Gaumont-Kalee News

Keeping You in the Picture

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IN THIS ISSUE:

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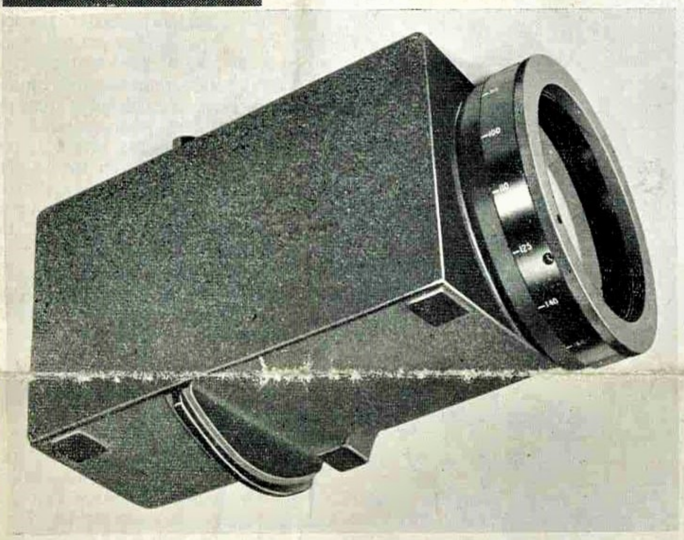
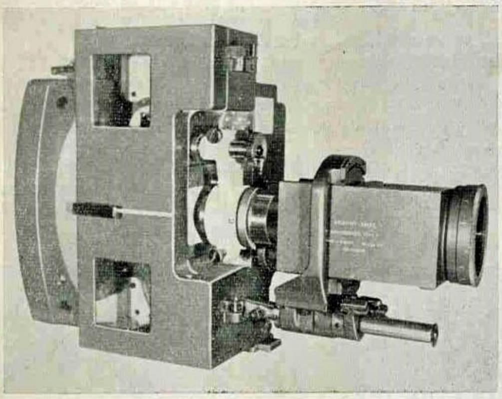
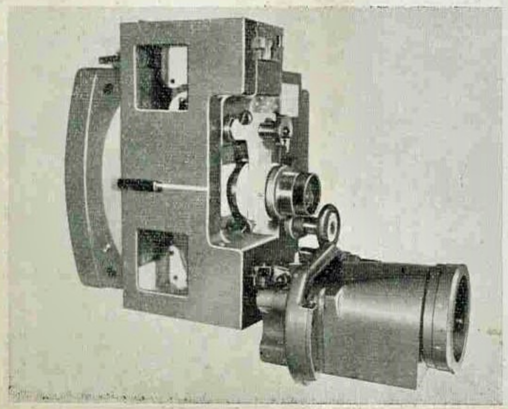
G.B-KALEE IN PRODUCTION FOR CINEMASCOPE

The Gaumont-Kalee Anamorphic Lens







The Gaumont-Kalee prismatic-type anamorphic lens (above).

Bracket with lens in position for CinemaScope presentation (centre).

Bracket with anamorphic lens swung out of position for showing normal films (bottom left).

FOLLOWING negotiations between the Twentieth Century-Fox Film Company Ltd. and the J. Arthur Rank Organisation Ltd., arrangements have been made for CinemaScope anamorphic lenses and CinemaScope Miracle Mirror screens to be manufactured in England by British Optical and Precision Engineers Ltd.

The B.O.P.E. manufacturing companies form part of the Rank Group. They include: Taylor, Taylor & Hobson Ltd. (world-famous lens manufacturers), A. Kershaw & Sons (manufacturers of Kalee projection equipment), British Acoustic Films Ltd. (manufacturers of Duosonic sound equipment) and G.B-Kalee.

G.B-Kalee will distribute the CinemaScope lenses and Miracle Mirror screens through its branches and its overseas agents throughout the world, and will make the equipment available to exhibitors through most of the established supply companies. Stereophonic sound equipment will also be available from G.B-Kalee.

Lenses and other equipment are already in production and plans have been made to meet all anticipated demands. A B.O.P.E. expert has recently returned from the United States where he has studied the production of the Miracle Mirror screens, and it is expected that these screens will be manufactured in B.O.P.E. factories shortly.

ANAMORPHIC LENSES

TAYLOR, TAYLOR & HOBSON, A COMPANY WITHIN THE B.O.P.E. GROUP, AND WORLD-FAMOUS LENS MANUFACTURERS, HAVE, AFTER MANY MONTHS OF INTENSIVE RESEARCH, DESIGNED AN ANAMORPHIC LENS OF THE PRISMATIC TYPE FOR USE WITH CINEMASCOPE FILMS.

In designing this lens, Taylor, Taylor and Hobson had, as their primary objectives, the provision of the finest possible definition, so important in the presentation of wide screen pictures, coupled with the lowest possible cost to the exhibitor. Several important patents on the lens are now pending.

The standard anamorphic lens covers projection focal lengths up to 5¾ in.

Larger anamorphic lenses for focal lengths of 6 in. upwards will also be available.

G.B-Kalee will be the main distributors of these lenses and will, in addition, make them available to U.K. exhibitors through Western Electric, R.C.A., Sound Equipment Ltd., Pathe Equipment Ltd., Walturdaw Cinema Supplies (1952) Ltd., J. Frank Brockless Ltd., and Cinema and General Equipments Ltd.

New 'High Definition' Lenses

Many of the projection lenses at present in use in cinemas, whilst providing satisfactory picture quality on the normal size of screen, are not capable of reproducing wide screen CinemaScope pictures with adequate definition. Taylor, Taylor and Hobson have, therefore, designed a new range of "high definition" lenses for use in conjunction with anamorphic lenses in order to ensure the best possible projection of CinemaScope films.

Swinging Bracket for Quick Changeover

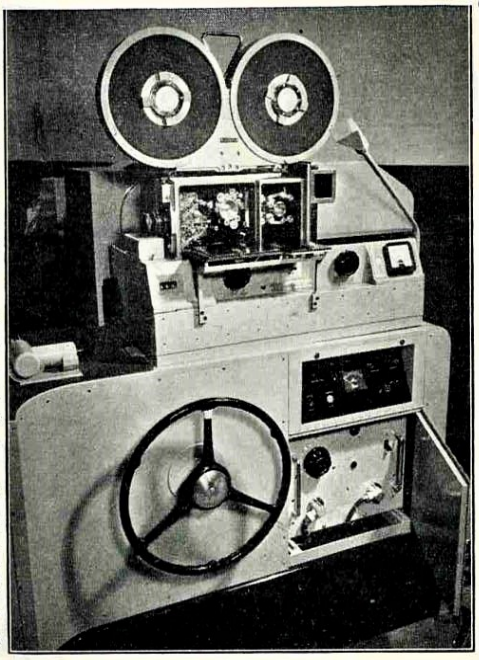
B.O.P.E., in conjunction with various projection manufacturers, have designed special mounting brackets which allow the anamorphic lens to be swung out of position to permit the projection of normal pictures, sound newsreels, etc., in a programme which includes CinemaScope films.

This arrangement, illustrated on the left, enables a rapid changeover between the different types of picture proportion without the need for refocusing. It also ensures that the anamorphic lenses are always securely mounted on the projector and thus free from risk of damage.

The whole of the B.O.P.E. optical production facilities, both of Taylor, Taylor and Hobson and of A. Kershaw and Sons at Leeds, will be used to secure maximum output of the anamorphic and other lenses.

HOW MILLIONS LOOKED-IN AT THE CORONATION

On Coronation Day, 1953, the B.B.C. television broadcasts of the Coronation ceremony and processions were seen by millions of viewers in Canada, the United States and elsewhere. To make this possible, equipment specially designed and built by the Engineering Division of the B.B.C. and Gaumont-Kalee, recorded picture and sound simultaneously on the same film.



TWO of these Gaumont-Kalee recorders operated throughout the broadcast, recording selected excerpts from the television programme for use overseas and during the evening transmission in the home programme on Coronation Day.

Special arrangements with laboratories gave quick "turn-round" on processing. As the picture and sound were in final form during the recording, editing was virtually unnecessary.

The recordings were flown to Canada in a Royal Air Force Canberra jet bomber and there re-diffused (with the aid of specially adapted Gaumont-Kalee "N" type portable projectors) to Canadian and American viewers.

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Basically, the two recorders are combined sound and picture cameras, entirely different from conventional portable newsreel equipment. Each recorder consists of a modified 35 mm. "Newall" camera, a special soundhead with precision film-speed stabilizer, Gaumont-Kalee type 689 "fine grain" sound recording optics (as fitted to studio recorders) and a substantial base casting on which the assembly and certain controls are mounted. The recorder is supported by a steel framework containing the driving motor, recorder lamp supply unit, picture phasing mechanism, push-button control panel and contactors. This framework in turn is mounted on a shallow plinth which carries a television picture monitor assembly. The whole machine forms a complete and attractively styled unit.

Two studio-type amplifier assemblies are provided, each with equalizer, main amplifier/compressor, noise reduction and stabilized power-supply units.

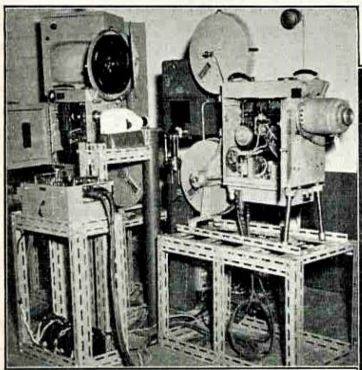
The sound control bay carries the input control/level balancing/volume indicators unit and a pulse generator unit for balancing the compressor.

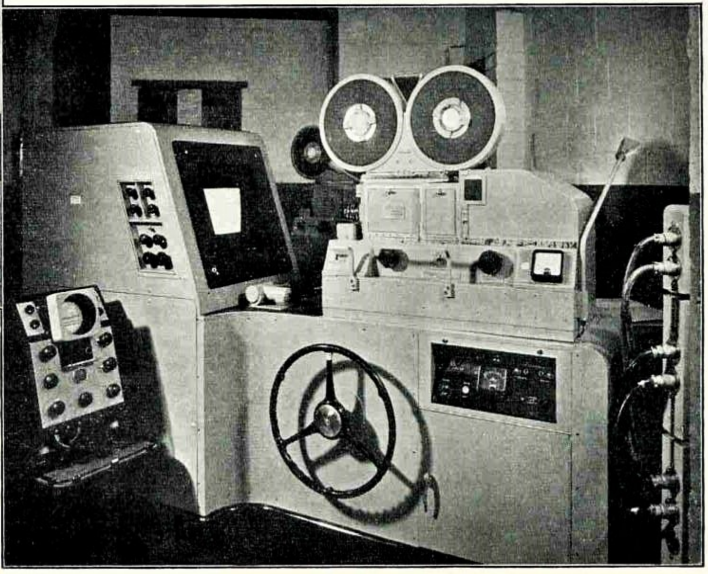
The picture was photographed directly from the screen of a special high-grade picture monitor fed from B.B.C. designed electronic equipment incorporating correction circuits for improving the definition and gamma of the incoming signal. Sound and picture were recorded simultaneously on to the same film at the correct synchronizing distance. Provision was made for rapid and precise changeover from "negative-positive" to "direct positive" recording when needed. Variable-area sound recording was used to permit of low-distortion reproduction of the negative for Tele-Cine scanning. 35 mm. panchromatic-emulsion film stock was used on Coronation Day, but fine-grained emulsions may be used eventually.

The picture lenses, with a maximum aperture of f/1.8, were designed and manufactured by Taylor-Hobson to give optimum performance under the special conditions. In place of a conventional shutter in the picture camera, the picture on the Cathode Ray tube was suppressed electronically during the pulldown period by a signal produced by a mirror drum/photocell optics assembly built into the recorder and capable of fine adjustment while running. Each recorder has four standard Gaumont-Kalee 1,000 ft. film magazines with quick-release lids and latch-lock mounting shoes.

The equipment, installed temporarily at Alexandra Palace for Coronation Day, will be used by the Recorded Programmes Department at Lime Grove Studios, with other existing television recording equipment, for recording programmes for storage and subsequent transmission.

First discussed with the B.B.C. in November 1952 the main designs were ready by 1st January, 1953 and the two recorders were completed for testing by the end of March 1953. This remarkably swift piece of engineering was made possible only by close and active co-operation between the B.B.C. and Gaumont-Kalee.





General views at top (centre) and right of one of the Gaumont-Kalee suppressed frame recorders. In front of the main display tube is the pistol grip photometer for measuring screen brightness of the display tube.

Smaller photograph above shows the two Gaumont-Kalee "N" type portable projectors lined-up in the C.B.C.'s Montreal television studios. In front of the control box (centre) is the TV camera and picture is deflected by a switching mirror device.

CLOSE-UPS by Taylor-Hobson

Many of the wonderful close shots televised by the B.B.C. of H.M. the Queen as she drove from Westminster Abbey were obtained with a new Taylor-Hobson lens specially designed and built for the occasion.

This lens, the "Varotal," has been specifically designed for use on television cameras. It has a continuously variable range of focal lengths between 5 in. and 25 in., with a maximum relative aperture throughout of f/5.6, and the iris diaphragm can be stopped down as far as f/128 on a linear scale.

The optics comprise a highly corrected compound system computed to cover the spectral range of television camera tubes and at any focal length within the specification the performance is equal to that of a high grade fixed focal length camera lens of normal construction.

The lens is fully motorized, an electronic servo system designed and built by the Engineering Division of the B.B.C. providing remote control over variation of focal length, focusing and aperture. It can be focused from 25 ft. to infinity, focus of near objects being obtained by an independent movement of the front lens component, the plane of best focus for any one object distance remaining constant throughout all its focal lengths. The complete assembly measures 30 in. overall in length.

Gaumont-Kalee in Canada

TO speed up televiewing in Canada and the U.S.A. two specially adapted Gaumont-Kalee "N" type 35 mm. portable projectors were flown out to Montreal some weeks before Coronation Day.

These projectors—the model was first produced for the Admiralty during the war—gave the Canadian Broadcasting Corporation the answer to the problem of using 35 mm. film in conjunction with film scanning camera equipment already installed. They enabled the film to be screened for the television cameras immediately it was received and so cut out the delay in making a 16 mm. print.

From Montreal the picture and sound signals were passed on to Toronto by radio link via Ottawa and then across to Buffalo for American audiences.

Modifications to the projectors were carried out by technicians at British Acoustic Films in close collaboration with Marconi's Wireless Telegraph Company, who were responsible for the original TV studio installation for the C.B.C.

These involved the fitting of synchronous motors with stator adjustment for phasing into the synchro requirements of television and of special intermittent movements to permit matching of the normal film picture frequency of 24-a-second with the 30-a-second TV picture system employed in Canada and the United States. Provision was also made for controlling the two projectors for picture and sound changeover.

LIGHT FOR THE NEW DIMENSIONS

With the arrival of three-dimension and wide screen techniques of picture presentation we are faced with a number of problems in enabling the patron to receive the full entertainment value of these systems. Much more available light is required, and in some cases the demand for longer running time of the arc lamp makes the difficulties greater. This article, prepared by the Ship Carbon Co., examines the requirements of three dimensions and wide screen, and the limitations of the standard arc lamps in use today burning copper coated carbons horizontally opposed.

Wide Screen

Let us first consider "wide screen" presentation. In this case we have to provide sufficient light adequately to illuminate a larger picture. If the normal picture width was, say, 18 feet and it is intended to increase it to 25 or 30 feet wide to produce wide screen effect to the patron of the smaller theatre, there is no particular problem, as this size of picture has been illuminated satisfactorily in the larger theatres for many years. Of course, the trim of carbon and current at which it is run for the small screen will not be adequate for a larger picture and it is usually necessary to increase carbon sizes and currents accordingly.

As is well known, the available light from the projector is brought to the patron's eye by the screen, and it is here that considerable improvements in the reflectivity of the screen surface have been made, giving a higher brightness for the same illumination from the projector. To comply with British Standard specification the screen brightness should lie between 8 and 16 foot-lamberts at the centre of the screen. Brightness can also be expressed by the formula

Brightness (Foot-lamberts) = *Screen reflection factor x Illumination (Foot-candles)*

Now a white matt screen has a reflection factor of the order of 0.8 so that to obtain a brightness of, say, 10 foot-lamberts an incident illumination of $\frac{10}{.8}=12.5$ foot-candles would be required.

Metallised screens having reflection factors of the order of 1.5 have been produced, which means that to give 10 foot-lamberts of brightness on this class of screen it would require $\frac{10}{1.5}=6.7$ foot-candles or about half as much as for the matt screen.

Another way of considering the improvement produced by one of the new screen surfaces is that for the same incident light a screen twice the area, or about 1.4 times the width, may be illuminated with the same light to give a similar luminance to that of a matt surface. It must be appreciated that any advantages gained at the screen itself are very important as any light increase obtained at the arc lamp necessitates more light flux to pass through the film aperture where in many cases the film is taking as much heat as it can accommodate. Further increases in the light flux causing greater heating of the film will have to be overcome by suitable heat filters before the light reaches the film aperture. These filters do, however, cause additional losses in visible light which will have to be overcome.

Let us now consider the light available from the normal type of horizontal arc burning the popular trims of copper coated carbons. An indication of the light available at the screen is shown in Table 1 together with the maximum screen widths which can be illuminated to minimum and maximum British Standards.

The common trims quoted are indicated at their maximum operating conditions and show their greatest possibilities. At lower currents, of course, the screen widths would be smaller if their brightness is to be maintained.

The calculations for screen widths are based on the normal aspect ratio for the gate aperture. In a number of cases a wide screen aspect ratio is produced by suitable masking of the frame at top and bottom. This of course reduces the light available at the screen. It is not redistributed over the wider picture.

Further, the values for screen width are calculated on typical values for new screens. No allowance has been made for deterioration in reflectivity, loss of light due to fog and smoke or the fall off in reflectivity of the metallised screens at wide angles of viewing. These factors must be considered when the size of screen is chosen and the figures quoted taken as a guide to the maximum widths which can be considered under ideal new installation conditions.

Three Dimensions

The requirements for three-dimensional presentation are more complicated than those for wide screen both from the lighting standpoint and also as far as the screen itself is concerned. With the normal system using polarising light filters with two projectors it is essential that the screen itself does not "depolarise" the incident light, otherwise the separate Left-eye and Right-eye pictures can be seen by both eyes as a double image. Because of this it is essential to use a screen with a metallised surface, as the usual matt screen has the property of scattering the polarised light causing the double image. We need only consider the metallised screen as far as three-dimensions is concerned and examine the limitations of our equipment used with this screen.

The polarising filters used for the projection of each polarised image has a transmission of the order of 38 per cent while the viewing spectacles transmit the plane-polarised light with a 20 per cent absorption. This means that the overall efficiency as far as the viewer is concerned is about 30 per cent of that of normal projection. This is, of course, improved because of the better reflectivity of the metallised screen as compared with the usual matt surface. The fact that two independent images are viewed with each eye does not, of course, increase the apparent luminance. After all, the normally projected picture does not look half as bright if we view it with one eye!

Allowing for those filter factors our table for a typical metallised screen is seen in Table 2.

It should be realised that the figures quoted in Table 2 are for typical trims run at their maximum current and indicate the maximum screen widths which can be illuminated to minimum and maximum British Standard specifications. If the trims are run at lower currents the screen sizes would have to be smaller to obtain similar levels of screen luminance.

Table 1 Carbons	Current	Lumens Available	Screen Width in Feet For Min. B.S. 8. F.L.	For Max. B.S. 16. F.L.
7mm Cerelite	55	4,900	23	16
8mm Cerelite	70	6,200	25	18
9mm Cerelite	75	7,600	28	20

If only two projectors are available for three-dimensional presentation and longer running time without re-trimming of the lamps is required in order to accommodate larger reels, a further complication is introduced. Running time is, of course, a function of burning rate of carbon and feed travel of the carbon holders. The latter varies considerably from lamp to lamp and it is necessary to determine the maximum burning time required and choose a trim of carbons and arc current to allow this time to be achieved for each lamp.

For burning times of the order of 50 minutes it is usually necessary to use 9mm carbons not run at their maximum current in most arc lamps. Some reduction of light output must be accepted, resulting in smaller screens if satisfactory illumination is maintained.

It is beyond the scope of this article to cover all the limitations in this respect for the various arc lamps. Depending on the type of arc lamp available, it is necessary to make a detailed analysis of the situation and choose a trim of carbons to give the maximum light output and maintain the burning rate within the feed capacity of the lamp. The family of Ship H.I. Carbons enables us to choose the best available trim for any conditions of operation, but it must be realised that more light output and longer running times are diametrically opposed, and with present-day arc lamps some compromise has to be made which must influence the size of screen used.

Three-dimensional films, having presented us with a number of problems on the projection side, will make it necessary to consider lamp and carbon design from many aspects. Larger carbons at higher current densities are available but are not always suitable for burning in the normal arc lamps without some modifications, particularly as far as magnetic flame control is concerned. Longer feed travel seems to be an essential, and rotating positives in conjunction with a fast mirror system have to be seriously considered.

It is certain that any increase in light output over that obtained from present-day equipment will mean a greater strain on the film itself and steps will have to be taken to reduce the heating of the film by absorbing the infra-red portion of the light.

Conclusions

It is evident that the problems involved with wide screen are not as difficult as those for three-dimensional presentation. For wide screen using two projectors, running time for normal reels can be accommodated with the usual carbon trims and arc lamps, and at the same time adequate light is available provided the trims are run towards their maximum loading. Specially designed screen surfaces help considerably in producing large screens illuminated to British Standard specification.

With three-dimensional projection, however, if longer running time has to be considered (i.e. if four projectors are not available) it is not possible to have large screens without seriously losing screen brightness. If, however, this consideration can be ignored—normal reels may be projected at adequate illumination on screens of reasonable size.

Table 2 POSITIVE	Amps.	Screen Lumens	Screen Width in Feet: Matt Screen Max. B.S.	Matt Screen Min. B.S.	Silver Screen Max. B.S.	Silver Screen Min. B.S.
7mm Cerelite	55	4,900	21	30	29	41
8mm Cerelite	70	6,200	24	34	32	46
9mm Cerelite	75	7,600	26	37.5	36	51

PLANNING for TO-MORROW

For half a century the cinema has been tied to a picture projected upon a flat screen of 4-by-3 ratio, masked by a black border. To-day we are offered a wide variety of presentation conditions: the illuminated screen surround, such as the Synchro-Screen; stereoscopic films viewed through polarizing glasses; different screen ratios produced by masking off top and bottom of the picture; the still wider screen of CinemaScope, which, however, necessitates the film being taken and projected by special lenses; and finally the enormous spectacle of Cinerama, with its three projectors covering a screen 63 ft. in width.

This article on cinema-design to meet the needs of the new dimensions has been specially written for the Gaumont-Kalee News by—

R. Howard Cricks, F.B.K.S., F.R.P.S.

On several occasions—notably the Coronation—we have seen the immense possibilities of large-screen television, although there is yet little prospect of television forming part of regular cinema programmes.

The cinema of the future must, in the interests of showmanship, provide for all these various forms of presentation. It should even be possible to alter the screen ratio during the performance; at the Odeon, Leicester Square, we have seen the impressive effect of the feature appearing on the wide screen after the news and shorts have been framed by the orthodox mask.

In studying the design of a new cinema there are three separate factors to be considered: (1) the optimum seating plan to provide the most satisfactory viewing conditions for all these different types of presentation; (2) the screen surround, and the design and equipment of the stage end of the theatre; (3) the design and equipment of the projection room.

SEATING PLAN

Our first consideration when considering the seating plan must be the viewing conditions from the front seats. A wide screen necessarily reduces the number of front seats.

Viewing Angle.—British regulations require that the angle subtended from any seat to the farther edge of the screen shall be not less than 25°, and to the top of the screen not greater than 35°. The former point is made clear in Fig. 1, which also demonstrates that the wide screen necessitates either placing the front row of seats farther from the screen, or shortening the front rows.

Although this requirement of 25° viewing angle is, of course, not a legal requirement in all countries, it provides a sound basis of design. It is in any case very much a compromise between acceptable viewing conditions and the worst that can be tolerated.

Screen Characteristics.—The television projector, owing to its low light-output, at present necessitates the use of a directional screen. The screen cannot, however, be too directional, and a very suitable compromise is the micro-lenticular screen, now being developed by the manufacturers, suitable particularly for television and stereo, but also as an all-purpose screen.

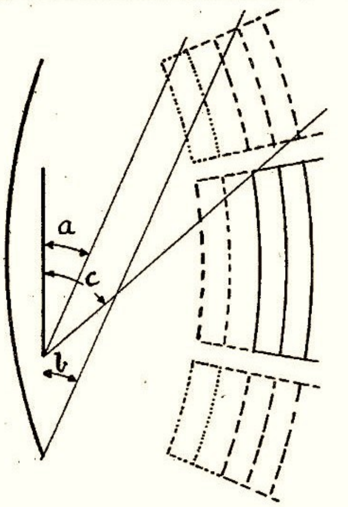
According to a published polar curve of the former type of screen, it gives a 50% drop in reflectivity from normal to 45° viewing angle. This is the maximum variation permitted by the British standard, therefore it may be stated that the viewing angle should not exceed 40° either side of the normal (Fig. 1).

If and when we get stereoscopy without viewing spectacles, almost certainly a similar restriction on viewing angles will exist, and the same form of seating plan will again be necessary, although in this case there will probably be a sharply defined angle either side of the screen axis within which a correct image will be seen, the illusion being completely lost outside this angle.

Optimum Viewing Position.—For many years the fan-shaped auditorium has been widely favoured. It has the merit of keeping the audience within clearly defined angles from the screen axis, and also that—assuming the auditorium is not too long—the best seats at the back are provided in largest numbers. But now it is suggested that the back seats are not necessarily the best—that for a panoramic screen the best viewing position is closer to the screen, where one can see the picture around one, and become a participant in the action.

This is one of those intangible factors that cannot be computed mathematically. It is a matter for watching audience reaction and responding to popular preference; for a time, of course, habit is apt to prevail, but when the wide screen is more widely installed the trend will become evident.

My own view is that, at the moment, this idea of audience participation is marred by one fundamental factor: that the resolution of the average film—and if I may say so, particularly the Technicolor film—is not high enough to stand close viewing on a large screen. Standards of film resolution will need to be much improved if CinemaScope is to be shown to best advantage. This is obviously a matter which time will remedy.



Shape of Auditorium.—A proposal which is not new, but would provide a structure of modern appearance and functional efficiency, is to build the auditorium in the shape of an egg, with the screen at the small end. This would give the greatest number of seats at about two-thirds the length of the auditorium—in my view likely to be the most popular location.

An egg-shaped auditorium would be ideal for acoustics. It would also have the effect of permitting the screen surround and front wall (I refrain from using the word "proscenium") to blend in with the side walls. The sketch of Fig. 2 shows the side walls (like the ceiling) stepped to accommodate lighting and loud-speakers for stereophonic sound.

Another idea I have toyed with is to build the hall with a rectangular plan, and to construct inside it a false shell of the desired shape. This would enable the shape and appearance of the auditorium to be radically changed every few years, although, it is true, not without considerable expense. It has, for instance, been seriously suggested that the auditorium should be fan-shaped, but with the screen at the *larger* end, with a view to enhancing for the majority the sense of audience participation.

SCREEN AND SURROUND

I have refrained from using the word "proscenium" because I suggest that our cinema of the future should be designed without a proscenium. A proscenium, after all, is a relic of the legitimate theatre; it serves the purpose of cutting off the audience from the players, whereas the new idea is that the audience should be brought in as close contact as possible with the picture on the screen.

Our screen then should in effect be a continuation of the curvature of the side walls. It should have an illuminated surround, graduated in intensity to cause the picture to merge imperceptibly into the tone of the side walls.

Ben Schlanger, the American architect and inventor of the Synchro-Screen, has suggested that, while a wide picture would be desirable for panoramic or spectacular scenes, close-ups might be vignetted against a dark background. This, of course, is primarily a matter for the film maker; but if such a technique were adopted, it would be necessary for the surround to be completely blacked out in such shots.

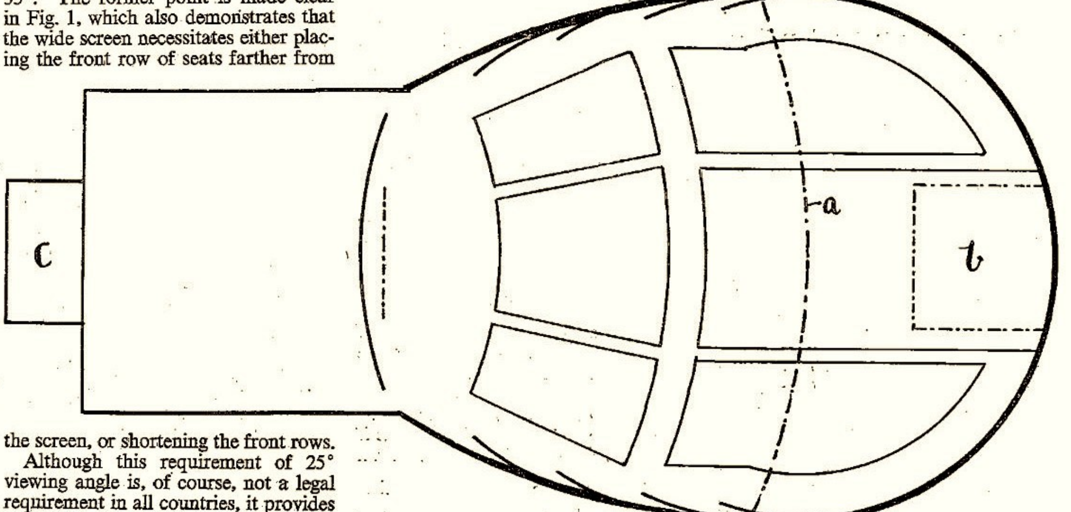


Fig. 1 (top).—Fundamental angles for Normal and Wide-Screen Presentation

a—25° viewing angle for normal screen.
b—25° viewing angle for wide screen.
c—45° viewing angle for directional screen.
. . . . . . Seats to be removed for wide screen.
- - - - - - Seats to be removed for directional screen.

Fig. 2 (bottom left).—Proposed plan of Cinema.

a—Line of balcony.
b—Projection suite under balcony.
c—Projection room for rear projection.

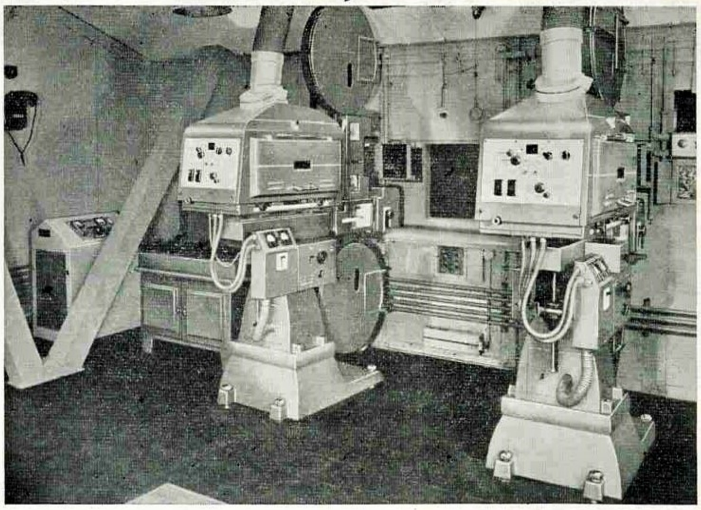
Variable Screen Width.—Our screen must vary in width from the standard 4-by-3 ratio up to the maximum of 2.55 of CinemaScope. Obviously to achieve this result the wings of the

NATIONAL FILM THEATRE, LONDON

First visitors to the newly-equipped projection suite of the National Film Theatre (formerly the Telecinema), London, were a party of Norwegian cinema managers. Some of them are seen left, inspecting one of the two Gaumont-Kalee 21 projectors. A dinner in honour of their visit was given by G.B-Kalee Ltd.

The projectors are driven by two-speed motors with mechanical interlock and 5,000 ft. spoolboxes for three-dimensional presentation. They are capable of hour-long continuous running and for this President automatic-feed high-intensity arc lamps were supplied. Special high-speed shutter mechanisms suitable for 16-frame and 24-frame projection are another important feature.

Sound equipment consists of dual 30-watt amplifying equipment with Duosonic speaker assembly and type 83 soundheads with enlarged optical image film scanning.



PLANNING FOR TO-MORROW (Continued from Page 4)

screen which provide the side members of the surround must be adjustable; by pressing a button marked with the desired ratio the wings must open or close to give the appropriate width of screen.

The engineering complexities are still further increased if our theatre is required to have a stage. If a narrow apron is thought sufficient, then this could best be provided by drawing back the bottom of the screen by a few feet. But if a fully equipped stage is demanded, our huge screen with its multiple masking and control mechanism must either be flown, or—possibly an easier method—dropped by means of a lift into a well. The safety curtain then, demanded by British law, would create still further complications, but this is not a matter that need worry many overseas architects.

Screen Curtaining.—If we are not having a proscenium, how are the screen curtains to be provided? However functional our cinema may be, it would be the antithesis of showmanship to leave the screen exposed between pictures.

The answer is, I suggest, to be found in the system adopted in a Canadian cinema (this page). Here the whole of the screen end of the theatre is covered by curtains, part of which forms the tabs. Naturally the distance to which the tabs open would depend upon the size of the screen actually in use.

PROJECTION ROOMS

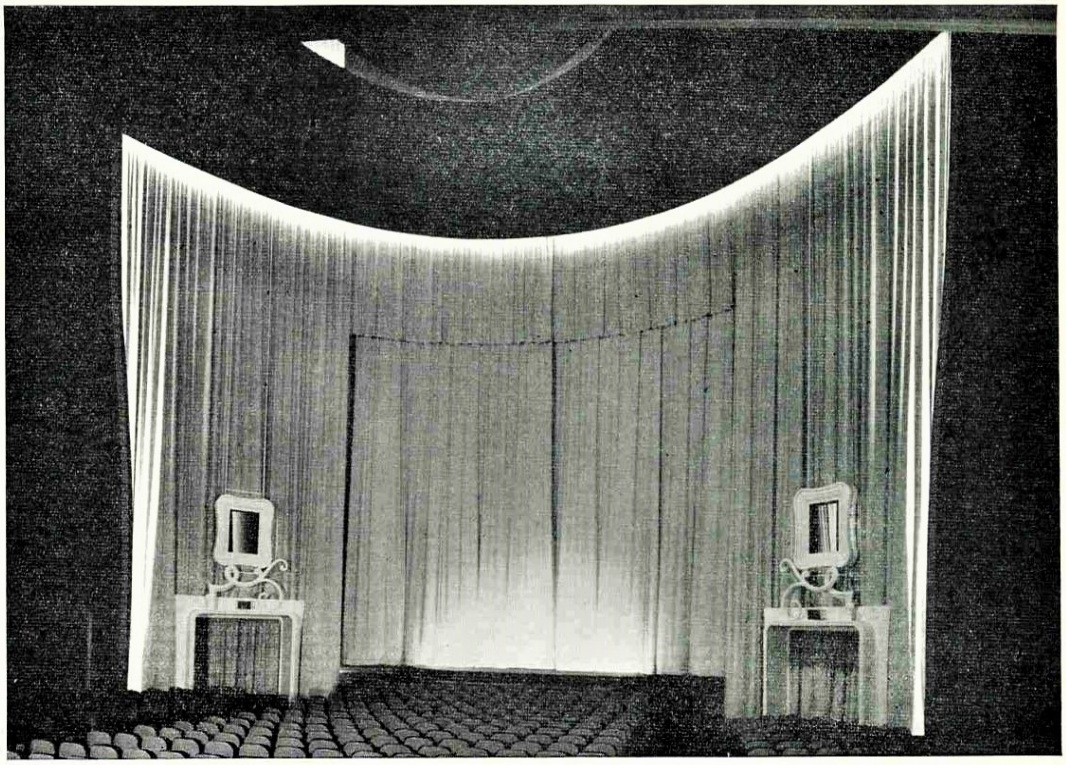
In my earlier reference to stereoscopy without spectacles I had in mind a system known as the parallax panoramagram, which in my view holds the best possibilities for achieving this ultimate degree of realism. Now, it is quite possible that, if such a system is perfected, it will necessitate back projection. Therefore there should be space to build a projection room back-stage, with a sufficiently long throw to fill a wide screen (Fig. 2).

Developments in translucent screens for process projection in the studio have overcome the worst objections of this system, and it has been urged that the general adoption of back projection in the cinema would make for a higher standard of showmanship. The idea might also overcome the present difficulty, that the projection throw of a television projector is limited by optical reasons.

On the other hand, it would be quite impracticable to install four projectors for showing stereo films by the present system in a projection room 40 ft. or 50 ft. from the screen, because two of them would be very appreciably off-centre. A projection room in the orthodox position would in any case be necessary, if only to house spotlights.

The curved screen has demonstrated the serious objection to a steep projection rake—the very pronounced distortion caused jointly by the angle of projection and the tilt of the screen. Level projection must be provided from either projection position, and, if our cinema is to have a balcony, obviously the projection room must come under the balcony.

Projector Requirements.—If stereo films are to be projected by the present system, it would in any case be helpful if a twin projector were available; no doubt it could be developed if there were a demand. The pair of machines, one left-hand and the other right-hand, would be mounted on the same stand, so taking far less space in the projection room, and permitting a second pair of similar machines to be installed for stereo projection.



I have suggested that the one programme might include presentations on several different sizes of screen. This would necessitate the provision of different lenses on the projectors. The best method of providing such interchangeability would be to fit the projector with a lens turret such as was provided on Kalee projectors when provision had to be made for silent and sound apertures. It would probably assist in obtaining focus over a wide curved screen if the projector gate were so designed as to impart a slight lateral buckle to the film, in a direction convex to the lens.

Screen Illumination.—Finally there is the problem of illuminating the wide screen. Fortunately the high directivity of the silver or mirror screen—giving a centre illumination two or three times that of the matt screen—has contributed appreciably to a solution of the problem.

The carbon makers have also made an important contribution, in the shape of new carbons which provide either more light at slightly increased current, or very considerably more light with an appreciable current increase.

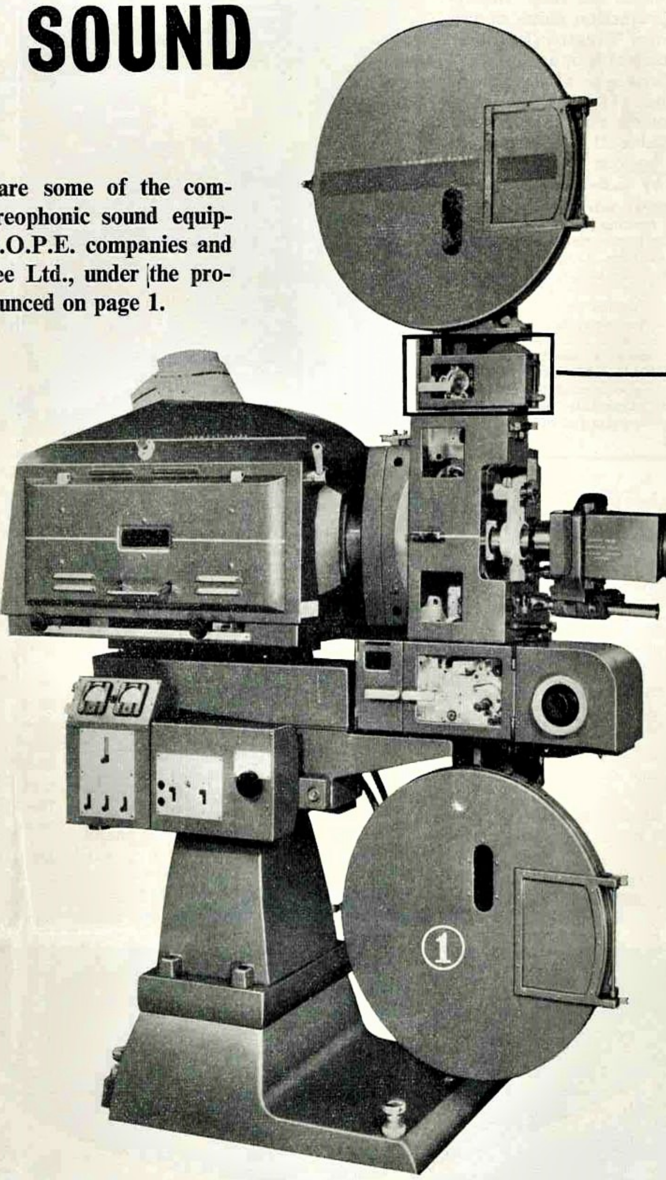
NEW CARBONS

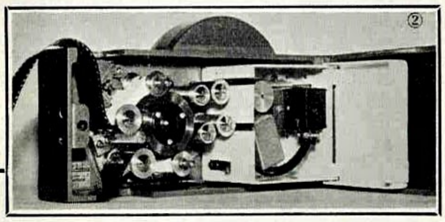
However, these carbons need to be used in a modern high-efficiency arc lamp, and it may be that future developments will demand the production of still more powerful lamps. These in turn will produce more heat, and means must be found for protecting the film from the effects of this heat—probably by means of combined air and water cooling, which is so effective on the G.B-Kalee studio process projector

The development of more efficient arc lamps will probably intensify the problem of matching the *f* values of mirror and objective lens. Most existing lenses, too—especially in the shorter focal length—cause a certain falling off of light at the sides of the screen. Lenses of new construction, designed to handle the light from more powerful lamps, and to produce more even screen illumination, are actually in development, and should contribute materially to providing the increased light flux needed for wide-screen projection.

GAUMONT-KALEE STEREOPHONIC SOUND EQUIPMENT

HERE, in pictures, are some of the components of the stereophonic sound equipment to be made by B.O.P.E. companies and distributed by G.B-Kalee Ltd., under the production agreement announced on page 1.





1 Type G.K.20 projector assembly showing 4-way magnetic soundhead between top spoolbox and mechanism. It can be fitted with 5,000-ft. spoolboxes, as shown, for use on 3D presentation.

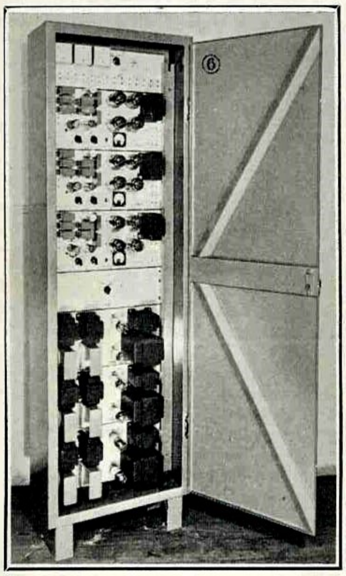
2 Type 912 soundhead for reproduction of CinemaScope 4-track film. All parts non-magnetic, reproducer head fully screened.

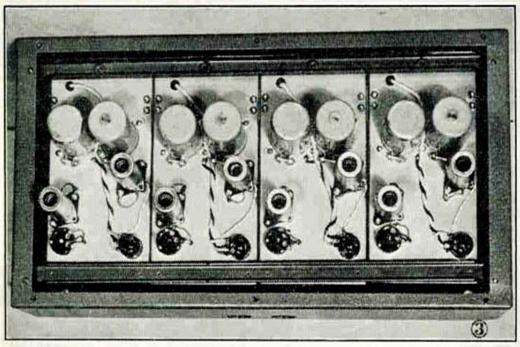
3 Type 914 head amplifier with 4 independent amplifier chassis, complete interior assembly resiliantly mounted to avoid microphony.

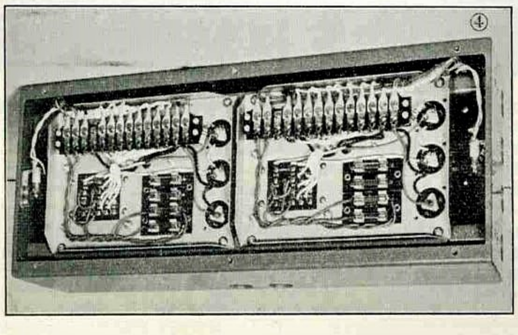
4 View of Type 913 power supply unit with cover removed to show two separate power supply chassis.

5 Type 905 4-way coupled fader with switch for normal and stereophonic operation. Also changeover switch for 2 projectors. Teleflex remote control operation of changeover is incorporated. Beneath is Type 905 fader with cover removed.

6 Power amplifier assembly cabinet showing three main amplifiers with their power supply panels at bottom, switch panel in centre and terminal panel at top. This is a typical rack and is of the simplest type. Alternative arrangements of four amplifier panels and dual rack assemblies are also available.







What You Need

Gaumont-Kalee stereophonic power amplifier and loudspeaker equipment for use with the CinemaScope system or separate film systems. In conjunction with GK21 30 watt dual or 60 watt amplifier equipment you would require:

1 Cabinet Rack Assembly including:
- 1 Terminal Panel
- 2 Power Amplifier Panels
- 1 Selector Panel
- 1 Dividing Network
- 2 Power Supply Units.

1 Cabinet Rack Assembly including:
- 1 Terminal Panel
- 2 Power Amplifier Panels
- 1 Dividing Network
- 2 Power Supply Units.

1 Main Volume Control

1 Switch Fuse Distribution Unit.

2 No. 2 size Duosonic Loudspeaker Assemblies

2 Magnetic Soundheads

2 Adaptor Brackets (Soundheads to Projector)

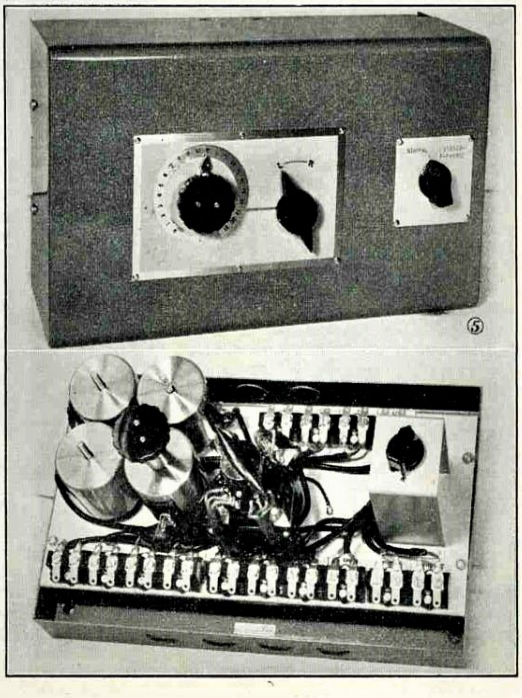
Note 1. Type of Projector to be specified when ordering.

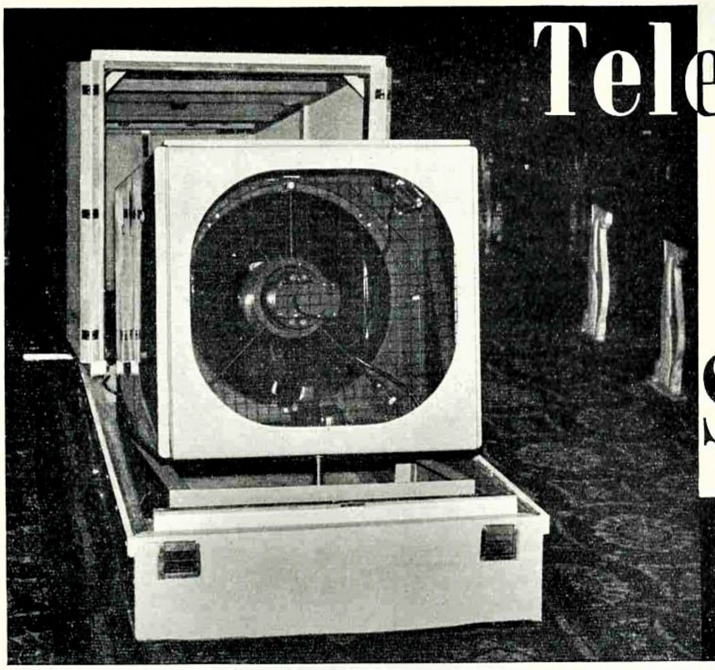
Note 2. When this equipment is used in conjunction with Soundheads manufactured by B.A.F. Ltd. type of Soundhead must be specified.

2 Head Amplifier Units

1 Head Amplifier Supply Unit

(The number of auditorium loudspeakers—illustrated top left, this page—will depend upon the size of the hall.)





Television in the STALLS

Cinema Television Projector installed in the Commodore, Hammersmith by G. B-Kalee Ltd.

THE Commodore, Hammersmith, owned by Associated British Cinemas, Ltd., is the latest British hall to be equipped with *Cintel* large-screen cinema television—a standard production model marketed by G.B-Kalee Ltd.

Technicians of A.B.C., Cinema-Television Ltd., G.B-Kalee Ltd., and British Acoustic Films Ltd., worked in close association during the installation work, writes W. G. Altria, technical editor, in the Ideal Kinema. Describing the installation he says:

They considered the possibility of placing the projection unit in the front of the circle, which would have given a 28-ft. wide picture, but the throw to the screen, a little over 75 ft., was beyond the optimum distance for the best possible picture quality. It was decided, therefore, to install the projector in the centre aisle of the stalls, between 60-65 ft. from the screen, to give a picture 22 ft. by 16 ft. 6 in.

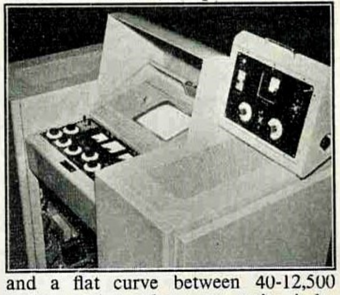
The projector is enclosed by an outer protective casing fitted with locks to prevent unauthorized persons tampering with it.

The placing of the projector in the stalls proved to be advantageous when planning the layout of the wiring carrying the EHT, picture and sound signals and control currents. It was possible to use a room in the basement below the stage area for the EHT generating units and to install the main control console (picture below), housing the receiving equipment and monitor tube, in the orchestra pit. The runs for the conduit and cables are, therefore, relatively short, thus reducing the amount of work on the structure of the building that would have been necessary had the projector been installed in the circle and the control console in the projection room, as is the case in some installations.

DUOSONIC CHANNEL

A remote control panel is fitted in the circle to give final control of picture brilliance and sound level.

An additional feature of the Commodore installation is the provision of a high-fidelity Gaumont-Kalee Duosonic amplifier channel and No. 3 Duosonic speaker assembly to handle the relay of the sound accompanying the British Broadcasting Corporation's televised pictures, which is of higher quality than the B.B.C.'s ordinary sound broadcasts. The amplifier, which has an undistorted output of 30 watts



and a flat curve between 40-12,500 cycles, and speakers are quite independent of the kinema's sound system. The amplifier rack is located in the EHT room, so that it comes within the province of the engineer responsible for the large-screen TV gear.

A private showing of the B.B.C.'s relay of the Boat Race provided a wonderful opportunity for testing the equipment on an outdoor broadcast. Allowing for the dull climatic conditions on the morning of the race and the marked variations in the quality of the pictures from the different TV cameras employed—one in the following launch and others at vantage points along the course—the definition, brilliance and contrast of the picture were of a remarkably high order.

Gaumont-Kalee Cinematograph equipment, made by companies in the B.O.P.E. Group, was exported to more than 40 countries in the first three months of 1953. In this article, the London "Financial Times" surveys....

PROSPECTS FOR U.K. FILM EQUIPMENT

THE rapid emergence during the past few months of large-screen and stereoscopic systems of film presentation is likely to bring increased business, both from home and overseas markets, to the British manufacturers of cinematograph equipment.

Despite the inevitably cautious attitude of some members of the film industry, there appears to be little doubt that pure "3-D," and its counterparts which give the illusion of three-dimensions, are here to stay.

This is borne out by the growing number of different systems, the heavy expenditure on their development, particularly by the major American film companies, and the vigorous enterprise and showmanship displayed in bringing them so quickly and forcefully before the public, as well as by the companies' long-term planning for the future in this field.

Most of the systems that have appeared so far require, in some form or another, new or adapted forms of film production and projection, and therein lies the market for the equipment makers. This market is likely to remain, even should the film industry settle for some standardized system of presentation as opposed to the various kinds of system which are either already in operation or on the way.

The British manufacturers are in a strong position to meet this demand. They have built up a high reputation for themselves, both at home and overseas. British film camera lenses, to take just one example, are among the finest in the world. Most Hollywood studios use lenses made by Taylor, Taylor and Hobson at Leicester.

One big British film equipment manufacturing group, British Optical and Precision Engineers, which is within the J. Arthur Rank Organisation, has already received a heavy volume of orders and inquiries from all over the world for the special equipment needed for presentation of "3-D" films. Not only does this include cinema projectors, but also such items as special screens with wide-angle reflectivity (which are highly suited to the presentation of "3-D" films, and which also give superior results with normal black-and-white or colour films) and the special sound equipment also required.

British firms are also likely to be granted contracts for the manufacture under licence in this country of the special lenses that will be required for use here in the Twentieth Century-Fox "Cinemascope" wide-screen film presentation system.

This new demand for equipment as a result of "3-D" will not detract from the big business in traditional film equipment already carried out by the manufacturers.

Behind them, the British manufacturers already have a fine export record. Last year, before the rise of "3-D," the value of British cine equipment exports amounted to £2,008,000, or about 21 per cent. more than the £1,666,000 worth of exports in the previous year.

The manufacturers have every reason to be satisfied with this performance since, as the Kinematograph Manufacturers' Association has pointed out, it was achieved on prices that were approximately the same as in the previous year. Furthermore, it compared favourably on the whole with the exports of film equipment from America, traditionally the home of the motion picture industry. Last year, these U.S. exports amounted in value to $9,826,921 (about £3.5m.), a decline on the previous year of $10,905,683 (about £3.9m.)

Altogether, British cine equipment was sold to 121 overseas markets last year, as against 107 markets in 1951. An analysis of the 1952 export scene, prepared by the Kinematograph Manufacturers' Association, shows that while it was not possible for the British manufacturers to maintain their position in every market abroad, such losses were made good by the development of other existing markets, as well as by breaking into new ones.

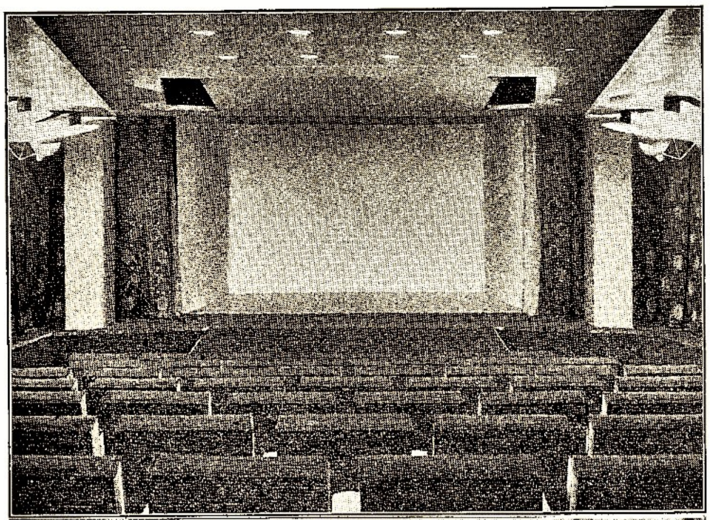
Some remarkable results were achieved. Holland, for example, bought £271,000 worth of U.K. equipment, against £170,000 worth in the previous year. Sales to the dollar markets of the U.S. and Canada were, however, disappointing, at £44,500 (£77,000) and £46,500 (£84,000) respectively

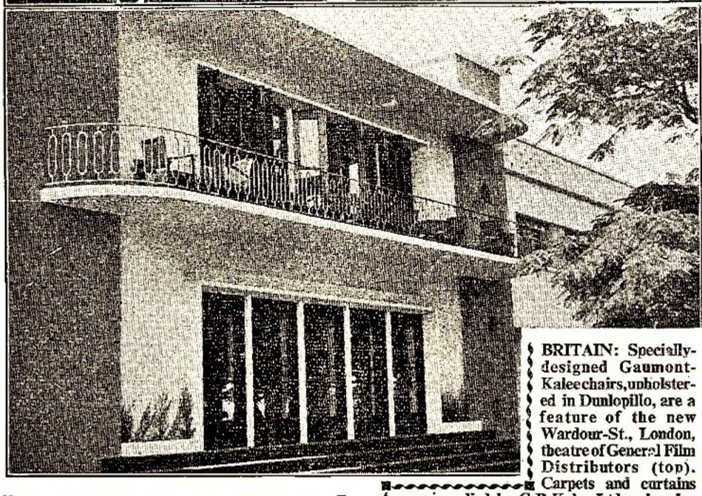
Nevertheless, U.K. manufacturers were successful in improving their foothold in such traditional American markets as the West Indies and Mexico, while the response to efforts to open up markets in Middle East countries, although at the moment relatively small in terms of cash value, may be a pointer to one direction of future trade. To this can be added the fact that a number of African territories, together with some of the Pacific islands, appear to be becoming increasingly cinema-conscious, and may prove to be valuable additions to the export field in the not too distant future.

At present, foreign exchange restrictions, owing to balance of payments problems, as well as trade agreements which limit the total amount of U.K. exports into the countries with whom the agreements are signed, are tending to restrict the field in some markets abroad. But the British manufacturers are confident that whatever the equipment required, whether it is for "3-D" or otherwise, they will be able to supply it.

GAUMONT-KALEE ROUND THE WORLD

During a break from discussing the latest film presentation developments with the Schlesinger Organization, Mr. H. R. A. de Jonge, Joint Managing Director of G.B-Kalee Ltd., finds time to join in a war dance. Mr. de Jonge's tour, which was arranged by the Schlesinger Organization, included visits to the leading cities of South Africa, Northern and Southern Rhodesia, Nairobi and Elisabethville in the Congo.

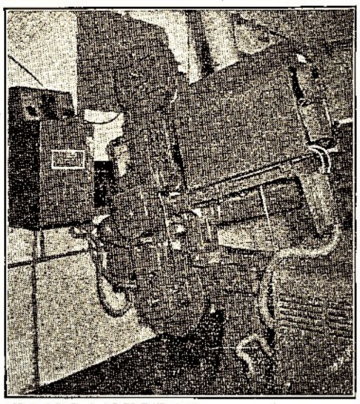




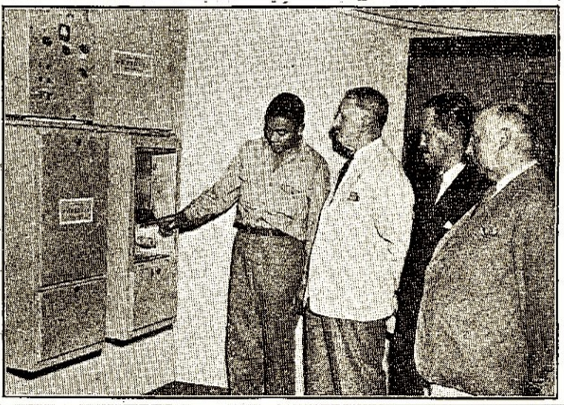
BRITAIN: Specially-designed Gaumont-Kalee chairs, unholstered in Dunlopillo, are a feature of the new Wardour-St., London, theatre of General Film Distributors (top). Carpets and curtains were supplied by G.B-Kalee Ltd., who also adapted the two GK 21 projectors to show three-dimensional films. TANGANYIKA: The new Empire Cinema, Mwanza, is equipped with GK 18 projectors, Commander arc lamps and Derwent chairs.

INDIA: Complete Gaumont-Kalee 21 equipment (projectors, President arc lamps, dual amplifiers & No. 3 Duosonic speaker assemblies) installed in the Orient Cinema, Calcutta. The Shree, Bombay, has been similarly equipped.

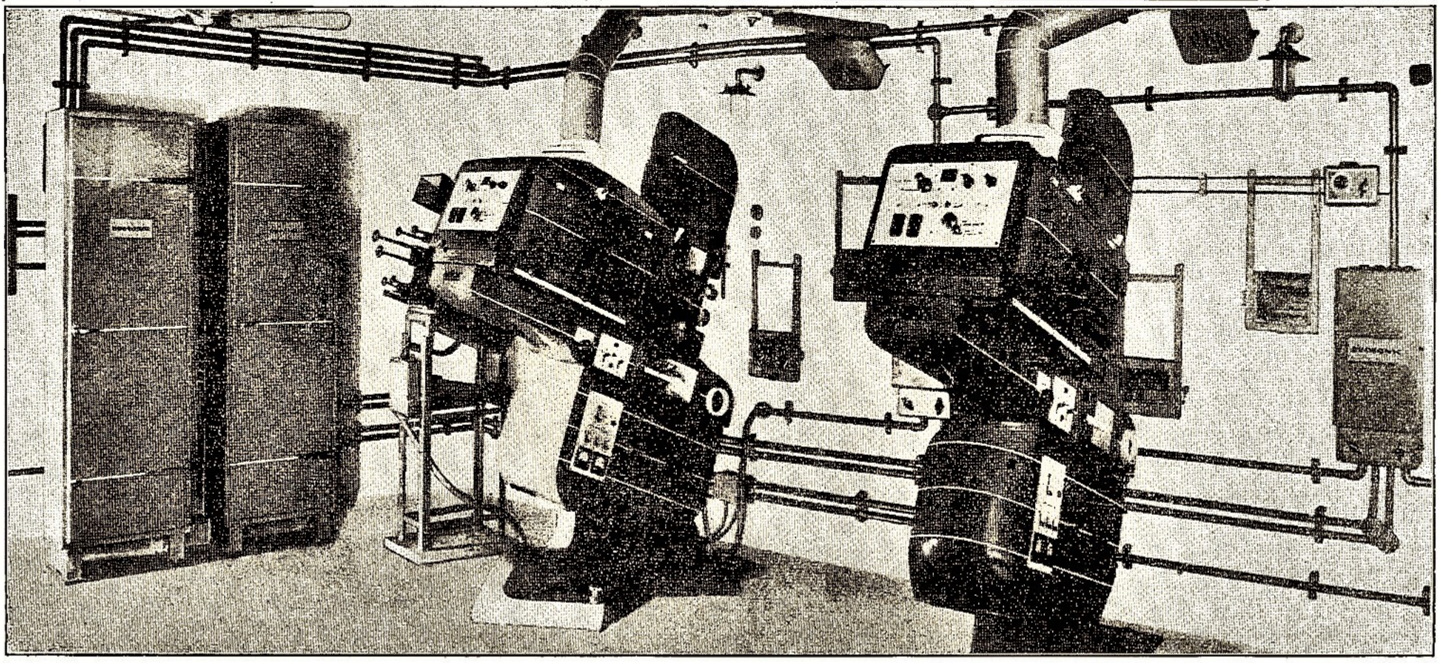
SPAIN: Gaumont-Kalee 21 projectors, President arc lamps and Duosonic sound equipment were prominently displayed at the Valencia Fair by C. & G. Carandini, S.A., agents for G.B-Kalee Ltd. in Spain.



TANGANYIKA: Gaumont-Kalee 19 projectors and Duosonic sound equipment, installed by African Consolidated Films, Ltd. in the Everest Cinema, Moshi (above).



JAMAICA: looking at a Duosonic amplifier panel, part of the Gaumont-Kalee equipment recently installed by the Palace Amusement Co. (1921) Ltd. at their Palace Theatre, Kingston are (left to right): Mr. Morland, chief projectionist; Lt.-Col. C. Bromhead C.B.E.; Mr. J. B. Higham and Mr. R.C. Bromhead, President and Chairman of the U.K. Cinematograph Trade Benevolent Fund.



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