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Part of a larger research program to determine the principles of effective production and utilization of filmic instructional devices, this paper deals with activities in Great Britain, Canada, and Australia. Activities in each of these countries form the basis for each of the three chapters of this report. The chapter on Great Britain describes The British tradition in documentary films, instructional films during the war, instructional films in education, the use of instructional films in universities, instructional film research, the producers of instructional films, and organizations interested in promoting the development of instruction films. It ends with references and an appendix describing the technique of factual film production in Great Britain. The report on Canada discusses the National Film Board of Canada and its functions, production facilities, the distribution and exhibition of films, and the documentary tradition. The chapter on Australia comprises reports on audiovisual aids in military training and in education, and concludes with references. (GO)

TECHNICAL REPORT - SDC 269-7-1

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(Rapid Mass Learning)

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FOREWORD

The Instructional Film Research Program, of The Pennsylvania State College, is engaged in research to determine the principles of effective production and utilization of filmic instructional devices. As a basis for this research, the Program has attempted to gather as much information as possible about the production and utilization of instructional films, and about research activities concerned with these functions. An extensive report covering the current situation in the United States is in preparation. The present paper treats activities in Great Britain, Canada and Australia.

This paper has been organized into three main chapters, each chapter dealing with one of the countries mentioned. The sections concerned with Great Britain and with Australia have been written by Mr. Leslie P. Greenhill, the section on Canada by Mr. John Tyo. Mr. Greenhill has recently come from a year's study of instructional film production and utilization in Great Britain; he had previously served in the Cinematographic Section of the Australian Army and on the staff of the Visual Aids Centre of the University of Melbourne. Mr. Tyo has been granted leave of absence from a position with the National Film Board of Canada to work with the Instructional Film Research Program.

It is believed that this Incidental Report will be generally informative, suggestive and helpful to all those interested in instructional and informational sound motion pictures and related materials. This Report does not represent experimental results from the Instructional Film Research Program.

C. R. CARPENTER, Director
Instructional Film Research Program
The Pennsylvania State College

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GREAT BRITAIN

By

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I. The British Tradition In Documentary Films

The present trend in instructional film production in Britain stems largely from the documentary film movement, which has a tradition and philosophy quite distinct from that of the entertainment film.

It has been said that "The Documentary is Britain's outstanding contribution to the Film" (1). The term "documentary" was coined by John Grierson in 1926 in a review of Robert Flaherty's "Moana", a film about the South Sea Islanders and their daily life. It was adopted by the school of film making which became centered around Grierson, and is now accepted as describing a particular type of film production. The movement has spread to Canada, Australia, South Africa, New Zealand, Denmark, France, Poland, and a number of other countries, where it is being carried on, in many cases, under government sponsorship.

The documentary film has been described as "the creative interpretation of actuality." In its approach to film making it emphasizes a realistic factual treatment of the subject without the benefit of the actors, elaborate studio stage settings, and the artificiality which characterize the entertainment film.

In 1929, Grierson joined the government-sponsored Empire Marketing Board, and organized a film unit, which was later transferred to the General Post Office. Through this organization, and The Film Centre, which he later established, Grierson played the important role of recruiting and training enthusiastic film makers, who, with Grierson, have spread the documentary film technique throughout the world. Thus, too, was established in Britain the system of government film sponsorship, which provided both the demand and the funds for factual film production. One of the reasons for the success of the movement in Britain is said to be that "It permitted the national talent for emotional understatement to operate in a medium not generally given to understatement. It allowed an adventure in the arts to assume the respectability of a public service" (1).

Today, with the application of the documentary film production technique to the fields of science and education, as well as in public relations work, the term "factual film" is becoming widely substituted for "documentary." A good detailed account of the historical development of factual film production in Britain is contained in the Arts Enquiry Survey entitled The factual film (1) from which some of the preceding quotations have been drawn.

II. Instructional Films during the War

By 1939, the British documentary film movement had demonstrated some of the uses to which this type of film could be put, and many excellent factual films had been produced. The war provided an opportunity for continuing this work on a greatly extended scale - primarily through the Ministry of Information, which sponsored the production of many informational films for showing in Britain and abroad. This Ministry set up its own production unit, The Crown Film Unit, and also commissioned existing documentary units to make factual films for it. Instructional and informational films were also produced through the Ministry of Information for other Government Departments: The Ministries of Health, Agriculture, Labour, Food, Fuel and Power, and The Board of Trade. The practice of showing "informational" films in village halls, town squares and factories, by means of mobile projection units, was also established.

The Military services - Army, Royal Navy, and Royal Air Force - were not slow to realize the value of films for training, education, record and public relations purposes.

The Army. The Army set up the Directorate of Army Kinematography to make training films for the Directorate of Military Training, and the Army Educational Organization.

The Directorate of Army Kinematography also had a special branch for producing filmstrips, and for providing equipment. In 1944, it was decided that many subjects in film form could be covered as effectively, and more cheaply, by filmstrips.

The Royal Navy. The Royal Navy also has been using audio-visual aids for training purposes - particularly since 1943, when a large-scale experiment (6) was carried out by the Director of Training and Staff Duties, in conjunction with the Senior Psychologist to the Admiralty. The main objects of the experiment were (1) to compare the relative efficiency of ordinary practical instruction with instruction in the same subject assisted by filmstrips and/or motion pictures; and (2) to assess the effectiveness of these visual aids among duller and brighter men, and with

classes taken by good or by weak instructors. The experiment involved 732 men under training in H.M.S. Raleigh. Various types of instruction were given, with and without visual aids, followed by examinations containing "memory type" and "comprehension type" questions.

The conclusions reached were:

(1) Classes taught by filmstrip obtained better scores than classes taught by normal methods.

(2) The value of the film was clearly proved. Not only normal classes, but also those who had seen the filmstrip obtained higher marks if they had seen the film. Two classes which had no ordinary instruction at all but which saw the film twice (in 50 minutes) were about as good (on a paper test) as those classes which had received three full periods of normal instruction from weak instructors.

(3) Either film or filmstrip can be used profitably, and both are worthwhile when time allows. Furthermore, they can compensate either for weakness in the instructor or for a rather poor level of intelligence in the class.

As a result of this experiment, naval training authorities decided to introduce the filmstrip as a regular feature in naval training, particularly when films were not available. The Admiralty still has a very active filmstrip production department and is pushing ahead with its filmstrip program.

Films were, and still are, produced chiefly by commercial film companies to meet Admiralty specifications. At present there are only limited opportunities for experimentation with instructional films, and the Film Section of the Admiralty has expressed much interest in the results of the Instructional Film Research Program being conducted by The Pennsylvania State College for the U. S. Navy.

Royal Air Force. The Royal Air Force has also made extensive use of instructional films in training. Films are generally produced by documentary film companies under the supervision of the Director of Training.

The R. A. F. film units were engaged chiefly in making record films of important operations, for analysis, and for operational and combat training.

Action shots taken by the Services' film units were used in such films as Desert Victory, Air Plan, and Journey Together.

III. Instructional Films in Education

During the war, as has been mentioned, there was a great demand for the services of documentary film production units and their technicians, both by the military services and by government departments, which resulted in a considerable increase in trained personnel. With the tapering-off of expenditure on films by the services and the government since the war, the producers of factual films have been turning their attention towards the educational field.

In England and Wales there was only limited use of films in schools prior to 1939, but the interest in audio-visual aids for school use received a great stimulus when films were found to be so effective in military instruction. Also the greatly increased numbers of informational films produced during the war were found to be of considerable value as "background" material for classroom teaching.

Since the war attention has been turned to the making of more specialized "lesson" films, and filmstrips. The initiative came largely from the film-making companies which sought advice from educationalists as to the kinds of films which teachers needed; some of the larger companies produced films and offered them for sale. The smaller companies were financially dependent on government sponsorship, and they looked to the Ministry of Education or the Central Office of Information to initiate production. Many small companies sprang up, almost overnight, and began to produce large numbers of filmstrips of varying quality.

The National Committee for Visual Aids in Education. Teachers and educational authorities were soon demanding better films and filmstrips; in order to get a planned policy for visual aids, The National Committee for Visual Aids in Education was established in London in November, 1946, and a full-time executive secretary and staff were appointed early in 1947 (3).

The main functions of the National Committee are:

(1) The planning of a visual education policy.

(2) The collection and collation of the requirements of teachers and Local Education Authorities (which administer the schools) in regard to films and filmstrips.

(3) The determination of what films shall be produced through the Ministry of Education. (Production is now supervised by The Educational Foundation for Visual Aids.)

(4) The assessment of the educational value of the films produced by commercial film-making companies.

(5) The nomination of one or more educational advisors to be taken into consultation by film producers at all stages of production of each sponsored film.

(6) The development of regional film libraries in co-operation with Local Education Authorities.

(7) The advisement of Local Education Authorities on the supply and suitability of projection apparatus.

(8) Research into education by visual means through and in consultation with The National Foundation for Educational Research.

(9) The improvement of standards of film appreciation among children and adolescents.

(10) The giving of guidance in the selection of films and other visual aids, for the benefit of teachers and Local Education Authorities.

(11) The encouragement of the provision of facilities for training teachers in the production and use of films and other visual aids.

The Educational Foundation for Visual Aids has recently been established to distribute information, and to sell films and projectors to schools on an ordinary commercial basis, so that schools can obtain a full range of instructional films and equipment from one center. In addition, the Educational Foundation for Visual Aids will supervise the production of instructional films for the National Committee for Visual Aids in Education.

At this point, reference should be made to the term "visual unit" which is widely used in official educational circles in England.

A "visual unit" is a group of audio-visual aids relating to a particular subject, which has been planned, and is intended to be used, as a complete unit. The component parts of the unit may include display boards, wall charts, sound on disc, sound films, silent films, film loops, still photographs, filmstrips, models, illustrated booklets, and a teacher's hand book. Each part of the unit is intended to reinforce the other, and all are related to the subject, the idea being to

use each kind of visual aid (sound film, filmstrip, etc.) for the teaching purpose for which it is believed to be best fitted. This idea and its application in social studies is described in a booklet entitled Local studies, which has been prepared by the Central Office of Information for the Ministry of Education, London (2).

Some of the commercial producers of audio-visual aids are adopting this idea, and it is quite usual to find them offering a sound film together with related filmstrips, wall charts, and a teacher's manual.

Projectors. A serious handicap to the more extensive use of audio-visual aids in instruction has been the shortage of projectors, particularly for sound films. Some manufacturers have adopted well-known American designs which have had war time testing; Bell and Howell, Ampro, and Victor 16 mm. projectors are now being made in Britain under license, as is the De Brie, of French design. Also available are several projectors of well established British design, such as the B.T.H. (British Thomson-Houston) and the Carpenter. The optical firm of Ross - also one of the leading manufacturers of 35 mm. projectors - has recently announced a new super-quality 16 mm. sound projector with a Geneva movement for the film pull-down. Prices of sound projectors range from $800 to $1,600, with the average around $1,000. Filmstrip projectors are available in a great variety of designs.

IV. Use of Instructional Films in Universities

The universities in Britain are now beginning to recognize officially the value of films in instruction. For many years films and slides have been used in certain departments for illustrating lectures, and some departments have had cine camera equipment for recording experimental work; however, no university has had a completely equipped film center with facilities for production, and a comprehensive film library service. Cambridge University has been one of the most advanced in recognizing the need for such facilities. The Cambridge University Educational Film Council was founded in February, 1947, with the following objectives:

(1) To collect information about educational films and filmstrips likely to be of value in university work, and to arrange for the appraisal of such materials.

(2) To provide technical advice to university departments wanting to make their own films or set up projection services.

(3) To arrange for the exchange of films and production experience with other universities in Britain and abroad.

(4) To aim at the establishment of a film center by - the University, with adequate facilities for production, projection, and library storage of educational films.

These objectives were extended to include attention to the requirements of most British universities, with the formation in 1948 of The Universities Film Council of Great Britain.

Teacher Training. So far as teacher training in the utilization of instructional films is concerned, several universities have provided courses of lectures in visual education - particularly the University College of the South West at Exeter, The University of London, and Manchester University. The London County Council provides courses for teachers in the operation of projectors and other equipment, at The Wandsworth Technical School, and courses in film making for school and university teachers have been organized at The Dartington Hall Film Unit, Totnes, Devon.

V. Instructional Film Research

In the field of research into the effectiveness of audio-visual aids in instruction, the most important contributions have probably been made by the Scottish Educational Film Association and The Scottish Film Council. The use of visual aids in Scottish schools dates from 1912, and was quite considerable in the 1920's. The Scottish Educational Film Association was formed in 1934 and works in close conjunction with The Scottish Film Council.

This Association has completed two fairly extensive experiments. One was in the use of filmstrips dealing with "The American Way of Life" (4). The purpose of the experiment was to determine the value of the filmstrip as a means of communicating useful material to Scottish school children on the geography, industries, and social life of the United States of America. Approximately 50 filmstrips were used. These had been produced by the American Council on Education for The Office of War Information, and covered many aspects of life in the U.S.A. There was a general consensus that the filmstrips did give the Scottish children a faithful picture of the American way of life, and the following observations on filmstrips were made:

(1) Photography should be first class, and generally speaking, in color.

(2) The sequence of pictures should be absolutely logical.

(3) Where the actual commentary is supplied, the frames should be numbered on the strip to facilitate the work of the commentator.

(4) Maps and diagrams should be generously provided. They should not be too detailed.

(5) The purpose of the strips should be to convey accurate information.

(6) Human interest should be introduced wherever possible, and where workers are involved, their social and domestic background should receive some notice.

(7) In all strips intended to be shown in schools the activities of children should figure prominantly, if relevant.

The other experiment (5), referred to as the "Fife Experiment", was a comparison between the effectiveness of the sound film, the silent film with teacher's commentary, and the silent film with no commentary, both for teaching specific facts, and as "background" material. The main conclusions reached were as follows:

(1) Within the limits of this experiment it would appear that the silent film with the teacher's commentary is a more effective aid than either a sound, or unaccompanied silent, version of the same film.

(2) The silent film becomes a more effective aid to teaching when reinforced by the teacher's commentary provided that the teacher has a sufficient knowledge of the film and his commentary is well prepared beforehand.

(3) The sound film has advantages over the silent film when used to provide "background" material.

In Britain the introduction of films into school and university teaching has met a certain amount of resistance from the more conservative teachers and instructors, who feel that visual aids (particularly sound films) will tend to usurp the place of the teacher and lead to the "mechanization" of education. Thus many of the experiments in the use of films have been designed to show that, properly used, films are valuable aids to teaching.

On the other hand, many teachers and Local Education Authorities have been doing a good deal of individual experimentation in order to find more effective ways of using visual aids in the lesson situation.

The producers of instructional films have also been doing some experimentation, as for instance: (1) in trying out films at the rough-cut stage in actual class situations,

in order to test the clarity of presentation of the material; (2) in the insertion of blank spaces in films at appropriate spots so that the projector can be stopped and a discussion take place; (3) in the use of very short films (2-3 min.) to illustrate a single point; (4) in the insertion of questions in films to provoke thought and discussion.

Film producers and educationalists in Britain are well aware of the need for fundamental research into the psychology of learning from films, and into the factors involved in making instructional films which will be more effective. For this reason there has been a good deal of interest in the Instructional Film Research Program at The Pennsylvania State College. It is believed that some research in this area will soon be initiated in England by The National Foundation for Educational Research, working in conjunction with the National Committee for Visual Aids in Education.

VI. Producers of Instructional Films

The largest commercial producer of instructional films in Britain is Gaumont-British Instructional Films Ltd. This company is now a unit of the J. Arthur Rank Organization; it works in close cooperation with G. B. Animation Ltd., which produces the animation sequences for instructional films. Gaumont-British Instructional Films also operates an extensive film library, and an associated company manufactures the Bell and Howell 16 mm. sound and silent projectors.

Some other leading companies in the instructional film field are: British Instructional Films - owned by Pathé, and specializing to some extent in films for the 7 - 12 age group; Realist Film Unit - scientific, medical, industrial and child psychology films; Data Film Unit - engineering films; and Basic Film Unit - agricultural films. The Central Office of Information Films Division (now under John Grierson) has its own production unit - The Crown Film Unit - which produces excellent factual films of all types - many of value for direct instructional purposes. Two industrial concerns - The Shell Company and Imperial Chemical Industries - have active film units producing valuable instructional films on scientific subjects. These films are usually free from direct advertising material.

VII. Organizations Interested in Promoting the Development of Instructional Films

(1) The Scientific Film Association of Great Britain. This organization has the following main objectives: (a) To promote the use of scientific films in

order to achieve the widest understanding of the scientific method and outlook.

(b) To collect and distribute information about scientific films.

(c) To organize conferences and give demonstrations of special uses of films (e.g., the use of films in scientific research, industry, agriculture, engineering, etc.).

(d) To publish catalogues of scientific films graded according to content and academic suitability. (In the sense used here, "scientific" films include almost all types of "factual" films.)

The SFA works through standing committees which include: Press Relations, Education, Film Appraisal, Film Strip, Industrial Films, Sciences (Teaching and Research), Medical Films, Film Production, and Technical.

(2) The Film Section of The Central Office of Information has already been mentioned. The Film Section sponsors the production of many factual films. These are distributed overseas through British Information Service Centers, and in England through The Central Film Library, which lends out approximately 500 films per day to schools and other organizations.

(3) Also mentioned were The National Committee for Visual Aids in Education, which formulates policy, and The Educational Foundation for Visual Aids, which supervises production and distributes films and equipment to schools.

(4) The British Council was formed in 1934 to promote a knowledge of British culture and way of life in other countries. It makes use of films and filmstrips, and has sponsored many excellent films of instructional value. The films are generally distributed through British Information Centers, and are extensively used by schools in many countries.

(5) The British Film Institute was established in 1933 to encourage the use and development of the cinema as a means of entertainment and instruction. Some of its functions with respect to instructional films have been taken over by The National Committee for Visual Aids in Education, and the British Film Institute is now concerned chiefly with the promoting of appreciation of the art of the cinema and the building up of a National Archival Film Library. It publishes two periodicals - Sight and sound and The monthly film bulletin. It also maintains an

excellent reference library of books dealing with the science and art of the film.

(6) The Scottish Film Council performs in Scotland functions similar to those of the British Film Institute in England. The Scottish Educational Film Association works in close cooperation with the Scottish Film Council.

(7) The British Kinematograph Society is an crganization concerned with motion picture techniques - along the lines of The Society of Motion Picture Engineers in this country. It publishes a technical journal - The BKS Journal.

(8) The International Scientific Film Association. This international organization was set up about two years ago with headquarters in Paris. Its objects are similar to those of the Scientific Film Association of Great Britain, but on an international scale. It is working energetically to promote the exchange of scientific films between various countries, and it has the official support of the governments of many of the member countries. The I.S.F.A. holds an annual congress at which papers on relevant topics, and factual films from various countries, are presented. The first congress was held in Paris; the second was held in London last October, and the third is scheduled to be held in Brussells in September, 1949.

(9) The Film Centre. This organization was established by John Grierson and other documentary film makers in 1937, to function as a promotional body to develop new ideas for documentary films, to supervise productions, and to give expert consultative advice on the establishment of documentary film units in various parts of the world. Recently the Film Centre has announced the opening up of a Research Department which will undertake field research into problems connected with the utilization and production of scientific, educational, and documentary films.

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IX. Appendix: The Technique of Factual Film Production in Britain

Introduction. Feature film production techniques in Britain follow fairly closely the Hollywood pattern. They make use of "star" actors and actresses, sound stages, elaborate sets, expensive equipment, large scale financial resources and highly specialized technicians. By contrast, the factual film as it has been developed within the British documentary film movement is essentially a simple, realistic production which attempts to treat a subject - whether it be herring fishing, or precision measurement for engineers - clearly and in terms of actuality, without benefit of professional actors and without studio staging or elaborate equipment.

Organization of a Film Unit, and Training of Technicians. The production of documentary films has always been undertaken by small units, working as enthusiastic and cooperative teams, and it is largely owing to the efforts of John Grierson that the movement has expanded. Instead of remaining an individual director, he turned his efforts towards building up a documentary film producing unit, training its members as producers, and then encouraging them to start other units to continue the process. The documentary movement in England started from one Empire Marketing Board unit of three members and it has expanded by this process.

The system which made this development possible has been based on a producer-director relationship. The director is a creative technician who directs the shooting of the film (having often written the script himself); he frequently carries out the editing himself, making one film at a time.

The function of the producer, who in all cases has had experience as a director, is to supervise the picture as a whole, leaving the detailed work to the individual director without interfering with his style. An increasing number of recruits has been taken into the movement, and each has been given a thorough training in all branches of production. The recruit works first as a general technician gaining some experience in editing, scripting and camera work; this phase is followed by a period as an assistant director; finally, the individual qualifies as a director with a good all-round knowledge of film making. Facilities have not been available for long-term training of sound recordists, but some first class camera men have been trained. Thus the documentary film movement has developed a high percentage of expert technicians out of its employees. One cannot help observing the keenness and enthusiasm of documentary film makers, and the way a unit works so well as a team, a fact which probably results from this all-round training.

Since a documentary film company is generally engaged in making factual films, under government or industrial sponsorship, vast financial and studio resources are not required. In fact, many of these companies are small units which get along on a shoe-string budget; by far the greater part of the film shooting takes place on the actual location with local people instead of professional actors.

There are, of course, occasions when studio sets are advantageous, or when some special resources are required. In order to achieve these with a minimum of financial outlay, a number of small companies band together in order to pool certain facilities. For instance, The Film Producers' Guild comprises several documentary film units which share a well-equipped studio with complete sound recording and editing facilities; each however, has its own producer, directors, and camera men.

Technical Personnel. The unit working on a film usually consists of a director, camera man, assistant camera man, and unit manager, for straight-forward location work. If the production is more complex, then more technicians may be required; these might include an assistant director, continuity girl, and electrician. Where studio shooting is involved, then of course, still more technicians will be needed, including sound recordist, properties people, film cutters, etc.

Methods of Production. Practically all films (except color) are produced on 35 mm. stock, even if for 16 mm. release. The reasons for this are:

(1) Better professional camera equipment is available for 35 mm. production in Britain.

(2) Better 35 mm. editing equipment exists.

(3) The difference in cost of film stock is not great in terms of total cost.

(4) For 16 mm. release there is less of a grain and dust problem, as films are reduction-printed from 35 mm. on to 16 mm. fine grain release stock.

Costs of a sound documentary film (usually one or two reels) average from $6,000 to $12,000 per reel (1,000 feet of 35 mm. film).

Owing to the cost and to the limited equipment available for 35 mm. Technicolor productions, only the larger factual film producing organizations, like Gaumont-British Instructional or the Government's Crown Film Unit, can afford to use this process. In other productions where color is important, the film is usually shot on 16 mm. Kodachrome and duplicated, or sometimes "blown-up" and printed by the Technicolor process.

Planning the Film. Although production techniques vary considerably in detail, there is a fairly standard procedure. Let us assume, for example, that a company which specializes in films on agricultural subjects has been given a contract to make a film on a certain aspect of such a subject. The project will probably be handed over to a director who is personally interested in, and has had experience in, this field. He will ask the sponsor these questions: What is this film intended to show, to what audience, under what conditions? In this way, the object of the film is clearly defined at the outset.

The next step is to make an "investigation" of the subject. This is usually undertaken by the director, often with the assistance of a subject expert. It involves making a complete investigation of all the facts which relate to the subject, including visits to the location.

The next step is to cast this material into the form of a film "treatment" - visualizing the material, putting it into logical sequence, and subdividing it into sections, having due regard to the need for effective visual presentation.

The final stages are the preparation, again usually by the director, of a camera script. This script must have the approval of the producer and sponsor before actual shooting begins. Thus the director is a key person, usually with a variety of interests, ability to visualize situations, and able to write. Many of the directors in documentary and instructional film production have a background of university training or teaching experience.

In addition to the shooting script, a detailed "breakdown" script is prepared for the purpose of planning and costing the production.

Equipment used in Making Factual Films. (1) The Camera. For location work most camera men prefer Newman Sinclair 35 mm. cameras. These are well built, double spring driven, and quite versatile (they have accurate non-parallax focussing). Some units use Vinten, or Bell and Howell "Eyemo" cameras with a battery power supply.

For use in the studio, and especially for lip synchronous work, the American built Mitchell camera is by far the most popular, and is practically standard equipment. A British organization now produces a camera called the "Newall" which is very similar to the Mitchell 35 mm. studio model. Vinten (British) and DeBrie (French) cameras are also in use in the studios. There is no professional 16 mm. camera generally available in England for synchronous sound work. Most units use a Cine Kodak Special, or a Bell and Howell Model 70 for 16 mm. color photography.

(2) Lenses. Most 35 mm. cine cameras are fitted with the well-known Taylor, Taylor, and Hobson Speed Panchro f/2.0 lenses, or with Ross Xpress cine anastigmats. Nowadays these lenses are coated, and some are engraved with stops calibrated for actual transmission of light.

(3) Film. Plus X made by Kodak, London, is by far the most widely used film both for interior and exterior photography.

(4) Lighting. The Mole-Richardson Company has a factory in London which produces the full range of lighting units commonly used in Hollywood studios. The documentary film makers usually have the bare necessities in lighting equipment, a few 5KW, 2KW and 500 watt spots and some 2KW floods, and they hire any additional units they may require for larger jobs. Several other manufacturers produce similar equipment.

Lighting of an interior scene is supervised by the chief camera man, who directs placement of the lighting units (electricians actually move the lights). For general purposes a camera man lights a set to a level of illumination which gives an exposure of about f2.8 at 24 frames per second, on Plus X film. A foot candle meter is used in balancing up the lighting. Natural, realistic effects are aimed at in lighting interiors.

(5) Sound Recording. The larger documentary units have their own sound recording channels. Others hire portable apparatus, or rent studio time at one of the sound recording studios which provide facilities for recording and re-recording. R. C. A. has a very good recording studio at Hammersmith and their equipment is very popular with recordists. Some

studios have Western Electric and others have British Acoustic sound systems - all have their followers. Documentary films rely a good deal on post-synchronized commentary, sound effects and music, rather than on lip synchronous sound recording; this fact considerably eases the problems in location work.

Realism, matter-of-factness, and avoidance of an overloaded sound track are aimed at. The poor quality of sound on 16 mm. for which British films have been criticized is probably a result of the widely adopted practice of optically reducing 35 mm. sound tracks to obtain 16 mm. versions. Some of the laboratories are now re-recording the sound with suitable equalization to obtain 16 mm. sound tracks.

Those units which can afford to install their own recording equipment seem to prefer to have the recorder and amplifiers mounted in a motor van, which can be used at the studio, or on location. Mole-Richardson microphone booms are used in most of the studios.

The book, Sound and the documentary film (London: Pitman, 1947), by Ken Cameron of Crown Film Unit, can be recommended as a good reference on this subject.

(6) Processing Laboratory Facilities. There are several good independent processing laboratories which give very fast service - negatives can be turned in on one day and the "rushes" (i.e. viewing prints) are ready next morning. The writer had an opportunity to go over one of the larger laboratories, and found a good range of facilities: optical printers for special effects (fades, dissolves, wipes, etc.), 35 mm. to 16 mm. reduction printers, titling cameras, and negative cutting service. High grade equipment is installed for sensitometric control, and Cinex timers are used for selecting printing exposures. Bell and Howell, and some British-made printers are in use.

There has been a good deal of dissatisfaction with the quality of 16 mm. prints - both the picture and sound - but the laboratories are now endeavoring to improve this situation.

(7) Editing Equipment. Most documentary film units have their own film cutting rooms. They use film viewers and synchronizers similar to those used in U. S. A. Some have old American-made Moviolas, but it is now possible to obtain a satisfactory British film viewing machine manufactured by ACMADE.

(8) Animation. There are several small companies which do film animation work, and their services are used by documentary film units requiring animation sequences for instructional films.

The largest instructional film producer, Gaumont-British Instructional Films, can call on an associated company in the Rank Organization - Gaumont-British Animation (under the technical guidance of David Hand, late of the Walt Disney Studio) which is doing some very fine work in the instructional film field.

Technical Association. The British Kinematograph Society is the English counterpart of the Society of Motion Picture Engineers. It meets regularly for technical discussions, and has a 16 mm. section. It publishes a technical journal.

Some Reasons for the Success of the Documentary Film Movement. In conclusion, some of the reasons for the outstanding success of the documentary film movement in Britain should be noted:

(1) The remarkable team spirit which exists within a film unit, which results in the effective use of a combination of skills.

(2) The tradition of realism on which the documentary film movement is based, and the fact that the documentary film is not merely an offshoot from entertainment film production.

(3) The very close liaison between the film maker and the film sponsor, which tends to insure a successful production.

(4) The continuance of government sponsorship of informational films.

CANADA

By

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I. The National Film Board of Canada

Early in 1939 the Dominion Government invited Mr. John Grierson to set up a film producing and distributing organization to replace the old Government Motion Picture Bureau, which had been making very mediocre tourist films. Accordingly, The National Film Act was passed by Parliament, establishing a new government agency - The National Film Board - to correlate all Canadian Government film activities. Its purpose was to provide films interpreting Canada in much broader terms than the travel and industrial productions which at that time made up the bulk of the Government program. The Board is administered by two federal cabinet ministers, three senior civil servants and three public representatives chosen for their interest in and understanding of films as instruments of public policy. The Government Film Commissioner is chief executive of the Board, responsible for directing, advising upon, and coordinating government film service in Canada.

II. Functions of the National Film Board

The Film Board's present work is that for which it was originally designed, but both the Board and its field of usefulness have grown far beyond the horizons envisaged ten years ago. To meet wartime demands, Canada developed in a few years a documentary film organization regarded as a model by other countries, and played a leading part in a worldwide expansion of the use of film as a medium of information and education. At its peak NFB has produced no less than 310 film subjects and processed more than 10 million feet of film in a single year. It has established a library of more than 85,000 still photographs on Canadian subjects and produced thousands of posters, photographic displays, filmstrips and related graphic materials.

As the official film agency of the Government of Canada, the National Film Board is responsible for the production and distribution of films of all kinds for the departments of the Federal Government. These sponsored films have always formed a large part of the Board's annual output. Formerly they served the cause of the war effort; now they inform

audiences both at home and abroad about Canada's peacetime aims and problems. These films serve to interpret the ways of life, the problems and achievements of people in all sections of a land so broad that comparatively few will see even a small part of it, save through the eye of the camera.

In Canada the Board's films are distributed through 325 theatres, where they are seen by more than 2 million people each month, and through 160 rural circuits, 155 film libraries and 200 community film councils to a monthly audience exceeding 5 million. Outside Canada, films are distributed through the Board's offices and through Canadian trade and diplomatic representatives and other agencies to 40 countries, in six different languages.

III. Production Facilities

The film work of the NFB falls into three major divisions: planning the image, getting the image onto film and getting the film before the public. Each division is indispensible to the others, but the business of getting the image onto film makes the heaviest call on equipment and technical skill. It is partly creative, partly administrative, largely mechanical, involving many precise and intricate operations based on physical and chemical laws. It is the task of the technical departments to ensure that these processes are carried out efficiently, and to undertake a continuing program of research with a view to improvement.

During the past two years particular attention has been paid to the improvement of equipment and quality of work in the sound department. At the war's end the 35 mm. studio sound recording unit, which dated back to the early '30's, was subject to most of the faults common to overworked equipment. In addition to this, adequate facilities for 16 mm. recording were not available to the NFB. Planning of a complete renovation was started in 1945 and the installation was completed in 1947.

NFB's sound department is now equipped with a new 35 mm. R.C.A. variable area recorder and a complete 16 mm. Maurer system, capable of providing area or density sound track, negative or positive. The project included the design and construction by the engineering department of a mixing console, complete with nine feed channels, for 35 mm. and 16 mm. film, discs, microphones, and direct Canadian Broadcasting Corporation telephone lines. Complete flexibility is ensured in this design by means of an elaborate patching network to permit re-recording through the main console on either 35 mm. or 16 mm. film, or disc, or on all three simultaneously if required.

The film processing laboratory has concentrated on 16 mm. Kodachrome printing and now handles regular orders for color prints. Further specialized equipment for effecting color correction and exposure variation was also installed. This new equipment provides a color reproduction service equivalent to the best obtainable in Canada or the United States. Attention was also given to improved quality in black and white processing, with the recent adoption of a complete analytical service to control processing solutions. New services offered by the laboratory now included "blowup" printing from 16 mm. to 35 mm. and complete facilities for all types of microfilm work.

IV. Distribution and Exhibition of Films

The final phase of the work of the NFB is the getting of the film before the public. The Film Board early inaugurated its Canada Carries On series, dealing with subjects of national interest and issued monthly to Canadian theatres; and the World in Action series, discussing broader themes of international moment. World in Action, distributed by a major United States company during the war, played in more than 5,000 theatres every month. Film Board documentaries have thus won and held a large theatrical audience on their own merits, and NFB's theatrical program has recently expanded both in production and distribution.

Canada Carries On, and its French-language counterpart, En Avant Canada, are now booked into 500 theatres in Canada every month, to an audience of more than 2½ million people. CCO concentrates on giving the Canadian people the "living sense of what is going on" in Canada, and in the rest of the world in relation to Canada.

The French Unit of the National Film Board likewise produces monthly releases, for the theatres of Quebec. The series En Avant Canada is the most popular of its releases. Besides this, most of the productions of the NFB are made into French versions.

While the first distribution of nearly all NFB theatrical productions is naturally in Canada, theatres in many parts of the world are equally interested in Canada Carries On, World in Action, and other NFB short subjects and features. Internationally, the NFB has found a theatrical audience for its productions, and contracts recently concluded provide an even wider distribution. In the United Kingdom, for example, United Artists release each Canadian film selected by them as a U. A. Special. Theatrical release is also effected through 31 theatres in the News and Specialized Theatres chain, 246 theatres in the Odeon Children's Circuit, and 30 theatres in the Monseigneur

chain. In the United States an average of three or four Canadian films weekly are booked in newsreel theatres in major American cities, while others are sold for commercial distribution on a world-wide basis through one or another of the major distributors.

Regular monthly theatrical distribution in Mexico and Latin America is handled by Clasa Films Mundiales, for Mexico, and Peliculas Mexicanas and subsidiaries, for the rest of Latin America. In Australia and New Zealand both 20th-Century Fox and Metro-Goldwyn-Mayer have distributed NFB subjects theatrically. United Artists have released French-language versions of Canadian films in France, Belgium, Switzerland and North Africa. The International audience reached by Canadian films in commercial theatres is estimated at 70 millions.

However, as Mr. Grierson has put it, there is a larger audience outside the theatres than inside them. He refers to the non-theatrical population, which attends 16 mm. screenings of NFB subjects. National Film Board rural circuits operate in rural communities from the Atlantic seaboard to the Pacific coast. In a single month the audience in Canada for 16 mm films distributed by the Board numbered a million people. Of these, half were in rural areas.

For the people in thinly settled districts, the traveling NFB field representative, his car burdened with projection equipment, films and even an electric generator, sometimes forms their only contact with the world behind the flickering image on a beaded screen.

V. The Documentary Tradition

Mr. Grierson left the NFB in 1945, and his position as Commissioner has been filled by Mr. Ross McLean. The NFB originally engaged the best brains in the documentary field in setting up its organization, and a tradition of excellence has been built up for others to follow. This is the pattern of the documentary movement in Great Britain, in which younger producers work under established masters, and then go out to form their own units. Men like Stuart Legg, Stanley Hawes, Graham McInnis, Ken Cameron, and Hamilton Wright have all left their imprint.

This is one of the reasons why Canada now has a group of all-around film makers whose work is characterized by vigor and creative ability. There are few specialists. A cameraman may be called on to direct. A director will often be called on to edit his own film. Most production people spend as much time in the cutting room and projection theatres, carrying films through the final stages, as they spend

in the field. As a result, film makers in other countries, craftsmen who understand the peculiar problems involved, have frequently given recognition to the Film Board's development of a production group which has earned a high reputation in the film world. The National Film Board of Canada is now the world's largest and most active educational film producing body. Thus, at home and abroad, the people, purposes, accomplishments and aspirations of Canada are made known.

AUSTRALIA

By

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I. Audio-visual Aids in Military Training

As in U. S. and Britain, the war provided a great impetus to the use of visual aids in military training in Australia, and provided some opportunities for experimentation in an endeavor to determine the value of films and film strips in service instruction.

The Army. The Australian Army set up a department for the production of instructional films and film strips in 1941. The Army Cinematographic Section, as the department was called, was concerned with the technical aspects of production - films and filmstrips being produced for and under the direction of The Directorate of Military Training. The Army found filmstrips to be very useful aids to training, particularly in technical subjects where motion was not of great importance. Furthermore, filmstrips could be produced quickly and cheaply. This section handled all aspects of filmstrip production from original camera work, through artwork and copying, to the printing and processing of release prints. Generally scripts were prepared by the Directorate of Military Training in conjunction with a subject expert, who also collaborated at the subsequent stages of production.

Motion pictures also were used extensively in Army training, particularly in the training of specialists. The films were chiefly of British or American origin. In general, Australian army training procedures followed the British army pattern, or, in some technical subjects, the U. S. army procedure; excellent films on many subjects, available from both countries, were suitable for use in Australia. The Cinematographic Section's motion picture photography was thus limited chiefly to the making of photographic records of such subjects as the trials of new equipment or the use of weapons of Australian design. Public relations photography and the recording of military actions was handled by the cameramen of the Military History Section and the government's Department of Information, who did notable work. Projection equipment was mostly of American origin, being made by Bell and Howell and Victor.

The Royal Australian Air Force. The Royal Australian Air Force also made considerable use of visual aids in its training program. Here 16 mm. sound and silent films of

American and British origin were used principally, although some films were also produced in Australia by the Visual Training Section of the Air Force. The RAAF had a well developed system for the training of projectionists and the maintenance of projectors, which, again, were chiefly of American origin. The Air Force also carried out some experiments relating to the effectiveness of the film in air force training, under the supervision of the Director of Visual Training. These experiments are reported in a book by N. H. Rosenthal (3). The principal experiment was concerned with the relative effectiveness of: (1) an instructor (without a film), (2) a sound film alone, and (3) a combination of instructor and sound film. Results indicated that the instructor and a well prepared sound film produced the best results, and that the use of the film was of particular value in helping trainees at the lower performance levels.

The Royal Australian Navy. The Navy apparently made comparatively limited use of audio-visual aids in training.

II. Audio-Visual Aids in Education

The University of Melbourne. With the termination of the war and the tapering-off of the visual training requirements of the services, thought was given as to the best method of using the equipment and knowledge which had been accumulated. The School of Education at the University of Melbourne had for a long time been well advanced in advocating the use of audio-visual aids in teaching, and in 1946 an arrangement was made whereby the Royal Australian Air Force and the University of Melbourne agreed to pool their experience and resources in the establishing of the Visual Aids Centre at the University. This center was to provide for the peacetime visual aids needs of the Royal Australian Air Force and the University, and of the schools and other educational institutions which might wish to make use of the facilities so provided.

The functions of the Visual Aids Centre are fourfold:

(1) To produce all types of visual aids, including wall charts, film strips, slides, silent and sound motion pictures, etc.

(2) To maintain a library of sound and silent instructional motion pictures, and to provide a projection service.

(3) To train teachers in the use of visual aids - both in the educational theory (in conjunction with the School of Education) and in the practice of projector operation.

(4) To conduct research into the development of more effective techniques for using audio-visual aids in instruction.

Equipment for the production of filmstrips, 2 x 2 slides, and 3¼ x 3¼ slides, was designed and built at the University. All aspects of the production work are handled by the Centre: scripting, original phctography, art work, copying (black and white, and color), and printing and processing of release prints. The basic equipment for 16 mm. instructional film production is the Ciné-Kodak Special Camera, and the Eastman Model III high speed camera. In addition the Centre has 35 mm. Bell and Howell "Eyemo" and Studio Cameras. Processing and sound recording are handled by commercial laboratories. Many university instructors prefer silent films, for which they provide their own commentary, and considerable use is made of 2 x 2 color slides.

The film library comprises about 1000 instructional films, and it is being added to constantly. The library also provides a projection service.

All teachers taking Bachelor of Education courses attend a series of lectures on the use of audio-visual aids in instruction, and practical workshop courses in the handling of projectors and the care and maintenance of films are available.

The facilities of the Centre are used extensively by the university departments, and by schools and other educational institutions (e.g., organizations concerned with industrial management and religious education).

The general approach to the use of audio-visual aids adopted at The University of Melbourne has been outlined by N.H. Rosenthal (4).

State Education Departments. While the University of Melbourne is the only university with complete visual aids facilities, most of the six State Education Departments (which administer the state schools in Australia) have visual aids programs. In some states Visual Aids Departments with some production facilities are maintained; in other states Visual Education Coordinating Officers have been appointed. A valuable national coordinating funtion is performed by The Commonwealth Office of Education, in Sydney, which has published a report on "Visual aids in the state education departments of Australia" (1); from time to time, this Office also circulates a news bulletin on the latest world developments in visual aids in education (2).

Commonwealth National Library, Canberra. The Commonwealth National Library is the central point of a national system of instructional film distribution. This library is both the distributing agency for the Australian National Film Board, and the central film library for Australia. The

Library collaborates with State Education Departments, and State Film Advisory Committees, on the appraisal, purchase and distribution of educational films. Through this organization each State Education Department receives one free copy of each of the Australian National Film Board's educational and documentary films. Additional copies are provided at cost. The Commonwealth National Library purchases films from overseas producers, and circulates them to State Education Departments. The Library also makes films available on loan under certain conditions, and it is establishing an extensive program for the evaluation of class room films.

The Australian National Film Board. The Australian National Film Board was established in 1947, and is modeled along the lines of the National Film Board of Canada. Production is under the supervision of Stanley Hawes who was formerly with John Grierson and the National Film Board of Canada. The Board is now working on the production of a comprehensive range of films which include documentaries on many aspects of Australian life, and some educational films for schools. The productions of the Australian National Film Board are distributed in countries abroad by Australian News and Information Bureaus.

Projection Equipment. The use of audio-visual aids in schools has been restricted by a shortage of 16 mm. sound projectors and filmstrip projectors; these shortages have been accentuated by the limited availability of dollar currency in Australia. However, since the war, some surplus projectors from the services have been made available to schools, and several companies in Australia have commenced the manufacture of 16 mm. sound projectors; models produced include the "Victor" and "Cinevox." In addition several American types of projector now being manufactured in Britain (Bell and Howell, and Ampro), as well as those of British design, are available in Australia.

Considerable progress in the availability and use of audio-visual aids in education in Australia is anticipated in the next few years.

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