

JANUARY 20, 21:18

\$2. (\$6. with cassette in Canada)

# MUSICWORKS 29

## TIMES & TIDES 1985

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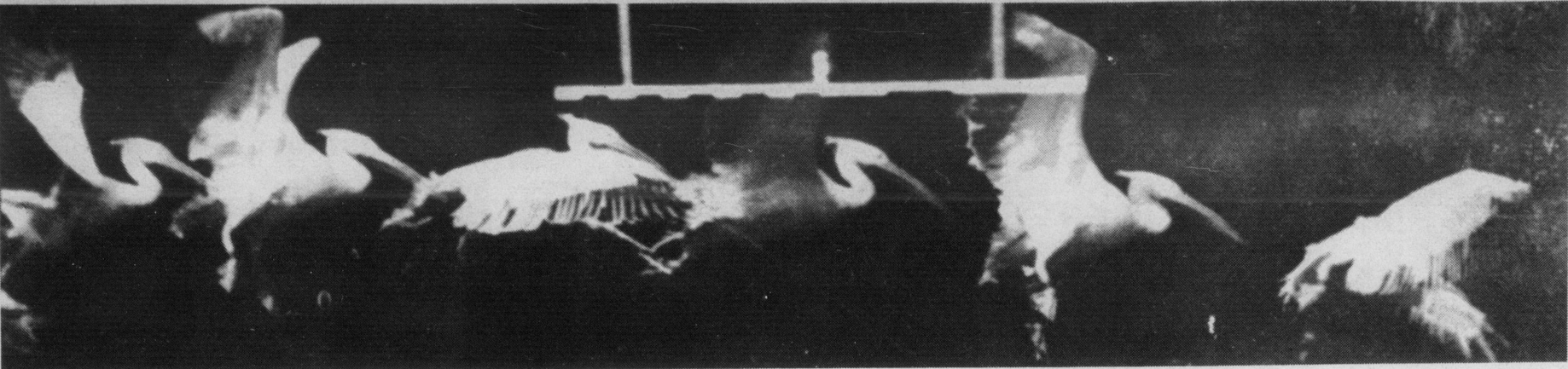
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Engraved by W.G. Evans N.York. under the Direction of E.H. Burris.





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## SNOW-TIME

A powerful storm of windblown snow, sleet and freezing rain came to Toronto on March 4, cleaning the city's air and wonderfully confounding its travel and work schedules — including the production schedule of this issue of MUSICWORKS, devoted to the subject of Time.

A thought that has surfaced again in the media is that the more alienated we become from interaction with natural/cosmic phenomena, the stronger is our need to Create in a big way; to somehow either simulate or negate the effects of the inherent order and power of a thunderstorm in the woods, the silent awe of the Aurora Borealis, the deep and ominous crack of ice on a frozen lake.

In the city, we live in the centre of a multi-media work of Art. It isn't always comforting to realize that our equal-tempered structures for interacting with time and space on every level are actually composed and designed by people (us) to yield to a particular idea about life-time perception and action.



The question asked in this issue of MUSICWORKS is, What is this time-structure that we are making, and what are we, as musicians and composers, doing in it? The most elegant answers to questions like this are probably found in the music itself, some of which is represented herein, music with an almost untempered time-sense inherent in its ordering, and even in its reason for being.

### QUESTIONS FOR MUSICIANS AND COMPOSERS ABOUT TIME

1. How do you organize time in your music?
2. Do you perceive that the tempos, rhythms and cycles of your particular life and living have significant (or conscious) effect on your music and/or your involvement with music?
3. Does your involvement with music (in any way) influence your perception of the temporal, rhythmic and cyclical aspects of your life and living?
4. What times of day, week, month, year (and other) do you make music? What determines this schedule?
5. What is (the) time?

## MOON-TIME AND OTHER CALENDARS

*"As there are certain 'power places' on earth, so there are tidal and seasonal 'power-spaces' in time. The new and full moons have long been regarded as powerful times and of critical importance for many spiritual realities."\**

Along with other time indicators, this issue of MUSICWORKS shows the new and full moon times for the solar year 1985, calculated for EASTERN STANDARD TIME. Each double page represents a month of the year according to the common civil calendar beginning with January on the front and back cover. The symbols  for New Moon, and  for Full Moon appear on the month-pages according to the interaction of the lunar and civil-monthly cycles.

*"The lunar calendar was outlawed by Julius Caesar in 45 B.C. and the concept of cyclic process was declared heretical in the 5th Century A.D. by the Council of Constantinople. . . . The solar/civil calendar now in general use is known as the Gregorian Calendar, after Pope Gregory XIII who promulgated it in 1582 A.D."\*\**

The other 'calendars' found on the month-pages are the names given to the moons or months of the solar year by a number of Native American peoples: the Ojibwa, Mandan, Netchilli, Dakota, Tlingit, Loucheux, Cree, Modoc, Kwakiutl, Tewa, Eskimo and Carrier.\*\*

\*quotes and Lunar Times from the '85 Lunar Calendar, published by the Luna Press, Box 511, Kenmore Station, Boston, Massachusetts, U.S.A., 02215.

\*\*calendars from SHAKING THE PUMPKIN: Traditional Poetry of the Indian North Americas. ed. Jerome Rothenberg, Doubleday, New York, 1972.

### DAY-TIME: TIMES AND TIDES CASSETTE

This issue's cassette tape also takes into account natural time cycles in its overall structure. It includes music by Trichy Sankaran, Albert Mayr, Robert Stevenson, Udo Kasemets, and Hildegard Westerkamp montaged with time-related sounds and signals, including clocks, roosters, breathing and heartbeat.

"In addition to being what they sound like, each side of this cassette represents a larger timescale; the entire **side 2** is Udo Kasemet's Celestial Timescapes, in which a day passes in a minute by audio representation of the visibility of celestial bodies; on **side A**, a number of time-specialized works and significant environmental events are organized on a more subjective scale-oriented reduction of a single day in which an hour passes in approximately a minute. Although this make-believe day passes in three consecutive sections; morning, mid-day and evening, half of the hour-long piece **Hora Harmonica** by Albert Mayr (refer to score in this issue) makes several appearances which are (almost) relative to its actual time (the event-durations were slightly compressed). The short sleeping sections at the beginning (early morning) and end (late evening) of **side A** are highly interpretive of that almost timeless state." —John Oswald

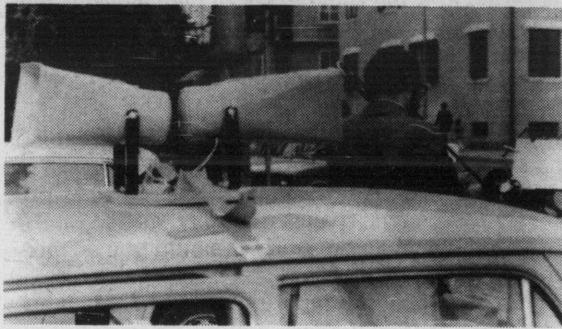
### UPCOMING ISSUES —

The next issue of MUSICWORKS, number 30, features indoor and outdoor sound constructions. Along with unique musical instruments, sound sculptures, and resonant environments, we will be hearing about naturally inaudible vibrations made audible, such as the wind through Aeolian harps, and the inner vibrations of trees through electronic transmitters.

Number 31 will be a special issue for and by women in Canadian music. Several themes will be explored, including ritual and ceremony, the environment, and collaboration. An in-depth interview with Inuit throat-singers Alasie Alasuk and Nellie Nunguak from Povungnituk will be included, as well as articles, scores and poetics from many composers and musical explorers across Canada. Please contact MUSICWORKS soon if you are interested in submitting materials, or if you know of any women who would be.

**COVER:** "Southern Circumpolar Map for Each Month of the year. Engraved by W.G. Evans N. York under the direction of E.H. Burritt."

FEBRUARY 19, 13:43



ALBERT MAYR is a composer who lives near Florence, Italy. He was a professor at the McGill University in Montreal, Quebec in the 1970's. He presently teaches electronic music at the Conservatory of Music in Florence, and is active with his Music of Times and Tides project, which involves composing and, recently, filmmaking. While on a short tour to Boston and Montreal in November, 1984, he was invited to Toronto to give presentations at Ontario College of Art and to meet with MUSICWORKS. The following passages are taken from a resulting interview conducted by Tina Pearson.

I have come to work on the organization of time and time-tabling from different experiences. Henry Lehman, many years ago brought out a little issue of the Vehicle newsletter, which has been superceded by the much more important Parachute, which was devoted to Time. He mentioned that I should contribute something to that. So I started to think about it, and some experiences which I had in working with (Christian) Wolff, working with improvisation and with electronic equipment, came into focus. I became very fascinated by the observations of time and by the question of how much a musician could put his or her knowledge and skills and sensitivity to work for the improvement of rhythms, and practical schedules even, outside the proper confines of what we consider music.

I started going around and just taking down times; rhythms of traffic lights, of people moving around, and of the density of events in certain places. And in working in the electronic music studio, I gradually came to a point where low sub-audio wave forms for me acquired a Gestalt quality which was independent of their sonic phenomenon. I was thinking in very low (frequency) sound waves, very low saw tooth waves and so on, and seeing or hearing or sensing in them something of a musical potential beyond their application as controlled wave to pitch, timbre, loudness or so on.

More or less at the same time, by chance I reread many passages which I found about medieval theorists, who had for a long time focused on (the concept) of inaudible music, with the possibility of there existing music in the motions of the heavenly bodies and the cycles of the seasons and so on, which was *musica mundana*, *musica humana*, or the music inside us coming as a harmonious interaction between the different forces in man; the intellectual, emotional and physiological forces. I found this very intriguing. I had read this stuff of course years before, as everybody has who has done formal music training, but I hadn't paid any attention and thought it was just some speculations that the monks were up to in their unheated cells, being unhappy, et cetera. But then I thought, No, I think they have a point there, there might be something to it; maybe music is not just audible, but is maybe a way of relating to the environment, of relating to ourselves and to other people.

Starting from that, I just tried to make a musical analysis of the environment, the schedules that I was subjected to, the schedules that were dominant, and the scheduling criteria behind them. I found that it would make sense to apply some very basic musical concepts, which you could call maybe consonance, or dissonance, or audio parameters also to sub-sonic phenomena. It came out that most audible musics do have a certain cultural distribution of what you would call consonance and dissonance, or (intervals) with a higher or lower degree of (fusion). So those criteria (could be) applied to working rhythms, schedules and so on.

In terms of wave form, we think of human activity as always following the square wave model, or pulse wave model — On/Off: we work or we don't work, we do something or we don't do something. Of course square waves are very rarely to be found in natural settings, so there are these questions of what were the reasons for square waves being an almost

# THE MUSIC OF TIMES AND TIDES:

ALBERT MAYR

exclusive conceptual model of organizing human activity in this very simple On/Off fashion.

What was then striking was to see that much of the literature about working rhythms just stuck to the square wave model and actually put this as an absolute, or **the** goal we should strive for; it's man that had to adapt to that. But my message is how man does **not** manage to adapt to that. I thought it should be the other way around: We should first find out how people really work and how their activity distribution evolves in time, and **then**, if anything, try to elaborate an abstract model.

So it seems that there was definitely a lack of musicality in scheduling and related tasks, and that musicians had also become, for one reason or another, very unconcerned about the rhythmical cycles of the environment. Of course I'm indebted to Murray (Schaffer's) work about the acoustic side of the environment. I think much if not most of the mythological approach has to do with being exposed to his work, and talking to him, working a little bit with him.

So I tried to somehow extend this musical ap-translated as, 'I don't hear myself well'. Or it could also be translated as 'I don't feel well', or 'I don't feel myself well.' So I think that language has something to tell us.

Going back to the old theoretical texts, I found that this very faithful and painstaking elaboration on the inaudible music and the music of those periods, preach or the listening attitude also to what was not directly audible, but what was **rhythmical**, let us

say (what had) rhythms which could be perceived in one way or another.

Something which is interesting is that the Italian *sentire*, which means 'to hear' means also many other things. It means also 'to feel', it means 'to sense'; it is used for a variety of sensorially ambiguous inputs which we could all then relate to *sentire*. The Italian *Non mi sento bene*, could be aside from being, to me at least, a very strong poetic reference, could be taken actually as an invitation to try to perceive, somehow, long periods, long wave forms, to try to figure out how musical or unmusical they are and to see what a musician could suggest about the wave forms and periods which are imposed by society. This was the main framework that I began working from.

My work is now moving on two sides. One side is an analytical point of view: I go to places and try to see how people live in time, try to see how they synchronize their various activities, how successful they are, how much they relate to synchronizers — those agents who entrain all the cycles. I have been doing that in all kinds of contexts. I'm fascinated by phone booths, for instance, charting down the time durations for how long the phone booths are occupied by people. You get a very interesting rhythm. Or when very close to a seashore, just taking down the times when the waves would reach a certain place on the beach. Or how animals move over time, how they come together. Or, on a more

### THE MUSIC OF TIMES AND TIDES

i. In its organization of time, Western civilization has replaced rhythmic aliveness with abstract measures. Our days, weeks and years are more and more controlled by remote and, often, arbitrary synchronizers.

ii. The rich and subtle forms of time organization which are still to be found in non-Western traditions and which are an essential part of our global cultural heritage risk being destroyed.

iii. In the theoretical writing of past epochs (Chinese, Greek, Medieval) the organization of musical sounds and rhythms is put in relation to other, inaudible, periodicities. Music is seen as the epitome of the concert of cycles in and around us.

The name of the project is clearly inspired by the concepts of '*musica mundana*' and '*musica humana*' as they were formulated by the Medieval theorists.

It is suggested that music, whose frequencies and waveforms are close to many of man's biological and social cycles, may contribute workable models for the study of man's interaction with the natural temporalities and introduce qualitative aspects in the planning of social time.

iv. In the organization of space the importance of aesthetic criteria has since long been recognized and these criteria play an essential role in the interdisciplinary efforts towards the improvement of habitats and settlements.

On the other hand, the potential of aesthetic criteria for the organization of time has not yet been explored systematically.

THE MUSIC OF TIMES AND TIDES intends to fill this gap.

v. The project focuses mainly on developing time-tabling as a creative discipline in an inter-cultural context. Other activities include: — collection of documentation and research on the organization of time in various cultures — further development of the theoretical implications of creative time-tabling and their propaga-



tion through publications, lectures and workshops — promotion and organization of events such as exhibitions, performances and audiovisual presentations.

— Albert Mayr

For the catalogue of available materials and proposals contact:  
THE MUSIC OF TIME AND TIDES  
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ITALIA



elaborate level, how people do somehow manage to work out a compromise between the more natural cycles and the more external artificial cycles which Western society of course brings out.

It was interesting to me while I was doing this film I am working on in the mountain valley to find that the farmers there, living mostly above 1,000 meters, 1,500 meters, up to 2000 meters altitude, were quite aware that their sense of time was different from the city people's sense of time. They started becoming aware of the fact that they did resent the colonization, the rhythmic colonization coming from town, and they had the capacity for tuning in to natural cycles. They didn't use those words, but spending time with them, interviewing them and filming them, was an important experience to see that these populations who still, to a large extent, work with their hands — out there farm work is not done so much by machines because it's very steep — still rely on their own perceptual capacity which has nothing to do with our paper made schedules in cities, industry and so on.

**MW:** How did they articulate the difference in their perception of time and the city/industrial perception of time?

**AM:** It starts at a very practical issue — we could call it a political issue — of their holidays. In the old days when each little place lived in a segregated way, they had to develop a certain form of calendar which suited them and had to do with their particular cycles of work. This didn't present them with any problems because of course nobody else would ever dream of telling them to not observe their holidays, or not do certain things at certain times. Now, of course, with part of the population having to commute to work, to town, the children having to go to school in another village, and the tourists coming in the summertime, much of the traditional calendar is threatened, or is almost on the verge of becoming extinct, you could say.

I tried to show this graphically over a year; for 365 days I just plotted their holiday distribution compared to a modern working schedule of 5 days a week work/ 2 days a week off; then one month straight vacation. Of course, theirs is much nicer because you have holidays all over and it creates quite a variety of patterns. What I shall do then is make it also into a wave form that you can see in the film, and in audio so that you can hear the difference between the asymmetrical pulse wave and the very rich wave. Visually, this is much nicer than just having a square, up and down.

They were very responsive to that. I talked to farmers whose families have lived for generations on this same spot way up there, and it comes out that they know every corner of the space: They know that if it's warm one place, it doesn't mean that everywhere it's really warm; if the earth somewhere has some sort of strange behaviour, it doesn't mean that somewhere else it's the same. They know all the little differences. And the same with time. They have still lots of references with synchronizers in nature; the animal behaviour, observing little elements in temperature, in clouds, in planets, according to which they time their work. They know, of course, that it's going to disappear, and they are unhappy about it. They themselves even now have so many more things to do. They have to meet deadlines which come from the central government, and now many farmers have a second job in order to survive. They feel that they are losing something. Again, they wouldn't put it in musical terms, but they feel that they had a form of perception of time and space which they knew was particular to their individual little spot where they work and live and which they had to learn to perceive and which they had to learn to live with and interact with.

So this was an analytical part, as I said, where I try some more unusual forms of trying to write down times, scoring times. One thing which I found just to make a little parenthesis, is that musicians are very good at this scoring. Scoring is just putting something in time and space on a piece of paper, but it's something that teaches a lot. In my teaching activity I thought that one of the main tasks was just to get people to be able to make some kind of graphic or whatever representation of whatever happens. Not because I think that scores are inevitable or indispensable as such — lots of music is done without. Still I found that equal-tempered experimental music has a lot of insights or techniques regarding the plotting on paper of events in space

and time particularly. In a way I feel that it's a pity that this knowledge is just confined to music as such.

So I tried, and I still try, to see how it looks when I make a score. What I mentioned before with the phone booth, or the waves: you see that that makes a nice score, actually. I made a children's piece out of it, where I play the rhythms I had written down with some found objects.

This is, as I say, the analytical approach. Then there is the creative-speculative approach, or whatever you want to call it, where there are different forms for organizing and articulating time. And, yes, there are these harmonic models — the overtone model is an important one. I take the harmonic or overtone series as a possible model to structure very long sub-sonic portions of time. What's interesting is that you don't get the equally spaced intervals as you do with the traditional models. You get different pitches which could potentially tell you about how much time has passed so that you could tune in to a certain overtone (that is part of) what we could call a hierarchy. There is a quality in these time segments which are outlined by the overtone series which is missing in the purely quantitative summation and abstraction-oriented time organization of Western civilization.

## PARALLEL DURATIONS

Find out about the beginning and ending times of events that are relevant to the community you live (work) in but that are not necessarily taken notice of by the public (e.g. meeting of the City Council, union meeting, etc.). In a space open to the public (e.g. gallery) install acoustic and/or visual devices which, as the appropriate times, will signal the beginning, the going on, the ending of the events in question and inform the public about the nature of the events.

During the afternoon of  
Wednesday, November 30, 1977

at Galleria il Sole in Bolzano  
a lamp and verbal announcements  
have signalled

the beginning, the going on, the ending of  
a meeting of

F.U.L.C. (United Chemical Workers Union)  
in the same town

**MW:** I am curious about how you came to want to use the harmonic series as the basis for this creative-speculative work.

**AM:** There has been, in a more formalized way since Stockhausen's article *How Time Passes*, this attempt by composers to find a common denominator for rhythms and pitch. People have done pieces with the Fibonacci Series, the Golden Mean, et cetera.

Now, we know that the harmonic series is important as a perceptual aspect in sound, much more so than in other senses. In vision it isn't as much because the spectral visual light is too small, and there are no other areas that I could think of in which overtones, or harmonic ratios, are as important as in music. Since it seems that music has to do a lot with the frequencies or the periods underneath the biological and social cycles which are a few powers of ten downwards from the lower limit of musical sound, or since there seems, on the basis of what I said about the Medieval theorists and what I experienced in my own work, some common traits, I was intrigued by the possibility of taking this one very important organizational principle, that of the overtone ratios, taking it some powers of ten down, and seeing what would come out; whether we would perceive something in sub-sonic cycles which could somehow resemble our perception of an audio spectrum. It is, of course, like all speculative work I try to mirror low, sub-sonic frequencies or have them be a mirror of audio frequencies. It is an hypothesis which might work or which might not work.

Another numerical reference point that I became interested in is the square root of two, which is one point four one four etcetera decimals afterward. I became interested in it because I read a paper by a geophysicist, an Italian, Giorgio Mussetti, who already many years ago had found evidence that this ratio is very important in a whole lot of natural and social cycles; the growth rate of trees, barometric fluctuations, changes in the number of railway passengers, typhus mortality, and so on. He has accumulated an enormous amount of evidence for that. For musicians this is very intriguing because of course the square root of two is half an octave — if you do it twice, you get an octave. So this very common and very important numerical ratio, the octave, together with its means, just seems to be present also down there in the biological, natural and social cycles. You can use this as an organizational element and I think it's worth being looked into as a point of reference.

When we talk about things like the (number art in) musics and when we talk about trying to organize life cycles et cetera, it's very easily accused of being esoteric, of adhering to some obscure and anti-scientific beliefs and so on. If a certain aura of esotericism still remains attached to these fields, I think it has to do with the fact there hasn't been much aesthetic work done in them — aesthetic in the sense of relating to perception. There is a very low interest in what potentials there would be in trying to shape life rhythms. We have come to be able to accept an enormous amount of alienating procedures and measures in our daily, weekly, monthly, yearly schedules and seem to be much less prepared to do something about that.

**MW:** We're still very much aligned with the square wave patterns, as you put it.

**AM:** Yeah. Very simple, very primitive square wave models which are shuffled around in a very unimaginative way, after all. And although we often say; we don't have enough time; there is something wrong with the way we have to rush; we don't have time for families, friends, social activity, paper work, or so; somehow we don't go to the bottom of the matter to see how workable our concept of time is. I just think that it isn't workable and take it from there.

I've been trying to find musical parallels, or sound parallels to this. I've very much looked into flexible working hour schemes, for instance, which are of course an improvement to strict schedules. Yet we see that people don't really know what to do with them to a large extent, that average workers are still a bit suspicious of them. It might not really accommodate individual rhythms. It's still just a wave form modulation; or a pulse-width modulation, as we call it in electronic music; rather than we creating a wave. It is not really an innovative enough model for things.

So what I do, among other things, is I try to see how I quote, compose, unquote my life, my distribution of the work or not work, my time with other people, and so on. I consider this musical work. See, I think that there is a field of activity which has not been paid much attention to, and to which musicians could contribute. I obviously can make a comparison with architecture. Architects have to become involved, really, in a variety of disciplines: they know about urban planning, demographic developments; they know about changes in people's habits; et cetera. They take all that into account and they combine it with some aesthetic approach to organizing space. What I would like to do is become the time architect, or the composer for people's schedules, or be the one who brings the aesthetic side into the various discussions on timing, schedules and so on.

I think music is the only field which could contribute a qualitative side to that. For people in organizations concerned with health, labor, et cetera, time is just a quantity that is added and subtracted and multiplied and divided: calculated. Musicians, on all levels, know that that's not really true. We know that time is not linear. Time cannot be just accounted for in the divisional sense. In the spatialized sense, is how we have come to deal with time. This knowledge, as I said before, unfortunately stays very much within music; in musical practice and concept. It might seem a bit far out to think, Gee, now musicians could take on different tasks, or consider their involvement in other issues. But I think

## SPRING OR VERNAL EQUINOX: MARCH 20, 11:14

Earth's north and south poles are now equidistant from the sun, which at noon is overhead at the equator. Equinox means **equal night**. At all places except the poles, the sun rises due east and sets due west, and the hours of light and darkness are the same. (Beginning of Autumn for S.H.) Auroras are frequent around both equinoxes.

there is not such a big gap as one would think. I think it doesn't take much effort: If you write a score, any score, what you do is you schedule events in time and space. (Music is the only art form) that does it to such an extent, and so I think it's the discipline which could give us some terms of reference: Musicians could become not just composers of sound, but composers of life rhythms.

**MW:** There was a point you made in an earlier interview (MUSICWORKS No. 7, Spring 1979) that a problem with getting to this stage is that music, or organized sound, tends to happen only in enclosed and separated kinds of places and situations.

**AM:** Yes. Musicians have been giving in to the cultural industry, and of course the cultural industry likes to keep things nicely and neatly packaged. I think musicians don't, of course, do much about the environment. They don't do much about the rhythmic environment, and they don't do much about music either, actually. They do comply, and I think it's almost criminal to the extent they do comply with what the different procedures cultural industries come up with in handling music. I don't think that the scheduling practice for a concert, which is very rigid and has nothing to do with people's life rhythms and life styles, is really the only possible one. I don't think that the use of music as it exists in mainstream music, mainly through the media, is very musical. And I feel the more musicians refuse to take charge of that, the more music will be confined in a ghetto and will be confined in this ivory tower of very revered activity which is not taken too seriously.

**MW:** What do you mean when you say that you find the music within the mainstream cultural confines not very musical?

**AM:** I don't think we make a musical use of music. If you take an average day in a modern western city, of course you find piped in music all over. You find Muzak, which is actually used with very unmusical purposes: it synchronizes people with this piped-in sound to make them work more efficiently. I don't think music was designed, really, to make people work more efficiently for some company! Especially in this continent (North America) there are tens, hundreds of thousands of people who do have their rhythms, whether they want it or not, somehow conditioned by Muzak's very elaborate distribution in time of certain musical materials. I don't even think, if we speak about 'serious' music, that it's so beneficial to pipe it through, to have it scheduled according to the arbitrary tastes of some guy sitting in a programming department.

I don't know whether people wouldn't need to be made aware of the fact that listening to music is almost an art by itself. With recorded music, you can just buy the product and do with it what you want. You might just not use it the proper way; it might not be able to fit in to your cycle. We do destroy the original context for non-Western musics — that's another topic. We know that it's been deplored many times, that straight-jacketing a group of performers from somewhere in, say, the Third World into the Western concert practice, concert situation, both spatially and temporally. It has preserved things, but it has destroyed many other things.

So I think that there is a parallel between, on one hand, this indiscriminate use of music and on the other hand the apathy toward the acoustic and rhythmic aspects of the environment. We do use music actually **not** to listen now. People with walkmans and earphones are very palpable examples of that. They use the music to be cut off from what's around them. Also from people. This is a very good example of anomusical use of music.

**MW:** And what your work is attempting to get at is the opposite: it is attempting to synchronize people with the environment, what is around them . . .

## MARCH 21, 6:59

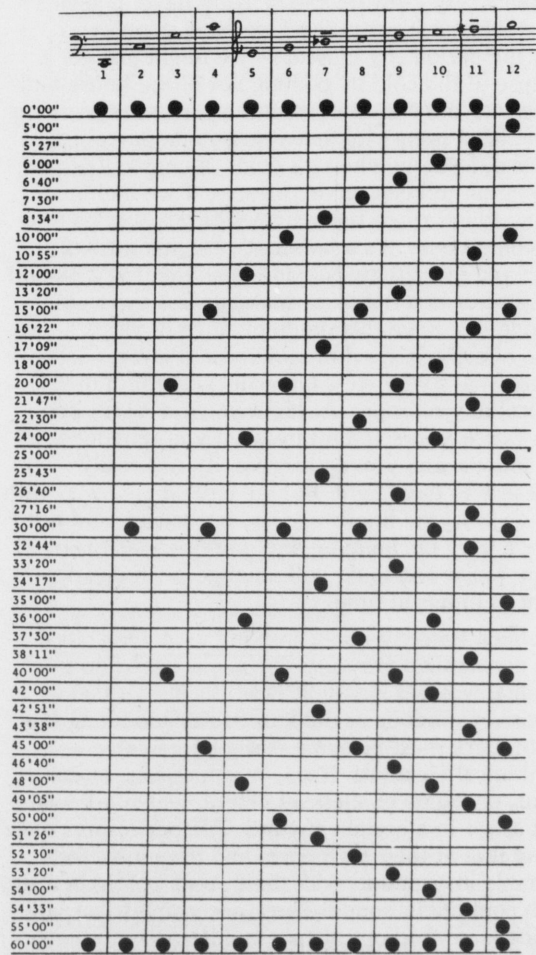
**AM:** . . . with themselves. I think that that is what music is all about to a large extent.

When I was living in a smaller town in a more say, homogeneous environment, socially speaking, of course it was a lot easier to make musical experience fit in with what you were doing. You had a more easy-to-handle schedule, a more-easy-to-handle load of activities. So music had its place: it could be organized and brought in more organically. We see also that in other cultures music is not this kind of separate activity as we have come to consider it. Musical activity just grows out, very often almost spontaneously, from work activities, social gatherings, and just from the life activities of the people. They might start beating or smashing corn: one woman is doing it, another joins in, and you have a very nice rhythmic counterpoint. It would be hard to ask these women, Are you making music, or are you smashing corn? I guess they wouldn't perceive it as something distinct, or in opposition to something else.

**MW:** So this is a musical use of music; where it's synchronizing them with each other, with the corn, with an organic kind of rhythm or working together. It's not the imposition of some sort of structure on the activity, but a spontaneous synchronicity with what they're doing.

**AM:** Which comes out of their way of living!

What we might consider is, what do the people who happen to sit next to each other in a concert have in common as far as the overall quote, music, unquote of the day, or days, is concerned? Sometimes very little, and just by some consensus, they are expected now, of course, as the conductor raises his baton, to let everything else be gone, they are just being swept away! The cultural industry has taken over the concert! It's a form that people know, you can market it, people will go to it, even though it is now something very different from what it was when it originated. There are successful events where the whole audience has this feeling of being together and hearing the same sub-sonic waveform. Maybe rock concerts provide it more than classical concerts: there seems to be a more identifiable common motivation to go there. Sports events do it: at least half of the audience will rejoice with you or they'll mourn with you if the other side wins. We need that, because we live our daily lives in places where we usually spend out time with people who have other waveforms. In the supermarket or the station, one person is arriving, another going; one is in a rush, another is tired. They all have different cycles. There is what I would call a sub-sonic



noise there, because everybody is pursuing different things, has other relationships to time and so on. So people like to go to sports events, like to go to rock concerts, and to a certain extent also to classical concerts.

Many years after having discovered the strength and also the beauty of common sub-sonic wave forms, I went to a prayer in a church because one of my distant relatives died, and I happened to be there in the little village. So there we were in this dark little Catholic church praying for that man. It was a very powerful experience to me to see that we had been engaged in some sound activity because of some common motivation and we did it fairly seriously. We had chosen to be there. I felt there was this common wave that came acoustically because we were praying aloud, but there was something else behind it which I found was very, quote, musical, unquote: Beyond the sonic aspect of it, there was this sensation of a sub-sonic consonance of having been able to tune in to the common activity of invested energy for the sake of this dead man.

In the *Hora Harmonica* piece and the *Dies Harmonica* piece, which I did in Boston, the sound is used primarily to structure time: These pieces are sort of clocks which the sound adds to and gives a dimension to. The main idea is to try to get to the idea of articulating time in a different way and having the sounds being the aural/acoustic hands on this imaginary clock.

In the visual arts we've had artists who exhibit some object that they had found — an object which in one way or another would fit in with their ideas of an aesthetically successful object. So they would exhibit just a stone, a piece of wood, a piece of cloth or whatever. I've become intrigued by this possibility of trying to find rhythms. As I said I very often find things that have a rhythmic structure, and try to write it down and see what comes out and sometimes to do something with it and play either myself or to compare it with other things.

Once I was asked to do some months of experimental music education in a school with children between the ages of 11 and 14. We did some exercises on body rhythms, trying to tune in with somebody else's rhythms, trying to see how we relate to space with our own rhythm of walking and so on. Children are very ready to participate in things like that, and it was of course also playful so they had a good time. But I think music education, even in its more enlightened forms, still maybe does not focus enough on the aspect of children really trying to find

*HORA HARMOICA* is based on a twofold transformation: as sound becomes rhythm, time becomes music.

The piece is based on the subdivision of the chosen time-span in harmonic partials up to the 12th overtone. (Imagine a sound being slowed down by 5 or 6 powers of 10.) This yields the following periods:

1. 60'	5. 12'	9. 6'40"
2. 30'	6. 10'	10. 6'
3. 20'	7. 8'34"	11. 5'27"
4. 15'	8. 7'30"	12. 5'

In turn, this rhythmic structure is made audible through sound: a pitch corresponding to a partial of an audio spectrum is assigned to each subaudio period: the fundamental to the 60' period, the 2nd overtone to the 30' period, etc.

These pitches occur at the beginnings of the period of their sub-audio counterparts and at the end.

*HORA HARMONICA* may be presented as

-a performance piece: any sound source or combination of sound sources tunable to the exact intervals of the overtone series may be used, sound sources with very complex waveforms should be avoided, however. (In the score the approximate pitches of the overtone series of C are given as an example, but any other overtone series can be used.)

-as a sound installation from tape (once only or continuous); it should extend through several spaces through which the audience may move freely.

*HORA HARMONICA* was presented as a sound installation at Ontario College of Art, November 15, 1984 from noon to 1 p.m. The overtone series of a 60 cycle per second tone was used. A portion of an ambient recording of the installation can be heard on MUSICWORKS 29 cassette.



(Add one hour to times given during DAYLIGHT SAVINGS TIME, if you observe it in your area.)



their own rhythm, to give possibilities to express their individuality, and also, on the other hand, to make them aware of what is happening around them, say in the family where there are, among others, very strong rhythmic hierarchies, and rhythmic oppression. Children pay attention to periodicities, to how often things happen. They have more of a temporal depth, or time depth than we grown-ups have.

As Murray Schaffer has shown, acoustic events have to be all up front now because there is so much noise. There is not much of a depth of sound in the soundscape. There seems to be a striking parallel with the loss of depth also in the temporal dimension. Things have to be **Here and Now!** In the 70's there was a strong movement in Italy, for instance, of, We Want Things Now! This is very often compared to the Protestant ethic of deferred gratification; we have to work hard now to have something in months, weeks, years, 10 years time; and so of course then people don't want to work et cetera.

But I think that the people in the 70's had actually



expressed something very accurate: that our society has lost this depth in ordering time, in temporal dimension. It isn't able to think in long cycles, or conceive of gradual developments.

**MW:** I've noticed that aside from using the time structure inherent in the harmonic series, and the square root of two to make musical works, you've also worked with the rhythms of tides and waves. You did a piece called *RITMI* where you had articulated sonically the 6-hour cycle of the tides coming into a European harbour and used as well the rhythm of the lighthouse, which live musicians synchronized to and then extended outward through the area in a sort of chain of synchronicity.

**AM:** Yes. Lighthouses I find intriguing because they are one of the few signals that rhythmically are a bit more refined than others which are simply (HONK)! Off/On. It's a square wave, but it has quite different segments. This piece had to do with a sea location. One intent was just trying to bring attention back to this long cycle of the tides, which used to be important to the fisherman, but isn't as much because they have hotels, they have tourism, they have car repair shops and other things. I just wanted to, as I've said before, use sound as a sort of a guideline to other cycles or sub-sonic musics, so to speak. The Lighthouse part was a group piece we did for whoever wanted to join in. It was done once and it was a very nice experience. It was really extended far into the mainland.

We don't usually have the time to really take in a long signal like that of a Lighthouse. It takes quite awhile to unfold, you know, and we want to know **immediately** what's up. If you have to understand where you are just from the Lighthouse, you have to stay there and watch it for a long time, see why this happens and then look up what it means and so on. It's still a drawn out communication signal, yes. It entails a time factor which is an important one.

**MW:** What comes to mind about these sub-sonic rhythms is that in trying to comprehend the un-

folding of a long cycle of, say, hours or days, you wouldn't or couldn't be focusing on it in the same way as you would on a ten-minute cycle where your attention can be singularly focused on deciphering it for that length of time. In a rhythm where you're aware of the long span of time, you attention would have to encompass a number of different things simultaneously, so this linear, single-minded way of perceiving would have to disappear: If you have a cycle that takes a week to repeat itself, then obviously, you're really doing all sorts of things — living! This seems to be getting to the kind of perception of living the people in the mountains have: Their life is their work, their work is their life, their time for ritual or mourning is integrated into one long cycle of perception.

You mentioned with the six-hour cycle of the tides in *RITMI* that people would come in, see a seemingly static situation, then leave to find something to do. But they'd come back and find that the sound had changed while they were gone. So they do discover this perception of something developing over a long cycle.

**AM:** Yes. It's something that you can set your own pace in dealing with, like the seasons. In Western life we have to a large extent tried to neutralize both perception of cycles and the cycles of perception through creating an artificial environment. We have artificial light, to a large extent much more than we would need. I ask the question very often of people if they have experienced real total darkness. Very few people actually have. It seems incredible but it's true. And we have done away with the periodicity in heat — we might just get a glimpse of the cold by coming out of the house and going into the car, then from the car to the working place. It's a great pity, because you do perceive things differently when it's cold. Of course it would be difficult to keep up our lifestyle if we had mud roads, which when the snow melts it would be impossible to pass. It's a fact that everything is concrete and everything is made in a way that it should be more or less stable, or make us less aware of change. We have this predominance of vision — we have effectively tried to make vision always achieve sense. That's why we have artificial light in the natural environment. At night you just **don't see**. You orient yourself a bit by what you remember of the sounds, and you do survive. It's not really necessary to have light. But we have done away with this cycle of the importance of the senses, and just have a very unchanging and unmusical environment: Music has to do with change, with development of things in time.

I've been thinking about walking a lot. One piece I've done called *Parcours Rythme* is based on individual walking rhythms. It works like this: One chooses an indoor or outdoor route, and along this route there must be some easily perceivable rhythmical elements: trees, or lamp-posts, or columns, or flights of stairs, et cetera, which articulate that space in a certain rhythm. The performers walk along that at their own pace, and they have little portable instruments with them, both percussive and with continuous sound. Then, according to a score which is worked out of course differently for each location, the performers make sounds, say, for instance, at every third tree, every fourth column, to

make, for instance (**CLAP**) a percussive sound when they pass it. Or they make a continuous sound between tree X and tree X plus five. So the music comes out of this interaction, the position of different walking speeds and the different phases and different periods. This is a piece I'm rather fond of that I've performed at different times and in different situations also with different people. It does seem to make you aware of how **you** experience yourself in a given space; how you articulate your walking, and how then the underlying music comes out through sound.

I think that one should try to pay more attention to one's motoric activities — the intrinsic rhythms of motoric activities. This is one attempt to do so.

When I was working on the film I mentioned before (in the mountain village) I really got the feeling of a score — a very extended sense of what we could call the temporal/spatial score that people create unconsciously and perform. I think it was a feeling that really had to do a lot with music, to see how you have come to understand why people moved in a certain way in a certain context. It really felt like seeing them perform a piece which they of course themselves had created or were creating continuously and every single little movement; the way of speaking, the way of eating, et cetera, fitted into this overall score, as I call it.

I think that I couldn't have done this if I hadn't dealt with scores before, if I hadn't been concerned with the possibilities of trying to somehow think in a more abstract way about coordinating activities in time and space. I couldn't have done this if I hadn't gone through the practice of experimental music, of contemporary music, where these problems have to be dealt with in many different ways. Once again, I think that it would take little effort to bring out many experiences that one gathers and realizes in performing a new piece, and just try to bring that out in a wider context; trying to see, What would some of these ideas the composer had yield if I were to apply them to people's everyday lives, the activities they perform in interacting?

I would like to mention one event during the film work which was to me a very important musical experience. I found myself shortly before lunch hour in a little restaurant up there in the mountains. People were there playing cards, swearing and making a lot of noise and drinking heavily, of course. I was there just eating a soup or something. Then the church bell struck noon, and the people became silent, gradually, dropped their cards, stopped swearing, stopped insulting, stopped drinking, and were silent for a few minutes. Now they didn't pray; they just were silent and concentrated, you could say, for say two and a half to three minutes. And then, gradually, they started again picking up their cards, their glasses, and swearing and so on. So it was an example, really of expressing common activity by not making sound by excluding sound. Of course, that's related to their traditional synchronizer, the church, which had traditional hours of prayer; 6 o'clock in the morning, noon, and six in the afternoon. Now in the restaurant they wouldn't want to pray but still they performed this 'score' so to speak by interrupting the normal activity and just sitting there for some minutes with a deliberate intention to observe this short period of silence. It gave a very strong feeling of cohesion, of those people being together. To me it was really a musical experience. It had to do with sound of course, but other things come out through the sound, or the absence of sound; this slow decrescendo first and then this slow crescendo afterwards again. It made a very strong impression on me. We have it on film.

You see, there is some form of musical interaction with the environment or interaction among people according to some, if you want, simple scores, but they make sense. They really give the feeling of these people still performing certain 'instructions' which do contribute to their susceptibility of doing things together, of having more cohesion and a stronger community sense.

MAY EVE: APRIL 30  
(High point between Spring Equinox and Summer Solstice)



# TIMESCAPES: Earthspin, Celestial Timescapes and Ragtime

BY UDO KASEMETS

## TIMESCAPES

are a series of essays on relationships between nature's cycles and the various systems humans have developed for defining, measuring, notating, communicating their perceptions regarding the movements of the earth and the heavenly bodies.

As time-lapse photography enables the viewer to witness a flower's opening from bud to full bloom, so musical speedings-up and slowings down provide the listeners of **TIMESCAPES** with an altered timeframe for experiencing the intricate celestial mathematics on which humankind's concepts of time are based.

While each of the three **TIMESCAPES** presented here is an independent entity, all three can be joined to become a sort of a journey through several timezones.

The purpose of **EARTHSPIN** is to transport the listener gradually from the experience which we call "real time" (Earth's turning around its axis during a 24-hour period) to one where he/she will sense the full rotation of the Earth taking only 60 seconds in "conventional" time.

Having thus been transported into a timezone where the Earth spins once every minute, the listener is now ready for **CELESTIAL TIMESCAPES** (an excerpt of which appears on **MUSICWORKS 29** cassette recording). The twelve chromatic tones of the octave, distributed in various ranges, represent the twelve Zodiac constellations; White noise represents sunlight; selected harmonics of the 60-cycle tone corresponds with the various phases of the moon.

Since the duration of sunlight keeps changing throughout the year and the constellations' positions keep shifting from day to day, and since moon (sic) travels at its own rate **CELESTIAN TIMESCAPES** in any performance have to be arranged in accord with solar / stellar / lunar correspondences of the performance year, month and day. (The excerpt on the recording represents a 20-day period starting on Vernal Equinox — March 21, 1985 — which is also the day of the NEW MOON.)

Ideally the performance of **CELESTIAL TIMESCAPES** moves through the complete cycle of the year: the 365 days being compressed into 365 minutes (6 hours & 5 minutes)

When the sounds on the tape coincide with the calendar day of the performance the **CELESTIAL TIMESCAPES** may be brought to a temporary halt to contemplate the day itself and its hours.

## RAGTIME

provides this opportunity.. In **RAGTIME**, an intercultural **TIMESCAPE**, the passing of the day, the day of the week, the time of the month, the month of the year are all observed in accordance with principles founded by HINDUSTANI & KARNATAK musicians. While the performers playing Eastern instruments base all their improvisations on the RAGA of the time of the day

and the TALA of the day of the week, the performers playing Western instruments use materials derived from and arranged cyclically of all the RAGAS of all times of the day.

At the completion of **RAGTIME CELESTIAL TIMESCAPES** will continue the cycle until the pianist tunes in with a reverse performance of **EARTHSPIN**, i.e. starting with 60 seconds for all pages, then from time to time expanding the timeframe until finally he/she has arrived at the tempo of "real time" Earth's rotation, and thus returned the listener from his/her timetrip.

The following are Udo Kasemet's answers to the QUESTIONS FOR MUSICIANS AND COMPOSERS ABOUT TIME, found on page 2

1. I don't organize time, I experience time (time may organize me).
2. There is no 'my' music. All tempi, rhythms, and cycles of life and living have significant conscious or unconscious effect on all music.
3. My (and anyone's) involvement with music (in any way) always influences my (and anyone's) perception of the temporal, rhythmic and cyclic aspects of my (and anyone's) life and living.
4. Any and all times of day, week, month, year (and other). No schedule.
5. TIME  
ITEM  
METI  
EMIT





# Earthspin

the 88 celestial constellations as represented by the 88 piano keys, the solar cycle as represented by the prerecorded cluster of the complete piano range;

to be performed by a pianist and an electronic sound system operator;

to be performed either as a SOLO or in conjunction with other **TIMESCAPES**, most particularly leading into and out of **CELESTIAL CYCLES**;

acoustical depiction of the imaginary gradual acceleration of the speed of the earth's rotations around its axis from its actual rate (once during 24 hours according to the earthlings' measuring) to a rate 1440 or more times faster (once during 60 seconds or less) and the subsequent deceleration in order to return to the actual speed;

each performance starts and ends at the point in the score which corresponds with the actual

month, day and hour of the performance (the appended **TIMETABLE** shows the correspondences between the startime or sidereal time as shown in the score and the local meridian or calendar/clocktime) (the fourth page of the score links up with the first);

at the start the pianist activates all the sounds representing the visible constellations of the performance time and reiterates them for any desired length of time (no. 1 on the **TIMECHART**);

while continuing to reiterate the sounds representing the immediately visible constellations he/she then compresses his/her time-concept by considering an hour as of lasting 24' in constant clock-time (no. 2 on the **TIMECHART**);

## EARTHSPIN: timetable

STARTIME	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
MAR 16-31	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12
APR 01-15	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13
APR 16-30	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
MAY 01-15	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
MAY 16-31	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
JUN 01-15	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
JUN 16-30	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
JUL 01-15	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
JUL 16-31	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
AUG 01-15	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
AUG 16-31	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
SEP 01-15	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SEP 16-30	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
OCT 01-15	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01
OCT 16-31	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02
NOV 01-15	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03
NOV 16-30	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04
DEC 01-15	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05
DEC 16-31	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06
JAN 01-15	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07
JAN 16-31	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08
FEB 01-14	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09
FEB 15-28	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10
MAR 01-15	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11

STARTIME	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
SIDEREAL	00'	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
MERIDIAN	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	24h
CLOCK	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
S	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
M	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
C	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
S	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
M	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
C	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
S	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
M	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h
C	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h	24'	48'	01h	12'	36'	00h

EARTHSPIN: timescore

## EARTHSPIN: timechart

	small bars	large bars	cycle of 4 pages
no. 1	24'	60'	24 hrs.
no. 2	(9'36")	24'	9h36'
no. 3	2'30"	(6'15")	2h30'
no. 4	60"	2'30"	60'
no. 5	24"	60"	24'
no. 6	(9.6")	24"	9'36"
no. 7	2.5"	(6.25")	2'30"
no. 8	1"	2.5"	60"
no. 9		1"	24"
no. 10			1"
no. 11			0"

two kinds of barlines — solid and broken — indicate time-units for further compressions of the time-scale;

starting a clock, the pianist reads time from the broken barline closest to the left of the event he/she is playing at the rate 2'30" per bar (no. 3 on the **TIMECHART**); once the clock catches up with the event in question, he/she continues to read the score at the given timerate;

he/she may change the timeframe at any solid or broken barline to the subsequent one on the **TIMECHART** until he/she reaches no. 8 or no. 9; after completing at least one full cycle at this speed he/she reverses the process and by expanding the time-scale step by step returns gradually to no. 1 on the **TIMECHART**, but paced so that he/she ends with the event with which he/she started;

as an alternative version the pianist may "spin the earth into a black hole" by moving on through no. 10 — 1" for the whole score — into no. 11 — complete silence; in such a case the next performance has "to suck the earth out of the black hole and gradually return it to its normal spinning", i.e. start with no. 10;

when the performance is in conjunction with **CELESTIAL CYCLES** the pianist starts as in SOLO at the timepoint in the score representing the immediately visible constellations, but arranges his/her accelerations so that he/she will have reached no. 8 on the **TIMECHART** by the time which corresponds with the timepoint programmed for the start of the **CELESTIAL CYCLES**, i.e. the zodiac constellations of both the **EARTHSPIN** and the **CELESTIAL CYCLES** have to be in sync; once this union has been reached, the pianist will continue for any desired number of cycles and eventually fade out;

similarly, to reverse the process, the pianist blends into the **CELESTIAL CYCLES** at a prearranged time, in sync with the zodiac constellations, and starts the acceleration process after the **CELESTIAL CYCLES** playback has ended; as in SOLO the performance ends with the sounds representing the immediate visible constellations;

("the spinning the earth into a black hole" and sucking the earth out of a black hole" concepts may also be used to "stop the time" and "restart the time" at an overall **TIMESCAPES** performance, e.g., to lead into and out of a STATEMENT OF NOW or a RAGTIME performance, or to introduce and terminate an intermission, etc.)

## /notation:

note shapes indicate relative amplitudes in the framework set by the performer (e.g. the performer may choose to play only at the quiet end of the spectrum, or use the complete range, or change the scope from tempo to tempo, but whatever he/she does has to be of consistency within the chosen framework):

- ▷ -loudest
- ◊ -louder
- ◻ -medium
- ◐ -softer
- -softest

- white note of any of the 5 shapes: attack of a new sound at the given timepoint;
- black note of any of the 5 shapes: continuation (by pedal and/or reiteration) of a sound to which it is tied (it should not be reattached unless its rate of decay, a change in fingering or pedalling or other circumstances merit a new attack which in turn need not occur at the point where the note has

been printed but rather at any time during the given bar;  
● small round black note: termination of the sound to which it has been tied.

## prerecorded sounds:

the electronically reproduced sounds consist of an attackless cluster of all 88 pitches of the piano — divided into groups of 44 or 22 or 11 and recorded on a 2 or 4 or 8 channel loop (ideally the recorded keyboard sounds ought to be produced by the same pianist who performs the live part); they are played back in sync with the pianist's reading of the score at varying time ratios so that the cluster sound properly represents, on the same scale, the appearing and disappearing of the sunlight in the skies of the northern and southern hemispheres; on playback the loudspeakers should be placed in the immediate vicinity of the piano, most preferably under it.

to coordinate their activities the pianist and the electronic systems' operator prepare their **TIMESCORES** by filling in

- (a) the local meridian time of the performance from the **TIMETABLE**; (should the **CELESTIAL CYCLES** be scheduled to start or end on a day belonging to a different time-period than that of the performance, the meridian time of this day is also to be entered in the **TIMESCORE**);
- (b) the performance clocktime as related to the above;
- (c) any additional pertinent information regarding amplitude ranges, starting and stopping of **CELESTIAL CYCLES**, etc.

the soundsystems' operator plays back the loop (by either blending or filtering in and out the channels or bands) according to the **SUNSCORE** as it relates to the time of the year represented by the performance (when **CELESTIAL CYCLES** start or end on a day belonging to a different time-period than that of the performance, the reading of the **SUNSCORE** will be smoothly shifted from one section to the other).

## notation:

names of notes and lines refer to the range of the cluster to be made audible or inaudible between the timepoints (in meridian time) indicated by the score: the cluster is audible through the white portions of the score, inaudible through the lined portions of the score.

on and around the vernal equinox in the year of the dog

00 01 02 03 04 05 06

EARTHSPIN: starscore 1

06 07 08 09 10 11 12

EARTHSPIN: starscore 2

12 13 14 15 16 17 18

EARTHSPIN: starscore 3

18 19 20 21 22 23 24

EARTHSPIN: starscore 4







# Ragtime

## DAYTIME CADENZAS AND CANONS

percussion and lead instruments  
 range: middle  
 tempo: moderate  
 volume: medium

CADENZA OF THE  
 EARLY MORNING

3 or more instruments  
 range: low to middle  
 tempo: slow to moderate  
 volume: soft to medium

SUNRISE CANNON

bass and percussion  
 instruments  
 range: low to middle  
 tempo: slow to moderate  
 volume: soft

CADENZA OF WHEN  
 THE DAWN EMERGES

or low to middle  
 slow  
 soft to medium

or low  
 slow to moderate  
 soft to medium

3 or more instruments  
 range: middle to high  
 tempo: moderate to fast  
 volume: medium to loud

MORNING CANON

bass instrument(s)  
 range: low to middle  
 tempo: slow  
 volume: soft

CADENZA OF THE  
 LATE NIGHT

or low  
 slow to moderate  
 soft

or low  
 slow  
 soft to medium

3 or more instruments  
 range: high  
 tempo: fast  
 volume: loud

MIDDAY CANON

### CADENZA/CANON TIMING TABLE

cadenza/ MIDDAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	①	2	2	2	3	3	3	2	2	2	①	①
VANISHING DAY	2	①	2	3	2	3	2	3	2	①	2	①
APPROACHING DUSK	①	2	2	2	3	3	3	2	2	2	①	①
SUNSET	2	2	2	2	2	2	2	2	2	2	2	2
EVENING SETS IN	3	2	2	2	①	①	①	2	2	2	3	3
EVENING	2	3	2	①	2	①	2	①	2	3	2	3
MIDNIGHT	3	2	2	2	①	①	①	2	2	2	①	3
LATE NIGHT	2	3	2	①	2	①	2	①	2	3	2	3
EARLY DAWN	3	2	2	2	①	①	①	2	2	2	3	3
SUNRISE	2	2	2	2	2	2	2	2	2	2	2	2
EARLY MORNING	①	2	2	2	3	3	3	2	2	2	①	①
MORNING	2	①	2	3	2	3	2	3	2	①	2	①

### MIDNIGHT CANON

3 or more instruments  
 range: low  
 tempo: slow  
 volume: soft

### CADENZA OF THE VANISHING DAY

lead instrument(s)  
 range: high to middle  
 tempo: fast  
 volume: loud

or high  
 fast to moderate  
 loud

or high  
 fast  
 loud to medium

### CADENZA OF THE APPROACHING DUSK

lead and bass instruments  
 range: high to middle  
 tempo: fast to moderate  
 volume: loud

or high to middle  
 fast  
 loud to medium

or high  
 fast to moderate  
 loud to medium

### SUNSET CANON

3 or more instruments  
 range: high to middle  
 tempo: fast to moderate  
 volume: loud to medium

### CADENZA OF WHEN THE EVENING SETS IN

percussion instruments  
 range: middle  
 tempo: moderate  
 volume: medium

### EVENING CANON

3 or more instruments  
 range: middle to low  
 tempo: moderate to slow  
 volume: medium to soft



AUGUST EVE; AUGUST 1  
(High point between Summer Solstice and Autumn Equinox)



Sankaran and mrdangam.

With this issue of MUSICWORKS being devoted to the topic of time, we thought it would be most appropriate to interview one of the foremost practicing masters of the subject, Professor Trichy Sankaran, who lives and teaches in Toronto. He was interviewed by two of his colleagues in the Music Department at York University, who share an interest in the traditional art music which Sankaran has brought from South India, as well as in the subject of time. Their interview touches on various aspects of time: the psychological, the metaphysical, the pedagogical, the aesthetic, the historical, and, since they had to steal the time to do this on a weekday morning before their classes, the practical.

Edited by Casey Sokol

**Casey:** What struck me first in thinking about this interview is that the Indian culture, probably more than any other culture, has thought about time in the most complete sense that I am aware of — even in its taking into account the largest and the smallest units of time. On the one hand you have the *yugas* and the *mahayugas* which see the passing of civilizations like notes in a melody or subdivisions in a rhythmic cycle. At the other extreme you have this interesting description of the ultimate time division: the duration of a needle passing through the top lotus petal as it is thrust through a stack of 108 fresh lotus petals. It makes me think that this must be the definition of the ultimate moment of perception, the smallest unit of cognition of a percept.

**Sankaran:** The minutest division of time.

**Casey:** That's obviously a very philosophical orientation, but in relation to the yogic tradition, it makes me think that it's also a practical issue; it's something a yogi may aspire to. And relating this to what I know about your drumming, having that great sense of the different scales of time may be very crucial. In fact *laya* has been linked to spiritual practice; a sense of the flow of time is certainly related to sensing the moment. I wonder if I could ask you to begin by speaking about what a "particle" of time is and how you approach, at a practical level, dealing with minute points of perception.

**Sankaran:** Well, in a description where the time is divided starting from the largest possible divisions going down to the smallest particle of time or minutest division of time, it is recognized that there is a level which is humanly incomprehensible. So they show the two extremes; one extreme being what you might call the *yuga* time or the philosophical or cosmological time, and the other being the minutest time. In this way we are made aware of such extreme situations. On the one hand you have the largest division that is incomprehensible, and on the other hand the smallest particle that is also incomprehensible. Then gradually they take you from the smallest division to one which we think is humanly perceivable. So, they are trying to

## GLOSSARY

### Laya:

a) flow, b) degree of speed, c) sense (knowledge of time), d) also related to yoga

### mrdangam:

a two-headed, barrel shaped drum which is tuned to a specific pitch

### Raga:

The melodic basis of Indian music; a traditionally established scale with prescribed qualities of inner melodic movement, evoking specific emotions.

### Tala:

An organized metric cycle consisting of a certain number of beats performed through claps, finger counts and waves according to traditional practice.

# THE TUNING OF TIME

## AN INTERVIEW WITH SOUTH INDIAN MUSICIAN TRICHY SANKARAN

BY CASEY SOKOL AND JAMES TENNEY

rhythm as a result of kinaesthetic motion, the motion of substances in our bodies that are correlated with emotion and with thought, could be conceived as a dance — a physical dance. Maybe it doesn't have to be correlated with what we perceive as motion.

**Casey:** I agree with you, but the reason I started with the question of scale, with the octaves of vibrations, is that it seems to me that the dance that the intellect is capable of is a slower dance than that of the body, and the dance of which the emotions are capable is a dance which is potentially far finer, far faster than what the body can do. What I'd like to talk about is what the function of the emotions is, for example, in a musical line or a musical form, and what the function of the intellect is. If we are talking about time, in a way we are talking about everything. When we talk about rhythm, though, I have a feeling that we are talking about a particular set of octaves of vibration. We're not talking about things that run as fast as 1000th of a second or much slower than perhaps one event per second. I don't think that the body is able to perceive that because, in my opinion, we can't move that fast. I think that we can only perceive that with which we can resonate. But Jim, I agree with you completely; that they are all a dance. The question arises when I see students or professional musicians trying to really "get into the groove". You can see that sometimes the whole effort is emotional; they think or feel that they need to feel the rhythm, emotionally feel the rhythm. This turns out in most cases to be very unreliable. The emotions by themselves as the field of rhythmic perception are too fickle: you feel this way, you feel that way. If you get excited the *laya* speeds up. Something else more rocksteady than the emotions is needed.

**Sankaran:** Emotion doesn't necessarily have to be all the time the excitement. There are emotions of various kinds. Perhaps I may not have enough words to describe it adequately when I say "the feel of time". After a performance when I come home, I think about the performance and that puts me in a meditative state. What do you call it; do you call it an emotional experience? In a way it is, but it is devoid of any excitement that would have taken place at the time of the concert. But when I come home I do not think about everything but maybe that particular moment I really enjoyed, which again takes me back to that state. That is another kind of emotional experience, or I would even say an aesthetic experience. Aesthetics are connected with the emotions.

**Jim:** I think emotion is one of the most overrated notions in our culture. I like your word, "fickle". Incredibly fickle in every respect.

**Casey:** The clouds in the sky just reforming all the time.

**Jim:** Yeah and they're mostly trivial. And kind of uninteresting to me.

**Casey:** But isn't that partly because this culture, as opposed to some Eastern cultures, doesn't, in the process of normal education, educate the emotions? We educate the mind, mostly, secondarily the body, in athletics.

**Jim:** Here we have such a narrow conception of what the emotions are. What Sankaran was saying relates to a broader conception of that, so what I just said I should qualify as having to do with this narrow Western contemporary idea of what the emotions are: the feelings of excitement or sadness or love or hate or whatever.

month when all kinds of animals prepare their dens (*Tlingit*)

moon of the rutting reindeer (*Loucheux*)

moon in which the young birds begin to fly (*Cree*)

AUGUST 16, 05:06



"The Dance of Shiva pictured by twelfth-century Eastern artists and twentieth-century Western physicists." From Fritjof Capra's The Tao of Physics, Fontana 1976.

**Sankaran:** What I'm finding out is there is some depth to the emotions that we are talking about. That's why there are various kinds of emotions in Indian dance and music which are known as *rasas*. The *rasas* elaborate various aspects of emotions. I could be very subjective. It depends on the personal experience and also has to do with the interaction between the performer and the listener. There are many things to it. I think that emotion is really an important aspect.

**Jim:** In Indian philosophy are there not more or less a definite number of identifiable, distinguishable *rasas*?

**Sankaran:** Yes there are 9 such *rasas*. There is *Srngara*, romantic lovemaking; *karuna*, which is sympathy; *hasya*, provoking laughter; *bibasta*, disgusting; *bhayankara*, fearful; *adbata* is amazing, wonderment; *roudra* is fury; *veera*, heroic; and of course there is *shanta*, which is peace and tranquility.

So basically there has been in fact recognized a particular kind of state or emotion, and we have given expression to, given form to, these aesthetic experiences. Even then, one particular note cannot produce a particular *rasa*. Rather it has to be understood in the context. The context becomes really important, number one. Number two, a *raga* could produce more than one *rasa*. But in the application of these *rasas* the culture plays an important role. We are so used to listening to *ragas* and identifying them with certain emotions, certain *rasas*. When you learn to apply that it becomes more and more meaningful and then you accept all of it. For example, the *raga sahana* is traditionally associated with the *karuna rasa*. I am talking of time, even the *rasa* element has a lot to do with the tempo. You cannot sing certain *ragas* in an exciting tempo. You have to choose the appropriate tempo to bring out the particular *rasa*.

**Casey:** Is this because of the natural associations with body movement when one is in that state or in that emotion? In other words, when we move or we think or we feel something there is a general tempo — inner tempo that we experience that has some kind of correspondence to the musical tempo?

**Sankaran:** There again I think the mental absorption and the way you hear the music and the way you react to it becomes more important. I'm distinguishing two things here. When we talk of the time element, I think I'm relating more to the bodily movement. But when I'm talking about *rasa*, it is more pronounced in melodic music. The emotion leads directly to listening and your reactions to that.

**Jim:** You mean the *rasa* is more closely correlated with the melodic aspect rather than the rhythmic?

**Sankaran:** This is an area I am developing an interest in and trying to do some research. Yes that is true. In general they relate the *rasa* more to the melodic aspect than to the rhythmic aspect. Rhythm also plays a role, perhaps not as pronounced as melody.

**Casey:** Is that because rhythm doesn't play as pronounced a role or it because rhythm has received far less analytical attention? As in western musicology, great attention has been given, probably for a variety of reasons, to tonal phenomena. Rhythm is treated in a more superficial way even in the kinds of stories that are told about drummers. Not only are drummers second class musicians in history, but rhythm is just accompaniment.

**Sankaran:** There is a lot to talk about this putting rhythm in a kind of subservient role to the melodic aspect. It's rather ironical, there is so much theory about rhythm, volumes written on rhythmic principles, the *tala* theory, and so on; but yet I wonder why the aesthetics of the *rasa* that we talk about are not quite clearly or as fully related to rhythm and tempo, the time element, as one would wish to see.

**Casey:** Is it because maybe it is less allowing of documentation? We can talk about tonal intervals in a very sophisticated way because we can measure the ratios of a string. I have no doubt that drummers have always been doing amazingly subtle things — not necessarily complex; for example in the *tavil* tradition; *gamakas* understood as rhythmic ornaments, laying back on the beat, pushing things around in an emotional way. That aspect is to me clearly governed by an emotional intelligence. And we haven't been able to quantify that until recent technological developments.

**Jim:** But it's still harder to do that, than it is to deal with pitch. It's very interesting, as Casey pointed out a moment ago, that rhythmic theory is less thoroughly developed both in Indian theory and in Western theory. And yet it's far more developed in Indian theory than it is in Western theory, right?

**Sankaran:** Absolutely.

**Jim:** I'd be fascinated to see how much more has been thought about and worked out in Indian theory.

**Sankaran:** There's a huge volume written on *talas* alone. Take, for example, the ten life elements that we discuss in describing time. Each of these terms in Indian music theory has many connotations that people ought to be aware of: the *dasapranas* are the ten life elements.

**Jim:** What are they?

**Sankaran:** *kala*, *marga*, *kriya*, *anga*, *jati*, *graha*, *laya*, *yati*, and *prastara*. These are the ten elements of time. In my teaching, I take each element and I discuss it at length in a very analytical way, but there are cumulative factors, all describing time. *Kala*, as we were talking in the beginning, means the hierarchy of time — the largest division to the smallest division, and the relationship of that.

**Casey:** There are octaves of time . . .

**Sankaran:** That's right. The *maha kala* related to the Hindu deity *Siva*. *Siva* is described as the primal rhythmic energy. His dance, the cosmic dance, is the primal cosmic energy. We talk about the time of the cosmos, the motion of the *navagrahas*, that is the nine planets. There is a very interesting interpretation for the term *tala*: the syllable *ta* comes from the *tandava* of *Siva*; that's the masculine dance. *La* comes from *lasia*, his consort's dance — Parvati's dance, which is a more graceful and feminine dance. Put these together: *tala*. What it tells us is a life principle: you have to have a man and a woman to produce an offshoot. So the communion; that's the yoga. When you combine these two, you generate *tala*.

**Casey:** So time is somehow viewed as the resultant force of the meeting of two opposite forces: the dance created by an active and a passive principle as reconciled in a certain movement. That's time.

**Sankaran:** Sure.

**Casey:** Well . . . I guess we can go now! (laughter)

**Sankaran:** Not yet! In learning about the ten important elements, little or subtle details are revealed such as how to conceive *tala*, the subdivisions that are important, how to learn to keep the *tala* in a slow speed; and we have *laya*, which is the bedrock of the principle of *tala*. *Laya* is a very fascinating term. It has several meanings. In the strict rhythmical context, I would apply the meaning, flow. Then I would also say *laya* is sense of time, knowledge of time. Also *laya*, in a philosophical sense or in yogic terms, would be communion, you are at a particular state, and you and the object(s) that you have in mind are inseparable — you are in tune: that is *laya*. So in fact, when we get to the nitty gritty of rhythm and all the complexities in rhythm, what we mean is, tune with time!

**Casey:** Let me return to an earlier question, then. It has to do with where the tuning takes place. In

my own experience of time, in Western or in Indian music, it seems to me that that part of our inner organization that is able to keep track of eight slow beats or does not function inwardly in the same way, as the part that can divide that beat, into eight, and that part is not the same as the part which can play in which you call an aesthetic way — with those wonderful tiny deviations that make your precise but emotionally coherent time quite different than the precise but totally dull time of a Linn drum — computed time. Those drums are more precise, and yet they're very dead because there aren't those small *gamakas*.

**Sankaran:** You think of precision in more than an analytical way. To me, as a performing musician and with my experience in the field, it's really very close to what you analyze, and it fits into your analysis and yet, there is something lacking. That's what you meant by saying there's something that's really dead: it's not equal to the coherent feel that you have in dealing with the time. People very often ask me, How do you subdivide this beat, and how are you able to do nine against four, eighteen against four? and so on. Of course I can point out to them rhythmically how it works, how the beat can be broken down into smaller units, and that's the way it works. But in actual performance, the paper doesn't help you. Many of the *Tavil* players, phenomenal players, when you hear them playing fifteen against four or eighteen against four, if you go and ask them after the performance, How did you do that? They'd say, Yeah, I don't know. This doesn't mean that they did something totally without knowing — now I'm not saying that. They knew what they were doing, but not in the way that you would try to analyze. There's a big difference.

**Casey:** It doesn't arise from thought.

**Sankaran:** It doesn't arise from an analytical approach. Rather it arises from the *laya* aspect. They have a stronger base in *laya*. Of course I can point out the steps, it can be worked out. And then when they reach a certain stage, it's all beyond that. And becomes music. Here I wanted to add something that might be of interest.

As a student, I used to go with my master Palani, carrying his drum and sitting with him in the concert. Most of my learning happened in the concert situation, not necessarily in a lesson time, and if I listened enough I could pick up many things. If I had something unfinished, I would wait for another concert where he would play the same thing or a similar idea so that I could complete that particular piece I had in mind. At one concert he played a complex pattern which confused me at the time because it didn't fit the *tala*. Then again it was very hard to ask the master, because it's not like the situation here: Hey, Sankaran! Hey! Tell me again! I had to wait for the appropriate mood for the teacher. We used to go around the block as you say, after a big lunch, and then I really caught him in the right mood. He looked at me, and he felt that I had a question for him: Hey, what is it? What's on your mind? I said, I don't know what to say. He said, Come on! Don't feel bad; just try to say what you have. I said, It was so beautiful, the piece that you played yesterday, but there's one part that I don't understand. I may be wrong, but somehow, I tried to work it out in the *tala*, and it doesn't seem quite right to me. Then, I was in more trouble. He said, Here's the *mrdangam*; come on, play what I played yesterday. And I tried to remember and play it. Okay — this is the place where I couldn't quite figure out the *tala*. Then he said something. Stop. You know what? The reason why I did that particular phrase here? Because I was developing a certain motif and I wanted to continue that to the end; I didn't want to change it. And in music, when we are so concerned about the aesthetics and when you are developing certain themes, if you learn to do it, and you go to a stage where you leave the mathematics behind, then that particular stage could defy analysis. That's what music is all about, he said. I was flabbergasted. I felt, My God! I really learned something that day! You see, that final stage defies analysis. Nevertheless, I'm not saying we shouldn't analyze; one thing I have found in this culture is that people tend to be more analytical than people in my own culture.

**Jim:** I'm impressed with the fact that that freedom, though, is only conceived as being really musical when it comes after an incredibly elaborate analytical process. In your learning, for example; your teacher did something that didn't fit the *tala*. If the whole process started with that, it would be meaningless.

**Sankaran:** But then again you cannot separate



certain things, you cannot isolate. Which is very true with the *rasa* theory. When we say that a minor third or a minor sixth produces a certain *rasa*, to me it doesn't really appeal, because it has to be understood in the context. When I said that that particular sequence of patterns that he played did not fit into the *tala*, well it did fit into the *tala*, but not the way that I had related to the earlier phrase.

**Jim:** But in effect, he could say that the mathematics just got more complicated at that point. He didn't leave the mathematics behind; he just confounded it a bit.

**Sankaran:** But as performers, I don't think that we are all the time conscious of the mathematics.

**Jim:** Well most of what we do is also incredibly complicated. If we tried to analyze just walking, or crossing the room, or speaking a phrase of a language, if you tried to come to an understanding of what mechanisms are involved, it's horrendous! Watching a child learn speech, how gradually that happens — thinking about it you know that there's this incredible array of neural mechanisms getting themselves together to become an elaborate machine for processing information and to put it out.

**Sankaran:** But at that stage rather we try to perform it rather than get into the analysis of it.

**Jim:** But even so much of what we take for granted — that gesture just now (moves arm upward), at a certain level of analysis can be seen as a very complicated act. We're performing in these ways all the time, incredibly precisely. But we learn it so early and take it for granted.

**Casey:** In a way, that's what I was saying earlier; you give a beat (Claps a slow, steady beat).

First of all, this to me is a mystery. How do I do this? If you divide this beat into triplets (Sankaran claps triplets.) I ask, How do you do that? What actually takes place inwardly that allows that to happen with such precision? It's not just any three divisions.

**Sankaran:** First of all, I try to divide everything in terms of feel. I have to feel the beat and when I say 'feel' I think it includes the mental phenomenon of thinking. There again, I don't know where it comes from. But it's not just the head alone. The whole body; the abdomen — it comes from here too. I feel it the moment I hear the basic pulse; and it has to be thought of in triplets.

**Casey:** But as you make this gesture you don't start at the chest; it's quite low.

**Sankaran:** There again, we talk in Indian philosophy of the *Chakras*. We highly emphasize singing coming from here (points to the abdomen) and most often after my performance I get pain there; pain in the sense of having really worked, and all the ideas have come from there.

**Casey:** Low in the body.


**Sankaran:** Yes. Not just in the shoulder and the hand — just from here (abdomen) and the musical rhythm is part of it. You don't have to separate. I can see how important it is when we try to relate how we think and how we perform that we put our mind in the body. And that is how we develop feel.

**Jim:** I have a sense that the process has something to do with resonance: you clapped the beat and subdivided it in three, and what went on in me was that something in me was resonating, was reproducing your beat. Somewhere, I felt something happening — it didn't show but it was there. And then the subdivision in a sense is just a harmonic of that, right? If I can reproduce in my organism somehow the fundamental pulse that you're giving, evidently up to some limit I can elicit a harmonic of that. That's what it felt like.

**Sankaran:** I really like the word 'harmonic'. What we mean by pulse modulation, getting into some complex rhythms gradually, is related to harmonization. When you give the fundamental pulse; immediately as he clapped it, I heard it somewhere here (abdomen) and I was focusing on that immediately. I was able to subdivide into three — there is a correlation happening and there is the harmonization.

**Casey:** Where does the tuning take place?

**Sankaran:** That, in itself, the harmonization, is the tuning.

**Casey:** Many students, attempting to play triplets (especially after a run of duplets) will play three notes based on a subset of eight — 

Their measuring mechanism is faulty, but it may just be not knowing where to look, or not knowing what question to ask inwardly. Where do I find that answer? There may not be a correspondence. The experience of the *laya* as we know it — keeping or subdividing the beat — may have as its point of origin something quite specific that we are not as aware of in the west. Perhaps people sometimes try to generate or perceive rhythm from the wrong place.

**Sankaran:** Yes, that's really a very good point. Again, to apply the mystical term to the term *laya*, or communion that the Yogis normally experience; they are most of the time in a meditative state. Deep meditation. And even the Indian theorists, the Indian Yogis, have recognized two kinds of *Nada* — *Nada* meaning sound: One is the *Agatha Nada*, that which you learn to produce physically, mentally; you think of the note and learn to produce it on an instrument or with the voice. Then there is *Anagatha Nada*, which is not heard, but the Yogis hear in themselves. That's where they really relate to the *Chakras*. There is a reverberation, an internal sound that they really focus on and they are in tune with that particular sound that gives them perhaps the maximum happiness; they are in that contemplative mood, a meditative state. In a way, these are all particles of that bigger sound, of the inner experience that goes on inside which is again incomprehensible, cannot be put in words. Again, it is an experience, and great Yogis seldom talk. Maybe they suggest methods to achieve that but again you have to do it yourself in order to appreciate or understand it. And I have very strong belief in that. That's what is lacking in the western culture, I believe. Sometimes the experience is devoid of any external sound and it's just within you.

I would like to talk about an experience which relates to what I'm saying which happened to me during a concert that I played with M.D. Ramanathan, a great singer. He died recently. He was known for his low voice bass voice, his rhythmic precision and his really slow tempo, even in some of the complicated *talas*. His music was full of *bhava* (feeling). It was highly ornamented and rhythmically not perhaps quite punctuating, but the rhythm was inside. When I first was featured with him in concerts, I had a hell of a problem in learning to accompany his music. For one thing, to get the drum tuned to his low pitch was very difficult. Number two was to play in a slow tempo because other musicians comparatively were not into singing at slow speeds. I struggled and struggled throughout the performance. That night I didn't sleep; I wanted to find a way. What should I do? How to tackle this, overcome this? I worked hard and then I prepared a huge 27 inch *mr dangam* to match his voice. So I was waiting and I was working hard to learn to play in a very slow tempo. It requires a special kind of practice. Finally another opportunity came; it was a concert as part of the *Ramanavani* Festival. There were three thousand people, a fantastic atmosphere, and the ensemble consisted of all leading players. Halfway through the concert, after I finished my solo, there was a *kriti* that he rendered. It was so beautiful and I was very happy to have my drums perfectly tuned. In this particular piece I was accompanying, I tried my best patterns. It matched well. But I wanted a little more, so I tried something else. It evolved very naturally. I wanted still more; I wanted to be in union with him, totally in unison with him. At one stage, I stopped playing, I listened to the music. I enjoyed it, and that was the best accompaniment I ever did. It was beautiful. The experience is still in me and that particular piece was ringing in my ears three months later. That situation doesn't arrive that often. That day I learned that silence is music, and how important the role of silence is. But to me, even that has to evolve naturally and it has to come from inside rather than be a mere tactic.

**Casey:** A full silence rather than an empty silence.

**Sankaran:** Yes.

**Casey:** This business of slow tempo is very interesting because it gives the same problem to western musicians. The slow movements are the places where you can distinguish a student from a real seasoned professional. And I wonder if keeping a slow beat is a question of going very slowly inside or whether it's really a question of going much faster inside. In other words, having an outward.

manifested calm, but internally having a vivified tempo of perception. In experiments, we try to clap the slowest beat without counting subdivisions. How slow can you clap accurately, setting a percentage of allowable deviation? It seems that under normal circumstances, it's biologically limited. What I'm really asking about also refers to, and was catalyzed by, your last comments about Yogic practice. First of all, you said that there is a pre-existing vibration which is what allows us to resonate with any particular *laya*. And it seems, in light of the initial reference I made to their conception of the scales of time, that the very fine divisions of time which are part of Yogic practice (to refine the moment of perception into very small 'units' so that one has the impression of continuous consciousness may be similar to what a musician, or at least a percussionist, is striving for — a very fine 'division' of time. Many musicians in the west have the idea that slow tempos are 'slow', that they are to be sensed only in their 'slowness,' whereas a slow tempo may be able to be powerful because there is really a very fine, high vibration sustaining it. There is a difference between a sleepy slow tempo and a very strongly supported slow tempo.

**Sankaran:** It's a really very interesting thing. The way you put it was beautiful. Do you want to play the music at a certain given interval of time, like a slow motion? There are certain processes or stages with which this can be achieved. It would be impossible to perceive that large interval of time all at once and to play consistently, to maintain a uniformity. It would be very hard, but that is the goal, the ultimate goal. But the process with which we attain that goal, at least to try to reach it, is subdivision. And even in formulating subdivisions, some musicians are comfortable in having more subdivisions and some moderate subdivisions. I think that's where the musicianship differs. A student will find it very difficult to do beats in slow tempo, and he might be able to do it if indeed he divides it into eight smaller units, as opposed to another set of people who could do with four small subdivisions. A trained musician will be able to do it just at that instant. So there are levels to it. But ironically, as you said, perception of large time intervals is directly related to having more vibrations happening inwardly. It's an amazing correlation.

**Casey:** So you are saying that sensing finer subdivisions allows the perception of both faster and slower units of time?

**Sankaran:** Yes, I am saying that. What I am also saying is that there are again levels. At one time or at one stage you would be doing more subdivisions, and gradually you reduce them. And then you really try to get to the state where you could indeed perceive the larger interval of time without thinking of the subdivisions.

**Jim:** I think one important point here is the difference in the understanding of that longer interval of time. I think that for the fine musicians, that's not empty; that longer time interval is full of sound, or . . .

**Casey:** Life.

**Jim:** Something — life, yes; and there is an awareness of all those moments. What you notice with students is that they get nervous when it's a long time because they imagine that somehow it's dead, that nothing is happening, and they'll shorten it. For example, a student might come to a whole note, a cadence. And for several beats, nothing seems to be happening, and they get very anxious about that. The tendency is often to shorten it and rush into the next thing, instead of realizing that there is sound all the way through that, and it's still alive. I think that's maybe a big part of the difference.

**Sankaran:** Yes, that's what I was thinking, but you put it nicely — being aware of, being conscious of the larger interval of time.

**Jim:** I was always kind of fascinated with Glenn Gould's very idiosyncratic interpretations of Bach. He seemed to exaggerate the tempos in both directions. Sometimes I didn't agree with it all, but even when I didn't agree, I was very impressed. For example, in the Schoenberg *Piano Suite*, he takes, for my taste, the slow tempos far too slowly, but he does it in such a way that almost persuaded me that it should be done that way.

**Sankaran:** Yes. Sometimes we like to experiment or try to see what is in a composition if we really try taking an unusual tempo. I think it provides a con-

The sun crosses the equator from North to South, manifesting as a planetary equalization of day and night. After this time, the nights become longer than the days, corresponding to the waning of the year's light.

trasting perspective. We wouldn't quite realize that if it were to be played always in a given tempo.

**Jim:** It also relates to what Casey was saying about the faster inner tempo supporting the slow musical tempo. If you think of that as relating to an awareness of — I want to use the word information. There's really information there, no matter how simple it seems, or no matter how reduced it may seem. But the information to be gleaned from that stimulus or experience shifts to another level, a micro-formal level. The simplest mandala can be an object of meditation and then it's no longer simple. It becomes a very rich thing. A single sustained tone, from a certain way of measuring, presents very little information; but when you are in a situation where that's all there is, you can shift gears to another level in which there can be a tremendous amount of information.

**Sankaran:** That really reminds me of Palghat Mani Iyer, a *mr dangam* virtuoso. The solidness with which a single note is played, with which it is felt — that is the big difference between a master drummer and an ordinary player. They may be playing the same stroke, but when you hear Palghat Mani or my teacher Palani playing, there is a completeness to it. There is a roundness to it, and it is so beautifully played, though it's just a simple stroke. I think that it emerges from the inner feelings that they have.

**Jim:** And I have a feeling that it's because they are hearing every detail in it . . .

**Sankaran:** That's right.

**Jim:** . . .not just listening to some sort of overall effect of it. Somewhere, in some level of awareness, they are actually hearing every little part of that, so that every little micro detail of that simple sound has been brought under control.

**Casey:** Filled with attention.

**Jim:** Yes, right.

**Sankaran:** An experienced, ripened drummer knows where and how much to use any particular phrase. Palghat Mani Iyer was very phenomenal and was a highly respected authority on his instrument. When he was asked to say a few words about his experience in playing — he was a man of few words — he said: "People think of me as really great. To me, what I do is I do the right thing at the right moment with the right proportion. That's all I learned in all these years." That's all he said.

**Jim:** You spoke about a conception of Siva as the god of music and dance. I sometimes feel that what music is really all about is that imitation of nature, not in a romantic sense or an impressionistic or pictorial sense, but in the sense that Cage has suggested: the imitation of nature in her manner of operation. There is something about that imitation of nature that keeps intriguing me. It's going deeper than simply imitating any process — representing an emotion, say, or representing a kind of activity. A lot of western music has, as a model, some sort of activity in the world. Might music be conceived as our repeated effort to create a kind of image of the cosmos in microcosm?

**Sankaran:** That sounds really interesting.

**Jim:** If Siva is conceived as a concretizing, an embodiment, of the cosmos then, to the extent that there's a connection between music and Siva, music is also an embodiment of the cosmos.

**Sankaran:** Yes, I really like that and that really appeals to me.

**Jim:** The problem I frequently have, with what seems to be the prevailing attitude about music, in this culture anyway, is with music understood as superficial entertainment. Even serious music, classical music, is often treated as a high class form of entertainment. Music reviews are in the entertainment section of the newspaper. What's your attitude about that? Is the music you make entertainment?

**Sankaran:** I think I have quite a few things to say in response to that. I also am intrigued by the image or the symbolic representation of the god Siva as the embodiment of the fine arts. At least in our culture, music has many roads. Music is used, perceived, enjoyed in many ways, as you put it, in a way, to bring out the relationship with the cosmos. That is why, before the advent of the *Sabhas*, the

nostalgia for the old fashioned kind of nature that we don't have much of left. In the courts of the Maharajah, was the music respected very deeply by their court patrons, or was it regarded as just good high class entertainment?

**Sankaran:** Indian music developed mostly in the royal courts, even in the smaller kingdoms back in the seventh and eighth centuries. We have learned to adjust to the changing social atmosphere and conditions, but perhaps the musician enjoyed much more freedom then, and he was not conditioned by other factors — sociological, industrial factors. He had more time. Again, talking of the perception of larger and smaller divisions, the court musician enjoyed a day which maybe seemed longer to him than our day seems to us. He might just sit and experience the morning totally. We run out and we do our errands and we miss the morning. We say, "Oh my. It is the afternoon. My god — what did I do this morning? I didn't even feel that it was morning." You thought the morning was there but you couldn't really relate to yourself because you were too busy, too occupied.

**Jim:** That relates to the idea of perceiving a wide range of time intervals. But in our lives, the intervals are so short.

**Casey:** Sambamoorthy, in several passages in his *History of Indian Music*, expresses this sense of loss in music's having turned from serving the sacred to serving the 'lower' elements of life. He cites the post-Tyagaraja period as the beginning of the "democratization" of music and as a period which sees the loss of some of the essential elements which give life to the music and to the relationship of a culture to its music. I wonder whether his regret refers to a unique historic transition, or whether developments and changes brought about in any period might also create feelings of nostalgia for the lost 'purity' of the preceding period.

**Sankaran:** The very causes of this nostalgia during one period could be the very elements which compensate in the coming age with interesting developments. That's what people like Sambamoorthy fail to understand. We should not forget that even from the earliest days, two aspects of the *Sangitam* (the fine arts) were recognized. The *Marga Sangitam* refers to traditional models, and *Desi Sangitam* refers to the creation of something new. They have already recognized that recent influences and new factors should be given room, or else music would become stagnant. Of course, in the history of music, certain periods were highly valuable, e.g. what we consider the Golden age. Certainly this period of Tyagaraja's life was the most remarkable in the history of South Indian music. That was the time during which the *kriti* form really crystallized. Before that, it was mostly congregational, *bhajan* type of singing. It was not quite, if you will, a concert repertoire with all the detail and subtlety.

**Casey:** I think that there are some interesting comparisons to be made with western music history.

**Sankaran:** Like the way church music got into the repertoire. By then the repertoire had increased tremendously and composers like Tyagaraja, Dikshitar and Syamashastry — all born, by historic coincidence in the same place just a few years apart — contributed enormously to this repertoire. I sometimes wonder, what indeed if these composers weren't born and we didn't have that many *kritis*? What would we be performing in concerts today? With the increase in repertoire, there developed a healthy competition among musicians and even among composers. They had a high respect for each other, each one specializing in his own way, each composer giving expression not only to his musical ideas, musical details, but also bringing out his personal sentiment toward his deity. What also happened was that there was more variety of compositional forms, not only just the *kriti* form. So when Sambamoorthy says that there is no more composing of *gitams* and *alankaras* — I mean, in fact, it's already been done! We have gone to a higher stage, and that's what he failed to recognize, with due respect to his scholarly writings and musicianship. And although I might think there is a loss because of the change in atmosphere — the way we are conditioned to perform to the public as opposed to performing to a limited elite — I think that we have also learned newer things: like how to present music in a contrasting and appealing way, how to give expression to individual ideas, developing the improvisatory aspects of performance, and even creating new compositions.

**Sankaran:** Again the subject of time.

**Jim:** And it calls for conditions.

**Sankaran:** There is a different condition and a different meaning to it now. That is true.

**Jim:** Most of us do, though, have a great deal of



**Casey:** The medieval *talas* were generally more structurally complex, but the newer and more complex song forms of the classical period, composed in simpler *talas*, seem to have been more conducive to performing more complex melodic and rhythmic improvisations. Is this the period during which the percussionist ceases to be understood as just a time keeper?

**Sankaran:** Okay, there are two things. The medieval *talas*, (some say 108 in number), evolved from the dance tradition. Concerts as such were not known in those days. At least we don't come across concerts the way we now understand them.

**Casey:** I think that parallels the development of the public concert in eighteenth century Europe.

**Sankaran:** Yes, but prior to the Tyagaraja period more attention was drawn to the scientific aspect of music. For example, development of the rhythmic aspects of music, coming up with new *talas*, rare kinds of *talas*, odd metres, and so on, was essentially designed to support the dancers' highly rhythmic choreography. That is the reason we had so many *talas* in that period. Later, musicologists and musicians learned to simplify. What can be done in a 108 beat *tala* can be done as well in an 8 beat *tala*. You don't need the *Simhanandana tala* of 128 beats. The reason they had so many *angas* (beat groupings shown as hand gestures) was to perceive time in combinations of longer and shorter durations. It was necessary in order to correspond to the choreography, but in relation to what we discussed earlier, there is no indication as to the actual execution of those beats. Maybe they were performing these units at a very fast tempo using small divisions. What happened after the medieval period was more concentration on, more crystallization of the song form and more prominence given to the melody. Rhythm could also be explored, but not to the detriment of melody, and I think there was a full recognition of the role of the percussionist because of the intimate correspondence to the dance.

As the song repertoire increased, there evolved a concert situation. I agree that this put the drummer somewhat in a subservient role having to play in a more limited manner, but again, to be aesthetically pleasing and to uplift a concert, the role of the drummer is to be very supportive of the melodic soloist.

Even so, drummers such as Palghat Mani, Palani, or even the top-ranking *mridangam* players of today often show how much can be done with being very simple. The beauty of simplicity. Not always employing longer cycles and very complex rhythms, they show the beauty in playing some *saravallaghus*. Now percussionists have a special role, and they even have their own solo as part of the concert. The soloists, just by virtue of being melodic specialists, try to give more importance to *bhava* (feeling) than to rhythm, but very few musicians, very few schools, will be able to develop both aspects in a beautiful way. Sometimes a drummer may even so drawn into the strong *bhava* of a soloist, that he may almost forget the *tala* in which he is playing.

**Jim:** It occurs to me that you could describe the relationship between the melodic performer and the drummer as relative, like two kinds of variables in mathematics: an independent and a dependent variable. Each in its manifestations is equally important, but the distinction is that one takes its values as a result of what happens in the other. There is some sense in which the drummer is not quite so boxed into a corner by what he's just done. You are a little more flexible, whereas a singer, whatever is done, has to connect with the next thing in a more constrained way. Is that true or not?

**Sankaran:** That's a very good point. Indeed the drummer is in a different situation from the melodic soloist who is really concerned with and constrained by so many things in a given composition. The drummer enjoys a more flexible role, but another interesting advantage that the drummer has is that he performs with many different soloists. In a way his experience is greater than that of a vocalist because the vocalist has studied in one particular school under a particular teacher, a guru, and he has specialized in certain things and he learns a specific repertoire. Of course he can listen to others, but the drummer really enjoys the opportunity to enhance and increase his repertoire by performing with a variety of soloists. There are so many subtle details and differences which make it a very rewarding and enriching experience for the drummer.

**Jim:** Another thing occurred to me. In fact I think

you pointed this out some time ago — that the original melody instrument was the voice, and originally the business of the vocalist was to project words. Obviously that is the independent variable. You can't make that follow something else, the text, the content seed of the music itself. That makes it very clear what has to lead.

**Sankaran:** Voice was very highly recognized and so also were the instruments that were so close to the voice. Indeed it is true. There are many people in a *Karnatak* music concert in South India who may not quite understand the *raga* or *tala* fully well; but when they hear the *sahitya*, the text, they say, "Oh how beautiful. It's in praise of Lord Muruga. Isn't

that wonderful." For the people who appreciate the music in this way, the text of the song is so related to the music, they can recognize the text even when it is played on an instrument. This is one advantage and it is one reason we don't have a separate repertoire for instruments. However, more recently, All India Radio has been encouraging composers to write works for Indian orchestras. These compositions have no text but are simply instrumental music. So there is now a change — starting from the mid sixties.

**Casey:** Time for a change.

**Sankaran:** Yes, time for a change.

## IT'S ABOUT TIME

BY ROBERT STEVENSON

**It's About Time** (1984) composed for Trichy Sankaran and Evergreen Club Gamelan Ensemble:

"I originally began to think about a piece for Sankaran nearly five years ago, so in one sense the title refers to my tardiness in making some headway on the project. What attracted me to writing a composition for Sankaran was his unfailing ability to "layer" several different pulses over one another. This

has always been a central concern for me as a composer, and it is this concept of time that is the backbone of **It's About Time**. The composition is in five sections which flow continuously from one to the other. Each section has a different "feel" in terms of rhythm. Except for the final section, which has no drums or *kanjira*, it is the role of the *kanjira*, played by Sankaran, to draw the rest of the ensemble rhythmically into the next section."

Excerpt from score to *It's About Time*, showing a section with time signature of 8/4 moving to a section with time signature of 7/8.

The following are Bob Stevenson's answers to the QUESTIONS FOR MUSICIANS AND COMPOSERS ABOUT TIME, found on page 2

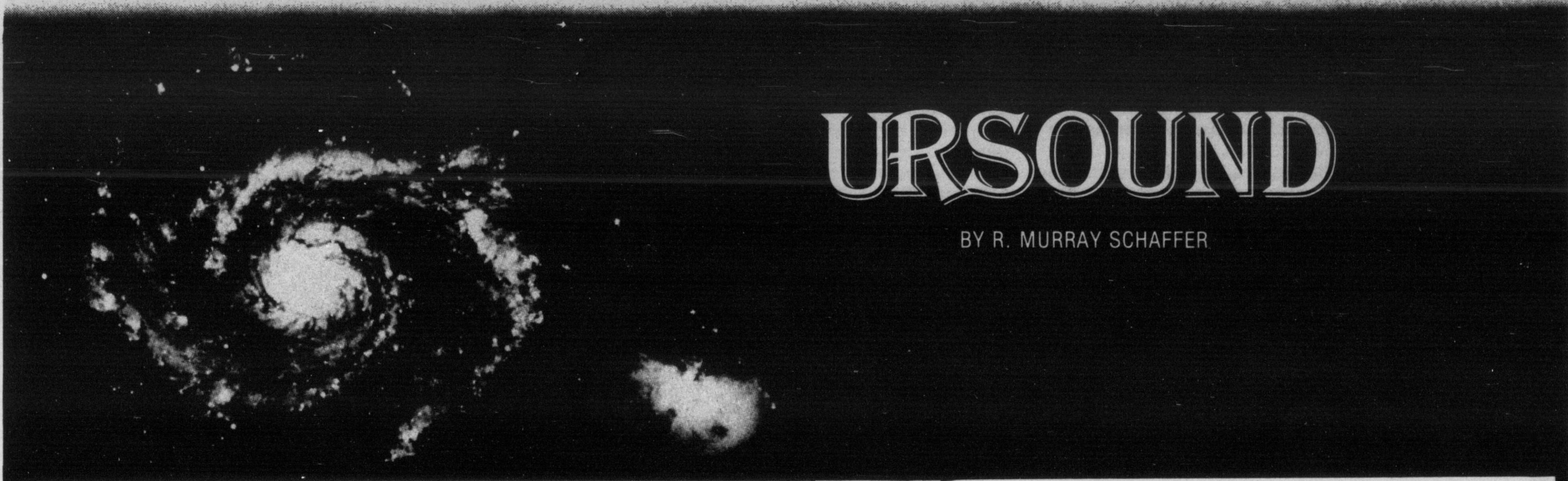
1. For me, time is flexible. Consequently, I organize time in such a way that the listener's "sense of time passing" (rhythm, tempo, etc.) is constantly in flux. I am particularly drawn to organizing rhythm and tempo into several strata sounded simultaneously. I always try to think of a piece or a section of a piece as a single unit of time. I then sub-divide this large unit so that the smaller sub-units are a reflection in some way a reflection of the larger ones.
2. The influences, I'm sure, are significant. However they are not conscious. Describing this

relationship is something I would rather not do. To me, it's really a philosophical question. I'm not a philosopher. I don't think I could answer this part of the question adequately.

3. Because my sense of time is so flexible, I have problems perceiving "clock-time" as in any way real. Sometimes I'm early for appointments, sometimes I'm late. It makes me think of Frank Sinatra's definition of a holiday: "I take off my watch for a week." I find that I have to squeeze my sense of time into that of the rest of the world; it doesn't always work.
4. Time of day, etc., doesn't really enter into it for me. I just work when I can, or when it feels appropriate. (anytime)
5. Now, if you hurry.

## URSOUND

BY R. MURRAY SCHAFFER



Whirlpool Galaxy in Canes Venatici

The search for Ursound takes us back to cosmogonic myths. Such myths attempt to explain how the world relates to the cosmos and how man came to be centred in the world. The mystery is dark, the myths vary, employing symbols for clarification. Aside from their importance for religious dogma, creation myths can also be interpreted as attempts to describe the gradual clarification of consciousness. As such they give clues to how the faculties of perception originated, or at least how they functioned in relationship to each other among the divine and human figures whose activities constitute the most ancient reference point we can study.

In Genesis we learn how 'the spirit of God' (which we may conceive as breath, pneuma or wind) moved over the 'darkness . . . of the deep' (a metaphor for the unconscious). If the text is read attentively, it is clear that the first stroke was not the distinction between darkness and light, but rather the acoustic announcement of intention: 'And God said . . . ' We imagine these words, emphatically repeated, as a series of mighty vibrations, cleaving the universe into form. Each act of shaping is prefaced by the same sound-symbol.<sup>1</sup> Only after each action does the visual mode of experiencing come into play: 'And God saw that it was good.'

Everything relates back to the collision of wind and water, the creative point where sound originated. We would like to press further into this mystery but it is impossible; the data are not precise; and in any case, as I showed in *The Tuning of the World*, the acoustic symbolism of wind and water is complex and never easy to explain. The relationship between God and the dark waters that prefigured crea-

tion is also unclear, so much so that the Audians and Sampsaeans, early heretical sects, believed that God did not create the waters, since nowhere in Genesis do we read: 'And God said, let there be waters.' St. Augustine attacked this idea in *The City of God* reaffirming the orthodox belief that God, being All, was both the waters and the breath of air that rushed over them. Certainly the Bible is clear in telling us that the sound hypostasized in the meeting of these two elements was the voice of God. Is it possible that the 'darkness of the deep' is not only a metaphor for the chronicler's ignorance but also for God's unconsciousness of his own powers? Then God also appears to participate in the development from blind instinct to cognition as man's appreciation of God's refinement grows.<sup>2</sup>

For the ancient Semites the 'vault' or 'firmament' described in verse 6 was a solid dome, holding the upper waters of heaven in check. Thus the infinitude of the unconscious had both an upper and a lower realm, between which rested the discernible elements which formed the subtle and ever-widening realm of consciousness. The range of conscious distinctions opens out quickly in the following verses: grasses and herbs appear, then trees, animals, fishes and finally man. Details are added to the original broad strokes, and soon a picture of the world is created that no one can have difficulty in recognizing. One searches the account for a range of acoustic discriminations to match the visual description and fails to find it: man's exclamation of pleasure at the creation of woman (2:33), the voice 'of the serpent' (3:1) 'or of woman' (3:2) are not comparably evocative to what our eyes

## A CARNAL VIEWPOINT OF TIME

BY MARJAN MOZETICH

The following passage was submitted by Marjan Mozetich as his answers to the QUESTIONS FOR MUSICIANS AND COMPOSERS ABOUT TIME found on page 2

I get up in the morning, freshen-up, wash the dishes and make a moderate pot of coffee. Then I check the mail and do any pressing business. Finally at about 10 a.m. I go to the piano, my altar, and commune with the muses, praying to receive some inspiration for the latest piece being worked on. Sometimes nothing comes. I become frustrated, irate, depressed or misanthropic. However, time was generous — I realize that only an hour has gone by. But when a connection is made, the world is glorious and everything becomes divine. Then time betrays me, for three hours have passed. It's like the sold saying: time flies when you're having a good time.

With regards to the influence of the cyclic forms of nature, I generally feel more productive in the Spring and Fall — if I could only have it my way. But there is the element of manmade time which tends to distort what nature propels. And so there is a living to be made and deadlines to be met which never seem to coincide with the heavens. We live in the Age of Chaos where synchronicity is hard to attain.

Now how one organises time within the music is also just as capricious. Some engineers of music are fond of measuring precise allotments of time where the music is enslaved to time. Others, like myself, feel their way through the music making, as if improvising, so some musical material dictates to be worked on or extended and others not. It all depends on what lures one to continue. I base my timing heavily on instinct and intuition. Most criticism has rarely implied my works to be too long.

Curiously, one would think that the time cycles in life and living would reflect on music making. However I don't think this to be the case. At times I may be at a low ebb in my emotional cycle and yet I will tend to

write vigorous works with a high nervous energy. Then again, when in an optimistic hysteria I'll write reflective and moody works. But these trends are not always consistent. It's all a mystery to me. It seems that music dictates its own rhythm, tempos or cycles outside of the personal state of the creator as if music has its own reality of time.

Yet one intriguing catalyst is coffee. I've often wondered at its effects on creativity and time. For example, coffee was gradually accepted as a normal beverage in the Baroque period in music. Could it be that the rise of this wonderful stimulant affected the development of all that bouncing-around music? After all, J.S. Bach even wrote a cantata to coffee.

As for the influence of my music-making on my daily living I would say there is a relationship. Just as I strive to make the music cohesive and interrelated I do the same in my life by maintaining a routine. Otherwise I doubt if I would create much music. As much as I have a need to evolve stylistically from one piece to another, the same can apply to my habits. I am not much of an experimenter (sic) for experiment's sake, where one

work is completely different or drastic from another. Rather I prefer gradual organic transformations. Essentially I'm a traditionalist seeking always to connect or relate to past experiences.

Time appears to move fast and we have a fetish for change, yet this to me is a Western cultural phenomenon, a synthetic hype. Why rush to get there first, wherever that may be, when you can take your time and stay?

—February 3, 1985

### POSTSCRIPT

After writing this short essay for MUSICWORKS, I realized the piece I was composing was utilizing a framework of time — namely the four corners of a day's cycle . . . in a lighthearted way. The piece is called **As the World Turns**, and the 4 sections are *Tarantella in the Afternoon*, *Dance at Dusk*, *Heavens Gazing* and *Morning Glory*. The score excerpts are from the *Tarantella*.



may behold. But we would be mistaken to think that sound, having functioned so creatively at the opening of the myth, is so quickly relegated to secondary importance. In fact it continues to be the medium by which God and man communicate, and therefore maintains the position of primary importance throughout the Bible—but I shall come back to this after comparing some creation myths from other sources.

In the Egyptian creation myths the names of the gods sometimes vary but one idea is carried through them all. Atum (sometimes Re) initiated creation by climbing out of the abysmal waters (Nun) onto a primeval hill where he then brought the other gods into being. Atum (Re) says: 'I am the great god who came into being by himself.' But in other versions we read that it was Nun who first created himself. Again the ambivalence about whether water was the creative element or the element from which creation proceeded. But the differentiation of the primal substance only begins when Atum (Re) names the parts of his body; from this naming the other gods are born.

He is Re, who created the names of the parts of his body. That is how these gods who follow him came into being.<sup>3</sup>

When the First Dynasty established its capital at Memphis, the Memphite god Ptah was proclaimed the First Principle and thereby assumed the powers of Atum (Re). Ptah conceives the elements of the universe with his mind ('heart') and brings them into being by his speech ('tongue'). In the Egyptian myths the articulation of consciousness takes the form of naming things. There is an approach here to the Logos Doctrine, later amplified by the Greeks and taken up subsequently by the early Christians, as the fourth gospel shows. Logos (the World) was then conceived as 'the Word of the Lord' i.e., divine reason, the guiding principle of the universe. Whether the Greek Logos was ever to be understood as uttered sound or merely as a mental construct is a matter of dispute.<sup>4</sup> But there is no doubt about the relationship between thought and sound in the Memphite creation myth.

There came into being as the heart and there came into being as the tongue (something) in the form of Atum.<sup>5</sup>

The Memphite Ptah is now regarded as the progenitor of the creator-god Atum.

Thus it happened that the heart and tongue control over (every) (other) member of the body, by teaching that he (Ptah) is in every body and in every mouth of all gods, all men, (all) cattle, all creeping things, and (everything) that lives . . .<sup>6</sup>

The divine act of speaking, which in the Memphite myth is the original creative force, is passed on to all the created creatures, who in their turn are rendered creative.

It is this which causes every completed (concept) to come forth, and it is the tongue which announces what the heart thinks.<sup>7</sup>

In another Egyptian creation myth (from the Bremner-Rhind Papyrus) the creative power of the mouth is emphatically linked with sexual potency.

The All-Lord said, after he had come into being: I am he who came into being as Khepri. When I had come into being, being (itself) came into being, and all beings came into being after I came into being. Many were the beings which came forth from my mouth . . .

I planned in my own heart, and there came into being a multitude of forms of beings, the forms of children and the forms of their children. I was the one who copulated with my fist, I masturbated with my hand. Then I spewed with my own mouth: I spat out what was Shu, and I sputtered out what was Tefnut. It was my father Nun who brought them up, and my Eye followed after them since the ages when they were distant from me.<sup>8</sup>

Again the eye follows the voice as the instrument by which the creative act is assessed.

The idea that God's voice created the universe is widespread and there are numerous echoes of it in other sources. In the Leiden Papyrus we read:

And God laughed seven times: *Cha Cha Cha Cha Cha Cha Cha*, and as God laughed there arose seven gods.<sup>9</sup>

The similarity between the seven energetic laughs and the seven creative days of Genesis should not go unnoticed. A later but unmistakable echo is found in this statement of Hippolytus (170-235), a controversial theologian and champion of the Logos Doctrine during the early days of the Roman Church. 'But the voice and the name otare sun and moon'.<sup>10</sup>

Parallels to these themes from the Middle East are found in cultures from other parts of the world. The ancient Mayan creation myth tells how everything began from 'immobility and silence'.

There was nothing brought together, nothing which could make a noise, nor anything which might move, or tremble, or could make noise in the sky.

Then came the word. Tepeu and Gucumatz came together in the darkness, in the night, and Pepeu and Gucumatz talked together. They talked then, discussing and deliberating; they agreed, they united their words and their thoughts . . . Then they planned creation . . . Thus they spoke. Let there be light, let there be dawn in the sky and on the earth! There shall be neither glory nor grandeur in our creation and formation until the human being is made, man is formed. So they spoke.

Then the earth was created by them. So it was, in truth, that they created the earth. Earth they said, and instantly it was made.<sup>11</sup>

The idea that creation proceeded from dialogue rather than monologue is an interesting recognition of the fact that for sound to emerge two things are necessary: an active and a receptive element. The Maori cosmology also initiates from darkness and silence when Io, the life-force speaks

That He might cease remaining inactive:  
'Darkness, become a light-possessing darkness.'  
And at once light appeared.  
(He) then repeated those self-same words in this manner,—  
That he might cease remaining inactive;  
'Light, become a darkness-possessing light'.  
And again an intense darkness supervened.<sup>12</sup>

The retention of darkness in the Maori myth signifies the continued dependence

on instinct even though the cognitive processes have begun to function. Darkness, of course, does not belong to the visible world at all but to the world of listening. The alternation of the two states then indicates that both the instinctive ear and the analytical eye will each serve their purpose, though in the end the world of light will dominate.

Then a third time He spake saying:  
'Let there be one darkness above,  
Let there be one darkness below (alternate).  
Let there be a darkness unto Tupua,  
Let there be a darkness unto Tawhito.  
It is darkness overcome and dispelled.  
Let there be one light above,  
Let there be one light below (alternate).  
Let there be a light unto Tupua,  
Let there be a light unto Tawhito;  
A dominion of light,  
A bright light.'  
And now a great light prevailed.  
(Io) then looked into the waters which compassed him about,  
and spake a fourth time, saying:  
'Ye waters of Tai-kama, be ye separate.'

To divide the waters is to conquer them, to replace chaos ('darkness, with water everywhere') with the navigable sea and river. To perceive water in separate bodies one is not in water but above it. Water is deprived of its audile-tactile state and will henceforth be visualized from the bridge of the ship and on the navigator's map. The development of consciousness is often illustrated as a movement from the depths of water to dry land. The following text is from the Brahman creation myth as recorded in the *Satapatha-Brahmana*.

Verily, in the beginning this (universe) was water, nothing but a sea of water. The waters desired, 'How can we be reproduced?' They toiled and performed fervid devotions (or, they toiled and became heated). When they were heated, a golden egg was produced. The year, indeed, was not then in existence; this golden egg floated about for as long as the space of a year.<sup>13</sup>

After a year Prajapati emerged from the egg. At the end of another year 'he tried to speak. He said: "*bhuh!*" this (word) became this earth;— "*bhuvah*;" this became this air;— "*svah*;" this became yonder sky.'

We do not know what creation sounded like. It doesn't matter. The voice is its metaphor. It is easier to recognize the formative power of an incantation in a strange language ('*bhuh!*') than in one we understand and can rationalize ('And God said:'); but the intention is the same. In all cases creation arises out of the recital of magic words, uttered with instinctive authority. It may be rough, this voice-sound, it may be unpredictable and it may be meaningless, for it is only later given meaning as the thing it produces assumes definition and can be apprehended by the other senses. The magic power of such speaking has never been lost; it is present in the recitals of so-called primitive people; it is present in ritual incantations in all religions; it is present in the performances of contemporary sound poets. The meaning of the magic words is often unknown or has been forgotten. They are acoustic ejaculations and in them lies the origin of both language and music. The words of Io, says the Maori narrator, 'the same words' are chanted 'in the ritual for implanting a child in a barren womb.' The invocation of a magic word is a holy act, however or whenever it occurs. In the *Khândogya-Upanishad* we are given directions for reproducing the sacred word.

- 1 Let a man meditate on the syllable Om, called the udgîtha; for the udgîtha (a portion of the Sâma-veda) is sung, beginning with Om.
- 2 The full account, however, of Om is this:— The essence of all beings is the earth, the essence of the earth is water, the essence of water the plants, the essence of plants man, the essence of man speech, the essence of speech the Rig-veda, the essence of the Rig-veda the Sâma-veda, the essence of the Sâma-veda the udgîtha (which is Om).
- 3 That udgîtha (Om) is the best of all essences, the highest, deserving the highest place, the eighth.
- 4 What then is the *Rik*? What is the Sâman? What is the udgîtha? This is the question.
- 5 The *Rik* indeed is speech. Sâman is breath, the udgîtha is the syllable Om. Now speech and breath, or *Rik* and Sâman, form one couple.
- 6 And that couple is joined together in the syllable Om. When two people come together, they fulfill each other's desire.
- 7 Thus he who knowing this, meditates on the syllable (Om), the udgîtha, becomes indeed a fulfiller of desires.
- 8 That syllable is a syllable of permission, for whenever we permit anything, we say Om, yes. Now permission is gratification. He who knowing this meditates on the syllable (Om), the udgîtha, becomes indeed a gratifier of desires.
- 9 By that syllable does the threefold knowledge (the sacrifice, more particularly the Soma-sacrifice, as founded on the three Vedas) proceed. When the Adhvaryu priest gives an order, he says Om. When the Hotri priest recites, he says Om. When the Udgâtri priest sings, he says Om,— all for the glory of the syllable. The threefold knowledge (the sacrifice) proceeds by the greatness of that syllable (the vital breath) and by its essence (the oblations).
- 10 Now therefore it would seem to follow, that both he who knows this (the true meaning of the syllable Om), and he who does not, perform the same sacrifice. But this is not so, for knowledge and ignorance are different. The sacrifice which a man performs with knowledge, faith, and the Upanishad is more powerful. This is the full account of the syllable Om.<sup>14</sup>

The *Khândogya-Upanishad* is strictly speaking not a cosmogonic myth. Rather it is an attempt to compress the whole of creation into a single comprehensible phenomenon, the sacred sound of the udgîtha Om. The work belongs to the Sâma-veda, and as such it has contributed strongly to the orthodox philosophy of India, the Vedanta. The section quoted is intended to be recited on the occasion of a marriage and is intended as a fertility prayer.

'Let a man meditate on the syllable Om.' It may seem difficult to draw immediate meaning from this statement; but such a meditation, which is to consist of a repetition of the syllable, was intended to draw the thoughts away from all the peripherals of the world and to focus them on the essential issue of existence. The Om, which originally seems to have meant 'yes', may be conceived as 'the symbol

of all speech and life."<sup>15</sup> In the eighth Khanda the discussion of Om concludes with the question of the origin of the world.

The Silak Sâlavatya said to Kaikitâyana Dâlhbhya:  
'Let me ask you.'  
'Ask,' he replied.  
'What is the origin of the Sâman?' 'Tone (svara),' he replied.'  
'What is the origin of tone?' 'Breath,' he replied.  
'What is the origin of breath?' 'Food,' he replied.  
'What is the origin of food?' 'Water,' he replied.  
'What is the origin of water?' 'That world (heaven),' he replied.<sup>16</sup>

Throughout the *Khândogya-Upanishad* we have been made aware that meditation on Om can function as a direct avenue of approach to the gods.

When the sun rises it sings as Udgâtri for the sake of all creation . . . This (the breath in the mouth) and that (the Sun) are the same. This is hot and that is hot. This they call svara (sound) and that they call pratyâsvara (reflected sound). Therefore let a man meditate on the udgîtha Om as this and that (as breath and the sun).<sup>17</sup>

The sun pictured here is hardly the sun which in other myths symbolizes the light of knowledge. It is the hot sun, more like the fire images to be introduced in a moment. The purpose of repeating Om is to assist the mind in retracting interest in the phenomenal world, to help it reach a state where the distinctions of consciousness are blurred and ultimately cancelled, a state in which hyperconscious unity is achieved.

Thus we have encountered sound at two important junctures: firstly at the point where the distinctions of consciousness are about to emerge and secondly at the point where they are about to be erased.<sup>18</sup> The territory which lies beyond these points is the same: it is the unknowable, which Jung and others called the unconscious. The main difference between consciousness and lack of it is between differentiation and non-differentiation. Consciousness knows distinctions, and if evolution means anything we like to think that these grow ever more subtle; but the unconscious, like its two perfect metaphors, darkness and water, cannot be broken into parts. Sound provides by its rhythm and timing a means of moving from one state to another, from consciousness to preconsciousness, with the long unified tone drawing us back and the abrupt burst of sound drawing us forward. In a sense sound seems to belong to neither state but hovers on the verge of each. This condition is beautifully dramatized in the Manichean creation myth. Like many other religions, Manichaeism recognizes the distinctions of consciousness by a dramatic cosmic dualism between spirit and matter, good and evil, light and darkness. According to Mani's own description, when Primal Man was captured by the Power of Evil, God created The Living Spirit and sent him to the frontier of the region of Darkness. There he made a piercing cry, which found an echo in the ardent response of Primal Man. The call and response became two divine hypostases or persons. The Living Spirit made his way to the region of Darkness and held out his hand to Primal Man, lifting him up again to the region of light. Thus Primal Man became a model of man's abasement and his salvation, that is, of fractured unity and its restoration. The cry and response dramatically signal the threshold between the two states.

Monotheistic religions differ from polytheistic in their conception of an invisible God. It has been argued that their endurance has been strengthened by this means; what cannot be seen cannot be overturned or subverted. But preserving faith in an invisible God has never been easy, as the trials of Moses with the people of Israel clearly demonstrate. The only way it can be done is to retain God as a vivid acoustic presence. God, whose voice has been withdrawn from creation after the development of consciousness, continues to speak to man via what might be colloquially dubbed as a divine telephone. Usually God calls man in sleep, i.e., when his resistance to pressures from the unconscious is at its lowest. It was in this manner that he conversed with Abraham and Jacob: 'In the dream the angel of God called me: "Jacob!" And I answered: I am here' (Genesis 31:11).

Since Freud we have learned to respect the dream as providing valuable information from the unconscious; or rather we have learned again to respect it for this, since in ancient times the dream was accorded deep significance, and still is among some societies. It was the empiricists who trivialized the dream by regarding the reception of messages from beyond consciousness as illogical and therefore insignificant. Freud and his followers gave the dream back its dignity. Nevertheless there is one startling fact in the dream interpretations of Freud and his school: they are always interpretations of visual contents. Does the predominantly visual bias of modern life make the dreams of contemporary human beings predominantly visual, or is it only that they have been analysed predominantly in this way? My suspicion is that our dreams are a good deal more aural than we realize but that because aural experiences are not susceptible to analysis they are 'translated' into visual terms in the retelling. I am sure we have all had dreams in which aural experiences figure importantly; the problem is to describe them precisely enough for interpretation. Aural symbolism is also a poorly developed subject compared to visual symbolism, as it has been developed by art historians and anthropologists.

The other day I was talking to a young woman about this essay and she volunteered a recent dream experience which was exclusively aural in character. She was attempting to repair a rift in her family by joining tones together; each member of her family was a tone (she emphatically denied that they were present visually in her dream at all) and she was attempting to unite the tones in order to achieve harmony. It is difficult to know what Freud or Jung would have made of such a dream. To begin with they would have to have had a better knowledge of music than either of them seemed to possess.<sup>19</sup> Psychoanalysis is precisely what it claims to be and as analytical research it is best and possibly only able to function so long as the material it deals with is visual in nature.

The vast majority of the 'big' dreams in the Bible are acoustic in nature; rarely do they describe scenes or appearances. Of course the culture of the Bible was aural<sup>20</sup> so we might expect the dreamer to be aurally receptive also; but there is another reason for the aural dream taking precedence over the visual. The heightened sensitivity of the dream state provides the best means for reaching back into the unconscious to receive the renewing and miraculous vitality of Ur-sound — the creative voice of the Maker. The Biblical dream is a soundscape filled

with voices — beseeching voices, counselling voices, angry voices.

In his compelling book *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (Boston, 1977) Julian Jaynes argues that before the evolution of consciousness God (or the gods) had direct acoustic presence in the minds of humans as a voice or voices which the hearer blindly obeyed, while with the development of consciousness the voices ceased. The voices originated in the right hemisphere of the brain, opposite Wernicke's area which generates normal speech, and were transmitted by means of the anterior commissure to the left or dominant hemisphere where they were interpreted as divine messages. This state Jaynes calls the bicameral mind. When it atrophied the commanding and protecting voices ceased and man was forced to develop consciousness to protect himself from emergency situations. Jaynes gives numerous examples from historical sources (largely Middle Eastern) in support of the thesis, which is deservedly being taken seriously. Certainly it is supported by the evidence of the Bible, where we discover that while God and Adam converse frequently and openly in the Garden of Eden, after the Fall (consciousness!) it is more often in dreams (or daydreams) that God speaks to man. The God of these dreams is without form. 'You cannot see my face,' he tells Moses, 'for man cannot see me and live' (Exodus 33:20).<sup>21</sup> The formula 'God said to Moses,' which is repeated throughout Exodus and recurs in Leviticus, is a telephone voice; it cannot be seen and it describes no scene. But during this period, that is about 1300 BC, an interesting transition occurs in the divine voice.

. . . peals of thunder on the moutain and lightning flashes . . . and a loud trumpet blast, and inside the camp all the people trembled . . . and the whole mountain shook violently. Louder and louder grew the sound of the trumpet. Moses spoke, and God answered him with peals of thunder . . . (Exodus 19:16ff).

In this passage it will be noticed that while the voice of God is audible to all, it is comprehensible only to Moses. Interpretation of the divine messages is impossible without the assistance of the prophet.

'Speak to us yourself,' they said to Moses, 'and we will listen; but do not let God speak to us, or we shall die' (Exodus 20:19).

This is a pattern with parallels in all prophetic literature: it is present in Zoroastrianism, Mohammedanism (including Sufism,) and Manichaeism as well as in Judaism and later Christianity. In Zoroastrianism the high priest is called Srosh, which means the genius of hearing; it is he who hears the divine words and passes them on to the followers. The Manichean community was divided into an 'elect,' who were the priests, and the 'hearers' to whom they explained the dogma. Listening is also an important experience in Sufism. Sâma is the Sufi word for listening. But as the poet Saadi says:

I will not say, my brothers, what sâma is,  
Before I know who the listener is.

The faculty of clairaudience (if I can stretch this term and apply it to the hearing of divine voices) was then something that was drifting away from the majority of men and rested with only a few prophetic spirits during the time Jaynes has identified as the dawn of consciousness, and which he places as late as 3000 years ago. Simultaneously with this withdrawal of divine sound we detect a transformation of the sound-image from that associated with wind and water to that of fire. God first calls to Moses from the burning bush. 'Come no nearer,' God warns. 'At this Moses covered his face, afraid to look at God' (Exodus 3:5-6). There is a great deal of tension here, more than in previous encounters with God. Although fear could have been aroused equally by the water-voice (the Hebrews were profoundly afraid of water) from this point on the fire-voice occurs more frequently than any other in the Bible.

There went up fire out of his nostrils and fire out of his mouth (11 Samuel 22:9).

The voice of the Lord scattereth flames of fire (Psalm 29:7).

The name of the Lord cometh from afar, burnign in his anger . . . his lips are full of indignation and his tongue is a devouring fire (Isaiah 30:27).

Is not my word like as a fire? (Jeremiah 23:29).

The fire voice is passed to the Apostles, occasioning their glossolalia:

And there appeared unto them cloven tongues like as of fire, and it sat upon each of them. And they were all filled with the Holy Ghost, and began to speak with other tongues, as the Spirit gave them utterance (Acts 2:3-4).

The association of mouth, fire and speech is also strong in colloquial languages. A person may be 'fired up' or 'inflamed' over something and may make a 'fiery' speech about it. In the Bible fire is repeatedly modified by the words 'devouring' or 'consuming' reminding us agin of the mouth. But the fire-symbol is always one of extreme panic. More immediate than water, it is best suited to urgent communication. Since all the voice metaphors for God are man-made, it is worth pondering the reason for the transition from the water-voice to the fire-voice, which I think is not adequately explained by the argument that the Hebrews were not a maritime people. If it was merely a question of environment the wind could have survived as a suitable desert voice. Could it be that the more urgent image was required in a final desperate attempt to summon up a diety whose voice was receding from man?

In time the voice lifted entirely, leaving a silent god and a weakened religion. For centuries man attempt to reestablish communication by means of what I have elsewhere called the Sacred Noise. It took the form of church bells, choirs and organs, which up to the time of the Industrial Revolution were the loudest noises generated in peacetime. But if God answered at all it was in the silence of the conscience rather than in vivid external displays. Nevertheless, everything in Christian dogma encourages the human being to keep ears open in hope that the divine voice may be heard again. Hearing is the primary action of worship. Eyes are closed in prayer, which is performed aloud. The priest reads the words of God and the choir chants them. The sanctus bell speaks for the presence of the Holy Spirit while the thundering organ reminisces over the earth-shattering theophany on Mount Sinai.



DECEMBER 11, 19:54

All this would be ridiculous except for one thing: the memory of Ursound. Somehow we retain a final acoustic memory trace of God's ordering and creating presence, even though we cannot grasp it completely. The elements are there — wind, water, fire, thunder, music and the voice — but that is all we know.

It is enough. For both God and sound are unknowable. If God can never be weighed or measured or verified in any way, the same may be said for sound. A visual God is localized in space, seen from an angle. But an acoustic God is everywhere. This is why the original metaphors have been so perfectly chosen. Water — in a waterscape everything is in motion; hearing and touch are the dominant sensations and vision is practically useless. Wind — God is an invisible breath-spirit; the wind is heard but has never been seen. In Sumerian 'ili' means wind and breath, as does 'ruah' in Hebrew and 'pneuma' in Greek. Darkness — in darkness nothing is localized, nothing has precise value, causing the listener to lean out limitlessly in all directions. Darkness belongs exclusively to the ear. Light is the symbol of knowledge and order, which is why solar deities dominate after the evolution of consciousness; but darkness, like wind, water and fire, is the 'unstable and pregnant reality' from which creation emerges.

Sound is the original creative force. To make sound is to participate in the original unconscious urge to shape with the voice. The fastest method of getting action is still by speech. This making is instinctive and immediate. Often it is unpredictable. Always it precedes vision. When vision enters it has already ended, as our survey of cosmogonic myths has made clear.

The acoustic God shapes; the visual God analyses. The visual experience is always focused and reflective, which makes it verifiable in ways that sound is not. We fear we have lost this divine force. Desperately we twist everything, hoping that by fixing life for inspection it will return. But the moving force persists elusively. To find it we must return to the waters of instinct and the unshatterable unity of the unconscious, letting the long waves of Ursound sweep us beneath the surface, where, listening blindly to our ancestors and the wild creatures, we will feel it surge within us again, in our speaking and in our music.

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#### NOTES

1 '... "symbol" being taken to mean the best possible expression for a complex fact not yet clearly apprehended by consciousness.' C.G. Jung, *Collected Works*, Vol. 8, p. 75.

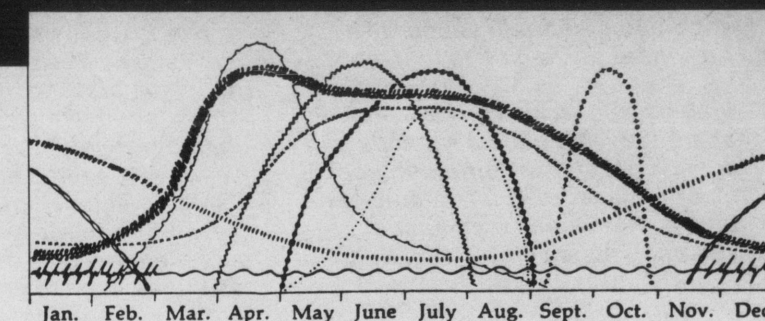
- 2 Jung's essay *Answer to Job* is an excellent exposition of this dual development in discrimination.
- 3 'Egyptian Myths, Tales and Mortuary Texts,' in *Ancient and Near Eastern Texts Pertaining to the Old Testament*, ed. J.B. Pritchard, Third Edition, Princeton University Press, 1969, p. 4.
- 4 In *The Tuning of the World* I rashly quoted John's 'In the beginning was the Word' as if an actual acoustic vibration had been intended. The present essay is an attempt to locate the antecedents for this idea, which by John's time was more likely accepted as a mute manifestation of divine reason.
- 5 *Op cit.* p. 5.
- 6 *Ibid.*
- 7 *Ibid.*
- 8 *Ibid* p. 6
- 9 Abraxas, A Dietrich, p. 17, Pap. J 395.
- 10 *Elenchos* VI, 13.
- 11 *Popol Vuh: The Sacred Book of the Ancient Quiché Maya*, trans. D. Goetz and S. G. Morley, University of Oklahoma Press, 1950, pp. 81-83.
- 12 'A Maori cosmology,' trans. Hare Hongi, *The Journal of the Polynesian Society*, Vol. XVI, No. 63, Wellington, Sept. 1907, p. 114.
- 13 *The Sacred Books of the East*, ed. R. Max Müller, Oxford, 1879 etc., Vol. XLIV, p. 12.
- 14 *The Sacred Books of the East*, Vol. I, pp. 1-3.
- 15 Max Müller, in his introduction, *ibid.* p. xxv.
- 16 *Ibid.*
- 17 *Ibid.*
- 18 In a sense this is paralleled in our daily experience of waking up and going to sleep where sound also functions on the threshold both in advance of and in conclusion to other sensorial activity.
- 19 Jung's interpretations of the dreams of Miss Miller (see his *Symbols of Transformation*, volume 5 of the *Collected Works*) is a good case in point. Many of Miss Miller's dreams were of acoustic character, and included a Hymn of Creation which quite remarkably parallels the myths we have been studying.

When the Eternal first made Sound  
A myriad ears sprang out to hear,  
And throughout all the Universe  
There rolled an echo deep and clear:  
'All glory to the God of Sound!'

Jung does not seem to be able to come to terms with this dream in a satisfactory manner, and when in a later dream Miss Miller reports a 'confusion of sounds, somewhat resembling, "wa-ma, wa-ma"' Jung's conjecture is that 'it might, in the context as a whole, be considered a slight distortion of the well-known cry

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DECEMBER 21, 17:08  
Reappearance of the Sun, the  
days once again begin to lengthen.

DECEMBER 27, 02:30



Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

~~~~~ Rain and Snow  
~~~~~ Water and Ice  
~~~~~ Grasshoppers  
~~~~~ Bees  
~~~~~ Mosquitoes  
~~~~~ Frog-song  
~~~~~ Wolves  
~~~~~ Flies  
~~~~~ Bird-song  
~~~~~ Elk

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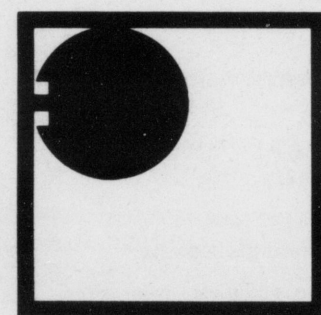
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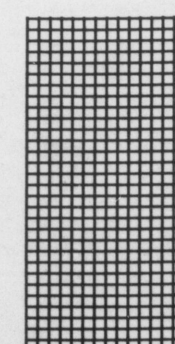
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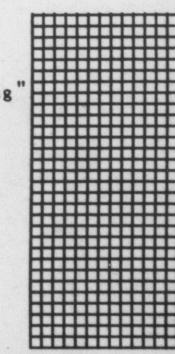
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MUSICWORKS 29

23



## NEW YEAR'S EVE VANCOUVER

BY HILDEGARD WESTERKAMP

1980/81

Each new year is welcomed by a special event in Vancouver harbour: all boats sound their horns from anywhere between five to twenty minutes.

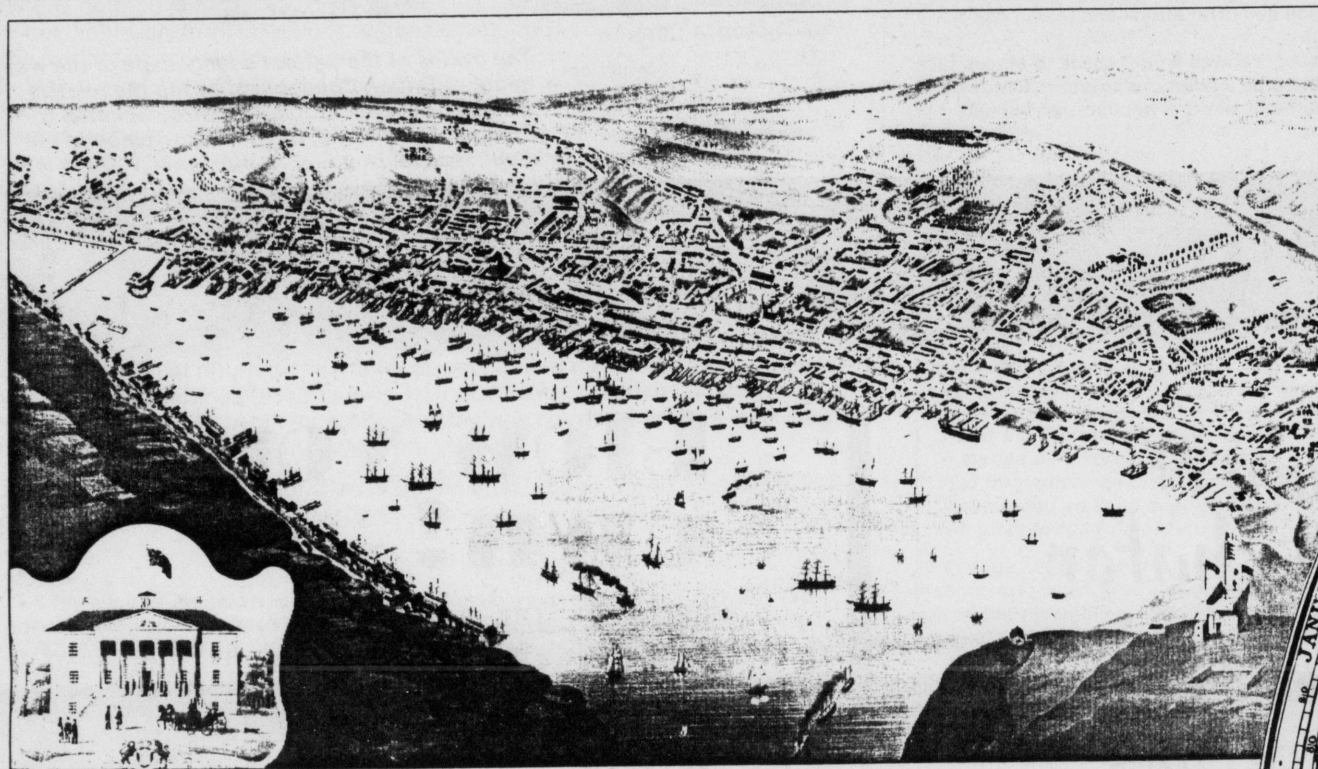
Often trainhorns, foghorns, carhorns, police sirens, Canada geese and people's voices join in. Each year's 'piece' sounds different, depending on who participates in it. It is a musical improvisation that has become an annual soundmark, an acoustic celebration in Vancouver.

The 'piece' heard on the MUSICWORKS NO.

29 cassette was recorded at the nine o'clock gun in Stanley Park at midnight of New Year's Eve 1980/81. It was a foggy night (the foghorns had been blowing all evening anyways). It was a truly acoustic event; we couldn't see further than a few yards ahead of us, so we were all "ears". It seemed as if the participants were listening equally intensely. In no other New Year's Eve sound event that I have recorded has there been as much musical interaction as in this one. Towards the end of this soundmark even a recorder player can be heard im-

provising within the tonality of the horns. In other parts of the piece, echoes can be heard bouncing off the downtown highrises.

Surprisingly enough, though, this annual acoustic event has a rather small listenership. The majority of the Vancouver population is not even aware of this annual soundmark/soundevent. But those who are aware of it usually try to make it to the harbour in time for the 'concert', no matter how miserable or cold the weather might be. It has become a ritual event.

ST. JOHN'S  
NEWFOUNDLAND 1679

## Sitelines

BY JOE CARTER

**Sitelines** is a sound and light piece that was performed in St. John's Newfoundland on the evenings of July 12th and 15th, 1984. The first performance corresponded with a moonrise over the Southside Hills and the second with a passing jet.

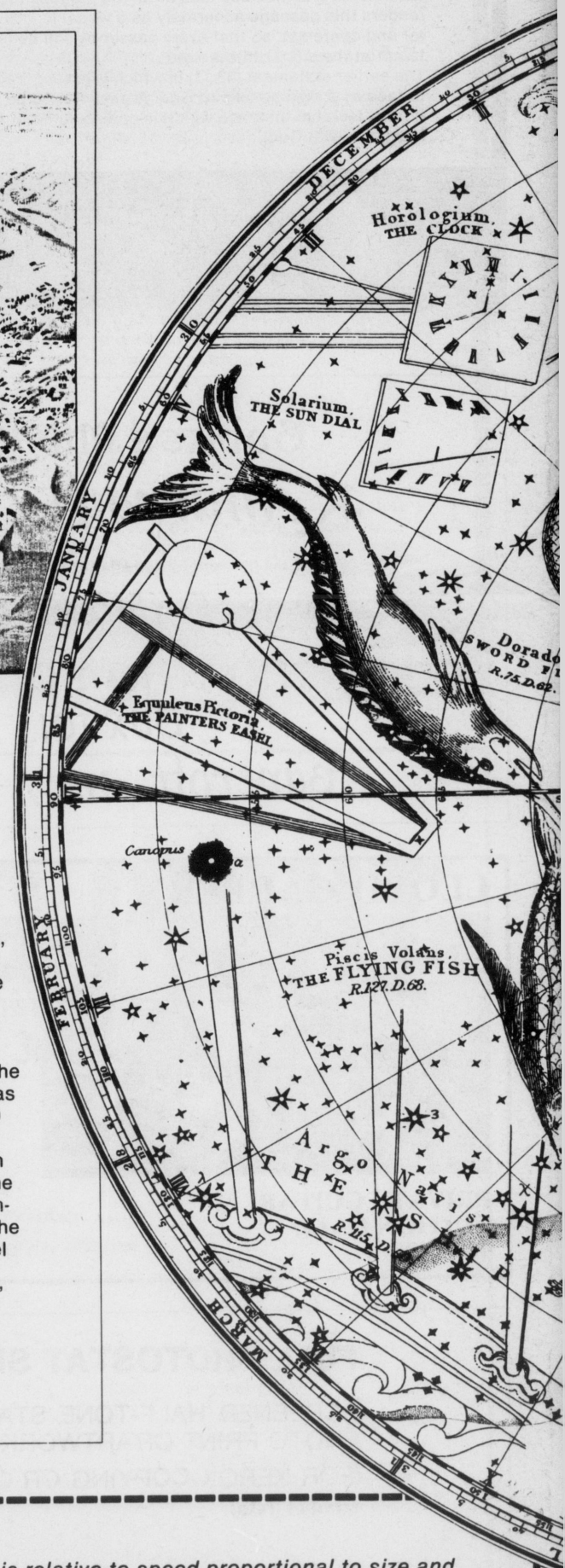
Tubular bells were played by Don Wherry and three of his students, ship's bells and horns were played by a team organized by Gary Johnston, flashlights were operated by the Shae Heights Girls Softball Team and the Boeing 737, E.P.A. Flight 134 was operated by Captain Charron and First Officer Briggs. Sound Engineer was Jim Rillie.

Four Nagra tape recorders were set up: one on the roofs of Bourings and Atlantic Place parking garages, one near the tubular bells on the waterfront, and one up on the Southside Hills in front of the tank farm.

The 4 tracks were later mixed so that tracks, A, B, and C were delayed by the amount of time it takes for sound to travel to those points from the "vantage-point". The dominant sound of the tubular bells was chosen as centre and left/right was oriented so that the Southside Hills was "front". This sense of "front" corresponds with the natural amphitheatre of the harbour with the city as "bleachers", the harbour as "stage", and the 200 metre high hills as "backdrop".

The starting point of each tape was taken from the ship's horn that pulsed at the beginning of the piece then held a steady blast. The resulting composite is not what an observer would hear from the "vantage-point" but is, rather, an acoustical model of the space. The "mixed" recording is simultaneously at all 4 locations but time "zerio" is at the "vantage-point".

A few of the ships not being used in the piece spontaneously joined in.



## the threshold of instantaneous motion sense

BY JOHN OSWALD

the threshold of instantaneous motion sense is relative to speed proportional to size and continuity where the predictable relationships of finer objects can be more easily perceived moving. stellar objects at velocities of thousands of miles per hour seen resting in the sky. motion of the clock's minute hand is just visible, its location has changed at each glance. an instant is 30 milliseconds. changes observed are a continuity of instants. random changes faster than 30 milliseconds have no definite order, are sequentially amorphous. fast continuities appear to stop, the motion becomes an object, the rotating propeller forms a disc, the movie ceases to flicker.

-john oswald