“Very Nearly To Talkies Without The Costs”

British Exhibitors, Reproducers and Synchronisers, 1927-1929.

MA History of Film and Visual Media Dissertation

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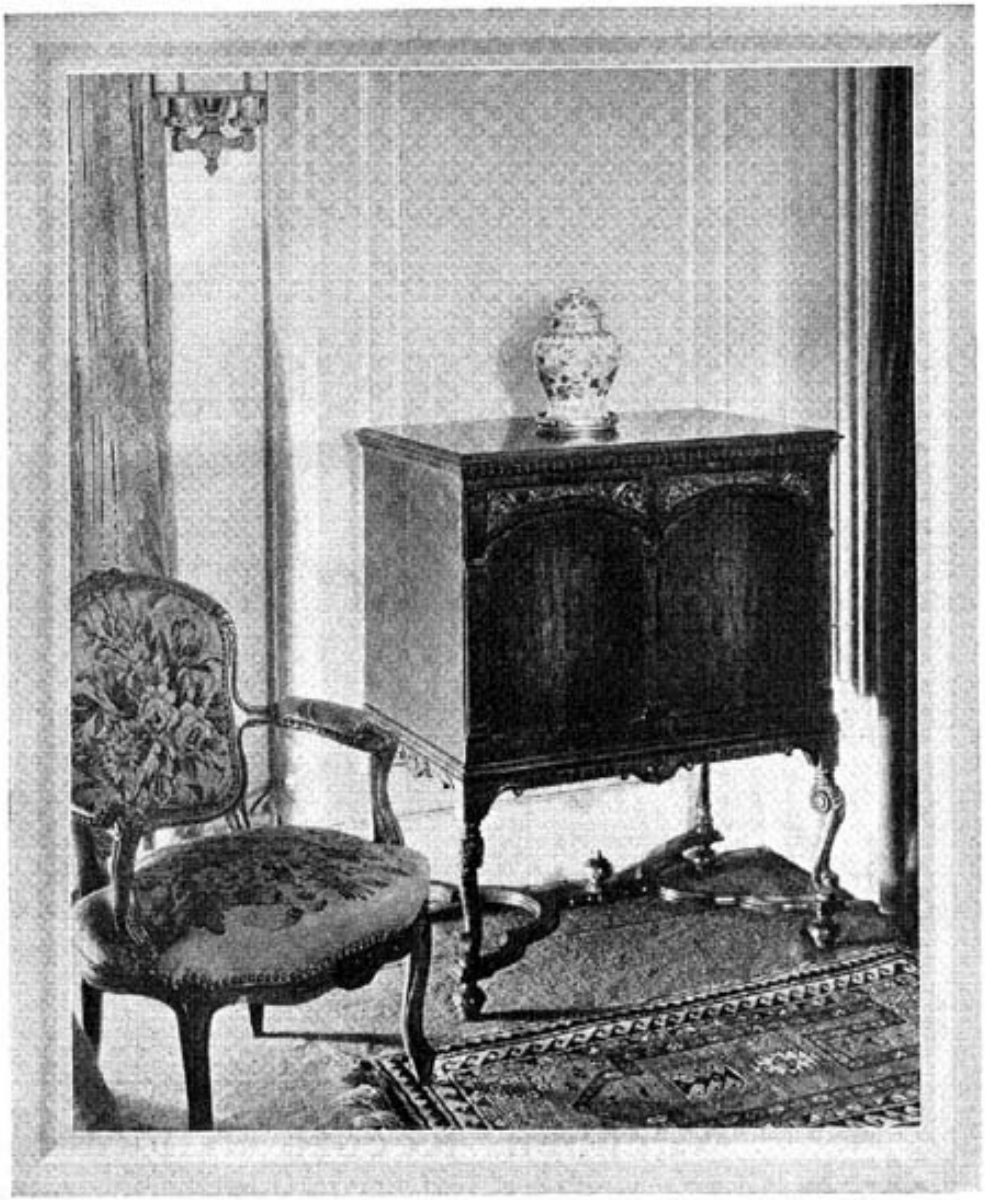
Illustrations



The Brunswick Panatrope . . .
a new cabinet design now
in production . . . Model P10

Fig.1 American domestic Panatrope, from the Talking Machine World, January 1926

(Source: US Library of Congress)

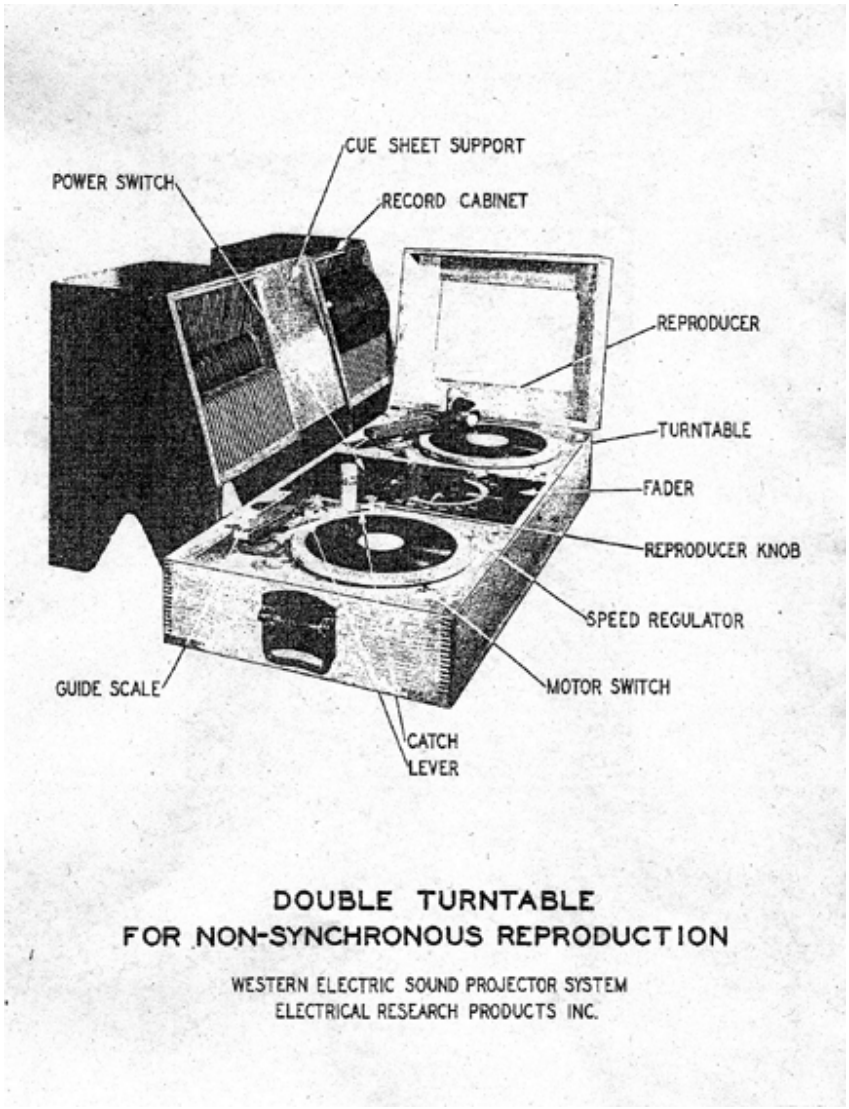


Fig. 2 - Western Electric's non-synchronous turntable set, 1928

In the US, Victor issued over 300 discs of mood music and sound effects in their Pict-Ur-Music line for use with these machines. American Brunswick also issued their own line in 1929. Info from http://www.picking.com/vitaphone,

(Source: reprint of Western Electric manual, author's collection)

Fig. 3 British Brunswick Panatrope advertisement, November 1927

(Source: *Kinematograph Weekly*)

Fig. 4 Reginald Johnson at the console of a Brunswick Panatrope, November 1927

(Source: *Kinematograph Weekly*)

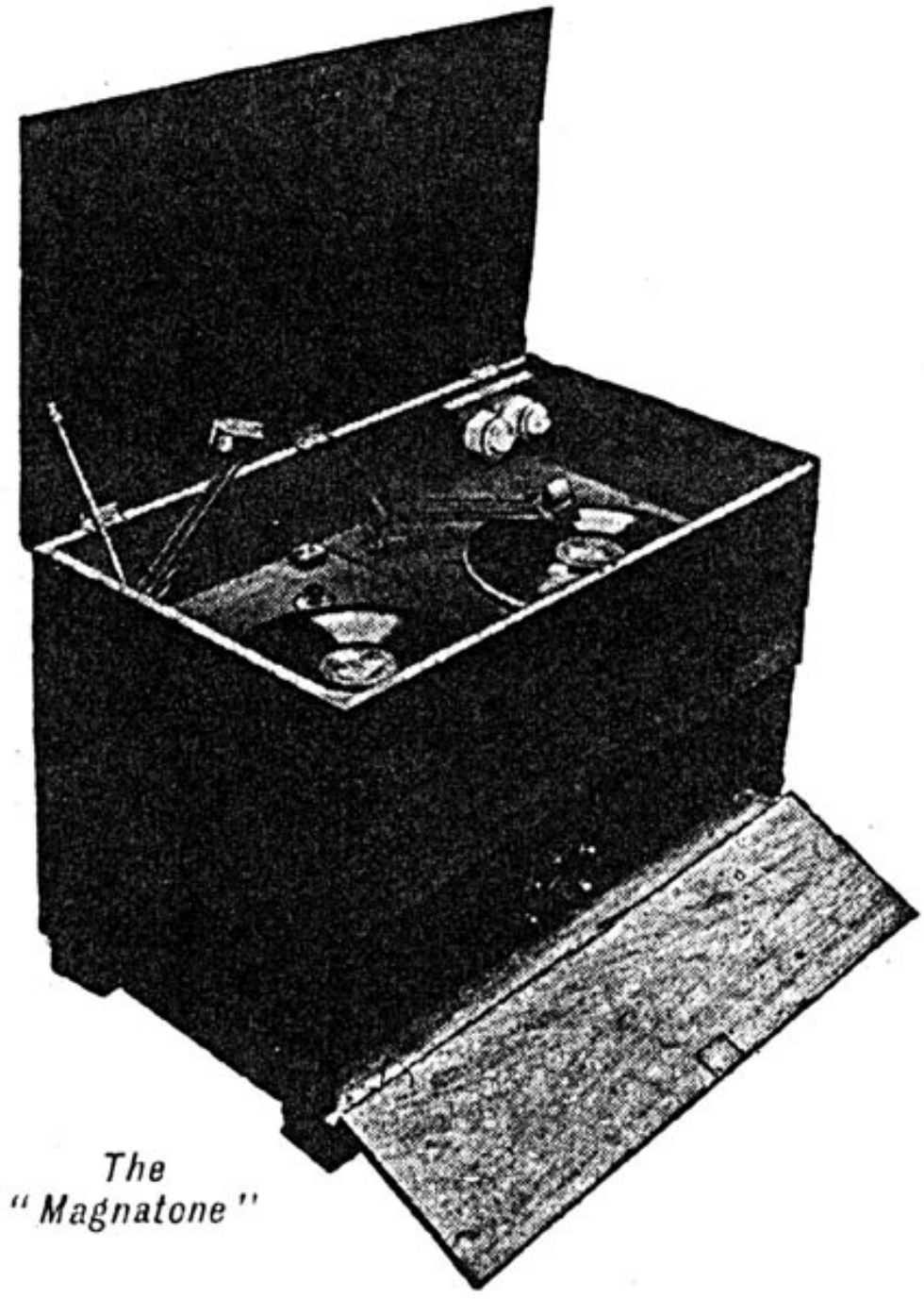
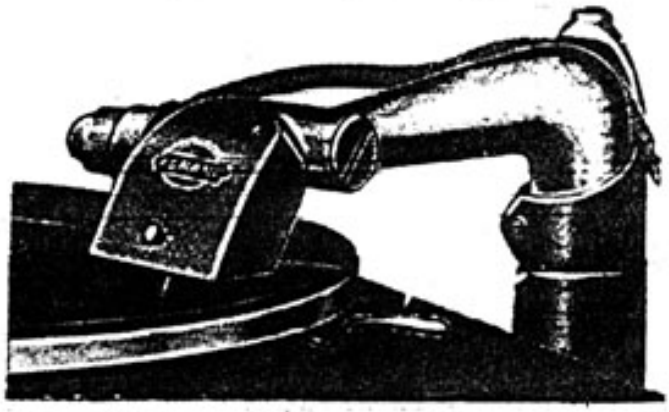


Fig. 5 The Magnatone, a low-end machine inspired by the early success of the Panatrope. Prices started at only £45.

(Source: *Kinematograph Weekly*)



The orchestra that draws no salary

Just calculate the saving you would make if your orchestra required no salary. Add to this the advantage of having an orchestra that can be heard equally well in all parts of the hall and that produces music equal to the best orchestras in the world and you would have something which would make a vital difference to the success of your business. The

IGRANIC-PACENT PHONOVOX

used in combination with a gramophone and a suitable power amplifier and loud-speaker gives you all this.

Such is the perfection of tone quality obtainable that the renderings of the world's greatest orchestras are reproduced in a manner which really conveys the illusion of hearing the original A demonstration will convince you.

The price of the PHONOVOX alone is only 37/6. May we quote for the complete equipment to suit your particular requirements? You will be under no obligation. Send for List No. J 459 to

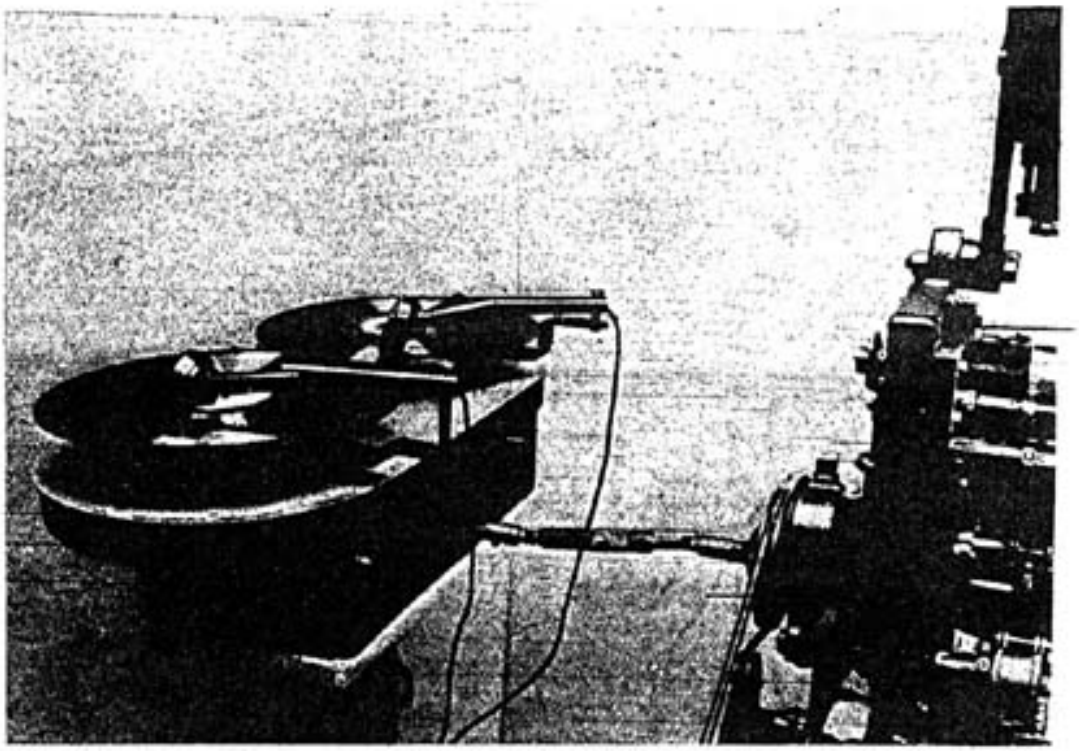
IGRANIC ELECTRIC CO., LTD.,
149, Queen Victoria Street, LONDON, E.C.4.
Works: BEDFORD.

Fig.6 Phonovox advertisement, February 1928, clearly directed squarely at the small exhibitor with a desire to cut costs.

(Source: *Kinematograph Weekly*)

Fig. 7 James I Gent - late 1920s cinema sound effects man in action

(Source: unknown, reprinted in *The Movie*, issue 1, Orbis, 1979)



The synchronising attachment of British Phototone Note the twin turntables

Fig. 8 12" disc British Phototone set-up, 1929

(Source: *Kinematograph Weekly*)

Fig. 9 Detail from advertisement for the Musikon three turntable reproducer, July 1929. Once again the monetary advantages of a switch to mechanical music are emphasised.

(Source: *Kinematograph Weekly*)

Fig. 10 Advertisement for Butcher's New Model Electrocord, September 1929, with 1928 Western Electric turntable detail (inset). Electrocord entered the market with a relatively cheap reproducer in 1928. This was their most advanced machine apparently modelled cosmetically on the Western Electric turntable arrangement.

(Sources: *Cinematograph Times*, Meloware Antique Phono Record Archive http://www.meloware.com

"Very Nearly To Talkies Without The Costs"
British Exhibitors, Reproducers And Synchronisers, 1927 - 1929

Before the publication of Douglas Gomery's 'The Coming of Sound: Technological Change in the American Film Industry' most writers were content to repeat the mistaken truism that Warner Brothers, a small studio facing bankruptcy, risked everything on the shot in the dark that was sound, and came up trumps.[1] Gomery's research showed that this was far from the truth, that Warners' expansion into exhibition and sound film production was part of a well-planned programme handled by a respected New York investment bank. Robert Murphy was to attempt a similar approach in his article 'Coming of Sound to the Cinema in Britain'.[2] Faced with the more complicated British scenario, Murphy concentrates on the investment and consolidation activities of the larger circuits, the Gaumont-British Picture Corporation, Provincial Cinematograph Theatres and Associated British Cinemas. In doing this he ignores the independently owned and run cinemas that made up at least 75% of the exhibition sector at this time. He mentions casually that over a thousand 'gramophones' had been installed in cinemas by mid-1928, but It is left to Michael Allen, in his groundbreaking article 'In The Mix', to point out that the implications of this figure are ignored.[3] Following Allen's lead, I will address both of these shortfalls in Murphy's analysis.

The short life of the electrical reproducer is a small diversion, or perhaps a pause, in one part of the overarching narrative of the history of British cinema. That it runs parallel with what has been called 'the watershed between "medieval and modern" film history' - the transition to sound and the beginnings of large scale vertical integration - helps to

[1] Douglas Gomery, 'The Coming of Sound: Technological Change in the American Film Industry', in Elisabeth Weis & John Belton (eds), *Film Sound, Theory & Practice*, (New York: Columbua University Press, 1985) pp.5-26.
[2] Robert Murphy, 'Coming of Sound to the Cinema in Britain', *The Historical Journal of Film, Radio and Television,* vol. 4, no.2, October 1984, pp 143-160.
[3] Michael Allen, ''In The Mix': How Electrical Reproducers Facilitated the Transition to Sound in British Cinemas', in K J Donnelly (ed), *Film Music: Critical Approaches*, (Edinburgh: Edinburgh University Press, 2001), p.63.

account for the lack of attention it has attracted.[4] Another factor would be, in the words of Robert Allen and Douglas Gomery, the tendency to study 'only those inventors and inventions that move the cinema onward toward its present state of technological sophistication.'[5]

A view of cinema history constructed backwards from the present has rendered the reproducer invisible. By concentrating on this subject I will hope to contribute to to a wider recognition of the role of the independent exhibitor in the late silent and early sound period, to emphasise the numerous currents, possibilities and dead ends that were still open at that time, and to unravel some of the non-linearity of these transitional years. As a new technology, the electrical reproducer was a huge success by any standard, with links to several important currents in the late 1920s film industry that deserve further scrutiny.

Objectives

It is my intention to examine the atmosphere of uncertainty and confusion of the early sound period in the UK, and the part that non-synchronous sound technology - the electrical reproducer - played in this situation, both as a contributor to and a potential solution to that uncertainty and confusion. I will discuss the factors specific to the UK industry allowed the reproducer market to grow and mutate, evolving in a relatively short time into a range of machines with the potential to compete with American synchronised sound systems. I will do this primarily through trade press sources, building on Allen's work, but filling in some of the gaps left by him, including important American influences, precedents and parallels, and looking more closely at the electrical reproducer and the independent exhibitor.

Whilst there is a risk with taking trade press sources at face value, of taking

[4] Political and Economic Planning, *The Brtish Film Industry*, (London: PEP, 1952), p.45.

'boosterism' and hype as fact, in a sense the very lack of a critical voice in the press is part of the story itself. The pointed absence of criticism of the reproducer equipment in press reports, gives a strong impression of the patriotic optimism inherent in their support for British enterprise, and a reflection of the scepticism directed at the American synchronised sound systems. Whilst it is hard to gauge the influence of these reports, and their attendant editorial comment, the voices of the beleaguered and cost-conscious exhibitor, and their organisation, the Cinematograph Exhibitors Association (CEA), give a more candid view of the mood of the industry.

I have divided my work into five main sections; a summary of the British film industry context in 1927-8; the importance of the CEA and their attitude to sound; the introduction and evolution of the Electrical Reproducer; the British Phototone synchroniser; and the position of reproducers and synchronisers in a divided exhibition sector as the case for sound films became clearer, focussing again on the independent exhibitor, followed by my conclusions.

British exhibition in the late 1920s

The structural factors that helped to hasten the diffusion of sound in the United States - the studios' control of distribution, and substantial exhibition interests - were, of course, absent from the British industry. Although some British producers had direct links with distributors and small chains of cinemas, exhibitors and producers were largely separate in 1927, with distribution dominated by the major Hollywood studios Famous-Lasky (Paramount), European (Universal) and Fox.[6]

While Warner Brothers and Fox were putting their sound film plans into action in the US, concern over the American domination of the UK industry was reaching a peak at home. In steep decline since the First World War, British production was 'well on the

[5] Robert C Allen and Douglas Gomery, *Film History Theory and Practice*, (New York: McGraw-Hill, 1985) p.111.
[6] Kinematograph Yearbook 1927, quoted in Political and Economic Planning, *The Brtish Film Industry*, (London: PEP, 1952) p.41.

way to extinction' by 1927.[7] In 1917, when *The Bioscope* observed that 'for many years London has enjoyed the distinction of being the acknowledged film centre of the world, but today its position is assailed by America', the battle had, in reality, already been lost.[8] British producers would never regain their pre-war eminence. Audiences came to prefer American films in wartime, and the habit stuck, reinforced by American business practices that restricted British distributors' access to their own country's cinemas.

British exhibitors were less likely to complain about this state of affairs than their counterparts in production and distribution, because, patriotic feelings aside, they were making good money. Audiences had been steadily increasing from 1910 to 1914, mushrooming during the First World War to over twenty million a week in 1917, almost three times the pre-war figure.[9] The Government took full advantage of this situation, with the imposition of the Amusements Tax (later the Entertainment Tax). Adding to the price of every ticket sold, the tax reduced attendance by five million within the year, yet still raised £22 million for the Exchequer. 80% of this figure was calculated to have come from the cheapest seats. *The Bioscope* reported that 700 cinemas had closed in the first year.[10] The 1921 figure was said to be no more than nine million seats per week.[11]

Rising costs for films, labour and electricity combined with the tax, to begin a process of thinning out small exhibitors with narrow profit margins, that continued through the next several. The circuits maintained profitability despite the slump in ticket sales through the financial benefits of economies of scale, and their ability to absorb short term losses in the interests of longer term dominance and profit. The downward

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[7] Politcal and Economic Planning, 1953 p41.
[8] *The Bioscope, Foreign and Export Supplement* July 12, 1917 pxiii, quoted in Politcal and Economic Planning, 1953, p.32.
[9] Nicholas Hiley, '"Let's Go To The Pictures" - The British Cinema Audience in the 1920s and 1930s', *Journal of British Popular Cinema*, no.2, 1999, p.40.
[10] Figures from *The Bioscope* quoted in Bill Bailleu & John Goodchild, *The British Film Industry*, (Chichester: John Wiley & Sons, 2002) p.20.
[11] *Journal of British Popular Cinema*, no.2, 1999, p.40

trend in sales continued until the tax on tickets under 6d was lifted in 1924, the result of intensive lobbying by the CEA. Ticket sales returned to twenty million a week the following year (almost returning to the 1917 peak, but less in real terms, relative to population growth.) The CEA welcomed the easing of the tax, but were not satisfied, continuing to campaign for complete abolition for years to come.[12]

The tax reduction helped out the exhibitor, but these benefits were not felt in production or distribution, which had been suffering their own troubles since 1914. It is often quoted that in 1926, 95% of screen time across the UK was occupied by American films, yet the 1937 Moyne Committee report suggested that even this tiny proportion was a generous estimate 'owing to the large percentage of exhibition dates secured by American films through the system of blind and block booking.'[13] The fact that only 34 of the 749 films trade shown in 1926 (5.5%) were British supports this more pessimistic view. To complete the picture, film exports were also in crisis, showing a drop of 50% between 1925 and 1926.[14]

As early as 1925, Parliament had considered measures for the protection of British film production. Lord Newton called for a Committee of Enquiry to be set up on the subject in May, whilst Stanley Baldwin, as Prime Minister, urged that 'the time has come when the position of the industry should be examined with a view to seeing whether it be not possible, as it desirable on natural (sic) grounds to see that the larger proportion of films exhibited in the country are British', in the Commons.[15] By this time the Board of Trade were already engaged on their own report on the state of the industry, published in 1927. Three main objectives were identified:

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[12] Anon, 'Entertainment Tax Developments', Cinematograph Times, 16 February 1929, p.23. The CEA calls for renewed lobbying of MPs, following the success of a group of bookmakers succeeding in securing an end to the Betting Tax.
[13] Proposals for Legislation on Cinematograph Films, paragraph 5, quoted in Politcal and Economic Planning, 1953 , p.41.
[14] Anon, 'British Films Drop 50% In Year', *Variety* ,17 November 1926, p.10.
[15] Baldwin quoted in Politcal and Economic Planning, 1953, p.43.

I. To increase the quantity and proportion of the British films screened in the United Kingdom and elsewhere;
II. to establish an industry under British control in the United Kingdom for the production of these films;
III. to encourage the production of such films as will directly or indirectly give employment to British labour at home, and increase the prestige of the British name, British institutions and British manufactured products at home and abroad.[16]

The CEA General Council attempted to convince their members to accept a voluntary quota of British films, as suggested in the report, but were defeated in a vote by the rank and file. In the words of the Political and Economic Planning group, British exhibitors were 'content to remain the passive retail outlets of the Hollywood giant', until compelled otherwise by the provisions of the Cinematograph Films Bill, enacted in December 1927.[17]

Exhibitor logic was not complex. With ticket sales already failing to keep pace with the growth in population, big and small showmen knew only that British films were less popular and more expensive than their American competition, and that more British films on their screens would mean lower profits. Thus from the exhibitor's perspective, by ignoring issues of film quality and costs, the Films Act appeared to benefit the British producer and renter at his expense. A typically grudging CEA response was that they 'desired to use British films, but were not in the business for patriotism or philanthropy, but for profit ... they would carry out the quota bill now it was law. But they must have fair play and equity, and they were not going to allow their members to be exploited.'[18]

With these issues uppermost in their minds in 1927-8, it is not surprising that exhibitors' discussions of the implications of the coming of sound have the tenor of just one more thing to upset the equilibrium and profitability of their industry.

[16] Report of the Joint Trade Committee, 1927, quoted in Politcal and Economic Planning, 1953 , p.43.
[17] Politcal and Economic Planning, 1953, p.44.
[18] Anon, 'British Film Prices, Report of Machester & District CEA', *Kinematograph Weekly*, 9 August 1928, p.33.

The CEA and Sound

The figures for the total numbers of cinemas in the 1920s, though rising relatively slowly, hide the dramatic structural changes in the exhibition industry taking place over the decade. As small halls closed, the circuits were building new ones and rebuilding others to increase capacity, market share and economic power. While still numerically dominated by the independently owned and run cinemas, with a figure of 3,000 independents out of a total of 3,773 cinemas given by the CEA in March 1929, power in the exhibition sector was shifting towards the large circuits and nascent vertically integrated combines.[19]

Formed as a trade union in 1917, the CEA grew quickly to 1,600 members by 1919, and to 2,880 by 1928 - representing between two thirds and three quarters of all British exhibitors according to which estimate of the total we use.[20] One of their main objects was to 'secure unity of action amongst proprietors of kinemas' and to strengthen the exhibitor's position in relation to organised labour - primarily the Musicians' Union (MU), who had substantial power at this time, commanding relatively high rates of pay.[21]

The late 1920s was the high water mark of MU membership, with around 11,000 of their number working in cinemas[22], amounting to as much as half of the total cinema workforce.[23] About 6,000 non-specialist staff were part of the National Association of Theatre Employees, with 1,000 projectionists belonging to the Electrical Trades Union. Cinema staff worked long hours without overtime, but the Musicians' Union worked to nationally negotiated hourly rates.[24]

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[19] Anon, 'CEA AGM Report', *Kinematograph Weekly*, 28 March 1929, p.32.
[20] Numbers quoted without references in Rachael Low**,** *The History of the British Film volume 4: 1918-1929*, (London: George Allen & Unwin, 1971), p.41.
[21] *Kinematograph Yearbook 1927,* London, 1926, p.126.
[22] Keith Ames, 'History of the British Musicians' Union', http://www.musiciansunion.org.uk/media/MU_History_document.pdf
[23]David R Williams, *Cinema In Leicester 1896 - 1931*, (Loughborough: Heart of Albion Press, 2001), p.197
[24] Figures from Rachael Low, *Film Making in 1930s Britain*, (London: George Allen and Unwin, 1985), pp.17-19, quoted in Williams, 2001, p.197.

Published CEA branch meeting reports give the impression of a deferential, meritocratic and conservative organisation. Members respect the experience of their peers and local chairmen. An atmosphere of "all in it together" solidarity pervades the coverage, but reports tell us that dissenters were not shy about making their feelings known; they were in competition with each other, after all. Branches looked to the national organisation for guidance, but valued their autonomy, hence their vote to reject the voluntary quota system initially suggested by the board of trade in 1927 against the advice of their General Council.

One early resolution on the sound issue, passed by the Hull branch, set the tone for many to follow: '… a recommendation to the members of this branch not to commit themselves to any scheme for talking pictures without formal consultation at a meeting of this branch', in other words sound equipment would only be installed with full CEA knowledge and agreement. Sound films were denounced as 'a stunt that at present did not invite serious attention', and that any claims to credibility were the supported only by 'lay press booming and financial interests'.[25]

Rachael Low cites a divergence of interests between the circuits and independents in the CEA during the late 1920s, and suspicion of the London leadership inspiring the formation of breakaway groups.[26] Although the regions and the leadership did not always agree, their overall position on sound, discussed at regional and local level at various branch meetings throughout 1928-9, had broad support. The leadership reiterated the essentially anti-competitive position along the lines of the Hull resolution in a report circulated to members in October 1928.[27] The message was basic and unequivocal, and membership of the CEA implied an obligation to abide by the

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An attempt by Manchester projectionsists, some of whom were working 60 to 75 hours a week, to negotiate a 48 hour week with paid overtime was refused by the CEA.

[25] Anon, 'CEA Proceedings: Hull Downs Talkies', *Kinematograph Weekly*, 9 August 1928, p.33.

[26] Low, 1971, p.45. The 'Manchester breakway in 1922 and the proposed Sussex Small Exhibitors' Protection Society of 1927' are named specifcally by Low. Another group, the Glasgow Kinema Managers Association is mentioned in the *Kinematograph Weekly*, 7June 1928, p.37.

guidelines, for the good of 'brother exhibitors'.

Industry insiders, such as Julius Hagen of Strand Films, criticised the reasoning of the Hull CEA, appealing their individuality and showman's instincts, but most members were happy to toe the party line, and subsequent CEA proceedings reports followed the Hull model, and their national leadership.[28] Since most CEA members were owner-managers of single halls, at the local level, without the economies of scale enjoyed by even the smallest of circuits, they had only the relatively fragile voluntary agreements of their fellow members to protect themselves from price cutting wars and costly competition, a factor which tended to breed consensus, given the rising costs and falling receipts of the period.

With their best years apparently behind them, the exhibitors' sceptical attitude was understandable, in the light of their experience of other technical developments in film production that had been slow and sporadic, and tended to be accompanied by unsubstantiated hype. The consistent failures of colour and stereoscopic film were linked with sound in the minds of observers in the early period, as a group of innovations with medium-to-long-term potential rather than immediate commercial value, at best. As sound came closer to a reality in Britain, one exhibitor was still pushing solutions to the 'problem of stereoscopic and natural colour projection' as 'far greater importance to the exhibitor than the rather foolish idea of trying to make it appear that photographs are talking.'[29]

Exhibitors' early responses to the sound varied from curiosity to suspicion and outright hostility, as another promise to be broken, another expensive fad that would not

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[27] Anon, 'CEA General Council Proceedings', *Kinematograph Weekly*, 18 October 1928, p,43.
[28] Julius Hagen, *Kinematograph Weekly*, 27 September 1928, p.24, Anon, 'CEA Proceedings' - Notts, Bristol and Northern regions, *Kinematograph Weekly*, 27 September 1928, pp.40-41 - exbhibitors doubt public interest, consider equipment too expensive, and have seen it all before. Anon, 'Northwest and Talkies', *Kinematograph Weekly*, 13 September 1928, p.31, 'Looking too far ahead' is the main danger.
[29] Harry A Watson, 'When Films Talk - a few questions for Mr Lasky', *Kinematograph Weekly*, 23 August 1928 p.45.

live up to its hype, or as the revival of an old idea that had already failed decisively at the box office. In January 1928 when sound in Britain was still viewed in these terms, the trade journalist Shirley Simpson confidently claimed that 'among the things we can forecast with some certitude is the perfection of the "sound" picture *within ten years'* (my italics), concluding with the telling phrase: 'Before we add spice to a well-tried diet, let us be quite sure that it will whet the appetite of the goose that lays the golden egg.[30]

Implicitly commenting on a year of procrastination, a *Bioscope* editorial of January 1929 attempted to inspire positive action amongst exhibitors by reminding them that the cinema trade 'has always been a novelty business' and that 'at each stage of our development we have deliberately fostered novelty, and as a lure for the public, it has never failed us.' The anonymous writer attributes the lack of enthusiasm for sound to the ignorance of 'the younger generation of exhibitors, whose knowledge of trade history is weak'. Rather than asking "is this novelty just a temporary fad?" the mere fact of it being a novelty should be enough to motivate the showman, he enthuses, claiming that the 'more advanced exhibitor searching for still further novelties and breaking all box-office records in the process.'[31]

The younger, less adventurous exhibitor is patronised openly, yet there was no shortage of accounts by older showmen recalling the failure of the synchronised sound systems developed in the years before the First World War. One such recollection was by Dixon Scott, of the Northern branch of the CEA. He recalled showing a talking picture in 1910: *Hush Hush Hush! Here Comes The Bogey Man*. It was 'aptly named' he said, and advised his fellow exhibitors 'to regard all sound pictures as bogeys until such time as their worth was proved beyond dispute.[32] H F Kessler-Howes of the *Kine Weekly*

[30] Shirley R Simpson, 'Sound Films - Are They Wanted?', *Kinematograph Weekly* 12 Jan 1928, p.79.
[31] Anon, 'Novelty', *Bioscope Service Supplement*, 16 Jan 1929, p.i
[32] Anon, 'CEA Proceedings, Sound Films - a Bogey?' *Kinematograph Weekly,* 27 September 1928 p.41.

offered better-informed criticism, based on the problems of interchangeability and cost, the two major concerns of the exhibitor:

> I was one of the first to handle the original synchronising outfits, and one of the principal troubles was to find adequate product. At that time the various devices worked on different principles, and if you were saddled with, say the A outfit, and the D outfit brought out a winner, you would find you could not use it on your A apparatus. From all accounts this defect applies to the new outfits about to be offered to the British Trade, but whereas in the olden days, the installation was reasonable in cost and easy to install the new outfits are very costly.[33]

These viewpoints echo Allen and Gomery's summary of the economics of technological change: 'The decision to innovate is made only after the expected profits from the invention have been compared to those from alternative inventions and from continuing to employ existing products and processes.'[34] Whilst there would continue to be a ready supply of silent product for at least two more years, most exhibitors had no immediate incentive in investing in sound film equipment. Faced with a choice between 'the competitive leverage of being first on the market with the new process' and waiting to 'gather more information about the technological potential and public acceptance of the innovation', it was only the circuits and prestige 'supers' in Britain's city centres took the first option in the short term.[35]

As Michael Allen has noted, the CEA 'effectively closed ranks' to guard its members interests in relation to sound films, against those of the American industry, waiting for the solution to the interchangealitity problem and the appearance of a standardised product at a price that the leadership hoped to negotiate collectively.[36] Their "wait and see" approach could be justified in these terms as an official policy of the CEA, to benefit the maximum numbers of members equally, but the high costs alone would be enough to deter the great majority of individual exhibitors from making hasty choices and long term financial commitments. Simon Rowson, a Director the Gaumont-British

[33] H F Kessler-Howes, 'Kess Says', *Kinematograph Weekly,* 14 June 1928 p.59.
[34] Allen and Gomery, 1985, p.114.
[35] Allen and Gomery, 1985, p.115

circuit spoke plainly in June 1928: '... for a long time to come the cost of the essential apparatus will be prohibitive to all but a small proportion of exhibitors - and even those who can afford the cost will hesitate before spending money speculatively.'[37]

Indeed, the CEA's policy may have been addressed more to the successful circuits and chains, as a plea for them to hold back, and allow their brother independents a chance to benefit from the projected negotiated settlement, on an equal footing. As individual businessmen, exhibitors could not see sound films as commercially viable. The perceived lack of demand for sound films in the home audience led to the conclusion that 'the potential profits relative to those earned by the next best investment possibility' were low.[38] Even as "wiring for sound" came to be seen in more favourable terms as the evidence for profitability accumulated, and the persistent concern over the 'interchangeability' of one company's films with another company's equipment started to fade in November 1928 (when Movietone films were shown on Western Electric equipment for the first time), long delivery delays combined with high costs as major obstacles to the diffusion of the American systems in the UK. Exhibitors' concerns over these practicalities were mixed with a general resentment and suspicion of the American industry; in particular the belief that sound was being forced on them by the Hollywood and the lingering fear of the potentially monopolistic power of Western Electric. [39]

The Electrical Reproducer

Curiosity and interest in "talkies" grew, but hard facts about waiting times and costs reinforced exhibitors' reservations. Sound divided the exhibition industry in two

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[36] Michael Allen, unpaginated manuscript version of 'In The Mix'. Comments on the CEA resistance to sound were edited from the published version.
[37] Simon Rowson, 'The Sound Film', *Kinematograph Weekly*, 14 June 1928, p.29.
[38] Allen and Gomery, 1985, p.126

important but different ways; there were exhibitors for and against it, in principle, and there were exhibitors who could or could not afford the luxury of a choice, especially smaller local halls operating on low profit margins. Those reaching the conclusion that they could not or would not invest in a full American sound systems sought other ways to gain an edge of their competition.

A contender for the 'next best investment possibility' that allowed the former group to exploit the novelty value of recorded sound, whilst supporting British industry, was the electrical reproducer. Allen describes the new device as 'an electric pick-up, turntable, amplifier, loudspeakers and optional wireless, all housed in a wooden cabinet'[40], allowing the *Kine Weekly* to fill in the detail, delivered hesitantly in the style of a school teacher introducing a great scientific principle:

> ... a gramophone, instead of being played through an ordinary [acoustic] sound box, goes through a special attachment known as an electro-magnetic pick-up, and is then passed through wireless valves until it is amplified many times and comes out of loud speakers at a volume much greater than any gramophone can give.[41]

The prevalent climate of pessimism, procrastination and penny-pinching, in which most exhibitors found themselves, gave the new marvel an attraction above any perceived association with sound films: cost cutting. A weekly programme of silent films in 1928 averaged between £35 and £40 full programme, although this was estimated to be only about 25% of a cinema's weekly expenses.[42] The cost of live musicians made up a substantial proportion of the rest. Backed by a strong union, musicians earned between £5 and £10 a week each,[43] well above the national average, even at the

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[39] A L Carter, 'Observation Window', *Kinematograph Weekly*, 16 August 1928, p.85, Anon, 'U.S. Stranglehold - Sussex and the Talkie Danger - Independent Exhibitors Position', *Kinematograph Weekly*, 9 May 1929, p.37

[40] Allen in Donnelly, 2001, p.66.

[41] Anon, *Kinematograph Weekly*, 15 September, 1927, p.86, quoted in Donnelly, 2001, p.66

[42] Anon, 'Small Exhibitors and Talkies', *Cinematograph Times*, 17 August 1929, p.7,
Anon, 'Where Are We Headed - an independent's query *Kinematograph Weekly,* 30 May 1929, p.76

[43] A L Carter, 'Observation Window'.column, *Kinematograph Weekly*, 12 January 1928, p.75.
Wages quoted were apparently paid to cinema musicians in Manchester

bottom of the range.[44]

Add to this Kessler-Howes' observation that 'for years now a kinema manager has generally had the mortification of handing out weekly to his musical director a pay envelope far in excess of his own', it is clear that for a cinema with a small orchestra of four or five, the weekly cost of live music could be as much as half of a cinema's weekly overhead, or at least as much as the week's films.[45] The pseudonymous LON's unsympathetic summary on the situation in St Louis would have struck a chord with many on this side of the Atlantic: 'The Musicians' Union placed wages on a high scale, ran up the costs of exhibition and are now finding themselves forced out'.[46] This highly partisan statement could equally well represent the British exhibitors' attitude to the musicians displaced by the first wave of "mechanical music" installations.

A remarkably frank appraisal of the average exhibitor's opinion of his musicians appeared in a *Kine Weekly* supplement just as the reproducer boom was beginning:

> Kinema music and the kinema orchestra has always been a sore point with many exhibitors. The majority of them know little of music and care less. Orchestras have been regarded by them as a more or less necessary evil, to be cut down on the slightest provocation. And this, in spite of the fact that the few exhibitors who have made a feature of music have found that it does pay.[47]

The CEA's combative attitude to the MU can be inferred by the lapsing and non-renewal of the agreement between the two organisations in July 1926, shortly after the first stirrings of the Vitaphone, and the unanimously passed Nottinghamshire branch resolution that musicians' hourly rates should be reviewed in the event of any sound

[44] Agatha Chapman, *Wages and Salaries in the UK, 1920 - 1938*, (Cambridge: Cambridge University Press, 1953) p.27; average annual wages (not including company directors' fees whuich would tend to skew the figures) did not vary much between 1927 and 1929, staying at about £150, less than £3 a week.
[45] H F Kessler-Howes, 'Kess Says', *Kinematograph Weekly,* 16 may 1929, p.77.
[46] LON, 'America Today', *Kinematograph Weekly,* 7June 1928, p.36.
[47] Gilbert R Stevens, 'The Price of Progress', Supplement to *Kinematograph Weekly,* 10 November 1927, p.57.

equipment installation.[48]

Electrical recording had been in development during most of the first half of the 1920s, and was perfected in 1925. In modern terms its partner, the electrical reproducer, is a record player - an object once so commonplace in British homes as to be completely taken for granted. The importance of the difference in quality and (adjustable) volume between a new electro-magnetic pickup and valve-powered amplifier in 1925, and the plain needle, sound box and horn of an older acoustic gramophone should not be under-estimated.

Although the new electrical recordings, that started to be released later that year, sounded better played on acoustic gramophones than older acoustic recordings, the market for gramophones had been flooded by cheap machines in the early 1920s following the lapsing of the patents owned by Victor and Columbia in the USA in 1921, so there was not a ready market for a much more expensive electrical reproducer to do justice to the fruits of the new recording techniques.

The market was also suffering badly from competition with the radio. Sales of "talking machines" in the US in 1925 were only 43% of their 1923 levels, while sales of records which had been continually growing up to this point, were down 16% over the same period.[49] It could hardly be said that there was a convincing social need for a new class of gramophone in this setting, yet both the Victor Talking Machine Company and their closest competitor Brunswick-Balke-Collender were desperate to revive the markets for both records and record players with new machines.[50]

Victor chose a two pronged strategy, giving precedence to the 'logarithmetic' acoustical reproduction system (or re-entrant horn), launched in a blaze of publicity in

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[48] Anon, ' CEA Proceedings - Musicians' Wages - Notts and Derby On Sound Films', *Kinematograph Weekly,* 27 September 1928 p.40, Anon, 'Scottish CEA report', *Kinematograph Weekly,* 26 January 1928, p.51

[49] Anon, 'Music Canning Hurt By Radio', *Variety*, 17 November 1926, p.45.

[50] A similar situation arose in the 1980s with the introduction of the Compact Disc. Music buyers were initially sceptical, but technical arguments for the superior sound quality won out.

the US as the Orthophonic Victrola in November 1925. Licensing some of the Bell Labs amplification research from Western Electric, the Victor company were also working on an electrical reproducer, the Electrola, throughout 1925. Although Brunswick got the glory for launching their unit, the Panatrope, first, the Victor company's historian, Benjamin Aldridge, doggedly maintains that although the Brunswick machine had been announced and advertised and demonstrated first, the Electrola was first into full production and into the department stores of America. In any case, the competing electronic reproducers were roughly concurrent and in direct competition, with the Victor machines perhaps somewhat cheaper.[51]

The smallest of the initial range of single turntable Panatrope machines cost $700 in the US in November 1925.[52] Although expensive, a January 1926 *Talking Machine World* piece reports that 'dealers sold all they could get' of the 'new Victors and Brunswick Panatropes' over Christmas 1925.[53] (fig. 1) The Panatrope first appeared in Britain in the autumn of 1926, almost a year later, the *Times* proclaiming that the performance of the 'new electrical instrument' was "so faithful ... that the illusion that the band or the singer whose music is heard is actually present and performing is complete.'[54] A 1927 advertisement in the *London Magazine* the following year gives a price of 65 guineas (about £68) for the single turntable 'Junior' model, almost half the average annual wage at this time.[55]

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[51] Benjamin L Aldridge, *The Victor Talking Machine Company*, (Camden NJ: RCA Sales Corporation, 1964) pp.91-93.
The cheapest Victor machines were only $195, but it is not clear when these were introduced. Aldridge mentions only the range of machines produced in the first "few years", without further detail.
[52] The Brunswick Panatrope P-11, http://www.mulhollandpress.com/Brunsp11.htm.
[53] Anon, 'Trade Activities in St Louis Territory', *Talking Machine World*, 15 Jan 1926, p.161.
Library of Congress website: 'Prosperity and Thrift: The Coolidge Era and the Consumer Economy, 1921-1929. The Talking Machine World: selected issue and articles from 1926.'
http://memory.loc.gov/gc/amrlgs/tm1/tm1.html
[54] Anon, 'The Panatrope - New Electrical Instrument for Reproducing Music.' *The Times*, 5 October 1926, p.10.
[55] Advertisement, 'Brunswick Panatrope Junior - Makes Your Records Leap into Life - 65 Guineas', *London Magazine*, 14 December 1927, p.17.
From http://www.goantiques.com/detail,british-brunswick-record.170797.html
Wages data from Chapman, 1953 , p.27.

The twin turntable Panatrope appeared around spring or early summer 1927 in Britain.[56] Although the new variant does not seem to have been taken up by British Brunswick's American parent company, it has a clear American precedent in a similar two turntable machine from November 1926, the Remaphone, missed by Michael Allen in his earlier reproducer research. Mentioned briefly by Earl Sponable of Fox at the end of a presentation to the October 1946 Society of Motion Picture Engineers Convention, published later in their journal. According to Sponable the device employed the two Victor Electrola turntables, 'connected by a shaft to the two projection machines in the booth'[57].

Interestingly Western Electric produced two dual turntable Non-Synchronous Sets a little later, in 1928; the 7-A and the more advanced 9-A, model that could play 33rpm film discs as well as standard 78s (Fig. 2). These were apparently installed alongside many Vitaphone installations, 'to allow for the accompaniment of silent films and also provide intermission and opening act music'. Victor may have been hampered in the production of their own version by the terms of their cross-licensing agreement with Western Electric, but did make a small number of dual turntable sets for demonstration purposes. Smith-Carlson also produced turntable sets in the late 1920s, and into the early 1930s.[58]

If it was ever launched commercially at all, the Remaphone probably died a quick death in the American marketplace in the face of such competition, or perhaps as a result of patent problems with WE, and was unlikely to have been seen in Britain.

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[56] Anon, 'The New Picture Fitting', *Kinematograph Weekly*, 20 October 1927, p.66, H F Hutchison, 'Electrical Reproduction', *Kinematograph Weekly*, 26 April 1928, pp31-33.
In the Kine Weekly's first 'Mechanised music' column in October 1927, the date of the introduction of the Panatrope is indicated as 'five or six months ago.', whilst H F Hutchison, writing in April 1928, dates their introduction as 'just over a year ago'.

[57] Earl I Sponable, 'Historical Development of Sound Films', *Journal Of The Society Of Motion Picture Engineers,* Vol 48, April 1947, No. 4, online at http://www.members.optushome.com.au/picturepalace/FilmHistory.html

[58] Info from a series of posts in August 2005 on the Old Time Victrola Music Message Board/Phonographs!/Antique Phonograph Message Board - http://sonorman.proboards23.com/index.cgi?board=general&action=display&thread=11253056928&page=2

Sponable's description seems to allude to some kind of geared synchroniser of the type later employed by Phototone and others in Britain, but this could have equally described the Vitaphone turntable drive (see Fig. 10 showing detail of WE projector manual, compared to the Electrocord synchroniser).

In November 1927 the Gramophone Company launched their own HMV brand reproducer to compete with the Panatrope in Britain. The *Kine Weekly* accounts for the prestigious company's late entry into the market by stressing that the new machine had been 'the subject of long and exhaustive experimentation at the Hayes works', yet the new machine was surely based on the Electrola, since Victor had owned the British firm since 1920. Two models of the HMV machine were produced, the larger one intended for 'public halls etc', but no dual turntable models appeared.[59]

Market penetration of the new electrical machines into the domestic sphere appears to have been very slow. The 1929 catalogue for the department store Harrods features a page headed 'The New "His Master's Voice" Gramophone', but only acoustic machines are included, the biggest being the HMV version of the Victor Credenza, the top of the range American Orthophonic model of 1926.[60] No electric models are featured at all in the catalogue, although an 'electric' gramophone pickup to be connected to a wireless set, of the type introduced in America in the early 1920s, is included with the radio accessories.[61]

Aside from any American influence, British Brunswick were also motivated in developing the double deck Panatrope by the loyalty of the British consumer to their traditional spring motor acoustic gramophones. This can be partly attributed to intangibles such as a lower propensity of the British public to engage with new

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[59] Anon, 'Electrical Producer - Gramophone Company's New Machine', *Kinematograph Weekly*, 24 November 1927, p.44.
[60] Harrods, *A selection from Harrods General Catalogue 1929*, (Newton Abbot: David & Charles, 1985), unpaginated - Gramophone Department.
[61] Early Electric Playback - http://www.mainspringpress.com/electric.html
Harrods, 1985, unpaginated - Wireless Department

technology, or the 'snob appeal of pure acoustic reproduction', but the crucial factor seems more likely to be cost. At £68, Brunswick's cheapest domestic Panatrope was four times the cost of HMV's top selling acoustic tabletop models. US living standards were high compared to Britain in the 1920s, due to a booming stock market (before the 1929 crash) - 100,000 Victor Credenzas were sold, compared to only around 500 of the comparable HMV model sold in the UK.[62] British Brunswick clearly needed a second market where the features of the Panatrope - its controllable volume and improved sound quality - were more crucial than in the home.

Gramophone use in cinemas was not without precedent at this time. A brief November 1926 *Variety* story records that improved Victrola phonographs had been installed in some smaller American towns where Vitaphone musical shorts were not yet available; that exhibitors had 'hit upon the canned stuff as substitutes for talking pictures' to 'meet a demand by the natives for the talking pictures they had heard so much about.'[63] It is hard to imagine this kind of presentation making much of an impression on audiences, given the limitations of the acoustic machines, but one should not ignore Rick Altman's point about the specificity of the relative expectations of sound quality in each era of cinema history.[64]

A British exhibitor, S G Outwin of Westerham, Kent, claimed in December 1927 to have been using records to accompany films as early as 1922. He further claimed to have been 'fitting' them to films rather than simply accompanying them, using a pair of modified HMV acoustic gramophones and the new electrically recorded discs, from their

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[62] Info from August 2005 posts - Old Time Victrola Music Message Board/Phonographs!/Antique Phonograph Message Board - http://sonorman.proboards23.com/index.cgi?board=general&action=display&thread=11253056928

[63] Anon, 'Victrola Substitutes', *Variety* , 26 November 1926, p.9, quoted in Donnelly, 2001, p.9. Although the headline refers to the Victor Talking Machine company's Victola, this had come to be something of a generic term for the phonograph in America by this time. It is just possible, given the date, that this story is referring to the Remaphone, but with no mention of the dual turntable innovation, this seems unlikely. The machines, if they were 'improved' could have been Electrolas, but were more likely their Orthophonic Victrola.

[64] Rick Altman, 'The Sound of Sound - A Brief History of the Reproduction of Sound in Movie Theatres', Cineaste, vol. 21, January 1985, p.68.

introduction in late 1925. Acknowledging that his set-up was only practical in a small hall, Mr Outwin nevertheless claimed that the quality of his reproduction and fitting had enabled him to sack his musicians and poach punters from a larger hall nearby with an 'ordinary orchestra'.[65]

Allen gives cautious credence to Outwin's claims, honouring him with provisional 'visionary' status, for being a year ahead of the *Variety* report and the Remaphone.[66] All three examples pre-date the electrical reproducer's British debut, yet elements of the later 'advanced' uses of the Panatrope in the cinemas of Yorkshire in 1927 are present to varying degrees. This supports a view that like sound cinema and cinema itself, the mechanical accompaniment and fitting of films was not a single linear development, but a gradual building up of ideas and currents, approached from different directions. An anecdotal account of a local youth, Dougie Shearer, being employed at the Phoenix cinema on Orkney to play records to accompany films (for seven shillings a week) in the 1920s, before upgrading to the Panatrope, suggests that this was not such an unusual arrangement, with or without any perceived connection with the talkies.[67] Improvements in amplification and the perfection of the electromagnetic pickup as a commercial proposition as an outgrowth of the record business allowed the idea to reach a 'critical mass', soon moving from the margins towards the mainstream of exhibition. Priced at £200, the new machines sold surprisingly well.[68] (Fig.3) Barely six months after it's introduction, as Allen has noted, sales of the Panatrope were strong enough to generate demand for a range of specialist supporting companies offering new services to the cinema manager, to source recordings and provide cue sheets for less skilled

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[65] A L Carter, 'Observation Window' column, *Kinematograph Weekly*, 29 December 1927, p.35.
[66] Donnelly, 2001, p.67.
[67] Kenny Thomson, 'The Cinema In Orkney - The Phoenix Cinema', http://www.chem.gla.ac.uk/~gbarr/cinemas/scotland/kirkwall/
'... as time passed, he was promoted to the post of 'Musical Director', which involved playing the old wind up gramophone at each show, at what he described as a good weekly wage of seven shillings.'
[68] Panatrope advertisement, *Kinematograph Weekly*, 10 November 1927, p,22.

reproducer operators to work from, as well as establishing a new in-demand profession - Panatrope operator - and the first of a succession of cheaper copy machines.[69]

A full page article in the *Kine Weekly* ran down the short history of the 'mature' stage of Panatrope fitting at the Theatre De Luxe, Leeds, in October 1927, establishing the template for others to follow.[70] The Panatrope operator, a trained musician able to understand the interplay of different styles of music and tempo with volume and atmosphere, and able to provide solo piano accompaniment in the event of breakdown, employed around 25-30 discs per film, with a cue sheet and record sections marked with chalk and arranged in order of use.[71] (Fig.4) The result, a setting comparable in complexity with one "big picture" Musical Director's description of the use of extracts from 'as many as 50 or 60 pieces ... in the course of the screening of an average feature film' with live musicians.[63] The accumulation of a library of 250 records is also noted. Issues of the relative running costs of the Panatrope and an orchestra are conspicuous by their absence, as are any allusions to sound films.

Emphasis is given to the sound quality, but this is not exaggerated. The results are said to be 'much better than the average small theatre orchestra, but of course not so good as a really fine band of musicians', yet the fact that the Theatre De Luxe had dismissed its orchestra three months earlier, and that twenty five more cinemas in Yorkshire followed their example is a significant point.[72] Live music was held in high regard, as one of the 'sands upon which the photoplay is resting'[73] but initially the replacement of lower class musicians was presented as a benefit to musicians as a whole:

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[69] Anon, 'The New Picture Fitting', *Kinematograph Weekly*, 20 October 1927, p.66, quoted in Donnelly, 2001, p.73.
[70] *Kinematograph Weekly*, 20 October 1927, p.66.
[71] Stanley C H Mills, 'Manchester M.D.'s Lecture', *Kinematograph Weekly*, 16 August 1928 p.75.
[72] *Kinematograph Weekly*, 20 October 1927, p.66.
[73] Shirley R Simpson, 'Sound Films - Are They Wanted?', *Kinematograph Weekly* 12 Jan 1928, p.79.

> Mechanised music undoubtedly serves a most useful service, but it will never be found to be preferable to an orchestra of ordinarily high calibre. The only musician whose livelihood is endangered by these mechanisms is the mediocre player, whose elimination can only benefit the profession and the industry.[74]

The position that the quality live orchestra would always be superior to and preferable to its mechanical counterpart, synchronous or non-synchronous, crops up regularly in the trades over the next two years. Indeed it is an argument with a pedigree stretching back to the 1900s. The American bandleader and composer John Philip Sousa spoke out repeatedly against the menace of 'mechanical music', although he had himself recorded successfully for the pioneering Berliner company. He argued that the phonograph and the pianola alike reduced music to a 'mathematical system of megaphones, wheels, cogs, disk, cylinders and all manner of revolving things, which are as like as real art as the marble statue of Eve is like her beautiful living, breathing daughters.'[75]

The main counter argument employed by record and pianola advertisers alike, that mechanical reproduction allowed the audience access to the greatest music, and the finest players and performers in the world, proved as effective in the 1920s as it had been twenty years before, with the competitive angle picked up in an early Panatrope advertisement that also came to be much repeated: 'Makes it possible for the smallest kinema to stage a film with effects that hitherto have only been possible in the West End.'[76]

The truism that good mechanical music was better than poorly executed live music, an implicit criticism of all but the best musicians, went unquestioned. It recalled images of an earlier era in film accompaniment, at the local fleapit:

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[74] Attributed to Dr Markham Lee, at the annual meeting of the Incorporated Society of Musicians, quoted by A L Carter, 'Observation Window', *Kinematograph Weekly,* 12 January 1928, p.75.
[75] John Philip Sousa, 'The Menace of Mechanical Music', *Appletons Magazine* no. 8, 1906, quoted in Lisa Gitelman, 'How Users Define New Media: A History of the Amusement Phonograph', MIT Communications Forum, online at http://web.mit.edu/comm-forum/papers/gitelman.hmtl.
[76] Panatrope advertisement, 'Bring the Stars to Your Hall', *Bioscope Service Supplement*, 26 Jan 1928, , p.viii.

> The music was supplied by a pianist only, who was generally recruited from the dance halls or the public houses. The "effects" were supplied by a boy behind the screen, who rattled pots and pans and shook tins of broken glass and the like.'[77]

For small exhibitors, for whom this scenario was not such a distant memory, the electrical reproducer could offer a superior musical experience for the audience, but their attraction probably lay more in the long term saving in musicians' fees than in any desire to entertain and musically educate audiences. A low-end exhibitor equipped with a reproducer could run longer programmes, more frequently, and on Sundays where permitted, without a significant increase in overheads. Yet the Brunswick machines were probably out of the price range of this end of the trade. Cheaper reproducers such as Magnatone, based in Glasgow, with prices starting at £45 were on the market by November 1927, catering specifically to the smaller cost conscious exhibitor.[78](Fig.5) Phonovox advertised their electromagnetic pickup brazenly as 'the orchestra that draws no salary' in February 1928, with the question of musical quality a distinctly secondary point (Fig. 6). They were also able to announce the cost of their equipment as only 37s/6d, without mentioning the prices of the turntables, amplifier and speakers that would be required for the pickup to work.[79]

Although electrical reproducers had been installed in as many as 700 cinemas by the end of 1927, 'very few' of these were said to be taking full advantage of their potential, described as 'practically limitless'. Almost from the start the reproducer came to be defined as a cheap second best to live music, associated with suburban and provincial exhibitors. Innovative showmen in Yorkshire and elsewhere understood that the Panatrope, or its cheaper alternatives, could be used creatively, but in the first flurry of reproducer sales in 1927, most exhibitors were 'content to use them only for reproducing gramophone records during the interval or for accompanying short pictures', without any attempt at fitting, and without flair.

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[77] Stanley C H Mills, 'Manchester M.D.'s Lecture', *Kinematograph Weekly*, 16 August 1928 p.75.
[78] Magnatone advertisement, *Kinematograph Weekly*, 10 November 1927, p.84.

An unnamed *Kine Weekly* reproducer enthusiast suggested some more imaginative applications - the use of appropriate records in prologue presentations and interlude novelties, accompanied by coloured light shows and themed stage settings, and to supply effects during it. Crowd noises employed at trade shows of Alfred Hitchcock's boxing drama, *The Ring*, eliminated the need for a hired-in murmuring crowd. Where, previously, a group of male singers might have been hired accompany screenings of De Mille's *Volga Boatman*, a record could be used, although the performance element could be retained by using members of ordinary staff (at no extra cost of course) dressed as Russian boatmen, miming to the song while pulling a rope across the screen, 'all for 4s 6d' - the price of the disc. The article also suggests careful hiding of equipment and speakers, to maintain their mystery and stimulate audience curiosity and maximise novelty.[80]

The reproducer found a home in some larger, more prestigious, houses in its role as an effects machine to supplement rather than replace the orchestra. A Panatrope was installed at the Marble Arch Pavilion to provide the 'storm, bells, jazz band, fairground and organ effects' for F W Murnau's Fox film *Sunrise* in February, and kept on afterwards.[81] This, the 'first real demonstration of the Panatrope as an effects machine' was approached with apparent scepticism by *The Bioscope*, beginning their piece with a list of the extravagant claims of the Panatrope in a cautious tone, only to be completely won over by the audible results:

> The storm is most realsitic, the howling of the wind and the lashing of the waves are almost terrifying in their realism ... to reproduce the fairground noises by any means other than the Panatrope would mean an army of men with squeakers, bells, hooters, trumpets and barrel organs.[82]

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[79] Phonovox advertisement, *Bioscope Service Supplement,* 2 February 1928, p.viii.
[80] Anon, 'Electric Reproducers - Novel Uses and Some Suggestions', *Kinematograph Weekly*, 8 December 1927, p.79.
[81] Panatrope advertisement, *Kinematograph Weekly*, 2 February 1928, p.66.
[82] Anon, 'Something Attempted, Something Done - Recent Technical Developments', *Bioscope Service Supplement,* 2 February 1928, p.xvi.

The model for this kind of specialised sound effect fitting using the Panatrope had been established some months before in America, at the Criterion Theatre in New York, for their presentation of *Wings*. Best remembered as Paramount's first synchronised sound-on-film feature, the studio also put considerable time and effort into the Panatrope version, and evidently viewed this as a viable system at the time, particularly significant in that, they had come close to adopting the Vitaphone system in November 1926. They had commissioned a soundtrack for *Old Ironsides*, but deciding against using it, apparently on the gounds that the film was 'big enough of itself to stand without Vitaphone'.[83] Donald Crafton mentions that Paramount's head of special effects, Roy Pomeroy, had devised two sound systems for *Wings*, and that one used what he calls 'cued discs'. Emphasising the use of RCA speakers in the set-up, he fails to mention that this system employed a unit comprising four Brunswick Panatrope turntables with individual amplifiers and volume controls.[84]

These details were recalled in a paper presented at the Audio Engineering Society's 1971 convention, by Robert J Callen. As a young disc recording engineer at Brunswick, Callen was called in by Pomeroy to make adjustments to a trial installation of the equipment at New York's Rivoli Theatre, using discs of aeroplane, machine gun and bombing sounds, recorded especially by Brunswick for the film. After the necessary adjustments the rig was moved to the Criterion, where it reportedly remained for the duration of *Wings'* one year run. With the

[83] Anon, 'Changed Opnions About "Ironsides" Attachment', *Variety* , 17 November 1926, p.12. Referencing a *Film Daily* front page story dated 9 November, reports that the soundtrack was used in his book, but evidently Paramount changed their minds during the following week.
[84] Donald Crafton, *History of American Cinema Volume 4: The Takies - American Cinema's Transition to Sound 1926 - 1931,* (Berkeley: University of California Press, 1999), p.135.
Crafton was keen to frame the early phase of film history as a battle between ERPI and RCA.

four turntables, he recalls, 'a clever operator (in this instance Roy Deshart of Paramount) could follow with sound the flight of a plane across the screen' - an early attempt at stereo (or even surround-sound) presentation, giving an impression of movement through the manipulation of the turntable faders.[85]

In London, at the Carlton Theatre in April 1928, copies of the same records were used to accompany the film's live music setting. Although there is no mention of anything other than a standard dual turntable Panatrope in use in London, the effects were still impressive and novel, drawing particular praise from Edwin Evans, a *Bioscope* writer nominally reviewing the musical setting for the film, composed by J S Zamecnik. Evans concluded that whilst the score was 'admirable ... I confess it was the Panatrope effects that most conveyed dramatic conviction.'[86] Their dramatic impact was heightened by pauses in the music at key points, allowing the 'whirr of the engines, the rattle of machine guns and the noise of falling planes' to be heard alone, prompting another *Bioscope* man to comment: 'It is difficult to believe that all this roar and noise is being produced from a small gramophone record.'[87]

Milking the novelty value for all it was worth, The Carlton arranged for the effects for one screening in May to be broadcast live from the Criterion in New York as a further publicity stunt.[88] The Brunswick effects records for *Wings* were subsequently offered to any cinema in the country with a reproducer: 'For the

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[85] Robert J Callen, 'The education and tribulations of a precursory disc recording engineer', presented at at the 40th Audio Engineering Society Convention, 27-30 April 1971, Los Angeles CA. Online at http://www.aes.org/aeshc/docs/callen.education.and.tribulations.pdf.
Sponable verifies the basic facts of the *Wings* presentation in section 6 of the SMPE article/presentation cited above (Sponable, 1947): '... airplane sounds from disk recordings, using a multiple turntable device, and synchronised by an operator backstage'.
http://www.members.optushome.com.au/picturepalace/FilmHistory.html
[86] Edwin Evans, 'Music and Musicians' column, *Bioscope Service Supplement,* 12 April 1928, p.viii.
[87] Anon, '"Wings" Effects by Gramophone', *Bioscope,* 5 April 1928, p.37.

first time it is possible for the smallest hall in the country to present its pictures with the identical effects used at the London and New York presentations.'[89]

Perhaps as a result of the publicity generated by the special Panatrope effects records used for *Sunrise*, *Wings*, and similar set of animal sound records released by Columbia to link up with the film *Chang*, sound effects were a hot topic in the trade press in the first half of 1928. The pros and cons of the performance of live effects had been debated since the early days of musical accompaniment, and Frederick Talbot's observation that 'opinion seems to be divided as to the value of this practice' was as true in 1928 as when he originally wrote it in 1912.[90] The successful use of live effects in the West End presentation of *The Four Horsemen of the Apocalypse* in 1921 revived the idea of closer effects synchronisation in the 1920s, after a lapse in interest as a result of intrusive and over-literal effects. As ever, the main drawback of this kind of presentation was the expense. Sound effects had grown into a highly specialised and well paid branch of 'big picture exploitation', and 'first rate presentation could only be achieved by those who could afford to spend large sums on it.'[91] (Fig. 7)

Effects machines had been on the market since Talbot's time, but these too were expensive. Cinema organs such as the latest Christie Unit Organ were equipped with a selection of sound effects, such as horses' hoofs, crockery smash, cannon shots, anvils, bells and many more, although once again, such instruments were way beyond the means of all but the 'supers'.[92]

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[88] Anon, '"Wings" On The Air', *Bioscope,* 3 May 1928, p.59.
[89] *Bioscope,* 5 April 1928, p.37.
[90] Frederick Talbot, *Moving Pictures: How They Are Made and Worked*, 1912, quoted in David Robsinson, 'The Coming of Sound,' *The Movie*, issue 1, Orbis, 1979, p.2
[91] Anon, 'Mechanical Music and Effects', *Bioscope Service Supplement*, 22 March 1928, p.vi.
[92] Anon 'A "Regal" Organ', *Kinematograph Weekly*, 16 Feb 1928, p.87.

A succession of articles appeared, on the subject of 'DIY' effects, for the 'manager who has to do things economically', all by Alfred Whitman of the *Bioscope*. He listed the minimum equipment required, and gave detailed instructions on how to achieve basic sound effects at low cost - solutions such as the versatile combination of a large sheet of sandpaper and a block of wood to produce train, sea, wind and rain sounds, for films in general and for one specific film adapted from Arnold Ridley's stage play renowned for its thrilling sound effects, The Ghost Train.[93]

By April 1928, H F Hutchison was claiming that 'at the very least' 1,200 cinemas were now equipped with reproducers, emphasising in a timely fashion that 'as an effects machine, these reproducers are excellent', wasting no time in mentioning Brunswick's initial commercial release of ten double sided effects records, including 'rain, wind, sea, cheers, bombardment, train, aeroplane and dozens of other sounds.'[94] In his enthusiasm he failed to mention the huge expense of the discs - at 6 guineas each, they cost more than a week's wages for the majority of the population - leaving it to the *Bioscope* to assure readers that the 'records will last almost indefinitely'.[95]

Although sound equipment, film availability and the American domination of the UK film market were all regularly discussed in the trade press throughout the period discussed so far, these issues were not immediately linked to the

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[93] Alfred Whitman, 'Sound Effects for "The Ghost Train" - How To Get Them With Simple Means', *Bioscope Service Supplement,* 8 March 1928, p.vii, Alfred Whitman, 'Sound Effects and How to Get Them', *Bioscope Service Supplement,* 29 March 1928 p.ix and 19 april 1928, p.vii
The oroiginal stage show's prop list details 26 separate sound elements in the original train sound effect, to be performed by a team of eight technicians. Whitman's sandpaper effects had a lot to contend with.

[94] H F Hutchison, 'Electrical Reproduction', *Supplement to the Kinematograph Weekly*, 26 April 1928, pp31-33

[95] Anon, 'Mechanical Music and Effects', *Bioscope Service Supplement*, 22 March 1928, p.vi.

development of non-synchronous recorded sound, the Panatrope and its cheaper alternatives. Despite the large number of such machines sold, many exhibitors seem to have taken some time to understand their potential. Short pieces introducing this or that new machine through 1928 and into 1929 seem to go back to first principles each time, rather than building on a general level of awareness of the new instrument.

British Brunswick could be pleased with the favourable publicity generated by their association with *Wings* and *Sunrise*, but as each month brought new word of the succession of major American producers converting to sound, the long term success of the Panatrope as a mechanical accompanist to silent film seemed in doubt.[96] If Brunswick and their competitors saw a future for their machines, and wanted to stay in the film business as more than a stop gap or a musical novelty, positive action would be needed.

The first suggestions of this action came in June 1928, in a *Kine* article summing up the current state of sound film systems in Britain, and taking the credit for the bringing together of Mr H A Johnson, a Bristol inventor with a new synchronising device, and Dudley Bott of British Brunswick. Bott had already been experimenting for some time to find a way of synchronising the Panatrope's decks to the running of a film projector, and funded further experiments to convert Johnson's 16mm device for use with a 35mm and the Panatrope. Although reluctant to divulge details before any official announcement, the *Kine* writer assured readers that the extra apparatus for synchronising the Panatrope

[96] 92 Anon, 'Talking Films - Important Agreements', Kine 12 May 1928, p.51, 'Lasky - None but Sound Pictures in Five Years'. *Kinematograph Weekly*, 7June 1928, p.33.
Paramount, MGM and UA chose WE/RCA, following Warner & Fox, in May 1928, Jesse Lasky pronounced the end of the silent feature at Paramount in June.

with sound films will 'only mean the expenditure on the part of the exhibitor of a few pounds.'[97]

British Phototone

A week after these hints in the *Kine Weekly* came the first announcement of a new company, British Phototone, linked to British Brunswick, offering an 'extension of the service already associated with the Panatrope' intent on 'taking the earliest possible steps in supplying the trade with a complete mechanical synchronised system of photographic and musical effects at a price considerably lower than any other system.' Brunswick claimed 'about 1000' Panatrope installations to date and anticipated sales of a further 2000 sets. For theatres already equipped, the new synchroniser would be available 'at a price not exceeding £50', with a complete new installation 'no more than £250'. Brimming with confidence, the statement also revealed palns 'to provide a series of records affording the complete musical accompaniment and effects of every feature film released' at no more than five shillings per disc, and to commission the 'a series of sound-film "shorts"'. The report ends with claims that Phototone will be 'applicable to any film accompaniment recorded on discs' and that 'negotiations ... have already been concluded which will permit British Phototone recording rights for practically all feature films released in this country.[98]

The enthusiasm raised by this announcement is reflected in the popularity of Phototone's £100,000 share issue in July 1928. With all the publicity surrounding talking films and the concern over American domination of the British industry, a cheap new

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[97] Anon, 'British Activities', *Kinematograph Weekly*, 7June 1928, p.33
[98] Anon, 'British Phototone Ltd', *Kinematograph Weekly*, 14 June 1928, p.33.
A follow-up report on 12 July announced a Phototone release to be distribured by Paramount; a correction of the latter claim was published in the 28 July issue; Phototone were evidently in negotiations with Paramount following the *Wings* Panatrope success, but announced a favourable result prematurely.

British sound device based on the established reproducer market leader, the Panatrope, seemed like a guaranteed winner, and the shares were oversubscribed by 27 times. The first hints that things were not going to go as well as planned came within the month, when it was revealed that the total number of Panatropes sold was only 676, substantially less than the 1000 claimed, and the projected cost of the new synchronisation device rose by 50% to at least £75.[99]

A L Carter of the *Kine Weekly* commented favourably on Phototone's press demonstration, disregarding the four attempts needed to achieve synchronisation and judging the system 'altogether satisfactory' despite this.[100] The *Bioscope* writer was equally charitable, explaining that the problem was no more than 'a million to one chance which turned up at the wrong moment', and betraying his patriotic bias with a comment that 'the prices mentioned seem to have the Americans beaten.'[101]

Carter used his weekly 'Observation Window' column to praise the system ('On a device such as the Phototone adaptation is simplicity itself') but allowed some criticism that a change-over device had not yet been incorporated: 'Until this difficulty is solved all the attractions of simplicity in fitting up are of little use against the other devices that can carry on through a seven-reel feature without a noticeable break.'[102] Phototone did not seem to have taken Carter's criticism seriously, since as late as January 1929 they were still proclaiming that 'the only musical value of the sound film lay in shorts', and that it was their mission only to 'supply the *variety* that was nowadays demanded in the picture programme' (my italics).[103]

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[99] Anon, 'Phototone Share Issue', *Kinematograph Weekly*, 19 July 1928, p.33.
[100] A L Carter, 'Observation Window' column, *Kinematograph Weekly*, 6 September 1928, p.73.
[101] Anon, 'PDC-Blattner 'Sound Contracts'', *The Bioscope,* 11 July 1928, p.12.
[102] *Kinematograph Weekly*, 6 September 1928, p.73.
[103] Anon, 'Phototone Push', *Kinematograph Weekly*, 10 January 1929, p.72.
Smith also lets slip that at this event that the number of Panatrope installations at this time was in fact only 'over 500' - either earlier figures had been exaggerated, or at least 150 cinemas had disposed of their machines since the company's share issue six months before.

Evidently in some disarray, they had announced their intention to convert to the Vitaphone standard 16" format disc in October 1928, to enable the synchronisation of features, but were apparently unsure of this strategy. Chairman A George Smith promised readers, potential buyers (and nervous investors) at this time: 'Time will tell, but you can rest assured that when Phototone is on the market it will triumph', but the January 1929 delivery date for 3-400 of the new 16" sets was a target that they would conspicuously fail to meet.[104] In 1929, only the dual turntable 12" Panatrope-derived machines were ready.[105] (Fig.8)

While the general "buzz" around Phototone was positive, especially from *the Kine Weekly*, keen to be associated with their success, some of the more detailed comment was less congratulatory. In a risky advertising strategy, Phototone, announcing their January 1929 deliveries and their first forty shorts, constrasted good reviews of some of the shorts and brief positive comments, mostly from the lay press, with a litany of specific technical complaints from a CEA reviewer, in the CEA's own weekly paper, the *Cinematograph Times*:

> The orchestral reproduction is inclined to sound hollow and muffled. The Piano recording is always exceedingly bad; whilst, in most cases, the singing sounds throaty, or nasal, or both ... In some cases the scrathing of the gramophone needle at the beginning of the item was painfully audible.[106]

The effect may have been the opposite of their intention; given the general antipathy directed at the lay press in the trade, it is unlikely a loyal CEA man would take the glib words of the *Daily News* or the *Sunday Dispatch* over the detailed criticisms of another exhibitor and CEA member. Phototone announced the end of their own productions a

[104] Anon, 'Phototone Prospects - A George Smith's Optimism', *Kinematograph Weekly*, 11 October 1928, p.29.
[105] R Howard Crick ARPS, 'Running the Talkies III - British Phototone', *Kinematograph Weekly*, 14 march 1929, p.105.
[106] Phototone Advertisement: 'Mr Exhibitor! Who are You to Believe?', *Cinematograph Times*, 8 December 1928, p.22.

few months later.[107]

In the early spring of 1929 the *Cinematograph Times* also published a series of straight-talking articles by the American journalist, Pete Harrison, editor of *Harrison's Reports*, that chimed well with their sceptical view of the economic viability of sound films for the smaller exhibitor. In his 'Some Comparisons' article, the fourth in the series, he summarised the mounting criticisms of disc systems in general. On top of practicalities such as the difficulties of re-synchronisation after censors' edits or breaks in the film, the need for frequent replacement of discs due to wear or breakage in transit, adding to costs, Harrison devotes considerable space to the technicalities of the limited frequency range of disc systems and the tonal variations from the outer edge to the centre of a 16 inch disc due to differences in groove length.[108]

In the next article his views are more forthright. He notes Warner Brothers' success with Vitaphone, but attributes this only to their head start in the market: ... even though Warners are just now ahead of every other talking picture producer, the disc system cannot endure; it is wrong in principle.'

> When the exhibitor that installs the best talking picture instrument, for example, starts showing as good talking pictures as his disc-system-using competitor, the public will be able to compare the two systems, and will realise how inferior the disc system is. If they do not drop the disc system, the producers will not be able to receive as high film rental as will those with the best existing system.[109]

Foreseeing the obsolescence of the two turntable 78 rpm reproducer, Phototone's planned change to the 33 1/3 rpm 16" disc was intended to insure their long term viability. Whatever the reasons for its delay It would eventually be overtaken by events; as Phototone entered into a patent-sharing alliance with French Phototone and the German Tobis-Klangfilm group, referred ro explicitly as a 'European Alliance to combat

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[107] 'Talkie Developments - A. George Smith on Phototone's Policy', *Kinematograph Weekly*, 16 May 1929. p.33.
[108] Pete Harrison, 'Talkies: Films & Equipment, IV - Some Comparisons', *Cinematograph Times*, 23 February 1929, p.21
[109] Pete Harrison, 'Talkies: Films & Equipment, V - Sound Projection and Interchangeability', *Cinematograph Times*, 2 March 1929, p.25.

the American sound monopoly.'[110] Although it never appeared, the 16" Phototone disc would hardly have saved the British firm as the sound-on-disc system itself would soon be obsolete based largely on the factors identified in Harrison's articles.

Phototone and Klangfilm set about developing a dual system, but this, too, faltered. Phototone were not strong on research and development - they had, after all, grown out of a gramophone company that had fallen upon the Bristol-based inventor of their synchroniser only through the intervention of the *Kine Weekly*. Their problem was not only a lack of adaptability to the circumstances as they developed in the ensuing months. They were far behind the American systems technologically, competing with powerful corporations, and systems that had been in development for several years, with the support of well-funded and world-renowned research laboratories. In May 1929, A George Smith admitted that the rapid progress of the 'all talkie programme' had taken Phototone unawares, and that to compete with American feature production 'it would be necessary to have the resources of the Bank Of England'. Of their negotiations with Klangfilm he remarked only that 'even now there was no suggestion of finality about the process they had adopted.'[111] A year later Phototone went into liquidation.[112]

A Two-Tier Exhibition Sector

As the tide of opinion and experience started to turn against discs for the larger cinemas and chains who could afford to choose, the cheaper synchronised disc systems that had appeared in Phototone's wake and their precursors, electrical reproducers, remained the only option for smaller exhbitors. The late 1920s are noted for the consolidation of chains, expansion in cinema building, and the increased comfort and

[110] Anon, 'Phototone Agreement: Siemens Contract Signed', *Kinematograph Weekly*, 25 October 1928, p.21 quoted by Michael Allen in unpaginated manuscript version of 'In The Mix'. The section on British Phototone was edited from the published version.
[111] 'Talkie Developments - A. George Smith on Phototone's Policy', *Kinematograph Weekly*, 16 May 1929. p.33.

luxury of the new 'supers'. Announcements of new builds, profits and refurbishments are numerous in the trade press, closure reports made less comforting reading for local exhibitors unwilling or unable to take the plunge.[113]

N Attwood Allen chided the still-reluctant exhibitors of the UK in April 1929. He looked and listened with dismay at the attitudes of so many of them, complaining of bad business despite the quality of the films and opportunities on offer: '... showmen all over England are sitting back, waiting for something to happen" instead of jumping in with both feet and making a splash. There are talking machines and films or all classes of hall at prices which all can pay, and still they hesitate.'[114]

Despite their narrower horizons and more limited opportunities, paradoxically the small exhibitor had more options than ever in 1929 as more machines appeared to cater to the lower tiers of the market. While A L Carter's observation that 'there are hundreds of exhibitors to whom three hundred or more pounds is a lot of money' had a ring of truth in September 1928, and smaller local exhibitors were increasingly being pushed out, a second rung of independent halls who did have a few hundred pounds to spend, or remained unconvinced of the long term prospects for talkies, were well-catered for by a wide range of reproducers and synchroniser attachments.[115] The market for reproducers had 'flooded out' in late 1928, but the surplus of machines on the market also gave the potential buyer more power, making the different machines stand on their own merits, regardless of claims made for them in advertising. Fred Shaw's suggestion, quoted in a Sheffield CEA report in January captured the spirit of the independent showman: 'A little bit of ingenuity, an electrical reproducer and some careful thinking and fitting can get very nearly to talkies without the costs.'[116]

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[112] *Kinematograph Weekly*, 15 may 1930, p.77, quoted in *The Historical Journal of Film, Radio and Television,* vol. 4, no.2, October 1984, p.148.
[113] 'Five cinemas in Liverpool area into liquidation', *Kinematograph Weekly*, 16 August 1928, p.37,
[114] Attwood Allen, 'Give The Talkies A Chance', *Kinematograph Weekly*, 4 April 1929, p.54.
[115] A L Carter, 'Observation Window', *Kinematograph Weekly*, 6 September 1928, p.73.
[116] Anon, 'CEA Proceedings - Sheffield', *Kinematograph Weekly*, 3 January 1929, p.51.

Innovations and refinements in reproducer design continued to appear, such as the separate faders on the new Ethatrope machines launched in August 1929, or the three and four turntable models such as the Musikon (Fig.9) and the Sonotone earlier in the year. A number of synchronising attachments based on the geared projector drive connection used by Phototone, were also appearing. The makers of Celebritone, a low cost reproducer, were now offering a synhcronising attachment[117], and Butcher's Film Service perfected their Electrocord synchroniser, with an impressive two speed 16" turntable to run either their own shorts at 78 rpm or features at 33 rpm (Fig.10).[118] The imported American Melotone attachment appears to have been a similar device.

With hindsight it is easy to see that these machines had no long term future, since regardless of their relative quality, they suffered from the faults common to all disc systems identified in Harrison's *Cinematograph Times* articles. The doubtful future of the class of exhibitor who could only afford these machines was a cause for more immediate concern. Understandably, the CEA's paper the *Cinematograph Times*, took a particular interest in this issue, reporting the non-viability of American sound installations for the small exhibitor, highlighting losses of up to £82 per month for a small Scottish hall with the RCA Photophone system. Hardly coincidentally the same page reports on three cheaper systems - two British -Filmophone, Electrocord and Powers Cinephone, later found to be infringing RCA patents.[119] It is possible the CEA used such articles to keep up the pressure on their continuing campaigns against the Entertainments Tax and proposing a new standard contract with the Kinematograph Renters Society, both of which were regularly featured, and to strengthen the case for some kind of legislative protection for exhibitors from the monopolistic power of Western Electric, as a companion to the 1927 Films Act. Suggested at regional

[117] Advertisement, *Kinematograph Weekly*, 21 March 1929, p.13.
[118] Advertisement, 'Butcher's Electrocord Equipment - For All Sound-on-Disc Talkies', *Cinematograph Times,* 7 September 1929, p.16.

meetings in May 1929, members were told by their Vice President that the General Council was 'working hard, and that the next move would be to get a Bill passed in the House of Commons', although this obviously never happened.[120]

Conclusions

Nick Hiley's sociological view of the late 1920s period is that as weekly attendances were falling and the number of seats in British cinemas was rising, 'the coming of synchronised sound offered the larger exhibitors a chance to force their smaller competitors out of the market'.[121] Whilst the movement towards consolidation and vertical integration that matured in the 1930s, had its roots in the early sound period, this is a simplification of the situation. Hiley perceptively characterises the transitional period between silent and sound cinema as a period in which

> … the traditions of silent film presentation - dominated by working class attendance, small local auditoria, and many elements of live performance - gave way to a new style of sound film presentation - in larger and more imposing auditoria, before a socially mixed audience whose sense of communal identity was much reduced.[122]

By presenting only two modes of presentation, silent and synchronised sound, he ignores the intermediate 'ripple' of the electrical reproducer/ synchroniser period. He is interested in the audience experience, but prioritises the economics of exhibition over the technology in the transformation of that experience. Economics and technology are not so easily separated when discussing those halls that installed reproducers. Early users in Britain sought to save money and/or gain competitive advantage through the new technology and its novelty value. Hiley might view this as the start of his move away from what James Lastra calls 'presentational mode stressing performance', but

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[119] Anon, 'Small Exhibitors and Talkies and Equipments To Date', *Cinematograph Times,* 17 August 1929, p.7.
[120] Anon, 'CEA Proceedings -Talkie Monopoly - Small Halls Position', *Kinematograph Weekly*, 9 May 1929, p.39.
[121] *Journal of British Popular Cinema*, no.2, 1999, p.41
[122] *Journal of British Popular Cinema*, no.2, 1999, p.44

the provision of recorded music in a potentially complex combination of up to four disc sources has its own performative aspect that engaged audiences, even if the performance was invisible and mysterious.[123] Some cinema managers would have been motivated purely by economics - to save the money previously spent on musicians, while others might choose a reproducer for use during prologue presentations, to give musicians a rest during intervals, or as novelty musical items combining mechanical and live music.

An early Panatrope installation also incorporated reproducer 'recitals' as an attraction in its own right, further blurring Hiley's lines of demarcation.[124] Lastra makes the point that meaning of terms like synchronisation, music and effects, even 'sound' itself in the context of the cinema, vary over time, along with the expectations of any given audience, which is of particular relevance here. His observation that 'lip synch' is only one form of synchronisation also helps us to understand the success of (and by extension the audience's acceptance of) non-synchronous reproducer fitting. Michael Allen concludes that it was the reproducer's 'multi-tasking' abilities that gave the reproducer a foothold in British cinemas, allowing exhibitors to provide background music throughout the cinema, public announcements, interlude music, musical and effects accompaniment to films, and ultimately fully synchronous sound, and all by only one operator. He also positions the reproducer and synchroniser 'in a game of bluff and resistance which was acted out between American sound equipment manufacturers and British exhibitors'.[125]

Exhibitors resented and feared the monopolistic power of the American giants, but feelings of patriotism were always secondary to economics. Electrical reproducers and the various synchroniser attachments of the Phototone type became associated more

[123] James Lastra, *Sound Technology and the American Cinema* (New York: Columbia University Press, 2000), p.96
[124] Anon, 'Mechanised recitals - reproducers supersede orchestras', *Kinematograph Weekly*, 9 February 1928, p.85.

and more with the poorer smaller local cinema as diffusion of the American systems increased, widening the gap between the two tiers of the sector. In a sense this returns us to Hiley's point, with some qualifications - reproducers and home grown synchronisers were available to his 'small working class auditoria' in the transition to sound, but in the longer term they could only survive if a transfer to a (probably American) sound-on-film system was economically viable. The Daily Mail Yearbook for 1931 estimated that 2000 British cinemas were "wired for sound" by the end of 1930, around half the total.[126] Even if we assume this is accurate, it does not tell us how many of these are Western Electric or RCA installations; it certainly includes Phototone, Electrocord, Celebritone and other lower quality systems that continued to be used in the lowest strata of the industry, allowing surviving small local auditoria to limp on well into the 1930s.[127] The early American sound situation was not, it turns out, substantially different in some respects. The studios went all out to wire their own chains of theatres, but the 'great numbers' of independents at this time were free to choose a system according to their means.[128] No less than 234 different kinds of 'theatre sound equipment' were in use in December 1929, most of them sound-on-disc systems, and

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[125] Donnelly, 2001, p82

[126] W G Faulkner, 'The Cinema To-Day', Daily Mail Yearbook 1931, (London: Associated Newspapers, 1930). p.248, quoted in *Journal of British Popular Cinema*, no.2, 1999, p.42

[127] John Gorman, *Knocking Down Ginger* (London: Caliban Books, 1995), pp.32-33
Childhood visits to The Splendid in Forest Gate are recalled vividly in this East End memoir. The establishment was nicknamed "The Bug Hutch", as part of its service included an insecticide spray for visitors: '"Squirt me, mister!" we we would shout, and if lucky, the attendant would aim a couple of quick pumped squirts to your body to the envious cheers of your mates.'

only half of the 8741 installations at that time were of Western Electric or RCA equipment.[129] If sound-on-film had not overcome its early difficulties and Vitaphone survived despite its faults, more of the extant disc systems of 1929 could have lived on its wake, on both sides of the Atlantic.

[128] Edward W Kellog, History of Sound Motion Pictures, Part Two, *Journal of the Society of Motion Picture and Television Engineers*, vol. 64, July 1955, p.357.
[129] *Journal of the Society of Motion Picture Engineers,* vol. 48, no. 4. April 1947, p.301.

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1921
Producer-Director - Rex Ingram

Old Ironsides
1926
Producers - James Cruze and B.P. Schulberg
Director - James Cruze

The Ring
1927
Producer - John Maxwell
Director - Alfred Hitchcock

Sunrise
1927
Producer - William Fox
Director - F W Murnau

The Volga Boatman
1926
Producer-Director - Cecil B. DeMille

Wings
1927
Producer - Lucien Hubbard
Director - William A Wellman