INTRODUCTION

Like so much else in film history, the use of musical accompaniment to complement and enhance the effect of the visual drama was not the discovery of the cinema itself. Throughout the history of the live theatre, music has played a vital role. "Melodrama in its literal sense — the fusion of words and action with music — has a long history. Drama and public music making seem to have been born together, like so much else, in the endlessly questing world of the Ancient Greeks.

"The tradition of melodrama continued. Shakespeare constantly used scenes of action accompanied by music. The strange reediness of hautboys serenade Duncan into the castle which is going to be the place of his death ...

"Music has always increased an audience's perception, and made their understanding more acute. Victorian and Edwardian melodrama depended very much on music to sustain the huge popular audience's attention and to guide them into richer areas of feeling. When the miracle of the movie picture arrived, it was natural that the actions on the screen should have accompanying music of the right atmosphere ..."[1]

The work and experience of musicians in dramatic theatres of the eighteenth and nineteenth centuries appear to have been very similar to those of cinema musicians of the twentieth. Coincidentally, serious study of theatre music, like research into the use of music with silent films, has till recently been a neglected area of scholarship. David Mayer's revelations as a pioneer student of the music of nineteenth century melodramas are almost precisely those of cinema music archaeologists:

"The use of music was neither random nor capricious, but closely related to the nature of the piece and to the effects sought. In many instances music was almost continuous, extending for entire scenes, possibly entire acts. We have too readily accepted as definitive J.R. Planché's assertion that it was once necessary 'for a piano to be kept tinkling in the orchestra throughout the representation of a tragedy or comedy'.[2] With this acceptance we have also condoned the implications that music was forced on the Minor theatres by a law both harsh and insensitive to aesthetic considerations and that the tinkling piano represented minimum compliance with an offensive act. On the contrary, there is now ample conflicting evidence that musical accompaniment was desirable and that orchestration was elaborate whenever a management could afford it."[3]

The work of the theatre musician was very much like that of the later musicians in cinemas. Elaborate productions might have specially composed or compiled scores, while in more modest theatres solitary harpsichord players or pianists would be called upon to improvise. "Musical directors travelled with a book of 'agits', i.e. agitatos, 'slows'. — that is, slow music for serious situations — 'pathetics', 'struggles', 'hornpipes', *andantes* — to which all adapted numbers called 'melos' any dramatic situation was possible".[4]

So the task of the theatre's Director or 'Master of Music' was hardly different from the musical director of a 20th century cinema. He was "expected to set his hand to a variety of tasks which included engaging the house musicians, supervising the copying-out of orchestral parts, rehearsing and conducting the orchestra during performance, and composing whatever music was needed: dances, songs, incidental music, and special aural effects".[5]

When pre-cinematic entertainments, like shadow shows and the magic lantern, made their appearance on the margins of the dramatic theatre, they naturally attracted comparable musical accompaniments. Old engravings show that even the first travelling lanternists had their musical accompaniments, whether provided by a hurdy gurdy or hand organ, or an assistant with a fiddle. In the 1780s the spectacle of De Loutherbourg's Eidophusikon — a miniature theatre exploiting scenic and lighting effects — was enhanced by music, provided by a harpsichord.

Etienne-Gaspard Robertson's Fantasmagoria — an elaborate entertainment produced by projection and responding to the contemporary taste for Gothick horror — made great use of a newly developed instrument, the glass harmonica, invented by Benjamin Franklin. This was an elaboration of the principle of musical glasses. In a kind of organ case, a series of glass discs of varying size was revolved: melodious sounds were produced when damp pads were applied to the disc rims through the operation of a keyboard. The effect of this musical accompaniment to Robertson's ghostly presentations was clearly striking:

"The effect of the apparitions was prodigious, and no doubt found the ladies more impressionable than the gentlemen ... While several ladies usually had need of smelling salts, only one found herself really ill, and experienced quite a violent nervous crisis. The fault was not due to the phantoms. The sounds of the Harmonica, too sweet and too penetrating, alone were to blame. Imagine, however, what emotion this accident produced in the midst of profound darkness, and in the expectation of spectres, whose approach was heralded with a melody imbued with such melancholy".[6]

Later in the 19th century the revival of the *Ombres Chinoises* at the Chat Noir cabaret set off a vogue for this variety of entertainment in Paris. In these shadow shows the fusion of music and image was complete: the two were created together, with artists like Henri Rivière and Caran d'Ache working closely with the composer Georges Fragerolle. For Emile Reynaud's Pantomimes Lumineuses — the most sophisticated moving picture entertainment before the cinema proper — specially composed music was provided by Henri Paulin.

Musical Provision in the Cinema Theatres

When the cinema arrived at the end of 1895, then, the precedents for musical accompaniment were firmly established. Music was for that matter demanded: something was needed to drown the persistent sewing-machine chatter of the projector. Very early in the run of the Cinématographe Lumière at the Grand Café, Boulevard des Capucines, a Gaveau piano was installed, along with Monsieur Emile Maraval, "pianiste-compositeur".

In Britain and America motion pictures found their first home in the music halls, which boasted the finest theatre orchestras. At the Empire Theatre, Leicester Square, where the Lumière Cinématographe first opened, the director of music was Leopold Wenzel. At the Alhambra, where R.W. Paul presented his Animatographe in competition with the Lumières, the director of music was Georges Jacobi. We can safely assume that these experienced theatre musicians created musical accompaniments that were wholly suited to the subjects on the screen. The early programmes for the American Biograph, which ran for years at the Palace Theatre, state that the music for the films is specially composed by the musical director Alfred Plimpton. Plimpton was succeeded by Herman Finck, a popular composer of light music and operettas; and in January 1904 we find a note in the theatrical trade paper *The Encore*: "The beautiful and very original music which accompanies the Marie Antoinette biograph series at the Palace Theatre, is from the harmonious pen of Herman Finck, who is, it is whispered, writing a musical comedy". For the moment this appears to be the earliest record of a score specially composed for a dramatic film. Only months later, however, we find Georges Méliès, as ever the innovator, compiling a score for *La Damnation de Faust*, based on Gounod's opera.

A variation on the provision of musical accompaniment to films was the provision of visual accompaniment to music. One example of this is the "song" films which had their origin in the magic lantern, and which called

upon the musicians, a singer, or the entire audience, to accompany the film with the words of the song. In rare cases, the same might be done with purely instrumental compositions.

Edison, whose earliest statements on motion pictures spoke of his confidence that one day they would be able to record great operatic performances, attempted to fulfil his dream as early as 1904, when he filmed eight 3-minute scenes from *Parsifal*[7] and a shorter version of Flotow's *Martha*. In 1907 Carré's famous 19th century mime play *L'Enfant Prodigue* was filmed, and projections were accompanied by Alfred Wormser's music. Later still, in 1914, performances of the film adaptation of Luigi Manzotti's ballet *Excelsior* were accompanied by R. Marenco's original music.

When, in the early years of the century, the cinema departed the hospitality of the great music halls, and set up its own theatres, most often in converted stores, musical accompaniments were not at first ambitious. Plans and pictures of cinemas in the first decade of the century generally show a pianist as providing the sole accompaniment, though occasionally a violinist or drummer might also be brought in.

As early as 1912 a manual for cinema musicians was published by the British trade journal, *The Kinematograph Weekly*.[8] The author, W. Tyzacke George, himself a cinema musician, concluded, "The amazing part of the whole affair is that picture hall owners spend thousands of pounds on magnificent buildings, electrical equipment, projectors and what not, and having got the best that money can buy, damn the whole show by engaging a musician who would not be tolerated in a third-rate taproom. It is hoped the day is not far distant when music will come into its own in the picture business".

Mr George's exasperation becomes comprehensible when we turn to an almost contemporary American-originated publication, John B. Rathbun's *Motion Picture Making and Exhibiting*: "Almost any locality is capable of producing a singer or pianist for the musical features of the show at a moderate price. The salary of these people will naturally vary considerably, depending upon the size of the town and upon the local musicians' union, if there is one, the outside limits ranging from $1 to $3 per evening. When a drummer is added to the 'orchestra', he should receive the same amount as the pianist, except where the local union rules otherwise. An automatic piano or orchestrion may either be rented or bought outright, and is effective in reducing the expense in the smaller houses. In some cases those instruments are used to provide music during the intervals between the songs while the pictures are running, the pianist at this time performing other duties around the

show, such as tending the ticket box or ushering. This latter arrangement is often made when the manager assumes the part of the pianist. The automatic player is also useful when the musicians fail to appear".

Mr George had higher aspirations: "Of course, if you are one of those half-baked inexperienced ragtime pianists who accepts a job at any price, playing nine hours a day for 25s. or 30s. a week (and cases like these are well-known), you cannot be expected to provide much musical fare out of your princely income, but if you are a competent and well-paid man receiving from £3 to £5 a week for your services, then you must get the best possible music and plenty of it ...".

George classified pictures alphabetically from "Comic" to "Zoological", taking in "Hurries", "Horticultural", "Sacred", "Scenic" and "Scientific" ("A Valse Lente or Slow Movement") on the way. He also gave advice for producing sound effects. He deplored the habit of "Shooting the Show": "This is one of the greatest difficulties a musician has to contend against. If there are a number of people waiting for admission, the operator is often ordered to cut out pictures, and rush the others. Far from doing good, this can only do incalculable harm ... It is impossible to play to such rubbish — to see horses flitting by like flying machines and people like shots from a gun will kill all attempts to play to them". He also advises the pianist on how to prevent a panic in case of film firing or similar catastrophes: "Always have a few tit-bits apart from the program music near at hand, to enliven the tedium and stop a panic amongst the more nervy part of the audience, and although hard on you, you must put a cheerful face on it, but if your own light goes out you needn't even do that so long as you keep on playing ..."

Already though in continental Europe ambitions were pitched higher. In 1910 *The Bioscope* reported on the state of things in the Belgian capital, Brussels: "Mere strumming on a piano is not sufficient. We all know of shows where the instrument seems to be mainly provided for the purpose of drowning the noise of the machine or to add extra pathos to some of the more melo-dramatic films — the sort where the heroine dies to slow music. Here we find, for instance, one theatre which can boast of an orchestra of eight, as well as a conductor, the members of which for musical skill are on a par with those in the Royal Opera House, and whose repertoire includes selections from such works as 'Lohengrin', 'La Boheme' or 'Madame Butterfly' or other popular light operas". In later years the cinema would frequently be praised for raising the musical taste of its patrons through the quality of symphonic musical accompaniments.

With the rise of the great picture palaces, with the Gaumont Palace in Paris representing the acme of the early years, the standing of the better cinemas demanded the provision of a full symphony orchestra. When in time first class theatres aspired to the splendour and the size of New York's Roxy (with more than 6,000 seats), the best orchestras swelled to seventy or more musicians. By the early twenties, premiere presentations at the great West Coast palaces, like Grauman's Chinese and Egyptian Theatres, were spectacular affairs with elaborate musical stage shows, featuring vast choruses of dancers and singers.

Gillian Anderson[9] tells us that at the best houses the pit orchestras might cost between $3,000 and $10,000 a week, while at the Roxy the bill was between $15,000 and $20,000. In first class houses the size of orchestras could vary from twenty to eighty or even more players, plus organ.

With around five hundred full theatre orchestras in operation, work for musicians was plentiful; and despite an attempt by the managers to reduce salaries, which led to a serious strike and lock-out in 1921, by the end of the twenties musicians could earn between sixty and eighty dollars a week.

The Cinema Organ

With theatres running daily from noon to midnight, the musicians required regular breaks, and respite was provided by the organ, which by the early twenties was an indispensable installation in every theatre of even the most modest size and pretension.

The theatre organ was the invention of a British electrician and amateur organist, Robert Hope-Jones. Electric circuitry gave the theatre or 'unit' organ possibilities undreamed of in the traditional church or 'straight' organ.

"In sharp contrast to traditional organ-building principles, the theater organ is a collection of colorful, distinctive and powerful voices, almost every one a solo. Stops that would be quite colorful alone are often combined with other sounds equally colorful for a result that is flamboyant, exuberant, lush and — to some — heavy-handed and overblown. But it was truly a product of the times.

"The theater organ was developed in response to a need for an instrument that would replace the symphony orchestras used to accompany the silent films of the era. After applying his genius to the development of numerous tonal and mechanical features, Hope-Jones invented the 'Hope-Jones Unit Orchestra', a totally orchestrally oriented instrument for the performance of popular music and the accompaniment of silent movies."[10]

The theatre organ might cause despair in 'serious' musicians, while there was a continuing cross-continental war, with East Coast organists charging Westerners with gross musical vulgarity. Audiences however loved the theatre organ, with its possibilities for singalongs and its ranging gifts of impersonation. One organist, C. Roy Carter, boasted that its repertory included "The Snore, Laughter, Yell or Scream, The Kiss, R.R.Train, Aeroplane, Thunder and Rain Storm, Steam Whistle, Policeman's or Other Shrill Whistle, Prize Fight, Gong, Dog bark, Dog Yelp, Cat Meow, Lion Roar, Bag Pipes, Music Box, Banjo, Hand Organ, Accordion-Harmonica, Telegraph-Typewriter".[11]

The theatre organ came into its own when Hope-Jones patents were bought out in 1910 by the Rudolph Wurlitzer Company,[12] just as the movie theatre boom was beginning. By 1927 more than sixty firms were engaged in organ building, with a combined annual output of almost 2,500 instruments. The end came suddenly, after the stock market crash and the arrival of talking pictures. By 1935 the number of organ firms had dwindled to 25, with production down to a mere 500. War production regulations brought cinema organ manufacture to an end in 1943.

The great years for organs and orchestras were from the mid teens, when proprietors like S.L.("Roxy") Rothapfel began the building of vast cinema palaces, until the close of the twenties, when the talkies forced the disbanding of theatre orchestras and left thousands of musicians unemployed in the worst Depression times.

Cue Sheets and Musical Suggestions

While, by the late teens, the music in the big metropolitan theatres was exemplary, standards could fall markedly in regional and second-run theatres. Magazines were full of anecdotes and complaints about inappropriate themes, poor synchronisation and out-of-tune and out-of-condition organs.

From the end of the cinema's first decade there had been efforts to combat the use of unsuitable music by inept improvising accompanists. Around 1909 the Edison and Vitagraph companies began supplying exhibitors with cue sheets, suggesting appropriate selections of music for each scene of a film. The practice was taken up by other production and distribution companies; and magazines like *The Motion Picture World* and *The Exhibitors Trade Review* — and even primarily fan magazines like *The Pictures* — began to publish musical suggestions for the week's or the month's releases.

By the twenties cue sheets compiled by the companies became elaborate

in the extreme, as the example for Murnau's *Four Devils* illustrates.

Musical Libraries and Selections

A drawback of the cue sheet system was acknowledged by the Edison house magazine, *The Edison Kinetogram*, when it adopted the method of indicating the style of piece to be played rather than specifying a particular composition. Clearly, unless the compilers of cue sheets were to avoid monotony, they had to call upon a much wider range of music than would be instantly accessible to the musical director of a smaller theatre.

One solution to the problem was the publication of "musical selections", passages of mood music which were issued in sizeable collections by a large number of publishers, principally in America and Germany. As the examples in the present exhibition show, they carried on the tradition established by the "agits" used by the musical directors of nineteenth century dramatic theatres. Among the most distinguished series was Giuseppe Becce's *Kinothek*, published in twelve volumes in Berlin, between 1919 and 1929.

A major problem in using library selections and cue sheets was the matching of and transition between different musical fragments, which might be in different keys. This was a matter where the organist had a considerable advantage over the orchestral conductor.

"Taking the compensating advantage of the orchestra as granted, the fact remains that here is a point on which the organ definitely scores. There is no doubt that one of the most villainous features of a far too wide-spread style of orchestral playing to pictures is the raggedness of changes. The organist has a much easier job in this respect than his orchestral colleague, who cannot mesmerise eight or ten players into making a graceful transition from F sharp major to C minor.

"This is a weakness which is inherent to the orchestra, but it can be rendered much less apparent than it all too frequently is. The art of graceful and effective changing, being the difficult thing that it is, is really a large part of the fun in accompanying a picture.

"Timing is, of course, of paramount importance. If we are playing our piece in F sharp major and still have another five bars to go before reaching a full close, and then find the crucial moment for change is upon us, there is nothing for it but to plump straight into our piece in C minor without a word of apology to the two composers concerned as victims of the operation.

"More care in timing our section is the obvious remedy, though admittedly not an easy one to practice. Still, a great deal can be done by refusing to

accept the crude 'cut-off' as being among things ordained, and determining to get round it whenever possible by all and every means available".[13]

Compiled and Composed Scores

For major prestige productions it came to be the practice to issue and often to publish complete scores, occasionally entirely original, but most often compiled from existing works. Clearly the results were likely to be more reliable and more artistic than could be anticipated either from leaving the matter to the discretion and improvisation of individual theatre musicians — who might not have seen the film until the first performance — or from the hazards of cue sheets.

One of the earliest and most distinguished "dedicated" scores was, of course, Camille Saint-Saens' music for Pathé's film d'art, *L'Assassinat du Duc de Guise*. In the early teens of the century, the composition of original scores became more common. In 1912 the Kalem company began to publish special scores compiled and composed by Walter C. Simon, and Adolph Zukor commissioned Joseph Carl Breil to prepare a score for *Queen Elizabeth*. In Germany Giuseppe Becce provided three scores for Messter, including a compilation for *Richard Wagner* in which he played the leading role. In Italy there was the memorable collaboration of the director Nino Oxilia and the composer Pietro Mascagni on the supremely musical film *Rapsodia Satanica*. In Britain there was the more mundane, but nonetheless interesting experiment of Alfred H. West in compiling and composing for Larry Trimble's *My Old Dutch* a score which made extensive use of music hall songs.

In the United States, D. W. Griffith paid much attention to the musical accompaniments of his films; and accounts of the first performances of *The Birth of a Nation* reveal how much of the stunning effect of that film was due to the score, compiled by Joseph Carl Breil and played by a 100-strong orchestra in Clunes auditorium Los Angeles. Griffith worked with a number of musical directors — including Breil, Louis F. Gottschalk, Louis Silvers — but the style of his scores is consistent. Charles D. Isaacson[14] discussed with Gottschalk the score of *Orphans of the Storm*. "'Griffith's ideas have been followed all the way through,' he said, 'he has even gone to the details of the themes. Mr Griffith selects most of the main themes or motives which he uses in his productions. Although not fitted to do such technical work as orchestration and the like, he has studied music somewhat.' Then the musical director made a distinction which was rather interesting. 'The musical score for the Asta Neilen *Hamlet*, he said, 'has been called a masterpiece of musi-

cal arrangement for a picture *from a musician's point of view.* A Griffith orchestration is made from the point of view of the picture producer, primarily, rather than for its real value as music.' In other words, Griffith senses, or knows, through long experience, to what type of musical theme and to what manner of handing of these themes his audienes will best respond, just as he has learned through experience how much and what kind of action, plot, emotion, suspense, and the like, his audiences prefer".

Griffith placed great emphasis on the leitmotif. "He labels each important character with what is known as a motif. Griffith has learned that his audience has a memory sense of hearing. Not only is Lillian Gish remembered for her face, not only is she the character she represents, but she is also that sweet melody which always is played during her most poignant moments on the screen, and which seems to exhale the simplicity and beauty of her unsuspecting character. Not only is Sidney Herbert recognized for his sneaking effrontery, by his costumes, by his walk, by his name, Robespierre, but by his musical theme, which blaringly and blastingly announces his presence in the trumpets of the orchestra ..."[15]

Griffith was a significant pioneer of the compilation score. In the United States the early twenties saw the arrival of a group of musical directors, often with compositional skill in their own right, who compiled scores of great intelligence and sensitivity. Among the most notable of them were Erno Rapee, Hugo Riesenfeld, William Axt, David Mendoza, J.S. Zamecnik. In Europe the most distinguished musician for silent films was the Italian-born Giuseppe Becce, who composed his first film accompaniments in Germany as early as 1913.

For serious musicians like these, the business of compiling a score could be a long and complex job, involving assistants, orchestrators and recourse to the music library that was indispensable to every cinema music director. (Hugo Riesenfeld's library was said to consist of 6,000 orchestral scores and thousands of pieces of unorchestrated music; Loews' music library consisted of 50,000 scores). Gillian Anderson cites a magazine interview describing Riesenfeld at work; and another article which sheds new light on the extent of the contribution cinema musicians might make to a film:

"When ... the librarians and orchestrators have arranged and written such things as are needed for the film, the film itself is taken in hand for revision. Projection machines can be made to run at variable speeds to suit the occasion, and these speeds can be arbitrarily set by a projector without interfering in any way with the picture. I doubt if any but a very skilled man would be

able to detect the many changes Mr Riesenfeld must get from his operators. Many times the titles and joints in the film are deleted to just the right amount to make the film time exactly with the music, while at other times the speed accomplishes the result. Thus after the music is first fitted to the picture, the picture is then fitted exactly to the music".[16] On another occasion, "Mr Riesenfeld scored a picture, after cutting up the film and showing it as he wanted instead of as the producers photographed it, with success, while the same picture in its original form under the management of other producers in other houses fell a failure".[17]

By the early twenties there was a strong movement for the provision of specially dedicated scores for all important films. The distinguished British music critic Edwin Evans weighed in, in the course of a public lecture, reported in *The Bioscope*: "The musical accompaniment of a film has been looked upon as that which concerned only the exhibitor, but that is wrong. The reputation of the film is almost entirely at the exhibitor's mercy, but it is largely in the interest of the producer that it should be suitably presented from a musical point of view". *The Bioscope* was not altogether convinced: "Mr Evans, in common with other authorities, believes in the practicability of having special settings for all important productions not merely arranged, but actually composed, and issued, as part of the show, with the copies of the picture. That would be a very big step to take, and it is not altogether certain that the quality of cinema music would be improved by accompaniments which, instead of being selected largely from the works of the great masters, were composed in large numbers and without fixed time limits ... Music, suitably chosen and adequately rendered, is the soul of the picture, and there is no excuse for delaying any longer a really big-minded effort to organise systematically this vital department of the film business."[18] *The Bioscope* proposed the organisation of a Trade Musical Conference.

To the end of the silent era, the specially composed score would remain the exception rather than the rule. However, an appendix to this catalogue shows that from time to time composers of the calibre, in their various fields, of Robert Stolz, Franz Lehar, Arthur Honneger, Jacques Ibert, Erik Satie, Maurice Jaubert, Paul Dessau, Florent Schmitt, Edmund Meisel and Dmitri Shostakovich created musical scores for silent films.

Mechanical Music and Effects

To supplement the purely musical contribution of the orchestra, sound effects were frequently introduced; and trade magazines and catalogues

advertised devices, including the versatile Allefex machine, to provide thrilling effects of gunfire, rain, thunder and bird song.

Attempts to replace the orchestra with mechanical music devices had little success — the problems of synchronisation, amplification and musical variety were generally too great. However in the twenties elaborate mechanical pianos were developed, which provided two playing "heads" so that the operator could cue up the next musical selection while one was in performance. The most elaborate of these mechanical pianos also included sound effects, operated by "cow's tail" ropes.

Towards the end of the period, with the development of methods of electrical sound amplification, elaborate gramophone reproducing apparatus, with panatrope and multiple turntables, was introduced into many cinemas.

Synchronisation and Sound Films

From the first invention of sound recording, by means of Edison's phonograph, there were projects to combine sound and moving images. Already in 1877, the year when the phonograph was announced, Walter Donisthorpe in England proposed combining the "Kinesigraph" — a projecting phenakistiscope which he had patented the previous year — with the phonograph. Edison himself first regarded the kinetoscope as an adjunct to the phonograph, and his first coin-in-the-slot machines were short-lived kinetoscope/phonograph combinations.

The disc gramophone was in many ways more convenient than cylinder machines for adaptation to synchronisation with films. From the earliest years of the cinema there were attempts to combine projector and gramophone, achieving accurate synchronisation either by mechanical or electrical means. "Phono-Cinéma-Théâtre", which showed synchronised films of actors like Bernhardt and Coquelin as well as stars of the music hall like Little Tich, was demonstrated at the Paris Exposition of 1900, and went on to have considerable success in theatres. In November 1902 Léon Gaumont first demonstrated the synchronisation device which, as the "Chronophone", was to have world-wide success between 1904 and the First World War. Oskar Messter's Kosmograph was first publicly shown in 1903, and "Biophon" films were for several years to feature in the programmes of his Apollo-Theater in Berlin.

The years 1909-12 saw a bewildering variety of synchronisation devices, under many names. In England there were the Chronomegaphone, the Appollogramaphone, Filmophone, Replicaphone, Hepworth's Vivaphone, and the Warwich Company's Cinephone. The United States had the Camera-

phone (shown as early as 1905), Laemmle's Synchronophone (1907), Commercial Biophone, Talkaphone and Vi-T-Phone. The Edison Company revived their interest in sound films with the Kinetophone, licenses for which were sold in many countries, including Japan. In 1921 D.W. Griffith experimented with synchronous sound in *Dream Street*, but concluded that "Speaking movies are impossible. When a century has passed, all thought of our so-called speaking movies will have been abandoned. It will never be possible to synchronise the voice with the picture".

The answer to the problems of synchronised motion pictures was ultimately to be found in sound-on-film processes. Experimental work on these dated back to the beginning of the century with the researches of Poliakoff, the Bells, Tainter, Poulsen, Lauste, Ries, Nakken and others. The first successful sound-on-film system demonstrated in Europe was the Tri-Ergon process, shown in Berlin in 1922. Lee De Forest was to demonstrate his Phonofilms in 1923.

The breakthrough to sound films finally came with the launch of the Vitaphone system by Warner Brothers in August 1926. Vitaphone was a sound-on-disc system, though this was rapidly and inevitably superceded by sound-on-film systems. It is worth noting however that the idea of *talking* pictures was an afterthought: the Warner Brothers initially saw Vitaphone as a cheap and controllable substitute for costly and unreliable live musical accompaniments provided by individual theatres.

Mood Music on the Film Set

Music was used not only in the exhibition of films but also, frequently, in production. The use of mood music during shooting is amusingly described by Peter Milne, in the New York Institute of Photography's *Motion Picture Directing* (1922): "May directors use music to inspire from their actors and actresses the best performances. The idea is plausible and often productive of the desired results. Often, too, it is carried to extremes. There is one quite famous star who needs 'Hearts and Flowers' rendered in the slowest pitch of melancholy, to satisfactorily walk across a setting. She doesn't register any deep emotion in this instance either, unless walking can be so termed ...

"Musicians have grown to be almost as vital in picture making as the cameraman or the actors themselves. At the studios in the early morning appear almost as many men carrying violin cases as there are with make-up boxes.

"The idea isn't at all as far-fetched as it may sound. Music, more than all

the advice and coaching that a director may give his company, serves to cast them in the proper mood for a scene ...

'Thus, when an actor or an actress is called upon to do a particularly pathetic and emotional scene upon the screen, the proper accompaniment from musicians assists the player in striking the right note in the performance. There are comedians, too, who employ musical inspirations. However, when they are playing a burlesque scene they often call for the slow, tearful music that is used for the serious scene. It gives them a better slant on the burlesque element in the scene ...

'In a studio where two or three companies are working at the same time it must be confessed that the effect of the various orchestras is more or less confusing. The actors and actresses would be doing quite the right thing if they went altogether insane ..."

1 Sir Peter Hall, *Four Bars of Agit*. London 1983, Theatre Museum, V & A.
2 James Robinson Planché, *Recollections and Reflections*, London, 1872.
3 David Mayer, "19th Century Theatre Music" in *Theatre Notebook*, XXX, 3 (1976) pp 115-122
4 James M.Glover, *Jimmy Glover, His Book*, London 1911
5 David Mayer, *op. cit.*
6 E.G. Robertson, *Memoires recreatifs, scientifiques et anecdotiques d'un physicien-aeronaute*, Paris, 1830
7 "A slide show and lecture tied the eight filmed highlights together. A piano score was available for the accompniment" (Gillian B.Anderson, *Music for Silent Films 1894-1929. A Guide*, Washington 1988).
8 W.Tyzacke George, *Playing to Pictures*, London 1912.
9 Gillian B. Anderson, *Music for Silent Films 1894-1929. A Guide*, Washington 1988
10 Michael Moore: "Theatre Organs — The Instruments and the Music" (record sleeve note).
11 C. Roy Carter, "Theatre Organist's Secrets: A Collection of Successful Imitations, Tricks and Effects for Motion Picture Accompaniment on the Pipe Organ" (Los Angeles, 1926), quoted in Gillian B. Anderson, *op. cit.*
12 Hope-Jones himself committed suicide in Rochester in 1914 at the age of 73.
13 *Bioscope Service Supplement*, February 22 1927.
14 Charles D.Isaacson: "Griffith's Musical Secrets", in *Photoplay*, date unknown.
15 *ibid.*
16 *The American Organist*, Vol 3, no 5, 1920, cited in Anderson, *op. cit.*
17 *ibid.*
18 *The Bioscope*, May 3 1928.