Collective composition: the case of Edison Studio

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This article describes the collective experiences of the four composers at Edison Studio, who have recently been working on the soundtracks for two silent movies – four artists involved in the same discipline, working with the same skills and in the same roles. It describes their composition methods, ways in which problems are resolved, the new awareness and understanding they have acquired and the results of work created out of a re-evaluation of individual ways of operating, that seeks to bring together and strengthen the common ground between them.

1. INTRODUCTION

Often, even today, the creation of a piece of music, in the sense of a final event in a creative process, is associated with the work of a single person, the composer. Apart from experiences in the field of electroacoustic music and research, the practice of collective composition by rock groups (especially during the 1970s and 1980s) is of particular significance. In fact, in these cases, it is commonly supposed that behind the name of the group there are four or five musicians who work together not only on the performance of the pieces but also on their composition. Many other examples can be found in collaborations between jazz musicians, in improvised music, etc. In Rome, in particular, the experience of Gruppo di Nuova Consonanza and Musica Elettronica Viva had a strong impact on musical life. Musica Elettronica Viva (founded by Alvin Curran, Richard Teitelbaum and Frederic Rzewski in 1966) rapidly expanded its focus to include free improvisation in constantly changing formations, street music and theatre, collaboration with amateurs and untrained musicians, and audience participation frequently involving hundreds of people:

> Collective music, using improvisation, games, and participatory interaction, and for which the group was directly responsible, seemed more adventurous and liberating than simply writing scores and hoping for performances in one of the official contemporary music festivals. These ideas were not entirely new. John Cage and David Tudor had already been experimenting for several years with live electronics, and Lukas Foss and Larry Austin had done groundbreaking work in applying collaborative improvisational techniques to composition. I was active myself in the 'Nuova Consonanza' improvisation group organised by Franco Evangelisti in 1964. Free improvisation as a musical form in its own right had already achieved classical expression in the work of Ornette Coleman and John Coltrane, and was rapidly becoming the dominant trend of jazz. Several groups of composer-performers, each concerned in its own way with experimental electronics, collaborative processes, and improvisation, were being formed in various parts of the world: the Sonic Arts Union in the United States, New Phonic Art in Paris, AMM in London, and the QUAX group in Prague. Similar ideas were already at an advanced stage in the theater and visual arts: The Living Theater in particular, with which MEV was in close contact, furnished an inspiring model. (Rzewski 1991)

Gruppo di Improvvisazione Nuova Consonanza was the first European improvisation ensemble made up entirely of composers. As Franco Evangelisti wrote about the group: 'The work is the result of a collective nature that depersonalizes the idea of musical work as an outcome of a single composer' (Evangelisti 1991). 'Altro, Group of Intercode Work', also based in Rome, was an ensemble of artists, poets, painters, graphic designers, dancers and musicians (including Luigi Ceccarelli) which performed many 'intermedia' events that started from a long and careful process of collective work.

All the composers of Edison Studio have had various experiences, both as performers and composers, in separate collective groups in the 1970s, especially rock bands and intermedia ensembles. That had a strong impact on our personal musical path. After many years, in which each of us worked on a personal basis as composer in the New Music field, we decided to work once again on collective composition, in an area that is strongly influenced by the use of new technology. Some of the crucial differences with Nuova Consonanza Group and MEV lie in our scarce use of improvisation and aleatory processes and the strong emphasis upon computer control and memorisation of sound parameters. Ideas like audience participation as an extension of the live-electronic experience that were in

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the air in the late 1960s, are not included in our project, which is mainly focused on collective composition of live computer soundtracks of silent movies.

There are many skills necessary in the activity of musical creation with new technology, especially in major works. Musical composition can therefore become a team operation in the same way as an architectural project or a film. What is more, technology is helping creative thought towards a total integration of sound and visual aspects. For this reason the creation of the work becomes an increasingly complex task requiring an interrelation not only of technical collaboration but also conceptual and creative collaboration. Today, in fact, many performances, even those belonging to the category of concert, involve a multi-sensory aesthetic experience – auditory, visual and tactile dimensions that intervene in (or even before) the musical performance, all providing a substantial contribution in defining the work. All of this makes it necessary to widen the horizons of skills and perceptions necessary in the creation of any complex artistic project. In productions between different media, the bringing together of artistic experiences is often assisted by the clear demarcation of skills – the composer, the video artist, etc. But what happens when it is necessary to find a way of bringing together four artists involved in the same discipline, who each work with the same skills and carry out the same roles?

Starting off from this question, this article will describe the collective experience of the four composers of Edison Studio – Mauro Cardi, Luigi Ceccarelli, Fabio Cifariello Ciardi and Alessandro Cipriani – who have recently been working on composing the soundtracks for two silent movies:

(1) The live computer soundtrack for 'The Last Days of Pompeii' by Eleuterio Rodolfi (1913), commissioned by MM&T Milan for the Festival 'Senza Parole' and performed at the ICMC 2002 (Gothenburg, Sweden), with various repeat performances in Europe and in the United States.
(2) The live computer soundtrack for the expressionist masterpiece 'The Cabinet of Dr. Caligari' by Robert Wiene (1919), commissioned by the ICMC 2003 and performed at the same conference in Singapore, with repeat performances in Italy and in Sweden.

2. SHARING AND SHARING OUT

The desire to be jointly responsible for the scores of the two soundtracks, in other words the desire to share the creative process from the beginning, led to a sort of chain reaction that determined a work method which was highly unusual and, at the beginning, not entirely predictable. The idea of dividing the work between us by segmenting the film into separate parts, each of us working on different sections of the film, immediately seemed too risky. Our diversity of style would have ended up in the creation of 'linguistic fractures' which would have compromised the general coherence of the relationships between sound and picture. The sharing of work on every sequence, on almost every frame, therefore seemed to us to be a necessary choice.

The consequences of this decision were such as to render this experience quite anomalous, both in respect of our personal ways of making music as well as in respect of our experiences of collaborating with artists in other disciplines. The files and ideas presented at the outset by each of us were rapidly analysed, reused and reprocessed by the others.

The process of analysis and judgement by all of us was fairly fast and sometimes harsh. The need to share the artistic responsibility for each choice, together with the speed imposed by the demands of producing the work, strongly restricted the possibility of each of us returning to an idea or a sound which the majority had criticised. This sometimes led to the self-elimination of those processes of composition and elaboration where a truly satisfying result could be reached only after various periods of rethinking and patient attempts at 'remodelling' the sound material.

On the other hand, we placed no restriction on the possibility of each defending their own view, independently of the opinion of the others. Probably it is the search for compromise, as well as the determination by some of us sometimes to defend our own ideas, that forms the basis of the consistent overall style characterising our collective work.

In this continuous, frenetic and passionate artistic and inter-personal dialogue, the time limits required for the creation of an idea often influenced the way in which it was used. Some of us were aware that it was naturally possible to re-propose an idea – after a further phase of processing – which had received an initially tepid response from the others, but it created the responsibility of slowing down the work process. On the other hand, we have learned over time to understand each other and to get to know each other's working methods, perceptions and ideas. During the course of production, the initial willingness of all of us to discuss, correct and experiment has gradually given way to rapid judgements and decisions that have sometimes been drastic.

The pressure exerted by each of us and the consequent loss of hesitation in expressing our own opinions on the work of the others has not always been painless, especially when, following the rejection of an idea, we have not succeeded in developing a new one straight away. Proposing an idea was therefore like 'exposing' ourselves. The discussion was not always easy to control but, in order to move ahead with the work, this couldn't be avoided. Even when discussion turned into

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conflict, it always ended, fortunately, in producing positive results and therefore reinforced the commitment and enthusiasm of all of us. Sometimes, for example, the same act of rejecting an idea produced a sort of creative short circuit, a 'resynchronisation' within the group, which made it possible for new ideas and new solutions to take shape.

The ability to maintain a certain lucidity in evaluating the progress of work was without doubt assisted by continuous consultation with the visual images and dramatic progress of the film. In music, as with any art, meaning is not always immediately capable of being translated through language, and this often makes it difficult to explain and defend a particular point of view in words. However, in the case of a soundtrack, as opposed to absolute music, the bringing together of sound and music involves a certain superimposition of meaning, making any inconsistencies rather easier to identify, explain and understand. The possibility of maintaining differing underlying interpretations as to the role and function of the soundtrack certainly remained, in the same way as the possible meaning of a sound in relation to the plot development, but this possibility was reduced to a minimum, if not entirely eliminated, during the course of the initial meetings in what we will describe below as the pre-production phase.

Once the actual creative phase (pre-production and production, see below) was completed, we moved from a phase of total work sharing to a more traditional subdivision of tasks. The personal inclinations, skills and motivations of each member of the group made it possible to organise the remaining practical phases necessary for the completion of the project. On the other hand, the joint creative involvement itself during the composition phase had by this point created a spirit of collaboration that assisted discussion and debate as to the remaining aspects of performance, organisation and technical questions.

3. WORK METHODS

The choice of the film 'The Last Days of Pompeii' was made by the festival which commissioned the work from us. In the case of 'The Cabinet of Dr. Caligari', the choice of the film itself was made jointly. We had seen many silent movies, from various different countries, before deciding upon this film by Wiene.

The two compositional experiences share many things in common, though there were also many differences, due in part to a critical reflection after the first work, and in part to the rather different artistic nature of the two cinematic works. If in 'Pompei' the narrative structure is fairly simple and linear compared with some films of today, 'Caligari' has much more in common with a sophisticated modern film, given that the plot and central idea are developed on various time levels.

In complex compositions such as those for 'The Last Days of Pompeii' and 'The Cabinet of Dr. Caligari', the work does not involve music alone but also sound environment[1] and dialogue. As we clarify in sections 4 and 5, these three levels continually alter, one with another, creating a system of interactive signs.

3.1. Pre-production

At an initial stage, we watched the film on several occasions, both together and individually. We discussed the general approach and interpretation to give to the work. While trying to respect the path designed by the director, we inevitably – but also intentionally – superimposed upon the original sense of the work what we, through the music, wished to emphasise.

Subsequently we carried out a meticulous work of segmenting the film, naming and timing the sequences, following the scenes through which the story of the film developed, the presence of the characters, the principal events, the physical environments, even the original tonal quality of the film itself which, in Wiene's films, becomes fundamentally important as the director took personal care of this aspect. We translated all of this information on to graph paper which enabled us to obtain a precise view of the time-structure of each scene. This made it possible to have a clear overall picture of the sub-divisions in terms of time and to deal with them with relative ease. (Those involved in cinema sometimes work using the concept of the 'storyboard', which perhaps offers greater detail in defining visual content but, from the point of view of controlling time ratios, is very limited). From this diagram, redrawn several times in order to incorporate the scenes within which our work was to develop, we began to work on the sound.

The first real step was the choice of instruments to be used, given that the works are created for live performance. In both cases, though with certain differences, the instrumentation consisted of MIDI keyboards connected to samplers, of acoustic instruments and voices processed in real time and of pre-recorded multi-track sounds created by means of synthesis and/or signal processing. During this phase, a division of roles in the concert performance was also drafted out.

We then examined the technical problem of audio-video synchronisation and produced compressed versions of the films that were compatible with the systems and software that we would be using in the composition and performance phase along with the non-compressed version on screen. We realised that a unique system of synchronisation would be too risky in the context of a performance with heavy use of

[1]Often called 'sound effects' or 'foley', but we prefer a less technical term.

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live electronics. Therefore we decided to have independent and manual triggering of most of the events. In this way, when one particular machine had problems, it didn't affect all the other electronics involved, therefore allowing the single machine to be re-booted without stopping the performance. The other reason for that decision was to allow the whole performance to have a more 'human touch'.

3.2. Production

In the compositional activities of Edison Studio, we can identify three work phases which can properly be termed musical. These phases generally occur one after the other, though not necessarily so. Sometimes the work on one phase leads to new ideas which require the inclusion of new basic material and a revision of the previous phases:

(a) Identification and creation of the sound material.
(b) Composition of the individual sequences or sections (around twenty in each film).
(c) Composition and assembly of the overall work.

3.2.1. (a) Identification and creation of the sound material

This subdivision can be particularly important in a collective work because it permits an interaction between the various composers not only in terms of time but also in a vertical sense (i.e. each working on single tracks of the same time zone, like a collective counterpoint). This means that each composer is given the opportunity of dealing with phase (a) or (b) starting from a point already reached by another member.

Obtaining material is one of the most creative phases in the composition process. The associations between images and sounds are often the result of pure intuition, a formal dimension still not having been created. In this phase, the development of an idea depended upon a sort of experimentation, like a sort of alchemy, in which it was the sound material itself, barely juxtaposed and still not rationally arranged, that suggested to all of us the development to be followed.

The sound material created by each of us, as well as the processing criteria tried out on the initial material, had to be proposed and accepted by all. In this way a common creative sensitivity was established, which had to be very deeply shared – each member, by approving the sounds of the others, found themselves recognising the intuitions of the other and reabsorbing them as their own.

The acceptance by everybody of a certain type of sound proposed by one, and its suitability to become part of the music for the film, provided an important support. It gave great reassurance both to those proposing and those accepting, as well as an awareness that all were participating in a shared emotion.

Once chosen, these sounds become part of a collective reference catalogue that forms the basis of subsequent research. The materials are linked with situations, characters, emotions and environments that go beyond the sequential division of the film. Sometimes the individual choice is not entirely rational, or has perhaps not yet become so. In these circumstances it is often the jointly developed creative sensitivity that has enabled us to intuit clearly that an idea, even a barely sketched out sound, was capable, after being processed, of resolving one of the musical problems arising out of the relationship with various scenes in the film.

In this phase it still seems premature to talk about collective composition, but it is exactly here that the foundations of the joint collaboration are established, and it is precisely at this moment that an awareness is created – no more, at first, than a hope – that a common feeling is capable of emerging with which everyone is able to identify.

The basic sounds form a shared store of musical ideas which everyone can make use of without limitation. Sometimes, the incorporation of one sound found or processed by another composer of the group does much to give a sense of newness and vitality to the music itself – like someone else adding their point of view which suddenly makes the work created more clear, even for you.

The sounds used in the two films are of different kinds. However, in both cases they make use of synthesised sounds as well as sounds from mainly traditional instruments and also invented instruments, *objets trouvés* and concrete sounds. The sampled sounds were partly created *ad hoc* and in part taken from personal sound banks that single members had made available to the others.

3.2.2. (b) Composition of the individual sequences or sections

In this second phase, each began to work wherever they found practical and functional ideas and solutions. In this way, for a certain time (each project, from the beginning to the final phase, took more than six months), the periodical meetings provided occasions to present, discuss and incorporate the parts composed by each member of the group.

Each member of the group showed the greatest willingness to enter into this game. This was an essential condition for the composition of the work. Over time, the various sections of the film began to take shape, like the pieces of a jigsaw puzzle. During this phase, in the same way as with the initial sound

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material at the outset, each musical step that was proposed and, so to speak, 'accepted' by the group became part of the common property upon which the others worked in turn and which they made use of at other stages in the work. If, for example, a composer included a particular sound in a certain section of the film, this became material on which the others were able to construct other subsequent sections.

The subdivision of our work into scenes was never too rigid. The sound and visual connections are networked, sometimes independently from their position in time, and imply levels of relationships which are not only of a narrative type but also linked to immediately perceptible aspects (material, timbral, figurative, etc.) at the audio-visual level.

Also, in a film, there are always scenes which lend themselves well to being set to music and others that seem immune to musical treatment. Sometimes, in these scenes, the contribution of one person alone was insufficient in the construction of an idea with a relevant musical development. Here, without thinking about the overall result, each member tried to find one aspect, perhaps even minimal (a noise, the emphasis upon a tiny detail, or perhaps a background noise or even a sound that had an abstract relationship with a character or with an emotional state).

Yet, on other occasions, ideas were created by superimposing musical parts composed for a certain scene. Listening to, and discussing the result, some composite ideas strengthened each other whereas others proved to be incompatible with each other or with the scene in the film. This way of proceeding might seem laborious and perhaps even confusing, but everyone's progressive overall sense of enrichment, and above all the gradual deepening of understanding in working together, produced mutual creative nourishment precisely because of this method of working, sometimes producing results that were even superior or unexpected in comparison to those results that an individual composer could have achieved. Obviously, this presupposes an implicit formal aesthetic agreement as to approach, namely that the musical work, in this case composed for a visual work, takes shape during the process of creative development rather than being conceived in its general shape at the outset.

This creative development has something to do with the idea of evolution rather than with architecture.

> Every evolutionary step is an addition of information to an already existing system. Because this is so, the combinations, harmonies, and discords between successive pieces and layers of information will present many problems of survival and determine many directions of change. (Bateson 1979)

In this phase of permeating the incomplete idea with material, the intuition that was initially proposed and accepted was able to find its own definitive form by being combined with ideas that were gradually superimposed upon it. Yet, in other cases, it was precisely the friction generated by the superimposing of various materials that finally enabled us to rationalise, and therefore properly understand, an inadequacy in the initial sound material that we had previously only intuited or simply underestimated.

3.2.3. (c) Composition and assembly of the overall work

The last phase is the overall assembly of all of the scenes in the film. The operations to be carried out are varied and complex. This ranges from linking the scenes together (an operation which is by no means straightforward) to trying out the live parts with the pre-recorded parts. But, from the point of view of the collective work, the most important stage has been completed. There is an awareness that the work has been created. It can now, finally, be looked at in all its complexity. There is still a great deal of work to be done but its direction is clear. One realises that synergy – that extra *something* produced by the union of more than one individual – is not utopian. None of the four of us could have created a work like this alone, except perhaps over a much, much longer period of time. Even then, it is unlikely that we could have created a work of such complexity.

After the first collective work ('The Last Days of Pompeii'), which we approached, more than anything else, as a challenge, we came to understand that, in the end, the result of collective collaboration goes well beyond the simple sum of individual contributions. In the light of this, when we set to work on the second film ('The Cabinet of Dr. Caligari'), we faced this leap into the dark (as is the case at the beginning of any new work) with greater reassurance, with the certainty that, by collectively developing an interactive network of senses in approaching the audio-visual work, we would be able to obtain a result that would give us even greater satisfaction.

4. MUSIC AND DIALOGUE: THE USE OF THE VOICE

One example of this is the work of intersecting the use of voice and music in the 'The Last Days of Pompeii'. The emotion of voice is often something which one feels is missing in a silent movie. The meaning of the dialogue is provided by the caption boards, but the emotion communicated by the actors comes from the visual image. We began to work on processing our own voices live in synchrony with the speech of the characters in the film. Our 'dubbing' was carried out in a language that was totally invented and emphasising the emotional and kinetic state of the characters through no more than the outline of tone, intensity,

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pitch, timbre and rhythm of speech, leaving out any strictly verbal content. Avoiding the more obvious solutions of 'dubbing' the speech of the actors, instead we examined the problem of giving them a sound identity, attempting to obtain, if only through original tonal and expressive solutions, a way of identifying and recognising the character traits of each figure.

In 'The Last Days of Pompeii' the decision to use the voice played a fundamental role. The voices of two composers in the group are processed live in order to accompany, provide atmosphere and sound to the situations and principal characters, without ever being too restrictive in the type of sound combination chosen. As in 'Caligari', the actors often express themselves with sounds, noises and sometimes with silence. There are no texts to be recited, not even the caption boards that appear in the film. The voices, as captured by the microphone, and already indecipherable at source, then undergo heavy processing in real-time, until they become mutterings, free phonemes, bands of colour, sounds, processed as such. Yet they retain the semblance of a human voice, lacking any clear sense, but nevertheless susceptible to following the changing moods of the characters (see movie example *Taverna.mov* on this issue's CD).

But in 'Pompei' – a work which was experimental in its own way and in a number of respects anticipated many of the 'colossals' in cinema history, the overall concept of the film being naive and at times unresolved – the processed voice also exemplifies the interpretation that we have given to the work of Rodolfi, in which the sentimental aspect of the story and that grandiose aspect of the film are often tinged with a note of irony and paradox with which we have interpreted the film (movie examples *Arbace.mov*, *Glauco's bubbles.mov*).

Thanks precisely to the exclusion of verbal content, we have been able to work in the border area between speech and music, where it is the outline of tone, intensity, pitch, timbre and rhythm that create a deeper meaning. Our objective was to create 'phonic actors' through the vocal dimension, acoustic elements with their own 'figurative' value that could interact with the composition of the scenes, with the rhythmic scan of the images. In addition, a second sound dimension was established, to complement the vocal part, obtained by starting with concrete sampled sounds.

Small, short sound cells of instrumental origin were used for this purpose which tended, already by themselves, to imitate the intonations of the verbal language. In the case of the sorcerer Arbaces, for example, the instrumental sounds, originally obtained from a double bass trying to 'speak', were added to the processed voice, making use of similar spectral and dynamic progressions. On the other hand, in the case of Ione, the expressive vocabulary of the character was designed starting with a multiple processing of material that was all of vocal origin. On other occasions, in the case of Glaucus, the voice of the character was created starting off only with the intentionally 'verbal' articulation of samples of material of instrumental origin (see movie example *Glauco's bubbles.mov*).

The linguistic 'modulations' obtained in these ways proved to be flexible and functional expressive instruments. The new voice of each character was able to emphasise the superficiality of the image, even the onomatopoeic aspects, producing results that were intentionally ironical or caricatural. But it could also express emotion, the expressiveness of a glance or a gesture which an actual word would probably not be capable of conveying.

The sounds associated with each of the characters in 'Caligari' take and develop the possibility of giving voice not so much to the unspoken words but rather to expressing the mood of the characters. The crunching, 'minimal' noises accompanying Caligari are an intentional reference to the introverted, taciturn, enigmatic and perhaps schizophrenic character of the doctor. Similarly, the distorted sound of the old piano accompanying Franz tends to capture the perennial estrangement and awe-struck (and, deep down, resigned) desperation of the protagonist. Generally speaking, as in 'Pompei', the methods of associating the sound material with the characters in Wiene's film continue to be inspired by the verbal articulation and gestures of the actors, though this time without irony. Given the dramatic intensity of the plot and the acting, the 'speeches' here come not so much from the 'voice' of the characters but above all from the 'sound' of their inner thoughts.

All of these sounds in general substitute, anticipate or make reference to images already seen or yet to be seen and interact with 'environmental' sounds and with more complex and abstract musical levels. A work of this kind requires not only a clear common intent but also a willingness to listen to and intuit the ideas of the others as well as a common creative sensitivity that makes it possible to understand how to achieve the best solution.

Now that the work is finished, each of us continues to discover unsuspected points of connection. In actual fact, the multiplicity of ways in which our work itself can be seen leads us to change many details each time there is a live performance. In this sense, both works could be described as *work in progress*.

5. MUSIC, DIALOGUE AND SOUND ENVIRONMENT

From the sound point of view, the central idea in our projects was to develop a structure which ran parallel to the film but which was strongly linked to it.

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This structure also had to relate with the visual aspect not in a linear fashion but in a way that was continually variable, oscillating between a use of traditional conventions in the sound/picture relationship and a total unconventionality that tended to explore new dimensions of the relationship between music and film.

The possibility of pursuing such a venture is certainly appropriate for this type of 'historic' movie, where the film is available in its final form. The absence of pressure from the director and production company, in fact, makes it possible for the composer to have a freedom of action that is hard to imagine in a traditional cinematographic process.

The composition of a soundtrack, especially when devised for a silent movie, can have an effect on the story by revealing details (which are sometimes fundamental) that the picture alone is unable to express. The attention to detail is very important. Vice versa, a sound that is not placed into some kind of relationship with each detail in the story, either visual or emotional, can thwart the expressive power of the visual image, coating it with a uniform layer that tends to flatten the overall effect.

From this point of view every sound is important, whether it is regarded as 'music' or as 'environmental' sound. In order to fully emphasise this principle, we have totally abandoned this distinction and, on the contrary, have happily played around exchanging roles. For example, we have often attributed emotional and metaphorical functions to 'noises', or environmental functions to 'music', achieving results that have sometimes been extremely effective. In reality, all three levels (music, environmental sound and dialogue) have performed interchangeable functions and roles in both works, overturning the usual idea of separation between these three areas of the soundtrack. This has been helped by the collective dimension of the work – the same shared sound could become part of the dialogue of one composer, part of the music of another and part of the sound environment of yet another.

The distinction between 'sound' and 'noise', or rather between 'music' and 'sound environment' in a film, is by no means banal because it is the visual image that often plays a fundamental role in classifying it. In general, the noise is perceived as such because of its strictly contemporaneous relationship with the visual content. This is also the same for the spoken word which relates to the movement of the mouth. The music, however, is often free from any mere correspondence to a movement in the scene and is the sound element to which a higher emotional significance is generally attributed. What, for example, in the films of Antonioni, Bresson, Coppola, Leone, Lynch, Tati, and Tarkovskij are regarded as breaches of the norm (particularly those in which it is the sound that moves forward the sense of the sequence, or those in which the noise is freed from its traditional function), have become an integral part of our way of conceiving the soundtrack. The challenge that we faced in these two films (for each of us in a different way) was to seek to use the conventions but at the same time to experiment with possible ways of breaking them. The assumption always to bear in mind was that any breach of convention, without being extraneous to the project, had to function as organically and, so to speak, 'naturally' as the conventional rule.

For this reason, we made use, above all, of the sounds and techniques of electroacoustic music which, with its varied possibilities for processing sound, enabled us to produce and make use of a timbral palette that gave us a whole range of intermediate tones between sounds that were entirely recognisable and sounds that were completely abstract. A soundscape sound, normally perceived as such, could therefore for us become less automatically understandable and acquire a form of ambiguity that enabled it, depending on the relationship with the visual image and according to the story context, to be interpreted either as music, or as sound environment, or as a form of language.

Following this removal of the distinction between music and sound environment, traditional sound associated with a specific event (e.g. the sound of rain, of thunder, of the sea or even the creaking of a door) could become the subject of a flexible and virtuosic semantic manipulation (see movie example *Glauco's Bubbles.mov*).

Sound processing has produced a processing of meaning which we have sought to develop creatively. The meaning of an event can be altered by manipulating the concrete sound which in reality is generated by that event itself. The spectral nature of the sound of lightning, for example, can be modified in such a way as to produce a harmony that is useful in heightening the expressive climate of the scene. In the same way, it is possible to describe an event not by the sound that the event produces in reality but by an extraneous sound which recalls it through some characteristic of the dynamic or spectral development. The creaking of a door, in the same way as a curtain being opened, for example, can be substituted by the regular or irregular tearing of a sheet of paper precisely because of the similarity between the spectral developments of the two sounds.

Clearly, what the composer has to deal with in this case is not only the sound material and its possibility of being processed, but before that, the expectation that that same material is able to generate in the mind of the spectator. This type of concept is particularly clear with the use of the voice. In 'Pompei', for example, we often gave a voice to the characters, but their speech is made up of tiny fragments of

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words – words practically destroyed – juxtaposed in such a way that the text completely loses any semantic meaning, but maintaining the melodic nuances and rhythms of the phrase. In this way the spoken sound is placed in an ambiguous position between dialogue, music and 'environmental' sound, in such a way as to combine within it all of these characteristics.

Many sounds that do not have a precise realistic connotation have been used in different ways, sometimes as part of the sound environment, on other occasions as non-diegetic sounds to emphasise an emotional state. The sounds with ambiguous characteristics assume a different significance according to the context, and can also carry a scene into an entirely new and highly stimulating dimension, towards 'an incompleteness that engages the imagination of the viewer as compensation for what is only evoked by the artist' (Murch 1995: 247). The only fixed criterion by which this game can be infinitely varied and invented is that of extending the possible connotation of a sign, of a gesture, of a word. The limit of the game depends on the capacity of the person playing it to make the new connotation perceptible, credible – even if unexpected – and coherent.

6. FROM COMPOSITION TO PERFORMANCE AND *VICE VERSA*

From the operational point of view, in work carried out as a group within Edison Studio, the actual period of composition, which has taken up the major part of the time, involves the contribution of each member at all levels. This is followed by a second phase, of preparing the work for public performance, which envisages a differentiation of work. In practice, during the first phase, we worked with systems and applications that are the same for all (or compatible). We then worked separately, each member using their own system for performance or control, during the rehearsals prior to the performances.

Each of the two soundtracks has a live part and a pre-recorded part. In this sense we have taken on the role of performers (which is unusual for us), managing also the processing of our live sound at the same time during the projection of the film. In this respect the possibility of recording and editing our rehearsals had a certain importance. In the traditional written context, the original is limited to the written score. Until the advent of recording methods it was not possible to talk about an 'original performance' as we would do today with an improvisation by Charlie Parker. Before then, the sounds of a performance faded away, leaving only a trace on the memory of the audience and the performer.

Within the context of our work, even a recorded improvisation can become an 'original'. In other words, it can pass, for example, *from the domain of improvisation to the domain of acquired material* in the electroacoustic score. The contrary is also possible – passing *from the domain of material created in the electroacoustic score to the domain of improvisation*. A sequence composed on the timeline of a hard disk recording programme can be separated into its sound objects. These isolated sound objects can be sampled and replayed live using a MIDI keyboard connected to a sampler and processed in real-time. In this way there is a passage from a dimension of sound composition on the computer to a dimension of re-performance on the keyboard in real-time.

Perhaps the most heated area of discussion, where the experiences of each of the four composers came into conflict, was this relationship between pre-recorded music synchronised with the visual image and music performed live using acoustic and electronic instruments. If the former guarantees absolute synchrony with the visual images, as well as a perfection that could not be reproduced live, the latter restores the excitement of live performance which, by definition, is unrepeatable, never the same twice. The combination of these two approaches and the division of roles and relative importance of each still remains an ongoing area of discussion between members of the Edison Studio group, which we will certainly have to face again in similar future projects.

7. COLLABORATION AND TECHNOLOGY

We believe that audio technology has provided us, in several important respects, with the conditions for bringing about this synchrony of styles, this open collaboration, without pre-established roles or schemes. The possibility of being able to discuss work not only on the basis of the concept, as would happen with the composition of a score, but also on the basis of direct audio-visual perception, is fundamental. With the use of audio-visual technology, the composers are able to interact with the electronic equipment in order to modify what they are listening to, and can save every tiny detail of what they agree upon. Without this essential prerequisite the management of operations as complex as these would be impossible, unless a subdivision of labour was once again created.

Collaboration operations are usually between people who *divide* tasks between themselves. Yet, facilitated by technology, it has been easier to *share* all of the tasks between people carrying out the same work, offering their own energy and skills to collaborate directly on every detail, trying to overcome every egotistical obstacle and sense of competition which often block creative collaboration. This sharing has brought us to the point where we have lost that sense of any part of the material belonging to any one of the four composers. The further the work proceeds, the

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more we are aware of losing any distinction of boundaries showing the origin of sounds coming from one or other of us. The synchrony of our work has reached such a profound level that most of our listeners confirm the impression of one single style, not comparable with the styles of the four individual composers but with a continual reference to one of the group without any perception of bounds.

Each time we have worked together as a group we have learned much more than when working individually – on the possible ways in which different computer systems can communicate, for example, or the compatibility of particular applications, or on the possibility of effectively bringing together different contributions that start off from positions which are initially aesthetically far apart. We have also, in the end, learned something about ourselves.

As stated earlier, the sense of a composition is not always immediately translatable through verbal language. Yet, from our perspective, group work often requires a prompt and unmistakably rational answer to the proposals of others. When working alone, the responses can be delayed or left in suspense or sometimes not entirely rationalised. Working with others, this type of delay and latitude is not always permitted. If something isn't convincing, it has to be said and immediately justified. Although, on the one hand, this can often turn out to be extremely complicated, on the other hand it demands a clarity of intent at every stage of the work. Often, however, there is immediate agreement at the first hearing and there is no need for discussion about clarity. In our experience with individual composition, consciousness as to the nature of the work arises only after a certain period of time, if not indeed after the work has been finished.

Although, as indicated, the methodology adopted by our group did not involve an easier and more reassuring division of work 'by section', but rather a constant superimposition of roles, the hand of any one of the four composers was not distinguishable in any way whatsoever upon the completion of the work. This was so from the external point of view but it was also the case for us ourselves, after so many modifications carried out together. Frequently, alterations were carried out to the work of others, the material of one member being taken and reprocessed as if it belonged to another. On the material used, we were generally easily able to agree, each respectful of the others but also curious and perhaps also eager to hear the sounds of the others. Personally, all have been left richer, both in experience and in their own sound archives. By the end, no sound was quite the same after all of us had worked on it.

On formal matters, on the other hand, and on the significance and effectiveness of the general decisions, there has always been animated discussion. In the end, the value of a musical composition is largely based on these aspects. Otherwise, insofar as the nature of the materials and language adopted, our recent experiences have taught us to remain open-minded.

In substance, our work sessions were concerned not so much with the consideration of a sound, but with the way of structuring that sound within the work. We didn't disagree so much on the quality of a musical sequence as on its function. Often the effectiveness of a choice became weaker once it was placed into its context, when it was juxtaposed with earlier passages. But it could also be the arrival of the new idea that put others into crisis. Whether an idea works or not, beyond its own 'beauty', is suggested by the natural instinct of the person who makes music or who has spent a long time working close to music. Although it is subjective, this instinct has many sharable aspects, at least within a group of people with a strong identity in terms of a common culture and experience. But in our work we have always also maintained a position of doubt, of reasonable doubt as to the absoluteness of the criteria set out above. The attempt to take language one stage further for expressive purposes, of taking form one stage further for constructive ends, the presumption of expanding the common concept of 'functionality', has always been present in our work in sound and music as well as in our activities involving the moving image. The sharing of a spirit of research around how to make music has encouraged us in this sense to look for new solutions beyond our own shared creative sensitivity.

As each work gradually began to take shape, during the long periods of time collectively dedicated to each of them, we became more aware of the very nature of the operation from the aesthetic and semantic point of view, and it gave us an ability and insight to know how to carry out the further research that arose during that time. One becomes involved in a work (and in the cases described we also had an important constant source of reference with forms already defined, though 'silent') and, little by little, comes to understand it by living the experience.

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