

### Notes on the Music

Music for Pieces of Wood (1973) grows out of the same roots as Clapping Music (1972); a desire to make music with the simplest possible instruments. The claves, or cylindrical pieces of hard wood used here were selected for their particular pitches (A, B, C#, D# and D# an octave above), and for their resonant timbre. This piece is one of the loudest I have ever composed, but uses no amplification whatsoever.

The rhythmic structure is based entirely on the process of rhythmic 'build-ups', or the substitution of beats for rests, and is in three sections of decreasing pattern length: 6/4, 4/4, 3/4.

Violin Phase (1967) was originally conceived as a piece for four violins. In 1967 I had recently finished composing the tape pieces Its Gonna Rain, Come Out, and Melodica, and was also in touch with the violin soloist, Paul Zukofsky. This combination of circumstances resulted in a version of the piece for one violin and three channels of tape pre-recorded by the violinist. This version was performed at the Whitney Museum of American Art in 1969 and recorded by Columbia Records the same year. The piece then became known as an electronic music work which, clearly, it never was.

The present performances by four violinists are the first in America. The piece was first performed by four violinists in Berlin as part of the Metamusik Festival there in the fall of 1974.

Violin Phase is the last in a series of early pieces all scored for two or more identical instruments playing the same repeating melodic pattern gradually shifted more and more out of phase with itself, and the first to explore what I have come to call "resulting patterns". As one listens to the repetition of the several violins, one may hear first the lower tones forming one or several patterns, then the higher notes are noticed forming another, then the notes in the middle may attach themselves to the lower tones to form still another. All these patterns are really there; they are created by the interlocking of two, three, or four violins all playing the same repeating pattern out of phase with each other. Since it is the attention of the listener which will largely determine which particular pattern he or she will hear at any given moment, these patterns can be understood as psycho-acoustic by-products of the repetition and phase shifting. A particular resulting pattern may be played by one violinist very softly, and then gradually the volume is increased so that it slowly rises to the surface of the music and then, by fading out, gradually sinks back into the overall texture while remaining audible. The listener thus becomes aware of one pattern in the music which may open his ear to another, and another, all sounding simultaneously in the ongoing texture.

Work in Progress for 18 musicians and singers lasts about 35 minutes. It is less than half finished and, when completed, should last about an hour and a quarter. The first sketches were made for it in May 1974, and it will probably be completed early in 1976. Although its steady pulse and rhythmic energy relate to many of my earlier works, its instrumentation, harmony and structure are new.

As to instrumentation, Work in Progress for 18 musicians and singers is new in the number and distribution of instruments. It relates to older works of mine through the inclusion of women's voices singing wordlessly within the ensemble.

2 strings, 2 winds, 4 women's voices, 4 pianos, 3 marimbas, 2 xylophones and one metallophone. Although microphones are used, all instruments are acoustical.

There is more harmonic movement in the first five minutes of this piece than in any other complete work of mine to date. Though the movement from chord to chord is often just a re-voicing, inversion, or relative minor or major of a previous chord, (usually staying in the same key signature of 3 sharps at all times) within these limits harmonic movement plays a more important role in this piece than in any other I have written.

The structure of this piece is based on a cycle of eleven chords played at the very beginning of the piece. All the instruments and voices play and sing pulsing notes within each chord. Each chord is held for the duration of two breaths, and the next chord is gradually introduced, and so on, until all eleven are played and the ensemble returns to the first chord. This first pulsing chord is then maintained by two pianos and two marimbas with one piano and marimba playing on the quarter note pulse, and the other two playing on the off beat, an eighth note away. While this pulsing chord is held for about five minutes a small piece is constructed on it. When this piece is completed there is a sudden switch to the second chord, and a second small piece is constructed. This means that each chord that might have taken fifteen or twenty seconds to play in the opening section is then stretched out as the basic pulsing harmony for a five minute piece very much as a single note in a cantus firmus, or Gregorian chant melody of a 12th century four part Organum by Perotin might be stretched out for several minutes as the harmonic center for a section of the Organum. The opening eleven chord cycle in Work in Progress for 18 musicians and singers is a kind of pulsing cantus for the entire piece.

On each pulsing chord, one, or sometimes two smaller pieces are built. These pieces or sections are similar to one another and are all structured in the form of an arch, which could be represented roughly as ABCDCBA. All these sections are composed of three basic components: pulse, melody and harmony. In the first section the pulse is maintained by two marimbas and two pianos as described above. The repeating melodic pattern is played in continuous form by one other marimba and piano, and in a gradually expanding and contracting form by two clarinets and two women's voices. This blend of clarinets and women's voices is, to my ear, one of the more interesting new timbres of this piece. The harmony is played as a gradually augmenting and diminishing pair of chords (a pair of chords that grow and then contract in duration), by a violin and cello each playing two notes with the violin doubled by two women's voices again producing a fusion of vocal-instrumental sound.

One of the basic means of change or development in this piece is to be found in the rhythmic relation of harmony to melody. Specifically, a melodic pattern may be repeated over and over again, but by introducing a two chord cadence underneath it, first beginning on one beat of the pattern, and then beginning on a different beat, a sense of changing accent in the melody will be heard. This play of changing harmonic rhythm against constant melodic pattern is one of the basic techniques of this piece, and one I have never used before. Its effect, by change of accent, is to vary that which is in fact unchanging. There is no gradual shifting of phase between repeated patterns as there was in works of mine up to Drumming in 1971. There is only one instance, in the second section, where one xylophone and piano 'build up' a canonic relation (phase relation) against another xylophone and piano, one note at a time. Outside of this single instance all variation within sections is made by changing the rhythm and placement of the harmony in relation to the constant melody.

Sections are set off from each other by changes of instrumentation. For instance, in the third section the pulse suddenly shifts from the piano and high marimba into the xylophone and low marimba. The harmony that was played by the strings and voices in the previous section is shifted to two pianos playing pulsing chords in their lower register, and the melody that was sung and played on clarinets is played by the two other pianos, the strings plus the clarinets without the voices. Thus the same basic structures are maintained with changes of pitch and timbre.

Changes from one section to the next, as well as changes within each section are cued by the metallophone (vibraphone with no motor) whose patterns are played once only to call for movements to the next bar, much as in a Gamelan a drummer will audibly call for changes of pattern, or as the master drummer will call for changes of pattern in West African music. This is in contrast to the visual nods of the head used in earlier pieces of mine to call for changes. These visual cues were usually physically clumsy, and outside the music, distracting the player's attention from listening, and often creating wrong notes. Audible cues become part of the music and allow the musicians and singers to keep listening all the time.

Steve Reich 5/75

#### Steve Reich and Musicians

STEVE REICH was born October 3, 1936, in New York and raised in California and in New York. He graduated with honors in Philosophy from Cornell University in 1957, studied composition at the Juilliard School of Music from 1958 through 1961, and then received his M. A. in music in 1963 from Mills College in California where he studied with Darius Milhaud and Luciano Berio.

In 1966 he began his own ensemble with three musicians. Since that time he has performed his music with this group, Steve Reich and Musicians, now grown to twelve throughout the United States and western Europe. In 1971 the premiere performances of a one and half hour long composition, Drumming, were presented at The Museum of Modern Art, Brooklyn Academy of Music, and Town Hall. Also in 1971 Phase Patterns was performed in Pierre Boulez's first series of Prospective Encounter concerts, and Four Organs was performed with Michael Tilson Thomas, Steve Reich, and members of the Boston Symphony Orchestra at Symphony Hall in Boston. This latter performance was repeated in New York at Carnegie Hall in 1973.

He has published scores and/or articles in the New York Times, John Cage's Notations, the Anti-Illusion catalog of the Whitney Museum of American Art, Source Magazine, Aspen Magazine, the German quarterly Interfunktionen, and the French quarterly VH-101 and Attitudes. His book of collected essays, Writings about Music was published by New York University Press in 1974.

His recordings include Come Out released by CBS Odyssey records in 1967, It's Gonna Rain and Violin Phase released by Columbia records in 1969, Phase Patterns and Four Organs released by the small French label Shandar in 1971, a limited edition recording of Drumming with complete score produced by the

art publisher Multiples in New York in 1972, another recording of Four Organs released by Angel-EMI records in 1973, and a three record set including Drumming, Six Pianos and Music for Mallet Instruments, Voices and Organ released by Deutsche Grammophon in January 1975.

He collaborated with Laura Dean presenting concerts of music and dance in Berlin, Bremen, Pamplona, Rome and New York in 1972 and '73. During the summer of 1970 with the help of a travel grant from the Institute of International Education he studied drumming with a master drummer of the Ewe tribe at the Institute for African Studies in Ghana. During the summer of 1973 he studied Balinese Gamelan Semar Pegulingan with a Balinese teacher at the American Society for Eastern Arts Summer Program at the University of Washington. In 1974 he was awarded grants from the National Endowment for the Arts, the New York State Council on the Arts, and was an artist in residence in Berlin at the invitation of the D. A. A. D.

RUSSEL HARTENBERGER was born on July 21, 1944 in Watonga, Oklahoma. He received a M. M. in percussion from Curtis Institute under Fred D. Hinger, an M. M. in percussion from Catholic University under Alan Abel, and a Ph. D. in Ethnomusicology from Wesleyan University while studying African drumming with Abraham Adzenyah, Javanese gamelan with Prawotosaputro, mrdangam with Ramnad V. Raghavan and tabla with Sharda Sahai. During the summer of 1971 he studied African drumming in Ghana. He has performed with the orchestras of Oklahoma City, Puerto Rico, New Haven, the Philadelphia Lyric Opera, and the Marlboro Music Festival. He is presently a member of the percussion ensemble Nexus, and works at the World Drumming Center at Wesleyan University.

STEVE CHAMBERS was born July 21, 1941 in Dallas, Texas and raised in Louisiana. He studied piano with Edgar Davis at the University of Southwestern Louisiana, and with Mildred Dasset and Robert Goldsand at the Manhattan School of Music. Besides playing with Steve Reich and Musicians since 1969, he has accompanied choreographer/dancer Laura Dean, and performed with composer Philip Glass. At present he is an architecture student at the Cooper Union in New York City.

JAMES LEE PREISS was born October 17, 1941, in Shakopee, Minnesota. He attended the Eastman School of Music, where he received his Bachelor of Music degree in 1963. From 1963 to 1967 he performed with the U. S. Marine Band as timpanist and marimba soloist. He was appointed to the faculty of the High School of Music and Art in New York in 1969, and to the faculty of the Manhattan School of Music in 1970. He has performed as percussionist with the Eastman Wind Ensemble, Eastman Philharmonia, American Wind Symphony, Philadelphia Composer's Forum, the American Percussion Ensemble, and the Manhattan Percussion Ensemble. At present he performs on a free-lance basis in the New York City area.

BOB BECKER was born on June 22, 1947 in Allentown, Pennsylvania. He received his Bachelor's and Master's degrees from the Eastman School of Music, and is presently completing a Ph. D. in World Music at Wesleyan University. He has been a student of Javanese Gamelan with Prawotosaputro and Sumarsam, and is studying Ghanian drumming with Abraham Adzenyah, tabla with Sharda Sahai, and mrdangam with Ramnad Raghavan. He has been percussionist and timpanist at the Marlboro Music Festival and presently performs with the World Band, and the percussion ensemble Nexus.

GLEN VELLEZ was born October 5, 1949 in Dallas, Texas, and began studying mallet instruments at the age of 15. He is presently a percussion major specializing in mallet instruments at the Manhattan School of Music, studying with Fred Hinger. During 1968 through 1971 he was a member of the U. S. Army Band stationed at Worms, West Germany. From 1971 to '72 he was with the ETC theatre company of LaMama, and toured Europe with them during the summer of 1972 performing in Vienna, Amsterdam and Spoleto.

JAY CLAYTON was born on October 28, 1941 in Youngstown, Ohio. She studied music at St. Louis Institute and later at Miami University (Ohio). She and her husband, drummer Frank Clayton, have produced a series of "Jazz at The Loft" concerts in New York. She has recorded the music of Marc Levin, Garrett List and Steve Reich, and has performed with Ran Blake, Alvin Curran and Jeanne Lee. Currently she is a member of a new jazz group called Unity.

PAMELA WOOD FRALLEY was born March 29, 1944 in San Francisco and spent her early years in Richmond, Virginia. She began studying piano with her mother at the age of 3. She graduated summa cum laude from the Howard University School of Music. She has studied voice in Boston with Donna Roll and David Blair McClosky since 1969. Since 1970 she has been Director of the Department of Music Theory and Education at the Elma Lewis School of Music at the National Center of Afro-American Artists in Boston. In 1972 she was runner-up in the New England Regional Auditions of the Metropolitan Opera Company. Besides appearing in several network television broadcasts, she sang in the American Revolution Bicentennial Commission film, "We Hold These Truths", to be distributed in 1976. She appeared as soloist in Bach's Cantata No. 51 with the North Shore Philharmonic in Lynn, Massachusetts in 1975. She performed in Steve Reich's Music for Mallet Instruments, Voices and Organ with the Boston Symphony, conducted by Michael Tilson Thomas in January 1974, and joined the present ensemble later that year.

LESLIE SCOTT was born February 27 1937 in Corinth, Mississippi. He received his B. S. from the Juilliard School of Music in 1959, and a M. M. degree from Washington University in St. Louis in 1970. During that time he studied clarinet and flute, but also plays saxophone, recorder, and other baroque and renaissance wind instruments. He has performed with the St. Louis Symphony as a member of the clarinet section 1959-65, and has also performed with the New York Philharmonic, the Little Orchestra Society, the New York City Ballet Orchestra, Oliver Nelson, Charlie Mingus, and several Broadway shows.

RICHARD COHEN was born in 1946 in St. Louis, Missouri. His musical training included study at the Mannes College of Music in New York City. He has worked extensively with the LaMama Experimental Theater Co., including two European tours. He also worked with Peter Brook in the International Center for Theater Research, and has played with various orchestras and ensembles. He presently teaches on the music faculty of Stevenson high school.

SHEM GIBBORY was born in Utica, New York in 1956 and started the study of the violin at the age of four under the direction of his older brother, Yenoin. Later continuing his studies under John Masters, Marjorie Hogg, Romuald Tecco, Yoko Matsuda, Joachim Chassman, and Ivan Galamian. He is currently studying with Broadus Erle, Professor of Violin at Yale University. Graduating in 1974 from the California Institute of the Arts, he has had extensive experience in the performance of both the Classical and Contemporary repertoire.

KEN ISHII was born in Los Angeles. He studied cello with Cesare Pascarella and Joel Krosnick. He was recipient of the first place Coleman Chamber Music Award. He graduated from the California Institute of the Arts with a B. F. A. in 1974. He has performed at the Aspen Music Festival and Alexander Schneider's New York String Orchestra. He is presently continuing his cello studies with Joel Krosnick in New York.

DAVID VAN TIEGHEM was born on April 21, 1955 in Washington D. C. He studied percussion privately with Justin DiCiochio from 1971-73, having been self-taught for 4 years previously. He has been a student of Paul Price at the Manhattan School of Music since 1973 where he performs in the Manhattan Percussion Ensemble. During the summer of 1972 he toured Europe as percussionist with the American Youth Symphony of Winds. He is presently a member of an experimental sound and movement company called "Footnotes", and also performs with Quog Music-Theatre, and with Judith Scott's A/P improvisation group and dance company.

GARY SCHALLL was born on March 1, 1955 in Brooklyn, New York. He is now attending the Manhattan School of Music and studying percussion with James Preiss. He has also studied and performed with the Brooklyn College Percussion Ensemble under the direction of Morris Lang. In the summer of 1973 he performed with this ensemble on a State Department tour of Roumania. He is currently playing with the Manhattan Percussion Ensemble under the direction of Paul Price.

NURIT TILLES was born in New York City on May 29, 1952. Preparatory studies at Juilliard, 1961-68. Received the Bachelor of Music degree in piano from Oberlin Conservatory, 1973. Studied tabla and Sundanese gamelan and first performed with Steve Reich at the Center for World Music in Berkeley, summer of 1974. Currently studying piano with Gilbert Kalish and working with a recently formed piano trio.

LARRY KARUSH was born in Chicago, October 6, 1946. He began studying music seriously in the San Francisco Bay Area in 1968.

JOHANA ARNOLD, mezzo soprano, was born on March 11, 1950 in San Francisco. She studied both voice and piano at the Oberlin Conservatory, graduating in May 1974 with a Bachelor of Music and Masters of Music Theatre degree. At Oberlin she appeared with the Chamber Orchestra as soloist in Toch's Chinese Flute, and as the sprechstimme in Schoenberg's Pierrot Lunaire. She worked with the Oberlin Music Theatre appearing as "elle" in Poulenc's La Voix Humaine, the wife in Menotti's TamuTamu, and as Mrs. Higgins in My Fair Lady. She attended Tanglewood in the summer of 1974 and again performed Pierrot Lunaire, this time under Gilbert Kalish's direction. In September 1974 she moved to New York and has performed with Arthur Weisberg and the Contemporary Chamber Ensemble as soloist in George Crumb's Night of the Four Moons. Last February she appeared as soloist in the Ruth Crawford Retrospective presented by the Performer's Committee for 20th Century Music. She is also working with the New Structures Ensemble.

GEORDIE ARNOLD was born in San Francisco on July 17, 1950. She studied composition at Sarah Lawrence College with Edmund Haines and Joseph Spiegelman, at the San Francisco Conservatory with Robert Moran and Ivan Tcherepnin, and at Wesleyan University with Alvin Lucier. Since the age of

16, she has studied voice on both coasts, and currently studies with Richard Donhue in Cromwell, Connecticut. She has studied Pesinden (vocal music) of Java and Sunda. This spring she gave a new music concert including work by Ives, Berg, Cage, Crumb, Denver and Lucier at the Wesleyan Center for the Arts. She has also performed as a cabaret singer specializing in jazz of the 30's and 40's.

NANCY ELAN was born in 1951 in New York. She received her Bachelor's and Master's degrees from the Juilliard School studying with Margaret Pardee and Ivan Galamian. Presently she is a fellowship student working with Paul Zukofsky at the State University of New York at Stony Brook. She was concertmistress of the Spoleto Festival's 1974 production of Lulu, has worked with the Juilliard Ensemble, Light Fantastic Players and the New Structures Ensemble.

JOEL PITCHON was born in 1955 in Brooklyn, New York. He began studying music at the piano at an early age. At twelve he started violin lessons and continued his studies at the Juilliard Pre-College Division. He currently attends Purchase College, and studies with Oscar Shumsky.

MARIN ALSOP was born in 1956 in New York and began studying the violin at the age of eight at the Pre-College division of the Juilliard School. After six years with Margaret Pardee she continued her studies with David Nadian, former concert - master of the New York Philharmonic. Presently she is enrolled at Yale University, studying with Broadus Erle, Professor of Violin.