

YEAR II.

DECEMBER 1930

N. 12

INTERNATIONAL REVIEW
OF
EDUCATIONAL CINEMATOGRAPHY

MONTHLY PUBLICATION
OF THE INTERNATIONAL EDUCATIONAL CINEMATOGRAPHIC INSTITUTE
— LEAGUE OF NATIONS —

ROME - Via LAZZARO SPALLANZANI, 1 - ROME

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THE CINEMA AND SCIENTIFIC MANAGEMENT

The present number of the Review publishes two articles, one by M. Albert Thomas, Director of the International Labour Office at Geneva, the other by Dr. Sante de Sanctis, psychiatrist and professor at the Rome University, on labour problems and the possible application of the cinema to their study.

Both articles are in the course of publication — one as a preface and the other as an introduction — in the volume on the Cinema and Labour, to be published by the I.E.C.I.

On account, however, of their intrinsic importance, it has been thought well to include them in the present number so that they may attract the notice of those who do not see the other volume.

Labour problems are of interest to all who are concerned with social life and the cinema. They are particularly important in connection with vocational guidance and the scientific organisation of production, the main, if not the only element in a rational distribution of the world labour output.

In its concern with this matter, the Rome Institute, acting in close collaboration with the International Labour Office, is inspired by a conviction that the investigation and statement of these problems may help to indicate labour's future lines of development.

Having endeavoured to trace the subtle influence of the cinema on the popular mind and after studying the use of films in the service of social and personal hygiene, the International Educational Cinematographic Institute has in the present volume sought to ascertain how cinematography could be applied to the problem of scientific management.

I cannot help envying our friends at the Institute. Instead of having to reconcile or decide between conflicting interests and in a world of hard

facts to defend principles of justice that sometimes encounter the opposition of selfish ambitions, their lives are devoted to beautiful ends which cannot fail to stimulate the dullest mind.

Freshness and novelty are the keynotes of their work. Did not Hegel say, « We love children because of their infinite possibilities »? A similar feeling may explain the active and enthusiastic support that is rallying round the I.E.C.I. The bureaucrats of public administrations tell us that answers are only received to 2 % of the questionnaires sent out, but, if we turn to the last article in this volume, we find that the Institute questionnaires have been answered to an amazing extent.

There is surely no need to emphasize the possible uses of the cinema in scientific management. It is, of course, still in its infancy, but its future possibilities are magnificent.

The essence of Taylorism, which is the origin of all modern rationalisation, was the study of human effort, of the worker's movements. Is there any better way of studying effort and movement than the film? Have we not all of us marvelled at the revelations of the slow-motion picture?

As regards vocational selection, the cinema can find endless applications. The present volume furnishes some exceedingly interesting examples, such as the cinematographic reconstruction of street traffic, by which the vocational training staff of the Paris Transport Company is able to gauge exactly the qualities and defects of future omnibus and tram drivers.

Then again, take the vast field of accident prevention. It is now universally acknowledged that not even the most ingenious devices for protecting men from machinery can remove all possibility of accident. It is an admitted fact that the worker's attention must be roused and carefully trained, and for this purpose the cinema is of all educative instruments the most effective.

It must of course be employed with skill and understanding, and educationalists and propagandists must take care to avoid certain psychological errors. I once saw some films by the National Safety Council, some of which were very ill-adapted to the psychology of European workers. To judge, however, by the scenarios quoted in the present volume, there is already available a very large number of successful films on this subject.

Especially remarkable are the resources of the cinema at the service of technical training and propaganda. When the International Management Institute was founded at Geneva by an agreement between the International Labour Office and the Twentieth Century Fund, a discussion immediately arose concerning the American suggestion that scientific management engineers should at once be sent to European workshops for the purpose of explaining and introducing rationalised processes. Others were of opinion that men's minds ought first to be accustomed to the idea of rational organisation and that both employers and workers ought first to

be won over to the scheme. No large programme of rationalisation has any chance of success until it is unanimously supported by both classes. This view was strongly upheld by Monsieur Olivetti, who argued that it was impossible to initiate any large movement of industrial reform until an atmosphere of enthusiasm had been created. Can it be doubted that the cinematograph is an excellent method of forming this attitude of mind?

Such are the boundless possibilities indicated in this publication by the Institute. And not possibilities only, but achievements. The various enterprises and experiments of which we are here informed justify the belief that the proposed International Committee of Experts can already meet with every prospect of immediately successful work. The Institute, fully conscious of its high cultural mission and inspired by the aim of promoting closer human relations, has prepared the way most thoroughly.

ALBERT THOMAS
Director of the International
Labour Office

I.

The *International Educational Cinematographic Institute* has devoted much space in its monthly review to the use already made or that may yet be made of the cinema in the fields of general culture and of personal and social hygiene and has also published special monographs on a variety of subjects. Quite recently the Institute and the Review have given their attention to the possible use of motion pictures in the scientific organisation of work — a problem not only difficult in itself, but complicated by a number of other questions connected with physiology and psychology, social hygiene and economics.

For the moment the Institute has set a limit to its enquiry — a further proof of its desire to proceed with circumspection and a sense of its responsibility. It hopes by this publication to have opened the discussion of the application of cinematography to the organisation of industrial work and reserves for later treatment the use of the screen in the rationalisation of agricultural and intellectual work. A considerable number of the practical problems affecting industrial work may be said to have been dealt with in this volume — the question of fatigue by M. Loriga, accident prevention by M. Lévi-Malvano and Dr. Curt Thomalla. These studies are a fit supplement to the discussions on the subject held at the Psychotechnical Congress of Turin in 1929.

These pages further show, however, that the cinema may add to our knowledge of the laws of industrial work by effectively contributing to the study of the physiology of movements — and not only to their measurement in time — thanks to means of distinguishing among working gestures what are called fundamental movements and the small fractions of time into which these gestures are divided. Herr Thun's development of Gilbreth's conception of the "fundamental movement" — he has sought to enumerate the movements common to all occupations — would seem to help towards the understanding and application of the laws of muscular mechanism in industrial work.

Herr Thun's article, and Signor Grillo's comments thereon, not only fix the seven groups of fundamental movements, but explain how the innumerable movements made by workmen in the course of work may be placed

under one or other of these groups. Not only may this be of great use in industry, but it also adds to our knowledge of the laws of muscular action in many other forms of work.

Although the I. E. C. I. has restricted the questions dealt with in this volume to industrial work, readers will find some reference to the use of the cinema in the rationalisation of agriculture (Jean Benoit-Lévy's article) and of brain-work (my own article). My own contribution does not claim to be more than a brief comment on the many possible applications of the cinema enumerated by Professor Niceforo in the programme which he suggests in the first article of the present volume.

As regards intellectual work, our readers will find certain information pointing to the decisive influence of psychological factors over the efficiency of manual work (article by Mr. W. V. Bingham on the Eighth Conference of the Personnel Research Federation of New York). In particular, they will find quoted the opinion of Professor John Dewey — coinciding with the view I expressed myself in November 1929 at the Turin Psychotechnical Congress — to the effect that, in the interests of the work as a whole, the workman should be conscious of his individual value. I have always attached great psychological and social importance to this idea.

II.

I do not, however, intend that this *Introduction* shall be a vain repetition of the articles in this volume, as it would become if I were to concern myself with all the special questions dealt with by my colleagues.

Professor Niceforo may be said to have anticipated and enumerated all the possible ways in which the cinema might be applied to rationalisation, while I myself, in different circumstances, have considered special aspects of the question.

I prefer to devote a few pages to developing certain points of view that are usually somewhat neglected and that I have not explicitly treated in my Report on the Turin Congress, in my Introduction to the Vocational Guidance Course for the Rome Schools (January 1930) or in my *Psicologia applicata* to be published shortly.

One point of undoubted importance referred to in the present volume by M. Jean Coutrot, Professor Niceforo and others and illustrated by well-chosen and convincing examples is that motion pictures must be regarded as a new instrument of culture, applicable therefore in one way or another, now or in the near future, to all branches and departments of social activity.

Everybody agrees that the cinema has revolutionised life, but not everyone realises that this revolution is culturally and technically of greater importance than it is aesthetically. It is a genuine revolution coinciding with another of much vaster scope which affects the whole of contemporary civilisation.

Hearing, sight and action are the material conditions of civilisation. In past ages, hearing (the *sensus disciplinæ*) was the best and most appropriate means of spreading culture. Then after the invention of printing and the steady development of rapid means of transport a combination of *hearing* and *sight* was required and will continue to be required as long as the lessons of life are learnt from things and events. A combination of *hearing, sight* and *action* has become the favourite instrument of culture in our time, which derives large stores of information from experimentation and technique. Action — and therefore the sight of action — derives its cultural value from the universal need of movement and from the speed of movements. The combination “*hearing-sight-action*” is more than the integral instrument of culture; it is the integral factor of life itself. I am convinced that the success of the cinema — like all successful human theory and practice — satisfies a need of the contemporary mind, a need that can easily be recognized in all spheres.

Nothing in life is fixed or stable, everything moves, advances, goes and comes; all is movement or, as some prefer to put it, “dynamic,” even to lazy and indifferent minds.

But, it may be said, this was always so. No doubt. The new element, however, consists in the fact that until about fifty years ago nobody knew how, or even felt the slightest need, to bring his life and his aspirations into harmony with the various movements of the universe. This need has now been felt for several years and to-day if I am not mistaken, it has become a compelling urge. Half-a-century ago the conception of work was still so narrow as to be implicitly governed by the Old Testament curse. Do we not all remember hearing workmen curse their work? The curse was not directed against work as such, but against the conditions of work, which made it impossible for the workman to enjoy life and gave him the feeling of being a slave. Spartacus was the symbol of the new revolt. The imprecations of the workers which found an echo all over the world perpetuated the Old Testament curse. Thanks to the loyal enforcement of wise social legislation things rapidly changed. Little by little work was distributed among all social classes and became a necessity as well as a duty. It was proclaimed as a gospel that everyone ought to work, and indeed — quite apart from the sense of duty — nearly everyone does work in one way or another; everyone is active and does or tries to do something. No matter whether the result is mediocre or small out of all proportion to the effort; people work. Who then will maintain to-day that life can be spent in idleness? To *watch things done* has become a necessity even for those who cannot or do not know how to do things themselves. Everyone is applying to become a citizen of the kingdom of action. Those who do not work to “produce” are no less active; sport, even in the most brutal forms, realises the ideal of men who more or less unconsciously detest above all things — inaction.

In a word, the idea of movement and action dominates every manifestation of human nature. Hence follows restlessness, possibly, too, fati-

gue; but thence also the transformation of the world and of ideals and the growing demand for the training of heroes.

Motion pictures, which give the illusion of actual experience, have become the most striking and expressive manifestation of action. Immobility can be painted or photographed; children can watch immobile things and unchanging situations in the family and in nature. But at the cinema they watch a succession of situations, a sequence of acts; history is made before their eager and astonished gaze. This is why children prefer the cinema to pictures or photographs — or even to family life. Jean Cocteau, quoted by M. Coutrot in his article, put the point admirably "Even when nothing is moving, the cinema records the passage of time..." Thus children become enthusiastic film-fans and are impelled to penetrate further and further into the essence of beings and things. The cinema, therefore, which is the product of the new sense and of the modern need for speed, is becoming an educational factor in the action of future generations. A creation of this need, the cinema is also a source of its development, an effective means of giving it individual and social value. By reducing everything to terms of action, the cinema attaches greater importance to action than to either sight or hearing considered separately. Although it teaches us to see and even to see and hear (sound-films), the cinema, by means of eye and ear — those eternal vehicles of culture — adds a new element by exalting action and encouraging and satisfying the modern need to watch human action.

When it is considered that needs once satisfied become habits and that the latter take root in the organism and mould it, it is to be presumed that the cinema will sharpen the sensibility of future generations and create new aspects of that complex of sensation which is a fundamental part of human personality.

It may reasonably be concluded that the use of motion pictures is or will become universal, since the desire to translate everything into action, in other words to re-experience acts and facts in their entirety is strong and permanent in all of us.

By virtue, therefore, of its achievements and its future possibilities, the cinema can be more to us than the source of amusement and aesthetic pleasure which for many years was all that was demanded of it and which is still the first requirement it has to meet. Even its economic importance will be overshadowed, although that will never disappear, for material interest is inherent in all human activity, even in those activities which seem most disinterested, like science, art and politics regarded as a manifestation of force.

III.

First however, an objection must be met — a psychological point to which no particular attention appears to have been paid. It will be asked whether the ceaseless flow of action on the innumerable screens of our cinema

theatres is really more effective in furthering knowledge, morals and human relations than the spoken word and oral teaching. After all the cinema is by definition silent. I am a firm believer in the sound film, but not in the "talkie". Words add nothing to a film, in fact, they detract a great deal from it. Alexandre Arnoux' criticism, which M. Coutrot quotes, hits the mark: by the addition of the spoken word films lose in originality what they gain in technical improvement.

I make no claim to answer the question I have raised, but, having put it, I should like to add a few words of explanation.

Psychology and history have shown that the word (*logos*) has a creative power: the commands of Jehovah, creator of the universe, the magic word of all the Priests, the word of the law or decree which prescribes or forbids, the soldier's word of command to attack enemy positions, the fervent pleadings of love. Thus, the word is a creative force. Paulhan illustrated this in an article published in the *Revue philosophique* in 1927. There is no doubt that latent in the human mind is the remembrance of the cabala, and of magical science, memories also of the sophists, masters of words (in spite of Socrates, who called them "professors of virtue"), of the neo-Platonists, even the Parnassians and the great orators.

Does it follow then that without words silent action is deprived of its most powerful aid to suggestion and therefore of its most effective instrument for the training of thought and morals?

No doubt. At the same time we must remember that the tradition of a thousand years has trained us not to understand or assimilate gestures alone. Our judgments of human character are for the most part the results of interrogation or reports by third persons. Nevertheless, education in magic was founded not on words, but on signs, that, is, on gestures. The melody of the voice, emphatic speech, rhyme, invocations, the monotonous repetition of laments, the pathetic cadences of chants are all pregnant with suggestion. Even as spectators do we not all of us, without realising it, put words into the mouths of the silent actors in emotional films? Spontaneously we ourselves help the action of the film to complete the picture of reality.

The verbal sign *points towards reality*, wrote V. Benussi; but there is no reason why the gesture should not fulfil this function as well. The re-insertion (past) and pre-insertion (future) of the things represented by verbal signs within the circle of current events, help to determine the physical and mental personality of the individual. This miracle, however, follows upon intellectual processes. "Words lead to a creative intellectual function. In this way the aspects of dead or not yet dead things become real" (Benussi). If this is true, gesture and action can have the same effects and exercise the same influence. Take, for example, rites and ceremonies, the repetition of mysterious gestures, the laying-on of hands, benedictions. Lastly, is it not evident that the meaning of a play, the perso-

nality of a teacher or of a military leader are conveyed to the mind of the spectator, pupil and soldier not only by the spoken word, but also and even more by gestures? *Seeing a thing done* is an extremely effective method of grasping the inner meaning of things and situations.

This simple consideration at once removes many of the difficulties from the problem. Moreover, it is to be supposed that the hero's gesture, the extended finger of the commanding officer, the act of the sacrificial priest, etc. etc., develop by repetition a special sensitiveness and reactivity in modern minds and thus offer a new and shortened method of persuasion and direction — a method quicker and more effective than that of the spoken word. Intelligent young people of to-day are synthetic, dynamic, and reach their conclusions by intuition and instinct rather than by logical argument. They are in a hurry and apparently unwilling to spend too much time over preliminary statements, verbal demonstrations, straw-splitting discussion and explanations. They want facts, incidents learnt of not through the organ of hearing but by visual reproduction; rather than listen to the narration of an event they prefer to experience it with all the vital energy of their personality. They want — I am tempted to say — to make of it an "artistic" experience.

Viewed in this way, the question I raised at the beginning of this paragraph loses the force of an objection.

IV.

But, I shall be told, the cinema only offers the illusion of movement, simulated action, imaginary incidents. That is true, but it is also true that suggestion and education are the outcome of illusion. The illusion of movement is just as effective as the illusion of hearing and seeing. The kinetic imagination is a great factor in persuasion, for it contains within itself the germ of the actions which it anticipates. A Joan of Arc, a Margaret Alacoque, a Madeleine de Foligno and a Catherine Emmerich can at any time be evoked even by kinetic presentation.

Experimental psychology supplies us with data reliable enough to convince anybody that the function not only of words, but of movements is to evoke, complete and vitalise past experiences; that movement is capable of imparting a "perceptive presence" to objects that we are only picturing to ourselves (representative presence). For example, it can be shown by a very simple experiment that, by rotating a cardboard disc to which a figure is attached, we create new and strikingly real objects. The movements in question are apparent evolution, phenomena that are called "stereocinetic." The movement of the disc imparts plasticity and substance to the figure attached to it, which is involved in the movement of rotation, whereas, as long as disc and figure are standing still, they only present a static vision.

It will be remembered in this connection that Benussi made a small machine which he called a "synthesioscope"; it shows the phenomena of apparently orthogonal (synthesioscopic) movements due to our way of looking. Thus, by its oscillations the look sets in motion certain assimilative central processes and creates objective realities, that is to say, objects with a perceptive presence. "Autocinetic" movements are well-known to psychophysicologists.

If we watch a point of light placed against a dark background, we gradually get the impression that the light is moving. Similarly, if we look fixedly at a portrait in a dark room, the subject's eyes will seem to move. Then again there are negative "posthumous" impressions of movement; if we watch a waterfall for a long time, the adjacent rock will seem to be moving in the opposite direction to the fall of water. All these impressions are due to the constant oscillation of the eyeball, but they are also due to fluctuations in our visual attention. Sensations of movement are very complex and no doubt central factors such as the perception of variations also contribute to them. On the screen moreover, the moving picture is not caught solely by the stationary retina, by positive "posthumous" images or by the movements of the eye; the *connexity of movements* is the product of central factors and more precisely, of integrating impressions drawn from the storehouse of experience.

All illusion, of course! Nevertheless, the movement that results is a reality. It is only upon reflection that we correct the impression received; at the moment of perception and before recourse is had to the evidence of previous experience, the vision is a reality.

I would suggest in passing that these facts we call illusory, which are the result of movement and can be reproduced by easy experiments, furnish us with the key to those departures from common-sense and ordinary experience which we call "delirium." Intellectual processes sometimes assume these exceptional guises, in which the illusion becomes fixed and in predisposed persons becomes an hallucination or a delusion.

By this I mean that persuasive and suggestive power developed until products of the imagination become real is not an exclusive prerogative of words; it is a force which also and in even larger measure resides in movement. From this theory, which has been proved by experiment, it will be easily understood that the cinema imparts a striking reality to rapidly moving photographic images or animated drawings. Hence the strong suggestive influence of the screen. Obviously, too, by reproducing realities *ad infinitum* and communicating them to millions of brains, the cinema is able not only to stir the feelings but to transform the mind.

V.

A more important question is whether the motion picture, which has now confirmed what is almost a new aspect of human progress, and become a powerful cultural factor, can and should also serve as an educational medium.

I would go further and ask whether the training of the visual attention of inattentive children could be entrusted to the cinematograph in the same way that I have been in the habit of entrusting to the wireless listening apparatus — graduating the volume of sound as required — the auditive training of the deaf and of persons lacking the power of auditive concentration. But can the cinema become educative in the strict sense of the term? This is a question of values, and here we must introduce a digression.

That the cinema is and should be an educational factor is everywhere agreed. The whole work of the I. E. C. I. is directed to this end. The difficulty arises, as in many other fields of activity, when it comes to fixing the limits to the use of films of an educative character. Each country ought to determine first the lines and the methods to be followed in the education of its young, and then the limits within which the instrument of education can be applied. National education and social education may, anyhow at certain points, diverge, and as regards moral education the divergencies increase. The nations do not fully agree even on the subject of *natural morality*. The right to kill, to dispossess, the rights of men over women, etc., are governed by very different conceptions in the different countries. How much more is this the case in regard to revealed morality or religion! Since the separate countries have not an educational code on the lines of their penal code, the conditions determining the use of the cinema in education vary from one country to another, even from one family to another (religious education, sex education, political education, etc.). What is educative at one period and for one nation may become definitely harmful at another period in history or when applied to another nation.

Could not the scientists follow Kant's suggestion that each country should have an Educational Code consisting of three parts (*a*) universal educational code (humanity in general); (*b*) a national educational code and (*c*) a religious educational code (Catholic, Protestant, Moslem countries, etc.)? This is a serious suggestion pregnant with possible consequences. It would serve to dispel a great deal of confusion current in the different countries with regard to morals. It would also provide a reliable standard for judging, not only from the technical, but also from the moral standpoint, such well known Russian films as "The Mother" and "Potemkin" or the war films of various countries or films in which blood and crime receive unqualified approval.

VI.

I may mention another consideration which, although a matter of methodology, is of decisive importance in practice and in the application of cinematography to psycho-technics.

It is still the custom to distinguish between the two antithetical terms manual work (by workman, artisan or agricultural labourer) and mental or

psychical work (office-work, artistic or scientific work). For years now (*Organizzazione Scientifica del Lavoro*, 1916) I have upheld the principle of the *unity of all work* and I can recognize no justification for distinguishing between muscular work and mental or psychical work except on the grounds of a *potiori fit denominatio*. The idea of the unity of work is now accepted by all the representative physiologists and psychologists of the day. The importance of this fact, especially politically, will be evident to all. Unity of work in physiological and psychotechnical laboratories, unity of work in social life. This is only logical, for it is not a man's arms or his imagination or his thoughts which work, it is the man himself. Of course, things we call single are made up of component parts, so that when we subdivide human work into various occupations, it naturally assumes different aspects according as it concerns one part of the body rather than another (a telephone-operator's ears, a watch-maker's eyes, a stevedore's back), or according as it makes demands upon both arms and legs (an organist) or upon the arms aided only by an organ of sense; or again work may draw upon the imagination (novelist, poet, short-story-writer), abstractive faculties (mathematicians) or logical powers (dialecticians, critics, controversial writers), etc. etc. In deference to this traditional antithesis between body and mind, two forms of application have been invented: material application (muscle) and mental application (brain); in point of fact, however, application in the case of all work concerns the *person* (physical and psychical) of the worker. It would therefore be more logical to classify men into *workers* and *idlers*; efficient workers (highly productive) and less efficient or inefficient workers (hypoproductive); workers with a specific task and independent workers.

Laboratory experience teaches us that muscular work and mental work react upon one another (MOSSO, FÉRÉ, KRAPELIN, JOTEIKO, PATRIZI, DELLA VALLE, TREVES, COLUCCI). For example, the representation of movements (as has been repeatedly shown even in my own laboratory in Rome) assists ergographic effort and the result (FÉRÉ, PATRIZI); muscular work is an excellent means of ascertaining certain states of mind and vice-versâ; mental work benefits by certain dynamogenic movements (J. J. ROUSSEAU, PESTALOTZI, VICTOR HUGO, MISTRAL, ROSSINI, LUIGI LUZZATTI); muscular fatigue diminishes intellectual output; the kind of work, its rhythm, its intensity and the interest taken in it exercise the same influence whether it is mental work or muscular work; pauses and rest-periods are as beneficial in the one case as in the other, as is clearly shown by graphs, including the "recuperation" graph. Observation of daily life will suggest countless similar examples to illustrate this point.

VII.

In making these few psychotechnical observations I do not mean to deplore the small space allotted in the present volume to mental work, but rather to point to the value of the experiment made by Dr. Fantini and

myself in our contribution. The intrinsic value of the article is small, but its potential value may be considerable, for hitherto monographs and textbooks on psychotechnics have paid little or no attention to the scientific organisation of mental work, that is, work in which the psychical elements predominate. It would seem as if thought and action were regarded as antithetic instead of indissolubly bound up. Psychical work is apparently looked upon as something mysterious or at any rate inexactly known, a matter open to question and discussion, concealing some subtle device by which work is *dephysiologised* and *desocialised*. Philosophical prejudice is strong and modern psychology still a very new thing.

On the other hand, it is to be presumed that the cinema will sooner or later regularly be used in administrative and in scientific work (organisation of offices and physics, chemistry, physiology, anatomy, psychology and metallurgy laboratories); such attempts are already being made. Further the cinema will be employed not merely for propaganda and technical training, but to enrich our knowledge, especially of the invisible world (histological structures and alterations, life and activity of parasites, etc.).

Meanwhile, the cinema is being so widely utilised for teaching (that is, collective intellectual work), especially, it would seem, in Germany and America, as to claim our serious consideration.

The time has come, I think, to utilise the cinematograph with a view to discovering and encouraging the best methods unconsciously or anyhow automatically adopted in collective intellectual work. Members of large administrations, libraries and scientific institutes could and should derive from special films definite educational precepts. As I urged the organisation of collective intellectual work many years ago; is not the cinema an excellent means of showing sound organisations in operation and of demonstrating a *standard* type? The unification of psychological methods, which congresses have frequently but vainly demanded, could be very greatly advanced by means of the cinematograph.

To take one instance only — the regime to be followed in general school work. Our experiments reveal the need of following and applying the *optimum* regime (based on Treves' ergograph law) having a well-defined rhythm subject only to exceptional acceleration. There is no better means than the cinema for determining a *standard* school rhythm calculated to secure the best results with the least expenditure of effort (excluding characteristically individual types of workers). What children are really being taught is to work mentally. It has been too hastily assumed that every child has its own way of memorising and that this way is the best. It is true of exceptionally gifted children, but not of the rest. I think that a film could very well show the *different processes* of memorisation, emphasising the most economical. We psychologists know what exaggerated things have been said about special imaginative types, the "mixed" type being far the commonest.

The cinema, having shown us the *best* and the *worst* in a group of school-

children, from the point of view of work and conduct, could also indicate things that must be avoided. Especially it should inculcate love for work as an act of creation, productive of values and as an indispensable instrument of social improvement. Nothing could *drive home* these principles so well as the cinema.

I notice further that the cinema is being applied in the sphere of mental pathology. Psychotic and neurotic cases are manifested by certain attitudinal *fits* or *crises* — motor and vaso-motor crises which can be shown on the screen. Thus lunatics are characterised by a special attitude. A motion picture of the attitude of the ordinary and of the criminal lunatic, of the mentally disordered and of the raving maniac taken in specific circumstances — whether discharging an imposed duty or acting of their own accord — is calculated to assist psychiatric symptomatology and to throw light on many problems of mental pathology and forensic and military medicine which are as yet almost *terra incognita*. The cinema should also help in the work of “psychical exploration” by means of action, to which Professor Niceforo refers in this number. It should in a word furnish us with the material to determine the extent and growth of “exceptional” and “morbid” attitudinal characteristics. Why should not the screen enable us to make kinetic studies of individuals which could then be used to construct group-types, even in the field of psychopathology?

To-day, therefore, we can no longer be content with stating that the cinema adds to the knowledge of the specialist in neurology and forensic medicine and that films are a great aid to neuro-psychiatric clinics because they enable doctors to study (by slow-motion) and analyse the gestures of a number of patients and because they lead to the identification of criminals (photography and subsequent projection of gestures and attitudes). We must enter into questions of detail and proceed to apply the cinema in all its possible fields.

Many people are opposed to the increasing mechanisation of humanity and protest against the advances of modern technical science. They advocate liberty in education, in teaching, the following by each of his own bent, etc. My own concern is very different. We intellectual workers waste three quarters of our time and energy in learning an enormous number of material facts, in finding out what others are thinking, in acquiring technical instruction. May we not hope that, once the cinema has made all these things more accessible, our minds may be left freer to explore beneath the surface and that we may furnish new and more valuable contributions to intellectual life?

Dr. SANTE DE SANCTIS
Professor at the Experimental
Institute of the Rome University

FILM PROJECTIONS IN ELEMENTARY SCHOOLS

(from the French)

In response to the Director's invitation, I have much pleasure in telling readers of the Institute's review all I know about the use of animated projections in elementary teaching. As headmaster of a large school in Paris, in the rue Etienne Marcel, I have made it my business for the last seven years to prepare and deliver to all classes (children from 7 to 15) lessons in which use could be made of the cinema. It is the fruits of this experience that I am now offering to the International Review of Educational Cinematography. My remarks do not apply to films accompanying lectures nor to projections at educational gatherings. I purposely exclude everything that is not a projection by the teacher to pupils in class during school hours.

The use of films in elementary teaching is not meant to simplify the teacher's work or to save him trouble, but to make his teaching more precise, more vivid, more vital and thus more fruitful.

A teacher wishing to make use of films must serve a technical apprenticeship; he will study his apparatus, learn to fix the film and check the electric connections; he must know how to keep the machinery in order, grease it and clean it. In this way he will without much trouble become a good operator. His pedagogic apprenticeship will be longer and more difficult

In our last number we published an article on "Teaching films from the psychological and educational points of view" by M. Angé, professor at the Paris Ecole Supérieure de Commerce. In the second part of this article, dealing more especially with the pedagogic aspect of cinema teaching, M. Angé quoted M. Collette, describing him as "the apostle of film teaching". To-day we are fortunate enough to be publishing an article by M. Collette himself.

Formerly headmaster of a large elementary school in Paris, M. Collette, who after a lifetime of teaching, might be enjoying well-earned rest in his home at Cagnes-sur-mer, still continues his work on behalf of film teaching. For years and years, in fact, he has been examining the best methods of such instruction and his writings are the fruit of long experience.

By publishing successively two articles on teaching films, the I. E. C. I. desires to emphasise its very special interest in this subject. Practical expression of this interest appears in the enquiry the Institute is now pursuing

but it is a necessity, even if the teacher is exceptionally well qualified for his job and familiar with visual methods of instruction.

Teachers may be classified, according to the means they employ, in these three groups:

those who expound a lesson (explanatory method);

those who comment upon the school manuals (text-book method);

those who make a constant call upon the pupil's faculties (active method).

Film teaching involves the third method only, but the method is reinforced by the perfect representation of the subject of the lesson.

A teacher who relies mainly upon the explanatory method talks too much. In most cases he only requires of his hearers that they should listen. As soon as their attention begins to flag, the teacher loses his grip over them and is talking for his own edification alone. His ideas, however well coordinated they may be, fall on empty air, and he will have to change his method. But he will use the aptitude he has acquired of composing a lesson, arranging its different parts and extracting the essential ideas requiring to be emphasised.

A teacher who resorts chiefly to the text-book method, has the text read aloud; he breaks it up, explains it, extending or enlarging its meaning. He effaces his own personality too much; he is imprisoned within his author's text. He will relinquish this method, but not before he has realised the need for associating and coordinating ideas.

The teacher who is skilled in the active method has almost reached

in schools, to which specific reference was made in connection with M. Angé's article.

The first results of the Institute's appeal to teachers in elementary, secondary and vocational schools and colleges in various countries, exceed all expectations. Its questionnaire to teachers has already brought in nearly four thousand replies, many of which — opened at hasard pending systematic analysis of the whole material — constitute detailed reports and careful studies of the question. It is an inexhaustible mine of suggestions, the results of first-hand experience, observations and also wishes expressed by teachers. The information is all the fuller since, as our readers will remember, the questionnaire covers not only instructional, but entertainment films with all their possibilities of influencing children for good or ill; it deals, in fact, with the cinema as a social factor.

This flood of replies to its questionnaire furnishes the I. E. C. I. with what is possibly an unparalleled supply of study material. Strong in its determination, which greatly exceeds its financial resources, the Institute will lose no time in systematically sifting all this material, the essence of which it will extract and place before readers of its Review under the heading, beginning with the present number, "The Institute's Enquiries."

full development. A little practice and he will be in a position to make the best use of film projections. The pictures he throws upon the screen are definite, clear and vital, and the questions he asks must have the same qualities. He will not interpret, but point out; he will be careful not to state anything that can and should be formulated by his pupils. He must acquire the quickwittedness necessary to select the essential fact to be emphasised, the capacity to realise instantly the difficulties which may be preventing children from understanding, and he must be able at a moment's notice to change the form and even the substance of a question so as to make it clearer, more exact and more suggestive, calculated to start the pupil upon the path of discovery.

If a teacher possesses these intellectual qualities, even in embryo, they will develop with practice and experience.

Other qualities are needed — such qualities as are the gifts of born teachers — devotion to the task in hand, the constant desire for self-improvement, and patience.

Let us suppose that a teacher has to give a natural history lesson about ruminants to schoolchildren of 10 and 11.

He will first prepare the lesson, quickly reading over the chapter in the text-book or his previously prepared notes. He is then in possession of the ideas and facts which constitute the substance of the lesson.

What plan shall he follow? He will probably reveal the specific characteristics of ruminants and then show the more important representatives of each group. If he is teaching in the country, he will be able to illustrate with a live ruminant and will even suggest to the class that it should watch some animal of their acquaintance before the lesson. He will seek material to which to draw attention during the lesson.

Realising that a mere statement of characteristics is of no interest, he will arrange them in two groups and note in his scheme:

1. Ruminants are herbivorous (they bite off the grass; function of tongue and teeth; they chew, a fact demanding explanation);
2. They are made for running: long in the leg; cloven-footed, with hoofs; in motion they only put the tips of their toes to the ground (supple gait, speed in running).

Lastly, the teacher draws up a list of the animals he intends to show in each of the four groups of ruminants.

When these preparations are complete, he projects the film on Ruminants for himself alone; a slow projection, frequently stopping to note the composition of the film, the author's sequence of ideas, any omissions, any pictures that he may not wish to show. He will then fix the detailed scheme of his lesson and determine the point at which the projection shall begin.

The study of the film, picture by picture, with the naked eye or a magnifying-glass is necessary for this lesson; it explains the mechanism of chewing and reveals the movement of the tongue as it collects the blades of grass

before they are seized in the jaws, and also shows the lateral movement of the lower jaw during the chewing of the cud by the molars.

This comparison of successive pictures takes rather a long time, but is full of suggestion. I have never yet examined a film in this way without correcting some error of interpretation, clarifying some previous notion and learning something new.

There is one further matter claiming the teacher's attention. What questions shall he put to his pupils? Which pictures shall he make them draw? Which titles shall be copied?

The lesson is now fully prepared and the hour for the Ruminants class is at hand. The objects that the teacher may have been able to collect (horns, hoofs, head, lower jaw, teeth, etc. of ruminants) are in readiness. Pupils and teacher proceed to the projection room. The latter is furnished like an ordinary class-room with desks, a blackboard (to one side) well-lit by an electric lamp so shaded as to throw its light on the blackboard only. The screen is at a suitable height facing the class. The projector is behind. Between the blackboard and the screen and fixed to the wall or on a shelf is the rheostat. The pupil's desks are lit by electric lamps with conical shades, which cast the light upon the children's copy-books.

The electric switches for the room and for the projector are beside the blackboard.

The lesson starts with a few rapid questions on the previous subject of study. Then follows a series of questions on ruminants, interesting and to the point, according to the scheme prepared. The whole class is told to get an answer reader for each question. The teacher indicates which child is to answer or to correct a wrong answer given by another child.

The teacher can collect the pupil's observations of ruminants known to them and write on the blackboard the two groups of characteristics mentioned above. The film may now be projected.

The projecting lamp is lit and the title appears on the screen. This and sub-titles are commented or explained as required. The teacher moves the rheostat and the motor starts.

The pictures follow in succession. In the case of those requiring close observation the picture is fixed as soon as the movement to be analysed is completed or, if the teacher thinks fit, when an important part of the movement has been completed. He will, for example, fix the image as the cow's tongue collects the blades of grass; on the other hand he will not stop the projection until the end of the series of pictures which illustrate the lateral movement of the lower jaw in chewing the cud.

Throughout, the teacher will direct the children's observation. He will ask questions, await answers and correct mistakes; he will draw attention

to particular points and collect impressions. His questions will be short and to the point. The children are keen to answer; their eyes shine and they put up their hands, a sure sign that they are following attentively and have an answer ready. The whole class is interested and everyone is trying. Sometimes this enthusiasm must even be checked. The class is alive and each pupil is watching, noticing, thinking and composing his answer. The teacher guides and coordinates.

When the screen shows a large herd of cattle grazing, the teacher bids the class observe the animal in the foreground and describe its attitude (the picture being held fixed). The pupils say that the cow has its forelegs apart, its neck extended, head close to the ground and that it is feeding on the grass. The picture is then continued and the pupils are led by a series of questions to say that the animal goes on grazing without lifting its head, that it swallows the grass as it continues to break it off. The teacher points out that ruminants swallow their food without masticating it, and keep it in reserve. He then draws on the blackboard the complex stomach of a ruminant and the class copies the drawing, putting names to the different parts of the stomach.

The projection proceeds. We see a ruminant at rest under a tree. "Watch the animal's mouth," the teacher says. "What do you notice?" Everyone has noticed that the ruminant's (a buffalo) lower jaw is moving and the most accurate answer is recorded. What is the buffalo eating? Whence does he derive the grass that he is masticating? With what teeth is he chewing it? This is the moment for showing the ruminant's jaws. One pupil holds the head and points to the upper jaw; another takes hold of the lower jaw. A comparison of the two jaws; incisors in the lower jaw only; absence of canines; broad molars. One of the class draws on the blackboard what he sees on the crown of a molar (reliefs in the form of a double crescent). Then the teacher takes the head and shows that the lower jaw can move from left to right. What is taking place in the ruminant's mouth during this movement of the jaw?

When this mechanism has been fully understood, the projection will be continued, showing in moving pictures the process of chewing.

The teacher will further exhibit the legs of a ruminant either from an anatomical specimen or by pictures (only two toes; the tip of each of these touches the ground; protective nails, or hoofs; length of toes, etc.). Ruminants are equipped for running; the film shows the rapid and supple running movement of ruminants.

The rest of the film, showing the chief representatives of the four groups of ruminants, can be projected more quickly.

The titles and sub-titles copied by the class during the projection constitute a kind of summary of the lesson. It is completed by some individual reading either from the class manual or from books in the school library.

We see therefore that the use of films in school teaching does not in any way simplify the teacher's task, but it increases its educational scope. It does not lessen the need of preparation or effort on the teacher's part, but it makes both more fruitful. The introduction of animated projections into class teaching compels the teacher to use the active method of instruction, but it also furnishes him with a means of cultivating his mind and increasing his professional value and his influence as an educator.

A. COLLETTE

Member of the Extra-parliamentary Committee
on Teaching Films

SIDELIGHTS ON THE INTERNATIONAL PRODUCTION OF FAIRY-TALE FILMS

(from the German)

Fairy-tales are the product of poetic fancy, sweet, intimate, old-time stories all beginning with "Once upon a time." Handed down from mouth to mouth and then collected in books, they have for centuries been a treasure-house for the young. Children of to-day, however, are a new generation; they learn at school and in life to become unsparing critics and it must be admitted that the old-style illustrations to fairy stories give insufficient food for a child's imagination.

The first thing, therefore, is to banish unimaginative illustration. Many excellent teachers have after much endeavour succeeded in getting fables and fairy-stories for older children provided with illustrations which in an idealised form correspond to a child's mentality. The first experiments were made with scissor-cut figures (nowadays coloured silhouettes) and the first fairy-tale film (by Rochus Gliese) consisted of filmed figures moving upon a glass plate lit from underneath.

One of the most important foreign fairy-story films is Maeterlinck's "The Blue Bird." In 1921 the National Motion Pictures League was founded in New York. Its "Baby-Matinées" have much in common with the "culture matinées" organised later by Ufa in the Berlin "Mozartsaal," where recreational films with a fairy element were projected for children (and grown-ups).

"The Thief of Bagdad" — by United Artists — belongs to the same category and, from the point of view of the artistic and technical reproduction of magic incidents, is still unsurpassed. Continuing our survey of foreign products, Turkey and Czechoslovakia, in particular, have filmed the old Grimm tales of "Little Red Riding Hood" and "Hansel and Gretel." Since every country must naturally adapt its film manufacture to popular taste and certain national customs and traditions, not much has been left of the characteristically German story. Who, for example, can take exception when the Americans represent the German "Hans im Glück" as a cowboy? French producers, too — Alberto Cavalcanti and Jean Renoir — are working on a Red Riding Hood film, though Red Riding Hood (Catherine Hessling) rides a bicycle, motors and is finally carried off by the Prince in an air-balloon.

In Germany Paul Wegener was the first to concentrate upon the filming of fairy-stories, producing, among others, "Rübezahl's Wedding" and "The

Pied Piper of Hamelin", Ufa followed a little later with "Kleiner Muck," "The Lost Slipper," "Peter Pan" and "Sumurun," the last of which may be said to have been the fore-runner of the big Ufa film "Secrets of the East." Another much-admired film at the time was the National-Film A. G. production "Prinz Elfein's wundersames Erlebnis." The "Colonna-Film" was responsible for "Die Elfenkrone" and "Der standhafte Zinnsoldat," while the children's films "Kater Mohr's Tagebuch," "Aus dem Leben der Familie Langbein," etc., by the Express Films Company paved the way for the modern animal fairy-tale.

The Berlin *Institut für Kulturforschung* revealed a new conception of the delicacies of fairy lore by its systematic efforts to promote and develop *silhouette-cinematography*. The pioneers in this branch were Lotte Reininger and Toni Radbold: "The Flying Box" "Jorinde and Joringel," "The Star of Bethlehem," "Münchhausen," "Caliph Stork," "Prince Ahmed."

The extraordinary charm of the shadow picture is referred to by Dr. Kalbus, the subtle art-writer, in his celebrated "Deutscher Lehrfilm."

"The attraction of the shadow-picture lies in its power to evoke memories, to conjure up fancies and even riddles, while the eye is continually peering into and exploring the darkness. We imagine the eyespace and the expression; we construct for ourselves the lines about the mouth. From this external profile, we seek to understand the soul within. A hundred shades and differences of colour based upon the primitive and picturesque contrast of black and white, and the whole not a mere outline, but a *picture*."

Dr. Kalbus pertinently observes that a silhouette film is really much more stimulating to the imagination than the fairy-tale film with its solid human actors and its natural (or wood and canvas) scenery.

One more method of reproducing fairy-stories in film should be mentioned, and that is the use of *puppets and marionettes* to represent men and animals. The "Stettiner Reformfilm-Ges." (Stettin Company for Cinematographic Reform) carried experiment farther and in 1923 devised clever combinations of *puppets and human beings* to impersonate certain poetic creations (shepherd and princess, tin soldiers). The only work, however, on these lines which still survives is the production of the Russian Starewitsch, at present engaged on a version of "Reinecke Fuchs," in Paris. The movements of his marionettes upon the screen extract healthy laughter and amusement from adults, and are a source of unadulterated joy to children.

Thus we see that a whole patch-work of views and conceptions has served to create in Germany and abroad fairy-tale films in accord with children's mentality. A glance at Dr. Walther Günther's "List of German Instructional and Cultural Films" published by the "Bildwart-Verlag," shows that up to the present 122 fairy-tale films are in existence. Only a *small fraction*, however, is *accessible to the public*, and this, despite the fact that, according to the list, five and even more firms have made film versions of the same story. Most of these firms— commercial idealists, as we may

call them — have long disappeared. Where they exist, the copies of these films — which were not box-office successes — have for the most part been mislaid, and those still available in tolerably good condition the cinema proprietor is unable to use because as a rule their photographic technique and artistic quality are far below our modern standard.

The critic may perhaps point to the excellent Wegener films ("Rübezahl's Wedding," "The Pied Piper of Hamelin"), Ufa films like "Zwerg Nase," "Tischlein deck dich," "The Lost Slipper," "Im Lande des Glücks," "Peter Pan," or again to "Prince Ahmed," "The Thief of Bagdad," etc., etc. True enough, but these few films of real quality are unfortunately nowhere near sufficient to meet the international demand. Thus Turkey and Czechoslovakia did not set to work to produce the fairy-tale films we mentioned until two years ago, after they had applied in vain to the German film industry asking for good German fairy-stories.

The lack of fairy-tale films has been still more felt in schools. The so-called "suitable for children" film is not entitled to the label of a film "containing a fairy element." About eighteen months ago the first move was made by the "Film und Bildarbeitsgemeinschaft" under Dr. Walther Günther, but when it applied to several big firms asking them to undertake the regular production of fairy-tale films, not one of them would look at the idea.

It is, to be sure, more difficult to make fairy-tale films than most dramatic and cultural films and also very expensive. Herewith, a few examples:

First, there is the question of what material should be chosen to make a fairy-story for the twentieth-century child. Should the traditional form be used of "beautiful princesses, wicked queens, handsome, strong and virtuous princes" or shall the story be based on present-day situations, on flashlight glimpses of social conditions (and improvements therein)?

Then comes the question of captions. Are they to be in prose or verse? In "The Pied Piper of Hamelin" Paul Wegener made use of rhymed couplets, and in view of the romantic mediaeval milieu of this film — faithfully reflected in the photography — he was undoubtedly right. Recent research in child psychology claims that the best solution is the reproduction of the simple text of the story, which is easy to understand and has long been imprinted upon the memory. Wisely enough, Latin and also Gothic letters, so difficult for small children to read, are rejected in favour of the *Sutalin* script now taught in the schools and consisting in upright letters clearly separated one from the other.

Fairy-tales unfold themselves in Wonderland and the producer is faced with the fearsome problem of designing suitable scenery for fairy-tale films. To be sure, certain architects have won fame in the cinema and the theatre for designing highly fantastic scenes, but their first aim was expressionism. To create the unearthly atmosphere of romance and to make a beautiful

dream-picture out of cardboard and plaster calls for quite exceptional gifts. And when such gifts are found, they are not to be bought cheap!

But, someone will say, why do we need expensive studios? There are so many outdoor scenes with the beauty of fairyland. No doubt, but not round Berlin. Open-air work, as we know, costs a lot in transport, food, lodging, copyright, damage to woods and fields, long delays through bad weather, etc. Moreover, supposing the good old Grimm brothers were to come back to earth and see our modern traffic arrangements, with their ruthless desecration of scenic beauty, would they not ask in despair what had become of their lovely German fairyland?

What should fairies wear? Elves and sprites could presumably be clothed in veils, but what about the Ice Maiden, the King's son, the Ice Maiden's parents and the courtiers?

Fairy stories do not belong to time. The taste and fancy of a clever producer are therefore free to eschew vain magnificence and to devise combinations of dresses and draperies which will stimulate imagination. The dresen of the Ice Maiden's companions must be borrowed from every possible age.

But clothes must be worn with dignity, and the question of suitable actors for fairy-tale films is of the utmost urgency. The players must fascinate and bewitch; yet they must not be filmstars. For our enlightened children would very quickly recognize in the enchanted prince or lovely princess the chief actor or actress in a highly realistic love-drama or sensational blood-and-thunder film. This would destroy the child's illusions, perhaps for good and all. Imagine fairies with powder, rouge and lipstick!

A belief in unearthly and ethereal beauty will only be created and preserved by young girls hardly out of their teens with the perfume of freshness and naiveté still clinging to them.

On the subject of *animals* in fairy-story films, we need only quote a fact or two: The hire of a bear (including transport, keeper and food) costs 1000 mks a day. There is therefore no alternative but to entrust the part to a player wrapped in a bearskin. Again, a producer thinks twice before paying 120 marks a day for a deer, when he has no guarantee that this extremely timid and stage-shy animal will even be serviceable and what man or beast could replace the deer in "Brüderchen und Schwesterchen?" It will be remembered how angry teachers were at the use of an Alsatian dog to play the wolf in the film of "Little Red Riding Hood," although not a single child in the two lowest forms ever dreamt that the dog was not a wolf. Only the older children mildly protested and even they "didn't see how else it could be done." The teachers said no more!

These examples all show that fairy-tale films demand past-masters of the camera gifted with an artist's vision. Technically, it is now a fairly simple thing to fix upon film a magic wood for example, with elves or with toadstools which turn into gnomes, creatures with transparent bodies, etc.

But it requires a very special art to make a fairy-tale film in which the purely technical difficulties are so mastered as to fall completely into the background — in which the technical aspects are so overshadowed by the element of illusion that it never occurs to anyone to ask how it has all been done.

These glimpses into the organisation, technique and artistry of fairy-tale film-making reveal one fundamental fact. A *fairy-story film of real worth* can only be produced with the best actors, highly gifted scene-painters and photographers, omniscient producers (versed in fairy lore, the history of dress and architecture, etc) having a very deep insight into a child's mind. And this costs a lot of money, which explains the scruples and apprehensions of the film industry.

All the more credit must be given to the unobtrusive but zealous and disinterested work of "Märchenfilm-Produktion," Berlin, under the direction of Alf Zengerling. This is the only firm in the world which manufactures exclusively fairy-story films.

Alf Zengerling, who was formerly producer and dramatist at the Cassel *Residenz-Theater*, is not only director of "Märchenfilm-Produktion," but their producer as well. His first film "Little Red Riding Hood" was shown at the "Capitol" in Berlin at Christmas 1928 with the Film-Funk fairy-play "Funkheinzemann filmt." "Schneewitchen" and "Hans im Glück" also had extremely successively runs when shown first in Berlin and later in the big provincial cities. Since then the following have been made and are now ready to be shown: "Brüderchen und Schwesterchen," "Hampelmann's Traumfahrt," "Die Sterntäler," "Das Waldhaus", "Die Wichtelmänner" and "König Drosselbart." The latter is partly a musical and sound-film, which raises the question whether in the long run fairies may not also speak their parts? Alf Zengerling's answer is reassuring: "No, for the present anyhow the Ice Maiden, Red Riding Hood and the Wolf will remain silent." Let us for a moment imagine the following situation.

The theatre all dark and mysterious. Keyed up to the highest pitch of eager anticipation, children and grown-ups follow the events on the screen. The most arrant little chatterbox is dumb. Is it not inconceivable that sudden speech from the screen should tighten the spell binding the spectators or add verisimilitude to the atmosphere of fairy-land? Even allowing for the technical improvement of sound-films, fairyland remains a thing remote and mysterious. Any sound of mechanical origin would act as a physically painful reminder of our drab world and would destroy rather than create illusion.

One exception may be allowed, and that is the use of guitar or harp. We all know that these instruments have a special power of evocation through their delicate and subtle harmonies. Possibly, too, if the reproduction were good, sounds such as the ripple of a brook, the rush of a waterfall, rain beating on window-panes, the crash and peal of thunder, might heighten the atmosphere.

Accordingly, the possibilities of developing the fairy-tale film are infinite, but the responsibility upon its creator is enormous. Only the very best must be offered to children. Shams — introduced to children in earliest infancy — may permanently demoralise their taste. The delightful " Dr. Doolittle " films indicated the line to be followed in a modern fairy-tale of human, plant and animal life and the good work is being carried on by Professor van Osen, of Berlin, who demands that the material submitted to children shall be adapted to the age they live in. The modern child has no conceptions of princes and princesses and the place of the " puff-puff " is now taken by a big Mercedes or other make of car. Our mechanical age demands mechanised fairy-tales. What could be more magical and fantastic than the reality and vision of wheels rushing round, pistons moving up and down or the mighty explosive machinery by which man, freed from his earthly fetters, is now conquering the universe? Thirst for knowledge and intellectual curiosity must be implanted in earliest youth. Let us therefore work for a film-cycle for young and old, for the wonderland of 2000 A. D.!

ERWIN WOLFGANG NACK

THE PROBLEM OF MODERN CINEMATOGRAPHY; ITS · EMANCIPATION FROM PAINTING

(from the German)

I. PRESENT SITUATION.

The great obstacle to all human achievement is intellectual laziness and the disinclination to abandon preconceived ideas and existing forms. Even a slight departure from tradition is regarded by the majority as a leap in the dark and the significance of any really revolutionary attitude of mind escapes all but a few.

It is therefore by no means surprising that both photography and cinematography are still fettered by the traditional chains of pictorial art, although the real importance of these discoveries lies in the fact that they mark a breaking away from painting not only as regards substance — light

Herr Moholy Nagy's article, which is interesting for its formulation of art principles not in themselves particularly new, seeks to show the need — Herr Nagy thinks it a very simple matter and certainly it should not prove insuperably difficult — to set the cinema free from the shackles of pictorial art and to create a new art-form resulting from a harmony of colours and chromatic scales obtained by the element of light — modelled and made almost plastic upon the screen by a new and bold technique.

Herr Nagy attacks painting on the grounds that it has manacled cinematography and photography with heavy chains from which they can with difficulty shake themselves free. He maintains that, according to present-day conceptions of cinematography, movement exists only in theory.

Much has been written about the importance of light in film technique and further discussion of the matter is unnecessary. The possibilities of light are infinite. It can paint better than the greatest painter; it can give an impression of depth; if suitably employed, it can create the third dimension in space, give life to the stereoscopic cinema and, above all, perfectly reproduce movement.

To-day all film manufacturers and producers are aiming at this and this only; they are daily endeavouring to free themselves from old methods and out-worn formulas and to create new forms of art based almost entirely upon the element of light.

The modern conception of movement technique is also very bold. Herr Nagy refers — rightly — to Russian films. The Russian film is almost wholly devoid of those captions and explanations which impede the action, weary the spectator and are really only a survival in a different form of the written or

instead of pigment — but also in form — a *kinetic* projection in space instead of a *static* projection on a flat surface.

Painting will probably live as a manual activity or trade for some generations yet, as a preliminary stage (although its means are inadequate) in the direction of a new "art of light," but in order to curtail this period all that is needed is a correct visualisation of the problem, and this implies an organiser working by entirely new optical methods. One of the signs that painting is beginning to abdicate is the evolution of the Suprematist painter Malewitsch. His latest picture — a white square drawn upon a square of white canvas — clearly symbolises the projecting screen for photographs and films; a symbol of the renunciation of pigment painting in favour of the direct modelling of light: on the white surface light can be employed directly and in motion.

This capitulation is a signal victory for the new school, a victory over the cinema of to-day, which in the matters of composition, immobility and *montage* imitates as best it can the pictorial art of the past. Suprematist art reduces the tradition *ad absurdum* and makes a clean sweep of it; a fresh beginning must be made by a new method. Let us therefore hail the victory of the new "Lichtkultur," whose mission it is to progress beyond

spoken comments that in the Middle Ages accompanied pictorial representations of deeds of chivalry by knights and crusaders shown at annual fairs.

The meaning of the film should be conveyed by the facial play and gestures of the actors and by the play of light and colour, which can inform with meaning not only persons but inanimate objects.

In the Russian film "The Mother", work, child and adult life and old age are represented in pictures which powerfully grip the modern spectator. We see factories, chimneys and live machines tumbling over one another; we are shown distant bells sounding faint, and suddenly the whole screen is filled with enormous masses of bronze; we positively hear the clash and reverberation of the bells. We are shown streams rippling — between green banks with children playing in the meadows — all visions of life which are followed by the winter frost, the symbol of death. This is cine-pictorial expressionism, but full of movement, force and significance.

Herr Moholy Nagy makes only one statement that we are inclined to question, and that is when he says that the cinema's new "light" technique will kill painting, which will survive only as a trade. If this is so, why should not music in the same way be killed by the sound-film?

No doubt painting will be left behind, but not every art-form that is left behind becomes a trade. The idea of a trade implies accessibility to all and consequently the reversion of the art to essentially popular conceptions. It would, however, seem that, if the cinema develops, as it must, into the concrete expression of life for the mass of the people, then painting, like music, will enter the rarefied sphere of ideas and works accessible only to the initiated and to a

the pictorial and by new means to achieve something unknown in the whole history of painting. It must advance even beyond the point reached in Malewitsch's picture.

The foregoing, however, is not a complete statement of the new optical principles. Cinetic and reflected projections, the direct manipulation of light call for further systematic investigation. Cinematography and photography are merely new optical systems, bridges leading towards a new optical understanding; both are still very far from complete.

II. RESPONSIBILITY.

The responsibility for a proper programme of work will increase with the development of future technical devices, such as television, long-distance filming and projection, etc.

The technical problems and their solution for the most part follow prescribed paths. For the technicians the cinematography of to-day — that is the taking of photographs and the projecting of them — is the raw material from which they start.

If they proceed with quite different conceptions of form, they may very

few aesthetically minded people who wish to live in the past. Painting, like music, will become an essentially aristocratic art, divorced from the common herd and reserved for a limited circle of amateurs.

In our mechanical age do not the handicrafts exist for lovers of the beautiful and precious? Will rare china and precious jewels from the East cease to be appreciated because synthetic compositions will — presumably — surpass them in splendour?

This does not mean that the cinema must not seek to discover its own solutions to the problems of light and movement. In the same way machinery, even under mass-production, attains an ever higher degree of perfection, for the artistic satisfaction of the great mass of consumers.

After all, how should the mass of the people concern itself with an often morbid aestheticism, when the screen can reproduce for it life as it is lived, the life of action, light and movement? (1).

In any case, the columns of our Review are now open to a discussion of the cinema as an art-form. Film enthusiasts with advanced ideas will find in Moholy Nagy, if not an innovator, at any rate a bold partisan of their opinions, and the Review will be glad now and at any time to further the cause of the cinematography of the future.

(1) With regard to the importance of light, colour and music in cinematography — we must remember that the sound-film also derives its technique from the use of light — compare the editoria note "The emotive influence of the cinema" published in the March number of the Review.

well reach quite other results. Their work will receive a new orientation and on the basis of a new programme they will become pioneers of a new "lightorial" in place of the old pictorial art (1).

III. THE LIGHT STUDIO OF THE FUTURE.

The preliminary conditions of a new *Lichtkultur*, working with sources of light that can be calculated and regulated, include high-quality artificial light, reflectors, projectors, physical apparatus, polarisation and interference of light, increased sensitisation of film and new optical methods of photography (2).

IV. IMPORTANCE OF THE STUDIO OF THE FUTURE.

In the present age of political and economic disturbance the chronicle of facts must necessarily figure prominently among instruments of education and propaganda. Nevertheless, the film, like all other forms of expression, can arouse emotions unconnected with any human or social relationships, and having roots in the inner recesses of our being. On this account the future of the cinema will remain closely bound to the studio, where such effects can be most successfully produced.

Obviously, the studio of the future will not aim at imitation, as it does in our day, "when the highest ambition is to make trees from wood and sunshine from flashlight. The art of the future must be made up of elements to be found in life and nature.

The part played by the film architect will undergo a similar change. He will have to employ cinema architecture as a means of producing light and shade and as a combination of surfaces some of which will absorb and others reflect light (walls for the harmonious distribution of light).

Only a studio working on new lines of its own can create forms of light the effects of which are unknown to painting and have hitherto only been hinted at in photographs and films. Light can give life to inanimate objects. Material objects and incidents, the psychical element in the film,

(1) Theremin, the inventor of the new ether-wave music, is the best example of the wrong way of going to work. Starting from the old instrumental music, he tries with new material to imitate the old, instead of creating new pure ether-wave music. The use of old models for purposes of demonstration may do harm, for new material must meet *new* possibilities, and demonstration with the aid of old methods may prove inadequate and even misleading.

(2) The establishment of some such station for light experimentation — which could work independently of material considerations — would appear more practicable in Russia than anywhere else. To begin with, in all other countries cinematography is a purely business concern; it is only in Russia that films are regarded as cultural possessions and creations of the mind rather than as commercial commodities. Secondly, the requisite conditions of a drastic revolution in art obtain nowhere to the extent they do in Russia. In Russia the old idea of the "artist" is exploded; the old individualist conception of art is gradually yielding to a new mentality based on the idea of organisation. In Russia creative work is not confined to the detailed recording of the particular; thought is becoming universal and synthetic (mass-conceptions) instead of individual and local.

and the acting can be so vitalised by the intelligent use of light that the impression conveyed by the latter is as strong as or stronger than the impression of the events themselves.

Cinematography, however, is not only a problem of how to make use of light, but a problem of how to employ movement, and even then its functions are not fully discharged. A number of further questions remain, some of them arising out of photographic technique, others due to the fact that the cinema of to-day has become the art of the people.

V. USE OF MOVEMENT.

In the employment and mastery of movement tradition can give us no help, and experience too is very recent. Creation must start in the rough, and this explains why the cinema as an expression of movement is still in a comparatively early stage of development.

Our eyes, for instance, are still unaccustomed to observe different simultaneous phases or currents of movement. In most cases a multiplicity of movement phases would be regarded as chaos and not as something organic. Attempts in this direction, therefore, will be mainly valuable as educational experiments — irrespective of their aesthetic value. Russian technique is so far the only attempt of this kind, and even that is open to criticism. Simultaneous cinematography has not yet progressed beyond the stage of preliminary talk.

VI. PROJECTION.

The expanse of square canvas, the projecting screen of our time, is really no more than a picture painted by mechanical means. Our ideas of phenomena in space and of relations between space and light are of the most primitive. They begin and end with the familiar ray of light falling on space through a hole. Instead of which we can conceive of projection screens, lattices, netting, etc., distributed in space, one behind the other, and some of them transparent — all played upon by one projecting apparatus. We can also quite easily imagine in the place of a single flat projection screen one or more screens curved in cupola form, divisible and movable in parts; for example, all the walls of the studio could be subjected to a cross-fire of cinema cameras (simultaneous cinematography).

It is also perfectly conceivable that several projectors should be thrown simultaneously upon smoke-screens and that certain effects of light should be obtained at the points of intersection of the different beams; also — and not only for the purposes of luminous counterpoint, but for the representation of events — a development of plastic into stereoscopic cinematography.

VII. THE FUNCTIONS OF CINEMATOGRAPHY.

The experience and practice necessary to a solution of the two big problems of the cinema — light and movement — must be gained from a wide variety of modern sciences and techniques. The work involved is distinct from that of:

the photographer (1);
the physicist and chemist;
the architect and operator;
the producer and author.

It is concerned, but is not identical with problems of *photographic technique*, such as:

optics: sensibility to light; hypersensibility (just as our eyes gradually become accustomed to the dark, so we shall one day have cameras which will be able to register even snapshots in the dark);

colour-films;
plastic films;
sound-films;

and with problems of three-dimensional projection: screens arranged one behind the other and spaced out; projection surface obtained by smoke; concave or convex surfaces; simultaneous cinematography.

It is also concerned with problems of *acoustics* and *montage* all of which matters must be studied in relation to one another and combined under the synthetic term "cinematography".

MOHOLY NAGY
Berlin

(1) The illiterates of the future are undoubtedly not only persons who do not know the alphabet, but who are ignorant of photography. It is owing to disregard of this fact that photography as an art has not been systematically developed in any country.

No wonder, therefore, that the Prussian Minister of Education, when officially introducing photography as a school subject, was unable — in spite of German thoroughness — to lay down any detailed plan. Nevertheless, the outline of an instructional and experimental programme could easily be drawn as follows:

1. Employment of light, with and without camera (photography, photogram, X-ray photographs, night-photography).
 2. Concrete facts:
 - (a) amateur photography;
 - (b) scientific photography (micro-photographs, enlargements);
 - (c) representation of incidents;
 3. Movement: snapshots.
 4. Various mechanical, optical and chemical reactions: distortion, blurring, trick-photographs, etc.
 5. Simultaneity by the use of dissolving pictures, multiple impressions, etc.
-

FILM PROPAGANDA ON BEHALF OF COOPERATION AND AGRICULTURE IN THE FEDERATED MALAY STATES

Film propaganda has received considerable attention in India, and it was the perusal of an illuminating article (1) on this subject which planted the germ of the idea in the minds of Co-operative officers in Malaya.

India has recognised the educational value of film propaganda. The 1928 Report of the Royal Commission on Agriculture in India gives an account of the work done in this connection in the Punjab. The Eastern Bengal State Railway initiated a demonstration train which made a tour of Eastern Bengal lasting for about one month. The train was fitted up as a travelling exhibition by the Railway, Public Health, Agricultural, Industries Co-operative and Veterinary Departments and by the Indian Teas Cess Committee. Each Department was allotted a bogey carriage which was appropriately fitted up with pictures, models and samples illustrating its activities. Open air lectures, accompanied by films and lantern slides, were given at each stop. A similar train was arranged by the Government of the Punjab in collaboration with the North Western Railway in December last, and made an extensive tour throughout the Province. The Government of the United Provinces have provided a demonstration carriage for the use of Mrs. Pawkes, the Secretary of the United Provinces Poultry Association, to assist her in the work of popularising improved breeds of poultry.

In order to aid in their propaganda work, the Madras Agricultural Department has put on the road a travelling motor exhibition. This was considered likely to prove of more use than an exhibition train, such as that used in the Punjab, for the reason that in South India railways are comparatively few and they do not always pass through the densely populated districts. Moreover, it is only at big towns and centres that facilities exist for halting a big train in a siding without dislocating the traffic. It was, therefore, decided to try the experiment of a motor exhibition van which could be taken from village to village in the interior of the districts and brought to the very doors of the ryots.

The exhibits which the vans carry cover the whole range of the department's work. Each is fitted up in a small showcase with a glass front which fits into its own section and these can be changed at will depending upon the locality visited and the nature of the exhibition

(1) " Films in the making. An Indian Adventure ". London *Times* 23 August, 1928.

it is desired to give. A large number of posters are carried and these are displayed on boards on the roof and are attached to the front of the counters. Tables and benches are formed of the shelves in the centre of the van and these are arranged round it to display other samples, etc. The whole, therefore, spreads out into an extensive display and it takes approximately an hour to get it ready or pack it all up ready to move on as the case may be.

Ploughing demonstrations, etc., are given at the same time and in the evening lectures are delivered with the aid of the lantern. The caravan goes ahead and chooses a suitable site and makes the necessary arrangements, advertises the coming of the exhibition, and so on, and in due course the big van arrives and the display is spread out. Halts of one to three or four days are made depending on the size of the place visited and the occasion. Local fairs and festivals are attended and the utmost use is made of all shandais, conferences, and gatherings of all sorts. Two assistants at least accompany the vans and of course there is a reliable driver for each.

The sequel in this country was that the Co-operative Societies Department of the Federated Malay States has produced a film entitled "Thrift and Extravagance" — the story of two Malays, Mat and Idris. Wherever this film has been exhibited amongst Malay peasants a profound impression has been created, and the lessons taught have not been lost upon an impressionable people. It has also been well received by the Press. The film, which was produced in Malay, depicts some beautiful scenes of the countryside.

The story illustrates the fortunes of two care-free youths at school, who, growing up, arrive at the cross-roads of life. One path leads to a life of laziness and extravagance, the other to thrift and hard work. Mat chooses the former, and is seen rising late, employing coolies to tap his rubber, buying sarongs on credit, then jewellery, a bicycle and other things he could not afford, all on I.O.U.'s, eventually going to a chetty to whom his property is mortgaged. He refuses the invitation of the local co-operative society to join their ranks and, when the need arises, borrow from them. The result is that Mat's rubber land is put up to auction at the instance of the chetty, and he is driven to a life of hardship in the Ulu, and finds that, late in life, he is faced with the problem of having to start all over again.

The second part of the film deals with Idris, who took the path of hard work and thrift. He is seen tapping his own rubber and ploughing his own patch of paddy, while his wife employs herself usefully in making mats. He refuses the invitations of the "sarong" vendor to purchase sarongs on credit, and plods along perseveringly, becoming a member of the local-co-operative society and paying his subscriptions thereto regularly. He one day hears of an adjoining piece of rubber land, which an Indian is willing to sell at a low price, and gets his local co-operative society to inspect the land, approve of its purchase and advance him the money to buy. Finally

at about the time when Mat is driven in desperation to the Ulu, Idris blossoms out into a man of some affluence, he builds a nice large house and spends the evening of his days in comfort in the bosom of his family.

In any effort directed to better the lot of the "kampong" dwellers the Departments of Co-operation and Agriculture are natural allies. A conference of Field Officers of the Agricultural Department and the Rubber Research Institute, and officers of the Co-operative Department held on 8th October, 1929, unanimously endorsed this opinion. The conference also arrived at a significant conclusion. It was of the opinion that tours by propaganda lorry or lorries should be organised for the display of suitable films, etc., and recommended the formation of a Committee to work out details of the scheme. The production of films by means of miniature cinema cameras only was envisaged.

It is as well perhaps to point out it is not suggested that the proposed travelling van should carry films alone. Exhibition samples prepared by the Agricultural Department and the Rubber Research Institute might be shown. Facilities might be afforded for the display of coloured posters, illustrating the control of disease, the larvae of pests such as attack rubber and coconuts, and other points of interest. Excellent posters, diagrams and illustrations of this nature are issued by the Department of Agriculture in the Dutch East Indies. Leaflets in Malay and Tamil might be distributed.

An aviculture film, such as was lately featured in Singapore by the Malayan Poultry Farm Association, might be borne in mind. Experiments in the breeding of pedigree cattle have already been instituted at Fraser's Hill and Serdang by the Agricultural Department. It is not too much to say that wide possibilities are opened up by judiciously directed films and other propaganda for the breeding of better-class poultry, goats and cattle. The distribution by the travelling van of improved and tested strains of "padi" seed is yet another possibility.

Investigations of cost have already been made, with the result that it can be confidently claimed that compared with the results to be achieved, the cost would be infinitesimal. Films and, incidentally, wireless broadcasting — the inception of which in Kuala Lumpur is foreshadowed at the time of writing — are everywhere recognised today as most potent and helpful media of education. It is therefore to such means as these we turn, in order that the lessons to be learnt from science and economics may be brought home to the "rayat."

JAMES CORRIE

SCENARIO FOR TAMIL COOPERATIVE FILM

SCENE I.

General village scene in India - Temples - village street - cattle walking about - blacksmith working, etc. - children roaming about.

SCENE II.

Distant view of a small gathering of men and women with one man dressed in sarong sitting in the middle of them talking.

SCENE III.

Close up of scene II.

SCENE IV.

Close up of Muniandi sitting with Kuppan talking together, with their wives sitting behind them.

SCENE V.

Muniandi and Kuppan talking to the Kangany asking him details of life on rubber estates in Malaya.

SCENE VI.

Muniandi and Kuppan walking together: their wives behind them.

SCENE VII.

Arrival at Muniandi's house. Old man comes out - milking a cow in front of a mud hut - Muniandi turns and speaks to him - old woman comes out and Muniandi's wife speaks to her.

SCENE VIII.

At Kuppan's house. Kuppan's mother cleaning large brass pots - Kuppan and his wife speak to her. In the course of conversation Kuppan's father arrives driving goats - goats are driven into the house - father comes out and joins in the conversation.

SCENE IX.

The two women go into the house talking together, leaving father and son outside - after some talk they call the women out and announce that Kuppan is going to Malaya. Women try to dissuade them.

SCENE X.

Munsiff's Court. Kuppan and his wife and family, Muniandi his wife and family, arrive separately at Munsiff's Court - sign certain documents and depart.

SCENE XI.

Muniandi's house - farewells - Muniandi his wife and family say farewell to old parents - tears - crowd of villagers in background.

SCENE XII.

Kuppan's house. Kuppan, his wife and family set off with their belongings — old mother and father walk with them weeping copiously.

SCENE XIII.

Muniandi and his wife and family, and Kuppan his wife and family with old parents meet in village street. Kuppan's parents turn back — pathetic farewells.

SCENE XIV.

Muniandi and Kuppan go off together — their wives and family following. Kuppan occasionally turns back and looks at his old parents in the distance.

SCENE XV.

Scene on immigrant ship. Muniandi and Kuppan playing cards with two friends — their wives sitting apart chewing betel and washing babies.

SCENE XVI.

Distant view of launch towing tonkongs with immigrant coolies.

SCENE XVII.

Arrival at Port Swettenham. 1000 coolies swarming pier.

SCENE XVIII.

Muniandi and Kuppan with their families — close up the view — coolies swarming all round.

SCENE XIX.

Barangs are loaded into lorry. Kuppan and family, Muniandi and family with Kangany get in too. Lorry driven off.

SCENE XX.

Arrival of lorry at Sungei Lumpur Estate outside factory.

SCENE XXI.

Distant view of Estate factory and buildings.

SCENE XXII.

Close-up of Muniandi and Kuppan lifting their belongings out of lorry. Manager comes out of office — Kangany introduces the coolies — Manager decides to take them on — each of them picks up his belongings and walks towards coolie lines.

SCENE XXIII.

Muniandi and Kuppan walking into coolie line next door to each other.

SCENE XXIV.

Next days work. Muniandi and wife, and Kuppan and wife weeding in a gang.

SCENE XXV.

Pay day. Pay table with manager and clerk sitting at it with piles of money — beside them Panchayat of Co-operative society dressed in clean clothes — as each coolie comes to payable Manager and chairman of co-operative society ask if

he will join a Co-operative Society - Muniandi after short explanation nods assent and gives \$ 1 - Kuppan comes next and listens to what chairman of the society has to say - he shakes his head and refuses to join - his wife on the other hand, puts forward \$ 1 - Kuppan leans forward and takes it from her hand.

SCENE XXVI.

Meeting of Panchayat - Manager in the chair - Panchayat dars sit on the ground - Indian Officer speaking to Panchayat - 3 or 4 coolies including Muniandi standing behind Manager - after explanation by Indian Officer each coolie puts his thumb-print and is given a pass book.

SCENE XXVII.

Kuppan in the coolie lines - 4 or 5 other coolies talk to Kuppan and induce him to go over with them to the toddy shop - scene in the toddy shop - drinking heavily.

SCENE XXVIII.

Kuppan and 4 or 5 coolies leave the toddy shop drunk - Kuppan drunkest of the lot - staggers back to his coolie line.

SCENE XXIX.

Kuppan trying to climb up steps of coolie line - rolls down drunk - at length manages to get in.

SCENE XXX.

Next morning - roll call - beating of drums - coolies come out from coolie lines.

SCENE XXXI.

Muster - Muniandi is present with his wife and Kuppan's wife - Kuppan absent - a blank in the ranks - Kangany goes to coolie lines - calls out Kuppan - Kuppan comes out holding head and refuses to work - staggers back to coolie line.

SCENE XXXII.

Kangany speaks to Manager.

SCENE XXXIII.

Next payday - Kuppan still refuses to join co-operative society.

SCENE XXXIV.

Outside toddy shop. Kuppan comes out of toddy shop alone - staggers violently - advances a few steps and falls - tries to get up but can't - wife arrives and with difficulty helps him home.

SCENE XXXV.

Morning muster. Kuppan missing - later in the day Kuppan summoned by Manager - Manager dismisses him.

SCENE XXXVI.

Kuppan leaving Estate with his family carrying their belongings.

SCENE XXXVII.

Another rubber Estate. Kuppan pleads for work at Estate office - refused.

SCENE XXXVIII.

Another Estate - do.

SCENE XXXIX.

Kuppan and family by the roadside - children crying - wife weeping.

SCENE XL.

Muniandi is made a Kangany. Scene outside the office - Muniandi is detailed in charge of a gang - he goes off to the field with his gang.

SCENE XLI.

Weeding. Muniandi giving his men work supervising the gang.

SCENE XLII.

Kuppan arrives back on Sungei Lumpur Estate - meets Muniandi - asks him to intercede with the Manager.

SCENE XLIII.

Next morning in office - Muniandi talking to Manager. Kuppan and his family in the background - after intercession by Muniandi Manager nods and agrees to take him on again.

SCENE XLIV.

Next morning at muster - Kuppan in Muniandi's gang and goes out to work.

SCENE XLV.

Kuppan working.

SCENE XLVI.

12 months later. Meeting of Co-operative Society - Manager sitting with Panchayat and Indian Officer. Muniandi arrives with another Tamil leading a cow - he asks Society to lend him money to buy the cow. Panchayat get up and feel the cow and value it for \$ 50 - after deliberation Panchayat take money out of cash box, count it and hand it over to the vendor - Muniandi signs bond and leads off cow - Kuppan passes by and stands watching for a few moments.

SCENE XLVII.

Outside toddy shop. Kuppan stands outside toddy shop for a few minutes fighting temptation - goes inside - toddy shop man on instructions of the Manager refuses to serve him Kuppan stands undecided and stealthily walks off.

SCENE XLVIII.

Kuppan walking through jungle paths - looks behind him stealthily.

SCENE XLIX.

Chinese hut in jungle. Chinese comes out Kuppan gives him money and Chinese hands him a bottle of arrack - Kuppan drinks it and calls for another bottle and drinks it up - calls for a third bottle and staggers out with bottle in his hand.

SCENE L.

Kuppan staggering along jungle path, stops occasionally as he is drunk.

SCENE LI.

Arrival of Kuppan in coolie line, fighting drunk.

SCENE LII.

Scene in coolie lines. Kuppan abuses all and sundry – wants to fight and picks up stick – friends go up and remonstrate – he roughly shakes them off – Kuppan finishes the bottle and throws it away – one man goes up and remonstrates strongly and tries to hold him – he turns round and hits him on the head – a blow with a stick – the friend falls down – coolies rush and seize Kuppan and hold him whilst friend lies on the ground apparently dead.

SCENE LIII.

Coolies run off to call dresser – Kuppan's wife arrives and begs the men who are holding Kuppan to let him go – they brush her aside – dresser arrives – coolies pick up injured man – arrival of police with Manager – hand-cuffs are put on Kuppan and he is led away by Police – wife weeps after him wringing her hands.

SCENE LIV.

Scene in hospital – doctor examines injured man – he still lies like a dead man – bandages are put on him.

SCENE LV.

Court scene. Kuppan is charged with attempted murder. The injured man heavily swathed in bandages gives evidence against him. D. P. P. calls for defence – judge, etc., required. Kuppan is sentenced for 2 years r. i. – led away by Police.

SCENE LVI.

Gaol scene. Outside gaol – Kuppan led in by warders.

SCENE LVII.

Scene in cell. Kuppan behind prison bars.

SCENE LVIII.

Village scene in India. Muniandi's parents' house. They receive letter from son containing draft for money – registered joy.

SCENE LIX.

Kuppan's parents' house – received letter that Kuppan is in gaol – tears.

SCENE LX.

Scene of Kuppan behind prison bars.

SCENE LXI.

Village market – bullocks, goats, fowls, etc., being offered for sale – Muniandi's parents arrive well dressed and buy bullock – Kuppan's parents walk by in rags and look on enviously.

SCENE LXII.

Kuppan in gaol – remorse – determines to turn over new leaf.

SCENE LXIII.

On Sungei Lumpur Estate – Muniandi is promoted to head kangany and chairman of Panchayat.

SCENE LXIV.

Muster of coolies – Manager informs coolies that Muniandi is made head kangany

SCENE LXV.

Muniandi supervising the removal of his belongings to separate house including half a dozen cows.

SCENE LXVI.

Belongings being carried into new house – cows tied up outside.

SCENE LXVII.

Kuppan arrives back on Sungei Lumpur Estate – is greeted by wife.

SCENE LXVIII.

Kuppan goes to Muniandi's house and asks Muniandi to intercede for him. Muniandi agrees.

SCENE LXIX.

Outside office. Muniandi intercedes with Manager – after some hesitation manager agrees to give Kuppan one more chance.

SCENE LXX.

Meeting of Co-operative Society – Muniandi draws out money to go to India on holiday.

SCENE LXXI.

Outside Muniandi's house. Muniandi giving instructions regarding looking after his cattle whilst he is away – sets off in motorcar with wife and family en route to India - Kuppan standing with changkol on his shoulder looking wistful.

SCENE LXXII.

Kuppan changkolling.

JAMES CORRIE

With the present number the *International Review of Educational Cinematography*, which has previously published and annotated such socially important enquiries as those of Elkin, de Maday, Finegan and others, is inaugurating a new series of enquiries touching the social problems of the cinema, based upon the principle of investigating whether and, if so, in what circumstances the screen is an elevating factor — an asset — in our life or, on the other hand, a liability, exercising a lowering and devitalising influence.

These enquiries have been carried out either by the Rome Institute direct or by its collaborators. None have hitherto been published, but they are of undeniable documentary value. The Review reserves the right, if it thinks fit, to publish in this branch of its work enquiries conducted by others.

Theories have their uses and are often necessary. But they need to be supplemented by the practice of daily life; in other words, various important factors enable theories to be illustrated and exemplified through the first-hand evidence of persons concerned and through statistics.

This is the Institute's aim and the Review has fallen into line from the formal and aesthetic points of view, by giving to its enquiry section a separate and distinct appearance of its own.

The enquiries will subsequently be incorporated in the Institute's monographs, in one or more volumes according to their character and origins, and — without boasting — will constitute the fullest work of social documentation on cinema problems in the world.

We announce among others the following enquiries:

(a) into the phenomenon of fatigue in its various aspects (films and visual, moral, physical and cerebral fatigue). An investigation by the I. E. C. I., the first of the series derived from the Institute's enquiries among schoolchildren, which will form the subject of further studies;

(b) an enquiry instituted by Mrs. Mary Allan Abbott, of the Hoover Committee for the study of social problems, on the impressions received by a number of American schoolchildren from a projection of „The Thief of Bagdad”.

(c) the opinion of young people between 10 and 18 on the value and influence of war films. An Institute enquiry.

(d) an enquiry by Dr. Leone Cimatti, Director of the Psycho-technical Laboratory at the „M. Fossati” Institute, Turin, among 2800 Piedmontese schoolchildren.

These will be followed by others. Already however, every reader of the Review, of any age and any social and intellectual category, has not only the chance but an imperative duty to answer and collaborate.

Silence signifies assent without discussion, and no one who adopts that attitude has the right to theorise. Answering and collaborating signify a personal contribution of life and thought to the social life of our world.

THE INSTITUTES ENQUIRIES

CINEMA AND VISUAL FATIGUE

Our study of "*The Cinema and Eye-sight; Effect on Children's Sight*", published in the May number of the Review, constituted the preliminary results of our analysis of the replies to the questionnaires issued by the I. E. C. I. to schoolchildren in Italy, Belgium, Roumania, Mexico and Uruguay. Since then, however, a great many more copies of the questionnaires have been distributed. The Institute was very glad to see the welcome accorded to its undertaking by the press and centres of social study in every country — an undertaking all the more venturesome because it followed and sought to improve upon many enquiries of the same kind. It was also pleased to find further countries agreeing to promote the distribution of its questionnaires. We use the plural advisedly, for in addition to the questionnaire to pupils, the Institute launched a second and strictly didactical set of questions intended for teachers only; these were published in our June number. As further proof of the interest roused by our enquiry, the Government of Uruguay, wishing to extend the investigation to secondary schools and universities, has recently applied to the Institute for 2500 copies of the questionnaire in addition to the 5000 already distributed.

This is a significant and most encouraging state of affairs. Up to the present, the Institute's enquiry among schoolchildren — the questions addressed to teachers will be dealt with separately — has beaten all records.

Pending the receipt of replies to the tens of thousands of copies sent out all over the world, more than 25,000 answers to questionnaires distributed in 27 Italian provinces with the active assistance of the Government and local educational authorities, have reached the Institute, been filed and are now being analysed.

The 27 provinces covered by the enquiry, with their total of 12,000,000 inhabitants, are representative of Northern, Central and Southern Italy and include all the physical, moral and cultural characteristics of the urban and rural populations and of the inhabitants of the mountains, the plains and the seashore.

This first batch of answers is now being sifted. As each questionnaire contains about a hundred questions divided into 33 groups, more than 2,500,000

have to be examined — to start with. This suffices to show the magnitude of the task and yet it has to be carried out quickly and systematically, since the value of any enquiry consists in its actuality, that is, in the speed with which its results can be set out and made available. In our busy modern world, anything that is long in making its appearance is likely to be out of date.

The sifting of the replies will be done by countries and taking questions and answers in groups. Each group will be separately studied and the separate studies published in the Review as they are ready; they will then be incorporated in a final synthesis which the Institute will publish in book form. The examination by countries will also be synthetised and account will be taken of the demographic, geographical and economic conditions of each country.

In issuing the final results for Italy, the I. E. C. I. publishes a complete table of the material which furnished the basis of the enquiry into the phenomenon of fatigue caused by the cinema among children and young people.

ITALY

Numerically, the results for Italy may be summarised as follows:

Provinces covered by the enquiry: 27.

Replies received: 25,042.

Eliminated as negative replies from children who do not visit the cinema: 5381.

Wholly or partly positive replies, useful for our purpose: 19,661.

The positive answers may be classified as follows, according as they emanate from large towns or smaller localities, and according to sex:

LARGE TOWNS		SMALLER LOCALITIES	
Boys	Girls	Boys	Girls
9234	5515	3230	1682
14,749		4912	
GRAND TOTAL . . . 19,661.			

The answers may be further subdivided into three separate groups, according to the age of the children. Applied to the 27 provinces as a whole, this sub-division gives the following figures:

From 10-12	boys	7588;	girls	5535
From 13-15	»	2948	»	1178
16 and over	»	1928	»	384

The questionnaires were circulated to elementary and higher elementary schools, secondary schools and technical and vocational schools.

As regards distribution between large towns and smaller localities, the principle adopted was the official sub-division according to centres of administration, so that schools of every kind situated in provincial capitals are classified under "large towns" and all other under "smaller localities". This distinction seemed to us to take due account of the demographic importance of administrative centres, and even in provincial capitals with a population smaller than that of some other places, the presence of Government offices and institutions is a fairly safe index of a more active municipal life and a higher development of local cinematography.

Finally, it should be noted that the 19,661 replies of which use has been made emanate from 742 schools of the categories mentioned.

VISUAL FATIGUE

The following study, like all those arising out of the Institute's questionnaires, is essentially practical in character and scope. There has been much theoretical discussion on the different forms of fatigue that children sometimes experience after ordinary cinema performances, but such investigations and impressions were mostly the result of mere speculation and were based upon isolated cases too few in number to constitute a phenomenon.

It is important to consider the extent of a phenomenon before building up a theory upon it and, in the enquiry with which we are concerned, to consider "cinema patients" in direct connection with ordinary films, that is, films projected in public cinemas, films, in fact, which are the special target of those who would make the cinema responsible for all evil, but which are in reality capable of doing children and young people the greatest good as well as harm.

School films, owing to the special milieu in which they are shown and the special nature of such projections (short cultural or scientific films, sometimes containing a particular message or accompanied by the teacher's comments), would have elicited from the pupils opinions of very limited application, affording no general view of the cinema as a phenomenon. Confined to school films, the I. E. C. I. enquiry would have failed in its purpose.

For the 27 Italian provinces covered by the enquiry, the results in regard to visual fatigue — expressed in actual figures and as percentages — are shown in the following tables:

PERCENTAGE FIGURES

AGE-GROUP	VISUAL FATIGUE EXPERIENCED AS A RULE			EXPERIENCED OCCASIONALLY		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	30,30	32,87	31,40	4,18	3,67	3,96
From 13-15	22,99	25,38	23,67	3,19	3,65	3,54
16 and over	22,94	19,80	21,59	8,94	5,47	8,34

AGE-GROUP	NO VISUAL FATIGUE FELT AT ALL			NO DEFINITE ANSWER		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	53,82	48,52	51,56	11,70	14,94	13,08
From 13-15	65,92	61,21	64,43	7,90	9,76	8,36
16 And over	66,67	72,65	67,69	2,45	2,08	2,38

Summed up, and without distinction of age and sex, the results are as follows:

5627 children and young people, or 28.62 % of the total number, normally experience visual fatigue after a cinematographic performance.

863, or 4.41 %, experience this fatigue only occasionally, under certain conditions.

11,041, or 56.14 %, state that they have never felt it.

2310, or 10.83 % give no exact answer to the question asked.

These figures do not wholly tally with those we published in our May number; the May figures were only provisional and have since been revised and added to so as to furnish the present complete and definitive results.

If we include those who gave no definite answer among children who say they feel no visual fatigue as the result of the cinema, we are left with 33.03 % who specifically acknowledge the existence, persistent or otherwise, of a *locus minoris resistentiae* in their visual organ subsequent to cinematographic projections.

Sub-dividing according to large towns and smaller localities and arranged according to age-groups and sex, we obtain the following actual and percentage figures (see page 1385 et seq.).

Before we analyse the causes of visual fatigue as shown in the replies of the children to our questionnaire, we may briefly summarise the views held by specialists whom the Institute has questioned on this matter and whose opinions were reproduced verbatim or in precis form in the May number of the *International Review of Educational Cinematography* and later in the special monograph dedicated to the effects of the cinema on children's eye-sight.

Professor ARNALDO ANGELUCCI, of Naples, honorary member of the International Association for the Prevention of Blindness, setting aside the special case of children whose sense organs are at the outset in an abnormal condition, bases his observations mainly upon the state of the cinematographic material (apparatus and films). In other words, films whose perforations are worn and projecting apparatus of which the rollers are worn, result in flicker during projection, and this may cause visual fatigue, apart from more serious consequences.

Professor EMILE VON GROSS, of the Eye Clinic of the University of Budapest, agrees in principle with Prof. Angelucci that normally cinema projections are not dangerous to the eyesight of children and young people. He points out that as a rule school projections do not last for more than one or two hours and thus cannot cause injury or trouble of any kind to healthy and normal eyes.

LARGE TOWNS - ACTUAL FIGURES

AGE-GROUP	VISUAL FATIGUE EXPERIENCED AS A RULE			EXPERIENCED OCCASIONALLY		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	1.818	1.451	3.269	257	178	435
From 13-15	439	216	655	43	33	76
16 and over	355	74	429	150	21	171
<i>Total</i>	2.612	1.741	4.353	450	232	682
						4.353
GRAND TOTAL	—	—	—	—	—	5.035

AGE-GROUP	NO VISUAL FATIGUE FELT AT ALL			NO DEFINITE ANSWER		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	2.870	2.055	4.925	675	613	1.288
From 13-15	1.301	536	1.837	131	72	203
16 and over	1.156	258	1.414	39	8	47
<i>Total</i>	5.327	2.849	8.176	845	693	1.538
						8.176
GRAND TOTAL	5.327	—	—	—	—	9.714

PERCENTAGE FIGURES

AGE-GROUP	VISUAL FATIGUE EXPERIENCED AS A RULE			EXPERIENCED OCCASIONALLY		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	32,37	33,77	32,96	4,57	4,14	4,38
From 13-15	22,94	25,20	23,63	2,25	3,88	2,74
16 and over	20,88	20,50	20,81	8,82	5,82	8,30

AGE-GROUP	NO VISUAL FATIGUE FELT AT ALL			NO DEFINITE ANSWER		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	51,06	47,82	49,66	12 —	14,27	13 —
From 13-15	67,97	62,54	66,28	6,84	8,40	7,35
16 and over	68 —	71,47	68,61	2,30	2,21	2,21

SMALLER LOCALITIES — ACTUAL FIGURES

AGE-GROUP	VISUAL FATIGUE EXPERIENCED AS A RULE			EXPERIENCED OCCASIONALLY		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	481	401	882	60	29	89
From 13-15	239	83	322	60	10	70
16 and over	68	2	70	22	—	22
<i>Total</i>	788	486	1,274	142	39	181
						1,274
GRAND TOTAL	—	—	—	—	—	1,455

AGE-GROUP	NO VISUAL FATIGUE FELT AT ALL			NO DEFINITE ANSWER		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	1,214	679	1,893	213	229	442
From 13-15	636	185	821	99	43	142
16 and over	130	21	151	8	—	8
<i>Total</i>	1,980	885	2,865	320	272	592
						2,865
GRAND TOTAL	—	—	—	—	—	3,457

PERCENTAGE FIGURES

AGE-GROUP	VISUAL FATIGUE EXPERIENCED AS A RULE			EXPERIENCED OCCASIONALLY		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	24,45	29,97	26,68	3,04	2,15	2,70
From 13-15	23,11	25,86	23,76	5,80	3,11	5,16
16 and over	29,82	8,70	27,88	9,65	—	8,76

AGE-GROUP	NO VISUAL FATIGUE FELT AT ALL			NO DEFINITE ANSWER		
	Boys	Girls	Boys and Girls	Boys	Girls	Boys and Girls
From 10-12	61,68	50,75	57,26	10,83	17,12	13,36
From 13-15	61,51	57,63	60,59	9,58	13,40	10,49
16 and over	57,02	91,30	60,16	3,51	—	3,18

Professor F. DE LAPERSONNE, of the University of Paris and President of the International Association for the Prevention of Blindness, who has had long professional experience, is also of opinion that the cinema can only be injurious to children's sight if the films are worn or damaged so as to produce flicker; or if the letters of the captions are illegible or unsymmetrical; or when the spectator is too close to the screen. No single projection, he says, should last for more than ten minutes or a quarter of an hour; the eyes should be allowed to rest for two or three minutes between one projection and another. Finally, harm may be done if the child's sight is abnormal or if children suffering from any degree of ametropia are not supplied with proper spectacles.

Dr. PARK LEWIS, of the University of Buffalo, Vice-President of the International Association for the Prevention of Blindness, made a close study of this question and came to the following conclusions:

(a) A review of existing literature does not show that cinema projections have ever caused serious injury to the sight and reveals but few complaints of inconvenience. Under normal physiological conditions, therefore, moving pictures do not cause serious eye-fatigue;

(b) Since viewing motion pictures is distance vision, it does not demand so great an ocular effort as the observance of a near object.

(c) Although the eyes are strained by watching moving pictures, even in the best cinema theatres, they are in all probability damaged little more than they are by reading for the same length of time under ordinary conditions of lighting;

(d) Eye-strain caused by motion pictures is due to one or other of the following conditions, each of which is avoidable: prolonged concentration of the eye; defective eyesight; position of the observer in relation to the screen; poor film, bad manipulation or faulty projection; faulty general illumination.

Professor GIUSEPPE OVIO, Director of the Eye Clinic of the University of Rome, mentioned as sources of possible injury to eyesight: over-rapid projection; too frequent captions, these being also more subject to "flicker" than the pictures and being shown on over-light backgrounds; panoramic movements of the background, which easily produce giddiness and compel the eyes to unwonted and always tiring effort.

Professor VAN DER HOEVE, Director of the Eye Clinic of the University of Leyden, declared that the few instances of visual disturbance caused by the cinema that had come to his notice had occurred in very nervous subjects. He recommended that performances for children should not last too long and that the hall during projection should not be absolutely dark, so as to avoid the sudden change from the brightly-lit screen to the darkness of the room and *vice-versa*.

The opinion of two experts working in different spheres, a teacher and an alienist, agree in the main with the views of the above specialists:

Signor ETTORE TOSI, headmaster of a Government school in Rome, thinks that the retina and nerve centres are bound to be disturbed with every passage of a picture across the screen and he wonders whether beyond a certain point these disturbances are not calculated to produce a painful sensation similar to the effect, in the long run, of a drop of water falling continually upon the palm of the hand.

Dr. FABIO PENNACCHI, of the Perugia Lunatic Asylum, in his article "The Cinema and Adolescence", which appeared in the September number of the Review, quoted the opinion of specialists that many young people had to thank their love of the cinema for the impairment of their sight — especially poor children, who occupy the cheapest seats nearest the screen: "It is true," wrote Dr. Pennacchi, "that in her writings Dr. Hein, a Danish lady oculist, inclines rather to blame the stress of school work for poor sight among children, but it cannot be denied that the speed of the impressions on the retina is a cause of marked ocular tension, complicated by difficulties of adjustment, especially with regard to the distance of the eye from the screen. Headache often ensues, sometimes giddiness; and, in the long run, the organ itself is weakened."

A book entitled "The Cinema. Its present position and future possibilities" (London, Williams and Norgate, 1917), giving summaries of the opinions of experts and of the conclusions of enquiries instituted by specialists in the different branches of screen activity, contains observations relevant to our question. Although thirteen years old, these remarks do not substantially vary from those recently made by oculists, scientists and others specially concerned with the physical and moral protection of the young.

We should like to summarise here what was written in 1917 concerning visual fatigue as a consequence of cinema projections.

Dr. BISHOP HARMAN, Ophthalmic Surgeon to the West London Hospital and Belgrave Hospital for Children, attributed this fatigue to the following factors:

1. Glare.
2. Flicker.
3. Rapidity of Motion.
4. Concentration of Attention.
5. Duration of Exhibition.

These factors have the same effects upon children as upon the more impressionable adults, but owing to their lesser power of resistance, children succumb to fatigue more quickly.

1. *Glare.* — Projection rooms are made as dark as possible and all the light is thrown upon a very white screen and therefrom reflected into the

eyes of the observer. These necessary conditions of the show are the worst conditions for the eyes; they tend to produce the maximum of fatigue. Glare cannot be dissociated from the show, but it can be reduced by a suitable illumination of those parts of the hall removed from the screen and by moderate general lighting during the intervals.

2. *Flicker*. — This defect is generally due to bad films and is most evident in coloured films. Technique, however, has greatly improved in this matter.

3. *Rapidity of Motion*. — This is connected with the previous defect, since in order to reduce flicker, the film is moved through the machine at a greater rate than that of the progress of the event depicted.

4. *The concentration of attention* required by the cinema is greater than that necessary to follow any other kind of show and engenders visual fatigue, especially in children. Since the eye does not take in the whole of a scene at once, it has to move rapidly from one point to another, and this demands an excessive and exhausting effort.

5. *Duration of exhibition*. — Cinema performances commonly last from one and a half to three hours. A child is not capable of sustained attention for so long. Shows should therefore be much shorter.

The effects of the cinema on children's eyes are only momentary and cannot have serious consequences unless attendance is assiduous. In any case, the best protection for the child will be secured by the following measures:

A. The reasonable illumination of all parts of the hall not directly beside the screen;

B. The avoidance, as far as possible, of flicker and the withdrawal of damaged films;

C. The improvement in taking the picture so as to bring the rate of motion of the objects depicted nearer to the natural;

D. Increase in number and length of intervals;

E. Limitation of shows for children to one hour;

F. Reservation for children of the best places in the hall, that is, central positions as far away from the screen as twice its full height.

In contradiction to these conclusions, Dr. Saleeby, an English censor, who for four years has examined films on five days a week from 10 a. m. to 6 p. m., said that his eyes had never suffered. As Mr. Gaster points out, this statement is of very relative value, for in regard to fatigue in general and visual fatigue in particular, it is impossible to compare the resisting capacity of adults with that of organisms in the course of growth.

Mr. LEON GASTER, Hon. Sec. of the Illuminating Engineering Society, declared that:

f. In the darkened condition of cinema theatres the eye is very sensitive to light and therefore no source brighter than the screen should fall within the angle of vision of the audience;

2. An excessive contrast between the bright screen and the dark surroundings is trying to the eyes. The walls and ceiling might therefore preferably be light in tint;

3. To avoid excessive contrast between light and shade, and also for safety, a small amount of light should be maintained in the room during projections. In the intervals, too, full lighting should be provided and should be gradually dimmed so as to avoid the shock to the eye of sudden transitions from darkness to brightness, and *vice-versa*;

4. It is common knowledge that to be too near the screen is tiring to the eye. Children should therefore be given the best places and the front row should be at least twenty feet from the screen.

Such are the latest, most authoritative and direct indications with which science can furnish us on this matter. Let us now turn to the children and young people themselves, who, through the Institute's enquiry, supply us with practical information on the causes of the trouble.

First, a few statistics.

Taking the average for the 27 provinces, we find the highest proportion of those who normally or occasionally feel visual fatigue as the result of public cinema shows, among the youngest (under 12). The smaller localities report a larger proportion of eye-fatigue in young persons over 16 but, as this age-group includes only 251 out of 4,912, the fact is of no great importance. It is of interest to note that in the big towns, more children experience visual trouble than adolescents.

The average relations between each age-group are as follows:

AGE-GROUP	Large towns	Smaller localities	General average
From 10-12	35,35 %	29,40 %	35,30 %
From 13-15	26,38 %	28,93 %	27,22 %
16 and over	29,11 %	36,65 %	29,93 %

In relation to the sexes, statistics give the following averages:

AGE-GROUP	LARGE TOWNS		SMALLER LOCALITIES		GENERAL AVERAGE	
	Boys	Girls	Boys	Girls	Boys	Girls
From 10-12	36,94	37,91	27,49	32,12	34,48	36,54
From 13-15	25,19	29,06	28,91	28,97	26,18	28,43
16 and over	29,70	26,32	39,47	8,70	21,88	25,27

Apart from the negligible number of girls in secondary localities (2 out of 1682), the highest averages of those experiencing visual fatigue are found among schoolchildren in large towns and the proportion of "eye-sore" girls is higher than that of boys.

Generally speaking, children are more sensitive to visual fatigue than adolescents.

Finally, if we sub-divide by kinds of schools, the replies show that fatigue is more evident among pupils at *manual* vocational schools than among those studying classics or engineering.

Let us now examine the causes of habitual or occasional fatigue as revealed by the Institute's enquiry. According to the statements of the subjects themselves, these are:

(a) *projecting apparatus*: use of old and worn machines producing flicker;

(b) *films*: damaged, worn or technically defective films, whether the defect is in the negative or in the printed copy;

(c) *projection technique*: flicker due to too slow a motion or other reason; insufficient distance of observer from screen; excessive speed with which the film is moved through the machine; if the film moves too quickly — about 10 children point out — the difficulty of following and discerning the stages of movement ends by tiring the eyes; bad projection technique in general is mentioned by many others.

(d) *captions*: these are complained of as being too numerous. About a hundred schoolchildren — mostly younger children and boys — say that the letters are too small and that they do not remain on the screen long enough: "We can't read them" is the gist of the complaint, "in spite of the fatiguing effort to read almost illegible writing in too short a time."

(e) *lighting*: a large number complain of eye-fatigue caused by the lighting conditions of the hall during and between projections. Criticism is directed especially against the too sudden transition from the semi-darkness during projection to the bright illumination in the intervals and at the end of the performance; also against the excessive whiteness of the pictures and *flicker* — a fault of the operator — the result of an irregular distribution of the source of light during projection, dazzling to the eyes.

(f) *the seating arrangements of the hall and the position of the observer in relation to the screen*: Hundreds of observations were made on this score, most, but not all, based upon economic considerations. Children go to the cinema either alone or in the company of friends or relatives. In the latter case, supposing the friend or relative has normal sight, the child will sit at a normal distance from the screen and the projection will not hurt his eyes. Often, however, the grown-ups accompanying children are short-sighted and can only afford the cheapest, i. e., the most crowded places, so that the child finds itself in the very front rows and close to the screen, where the defects of projection — flicker, dazzle, etc. —, which

are, as we know, more conspicuous near than from a distance, will be intensified and try the child's eyesight, however good it may be.

Children who go to the cinema alone are usually of the poor class. They have somehow collected the small sum required to obtain admission, but only enough to pay for the worst places at the local picture-house.

On this point the children's answers are often picturesque and illuminating: "How can I expect to see well," one said, "when I can only afford the front rows?" "My father is a working man and doesn't earn a great deal" is another answer. Two little boys wrote: "We are small, and always find ourselves behind taller people so that we have to crane our necks or shift our places, in order to see. The screen is often partly or altogether masked and one loses the thread. This is tiring and hurts the eyes." Others, for similar reasons, complain that in some cinemas the floor has not a sufficient slope.

An interesting feature is the complaint by many children and young people of the grown-up habit of smoking in halls which are frequently ill-ventilated: "Smoke," they say, "makes the eyes smart and prevents you seeing clearly."

Others mention further causes of visual fatigue of a purely subjective interest.

The two categories of objection may be summarised as follows:

1. *Undue length of projections:* Many children refer to the excessive length of films or parts of films, and of the short intervals between one part and another. They say that too long a projection often makes them giddy and, still more often, makes their eyes smart.

Others add: "On coming out of the cinema after a long show, you can't see anything"; or again: "You see everything red and it's some while before the sight returns to normal." Others again: "It's alright at first, but in the long run the strain of watching becomes tiring." "The constant moving of the eyes, with no rest, tries the nerves and weakens the sight." "Over-long projections tire the eyes and make you sleepy."

2. *Subjective elements.*

"If the scene is touching, you cry, and that hurts the eyes."

Short-sightedness.

"Evening shows are bad. In the day-time, you often open the windows or shutters in the intervals, and the light which enters does not hurt the eyes."

"Boring scenes are tiring. For lack of other occupation, one looks at the screen and the eyes grow tired. The same applies to scenes indifferently acted."

(This remark is psychologically interesting. Mental weariness is not the only cause of boredom from projections. Psychic resistance leads by reflex action to visual fatigue).

(To be continued)

G. d. F.



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THE PHOTOGRAPH AND FILM INSTITUTE OF BERLIN

(from the German)

We publish herewith the substance of an article we have received from Herr Arthur Lassally, an engineer, of Charlottenburg. Although it has already appeared in print (*Die Kinotechnik*, September 20th, 1930), we are glad to bring Herr Lassally's article to the notice of our readers, for this account of the aims and organisation of the Berlin Film- und Bildamt should be of interest to all who follow the progress of cinematography, and especially of educational and scholastic films. To all such the name of Dr. Walter Günther, creator and present Director of the Amt, is familiar as that of a strong champion of our common cause.

There has been a school for film operators in Berlin since 1915, founded and maintained by the Union of Berlin Cinema Proprietors. In 1921, with the assistance of the German Association of Motion Picture Engineers, a German Film School was established in which technical instruction was supplemented by training in production and acting; finally, the Berlin Technical High School maintains as a separate organisation an institution for tests and experiments in cinema technique (*Prüf- und Versuchsanstalt für Kinotechnik*). This might have seemed to exhaust the possibilities of technical training in cinematography, but since 1920 the scholastic profession, in connection with film-teaching, has organised training-courses, principally for the use of teachers; this body founded the *Film- und Bild- Arbeitsgemeinschaft* (*Filmseminar*), Grossberlin 7 W., which on September 8th celebrated its tenth birthday.

These endeavours to tackle the problem of cinematography and get to work on the right lines led to the creation of the *Filmseminar der Stadt Berlin*, now more correctly known as the *Film- und Bildamt*. The institution has developed out of practical work, the purpose of which was to impart to students the knowledge required to pass the prescribed examination as operator of

cinema projections in schools and child welfare institutions. Thus 49 courses have been held in the last few years, each attended by an average of 24 participants, so that about 1000 teachers and child welfare workers have been trained in cinematographic work. Special courses are arranged for employees in administrative offices and industry, who organise film projections for professional purposes, but not in cinemas. As the work of teachers is not confined to films only, but covers all photography, there are also courses in elementary and advanced photography and microphotography; even the elements of film-making were practised at one time and it is proposed to resume this branch of the work.

The activities of the *Filmseminar* have been developed on paper since 1921, in practice since 1928. Thus, a Technical School of Cinematography has been added, where film operators and other technical personnel receive theoretical and practical training in addition to their practical studies outside the technical school. The occupation of cinema operator is in fact taking its place among skilled trades and the work of the technical school of cinematography is helping this development. What applies to film operators also applies to other technical cinematographic workers. Although the use of machinery in the cinema industry may be expected to increase, the need for a large number of unskilled workers will continue. There will, however, also be a demand for highly trained technicians and skilled masters and foremen — posts at present held by unskilled men who have been longest in the business. This development is now in full swing, and the Technical School of Cinematography is destined to be the nursery of a school of technicians, whose value to any industry must be placed very high.

A stepping-stone to the Technical School and to the *Seminar* is the Cinematographic Vocational School (*Berufsschule*). As every-

one knows, in Germany, nearly all boys between 14 and 18 who do not attend a high school or technical school, are required to attend vocational classes. The youths — messengers, odd-job boys, film-stickers, etc. — employed in the Berlin cinema industry, are also regarded as unskilled and attend the vocational school appropriate to their case. Since 1928 a praiseworthy attempt has been made to group them all within a single vocational school, which in addition to teaching the usual general subjects will impart special knowledge that the pupils can use in their trade and which will season instruction in general knowledge with examples chosen from their own occupation. The object in view is to implant an intelligent liking for their calling in young people, most of whom have found their way into it owing to the chance exigencies of the labour market, and further to endow them with the qualifications necessary to film workers and to pass the best of them on to the technical school, the training of which will raise them to the social status of technicians.

These very different purposes and the very variously constituted groups of participants naturally imply a corresponding variety in the curricula of all these courses. The subjects taught in the *Filmseminar* and the technical school are: general information concerning the vocation, chemistry, electricity, fire and accident insurance, motion picture technique, optics, photography, physics, projection, organisation, law (Reich Film Law, safety measures, fiscal questions) and scientific cinematography. Students enter the vocational school in the third semester, after they have spent a year in the vocational school for unskilled workers. Students in their second and third years at the vocational school are taught for 6 hours a week in separate classes. Here, in addition to what is called "Gemeinschaftskunde," the only subjects taught are technical subjects, divided into *elementary*: General cinematography, electricity, optics, principles of photography and projection, and *advanced*: apparatus, care of films, and law. All courses make generous provision for practical work.

Considering the large number of different subjects, the teaching staff is small: The Director gives classes in the general aspects of the vocation and in law, in addition, there is a technical director of studies and a separate lecturer in electricity, cinema technique, optics, micro-photography and photography. There are also a female assistant and a qualified engineer on the staff of the vocational school and outside lectures are given by representatives of the business world or cinema practitioners.

This concludes our account of the instructional duties of the *Film- und Bildamt*. It is intended to extend instruction to include the training of cinema photographers and engineers for cinema theatres, but this will depend upon the demand. Already, however, the teaching work has been supplemented by certain administrative activities. The Berlin Film Archives are now worthily stored in the building and the necessary arrangements made for their care and use. The Central Photographic Collection of the City of Berlin, the *Archiv für Lichtbild- und Filmwesen* — which contains several rarities and preserves everything worth knowing about photographs and films — a library, a collection of periodicals, an intelligence service for films, photographs and apparatus and, lastly, 20 district cinema offices, working locally under the patronage of the *Bildamt*, now supplement the purely instructional side of the work and serve to create a real *Film- und Bildamt*.

The fine building is divided into three parts. The left wing consists of the Kleist School; the middle block contains a gymnasium, the big hall, another gymnasium and above it a roof-gymnasium, and the right wing is the *Film- und Bildamt* itself. On the fourth floor of the latter is a photographic studio with a glass roof and walls. It is built for daylight photography, but admits of a certain amount of work in mixed light or — at night — by purely artificial light. In the front of the building are a number of smaller rooms where the various stages of film preparation are completed. There is also a caption-printing room and a table for trick-film work. The large lecture-theatre has 135 seats

arranged in tiers and is equipped with blackboard, screen, darkening facilities and an epidiascope upon an electric table, which can be lowered into the floor. The fourth floor further contains the big collection of periodicals and behind it space for an aerating machine, by which fresh or electrically heated air can be pumped up into the municipal film archives on the floor above. Here — where there is no heating apparatus — the Berlin films are kept in special safety cupboards variously constructed.

On the third floor is the mechanical workshop and next to it a chemical lecture room fitted up in the usual way. The physics room, with a preparing lobby, where the apparatus is also kept, is on the lines of the ordinary school physics laboratory. On the second floor is the high-tension laboratory with space for eight workers. The big projecting room, with two windows, has five machines arranged in a row along one wall.

Another room on the second floor is fitted up for micro-photography; nor should

the *optical laboratory* be forgotten. The whole of its shorter side consists of a screen. The intelligence service of the *Film- und Bildamt* is also on this floor.

The big hall on the first floor accommodates 500. In addition to a stage, there is a movable directing stand, which can be placed anywhere in the hall and from which the light-signals in the big projection room can be seen and telephoned to the operator. The large lecture-theatre has a similar directing stand.

On the ground-floor is the so-called small lecture theatre and next to it another projection room. Here, too, is the municipal photographic collection. In the cellar is the engine-room.

The term "Filmseminar" for this educational establishment is only historically correct. Although we need not employ the term Academy of Cinematography, this institution will as time goes on furnish the film industry with a steady stream of well-trained experts and thus reflect credit upon the city of Berlin for having created it.

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C U L T U R A L F I L M S I N T H E U . S . S . R .

(from the French)

Thirst for knowledge and the growing cultural needs of the working masses have led to a substantial increase in the production of cultural and documentary films in Russia, and during the last two or three years the development of this movement has been particularly remarkable.

A typical example of a Soviet documentary film is "The Mechanism of the Brain," made by Pudovkin for the Mejrabpomfilm in 1926-27. This film expounds the materialist theory of Pavlov, a member of the Academy, concerning the higher nervous activity of animals and reproduces his celebrated experiments on the normal reflexes. Despite the extremely complicated scientific material, which made it very difficult to render the film generally intelligible, it aroused keen interest in wide circles and was greeted enthusiastically wherever it was shown.

Interest in cultural and documentary films is steadily growing and the number of cinema installations in clubs and villages has greatly increased. Documentary films are much in demand and the cinema public is to be counted in millions. Nearly all the Soviet film organisations show cultural films and the Sovkino has a special factory at Moscow for this kind of film. The Mejrabpomfilm, a cultural film organisation, has multiplied its activities and may very possibly be transformed into a factory for the production of these films.

In their programmes and production schemes Soviet film organisations allot an important place to cultural films, assigning to them 20-25 % of the total resources available for film manufacture.

Among the most interesting cultural films of the last two or three years, in addition to "The Mechanism of the Brain," are the following: "A Sixth Part of the World" (Sovkino), "Earth and Heaven" (Mejrabpomfilm), "The Feeding Problem" (Sovkino), "Alcohol" (Sovkino), "The Eleventh" (Ukraine Cinema), "Fatigue and its Remedies" (Sovkino), "Home-

treatment of the Sick" (Mejrabpomfilm), "The Scientific Choice of an Occupation" (Mejrabpomfilm), "Oil" (Sovkino), "Air Attack," (aviation in the service of culture) (Mejrabpomfilm) and "Love in Nature."

To this list should be added a number of films turned this year and already released: "The Forest Men" (Sovkino), "The Spartacists" (Sovkino), "The Fight for Health" (Sovkino), "Here's to your Health" (a Mejrabpomfilm temperance film), "The Glass Eye" (Mejrabpomfilm), "The Man with the Film Camera" (Ukraine Cinema). Announcement is made of the approaching completion of some ethnographical and travel films, which will excite lively interest. Among these are "The Unexplored Parts of the Pamir" (Mejrabpomfilm), "The Gates of the Caucasus" (Sovkino), "In the Taigna in Search of the Meteorite" (Sovkino), "Afghanistan" (Sovkino Leningrad factory), "Among the Votiaks" (Mejrabpomfilm).

Most of these films were made with the immediate assistance of Russian scientists or experts, who not only gave advice during *montage*, but in one case at least assumed the scientific direction. The results are correspondingly excellent and the films have aroused great interest both in the scientific world and among the general public.

By appealing for the more active participation of scientists and professors, the Soviet documentary cinema is helping to solve one of the most important cultural problems of the U.S.S.R., the problem of popular education.

The choice of subject is determined by the immediate requirements of economic and cultural education, by the more urgent problems of industrialisation, mechanisation in agriculture, care of public health, reorganisation of the national life, anti-alcohol campaign, etc.

Scientific and technical progress is shown in practice. Our aim in film-making is to furnish as many examples as possible bear-

ing directly upon daily life and, as far as we can, to link up science with the life and work of the people. The more the spectator is interested, the better he understands the film, and we therefore try to introduce episodes and scenes of domestic life likely to arouse his attention.

The Institutes of Psychology at Moscow and Leningrad carry out enquiries into the reactions of the spectators and the results are then checked by comparison

with theatre audiences. A special Scientific Institute is shortly to be opened in Moscow for the study of Soviet cinematographic problems.

Lastly, we should add that the production programmes of the three chief Soviet organisations — Sovkino, the Ukraine Cinema and Mejrabpomfilm — provide for the manufacture of about a hundred cultural and documentary films.

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F I N L A N D

According to information kindly communicated by Madame Tilma Hainari, President of the National Council of the Women of Finland and Substitute Delegate for Finland at the League of Nations Assemblies of 1927, 1928 and 1929, there are two Finnish associations engaged in educational film work: The Kurki Joint Stock Company for Cultural Films, founded in 1926 and the Educational Film Union, founded in 1929.

The aim of the Kurki Company is to procure, especially for the needs of educational institutions, cinema machines and films as well as other suitable material for object lessons, and to organise instructive picture shows. Kurki recommends an American machine "Filmo" for special use in schools as it is light, weighing only about 4 kilos, and can easily be moved from one place to another, and especially because it uses 16 mm films which are not inflammable but are so-called safety films. This machine has also the advantage — an important feature in instruction — that the film can at will be turned backwards and the projection interrupted to give necessary explanations.

The Kurki Company has an archive of films containing about 150 educational films, mainly foreign. But there are already a number of good native educational films and new ones are constantly produced. The latter include; Finnish Forests, Finnish Agriculture, Finnish home-industries, the Care of the Labourers, etc., and many specially interesting films on natural science. The schools of the

capital, Helsingfors, hire the film required for a particular class and engage an operator to come and project it. Mostly the 16 mm machine is used and as the classrooms for natural science and physics can readily be darkened, the projection is a simple matter. The films ordered for the country districts are sent on fixed days to schools and cultural organisations.

The purpose of the Educational Film Union is to secure films as aids in teaching in educational organizations and institutions, from elementary schools to the Universities. It has branches throughout Finland.

Educational work by means of films is carried on not only by schools and educational organizations, but also by the largest Co-operative organizations. The government has aided the activities of film education only nominally. The whole enterprise has depended up till now upon the initiative and self-sacrifice of private individuals. The Educational Film Catalogue has however appeared for the last few years at the expense of the government and been distributed free to all educational institutions and cultural organizations.

On the Expert Committee of the Kurki Company are represented: the Department of Education, the Universities, Elementary and Secondary schools, the Technical High School, the Ministry of Defence, film renting bodies, film producers and women's organizations. The Board of the Educational Film Union includes three women members.

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G R E A T D O C U M E N T A R Y F I L M S

THE BYRD EXPEDITION TO THE SOUTH POLE.

The film of Admiral Byrd's expedition to the Antarctic regions is an example of a complete and perfect documentary film. This is no mere cinematographic record of episodes and facts, of interest possibly to the specialist but with little or no appeal to the ordinary cinema public. The Byrd film is a piece of real life, a chapter in history containing passages which border on tragedy but end in glorious victory. It palpitates with life, arousing a sense of the unknown and the dangerous and, in this age of materialism, compelling the most intrepid to pay his tribute to men of action and high endeavour.

Admiral Richard Byrd is so well-known the world over that there is nothing new to say about him. The reader hardly needs reminding that he was the first aviator to fly over the Arctic regions and the second to cross the Atlantic.

On August 15th, 1928, he again set out upon a bold venture, bound this time for the South Pole. Two ice-breakers, the "City of New York" and the "Eleanor Bolling", carried the whole of the material for the expedition, which included three aeroplanes fitted with skates, a hundred sleighs, two hundred pack-dogs, portable

huts, tents, food and medicine in abundance and a complete wireless station. The crews numbered not more than 500, of whom only 42 belonged to the expedition proper; the rest were to remain at the base.

The object of the expedition was to continue the series of Antarctic explorations of Scott, Shackleton, Wilson, von Drigalski, Nordenskjoeld, Charcot, Cook and Amundsen — names sacred in the annals of geographical research — which, although reaching the South Pole and discovering the shape of a number of bays, coasts gulfs and plateaux, had revealed only part of the secrets so jealously guarded by the formidable ice-barriers of the Antarctic. The task before the Byrd expedition was to study the nature of the soil; whether it contained

precious minerals, volcanic activity; physical phenomena; meteorological and atmospheric conditions, a knowledge of which might lead to the discovery of the third and last factor in the atmospheric conditions of the globe; the fauna and flora; and finally all the elements needed to make a chart of the Antarctic regions. Big as was this task, it was carried out in its entirety, thanks to that tenacity of purpose characteristic of the born navigator.

In the course of the expedition more



Admiral Richard Byrd.



In the Projection Hall of the I. E. C. I. during the projection of the Byrd film.



The « Floyd Bennet ».

than 240,000 square kms. were photographed and the area flown over was about 17,700 kms.

On December 2nd the two vessels reached the barrier of Ross Sea. The "City of New York" cast anchor there and the "Eleanor Bolling", after unloading, set out on her homeward journey.

On December 28th, near Framheim (the base of the 1911-12 expedition), the party set about constructing the Polar village of Little America in about 77° 25' latitude. It was built to accommodate 42 men — 42 heroes who knew that they would have to live there cut off from the rest of the world for months on end, their only connection with the outside world the wireless.

The first flights were made on January 15th, 1929, in the direction of Discovery Bay, which offered a large and completely unknown area for useful exploration. Many vessels had already pushed as far as Discovery Bay and Whale Bay, but none had ventured along the Barrier between these two points. A few days later Byrd espied and flew over the Rockefeller Mountains and on February 18th, the land to which he gave the name of Mary Byrd.

After a number of mishaps, the most serious of which was the destruction by storm of a big Fokker — the geological mission very nearly perished and was only saved through Byrd's own heroism — the first flight of the new season had as its goal the South Pole itself. The undertaking was extremely difficult partly owing

to the distance to be covered and partly because of the high mountains in the way. Towards the end of November a forced landing led to the discovery of the Charles Bob Mountains.

The flight to the South Pole started on November 28th at 3.29 p. m. on the three-engined "Floyd Bennet" — the name of Byrd's brave companion on his North Pole flight who met with an untimely death. The party were back in camp the

next day after a flight of 17 h. 39 m. The goal had been reached, the Pole being crossed exactly at midnight. On its outward route, the "Floyd Bennet" flew over the Seir glacier, to the right of Axel Heilberg and then headed directly for the South Pole. On the return journey the machine was able to land on the Barrier at the foot of the mountains, near the petrol store.

Further flights followed. On December 5th the explorers discovered fresh mountain ranges and the existence of a tongue of land covered

with a crust of ice between Weddell Sea and Ross Sea.

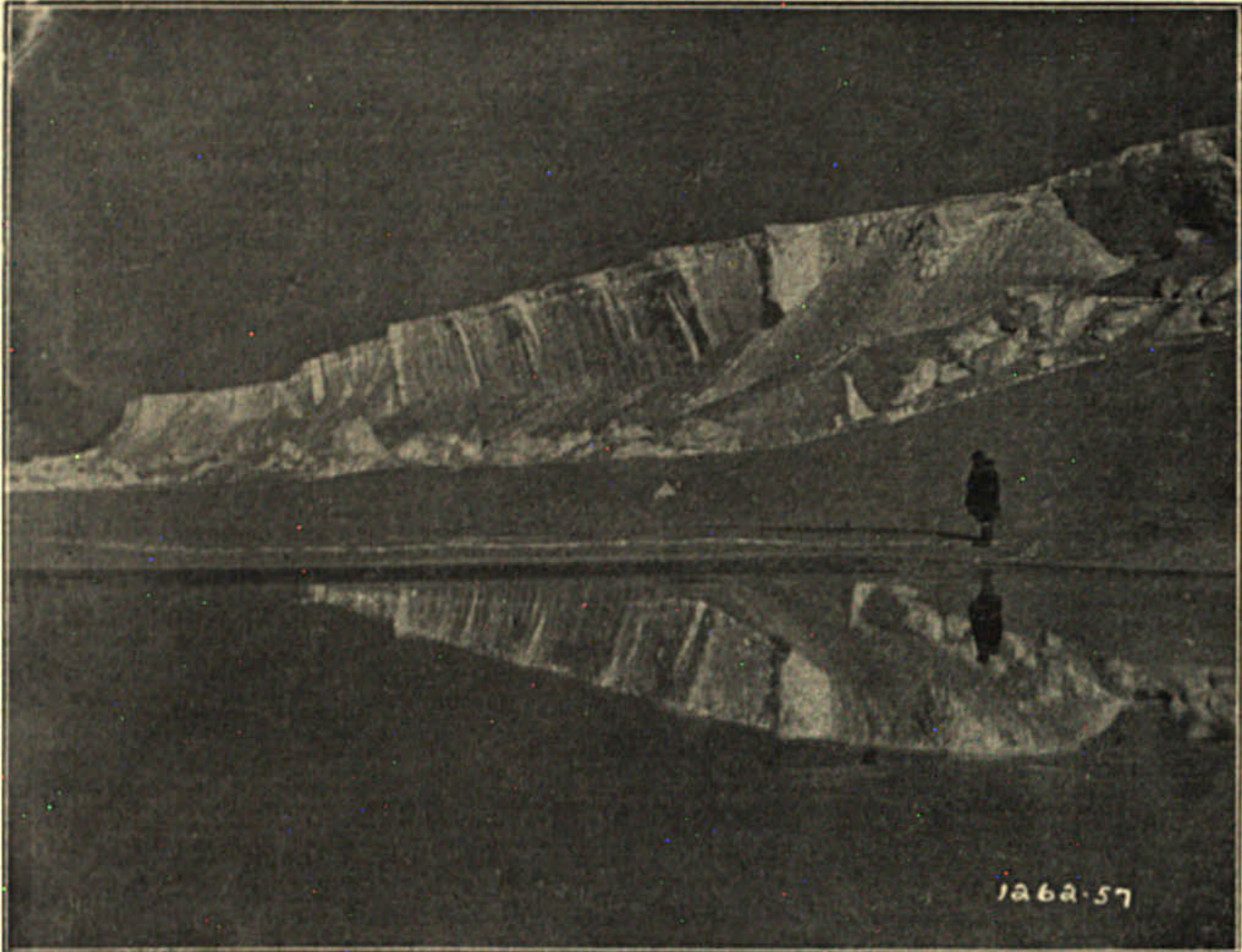
One of the highest mountains he discovered, Byrd christened Paramount to symbolise the alliance between two vital elements in modern life — aviation and cinematography.

Geological investigation resulted in the discovery of vast deposits of copper, radiological substances and other valuable minerals.

The filming and sound-recording of this voyage of discovery and exploration have



Admiral Byrd at Little America Camp.



The Ice Barrier.



Transport of food to the camp.

been made by the Paramount and are technically perfect. No better selection could be made from material filmed with infinite patience in weak sunlight during the long stay in the Antarctic regions.

The scenes follow one another quietly and simply, as quickly as the incidents necessitate. The sobriety of the film as a whole testifies to the explorers' modesty. There has been no aiming at effect; the sole purpose has been to obtain what appears very simple, but what is perhaps the most difficult task of the cinema — documentary truth. The film begins at the moment when the "City of New York" sets out upon her brave voyage and ends as she leaves the ice-bank having on board the forty-two heroes of this magnificent exploit.

As the "Floyd Bennet" is about to leave Little America for her flight across the Pole, a pale sun illumines the horizon.

On board Byrd is at his post of command and observation, the radiotelegraphist and cinema operator at theirs. The machine takes off and cleaves the boundless air above the grey and silent plain. After a while Byrd takes his bearings 90° latitude, longitude nil: the Pole is reached. Byrd then performs a rite and drops the American flag wrapped around a stone taken from the grave of Floyd Bennet, the lost navigator.

We owe the film to the work of three men: Richard Byrd, the commander of the expedition, whose wish it was that the cinema should bear record of the enterprise, and Joe Rucker and Willard van der Veer, the Paramount operators, who followed the expedition in all its stages, recording its incidents upon the thin celluloid band that is now pursuing its triumphant course all round the world.

Joe Rucker and Willard van der Veer take their places alongside the Italian aviator Martelli, who in 1927, while flying

over the tragic ice-packs in search of the famous *red tent* in which the shipwrecked crew of the "Italia" awaited rescue or death, filmed the desolate regions over which he passed. One and all are brave pioneers of modern cinematography, recognizing neither obstacles nor difficulties, strong in the assurance of their noble mission. The Byrd film will recall to countries who have lost their sons amid Polar solitudes the names of those dear ones, dedicated to the sacred service of Science and to the pursuit of the Ideal.

When the Byrd expedition left American waters for its distant goal, the tragedy of the "Italia" was still fresh in men's minds. On its return from the conquest of the Pole, the machine with its party of heroes was vanquished by the elements and fell, and among the many brave men who went to the rescue Amundsen, the great explorer, was lost for ever. As the Byrd expedition was on its return, news was received of the finding of the glorious remains of Andrée — the precursor of Polar air exploration — and of his companions.

Honour to one and all. Honour to those to whom fate was unkind and who sleep amid the eternal silence. Honour also to those who return victorious.

The Byrd expedition now takes its place among past achievements. To-morrow others may surpass it, for all that lives has movement and our world obeys the laws of change and development.

The act of courage, however, remains and the memory of it will survive as long as a single ray of sun warms men's hearts. The myth of Icarus finds authentic expression in these brave men who with firm grasp steered their winged craft over uncharted seas and land untrodden by human foot. It marks the triumph of aviation, which to-day dominates the world.

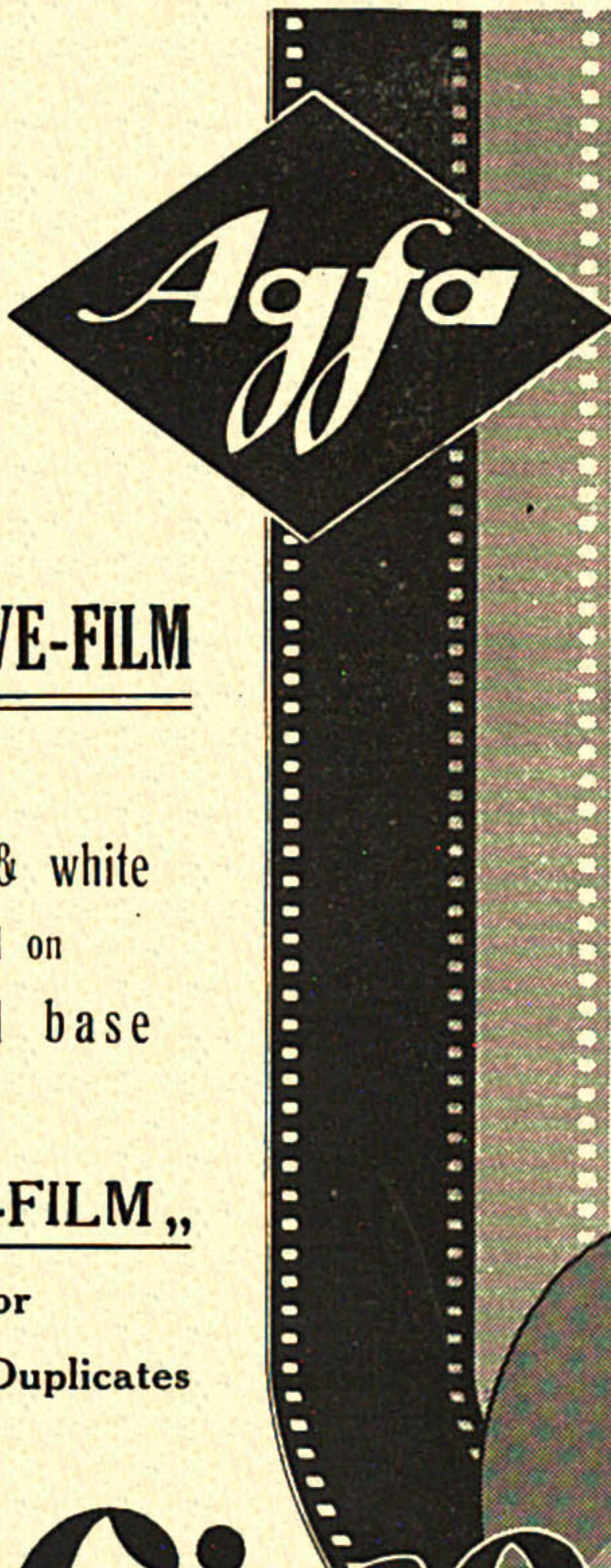
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B I B L I O G R A P H Y

Motion Picture with Sound by JAMES B. CAMERON. Cameron Publishing Company Manhattan Beach, N. Y.

Mr. Cameron, one of the limited number of technical writers on cinematography really worth reading, has made an important contribution to the literature of the sound film. After a short account of the origins of sound cinematography, the author explains the system of sound transmission. A few paragraphs about the gramophone, the telegraph and the telephone, and Mr. Cameron passes on to the basic principles of sound recording, concentrating, therefore, especially on the photo-electric cell.

The second part of the book treats of the organisation of sound-film studios, systems of lighting, cameras, optical devices, etc., and the third is devoted to illustration and explanation of various systems: R. C. A. Photophone, Movietone, Bristolphone, Vitaphone, Cinephone, Simotone, Phonofilm, Western System, with its own specific applications, etc.

The last part of the book explains special screens, control devices, the film, methods of developing and printing — in fact, the numerous technical branches of sound-film photography and projection.

Mr. Cameron's book is of particular interest because, although essentially technical and based upon theoretic principles (illustrated by suitable graphs and diagrams), it is nevertheless within the grasp of any reader wishing to acquire a knowledge of the sound-film in all its aspects.

The Cinema in Education, edited by Sir JAMES MARCHANT K. B. E., Ll. D. George Allen and Unwin, Ltd., Ruskin House, London.

Sir James Marchant, who has devoted so much time to educational studies and the use of the cinema in teaching, publishes, with a full introduction explaining the aims of the Committee and the practical results of its work, the report of the Psychological Research Committee, consisting

of Mr. Spearman, Mr. Burt and Mr. Philpott, on the use of films in teaching and, especially, on the enormous influence of the screen on education, the development of intellectual faculties, the memory and cultural assimilation.

The report, which at the time was criticised in the press and created lively discussion in England on the uses of the cinema, is of very great interest and, read in connection with the publications of other countries, is a notable source of information.

The second part of the book recounts the practical experiments of a sub-committee presided over by Mr. Crook and contains an interesting appendix recording experiments made in other countries. It may perhaps be mentioned that the list omits a considerable body of such experiment; on the other hand, the information was only intended for purposes of exemplification or explanation.

The Cinema. Its Present Position and Future Possibilities. Published by Williams and Norgate, London.

This is not the work of a single author but a collection of excellent reports prepared by the members of the Cinema Commission of Enquiry instituted by the National Council of Public Morals. It is a positive mine of information, useful facts, results of experiments, etc., both in regard to the relations of the cinema to children and young people and as regards the influence that films may have on the eye-sight and mental and moral development of youth, censorship problems, etc.

The various applications of the cinematograph to education and all the moral and social problems raised by the cinema are the object of examination and appreciation in the numerous reports carefully collected by Sir James Marchant, who has preceded them with a short introduction and a statement of practical results.

This is a publication for all who are interested in the effects of the cinema on education and the safeguarding of culture and the race.

Photo-electric Cells, by NORMAN ROBERT CAMPBELL and DOROTHY RITCHIE. Published by Sir Isaac Pitman and Sons, Ltd., Parker Street, Kingsway, London, W. C. 2, Bath, Melbourne, Toronto, New York.

At a moment when all of us — producers, exhibitors and the general public — are interested in the sound-film, good technical books of this kind are bound to meet with a warm welcome.

Everyone knows that the famous "photo-electric cell" is one of the essential parts of sound-film apparatus, but few realise all the problems connected with this indispensable mechanism.

The authors of this book examine the three fundamental aspects of the question: the theory, practical use, and the applications of the photo-electric cell.

The book, which is of the greatest scientific value, is abundantly illustrated and contains graphs, tables and diagrams calculated to facilitate the production and use of photo-electric cells.

Electrical Condensers, by PHILIP R. COURSEY, President of the London Physical Society, Member of the British Institute. Published by Sir Isaac Pitman and Sons, Ltd., London.

This is an interesting and compendious publication belonging to the special series published by Pitman's. Within the compass of some 650 pages, supplemented by 500 illustrations, diagrams and tables, Mr. Coursey describes electrical condensers, their function and their industrial use. After a short account of the discovery and early manufacture of electrical condensers, the author explains their specific properties, the theoretical formulae governing their construction, the different kinds of condensers, etc. Lastly, he gives a detailed description of their practical application and commercial uses.

This important scientific work is enriched by an enormous bibliography, mentioning the principal English works referring to the different aspects of electrical condensers.

Der Weg zum Film, by MAX OTTEN, published by the Licht-Bild-Bühne, Berlin.

An interesting and thoroughly practical book, a manual for all who are attracted towards the art of the screen; in fact, a guide to cinematography.

The book deals with cinema schools, the differences between the theatre and the cinema, and the technical organisation of the latter. In the second part it explains, in an agreeable and readable form, what a film actor has to learn: how to pose in front of the camera; rhythmic sense; the need of physical training, the art of faking, etc.

The third part contains concise notes on stage-production, the camera, criticism and the different ranks — stars, minor parts and supers — in the film hierarchy.

A book, we repeat, which is well put together and bound to be popular.

Kulturbedeutung and Kulturgefahren des Films, by RUDOLF HARMS — Wissen und Wirken — published by Braun, Karlsruhe.

A rather general but interesting work on the growth of the cinema. After a reference to the cultural and economic importance of the film industry, the author deals with the art of publicity, the essential distinctions between the theatre and the cinema, the art-film as a means of spreading ideas, the cultural film and the educational film.

This publication is important because it shows very clearly the place the film now occupies in general education. The author summarises the advantages and the dangers of the new industry and with conspicuous objectivity lays down the rules which the screen must obey if it is to further the cause of education and civilisation.

The Motor Generator by JAMES W. BARBER. Bioscope Publishing Company, Ltd., Faraday House, London.

The author, who is already known from his previous books (*The Bioscope Electrician's Handbook*, *Alternating Currents*,

etc.), here sets forth, in a well-devised manual illustrated with graphs and diagrams, the principles governing the construction and use of motor generators. After examining the different kinds of motor and the theories on which they are based, Mr. Barber discusses their practical use and the system of lubrication.

This is a most useful book for cinema operators and for all who are interested in the electrical problems of the cinematograph.

Molton Picture Projection, by J. SLATER.
Bioscope Publishing Company, Ltd.,
Faraday House, London.

A short and useful text-book for cinema operators and all who have to use projection apparatus. The book explains the different kinds of projector, the systems they are based on, the optical devices (lenses, condensers, etc.), electrical contrivances (lighting systems, rheostats, resistances, motors, etc.), the structure of the projection-box, etc. The second half of the book goes on to talk about cinema lorries, the systems of generating current, the various optical aberrations of lenses, screens, etc.

The book has a useful dictionary of essential terms in cinematography. A handy and thoroughly well-informed little book.

Talking Movies, by JAMES R. CAMERON.
Cameron Publishing Company, N. Y.

A short pocket manual explaining — more particularly to operators and projectors — the different systems of sound cinematography — especially from the point of view of projection. It is supplemented by a useful list of the chief electrical and mechanical terms met with in sound cinematography.

A Guide to Kinematography (Projection Section), by COLIN N. BENNETT, published by Sir Isaac Pitman and Sons, Ltd., Parker Street, Kingsway, London, W. C. 2, 194 pages, 123 illustrations, price 10 sh. 6 d.

As its title shows, this book is intended to give the layman, who knows little or

nothing of film technique, sufficient knowledge to make him a competent operator after a little practice. The author points out in his preface that he has tried above all to put his matter simply and intelligibly, since abstruseness, however learned, is less likely to achieve this object.

In the first thirteen chapters Mr. Bennett — addressing himself more particularly to cinema managers and operators — describes different forms of technical apparatus. The last chapter contains a full resumé of the laws passed in Great Britain between 1909 and 1923 to regulate the cinema industry.

Television to-day and to-morrow, by SYDNEY A. MOSELEY and H. J. BARTON CHAPPLE; published by Sir Isaac Pitman and Sons, Ltd., Parker Street, Kingsway, London, W. C. 2, 130 pages, 38 illustrations, 48 photographs, price 7 s. 6 d.

At the end of 1926, writes John L. Baird in an introduction to this book, the first experiment in television was made in London. At the time it was thought that television apparatus would very shortly be in general use, but it has required three years of practical study to reach the present degree of perfection.

The authors prophesy the day when it will be possible to detect every human sentiment, e. g., the impulses of love and hate, caught, as it were, as they pass on their way through the nervous system to the brain. The authors start their book with an interesting account of the history of television, which, as an idea, dates back to 1876, the year in which Edison invented the telephone and in which for the first time scientists began to consider the possibility of transmitting images by electricity.

This first chapter is followed by ten of a more technical nature, containing a detailed description of the Baird system, the synchronisation of television, the photoelectric cell, colour and stereoscopic television, etc. The last chapter gives a rapid survey of the pioneers of television in France, Germany and the United States.

Dr. LUCIANO de FEO, *Editor and Responsible Manager*

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