THE ACOUSTIC DIMENSION

NOTES ON CINEMA SOUND

BY TOM LEVIN

I.

'SOUNDS HAVE NO IMAGES,' writes Bela Balazs, and as a result 'the sound engineer does nothing more than record and reproduce. ... The shape and outline of sounds cannot be changed by varying perspectives as the physiognomy of visible things can be changed by varying angles.'[1] Because claims such as this one made in 1945 continue to appear in contemporary film theory[2], they cannot merely be dismissed as anachronistic or technologically naive but must be investigated in terms of their philosophical presuppositions as well as their *effect*. Echoing the adoring tone of much early writing on photography which is still spellbound by the 'objectivity' of the indexical trace, such arguments for the 'transparency' or 'neutrality' of technology invariably function to prevent, or at least delay, ideological interrogation. Is the 'recording and reproduction' of sound simply an unproblematically reduplicated presentation or is it, as will be argued, a mediation which transforms and represents its object in an altered form?

While the fallacious and facile equation of image and 'reality' can still be found in recent work on film – witness Stanley Cavell's neo-Bazinian claim that 'in a photograph the original is still as present as it ever was'[3] – it is nevertheless generally acknowledged that the celluloid image, no matter how analogous it is to the retinal image, is a representation already restructured according to the formalising values of the lens, projector, film stock, etc, all of which work to establish a set of different relations and thus, in some sense, a new reality. The represented is 'read' and thus always transformed by its representation. Yet, while the critique of the cinematic technology has destroyed the myth of the 'innocent' representation, the recognition that, as Jean-Louis Comolli puts it, 'the most analogical representation of the world is still not, is never, its reduplication',[4] does not seem to have been applied to the *acoustic* domain.

[1] Bela Balazs, *Theory of the Film: Character and Growth of a New Art*, New York, Dover, 1970 (reprint), p 216.

[2] For example in the work of Christian Metz, Stanley Cavell and Gerald Mast (see below).

[3] Stanley Cavell, *The World Viewed*, Cambridge, Mass, Harvard University Press, 1979, p 20.

[4] Jean-Louis Comolli, 'Machines of the Visible', in Teresa de Lauretis and Stephen Heath (eds), *The Cinematic Apparatus*, New York, St Martin's Press, 1980, p 138.

In the ideological critique of the cinematic apparatus the focus was once again on the visual at the expense of the acoustic, neglecting as a result, to submit the reproduction of sound to the scrutiny afforded the technology of the visible. But in order to understand how sound too is transformed in the process of its reproduction, the technology of the soundtrack must also be subjected to critical analysis. The following notes, drawing primarily on the work of Theodor Adorno whose writing on film and radio music offers a stimulating approach to such an investigation, will attempt to sketch the basic strategies of the critique of the acoustic apparatus in order to stimulate its further development.

Even more frequent than claims about the visual domain which collapse the distinction between photograph and the 'real' are arguments about the acoustic sphere which equate the recorded data of the cinema soundtrack with the 'original' sounds. Consider the following representative remarks:

What we hear from the screen is not an image of the sound but the sound itself, which the sound camera has recorded and reproduced again. . . . There is no difference in dimension and reality between the original sound and the recorded and reproduced sound, as there is between real objects and their photographic images.

(Bela Balazs[5])

There is clearly a difference between a filmed object or action (it is a photograph of the thing or act) and a recorded musical sound. For [the latter] is the sound itself. There is no ontological difference between hearing a violin in a concert hall and hearing it on a sound track in a movie theater.

(Gerald Mast[6])

Sound can be perfectly copied . . . even if a photograph ***were*** *a copy of an object, so to speak, it would not bear the relation to its object that a recording bears to the sound it copies. . . . The record reproduces its sound but we cannot say that a photograph reproduces a sight (or a look or an experience).*

(Stanley Cavell[7])

Auditory aspects, providing that the recording is well done, undergo no appreciable loss in relation to the corresponding sound in the real world: in principle, nothing distinguishes a gunshot heard in a film from a gunshot heard on the street.

(Christian Metz[8])

In cinema – as in the case of all talking machines – one does not hear an image of the sounds but the sounds themselves. . . . They are reproduced, not copied.

(Jean-Louis Baudry[9])

Even more interesting than the striking similarity of these quotations is the fact that on the rare occasion when such a diverse group of film theorists seems to agree, their shared claim is mistaken! As a closer examination of the statements reveals, all of them make essentially the same point: since a recorded soundtrack is not recognised as a recording in the way an image is readily distinguished as a representation, sound – be it

5 Bela Balazs, op cit.

6 Gerald Mast, *Film/Cinema/Movie: A Theory of Experience*, New York, Harper and Row, 1977, p 216.

7 Stanley Cavell, op cit.

8 Christian Metz, 'Aural Objects', in *Yale French Studies*, no 60, 'Cinema/Sound', 1980, p 29.

9 Jean-Louis Baudry, 'The Apparatus', in Theresa Hak Kyung (ed) *Apparatus*, New York, Tanam Press, 1980, p 47.

10 A not unproblematic tripartite distinction which will be employed only as a methodological artifact: clearly all boundaries between the categories are at best ill-defined (noise can be musical, music noisy, dialogue musical, etc).

11 Jean-Louis Baudry, op cit.

music (the violin), noise (the gunshot) or dialogue[10] – must not be affected by the recording process and is therefore indistinguishable from and even ontologically identical with its 'original'. While this claim is erroneous, as will be shown, it is based on the *correct* observation that there *is* a difference in the relation of the 'copy' to the 'original' in the visual and the acoustic domains. But why does the reproduced sound seem less like a copy? If, as a working definition, sound is understood as 'mechanical radiant energy that is transmitted by longitudinal pressure waves in a material medium (as air)' (Webster), then the materiality of a sonic event consists of this entire vibrating volume. This is also the case for the reproduced sound. Now, whereas an object loses its three-dimensionality when represented in the photographic image, the recorded sound, considered as a volume of vibrating air waves, remains three-dimensional after mechanical mediation. The difference between the copies of acoustic and visual information is, as both Balazs and Metz recognised, that the reproduction of sound suffers *no* dimensional loss in the process. But is this sufficient to *equate* the copied sound with the 'original' and to argue that there is no difference *at all* between them? While still insisting that acoustic reproductions are 'real', Baudry is the only one to acknowledge explicitly that 'the procedure for recording the sounds and playing them back deforms them'.[11] Metz, taken as representative of the position of the others, insists that 'the sounds of a film spread out into space as do sounds in real life, or almost.'[12] What is at stake in this concluding qualification? What kind of acoustic transformations are implied in this 'or almost' and why are such differences in the reproduced sound so consistently ignored?

According to Baudry's phonocentrist explanation it is quite simply that 'voice does not lend itself to games of illusion, or confusion between the real and its figurativity, to which sight seems particularly liable (because voice cannot be represented figuratively).'[13] But why should figuration (read: representation) be limited exclusively to the domain of the visual? Metz explains that it is because 'we experience the representations of objects as *reproductions* by implied reference to tactility, the supreme arbiter of "reality"'.[14] Since, for Metz 'touch is traditionally the very criteria [sic] of materiality',[15] as a result, anything that cannot be touched 'cannot encompass two degrees of phenomenal reality, the "real" and the copy'.[16] Once materiality is defined in terms of tactility the intangibility of the acoustic precludes figuration, that is, any distinction between the reproduction and the 'original'. This in turn leads to the conclusion that recorded sound, because in these terms it is not a copy, is identical with 'live' sound.[17]

That acoustic reproductions are indistinguishable from their 'originals' is a very problematic claim. Not only is a poor recording often recognised as a copy (even by non-musicians), but there are various non-tactile modalities in which the 'real' can be distinguished from the 'copy' – artificial rose scent by its odour, fake orange juice by its taste, Philip K Dick's androids by their inability to empathise, etc. Indeed, most trained ears can easily differentiate a synthesised 'copy' of an instrument from a

[12] Christian Metz, op cit, p 29, note 7.

[13] Jean-Louis Baudry, op cit.

[14] Christian Metz, *Film Language*, New York, Oxford University Press, 1974, p 9.

[15] Christian Metz, 'Aural Objects' op cit, p 28.

[16] Christian Metz, *Film Language*, op cit, p 8.

[17] The soundtrack as a 'realisation' of sound as opposed to the image which is a 'representation' is a distinction remarkably analogous to the equally problematic dichotomy of 'performative' and 'constative' utterances proposed (and ultimately abandoned) by J L Austin. A different critique of the image/sound distinction could take its cue from Austin's discussion of quotation as undermining the rigid separation of the terms he coined.

'live' sound. What is at stake in Metz' curious statement that recorded sounds are 'real'? The fact that another formulation of this claim begins with the phrase 'for the naive ear'[18] seems to confirm the suspicion that Metz (and by extension also the other theorists cited above) have made false ontological generalisations from isolated phenomenological observations ('it seems real to me' becomes 'it *is* real').

Metz' definition of materiality as tactility leads him to claim that *motion* in the cinema is also 'real': 'the strict distinction between object and copy, however, dissolves on the threshold of motion. Because movement is *never* material but is *always* visual, *to reproduce its appearance is to duplicate its reality*'[19] (my emphases). What does this mean? It is well known that the cinematic image does *not* move: according to perceptual psychologists the experience of *apparent motion* occurs despite the fact that the stimuli (a series of still images) themselves do not move. Unlike *real motion* in which an object moving from point A to B stimulates all intermediate points on the retina, apparent motion is perceived despite the *lack* of stimuli on these intermediate points.[20] The experience of motion in the cinema is thus a production of a *perceptual transformation*. While apparent motion is *phenomenologically* indistinguishable from real motion, the fact remains that, for this effect of movement to be experienced at all, the only actual movement of the film – that of the celluloid through the projector – must be rendered invisible by the cinematic apparatus. A phenomenological observation is thus almost always blind to the activity of the technology producing the effect to which it is responding. Such a phenomenological stance is incompatible with an analysis which seeks to understand and critique the ideological effects of the technology.

Metz' phenomenological agenda is revealed in another symptomatic formulation in which he claims that 'the objects and the characters we see in a film are apparently only effigies, but their motion is not the effigy of motion – it *seems* real'[21] (my emphasis). Parallel to the opposition of image (a copy) and sound (not copied, but 'real'), Metz here differentiates between the image and movement. However, instead of the usual claim that motion *is* real he writes that it *seems* real. This is a quite different and much less controversial claim. The rhetorical effect of calling cinema sound or movement 'real' instead of describing it as a convincing representation is to render superfluous any analysis of transformations that might have occurred in the process of reproduction. The translation of phenomenological observations into ontological claims thus serves to perpetuate the ideological activity of a representational practice by holding it immune from critique.

Instead of the uncritical phenomenological narrative which explains the technological history of cinema as the successive addition of 'real' movement and 'real' sound, an alternative approach would read this development in terms of a complicated alternation of *supplementation and lack*: the advent of a new technique such as sound strengthens the impression of reality while simultaneously presenting new threats to it. Abandoning the myopic trust in perception such an approach takes seri-

[18] Christian Metz, *Langage et Cinéma*, Paris, Librarie Larousse, 1971, p 209.

[19] Christian Metz, *Film Language*, op cit.

[20] Joseph and Barbara Anderson, 'Motion Perception in Motion Pictures', in *The Cinematic Apparatus*, op cit, pp 76-105.

[21] Christian Metz, *Film Language*, op cit.

[22] Jean-Louis Comolli, op cit, p 140.

ously the mechanism of disavowal, recognising that any reality effect of any fiction

always depends on its self-designation as such, on the fact that its fictive character is human and recognized from the start, that it presents itself as an artificial arrangement, that it does not hide that it is above all an apparatus of deception.[22]

The cinema, site of innumerable technological achievements which eliminated seeming obstacles to its 'realism' in fact owes the success of its illusion not only to this catalogue of verisimilitude but to its artificiality.

II.

'In the universal silence of the image the fragments of a broken vase could talk exactly the way a character "talked" to his neighbor.'[23] If for Rudolf Arnheim the stasis and silence of the still photograph were to be read as an utopian dissolving of the distinctions between the live and the inert, the near and the far, the mute and the voiced, the same image could also be read as terrifying evidence of reification – man reduced to the status of a silent and static thing. A similar tension plagues the silent film as well: with the advent of the 'moving picture' which destroyed the unity of stasis while maintaining that of silence, the 'live' quality of the moving figures was immediately at odds with their 'deadly' silence. In an utopian reading this silence could be understood as a liberation from language considered as the discourse of oppression: Hofmannsthal, for example, notes that for workers seeking refuge in the cinema 'the fact that these images are silent is an even further attraction; they are silent like dreams. And deep down, without realizing it, these people fear language, they fear in language the mechanism of society.'[24] Theodor Adorno and Hanns Eisler, on the other hand, read the silence of the moving figures as evidence of the *decay* of language and as an indictment of the estrangement created by commodity culture: 'at the sight of the gesticulating masks the people recognized themselves as just such beings, alienated from themselves and not far from being struck dumb.'[25] Walter Benjamin, who did not refrain from criticising the cinema despite his conviction of its utopian possibilities, describes the silent continuity of the strictly discontinuous images as analogous to the sequence of autonomous tasks on the assembly line: 'both probably appeared at the same time historically. The social significance of the one cannot be understood apart from that of the other.'[26] In a similar vein, Guy Debord reads in the very structure of the silent spectacle the fragmentation of the capitalist order: 'the world at once present and absent which the spectacle makes visible is the world of the commodity . . . the visible negation of life, a negation of life which has become visible.'[27] If the temporality of the photograph is fundamentally *past* (Barthes' 'there then'), a trace of

[23] Rudolf Arnheim, *Film as Art*, Berkeley, University of California Press, 1957, p 186.

[24] Hugo von Hofmannsthal, 'The Substitute for Dreams', *Prosa* Bd. IV, 1921, p 45 ff.

[25] Theodor Adorno and Hanns Eisler, *Komposition fuer den Film*, Frankfurt, Suhrkamp Verlag, 1976, p 75. (Although first published in English as *Composing for the Films*, New York, Oxford University Press, 1947, the study was written in German 'for translation into the American'; for further discussion of its complicated publication history see the preface and editorial postscript to the German edition cited above.)

[26] Walter Benjamin, *Gesammelte Schriften* Bd.I, Frankfurt, Suhrkamp Verlag, 1980, p 1040.

[27] Guy Debord, *Society of the Spectacle*, Detroit, Black and Red, 1977, p 37.

a prior presence which is now past, then it is no wonder that the movement of these shadows might have appeared eerie – for what else but spirits can be visible, moving and absent?

Because for Metz movement is simply 'real' his analysis concentrates on the 'reality' of the moving images: 'motion imparts corporeality to objects and gives them an autonomy their still representations could not have; it draws them from their flat surfaces to which they were confined. . . . . Movement gives us volume and volume suggests life.'[28] As usual Metz immediately qualifies this claim in a footnote where he admits that the volume which is imparted by movement is 'of course minus one of the three spatial dimensions in which it usually unfolds . . . . I simply mean an acceptable equivalent for volume. The problem of volume is vast [!] and complex.'[29] But even if it is granted that movement suggests life by *suggesting* volume, how can Metz account for the fact that the advent of movement seems to have foregrounded the artificiality of the moving images, their *lack* of volume and particularly their lack of *sound*? Scholars of the soundtrack have regularly noted that the impression of movement in the early cinema appeared unnatural and freakish without some sort of acoustic correlate to the visual activity.[30] Why?

According to a traditional account, film music

began not as a result of any artistic urge but from the dire need of something which would drown out the noise made by the projector. For in those times there were as yet no sound-absorbent walls between the projection machine and the auditorium. This painful noise disturbed visual enjoyment to no small extent. Instinctively cinema proprietors had recourse to music, and it was the right way, using an agreeable sound to neutralize one less agreeable.[31]

This seemingly plausible narrative raises as many questions as it answers. Why, for example, did the projection noise disturb the spectacle? Was it, as Adorno/Eisler speculate, that the mechanical buzz was perceived as an acoustic correlate of the technological alienation which was frightening in the silent images?[32] Or was it that the live musicians functioned as an antidote to the 'dead' images? The continued popularity of music even when mechanically reproduced seems to indicate that the appeal of the music had more to do with the character of the sounds themselves. Why then was music so 'instinctively' agreeable? Was it the 'high-art' status of certain musical genres such as the symphony which functioned to grant cultural validity to the technological images? What, in short, was the effect of the acoustic supplement?

According to Adorno/Eisler, music rendered the terrifying spectacle of the moving spectres less frightening: 'the "magical" function of music consisted in pacifying the evil spirits in the unconscious perception [of film].'[33] Appearing only two pages after a reference to Benjamin's 'The Work of Art in the Age of its Technical Reproducibility',[34] this connection of music with cult ritual practice – a central concept in the discussion of aura – could be read as an indication that the addition of music has an 'auratic' effect. Consider Adorno/Eisler's claim that music

[28] Christian Metz, *Film Language*, op cit, p 7.

[29] ibid, p 8.

[30] Roger Manvell and John Hunty, *The Technique of Film Music*, New York, Hastings House, 1957, pp 20-22.

[31] Kurt London, *Film Music: A Summary*, London, Faber and Faber, 1936, p 27.

[32] Theodor Adorno and Hanns Eisler, op cit.

[33] ibid.

[34] Because the translation of this essay which appears in *Illuminations*, Hanna Arendt (ed), New York, Schocken Books, 1969, p 217-252 is unusable, I refer the reader to the announced retranslation by Joel Snyder, forthcoming in *Critical Inquiry*.

gives film a nearness similar to the film's own creation of proximity through the close-up. It attempts to establish a layer of human mediation between the reeled-off photographs and the spectators. Its social function is that of cement: [film music] binds together elements which would otherwise oppose each other unrelated – the mechanical product and the spectators as well as the spectators among themselves .... It seeks, after the fact, to breathe into pictures some of the life that photography has taken away from them.[35]

The insistence that sound gives back to the photographed images that which they lost in the process of mechanical reproduction must be read against the background of a passage from Luigi Pirandello's novel *Si Gira* cited in section IX of Benjamin's essay, in which the loss of aura is described in terms of the actor's experience in front of the camera. He is overcome by an inexplicable emptiness which results from his being robbed of 'his reality, his life, his *voice* and the *sounds* he makes when he moves, only to be transformed into a *mute* image which flickers momentarily on the screen and then disappears into *silence* ...'[36] (my emphases). It is no accident that the vocabularies of being (reality, life) and the acoustic (voice, sound, mute, silence) are linked by contiguity: loss of voice implies loss of being or presence and loss of presence is, for Benjamin, the hallmark of the destruction of aura. Whereas Benjamin foresees the re-introduction of the aura through the fabrication of the personality cult of the 'star', Adorno/Eisler imply that an aura-effect, (which one could call an 'A-effect', understood as the polar opposite of Brecht's term) is already produced by the addition of the acoustic dimension.

In its privileging of sight over sound as the guarantor of the 'real', the early cinema was read by Adorno and others as the latest in a series of representational practices which manifest the epistemological privileging of the visual which is characteristic of western culture. According to Adorno, vision is the primary modality through which the highly industrialised bourgeois order gained power: where reality is defined as a collection of 'things' (commodities) the eye is trained to distinguish and identify objects and is active, selective and definite. Hearing, on the other hand, does not differentiate in the same way and is considered passive and indefinite. In the face of technology hearing is 'archaic'. Acoustic perception, Adorno/Eisler write, can be understood as a type of regression to a pre-individualistic (cultic?) collectivity which resists the purposive rationalisation of the commodity culture: 'one could say that to react primarily with the unselfconscious ear rather than with the alert eye is, in a certain sense, to contradict the later industrial age and its anthropology.'[37] If the industrial age is paradigmatically the era of technical reproduction and the constitutive feature of technical reproduction is, in turn, its lack of a unique existence in time and place, then according to the Benjaminian turn in Adorno/Eisler's argument, the loss of aura in the image is symptomatic of the industrial age. Sound, if it is to contradict this age, must somehow retain a vestige of that unique existence in time and place and indeed, just as Metz and others have recognised, sound *does* have a different relation to time and space than the

[35] Theodor Adorno and Hanns Eisler, op cit, pp 61-62 (English p 59).

[36] Luigi Pirandello, *Si Gira*, quoted by Leon Pierre-Quint, 'Signification du cinéma', *L'Art Cinématographique*, II, Paris 1927, p 14-15.

[37] Theodor Adorno and Hanns Eisler, op cit, p 29 (English p 20).

image, it has a *spatial* dimension.

While various theorists have recognised that sound adds a third dimension to the flat screen[38], Adorno/Eisler go further and relate this volumetric aspect of the acoustic to its A-effect: 'the direct relationship to the collective which is so intrinsic to the phenomenon [of sound] itself is probably related to the spatial depth, to the feeling of being encompassed that envelops the individual, which is common to all music'.[39] What is decisive, however, is whether this acoustic A-effect in the cinema is taken as evidence for the mediated or for the *un*mediated character of the recorded soundtrack. Sound exists only *in time* (there is no acoustic equivalent to the freeze frame) and sound exists only *in space*. Indeed, if sound is understood as a volume of vibrating air then, assuming for the moment that sound reproduction were absolutely flawless (which it is by no means), such a 'perfect' reproduction of sound waves in a different volume would effectively constitute a *different* sound. As a result Adorno argues that all symphonies become chamber pieces when heard on the radio in the home.[40] That a gunshot *seems* to sound the same in the different acoustic spaces of the street and the inside of a cinema is a deception: if differences remain unnoticed this is a function of a socially constructed auditory practice which emphasises the similarity of such sounds in order that they can be understood (i.e. linked to a common source) by the hearer. In its three-dimensionality sound thus seems more directly tied to the space of its occurrence, its 'here and now', even when the sound is mechanically reproduced. It is in this sense that Adorno/Eisler hold, in response to Benjamin, that sound contributes an A-effect to film which was lost in the photographic process. But, whereas Metz and others go on to conclude that sound is untransformed by the reproductive technology, Adorno/Eisler recognise that the volumetric character of the acoustic implies precisely the *opposite*: the spatial specificity which gives sound its A-effect (i.e. the fact that sounds are always different in different spaces) means that the reproduced sound is *always different* from the original. Such an understanding of the acoustic A-effect, however, is not only far from that of the naive phenomenologists, it remains inaccessible to them due to the presuppositions of their methodology.

With the advent of sound the paradigmatically un-auratic images were supplemented by not only a third dimension but also by the A-effect which they so lacked. The status of film music as a response to a *lack* is already evident, Adorno/Eisler point out, in the function of its antecedents, the music of nineteenth century opera and theatre which was performed 'while the spectator is facing the stage without seeing any life, when the curtain is down or during a scene change: the between-the-acts-music. Film music represents the universalized concept of between-the-acts-music but employed also and precisely where there is something to see.'[41] In its relation to the uncanny movement of the frozen images, film music acts not as a duplication but as a stimulus of the motion, providing momentum and corporeality. The pervasiveness of film music in the early cinema cannot be explained as simply an increase in 'realism' since the daily life scenes portrayed were in reality rarely accompanied by

[38] See, for example, Claude Bailblé, 'Le Son: Programmation de l'écoute' *Cahiers du Cinéma*, April 1979, no 298, p 25.

[39] Theodor Adorno and Hanns Eisler, op cit, p 30 (English p 21).

[40] Theodor Adorno, 'The Radio Symphony' in Paul F Lazarsfeld and Frank Stanton (ed), *Radio Research 1941*, New York, Duell, Sloane and Pearce, 1941, p 119.

[41] ibid, p 61 (English p 59).

strings! Rather, film music supplied the spatiality implied but not realised by the animation of the image through the acoustic A-effect which was based on the (dimensional) *difference* of sound and image.

The history of the development of cinema sound can thus be read as an oscillation between its difference understood as supplement and its difference understood as threat. In early cinema with live accompaniment the material heterogeneity of the visual and the acoustic was further emphasised by the presence of the live performers. However, if the musicians posed a threat to the image by foregrounding its lifelessness this was eliminated by the use of recorded sound since the critical *depth* of the acoustic was not lost through mechanical mediation. Now the heterogeneity of the visual and the acoustic is contained entirely within the realm of the technological. But even in the relation of recorded sound to recorded image the imbalance remains: because of the A-effect (the *seeming* lack of mediation) sound is perceived as more present than the image. Adorno/Eisler insist, however, that this difference be employed as a way of foregrounding the *mediated* character of the visual register. While stressing, as will be shown, that the reproduced sound is by no means unaltered (despite the A-effect), they point out that its *lack* of dimensional loss can be used to highlight the transformations that occur in the photographic process. The acoustic supplement threatens to discredit and even displace the visual domain it was meant to support and strengthen!

The primacy of *speech* in the soundtrack today can in turn be read as a means by which the image reasserts its hegemony over the acoustic. Because, according to the logic of the 'sound hermeneutic'[42] sounds always pose the question of their source, the extra-diegetic status of most film music poses a threat to the image which can be overcome by simply diegeticising the acoustic. This is most readily effected through the introduction of voice. By locating the source of sounds *within* the image or the diegesis, sound is once again subordinated to the visual. At the same time, by focusing attention on the image, the effect of the acoustic 'enigma' is to shift an analytic gaze *away* from the activity of the sound technology which can subsequently function with even less risk of exposure. The attempt to unite sound and image necessarily denies the specificity of the acoustic and the visual domains and thereby obscures the incompatibility of these media. In a sense, Adorno argues, cinema's internal antagonism is not to be 'overcome' in this manner but should be recognised as an accurate symptom of a culture whose members are alienated from themselves. The attempt to embellish the visual with the A-effect of the acoustic is a denial of the mediated and non-auratic status of the image and of sound as well. Using the term in its most pejorative sense, Edorno/Eisler insist that 'the effects in which image and music are directly united are inevitably "auratic" – in truth already degenerate forms of aura in which the magic of the here and now has been technologically manipulated.'[43] The A-effect of the cinema is always already a product of a fundamentally *non-auratic* technology which serves to maintain the semblance of the auratic in order to camouflage its own activity.

[42] Rick Altman, 'Moving Lips: Cinema as Ventriloquism' in *Yale French Studies*, no 60, 'Cinema/ Sound', 1980, p 76.

[43] Theodor Adorno and Hanns Eisler, op cit, p 72 (English p 72).

But even in the most 'auratic' match of recorded sound with a synchronised image there arises a tension: the closer word and image are coupled the greater the *contrast* between them becomes manifest. Indeed Adorno/Eisler claim that 'the fundamental differences between speech and image are registered in the viewer's unconscious and the insistent unity of the sound film which poses as the seamless re-duplication of the external world in all its elements, is experienced as fraudulent and fractured.' [44] In a 'talkie' which employs only speech and almost no music the muteness of the image is as foregrounded, according to Adorno/Eisler, as in a silent film. The attempt to totalise the A-effect fails (and this is equally the case for the 'magical' use of music in film): 'at the moment of greatest unity the relation of music and image is antithetical'.[45] Film contains the antidote to its own lie. Adorno/Eisler conclude that *montage* is the only relation which does justice to the difference of sound and image.

If the disavowal mechanism which is essential to the experience of cinematic illusion involves the recognition of *both* the verisimilitude *and* the artificiality of the representation, then music could be regarded as providing both the 'realistic' components of movement and depth as well as the necessary 'anti-realist' aspect of its non-representational presence. Just as the projection of the images must efface the differences between them for the effect of realism to take place, so too does the cinema depend upon the material heterogeneity or difference of sound which it employs in the mode of negation. By diegeticising the acoustic, especially through the use of synchronous sound, cinema attempts to *contain* and even repress the supplement which it at the same time *requires*.

III.

One of the greatest dangers posed by the hegemony of technology in the western world – in which cinema and various other representational technologies play a central role – is that its very omnipresence threatens to conceal the violence of its effects. One way to attempt to break out of this myopia of familiarity is through an investigation of the difference posed by a non-western culture such as the orient. This could be seen as the context for Martin Heidegger's conversation with Professor Tezuka, during the course of which the Japanese academic suggests Kurosawa's *Rashomon* as an example of the all-consuming 'Europeanization' under discussion. When asked whether he is familiar with the film Heidegger responds enthusiastically that although he had only seen it once, he had been struck by the unusual gestural economy with its emphasis on stasis. Indeed, Heidegger continues, he had felt that *Rashomon* seemed to convey something of the 'otherness' of oriental culture: why then was it being proposed as an *occidental* manifestation? Tezuka explains that while the film *does* reveal aspects of a Japanese 'difference' on the level of content, the very structure of cinematic inscription, the very technology of film is itself already thoroughly European. The very experience of the

[44] ibid, p 76 (English p 77).

[45] ibid, p 77 (English p 78).

[46] Martin Heidegger, 'A Dialogue on Language', in *On the Way to Language*, (trans Peter D Hertz), San Francisco, Harper and Row 1971, p 17.

'other' is always already forced into the structure of the 'same':

The Japanese world is from the outset captured and imprisoned in the objectness of photography and is in fact especially framed for photography.

If I have listened rightly you wish to say that the Eastasian world and the technical-aesthetic product of the film industry are incompatible.

This is what I mean. Regardless of what the aesthetic quality of a Japanese film may turn out to be, the mere fact that our world is set forth in the frame of a film forces that world into the sphere of what you call objectness. The cinematic objectification is already a consequence of the ever wider outreach of Europeanization.[46]

While this is only a cursory indication of the direction of Heidegger's analysis of the objectification structure of representation (*Vorstellung*)[47], the above exchange already contains the central insight of the so-called 'apparatus critique' developed by Jean-Louis Baudry more than fifteen years later: irrespective of the particular content of the image, the photograph is a representation already interpreted, selected and ideologically 'framed' by its very technology.

While a number of contemporary film theorists have correctly pointed out that because of its three-dimensionality 'sound is not "framed" *in the same way* as the image,'[48] (my emphasis) this does not preclude that sound is still 'framed' in some way. Indeed, if it is recognised that the image is not an ideologically innocent trace, then the claim that sound is *not* image-like can be read as an attempt to exempt it from critical ideological scrutiny. Conversely, the attempt to think the character of sound as fundamentally *photographic* may reveal ideological effects of the basic acoustic apparatus similar to those Heidegger and Baudry exposed in the technology of the image. In fact, in an important sense the 'framing' of sound *is* remarkably analogous to that of the image since, with only few exceptions, sound in the cinema is *optical*. As Maurice Jaubert noted as early as 1936

it is well known that the sound track receives its impressions from the vibrations of light caused by the vibrating diaphram of the microphone, itself set in motion by the sound vibrations of the orchestra. Indeed, one can say that recording consists in the photography of sound. The director with this photograph at his command is in a position to treat sounds just as he treats images.[49]

Despite technological advances which have led to the use of magnetic tape in sound *recording*, due to the prohibitive conversion costs the *playback* of recorded sound in cinema remains to a great extent optical, that is, photographically encoded in terms of either variable density or variable area and read off the film by a lamp.[50] Considered in this way, sound is clearly subject to all the problems of transformation which beset the image.

The applicability of the apparatus critique of the camera to the sound-

[47] See esp Martin Heidegger, 'The Age of the World Picture', in *The Question Concerning Technology*, (trans. William Lovitt), San Francisco, Harper and Row, 1977, pp 115-154, esp p 128ff. For a detailed treatment of the translation of *Vorstellen* by 'representation' in the above essay, see Jacques Derrida's 'Sending: On Representation', in *Social Research*, vol 49 no 2, Summer 1982, pp 294-326.

[48] Mary Ann Doane, 'The Voice in the Cinema: The Articulation of Body and Space', in *Yale French Studies* no 60, 'Cinema/Sound', 1980, p 39.

[49] Maurice Jaubert, 'Music on the Screen', (1936) cited by Claudia Gorbman, 'Vigo/Jaubert' *Cine-Tracts* vol 1 no 2, Summer 1977, p 77.

[50] Rick Altman, 'Introduction', *Yale French Studies*, no 60, 'Cinema/Sound', 1980, p 8ff.

track has been increasingly reflected in the critical literature on cinema sound. Alan Williams, for example, investigates the construction of the 'listening subject' using terms adopted from Baudry.[51] Yet, as indicated by Williams' conclusion that 'what is most necessary for a critical, historical account of sound practices in film will be detailed analyses of different strategies of sound use,'[52] such studies almost always focus on the *techniques* of sound production – editing, dubbing, voice-over, etc, in short, the *employment* of the apparatus – and accord little or no attention to a systematic examination of the *technology of sound itself*.

Adorno, confronted upon his arrival in the USA with the technological reproduction and transmission of European culture, and employed at the Princeton Radio Research Project, made the investigation of the effects of the acoustic apparatus one of his principal concerns. Suspicious of the supposedly 'innocent' technology from the start, Adorno wanted to establish whether 'a symphony played on the air remains a symphony? Are the changes it undergoes by wireless transmission merely slight and negligible modifications or do these changes effect the very essence of the music?'[53] This is no small issue: mediation is here unavoidably linked to essential transformation. If familiarity has dulled the capacity to recognise the violence done to sound by recording, Adorno argues that it is important to try to establish carefully the material alterations which do occur and the specific effects of signification they entail.

Because the recording process can only capture sound waves from *one point* (the site of the microphone) in the space which constitutes that sound, recording is inherently *perspectival*. The limitations of such acoustic perspectivism can never be fully reduced or eliminated even through multiple miking, digital delay systems and many speakers. The sampling of the sound just like that of the image (frames per second) may be increased above a certain perceptual threshold but will always remain a more or less differentiated sample or selection, and thus a reading, an interpretation and never the 'original' sound.[54]

Playback is as equally problematic as recording: although 'advanced' technology is rapidly eliminating the remaining 'flaws' in acoustic transmission, the cinema soundtrack lags far behind the vanguard of high fidelity.[55] Background noise arises on the tape (hiss), in the amplifier (thermal noise) and on the optical track (dust, scratches) creating a constant very low level but still audible 'current' of noise which Adorno refers to as the hear-strip (*Hörstreifen*)[56]: 'the distortion level gives film music, much like radio, the quality of a strip: it seems, like the images, to be marched past the viewer on the screen, much more a copy of music than the music itself.'[57] Jean-Louis Comolli is right to insist that such technological phenomena be situated historically since, as he points out, they are 'in truth of little weight at a time when it is the whole of sound reproduction, records, radios, which is affected by background noise and interference'.[58] However, while this may account for the fact that such 'noise' was not actively perceived, the 'hear-strip' is no less (and perhaps more) symptomatic because of its omnipresence. In fact, despite technological development, a certain amount of low-level noise *remains* an ele-

[51] Alan Williams, 'Is Sound Recording Like A Language?' in *Yale French Studies* no 60, 'Cinema/Sound', 1980, pp 51-66.

[52] ibid, pp 64-65; this analytical focus is also reflected in the excellent work of Mary Ann Doane, 'The Voice in the Cinema: The Articulation of Body and Space', op cit and Rick Altman, 'Moving Lips: Cinema as Ventriloquism', op cit.

[53] Theodor Adorno, 'A Social Critique of Radio Music', *Kenyon Review* vol VII no 2, 1945, p 210.

[54] Alan Williams, op cit, p 53.

[55] Using a state-of-the-art tape recorder, for example, magnetic tape is able to capture 70db (with a DBX unit up to 90-100 db) of the 120 db dynamic range of the human ear. However in the translation onto the optical track there are dramatic losses: a new print has a theoretical dynamic range of 50 db (maximum) and in practice closer to 35 db and

ment in contemporary recording: this is evidenced by the practice of *recording silence* in order to add the hiss which would be notably absent were a piece of 'blank' tape spliced in instead.[59]

The psychological effect of the 'hear-strip' is, according to Adorno, 'somewhat similar to the awareness of the screen in the movies: music appearing upon such a hear-strip may bear a certain image-like character of its own.'[60] Elsewhere Adorno writes that 'the effect was like acoustic celluloid on which the music had been printed. In sensuous terms this suggested that one was perceiving not the music itself but its *photograph* . . . .'[61] The consequences of such 'musical photography' are not insignificant: when music is conveyed by the acoustic apparatus it is 'photographed in degenerated colors and modified proportions'.[62] While Adorno recognises that mechanical recording also fosters an analytic attitude towards music (the possibility of repeated close listening, etc)[63], he is much more concerned with the ways in which the apparatus *transforms* or re-structures its material. In recorded music, he argues, there is a loss of tone colour and intensity, a reduction of the overtone series, a compression of the dynamic range, an overemphasis on melody, a de-emphasis on accompaniment, an exaggeration of contrasts, etc, all of which combine to impose an 'image character' on the sound.[64]

That Adorno's analysis is *not* simply a nostalgic 'fall' story but rather a narrative of transformation is evidenced in his insistence that changes are effected by *both* the process of recording and the subsequent combination of sound with the image.[65] Far from mourning a loss with respect to 'live' music, Adorno's project is to understand the specificity of the acoustic mediation in a variety of different contexts. Because film music is heard in relation to the image, its 'distracted' mode of reception affects the manner of its composition. Film music cannot have structural depth but must be primarily surface, effect, colour: 'the more it provides the image with the dimension of depth which it lacks, the less it may develop its own depth.'[66] Thus film music is affected not only by the technology of reproduction but also by the function it serves in relation to the image. The overall result, which is referred to as 'neutralization' gives film music the character of a *digest* whose material has been *predigested by the technology*.[67] The homogenisation of the sound is such that even a conservative listener, Adorno claims, is able to listen to music on records or in the cinema which s/he would never stand for in a concert hall. In a formulation very reminiscent of Heidegger's insight regarding the objectification caused by the very technology of photography, Adorno/Eisler conclude that '*as a result of the neutralization the musical style, in the normal sense of the specificity of the materials employed, becomes to a large extent inconsequential.*'[68]

For an analysis of the soundtrack in cinema, Adorno insists, it is not enough to consider a variety of sound *practices* because no matter how radical and innovative they may be they are ultimately put in an apparatus which spits them out again in a digested, blunted and conventionalised form. In classically Brechtian fashion, Adorno/Eisler hold that an investigation of sound 'cannot be separated from the technique of the

a used print only 15-20 db! cf Bailblé,' Le Son: Programmation de l'écoute', in *Cahiers du Cinéma* no 297, Feb 1979, p 53.

[56] Although in 'The Radio Symphony' op cit, p 110 which was written in English Adorno refers to the '*hear-stripe*', the acoustic analogy to the celluloid strip seems best conveyed by '*hear-strip*'. The confusion caused by the former is evident in Ben Brewster's 'The Fundamental Reproach (Brecht)', *Cine-Tracts*, vol 1 no 2, Summer 1977, p 45, where the author flags the 'hear-stripe' in a footnote and wonders whether the term refers to 'the range of audible frequencies – or does Brecht mean the sound strip?' It is hopefully clear from the above discussion that neither conjecture is correct.

[57] Theodor Adorno and Hanns Eisler, op cit, p 84 (English p 86).

[58] Jean-Louis Comolli, op cit, p 133.

recording procedures: if the latter is thoroughly transformed the meaning of the music must consequently be transformed as well'.[69] It is not sufficient merely to interrogate the uses of sound: the imperative is 'to smash the mechanism of neutralization itself'.[70] To change the apparatus it must be rethought: the first step is critical analysis.

According to Benjamin 'the sound film did not change anything fundamental. What remains decisive is that the acting is done for an apparatus, or, in the case of the sound film, for two of them.'[71] In his analysis of the profound changes that take place in the shift from the theatrical to the cinematic what is significant for Benjamin is the advent of reproductive technology, of which sound is just one more manifestation. Yet, whereas the first apparatus, that of the image, has been subjected to sustained ideological scrutiny, the 'second' apparatus, that of the soundtrack, has not. While almost exclusively limited to analyses of music, Adorno/Eisler's work on the technology of the acoustic is seminal for its detailed attention to the specific effects of that second apparatus, to 'the material and the technicalities of transmision'.[72] The critique of the acoustic apparatus which they pursued is long overdue.

[59] cf Bailblé, op cit, April 1979, p 22 and Theodor Adorno, *Der Getreue Korrepetitor*, Frankfurt, Suhrkamp Verlag, 1976, p 371. In his analysis of 'The Radio Symphony' op cit, p 110 Adorno writes, that the hear-strip 'may not attract any attention and it may not even enter the listener's consciousness, but as an objective characteristic of the phenomenon it plays a part in the apperception of the whole.'

[60] Theodor Adorno, 'The Radio Symphony', op cit.

[61] Theodor Adorno, *Der Getreue Korrepetitor*, op cit, p 370.

[62] Theodor Adorno, 'The Radio Symphony', op cit, p 132.

[63] Theodor Adorno, *Der Getreue Korrepetitor*, op cit, p 390.

[64] ibid, p 370.

[65] This is much more evident in Adorno's post-'Culture-Industry' work on cinema; see especially his 'Transparencies on Film', trans. Thomas Y Levin, *New German Critique*, no 24-25, Fall/Winter 1981-82, pp 199-205 and also the excellent introduction by Miriam B Hansen in ibid, pp 186-198.

[66] Theodor Adorno and Hanns Eisler, op cit, p 143 (English pp 132-133).

[67] ibid, p 130 (English p 119).

[68] ibid, p 84 (English p 87).

[69] ibid, p 130 (English p 119).

[70] ibid, p 84 (English p 87).

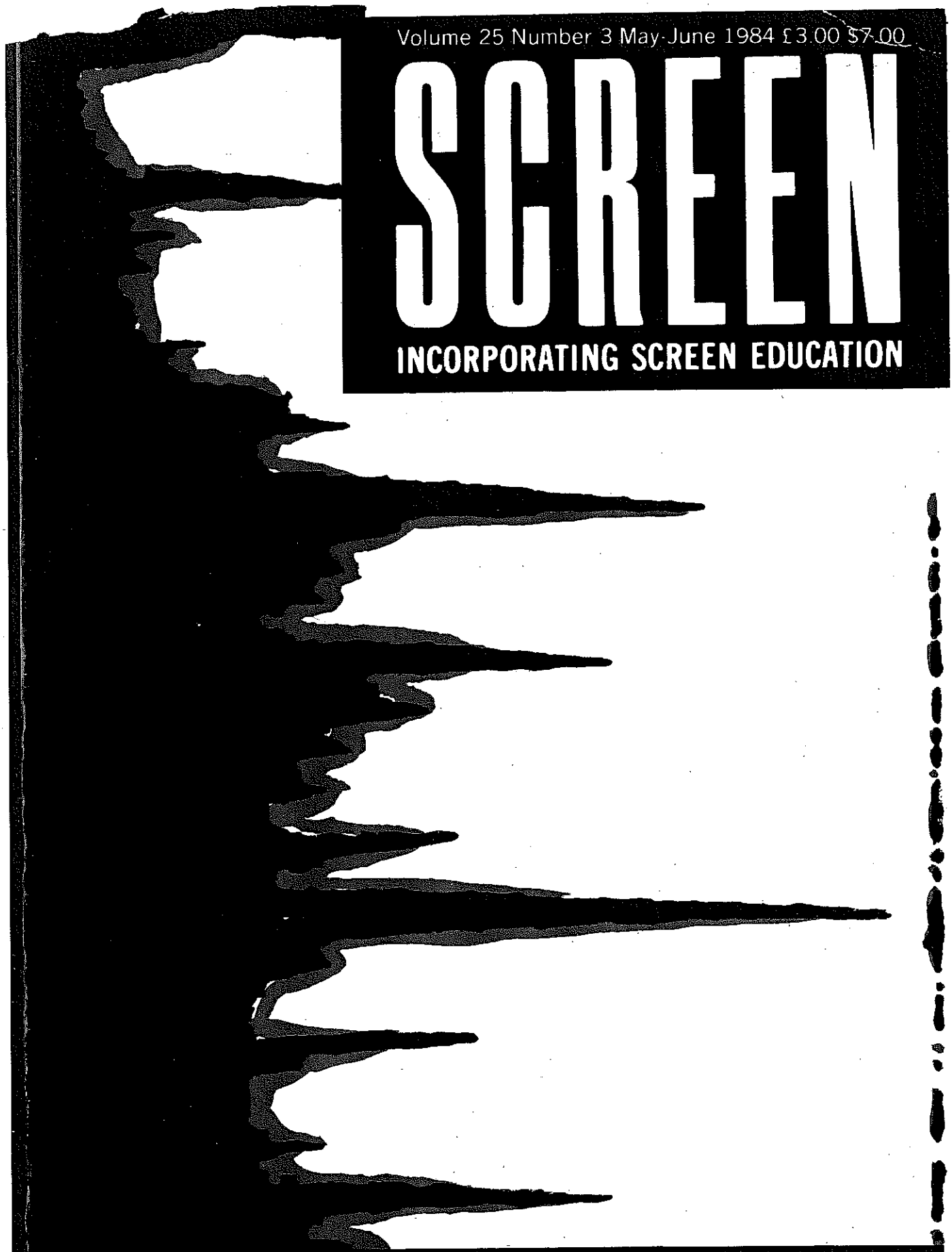
[71] Walter Benjamin, *Gesammelte Schriften*, op cit, Bd I 2, p 489.

[72] Theodor Adorno, 'The Radio Symphony', op cit, p 110.

Volume 25 Number 3 May-June 1984 £3.00 $7.00

SCREEN

INCORPORATING SCREEN EDUCATION



ON THE SOUNDTRACK