television or 'Durdarshan' came to India on the 15th September, 1959 when the President of India formally inaugurated the first experimental Television station set up by the All-India Radio in



Inside the studio



Miles away

New Delhi. Dr B. V. Keskar, Union Minister for Information and Broadcasting, observed "This is indeed a landmark in the development of mass communication in our country. It is a fitting

climax to the all-round and continuous development that has taken place in Indian broadcasting..... "Due to difficulties of foreign exchange we had originally no intention of pursuing this experimental unit, but in the last Industrial Exhibition (meaning the Indian Industries Fair, 1955) we were able to get a television camera from the firm of Philips at a cheap price. Later, the UNESCO gave us a grant and the Government of the United States offered to help us with loan of equipment. This enabled us to start this experimental unit today."

TELEVISION AT INDUSTRIES FAIR IN DELHI

During the Silver Jubilee celebrations of Philips India Limited in 1955, closed-circuit television was demonstrated for the first time by this firm in Calcutta, Bombay, Madras, and Delhi. Prompted by the unique success achieved by these demonstrations the Company towards the end of the same year broadcast live television from its pavilion at the Indian Industries Fair. A 100-foot transmitting tower was built for transmitting sound and pictures within a radius of seven miles. Thirty-five receiving sets were placed throughout Delhi and in the exhibition grounds. The places where the sets were installed included Rashtrapati Bhavan, the residences of the Vice-President, the Prime Minister, and of other Ministers, and some educational institutions, hotels, and clubs.

COMMUNITY EDUCATION THROUGH TELEVISION

According to press reports sixty-six new television sets have been installed all over the Delhi Union Territory in connexion with a new experiment in community education. Spread over five months, the programmes will be of 30-minute duration and broadcast at 7-30 in the evening every Friday. The subjects in the series will include amongst others traffic problems, dangers to community health (adulteration of foodstuffs and drugs), encroachment on public property and town planning, manners of the citizens and good neighbourliness.

The new experiment in community education gives equal importance to the promotion of group discussions amongst the

viewers through the 66 Tele Clubs organized on the same lines as the Radio Forums in rural areas. These clubs will forward a report on their discussions to the Broadcasting House to enable an evaluation of the experiment. Besides this direct method of assessing the results, the National Fundamental Education Centre and the Indian Adult Education Association have been entrusted with making an assessment of the effect of the programmes.

According to a recent press report students in Higher Secondary schools in Delhi will get their science lessons through television from August, 1961 launched by All-India Radio in cooperation with the Ministry of Education and the Ford Foundation.

To begin with, TV receiving sets are being installed in 150 schools and lessons will be given through television to students of the ninth standard thrice a week in physics and chemistry and once a week in Hindi and English. Each lecture and demonstration will last about 20 minutes. The programmes in Hindi and English languages would not cover a prescribed syllabus but would deal chiefly with speech training.

AUDIO-VISUAL AIDS IN INTERNATIONAL UNDERSTANDING

No book on audio-visual education can be complete without a mention of the important role that audio-visual aids can play in promoting mutual understanding and appreciation of cultural values and ways of life amongst the different peoples of the world. Scholars from the East and West have long been studying each other's cultures, but there can be no real progress towards the understanding on which the peace of the world depends unless children in ordinary schools are given some idea of cultural differences in the most formative period of their lives. Audio-Visual aids not only help to convey this knowledge in a meaningful manner, but what is more important they help to develop enlightened and sympathetic attitudes.

UNESCO which is charged with the task of promoting international understanding has fully recognized the importance of audio-visual aids in its ten-year (commencing on the 1st January, 1957) Major Project on Mutual Appreciation of Eastern and Western Cultural Values. It has made a careful study of the kind of aids that should be produced, how and to whom distributed, and how and where used. Three international seminars including one in Delhi, and a number of meetings and conferences were organized by UNESCO during the past few years to examine these problems. The Tokyo meeting held in July, 1960 recommended that all countries should undertake as early as possible the production of materials for exchange, designed to promote international understanding. Emphasis, however, was placed on the following :

- (a) The production of "study kits" illustrating the life and culture of the various countries;
- (b) The production and exchange of educational radio programmes;
- (c) The organization of a scheme, such as a "World Friend-

ship 'Tape Club' to foster the international exchange of tapes amongst schools;

- (d) The direct exchange of tapes amongst various educational authorities and other groups.

The following recommendations were made as a guide to practical measures to assist production and international exchange :

- (a) Production procedures be standardized to some extent to ensure satisfactory standards of international production.
- (b) All interested countries might enter the "free flow" agreement of the International Council for Educational Films.
- (c) A study should be made of the different methods of dubbing and adapting foreign films for local use, particularly with a view to the needs of the developing countries.
- (d) In any major film exchange plan, at least one copy of the film exchanged should be in 16 mm.
- (e) Use of film libraries established by various governments to serve international needs should be encouraged.

The National Commissions for Co-operation with UNESCO are actively implementing these recommendations. The Indian National Commission, for example, has undertaken the preparation of a "study kit" illustrating the national culture and present-day life of India. It is expected that this kit would also be useful for schools in India for giving the children a deeper awareness of the heritage, the problems, and the achievements of the country.

The Major Project on Mutual Appreciation of Eastern and Western Cultural Values launched by UNESCO has received support of almost all countries of the world. The task undertaken is gigantic and though no perceptible results have yet been achieved, indeed these cannot be expected in such a short time, the universal response which the Project has aroused clearly shows that it is laying a broad and solid foundation for international peace and understanding.

At the time of writing this chapter UNESCO has just concluded a meeting of the Directors of Audio-Visual Services and other experts in Kuala Lumpur (July-August, 1961). This meeting discussed the question of regional co-operation in the production of Visual materials amongst the participant countries. These efforts of UNESCO highlights the importance of audio-Visual media particularly in under-developed and still-developing countries.

In furtherance of the Major Project on Mutual Appreciation of Eastern and Western Cultural Values, UNESCO has produced the following sets of coloured slides on works of art :

- | | | | |
|----|------------|-----|---|
| 1. | Egypt | ... | Paintings from tombs and temples |
| 2. | Yugoslavia | | Mediaeval frescoes |
| 3. | India | ... | Paintings from Ajanta caves |
| 4. | Iran | ... | Persian miniatures |
| 5. | Spain | ... | Romanesque paintings |
| 6. | Norway | ... | Paintings from the Stave churches |
| 7. | Masaccio | ... | Frescoes in Florence |
| 8. | Australia | ... | Aboriginal paintings |
| 9. | Ceylon | ... | Paintings from temple, shrine, and rock |

The following two sets of slides have been produced by the French National Commission :

1. Orient—Occident
2. The Art of Gandhara and Central Asia

The Spanish National Commission has also published a series of 40 colour transparencies on the work of the great master Velasquez. The pictures are accompanied with an explanatory text in English, French, and English.

In addition to slides on works of art, UNESCO has prepared a series of filmstrips entitled "UNESCO Fables" to give young children an idea of the culture of various Eastern countries.

UNESCO Fables No. 2 deals with India.

PART THREE

APPENDICES

A, B, and C

APPENDIX A

SOME AUDIO-VISUAL MATERIALS FOR USE IN DIFFERENT LEVELS AND FIELDS OF EDUCATION

1. FOR USE IN INFANT AND PRIMARY SCHOOLS

A. Filmstrips

FAIRY TALES

- | | |
|------------------------------------|--|
| 1. Snow white and the seven dwarfs | Oriental Photo House,
Byculla, Bombay |
| 2. Cinderella | " |
| 3. The ugly duckling | National Education and
Information Films,
Apollo Bunder, Bom-
bay |
| 4. The Emperor's new clothes | " |
| 5. Thumbelina | " |
| 6. The Tinder box | " |

NATURE STUDY

- | | |
|------------------------|--|
| 1. Pets and their care | The Central Film Li-
brary, Govt of India |
| 2. Red squirrel | " |
| 3. Fox | " |
| 4. Dormouse | " |
| 5. Wild rabbit | " |
| 6. Butterflies | " |

ARITHMETIC

- | | |
|-----------------------|--|
| 1. Number for infants | The Central Film Li-
brary, Govt of India |
| 2. Telling the time | " |

B. Films (16 mm.)

FAIRY TALES

- | | | |
|----------------------------|---------------|---|
| 1. Snow white and rose red | Eng. 11 mins. | " |
| 2. Cinderella | Eng. 11 mins. | " |

- | | | | |
|----|-------------------------------|---------------|--|
| 3. | Beauty and the beast | Eng. 11 mins. | The Central Film Library, Govt. of India |
| 4. | Aladin and the wonderful lamp | Eng. 11 mins. | " |
| 6. | The blue light | Eng. 11 mins. | " |

II FOR USE IN PRIMARY SCHOOLS

A. Filmstrips

NATURE STUDY

- | | | |
|-----|---------------------------------------|--|
| 1. | Water birds | " |
| 2. | Some nesting birds | " |
| 3. | Some desert animals and how they live | " |
| 4. | Sea birds | " |
| 5. | Flower family | " |
| 6. | Frogs | " |
| 7. | The cat | " |
| 8. | The cow | " |
| 9. | The dog | " |
| 10. | The elephant | " |
| 11. | The horse | " |
| 12. | Fresh Water fish | " |
| | | Picture Post Filmstrips (National Education and Information Films, Bombay) |
| 13. | Arts | " |
| 14. | Animals and birds of the world | " |

B. Films (16 mm.)

FABLES AND ADVENTURES

- | | | | |
|----|------------------------|---------------|---|
| 1. | Hare and the tortoise | Eng. 11 mins. | The Central Film Library, Govt of India |
| 2. | Fox and the rooster | Eng. 11 mins. | |
| 3. | Stray lamb | Eng. 11 mins. | |
| 4. | Princes and the dragon | Eng. 9 mins. | " |

5. Marsha and the wicked geese
6. Stag and the wolf

Eng. 22 mins.
Eng. 11 mins.

The Central Film Library
Govt of India
"

ARITHMETIC

1. The meaning of plus and minus
2. Addition is easy
3. Subtraction is easy
4. Multiplication is easy
5. Division is easy

Eng. 11 mins.
Eng. 11 mins.
Eng. 10 mins.
Eng. 10 mins.
Eng. 11 mins.

"
"
"
"
"

NATURE STUDY

1. The growth of flowers
2. Our animal neighbours
3. Common animals of the woods
4. Poetry of nature
5. Gray squirrel
6. Animal kingdom

Eng. 11 mins.
Eng. 10 mins.
Eng. 11 mins.
Eng. 6 mins.
Hindi 11 mins.
Hindi

"
"
"
"
"

National Education and
Information Films,
Bombay

III. FOR USE IN HIGH/HIGHER SECONDARY SCHOOLS

A Filmstrips

CIVICS AND CURRENT AFFAIRS

1. The United Nations at work
2. Citizenship
3. F.O.A. in Asia
4. World population

The Central Film
Library, Govt of India

"
"

Picture Post Filmstrips
(National Education
and Information Films,
Bombay)

GEOGRAPHY

1. Switzerland

The Central Film
Library, Govt of India

2.	Turkey	The Central Film Library, Govt of India
3.	Australia	"
4.	Belgium	"
5.	Britain today	"
6.	Burma	"
7.	Ceylon	"
8.	China	"
9.	Finland	"
10.	France	"
11.	Germany, North section	"
12.	Germany, South section	"
13.	Denmark	"
14.	East Africa	"
15.	Ganges Basin	"
16.	Holland	"
17.	Modern Greece	"
18.	Japan—Life and industries	"
19.	Latitude and longitude	"
20.	Malaya	"
21.	North America	"
22.	New Zealand	"
23.	South China	"
24.	South Africa	"
25.	Sweden	"
26.	Spain	"
27.	West Africa	"
28.	Egypt	"
29.	U.S.A. East States	"
30.	The Gold Coast	Picture Post Filmstrips (National Education and Information Films, Bombay.)
31.	The work of rivers	"
32.	Hong Kong	"
33.	Turkey	"
34.	The work of weather	"
35.	Philippine Islands	"
36.	U.S.A. West States	The Central Film Library, Govt of India
37.	U.S.A. Middle States	"

38.	The face of Canada	British Services	Information
39.	Nations of the Commonwealth—Introducing Australia		"
40.	Nations of the Commonwealth—Introducing South Africa		"
41.	Nations of the Commonwealth—Introducing New Zealand		"
42.	Sudan		"

CHEMISTRY

1.	Carbon and its oxides	The Central Film Library, Govt of India
2.	Chlorine and its compounds	"
3.	Calcium and its compounds	"
4.	Sulphur and its compounds	"
5.	Copper and its compounds	"
6.	Iron and steel	"
7.	Lead	"
8.	Sodium chloride	"
9.	Zinc	"

PHYSIOLOGY AND HYGIENE

1.	Nutrition	"
2.	Malaria	"
3.	Food and health	"
4.	Care of teeth	"

CRAFTS

1.	The Craftsman and wood	Picture Post Filmstrips (National Education and Information Films, Bombay)
2.	The Craftsman and metal	"
3.	The Craftsman and leather	"

LITERATURE

1. Hamlet
2. Henry V
3. Macbeth
4. Romeo and Juliet
5. A Midsummer Night's Dream
6. Introduction to Shakespeare

The Central Film
Library, Govt of India

"
"
"
"
"
"

HISTORY

1. Clive
2. Making of modern Germany
3. Napoleonic wars to the 2nd World War
4. Roman Conquest of Britain
5. Nelson
6. Changes at the end of 18th century
7. Vedic Age
8. The French Revolution
9. The Hundred Years War
10. The Renaissance

Picture Post Filmstrips
(National Education
and Information Films,
Bombay)

"
"
"
"
"
"
"
"
"
"
"

PHYSICS

1. Atomic energy
2. Electricity and Magnetism- Introduction
3. Energy
4. Condensers
5. Heat

Picture Post Filmstrips
(National Education
and Information Films,
Bombay)

"
"
"
"

B. Films (16' mm.)

MATHEMATICS

1.	What are fractions?	Eng. 10 mins.	The Central Film Library, Govt of India
2.	We discover fractions	Eng. 10 mins.	"
3.	Geometry and you	Eng. 10 mins.	"
4.	The language of the graphs	Eng. 13 mins.	"
5.	Descriptive Geometry	Eng. 22 mins.	"

GEOGRAPHY

1.	Four seasons	Eng. 33 mins.	"
2.	Day and Night	Eng. 9 mins.	"
3.	Earth—rotation and revolution	Eng. 9 mins.	"
4.	Earth—surface and climate	Silent 12 mins.	"
5.	Volcanoes	Silent 15 mins.	"
6.	Weather	Silent 14 mins.	"
7.	Earth—latitude and longitude	Eng. 9 mins.	"
8.	Majestic Norway	Eng. 20 mins.	"
9.	Picturesque Sweden	Eng. 22 mins.	"
10.	Picturesque Denmark	Eng. 20 mins.	"
11.	Belgium	Eng. 22 mins.	"
12.	Ganga	Hindi-Eng. 11 mins.	"
13.	Industrial Mysore	Hindi-Eng. 23 mins.	"
14.	Suez Canal	Eng. 9 mins.	"
15.	Introducing East Africa	Eng. 20 mins.	British Information Services
16.	Meet New Zealand	Eng. 40 mins.	"
17.	Beautiful New Zealand	Eng. 20 mins.	"
18.	This is Malaya	Eng. 13 mins.	"
19.	Australia	Eng. 10 mins.	The Central Film Library, Govt of India
20.	British Isles	Eng. 6 mins.	"
21.	Major Industries of India —Agriculture, Textiles, Iron, and Steel	—Hindi-Tamil, Telugu-Marathi, Beng. 1 hr 57 mins.	Burmah Shell
22.	Along the Tista	Hindi Colour 10 mins.	The Central Film Library, Govt of India

23.	Kerala	Hindi 17½ mins.	The Central Film Library, Govt of India
24.	Ujjaini	Hindi 11 mins.	"
25.	Round of the seasons	Eng. 10 mins.	"
26.	This is Finland	Eng. 27 mins.	"
27.	Madhya Pradesh	Hindi 18½ mins.	"
28.	A Family in Bangalore	Eng. 33 mins.	Burma Shell
29.	Kashi Ke Darshan	Hindi	National Education and Information Films, Bombay

30.	Paris and Versailles	Eng. 15 mins. Colour	The Central Film Library, Govt of India
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PHYSICS

1.	Sound	Eng. 10 mins.	The Central Film Library, Govt of India
2.	Sound (by Mc Graw Hill)		"
3.	Conduction	Eng. 7 mins.	"
4.	Radiation	Eng. 6 mins.	"
5.	Electricity and heat	Eng. 8 mins.	"
6.	Atomic energy	Eng. 11 mins.	"
7.	Laws of Motion	Eng. 12 mins.	"
8.	Gravity and centre of Gravity	Eng. 12 mins.	"
9.	Heat conduction	Eng. 12 mins.	"

CHEMISTRY

1.	Colloids	Eng. 11 mins.	"
2.	Molecular theory of matter	Eng. 11 mins.	"
3.	Oxygen	Eng. 10 mins.	"
4.	Colour	Eng. 16 mins.	"
5.	Catalysis	Eng. 11 mins.	"
6.	Crystal	Eng. 7 mins.	"
7.	Water	Eng. 11 mins.	I.C.I.
8.	Ammonia	Eng. 14 mins.	"

BOTANY

1.	From flower to fruit	Silent 15 mins.	The Central Film Library, Govt of India
2.	How plants feed	Eng. 10 mins.	"
3.	Leaves	Eng. 11 mins.	"
4.	Roots	Eng. 10 mins.	"
5.	Pollination	Eng. 8 mins.	"

6.	The life cycle of maize	Eng. 10 mins.	British Information Services
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GENERAL SCIENCE

1.	Action and Reaction	Eng. 12 mins.	The Central Film Library, Govt of India
2.	Air Pressure	"	"
3.	Battery Electricity	"	"
4.	Centrifugal Force	"	"
5.	Density	"	"
6.	Electric Circuits	"	"
7.	Falling Bodies	"	"
8.	Fire	"	"
9.	Force	"	"
10.	Friction	"	"
11.	Ice	"	"
12.	Optical Illusions	"	"
13.	Pascal's Law	"	"
14.	The Pendulum	"	"
15.	Properties of Gases	"	"
16.	Properties of Liquids	"	"
17.	Reflection	"	"
18.	Refraction	"	"
19.	Refrigeration	"	"

PHYSIOLOGY AND HYGIENE

1.	Action of the human heart	Silent 6 mins.	The Central Film Library, Govt of India
2.	The human body	Eng-Hindi-9 mins.	The United States Information Services
3.	How the respiratory system functions	Silent 14 mins.	The Central Film Library, Govt of India
4.	Nose, throat, and ears	Eng. 10 mins.	"
5.	Digestion of foods	Eng. 11 mins.	"
6.	Work of the kidneys	Eng. 11 mins.	"
7.	How we hear	Silent 6 mins.	"
8.	How we see	Silent 8 mins.	"
9.	The nervous system	Eng. 11 mins.	"
10.	Sleep for health	Eng. - Hindi 12 mins.	"
11.	How disease travels	Eng. - Hindi-Bengali 10 mins. (from Calcutta)	United States Information Services

12.	Insects as carriers of disease	Eng. - Hindi-Bengali 10 mins. (from Calcutta)	United States Information Services
13.	Understanding Vitamins	Eng. 15 mins.	The Central Film Library, Govt of India
14.	Fight Against Disease	Eng. 8 mins.	I.C.I.
15.	Health and Exercise	Hindi	National Education and Information Films, Bombay
16.	First Aid	Hindi	"

BIOLOGY

1.	Introduction to biology	Eng. 13 mins.	The Central Film Library, Govt of India
2.	Romance of life	Silent 14 mins.	"
3.	The earlier and simpler forms of life on earth	Silent 10 mins.	"
4.	The toad	Eng. 7 mins.	British Information Services

HISTORY

1.	Medieval England	Eng. 10 mins.	The Central Film Library, Govt of India
2.	Stuart Britain	Eng. 10 mins.	"
3.	Six years of freedom (India)	Eng. - Hindi 13 mins.	"

GENERAL KNOWLEDGE

1.	Do you know	Hindi 10 mins.	The Central Film Library, Govt of India
2.	Kumbha Mela	Hindi/Eng 26 mins.	"
3.	Wings of Yesterday	Eng. 19 mins.	Standard Vacuum
4.	Story of Storage Battery	Eng. 30 mins.	"
5.	Where Mileage Begins	Eng. 19 mins.	"
6.	Konarka	Eng.	Dunlop
7.	The Road to Ambattur	Eng.	"
8.	The Story of Penicillin	Eng. 9 mins.	I.C.I.
9.	Our children will know each other better	Eng.	Dunlop

10.	Radio Story	Eng. 10 mins.	Philips
11.	Magic Window (Television)	Eng. 20 mins.	"
12.	Pen-Tele-Tron	Eng. 10 mins.	"
13.	The Miracle of Light	Eng. 16 mins.	"
14.	Atoms for Peace	Hindi	National Education and Information Films, Bombay
15.	Lightning and Thunder		"

C. SLIDES

HISTORY OF INDIA

1.	Pre-historic India	20 Slides	Calcutta Pure Drug Co., Calcutta 1
2.	Vedic India	20 "	"
3.	Buddhist India	50 "	"
4.	Medieval India—Advent of the Muslims	50 "	"
5.	India under the British	50 "	"
6.	Rise of the Maratha power	20 "	"

IV. FOR USE IN TEACHERS' TRAINING INSTITUTE

A. Filmstrips

1.	Education in Britain	The Central Film Library, Govt of India
2.	Growth of visual education Part I	"
3.	Growth of visual education Part II	"
4.	Picture reader for children	"
5.	Nursery schools	British Information Services
6.	Century of progress in elementary education (British)	"
7.	Teaching techniques Part I	The Central Film Library, Govt of India
8.	Teaching techniques Part II	"

B. Films (16mm.)

1.	Motivating class	Eng. 19 mins.	The Central Film Library, Govt of India
2.	Problem of pupil adjustment	Eng. 20 mins.	"
3.	Teachers in the making	Hindi-Eng. 32 mins.	"
4.	Testing intelligence with the Stanford-Binet	Eng. 18 mins.	"
5.	Testing the I.Q.	Silent 15 mins.	"
6.	Audio-visual aids to learning	Eng. - Hindi-Bengali 13 mins. (from Calcutta)	United States Information Services
7.	Broader concept of method : developing pupil interest	Eng. 13 mins.	"
8.	Broader concept of method : teacher and pupils planning and working together	Eng. 19 mins.	"
9.	Maintaining classroom discipline	Eng. 14 mins.	"
10.	New tools for learning	Eng. 19 mins.	"
11.	Double thread	Eng. 33 mins.	British Information Services
12.	The three A's	Eng. 19 mins.	"
13.	Children's charter	Eng. 18 mins.	"
14.	Home and school	Eng. 20 mins.	"
15.	Tips for teachers	Eng. 20 mins.	"
16.	Bring the world to the classroom	Eng. 22 mins.	"
17.	How to make handmade lantern slides	Eng. 22 mins.	"
18.	Facts about film	Eng. 10 mins.	The Central Film Library, Govt of India
19.	Using the classroom film	Eng. 22 mins.	"
20.	Basic education	Hindi 10 mins.	"
21.	Sound recording and reproduction	Eng. 11 mins.	"
22.	Audio-Visual Education Seminar--1954	Silent 24 mins.	"
23.	Puppetry-string marionettes	Eng. 10 mins.	"
24.	Felt Board in Teaching	Eng. 9 mins. Colour	"
25.	Shadowland	Eng. 12 mins.	"

V. FOR USE IN SOCIAL EDUCATION CENTRES

A. Filmstrips

HEALTH AND HYGIENE

1.	Food and health	The Central Film Library, Govt of India
2.	First aid	"
3.	Malaria	"
4.	Cholera	"
5.	Leprosy	"
6.	Tuberculosis	"

AGRICULTURE

1.	Compost making	"
2.	Land	"
3.	Rice	"
4.	Wheat	"
5.	Irrigation	"
6.	Jute fields	"

B. Films (16 mm.)

HEALTH AND HYGIENE

1.	Before the baby comes	Eng. 30 mins. (from Calcutta)	United States Information Services
2.	Cleanliness brings health	Eng. - Beng. - Hindi 10 mins. (from Calcutta)	"
3.	Clean water makes good health	Eng. - Hindi-Bengali 11 mins. (from Calcutta)	"
4.	Care of the eyes	Eng. - Hindi-Bengali 21 mins. (from Calcutta)	"
5.	How to have healthy home	Eng. 17 mins.	"
6.	Malaria control	Eng. - Bengali-Hindi 27 mins. (from Calcutta)	"

7.	They need not die	Eng. - Bengali-Hindi 16 mins. (from Calcutta)	United States Information Services
8.	Your baby can be healthy	Eng. 16 mins.	"
9.	Your health centre	Eng. - Hindi 8 mins. (from Calcutta)	"
10.	Arrest leprosy	Eng.-Hindi 12 mins.	The Central Film Library, Govt of India
11.	Hookworm	" 10 mins.	"
12.	The marked man	" 12 mins.	"
13.	Mosquito menace	" 11 mins.	"
14.	What is disease ?	" 12 mins.	"
15.	Cholera	Hindi	National Education and Information Films, Bombay
16.	Where is Dinoo ? (about Diptheria)	Hindi	"

AGRICULTURE

1.	How to control pests	Eng. - Hindi-Oriya (from Calcutta)	United States Information Services
2.	How to grow more paddy	Eng. - Hindi-Beng.-Oriya-Assamese 22 mins. (from Calcutta)	"
3.	Improved seed	Eng. - Beng. 16 mins. (from Calcutta)	"
4.	Life for the land	Eng.-Hindi-Bengali 21 mins. (from Calcutta)	"
5.	Magic of the egg	Eng.-Beng.-Hindi 15 mins. (from Calcutta)	"

6.	More profit from goats.	Eng. 12 mins. (from Calcutta)	United States Information Services
7.	Planning for plenty	Eng.-Hindi- Bengali 13 mins. (from Calcutta)	"
8.	Time is money	Eng. 10 mins. (from Calcutta)	"
9.	White Manure	Hindi-Eng. 11 mins.	The Central Film Library, Govt of India
10.	Corn's Hidden Enemies	10 mins.	Burma Shell
11.	Spray for Better Crops	28 mins.	"
12.	Rice cultivation in India	Hindi	National Education and Information Films, Bombay

CO-OPERATION

1.	Shoulder to shoulder	Hindi 11 mins.	Films Division, Ministry of Information and Broadcasting, Govt of India
2.	Co-operative farming	Hindi-Eng. 11 mins.	"
3.	The Etawah story	Eng.-Hindi 11 mins.	"
4.	Our milk co-operative	Eng.- (from Calcutta)	The United States Information Services
5.	Triumph in the wilderness	Eng.-Beng-Hindi (from Calcutta)	"
6.	Kubauliram	Eng.-Hindi-Tamil-Telugu-Malayalam-Marathi-Gujarathi-Kanarese-Bengali 28 mins.	Burmah-Shell
7.	The weavers of Maindargi	Hindi-Tamil-Telugu-Bengali-Kanarese 25 mins	"

CRAFTS

1.	Spirit of the loom	Hindi 11 mins.	The Central Film Library, Govt of India
2.	Busy hands	Hindi 10 mins	"
3.	Suds	Hindi-Eng. 9 mins.	"
4.	Potteries	Hindi-Eng. 11 mins.	"
5.	Tree of wealth	Hindi-Eng. 10 mins.	"
6.	Himalayan Tapestry	29 mins colour	Burma Shell
7.	Rajasthan Tapestry	44 mins colour	"
8.	The sportsman and the carpenter	29 mins.	"

C. Slides

AGRICULTURE

1.	Japanese methods of paddy cultivation	30 slides	Calcutta Pu. & Drug Co., Calcutta
2.	Wheat cultivation	30 slides	"
3.	Potato cultivation	30 slides	"
4.	Rotation of crops	12 slides	"
5.	Agriculture and modern implements	40 slides	"
6.	Agriculture and manure	30 slides	"
7.	Tomato culture	30 slides	"
8.	Sugarcane cultivation	30 slides	"
7.	How to grow more paddy	22 mins	"

HEALTH AND HYGIENE

1.	Drama on malaria	20 slides	"
2.	How to prevent cholera	12 slides	"
3.	Impure water and water-borne diseases	26 slides	"
4.	Co-operative health organization	28 slides	"
5.	Our food	30 slides	"

VI. FOR USE IN LABOUR WELFARE INSTITUTIONS AND FACTORIES

Films (16 mm.)

1.	Welfare for the workers	Hindi-Eng. 11 mins.	The Central Film Library, Govt of India
2.	Safety first	Hindi 11 mins.	"
3.	Recreation for factory workers	Eng. 20 mins.	United States Infor- mation Services
4.	Safety in the shop	Eng. 11 mins.	"
5.	Factory safety	Eng. 10 mins.	"
6.	Lifting	Eng. 9 mins.	British Information Services
7.	Watch your step	Eng. 14 mins.	"
8.	Factory Inspector	Eng. 13 mins.	"
9.	The man who stops accidents	Eng. 15 mins.	"

VII. SOME NOTABLE FILMS (16 mm.) FOR USE IN UNIVERSITY FILM SOCIETIES

1.	Babla	India
2.	Boot Polish	India
3.	Garm Coat	India
4.	Devdas	India
5.	Pyaasa	India
6.	Gotama the Buddha	India
7.	Kabuliwala	India
8.	Munna	India
9.	Pamposh	India
10.	Mirza Ghalib	India
11.	Mother India	India
12.	Parineeta	India
13.	Ramshastri	India
14.	Awara	India
15.	Do Ankhen Barh Haath.	India
16.	Jagte Raho	India
17.	Pather Panchali	India
18.	Aparajito	India

19. Apur Sansar	India			
20. Yatri	India			
21. Chetak	India			
22. Id Mubarak	India			
23. Himalayan Tapestry	India			
24. Khajuraho	India			
25. Folk Dances of India	India			
26. Holy Himalayas	India			
27. Power Among Men	U. N. O.			
28. The Man in the White Suit	G. B.			
29. The Bridge over the River Kwai	G. B.			
30. Hamlet	G. B.			
31. Oliver Twist	G. B.			
32. Great Expectations	G. B.			
33. Brief Encounter	G. B.			
34. Henry V	G. B.			
35. Gaslight	G. B.			
36. Rembrandt	G. B.			
37. Man of Aran	G. B.			
38. Lady Hamilton	G. B.			
39. The Story of Louis Pasteur	G. B.			
40. Pygmalion	G. B.			
41. Don Quixote	G. B.			
42. Abraham Lincoln in Illinois	U. S. A.			
43. The Back of Beyond	Australia			
44. Kanal	Poland (English sub-titles)			
45. Wages of Fear	France	"	"	"
46. Le Million	France	"	"	"
47. Goha	France	"	"	"
48. Battleship Potemkin	U.S.S.R.	"	"	"
49. Ivan the Terrible	U.S.S.R.	"	"	"
50. Alexander Nevsky	U.S.S.R.	"	"	"
51. Time in the Sun	U.S.S.R.	"	"	"
52. So Close to Life	Sweden	"	"	"
53. Wild Strawberries	Sweden	"	"	"
54. Friends for Life	Italy	"	"	"
55. Bicycle Thieves	Italy	"	"	"
56. Children of Hiroshima	Japan	"	"	"
57. Yukiwarisoo	Japan	"	"	"
58. Kameradschaft	Germany	"	"	"
59. Rekava	Ceylon	"	"	"
60. Song of Ceylon	Ceylon	"	"	"

Appendix B.

SOURCES OF MATERIALS AND EQUIPMENT

The following Addresses are of March, 1961

Chalkboards

1. MEGH SLATE FACTORY PRIVATE LTD.—Baramati, Poona
2. SCHOOL SUPPLY AGENCY—19/1A, Mahatma Gandhi Road, Calcutta 9

Flannel Boards

SCHOOL SUPPLY AGENCY—19/1A, Mahatma Gandhi Road, Calcutta 9

Maps, Globes, and Charts

1. CHANDI CHARAN DAS & CO. (PRIVATE) LTD—150, Dharamtala Street, Calcutta 15
2. SCIENTIFIC INSTRUMENTS STORES—Geography Section, J—355, New Rajendra Nagar, New Delhi (For maps produced by Aero Service Corporation, U.S.A.)

Posters

For poster materials—G. C. LAHA & Co., 1, Dharamtala Street, Calcutta

For Silk-screen Inks—

1. GANGES PRINTING INK FACTORY (P) LTD—Gillander House, Calcutta 1
2. COATS OF INDIA LTD—3, Canal East Road, Calcutta 4

Filmstrip Projectors, Slide Projectors, and Epidiascopes

1. CALCUTTA PURE DRUG CO.—2, Cooper Lane, Calcutta 1
2. CINEFONES (P) LTD—3, New Queen's Road, Bombay 1
3. CINERAMA (P) LTD—Chandni Chowk, Behind State Bank of India, Delhi
4. CINECITA PRIVATE LTD—6/3, Madan Street, Calcutta 13
5. GENERAL RADIO & APPLIANCES PRIVATE LTD—3, Madan Street, Calcutta 13
6. PHOTO-CINE SOUND SUPPLIES—4, Mission Row, Calcutta 1
7. THE ORIENTAL SCIENCE APPARATUS WORKSHOPS—Ambala Cantt.
8. EDUCATIONAL & SCIENTIFIC EQUIPMENTS PRIVATE LTD—National House, Apollo Bunder, Bombay
9. ELECTRONIC EMPORIUM—296, Lamington Road, Bombay 7
10. PATEL INDIA (PRIVATE) LTD—199, Hornby Road, Bombay
11. AMA (P) LTD—Canada Building, Hornby Road, Bombay 1 and Connaught Place, New Delhi

Stereoscopes and Stereo Projectors

SAWYER'S ASIA PRIVATE LTD—68, Taradeo Road, Bombay 7.

16 mm. Sound Projectors and Glassbeaded Screens

1. J. MAHABEER & CO (PRIVATE) LTD—Faiz Bazar, Delhi 7
2. EDUCATIONAL & SCIENTIFIC EQUIPMENTS PRIVATE LTD—National House, Apollo Bunder, Bombay 1
3. PATEL INDIA (PRIVATE) LTD, 199, Hornby Road, Bombay
4. GAUMONT-KALEEL(P) LTD—Forbes Building, Fort, Bombay
5. GENERAL RADIO & APPLIANCES PRIVATE LTD—3, Madan Street, Calcutta 13
6. PHOTO CINE SOUND SUPPLIES—4, Mission Row, Calcutta
7. MEOPTA CINE DISTRIBUTION & SERVICE—Central Studio, Bashirbagh, Hyderabad
8. CINEFONES—3, New Queen's Road, Bombay 1
9. AMA (P) LTD,—
 - (i) Connaught Place, New Delhi
 - (ii) 11, Government Place East, Calcutta
 - (iii) Hornby Road, Bombay 1.

Tape Recorders

1. Toshniwal Bros (P) Ltd—198 Jamshedji Tata Road, Fort, Bombay
2. RADIO SERVICES—19, Mound Road, Madras
3. GENERAL RADIO AND APPLIANCES PRIVATE LTD—3, Madan Street, Calcutta 13.

Films and/or filmstrips

1. THE CENTRAL FILM LIBRARY—National Institute of Audio-Visual Education, Ring Road, New Delhi.
2. FILM LIBRARIES OF STATE GOVERNMENTS
3. THE CANADIAN HIGH COMMISSION, New Delhi
4. THE UNITED STATES INFORMATION SERVICES, Calcutta, Bombay, New Delhi, Madras
5. THE BRITISH INFORMATION SERVICES, Calcutta, Bombay, New Delhi, Madras
6. THE BURMA-SHELL OIL STORAGE AND DISTRIBUTING CO. LTD, Hong Kong House, Calcutta 1
7. THE IMPERIAL CHEMICAL INDUSTRIES LTD, I.C.I. House, Chowringhee, Calcutta 16
8. THE STANDARD VACUUM OIL CO. LTD, P.O. Box 355, Bombay
9. THE DUNLOP RUBBER CO. LTD, Free School Street, Calcutta
10. PHILIPS INDIA LTD, Justice Chandra Madhab Road, Calcutta
11. THE BRITISH COUNCIL—Rafi Marg, New Delhi; also Calcutta, Bombay, and Madras
12. THE CHILDREN'S FILM SOCIETY—Sapru House, New Delhi

13. THE NATIONAL EDUCATION AND INFORMATION FILMS LTD—National House, Apollo Bunder, Bombay (Agents for Unesco Slides)
14. THE EDUCATIONAL FILMS OF INDIA—180, Hornby Road, Bombay
15. THE UNIVERSAL EDUCATIONAL FILMS—3A, Asaf Ali Road, New Delhi
16. FILMS DIVISION—Govt of India, 68, Taradeo Road, Bombay
17. THE TECHNICAL CO-OPERATION MISSION—American Embassy, New Delhi
18. FILM LIBRARY (PRIVATE) LTD—Behind Kamla Market, New Delhi
19. PATEL INDIA (P) LTD—Lindsay Street, Calcutta and 199, Hornby Road, Bombay
20. INLAND TRADING CORPORATION—107, Mahatma Gandhi Road, Fort, Bombay
21. THE EMBASSY OF THE POLISH PEOPLE'S REPUBLIC IN INDIA—New Delhi
22. CEYLON HIGH COMMISSION—224, Jor Bagh Nursery, New Delhi 3
23. AUSTRALIAN HIGH COMMISSION—Connaught Place, New Delhi
24. FRENCH EMBASSY IN INDIA—2, Aurangzeb Road, New Delhi
25. UNITED NATIONS ORGANIZATION—21, Curzon Road, New Delhi
26. MINISTRY OF EDUCATION, Unesco Unit, E. Block, New Delhi for Unesco slides and filmstrips

Appendix C

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2. AUDIO-VISUAL MATERIALS AND TECHNIQUES—James S. Kinder (American Book Company, New York)
3. AUDIO-VISUAL AIDS TO INSTRUCTION—Mc Kown and Roberts (Mc Graw Hill Inc., New York)
4. AUDIO-VISUAL METHODS IN TEACHING—Edgar Dale (The Dryden Press, New York)
5. VISUAL METHODS IN EDUCATION—W. L. Sumner (Basil Blackwell, Oxford)
6. VISUAL AIDS—Weaver and Bollinger (D. Van Nostrand Co., New York)
7. VISUAL EDUCATION—Freeman (University of Chicago Press)
8. VISUAL EDUCATION AND THE NEW TEACHER—G. P. Meredith (Daily Mail Publications, London)
9. FILMSTRIPS—Vera M. Falconer (Mc Graw Hill Inc., New York)
10. FILMSTRIPS—National Committee for Visual Aids in Education, London
11. FILMSTRIPS AND SLIDE PROJECTION—Kidd and Long (Focal Press)
12. AUDIO-VISUAL MATERIAL IN TEACHER EDUCATION—Association for Student Teaching, Pennsylvania
13. VISUAL AND AURAL AIDS—A Report of the Advisory Council on Education in Scotland, 1950
14. PLANNING A VISUAL EDUCATION POLICY—National Committee for Visual Aids in Education, London
15. EDUCATIONAL FILM YEARBOOKS—Scottish Educational Film Association, Glasgow
16. VISUAL AIDS IN FUNDAMENTAL EDUCATION—Unesco
17. RADIO AND MOBILE VAN IN FUNDAMENTAL EDUCATION—Unesco
18. GEOGRAPHY IN SCHOOL—James Fairgrieve (University of London Press)
19. DOCUMENTARY FILM—Paul Rotha (Faber and Faber Ltd., London)
20. CHILDREN'S FILMS—A Symposium—Ministry of Information and Broadcasting, Government of India
21. THE FILM AS AN EDUCATIONAL FORCE IN INDIA—Marie Seton (Ministry of Education, Govt of India)
22. ADVENTURES IN MAKING—Seon Manley (Vanguard Press, New York)
23. AUDIO-VISUAL TEACHING TECHNIQUES—F. Dean Mc Clusky (Wm. C. Brown Co., Iowa, U.S.A.)
24. AUDIO-VISUAL PROCEDURES IN TEACHING—Lister B. Sands (The Ronald Press Co., New York)
25. AUDIO-VISUAL MATERIALS—their Nature and Use—Wittich and Schuller (Harper and Brothers, New York)

26. MOTION PICTURES IN THE CLASSROOM—Wood and Freeman (Houghton Mifflin Co., Boston)
27. THE SCHOOL ADMINISTRATOR AND HIS AUDIO-VISUAL PROGRAMME—C. F. Schuller (National Education Association, Washington)
28. HANDBOOK OF GRAPHIC PRESENTATION—Colvin F. Schmid (The Ronald Press Co., New York)
29. EXPLORING THE GRAPHIC ARTS—Anthony Marinaccio (D. Van Nostrand Co. Inc., Princeton, New Jersey, U.S.A.)
30. PUPPETS AND PLAYS : CREATIVE APPROACH—Marjorie Batchelder and Virginia Lee (Harper and Brothers, New York)
31. FOLK ART IN BENGAL—Ajit Mukherjee (Calcutta University)
32. CENSUS 1951 (W. BENGAL)—The Tribes and Castes of W. Bengal
33. SILK-SCREEN COLOUR PRINTING—Harry Eternberg (Mc Graw Hill Inc., New York)
34. RUPAM—An Illustrated Quarterly Journal of Oriental Art (edited by O.C. Ganguly) 8, Old Post Office Street, Calcutta.
35. MARG—A Journal on Art (Bombay)
36. HANDBOOK OF THE SILK-SCREEN PRINTING PROCESS—Harry Summer and R. M. Audrieth (Arthur Brown and Bros., New York)
37. UNESCO REPORT OF THE MEETING OF EXPERTS IN TOKYO ON PRODUCTION, EXCHANGE, AND USE OF AUDIO-VISUAL AIDS IN SCHOOLS.
38. UNESCO REPORT OF THE DIRECTOR GENERAL ON THE ACTIVITIES OF THE ORGANIZATION IN 1960.
39. TEACHING ABOUT THE ORIENT—T. Ivon Davies (Unesco)
40. REPORT ON THE SYMPOSIUM "ROLE OF CHILDREN'S FILMS IN THE DEVELOPMENT OF THE PERSONALITY OF THE CHILD" (Children's Film Society, Sapru House, New Delhi)

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