

On Sonic Meditation

"On Sonic Meditation" was written during a Guggenheim Fellowship period in 1973. It was an attempt to integrate some of the experiences of working with the ♀ Ensemble for two years and the Meditation Project for nine weeks in the Project for Music Experiment at the University of California, San Diego. "On Sonic Meditation" was published in the *Painted Bride Quarterly*, Winter 1976, Vol. 3, No. 1 by invitation from editor Paul Epstein.

The meaning of meditation is problematical in that it has accumulated many different associations and generally a very broad range of diverse practices and techniques. It appears often in religious contexts such as Buddhism, Christianity, Sufism and others. Its secular counterpart is usually called concentration. Although all meditation (both secular and religious) is similar in that it employs attention, awareness, concentration, openness and repetition, some define meditation as exclusively a specific type of practice or technique. Many contrasts among different systems arise: Christian meditation, or contemplation, is usually a dwelling upon specific ideas, such as one's relationship to God, or the pursuit of an activity which is decided upon and directed intellectually. Certain Eastern practices will be opposite, advocating dwelling on emptiness of mind (*Nirodha* in the Yoga Sutras of Patanjali, *No Mind* in Zen Buddhism).

Some methods of meditation encourage mental imagery, others discourage all imagery; some promote the involvement of sense organs using visual, auditory and somatic forms, others promote the abandonment of sensory modes. Further, there is action versus inaction, feeling versus indifference and more. In Taoism, when action arises, it is spontaneous and natural; in Confucianism, action is the result of ethics or intellect.

I use the word meditation, rather than concentration, in a secular sense to mean steady attention and steady awareness (global attention, see "Software For People"), for continuous or cyclic periods of time. Any of the above practices or techniques might be employed when appropriate.

While one's attention is focused to a point on something specific, it is possible to remain aware of one's surroundings, one's body, movement of all kinds, and one's mental activity (in other words remain aware of inner and outer reality simultaneously). Attention is narrow, pointed and selective. Awareness is broad, diffuse and inclusive. Both have a tunable range: attention can be honed to a finer and finer point. Awareness can be expanded until it seems all-inclusive. Attention can intensify awareness. Awareness can support attention. There is attention to awareness; there is awareness of attention.

Attention seems to equate with mental activity and to be aroused by interest or desire. Awareness seems to equate with the body's sensory receptivity. It is activated, or present, during pleasure and pain. Either attention or awareness can interfere with the other, depending on the intensity of interest or the intensity of stimulation. When either attention or awareness predominates or becomes out of balance, the other tends to drift or become unconscious; for example, after practicing a difficult passage (or even an easy one) over and over again, with or without success in execution, the musician discovers a cramp in some part of the body which has developed from a faulty playing position. Awareness has been sacrificed for attention and has become unconscious, or conscious on a very low level. Awareness only returns with the urgency of the cramping pain. With conscious awareness, the cramp might have been avoided by adjusting the relationship to the instrument, without sacrificing attention, before a cramp could develop. In this case awareness would be supporting attention, rather than producing a delayed interference reaction.

If the passage was executed successfully, one might consider the cramp a small price to pay, or it might not be associated with the activity. (It is also possible to sustain an inner muscular or visceral tension which is not noticeable or visible on the outside, so that the body appears to be in the correct relationship to the instrument.) If the passage was executed unsuccessfully, the faulty position disclosed by the cramp might be blamed and subsequently

corrected. In the former instance, some musicians who remain unaware for a long time, even years, often end by paying a very high price for success. Indeed, when such things as severe chronic pains in the back or other parts of the body appear without apparent reason, they may be results of some small but constantly repeated strain. The symptoms often do not respond to medical treatment, probably because the source of the now chronic ailment is continually repeated as an unconscious habit in association with "correct" habits of playing music. It is therefore most difficult to correct. Besides the misery of such a situation, some musicians are forced to give up playing or singing because of such ailments; and even worse, some never realize the relationship of their illness to inner tension, because the appearance of the playing position seems to be correct and the music may sound right.

The opposite can be true: while awareness of body sensations remains present, attention can lapse or drift attracted by the larger phenomenon of a painful awareness. The musical passage might become automated and sound mechanical, or, parts or all of it may be interrupted or forgotten as attention is divided or diverted by awareness of the cramp or some other strong sensation. Attention then refocuses and intensifies awareness.

The proper relationship of attention and awareness can be symbolized by a circle with a dot in the center. (Figure 1)

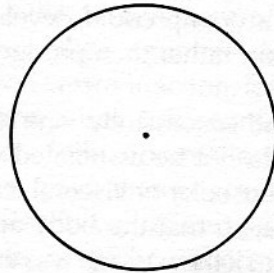


Figure 1.

The dot represents attention, and the circle, awareness. In these respective positions, each is centered in relation to the other. Awareness can expand, without losing center or its balanced relationship with attention, and simultaneously become more inclusive. Attention can be focused as fine as possible in any direction, and can probe all aspects of awareness without losing its balanced relationship to awareness.

My Sonic Meditations (Smith Publications, 2617 Gwyndale, Baltimore, MD 21207) are "sonic" in the sense that sound and hearing, both active and receptive, are the foci of attention and stimuli of awareness. The enhancement and development of aural sensation is one of their goals. Synchronization of attention and awareness, keeping them balanced and conscious, is necessary. Also, the synchronization of voluntary and involuntary mental or physical activity is explored. The ear is the primary receptor or instrument; sound, both inner and outer, real and imaginary, is the stimulus of *Sonic Meditations*.

How and what does one hear? In order to answer this question, the mind must relax, as a muscle must relax. The appropriate state of expectation must be present in body and mind in order to become receptive to both internal and external stimuli.

A Cup of Tea

"Nan-In, a Japanese master during the Meiji era (1868-1912), received a university professor who came to inquire about Zen.

"Nan-In served tea. He poured his visitor's cups full, then kept on pouring.

"The professor watched the overflow until he could no longer restrain himself. 'It is overfull. No more will go in!'

"'Like this cup,' Nan-In said, 'you are full of your own opinions and speculations. How can I show you Zen unless you first empty your cup?'"

(Paul Reps: *Zen Flesh - Zen Bones*)

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As a composer I had to empty my cup; I became interested in dwelling on single pitches in my music at the end of the 1950's. There is a very long held note in the cello part of my *Variations for Sextet* (1959-1960). (Figure 2)

VARIATIONS FOR SEXTET
(EXCERPT)

PAULINE OLIVEROS
1959-60

(♩ = 72)

The musical score is handwritten and consists of six staves. The top five staves are for the Piccolo (Pic), Clarinet (cl), Trumpet (T), Horn (H), and Violin (Vcl). The bottom staff is for the Piano (Pn). The tempo is marked as quarter note = 72. The score is in 3/4 time and consists of three measures. The Piccolo, Clarinet, Trumpet, and Horn parts have rests in the first measure and play a short melodic phrase in the second measure. The Violin part has a rest in the first measure and plays a short melodic phrase in the second measure. The Piano part has a rest in the first measure and plays a short melodic phrase in the second measure. The Cello part has a very long held note in the first measure, which continues into the second and third measures. The Piano part has a 'SILENT' marking in the first measure. The score is handwritten and includes various musical notations such as dynamics (f), articulation (>), and phrasing slurs.

Figure 2.

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The musical score is written for six instruments: Percussion (Perc.), Clarinet (Cl.), Trumpet (T.), Horn (H.), Violin (Vcl.), and Piano (Pn.). The music is in 4/4 time and consists of four measures. The Percussion part has rests in all measures. The Clarinet part begins with a triplet of eighth notes in the first measure, followed by a half note in the second measure, and a quarter note in the third measure. The Trumpet and Horn parts play a quarter note in the first measure, followed by rests in the subsequent measures. The Violin part plays a quarter note in the first measure, followed by a half note in the second measure, and a quarter note in the third measure. The Piano part features a sustained chord in the first measure, followed by a half note in the second measure, and a quarter note in the third measure. The score includes dynamic markings such as *ppp*, *pp*, *sfz*, and *ppp*, as well as performance instructions like *NON VIBRATO*. A circled number '68' is present in the left margin next to the Horn staff.

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Figure 2 (cont.)

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Handwritten musical score for Figure 2 (cont.), consisting of three systems of staves. The first system includes Violin (Vcl.) and Piano (Pa.). The Vcl. staff starts at measure 72 with a treble clef, marked "slight VIBRATO" and "Mf". The Pa. staff has a bass clef and includes markings "SP" and "PA". The second system includes Clarinet (Cl.) and Violin (Vcl.). The Cl. staff starts at measure 77 with a treble clef, marked "Mf" and "b". The Vcl. staff has a bass clef, marked "f", "Mf", "Pizz.", and "Mf". The third system includes Violin (Vcl.), Clarinet (Cl.), Trombone (T), and Horn (H). The Vcl. staff starts at measure 81 with a treble clef, marked "ARCO" and "Mf". The Cl. staff has a treble clef, marked "f". The T staff has a bass clef, marked "PLUNGER" and "f". The H staff has a bass clef, marked "f". The score includes various musical notations such as triplets, slurs, and dynamic markings.

The note lasts approximately half a minute and it is solo. It emerges from a hard attack together with trumpet, horn and clarinet, with a few low-level, evanescent piano harmonics. It is very long in the context of the *Variations* and other music of its style, which deals with radical shifts in rhythm and timbre. The long cello tone is a very brief meditation, although I was not thinking of it that way at the time. It had at least two functions: 1) it represented a very slow contrasting tempo within a multiplicity of changing tempi, and 2) its harmonic ambiguity increased as it stretched out in time, although the tone itself, rather than where it was leading, became an object of interest. It signaled my growing interest in timbral shapes and changes, the complementary opposite of chordal or harmonic changes.

Other composers were becoming involved in this fascination with long tones also. See Terry Riley's *String Quartet* (Figure 3) and La Monte Young's *Composition 7, 1960*. (Figure 4)

STRING QUARTET [1960] TERRY RILEY
(EXCERPT)

The musical score is handwritten and consists of three systems of staves. The first system has a treble clef and a tempo marking of quarter note = 30. It includes dynamic markings of *pp*. The second system has a treble clef with a *dim* marking and a long note, and a bass clef with a *pppp* marking and a circled '30'. The third system has a bass clef with a *nat.* marking. The score includes various musical notations such as notes, rests, and dynamic markings.

Figure 3.

(39) PONT.

ppp

ppp

p

NATURALE

mp

decresc.

ppp

pp

p

(40)

NON VIB. $\frac{1}{2}$ (b2)

CON SORD.

NON VIB.

CON SORD.

pp

ppp

pp

ppp

ppp

ppp

(45)

ppp

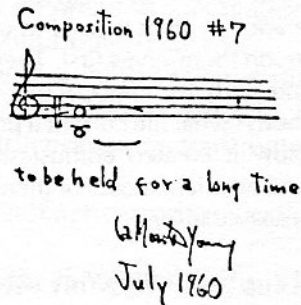
cresc.

mp

decresc.

p

Figure 3 (cont.)



Composition 1960 #7 by La Monte Young.
Reprinted from *An Anthology* (Young and MacLow, New York, 1963).
© La Monte Young, 1963. Used with permission.

Figure 4.

Drones of all kinds (such as motors, fluorescent lighting, freeway noise), are ever present. The mantra of the electronic age is *hum* rather than *Om*. These constant soundings influence everyone, whether consciously or unconsciously. Some adverse effects can occur when the influence is unconsciously received; for example, a musician who plays in tune unknowingly with sixty hertz hum rather than 61.735 hertz in an ensemble. Or an ensemble which does not realize the out-of-tuneness caused by the discrepancy between standard musical tuning in reference to A440 and sixty hertz hum.

I began to seek out drones of all kinds and to listen to them consciously, allowing myself to hear the myriad shifting, changing partials of a constant tone, broad and narrow band noise. My subsequent music, both electronic and instrumental, reflected this interest. Whole pieces became single tonal centers or noise bands with characteristic timbral shaping. I was quite satisfied with this work emotionally and intellectually, although I had apparently abandoned Western harmonic practice.

" – the knowledge of sound can give a person a magical instrument by which to wind and tune and control and help the life of another person to the best advantage. The ancient singers used to experience the effect of their spiritual practices upon themselves first. They used to sing one note for about half an hour and study the effect of that same note upon all the different centers of their body: what life current it produced, how it opened the intuitive faculties, how it created enthusiasm, how it gave added energy, how it soothed and how it healed. For them it was not a theory but an experience." (Sufi Inayat Khan: *Music*)

I continued to empty my cup and follow my secular way. My interest and fascination with long tones was centered in an attention to both the beauty of the subtle shifts in timbre and the ambiguity of an apparently static phenomenon. Why was a tone which went nowhere so seductive? My awareness was adrift.

In 1969 I began to work with dancer Ai Chung Liang Huang, and with him I began the study of T'ai Chi Chuan. The work with Huang in this Chinese form of meditation movement involved breath rhythm synchronized with slow, circular motions of torso, arms, and legs. I had been playing and singing with my accordion, slow lingering improvisations on a tonal center. I began to translate the breath rhythms and the slow natural motions of T'ai Chi to my solo improvisations. I noticed that I began to feel better physically and mentally, and I began to crave more retreat to the calming influence of these drone-like improvisations, from what seemed to be a nervous, frantic music world, full of hasty rehearsals and constantly noodling performers with up-tight vibrations.

By 1970, some other women had joined me to form the ♀ *Ensemble*, an improvisation group, both vocal and instrumental, devoted to unchanging tonal centers with emphasis on changing partials. After a long period of working together, a profound change occurred: rather than manipulating our voices or instruments in a goal-oriented way in order to produce certain effects, we began to *allow* changes to occur involuntarily, or without conscious effort,

while sustaining a sound voluntarily. It is an entirely different mode. It requires the elimination of opinions, desires and speculations to be unlike the professor for whom Nan-In poured continuous tea.

My first conscious recognition of this change resulted in the articulation of *Teach Yourself to Fly, Sonic Meditation I* (op. cit.). I say articulated rather than composed because the instructions were transmitted orally many times before being committed to paper.

We could no longer call our activity improvisation.

Teach Yourself To Fly

dedicated to Amelia Earhart

Any number of persons sit in a circle facing the center. Illuminate the space with dim blue light. Begin by simply observing your own breathing. Always be an observer. Gradually allow your breathing to become audible. Then gradually introduce your voice. Allow your vocal cords to vibrate in any mode which occurs naturally. Allow the intensity of the vibrations to increase very slowly. Continue as long as possible, naturally, and until all others are quiet, always observing your own breath cycle. Variation: translate voice to an instrument.

From *Sonic Meditations*. Copyright 1974 by Smith Publications. Used by permission.

"NOT A THEORY BUT AN EXPERIENCE"

'Any number of persons sit together in a circle facing the center.'

People sitting together in a circle are a living symbol of unity as well as a unified reality. (Figure 5)

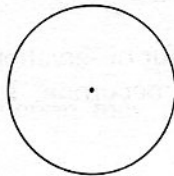


Figure 5.

All are on the same plane. All are relating to the same center.

'Illuminate the area with dim blue light.'

Low illumination is less stimulating to the visual sense and helps to center one's awareness in the body, awakening the sense of hearing and the somatic sense which has an intimate relationship to the ear.

'Begin by simply observing your own breathing.'

The key principle in this meditation is *observation of the breathing cycle*. Observation meaning to remain attentive and aware without consciously manipulating or interfering with the observed. Observation requires a receptive mode of consciousness: an empty cup. The breath cycle is a bridge between voluntary and involuntary activity. It can and does continue all the time without one's conscious attention or awareness. Sometimes it is only noticed when one is struggling to gain voluntary control over it. By trying to observe the breath cycle without disturbing it, one begins to tune an activity which is both conscious and unconscious. In short, breath is the door to the unconscious where a great store of energy lies ready to support or obliterate conscious efforts. Energy is neither positive or negative, but it can become either.

Is it possible to observe the breath cycle without disturbing it? Heisenberg's principle of uncertainty (as applied to quantum theory) teaches that

"there is no such thing as mere observing, in the sense that the only action is a one-way action of the object on the observer; every observation we make is bound to act on the object we observe, even if only by the impact of a single quantum of light. In other words, there is always a mutual inter-action between the observer and the object."

(Otto R. Frisch: *Atomic Physics Today*)

Perhaps participation in *Teach Yourself to Fly* is to experience Heisenberg's principle of uncertainty.

Although my instructions ask for observation in its receptive sense, somewhere complementary action is occurring. The breath does change, if the

attention remains focused on the cycle. The quality of these changes is personal and varies with each participating individual. In my own experiences with this *Sonic Meditation* my breaths become very prolonged. The rate reduces to two or three per minute or less. The effect is very calming to the nervous system and the whole body. I always feel refreshed and very relaxed afterward.

“There are three degrees of breath current. One degree is the simple breath which is inhaled and exhaled by the nostrils. This current reaches outside and has a certain effect. A greater degree of breath current is also blowing. When a person blows from his lips, that breath current is directed more intensely; therefore healers who have understood this principle make use of it. And the third degree, in which breath is most intense, is sound: because...breath, coming in the form of sound, is vitalized.”

(Inayat Khan, op. cit.)

‘*Always be an observer.*’ Restrain any desire to manipulate, although a voluntary action is introduced: ‘*Gradually allow your breathing to become audible.*’ Here, while attention remains focused on the breath cycle and its involuntary changes, one must synchronize the voluntary increase in air pressure without consciously manipulating the cycle. Thus, the choice of the word ‘allow’ for transmitting this instruction. This linkage is not necessarily easy:

“What the meditator realizes in her practice is to a large extent how she is failing to meditate properly; and by becoming aware of her failing she gains understanding and the ability to let go of her wrong way. The right way, the desired attitude, is what remains when we have, so to say, stepped out of the way.”

(Claudio Naranjo: *On the Psychology of Meditation*)

If I am successful as an observer, while my attention remains fixed on the breath cycle, another phenomenon may appear. That is, while attention

remains steady, keeping the details of breathing clearly in focus, awareness is present and may be expanding. During this process it is also possible to observe myself attending and being aware. For me this is a highly desirable mode of consciousness. It seems that this aspect of observation might be an element of synchronization between attention and awareness. It is as though a teacher, mentor or guru in the form of oneself has appeared internally to give one feedback or to reflect the way things are. (Figure 6)

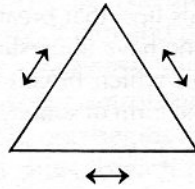


Figure 6.

The reciprocal relationship of attention and awareness seems to give rise to this aspect of *observation*; the observation of attention and awareness is also *having* attention and awareness.

There is a fourth aspect to this apparently three-way relationship, which can be represented as in Figure 7.

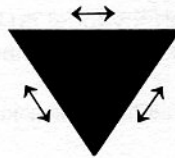


Figure 7.

Often, even ordinarily, when my attention is engaged (and awareness is present, or absent as the case may be), I am too caught up in the present moment, or too subjective, to observe myself during an event or events. Later however, reflecting on a situation, it is possible to remember myself objectively in the event or events and in detail. The memory may occur spontaneously, or be retrieved laboriously indicating that observation has taken place on some unconscious level. The relationship of conscious observation to unconscious observation might be similar to the relationship of attention and awareness. It can be represented by the same dot and circle. (Figure 8) The dot represents conscious observation and the circle, unconscious observation, with the same sort of reciprocal, centered relationship possible.

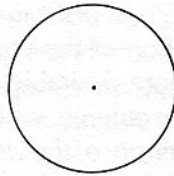


Figure 8.

The complementary relationship of all four phenomena (attention, awareness, conscious observation, unconscious observation) could then be represented as follows: (Figure 9)

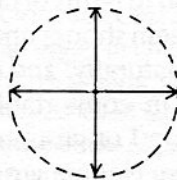


Figure 9.

Each phenomenon seems to have the power to support or distract, depending on the balance or centeredness of the relationships.

When observation remains unconscious, one is often obliged to seek an outside, objective observer such as a teacher, doctor or adviser for necessary feedback or reflection on one's condition (which may help to make one's own observation conscious). Progress to new levels of finer, more sustained attention and larger, more inclusive awareness is arrested in the absence of accurate, objective feedback from the observation mode, either from an outsider or the insider: one's self.

'Then gradually introduce your voice.' What is the sound of my own voice? What would it sound like if I had not adopted the way it sounds now? What models am I using? What is the sound of my original voice? *'Allow your vocal cords to vibrate in any mode that occurs naturally.'* Again, the word 'allow,' meaning no conscious manipulation of the vocal cords in order to produce a particular sound. No sound is more desirable than another; all are accepted. Simply be aware of the sounds that emerge, while the attention remains focused on the breath cycle. *'Allow the intensity of the vibrations to increase very slowly.'* The voice enters more and more fully with the increase in intensity, still without conscious manipulation. Vibration of the vocal cords should be occurring before one becomes aware that they are vibrating. Imposing a conscious direction toward a specific sound or pitch causes a lapse in attention.

Slowness is relative. It might take any length of time, depending on the experience of the meditator. Actual time periods seem to increase in length with practice, but time perception in terms of clock time appears to be inverse: longer and longer time periods seem shorter and shorter as attention improves.

'Continue as long as possible naturally, and until all others are quiet.' There are many individual variations in comfortable time lengths for such vocal production. Usually there is a kind of group consensus which occurs spontaneously and supportively. There is some group recognition of peak activity, and a natural decay time as the meditation ends as it began. *'Variation: Translate voice to an instrument.'*

A musical instrument, of course, is an amplifier, an extension of the musician to a certain extent. Like all amplifiers, it also acts as a band pass filter. As beautiful as the sound may be, it cannot be as flexible and rich in partials as the human voice. A trained singer, such as the soprano, contralto, tenor or bass of Western art music, or the pop singer of various distinctive styles, has a vocal filter produced by his or her training. Some such singers become unable or refuse to produce any sounds beyond or different from what the training has taught. There is a fear of breaking training or of 'ruining' one's voice, or there is simply a devaluation of anything else. Many singers actually do ruin their voices by striving and straining for effects which are easily attained by certain models, but are unnatural or impractical for their own voices (or by straining against the effects of bodily tension produced by stage fright and other pressures) in order to sing. Today's singer must not only meet the challenge of Western art or pop music, but of world music with all of its vocal variation and extensive techniques. This requires openness, awareness, receptivity and exploration of the voice under reasonable conditions such as *Sonic Meditations* offer.

When I articulated *Teach Yourself to Fly for The ♀ Ensemble* some of us were playing instruments. As understanding increased of what we were doing, it was accompanied by frustration with the filter systems imposed by the instruments. Gradually we abandoned instruments in favor of the development of our voices and awareness of the physical changes in tension towards relaxation, brought about by the meditations.

"In the Middle East, among Orthodox Christians and Armenians, there is a custom that they do not use an organ in church; they use a chord or sound made by ten or twelve persons singing with closed lips. It has such a wonderfully magical effect, it reaches so far and so deeply into the heart of man, it produces such a religious atmosphere that one feels that there is no necessity for an organ; it is a natural organ which God has made."

(Inayat Khan, op. cit.)

Nevertheless, an instrumental version can be instructive and beautiful. Such a translation is most natural or direct for wind and brass players. String, percussion and keyboard players have to project their vocal cords to the instrument so that body movements which activate sound vibrations are synchronized with the breath cycle as exactly as possible. The choice of pitch must come involuntarily.

So what is the sonic result of *Teach Yourself to Fly*? Because of the underlying principle, observation of the breath cycle, there is always the unity of the characteristic drone. The texture resembles ocean waves. The individual aperiodic coincidences of different breath cycles create a variety of details. There is an increasingly rich production of partials. The form of the whole is a dynamic arch.

The effect is restful rather than stimulating. The energies of from a few to many people participating together amplify, reinforce and sustain the effects, but one can also participate alone with good results. Resulting awareness of my body in a relaxed mode, the fresh receptivity to external sound, the discovery of unused vocal or instrumental range and qualities seem primary since the pressures associated with my former music world were not often conducive to such things. It happens that I very much like the musical as well as social and psychological results of *Sonic Meditations*, although they seem to require re-orientation of the tangled jungle of expectations among performers and audience.

The Problem of Music

"Be sure that you do not train yourself to music, in case this holds you back from even higher perceptions."

(Idries Shah, Ibn Hamdun, *The Way of the Sufi*)

Sonic Meditation invites participation from all present. It is related to more ancient musical practices where listening as an audience, especially intellectually, was not the specialized practice it is today.

Sonic Meditations were intended for musicians of all levels; however, an important aspect of this work, as stated above, is that non-musicians may participate as well, and often much better, than musicians whose training sometimes interferes.

The experience of *Sonic Meditation* can be immediate, depending on the degree of commitment in the group. The experience is greatly enhanced and deepened with many repetitions over a long period of time. New participants are supported by the energy, focused attention, and broad awareness of experienced meditators. Even one person with training can cause a large group to become more continuously attentive and aware (just as one hypertensive individual can upset or affect a whole roomful of people). The training of attention and awareness, of course, has many applications towards other musical goals and interests as well as towards other disciplines.

In the winter of 1973, a research fellowship in the Project for Music Experiment, funded by the Rockefeller Foundation and sponsored by the Department of Music at the University of California at San Diego, allowed me to pursue *Sonic Meditations* further, on a daily basis, with twenty volunteers. As a result of this work, many new meditations were articulated and composed.

"My cup runneth over!"

Meditation Project

A Report

An opportunity to do full-time research supported by the Rockefeller Foundation at the Project for Music Experiment (now the Center for Music Experiment and Related Research) at the University of California, San Diego, resulted in "Meditation Project": an exploration of meditation technique in relation to music and musicians. The following report was originally presented to composer Roger Reynolds who was the Director of PME. "Meditation Project: A Report" is published here for the first time.

My *Meditation Project* was an intended exploration of mental and physical exercises in concentration (or attention) and awareness, in their relationship to the techniques of rehearsal and performance of music. Exercises were drawn from many and various sources including my own *Sonic Meditations* (Smith Publications). Exercises were practiced daily for two hours with a group of twenty volunteers. Both musicians and non-musicians were included.

Elaine Summers, kinesiologist, choreographer and director of the Experimental Intermedia Foundation in New York provided the first two weeks of training in kinetic awareness. (A recorded lecture by Elaine Summers is available from the C.M.E. archives). Summers' exercises consist primarily of sensing the various parts of the body, the body as a whole, awareness of skeletal and muscular relationships through self massage and massage with a partner, and a series of exercises in moving a part or parts of the body very slowly, almost imperceptibly. These exercises help to reveal and release inappropriate tensions which might interfere with one's activities. Summers maintains that inappropriate tensions arise from the body image that one holds either consciously or unconsciously, when that body image is in conflict with the natural relationships of the body.

Elaine Summers' work provided an invaluable foundation for the project, as body awareness is essential to — yet often suppressed during concentrated activity. Many project members were helped by her exercises — relieved of unnecessary pains from inappropriate tension. They were also given personal guidance toward self-help routines.

We were able to present a meditation event at the end of her stay entitled *Energy Changes* (Energy changes the body). Elaine Summers performed her work which involves movement from meditation, or sensing the body until it moves apparently involuntarily. Borrowing her title, my *Sonic Meditation XIII, Energy Changes*, was composed for the occasion and performed with project members Lin Barron, Bonnie Barnett and myself.

Dr. Ronald Lane of the Muir Counseling Service acted as consulting psychologist for the project. Dr. Lane provided a battery of tests at the beginning which were repeated at the end of the training in order to monitor possible significant changes in the participants. Also, there were weekly individual personal consciousness scales. The data accumulated from these tests awaits a computer program for correlations.

Dr. Lane attended many of the sessions and was also available to any participant on a consulting basis. Several of the participants made use of his services as a result of changes apparently triggered by the training sessions.

Dr. Lane also provided two training sessions in contacting dream imagery and fantasy. Dr. Lane noted the unusual clarity and creativeness of the imagery in this group as compared to his usual encounters with other groups.

Dr. Lane's role was assuring and valuable to the project and its members. He was very supportive of the experimental nature of the project.

Beginning the third week, I led the group in a continual review of Summers' exercises, and I introduced meditations of contrasting kinds (mostly mental) from many sources along with *Sonic Meditations*.

Al Chung Liang Huang, dancer and T'ai Chi master, led the seventh week of training. He introduced his own personal meditations derived from T'ai Chi Chuan, Chinese theater, and calligraphy. Huang was also very interested in the receptivity of the group as contrasted with other groups under ordinary circumstances he has encountered. He was able to accomplish much more during his week than usual.

Dr. Lester Ingber, Karate master and president of the Institute for the Study of Attention, provided two training sessions at the end of the eighth week: a

survey of Karate technique with particular emphasis on the meditative aspects of training attention and awareness. Ingber also noted the unusual receptivity of the group as compared with more ordinary circumstances.

Both Ingber and Huang are interested in the synthesis of Eastern (meditation) practice with Western analytical techniques.

Research assistant Bruce Rittenbach provided a before-and-after EEG sample for each participant. The tests, carried out in Dr. R. Bickford's EEG laboratory in the medical school, showed that most of the participants were already high amplitude alpha producers. Alpha is a correlate of the meditative state (see Joe Kamiya, "Operant Control of EEG Alpha Rhythm,"; Charles Tart, ed., *Altered States of Consciousness*). However, an interesting tendency appeared: Alpha tended to be present in higher amplitude in the right as opposed to the left hemisphere of the brain or vice versa during the first tests. At the end of the project, the tendency was towards more equal amplitude alpha in both hemispheres simultaneously, indicating that some balancing or synchronization might be occurring.

Rittenbach also set up a small biofeedback training laboratory for individual use, utilizing Alpha Metrics biofeedback equipment. Participants could monitor their brain waves through headphones in order to learn to emulate meditative states (high amplitude alpha production) in hopes of supplementing the autogenic training sessions. Unfortunately bureaucratic delays interfered with this aspect of the project, and the biofeedback training could not begin until the fifth week of the project.

John Forkner, optical physicist and C.M.E. Fellow, designed and built a special lighting system which projects a circle of light on the floor for the meditation exercises. Forkner calls this system "Moonpool." The quality of the light resembles moonlight and provides a low visual stimulation atmosphere accommodating to the exercises, and artistically satisfying. The light was utilized successfully as the environment for the presentation of *Energy Changes*. Because of its experimental development parallel to the training period, Moonpool has

not been explored to its fullest potential in connection with meditation, but it promises future development.

Finally, the training sessions were also a long rehearsal for my ceremonial composition *Phantom Fathom* from *The Theater of the Ancient Trumpeters*, which was performed March 10, 1973, with the training group, as a culmination of the project.

One of the central problems of *Phantom Fathom* is a necessary re-orientation of the relationship between performers and audience. The performance includes everyone present so that the active experience of participation is primary; there are no spectators in the usual sense. A necessary condition of this break with normal concert format is that "audience" members be informed and prepared to participate by published instructions prior to the event so that participation may be voluntary. This helps to preclude a kind of negative energy arising from persons whose normal concert expectations would be disappointed, or persons who might prefer to remain spectators. In this sense, *Phantom Fathom* is exclusive; on the other hand its inclusive nature cannot work in the normal milieu of the concert world. The prevailing concert paradigm is also exclusive in that the assumed performer-audience relationship is one of deliberate separation, with the performer primarily active and the audience primarily receptive. This underlying assumption has been accepted and built upon by composers, preserved by performers' attitudes and training, and frozen by the architecture of concert halls.

Phantom Fathom requires large open space where a hundred or more people can move about freely as well as sit comfortably on the floor for some of the meditations. It also requires very fine lighting control as well as a comfortably resonant acoustical quality. The PME building was less than ideal for *Phantom Fathom*, with its low ceiling, obstructing posts, and poor ventilation; however it is the only space on campus which approached the general needs of such a performance.

Phantom Fathom especially requires a difference in attitude and practice

among the performers. The lines must blur between specialist and non-specialist, and yet energy must be transmitted by the performers which encourages and supports audience members in their participation, unifying the two groups. Audience members must be willing to experience through participation, without trying to interpret or analyze an artistic message during the performances. In this case, analysis opposes direct experience. The performer must be attentive to the tasks without trying to express or send a message. The performer must set an example which should help support an untrained but informed audience member. *Phantom Fathom* does not require specialized musical skills but it does require the training of attention and awareness as defined in my paper "On Sonic Meditations."

The exercises during the daily two hour meditation sessions were intended to provide this training to the mixed group of volunteer musicians and non-musicians.

As far as I am concerned, *Phantom Fathom* was performed quite successfully, although with subsequent work fruitful changes and improvements could occur. An audience of approximately 100 or more arrived and participated silently as prearranged. The silence produced a remarkable atmosphere free of distracting verbal energies. As the evening progressed non-verbally, it seemed to me that the imagery of the performance gained in intensity. The project members seemed to transmit the necessary models without self-consciousness.

I attempted an experiment in ESP sound and image transmission as part of *Phantom Fathom*: For a week prior to the event I concentrated every evening on the same sound (shell trumpet) and the same image (elephant), hoping to transmit them to willing receivers in the prospective audience. The reception was most likely to take place in a dream (as proven by Stanley Krippner in experiments at Maimonides Hospital in Brooklyn).

A thrilling moment in the dream telling ritual, which was necessarily verbal, during *Phantom Fathom* was the direct hit on the elephant image by an audience member and a very near hit (golden trumpet sound rather than shell trumpet) on the sound I attempted to transmit.

Besides the training group meetings, Dr. Ingber, Lin Barron, Bruce Rittenbach, and I met regularly three times a week to work with biofeedback training experiments. We used respiration to control the pitch of an oscillator, and the amplitude of alpha brain waves to trigger the oscillator on and off. We tried placing electrodes at different points of the brain, i. e. occipital, parietal, etc., corresponding to known functions: auditory, visual, etc., and noted the quality of various mental states in relation to the auditory feedback results. Some of our observations led directly to successful meditation training exercises and new *Sonic Meditations*.

I spent at least two hours a day privately engaging in all of the daily exercises before the training sessions.

The key product of all this training is the development of receptivity. In general, our cultural training dominantly promotes active manipulation of the external environment through analysis and judgement, and tends to devalue the receptive mode which consists of observation and intuition. (See Arthur Deikman, "Deautomatization and the Mystic Experience," in *The Nature of Human Consciousness*, Robert Ornstein, ed.) My project was designed to reverse the above-stated situation, not to replace the active mode but to complement it. It seems to me that musicians might benefit by the ability to switch modes easily and consciously. Promoting receptivity has high potential value in teaching, as well as rehearsal and performance, as indicated by the observations of group leaders Lane, Huang and Ingber.

Immediate and Future Research Needs:

1. a computer programmer to work with Dr. Lane in order to correlate the data from psychological tests during the project.
2. computer time for the above work.
3. technical assistance for the maintenance and development of equipment for further biofeedback experiments.

4. space for a biofeedback laboratory (currently provided by the Department).
5. a large, open, uncluttered space, free from office and other environmental noises with lighting control for rehearsals.
6. a group of musicians interested in pursuing meditation techniques.
7. clerical assistance and typing.