

UNESCO REPORT ON THE STOCKHOLM MEETING

by

EVERETT HELM

THE Meeting was opened with words of welcome by Ingmar Bengtsson and Olof Tandberg, Secretary General of the Swedish National Commission for UNESCO. Both expressed thanks to the Swedish Institute for Cultural Relations, the Swedish Bank of Commerce and to the Electronic Music Studio of Stockholm for their invaluable cooperation in making the Meeting possible.

Kaj Kauhanen welcomed the participants on behalf of UNESCO. He pointed out the timeliness and importance of the topic under discussion and conjured the participants, who live in the world of music and technology, to adopt a critical attitude towards what has been achieved and what remains to be done. Technical matters would undoubtedly come in for considerable discussion, Mr. Kauhanen continued, but at all times a critical point of view is necessary, even if the prevailing opinion should prove to be pessimistic. At this moment the questions relating to music and technology are of fundamental importance and require a study in depth. The recommendations of the present meeting can form the basis of future meetings. Mr. Kauhanen concluded by pointing out that the meeting's theme must include the consideration of music in the broadest social sense.

The Meeting voted Ingmar Bengtsson as General Chairman; Gustav Ciamaga, Gottfried Koenig and Jean-Claude Risset as Vice-Chairmen and Everett Helm as Rapporteur. Francis Régnier agreed to assist Mr. Helm as might be required.

Mr. Kauhanen read a paper entitled « Interrogatory of a Musician » by Albert Richard. Written in dialogue form, this paper took a pessimistic view of the present age in general and of the course of music in this age in particular. Mr. Richard expressed great scepticism regarding mechanised music. He stated that « *mechanised musics only reproduce, they do not revitalize, they impale music, they immobilize it like a dead object, arrested and fixed in its first form of life* ».

Pierre Schaeffer felt that a major weakness of Mr. Richard's statement was to attack the machine as such, remarking that the violin is also a « machine ». Mr. Schaeffer added that if Mr. Richard were present, he would be able to clarify many points.

Minao Shibata read his paper : « Music and Technology in Japan ». He presented a short chronological summary of the development of electronic music in Japan and played examples on tape of the works of several Japanese composers. In summing up, Mr. Shibata remarked : « *Japan at first looked mainly to the West, gradually incorporating traditional Japanese and Buddhist elements... Besides Western style music, Japan has traditional Japanese music in many genres.* Here there seems little scope for technology. The most likely development is the incorporation into Western-style music of a traditional flavour that is nevertheless close to the modern Japanese way of life. » The chairman remarked that the examples heard raise the question of common denominators in music. Pierre Schaeffer replied that all the musicians of the world now hear basically the same music (« *notre musique actuelle* ») with a few additions or variations. The music of our time is universal, he added.

In the short discussion that followed, Murray Schafer spoke of the several ruptures which have been created by technology in the twentieth century. The original instrument, the voice, is tied closely to our muscles and to the rhythms of life. Machines produce alienation, with results that have very little relation to physiological and psychological functions. Mr. Schafer stressed the need of an « acoustic ecology » which would relate sounds to human beings.

Gustav Ciamaga asked whether it is more natural to play the violin than the potentiometer and answered that quite the reverse is true. The new instruments are part of our culture, and we should use them as such.

The afternoon session began with Werner Kaegi's paper « Music and Technology in the Europe of 1970 ». In it the author traced briefly the historical relationship between music and various technical media, underlining the new situations the media have brought into being for composers and for musical life in general. « Today there are signs that the *computer* will be the musical instrument of the future », according to Mr. Kaegi. After reviewing the role of calculating machines, he turned to the present situation and recommended voltage control as a method for automating a conventional studio step by step. He then remarked : « There is no doubt that, of necessity, the technique of programming always tends towards the computer as the most perfect means. This must not tempt us into thinking that the computer is therefore without further ado the ideal universal and composing instrument. Although its conception makes it logically perfectly capable of being such an instrument, the computer needs, in order really to be one, the knowledge, understanding and experience of the person using it. »

In conclusion, Mr. Kaegi took a quick look at the future and made several interesting predictions. « In what way can music, seen as a possibility in the

sense described, be influenced by technology ? In opposition to prevailing opinions, I tend towards the view that the music of the pre-electro-acoustic age has few chances of survival... The shifting of the relationships will result in the work's emergence as a purely human testimony, liberated, as it were, from its historical ashes... Radical interference in information transmission will also occur in contemporary and future music whenever something other than what actually happens is pretended. In such cases, unfortunately, technique will always be given the blame, which should really be attached to the composers alone. »

Herbert Brün asked Mr. Kaegi whether he distinguishes between available techniques and technology as a means of arriving at new techniques. Mr. Kaegi replied that it is often difficult to distinguish between the two, adding that the goal is to use both technique and technology to create *music*. Mr. Brün rejoined that technique is of no help whatsoever, but that technology should be a liberating force. Technology, he added, could solve all our problems, but nobody permits us to solve them.

Since Pierre Schaeffer's paper « Music and Computers » was unusually long, he gave a bird's eye view of its topography and indicated those passages which he wished to stress. By way of introduction he spoke of music as an enigma and expressed the hope that it would always remain an enigma. Mr. Schaeffer then dwelt at considerable length on the important difference between the words and concepts « signal » and « sign », stressing the difference in their implications for music.

Music is an extreme example of abstraction — it can be reduced to signs, which are, in fact, symbols. If it were a question only of signals, we would be concerned with phenomena which are measurable — and thus justifiable in terms of the computer. What is it in music that can be termed calculation or computation ? If one knows the answer to that question, one knows what can be entrusted to computers and what must be reserved for intuition.

Mr. Schaeffer went on to express doubts as to the computer's role in composition. « I believe in the instinct of the human being », he said, « more than in the most prodigiously agile calculations of the computer ». In Mr. Schaeffer's opinion electronic music as a whole is too simple to make and to hear. He characterized much music that is being machine-composed today as « bricollage » — as playing around with the machines.

Mr. Schaeffer has never denied that machines help men not only to act but also to think ; they are not, however, machines to do our thinking for us. Contemporary scientific culture has produced a sort of blind faith in causal explanation, Mr. Schaeffer stated, but he rejects the idea of basing music on causality. One can reduce everything — including the music of Beethoven — to numbers. But we do not *hear* numbers. What we hear is music.

In his extempore conclusion, Mr. Schaeffer cited the necessity of introducing structures in music that are imitated from nature. He also stressed

the importance of creative level : it is ridiculous to equate music with sound ; a man is not simply a combination of cells.

A lively discussion followed. Werner Kaegi reverted to a statement by Mr. Schaeffer that the composer in the electro-acoustical media can fabricate miles of music and asked whether this situation has not always obtained, or whether Mr. Schaeffer suggested that computer music is a special case. Mr. Schaeffer replied that the situation has *not* existed in the past, since the instrument has always *resisted* the composer. Today it is too easy. A proper analogy would be between the *mechanical* piano and electronic music. It is fine that there are so many amateur composers, but the bad instruments they employ will ruin the taste of those who employ them. Mr. Schaeffer regretted the lack of balance between present-day means and composers' grounding in (and ability to hear) music. Herbert Brün could not share Mr. Schaeffer's hope of finding answers to current problems in nature. Nature, he stated, has produced a « lousy society, a chaos ». Since the question : what is music ? cannot be answered, there is no need to worry about changes in music caused by computers. For the first time, the composer is in a position to check whether what is heard is identical with what was meant to be heard.

On Tuesday, Jean-Claude Risset was Chairman. At the start of the morning session, Gottfried Koenig, in his paper « The Use of Computer Programmes in Creating Music » stated his preoccupation with arriving at rules and variants in composition. In this search, the computer can process a great quantity of data and show many possibilities of musical structure. As he put it : « The use of computers for purposes of musical production is a logical result of historical developments. Every rule of composition that can be formulated can also be programmed and carried out by a computer. » After discussing problems of notation, Mr. Koenig asked : « What, in music, can be programmed ? i.e. apart from the decisions which the composer makes once, are there also recurring decisions which can be established as compositional rules ? Do such rules apply only for one piece, or for several different kinds of pieces ? »

In answering these questions, Mr. Koenig developed what he calls Project 2. He described this project in some detail, stating : « This new, more comprehensive programme involves seven parameters which are named : Instrument, Harmony, Register, Entry Delay, Duration, Rest, Dynamics. The composer can provide as many data as he wishes for each parameter ; furthermore, several sub-programmes select the data according to various principles and assemble them to form the score. The composer determines the compositional rules on the basis of these selection principles and combinations of them, but also by indicating the order in which the parameters are to be computed... At all levels of decision, chance is given opportunities to operate to a greater or lesser extent, so that any number of variants can be composed according to the data. » Mr. Koenig concluded with a series of examples produced in the Utrecht Institute of Sonology.

Speaking of the work of the Bell Telephone Laboratories in New Jersey, Max Mathews began with a prediction : « The future will add the digital computer to the equipment of today's electronic studio. In the near future it will control analog sound synthesizers. Together the digital and analog devices form a hybrid sound synthesizer. In the far future analog devices may be swept away by more reliable and accurate digital synthesizers constructed from integrated circuits. The result will be real-time digital synthesizers which can be played with all the nuances of present-day performance and all the precision and range of sound quality achieved by present-day digital synthesis. The future grows from the past, and the past is now long enough to reveal at least the next step forward. »

Mr. Mathews went on to speak of the hardware he has employed and of the results achieved, and expressed great satisfaction with what has been accomplished. He showed slides of some of this equipment and concluded : « It is clear that the electronic studio of the future will place great technical demands on the composer. In addition to being a good computer programmer, he must learn the analog computer art from electrical engineering. It is in many ways more complex than digital computer programming. These diverse skills may be unreasonable to ask of a musician. If so, a possible alternative is composition by a team consisting of a musician and an engineer. » Several examples on tape followed.

Peter Zinovieff felt that language is a main problem for the composer in getting answers from a computer. Composers often want « a sound like... », he said, and the problem is to find the proper language for obtaining the desired results. After a brief explanation of methods used in the Electronic Music Studios in London, Mr. Zinovieff played the tape of « A Lollipop for Josef ».

A lively discussion followed. Herbert Brün commented that some composers compose events and then listen to what they sound like, while others want sounds and will employ any means to get them, particularly editing. He was sceptical regarding the second method.

Max Mathews pointed out that the eraser has always been a primary tool for a composer. He admitted the danger of improvisation, however, and thought that the best solution lay somewhere in the middle between the two extreme methods Mr. Brün had mentioned. Mr. Brün repeated his objections to editing, which he considered out of date and at least temporarily irrelevant. He is in search of the idea « which can be expressed by a structure, and that's it. I rely on my compositional, not on my *musical* judgment, and prefer to ignore the feed-back system », he added.

Vittorio Consoli raised the question of producing the finished work in the auditorium so as to get a congruous relationship between the work and the performance. Mr. Mathews felt that the problem is important and often neglected. The best solution would be to have the computer and analog equipment in the concert hall, but the computer is too big for that. An

alternative is the use of a multi-track tape recorder and the selection of such versions as are best suited to the concert hall. These must be adjusted to the room as well; the necessity of having a mixing panel in the middle of the concert hall is unfortunate, but it is real, Mr. Mathews felt.

Murray Schafer suggested that the answer may be the creation of electronic music in real time in the concert hall. Mr. Mathews rejoined that giving performances in real time demonstrates how unreliable computers are as compared with people.

In the afternoon there was no session. After a reception at the Town Hall of Stockholm, the Meeting visited the Stockholm Studio of Electro-Acoustic Music. In the evening a dinner was given by the Svenska Handelsbanken.

Wednesday morning's session was opened with Gustav Ciamaga's paper « The Training of the Composer in the Use of New Technological Means ». Mr. Ciamaga made the following observations : « With the emergence of a new technology and a resultant music, we have been forced to re-examine the basis for the training of all composers, whether they employ old or newer means of sound production. Our new awareness indicates that the training a composer acquires in the use of technological means, appears to be the proper training for a composer even if he does not have continuing access to the new technology. Composition probably cannot be taught but the craft of composition can be nurtured through an understanding of sound production with technical means. For once a composer has been exposed to an electronic music studio or computer, his « normal » compositions will never be quite the same. In fact, his appreciation of music of all cultures and epochs will also grow. It is difficult to put into words the confrontation of creative man and machine, the production of sound through electrons, and the realization that musical composition is simply sound, silence and time... The electronic music studio, at first associated with radio networks and the electronic industry, has found a suitable environment in the music departments of universities throughout the world. It follows naturally that the university has assumed the greater share for training composers in the new medium... And yet there are many composers, student and professional, who have shed their academic affiliation or actively do not seek it. Provision for training these composers in electronic music and then allowing them *continuing* access to proper facilities has not been adequately met. Here the burden for meeting these needs would seem to fall upon the grant-giving organizations of State and industry. » Mr. Ciamaga then suggested a suitable course of study for electronic composition, divided into two parts : (1) an examination of the theoretical, scientific and historical aspects pertaining to electronic music ; (2) the practical techniques of electronic composition. He developed each part of the curriculum in some detail and remarked on the considerable amount of time required to complete such a course.

In the discussion that followed various points of view were raised and debated. Pierre Schaeffer said that Mr. Ciamaga had presented in a delicate manner a scandalous situation which he, Schaeffer, felt obliged to denounce. How, he asked, can one teach what one does not know? Many young people are eager to have access to the new media and new developments, but the teachers go through the motions of representing a cult and preach what they themselves do not really believe. They are, indeed, unfrocked priests. Mr. Schaeffer stated his opposition to teaching physics to musicians, adding that the poor musician teaches acoustics. The musician, he felt, is immune to mathematics and similar matters. The gap between traditional music and the machine has yet to be filled through the cooperation on equal terms of the musician and the technician. Mr. Schaeffer expressed the hope that harmony and counterpoint will continue to be taught and the ear trained slowly in the classical tradition and in the music of the whole world, including Africa, India, the Orient. And a good composer *must* know solfège in the broad sense. Mr. Schaeffer referred to the atmosphere in some electronic studios as being like that of a jail. Mr. Ciamaga answered that this observation might better be applied to most conservatories.

Minao Shibata remarked that some of the happiest hours of his life had been spent in the electronic studio because of the direct contact he had with sound. He felt that, far from being easier than formerly, composition is today much more difficult because of the expanded amount of musical material available. John Appleton stressed the necessity of any composer's being master of at least one field of specialization within a broad musical context. Murray Schafer felt the need of an interdisciplinary grammar of the arts.

Arild Boman regretted that the present Meeting gave too little attention to music as a social fact and a form of communication. Kaj Kauhanen agreed, remarking that this aspect had originally been included. Time factors, however, had dictated a stringent programme, however, and the present agenda had therefore been limited to the subject as stated.

Krzysztof Szlifirski's paper « New Technology and the Training of Composers in Experimental Music » added much new food for thought. Of particular interest was his summing up :

« I should like to stress that it seems worthwhile to mention the following doubts when speaking of the technological development of experimental music :

— Preference accorded by recent technology to electronic and synthetic sound generation methods (to the disadvantage of the remainder of the sound world).

— Too eager repudiation of apparently primitive processing methods.

— Underestimation of the importance of the fact that musical material can often be thought of as « tangible ».

— Unwarranted isolation of experimental music from the rest of contemporary music.

— Negligence concerning the natural diversity of composers' attitudes, and a tendency towards technologically favoring the « formalist » composer.

— Diversion of the composer's attention from reasoning in musical terms towards purely technical thinking, brought about by the necessity of his accepting the responsibility of sound engineering. »

A short discussion followed.

The Wednesday afternoon session was devoted to the subject of « Space in Electronic Music », which was the title of Kurt Blaukopf's paper. Stressing the inter-disciplinary nature of the phenomenon, Mr. Blaukopf spoke of the new possibilities of electronic music in space manipulation, making possible a confrontation of audiences with a sort of aural or musical space which has never before existed to such a degree. After calling special attention to several passages in his paper, Mr. Blaukopf concluded : « Based on the considerations set out above, a series of technical space manipulation experiments could usefully be planned.

They would cover : electronic music, electronic painting, electronic ballet, live theatre endowed with multivariable space, multiple messages of other kinds, multi-media theatre, and so on.

The results should be evaluated in conjunction with :

(a) the lessons to be drawn from a study of aesthetic perception based on information theory ;

(b) recent research on the biological factors that determine visual and aural perception ;

(c) aesthetic theories concerning the manipulation and representation of space in various arts. »

Vittorio Consoli then read his paper « The Articulation of Sound in Space : Analyses of the Problems and Some Prospects for the Future ». The majority of Mr. Consoli's observations were of a technical nature and concerned the adequate transmission rather than the creation of sound-objects. He envisaged a situation in which the organized movement of sound should become an integrating part of the compositional concept. The problem, therefore, is to create a new dimension of composition — namely, the articulation of sound in space. Given the fact that the concept is realizable from the practical standpoint, Mr. Consoli was particularly interested in developing a multiform machinery that would make possible such a manner of listening. He too stressed that music is tending, in some cases, to become a spatial-temporal art.

Discussion on the papers by Mr. Blaukopf and Mr. Consoli opened the Thursday morning session, chaired by Gottfried Koenig. Max Mathews voiced the general feeling that the use of space as a new dimension is exciting and potentially powerful. After some short technical discussion on sound-projection, Jean-Claude Risset spoke on « Sound Synthesis by means of Computers », illustrating his remarks with examples produced with the Bell Laboratories'

Music 5. This project, he added, is gradually building up a catalogue or archive of sounds, that could be exchanged with other studios, which might themselves build similar archives using a common language for the physical description of the sounds.

Carl Lesche then presented the subject of the Meeting from the philosophical point of view. He described and illustrated by means of a complicated diagram a metascientific frame of reference that could be used in discussions about relationships between music, technology and science. Factors steering the development in these areas were investigated. The importance of *Weltanschauungen* was emphasized. This critical metascience intends among other things to reveal the ideologies behind different types of musicological research and musical composition and performance. The composer is woven into a web of complex relations. The choice of a specific technical method is not only a question of aesthetic value or technical efficiency, but also implies a commitment with respect to other aspects of ideology underlying that method. Mr. Lesche raised the question about using the computer in composition and the realization of musical works which express an ideology other than the technological. Finally social and political decisions affect the development of music, Mr. Lesche remarked.

A lively discussion took place after Mr. Lesche had finished, but the general feeling was that points had been raised which only a separate meeting could consider adequately.

Herbert Brün's paper « Technology and the Composer » combined musical, sociological, philosophical and political considerations. Mr. Brün considered technology to be the most legitimate instrument in finding new answers to problems that are today acute. He also regards today's composer in a new light, stating : « It is desirable that the technologist take a fresh view of the composer. The time has come for him to see that the composer is not merely a music maker, an art maker, who thinks that his products have to measure up to an established standard of culture and who is eager to call them a merchandise and sell them... Discerning between « composition of art » and the far broader concept of an « art of composition ». I contend that the latter need reach a higher level if the former is to be an input for, not only an output of, society. I suspect that an intuitive awareness of the recent meagerness of input has led, almost justifiably, to the contemptuous sneer at the word « culture » prevalent in many circles, intellectual and otherwise. »

Mr. Brün stated his expectations as follows : « I challenge technology to escalate its push towards a socially beneficial technological era for mankind by designing and constructing for all of us the compound facility wherein and wherewith many people can be induced to come and enjoy the effort of learning how to compare and measure their languages against and with their imagination and their desires. I am speaking of an artificial system which

should function as an accepted member of society and be respected and used equally by the few and by the many, as long as this differentiation will have any validity left. »

Following the coffee break, propositions, proposals and recommendations of the Meeting were discussed in a preliminary, non-voting session.

At the final session of the Meeting, on Friday morning, the *rapporteur général* read his report. The rest of the time was given over to very brief discussion of and voting on the resolutions submitted.

In the afternoon the Meeting was invited to an excursion to the Stockholm archipelago.

The following resolutions and recommendations were voted unanimously :

I. EDUCATION

A. The Meeting is of the opinion that a studio for electro-acoustical music (tape music, electronic music, synthesizer and computer music, etc.) fulfils its purpose only if it pursues both artistic production and research.

B. The Meeting recommends that the scientific questions inherent in composition in the technological era should systematically be made the subject of university courses and that special chairs be endowed to this end.

C. The Meeting recognizes the proposition advanced by Pierre Schaeffer to the effect that the training of the composer in the technological era must rest on a very broad musical and cultural basis. Schaeffer pointed out that a knowledge of unfamiliar and non-indigenous musical cultures is no less important than a knowledge of Occidental music, past and present.

D. In the field of composer-training, the Meeting recommends a flexible training which allows the composer to express his own individuality and recognizes the importance of thinking in terms of music as a starting point of this training.

II. RESEARCH

A. The Meeting favors the study in depth of the correlations among the various parameters or psycho-acoustical characteristics of sound — an essential direction of basic research.

B. The Meeting recommends study of the relevance of musical systems to scientific, creative and social systems in a dynamic way ; it recommends further the establishment of the premises for such study in an international framework.

C. The Meeting recommends the furtherance of a research programme on the social communication problems of music in the technological era, with special emphasis on the questions : how the implementation of advanced technology in the creation and transmission of music influences its social forms of communication ; and the social conditions for establishing new types of communication processes for music in the technological era.

D. The Meeting recognizes the necessity of searching for and aspiring towards a more universal concept of technology which would take into consideration every category of a composer's attitudes and permit the composer to profit from the entire world of sounds, without bias towards specific categories of sound.

E. In the area of computer controlled sound synthesis, the principal technical problems are in the creation of sound generating devices, particularly oscillators, which perform with sufficient accuracy and reliability and which are sufficiently inexpensive. Consequently, the Meeting recommends support of work on the development of more precise analog equipment and of work to explore the development of direct digital control of sound generators. In the latter area, cost is considered a primary consideration.

F. The Meeting recognizes the necessity in research of considering in their ensemble the reciprocal problems of acoustic analysis and synthesis.

G. The Meeting recognizes the importance which the parameter of space has, and will continue to have, in electro-acoustical music. It is recommended that research be initiated and encouraged in this direction.

H. The Meeting recognizes that in addition to considering the production of sounds and the technology of « sound-making », it is proper to study the perception and experience of music (relationships and conditioning « from » sound events « to » experience) as being of central importance. Although much has been made known about the correlations between acoustical « parameters » and perceptual qualities of sounds, tones and noises (so-called « Tone Psychology ») a New Psychology of Music is needed which is not bound to traditional music and is not simply behavioristic in character, with such limiting factors as « talent », « taste » or « thresholds », but which takes into account the vast new tasks created by the advent of electronic music.

III. INFORMATION EXCHANGE (publications, catalogues, etc.)

A. The present Meeting has shown clearly that personal contacts among representatives of various electro-acoustical studios are extraordi-

narily fruitful. In view of the difficulties of information exchange among the individual studios, the Meeting recommends that personal contacts between representatives of the studios be encouraged in the future.

B. The Meeting recommends the publication in the Electronic Music Reports of the Utrecht center, little by little, of a polyglot glossary of electronic and musical terms which can eventually be compiled in book form.

C. The Meeting recommends the study of means of facilitating and increasing the inclusion of records with examples in conjunction with the publication of articles and books dealing with experimental music of all kinds.

D. The Meeting recommends the development of language for sound description and the distribution of sound catalogues. The recommendation is based on the conviction that one of the universal problems in electronic music is the creation of sounds which have sufficient complexity of the kinds appropriate to musical objectives and to the listeners. Progress towards better sounds has been made in various parts of the world, but in general individual composers struggle alone, and in many cases they must repeat the work of others. Present computer work shows the possibility of developing a broad and useful (although not universal) language in which sounds may be described. This language could be used to transmit technical information about sound synthesis. Consequently, we recommend the further development of such a language and the publication and exchange of sound catalogues written in this language. The catalogues would include not only the technical description of the sounds in the computer language, but also recorded examples of the sounds.

E. The Meeting recognizes that there is an urgent need for new systems of description for « perceived sounds » and « objets musicaux » (not only the « objets » as such but also the types of relationships between « objets »), simple structures and events bordering on processes. Pierre Schaeffer has made many important suggestions and contributions towards such a descriptive system. The « vocabulary » is difficult to translate (or make transferable) into other main languages. Some such « vocabularies » do exist, produced in studios, by private individuals, etc. The Meeting recommends that these be made accessible, compared, criticized and developed systematically.

F. The Meeting recommends the creation of an international catalogue giving details about the way young composers are being trained in the electro-acoustic studios of the world.

G. The Meeting recommends that attention be given to public acceptance and understanding of electronic music and suggests that it might be valuable to have a survey made of public reaction to the new medium and, as a corollary, to publish material to aid the public in its approach to electronic music within the framework of music in general.

IV. MEETINGS

A. The present Meeting has produced a wealth of information and has revealed the existence of a multiplicity of questions which are still to be answered. It is therefore recommended that further meetings be held in which specific topics be discussed. It is recommended that the subjects of future meetings be clearly defined. It is further recommended that ample time be reserved at such meetings for discussion. Experience indicates that the ratio of papers to discussion might well be one to one.

B. The Meeting also recognised that the discussion and exchange of information about technical procedures is important and is to be encouraged insofar as one does not lose sight of the ultimate objective of composition, which is music.

C. The Meeting recommends that a future meeting be held to consider the question of communication of music composed in the electro-acoustical media. « Communication » is to be understood in this context as embracing psychological, sociological and artistic implications.

V. ORGANIZATIONS

A. The Meeting recommends the formation of an International Association for Electronic Music, for which a committee was formed at the end of the Florence Congress in June, 1968, which could then become affiliated with an appropriate member organization of the International Music Council, such as the ISCM. This association could take as its first task the creation of a financial committee which would seek support for a secretariat and for assuring an annual international meeting. Support could be sought from various foundations, national art councils, state authorities, etc. Part of the funds might be used to assure the regular publication of a review and a newsletter for the exchange of technical information and news, as well as for the publication of scores and articles with sound illustrations of electronic music.

VI. TECHNICAL

The Meeting recommends that standards of acoustic safety in the performance of electronic music be developed and made known.

VII. VOTE OF THANKS

The Meeting wishes to express its sincere thanks to UNESCO, and to Kaj Kauhanen personally, for having made possible the present Meeting — the first of its kind. The papers prepared by experts, the discussions and

the many personal contacts have been of great benefit to all participants. The Meeting is grateful as well to the host organizations — the Swedish National Commission for UNESCO and the Swedish National Music Committee — for the generous hospitality so graciously offered during the period of the Meeting.

EVERETT HELM