

SOUND

**AN EXHIBITION OF SOUND SCULPTURE
INSTRUMENT BUILDING
AND ACOUSTICALLY TUNED SPACES**

**LOS ANGELES INSTITUTE OF CONTEMPORARY ART
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CURATED BY ROBERT SMITH AND BOB WILHITE

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SEPTEMBER 30-NOVEMBER 18, 1979**

BOB BATES
ALEC BERNSTEIN
MICHAEL BREWSTER
JIM BURTON
EMMET CHAPMAN
IVOR DARREG
PAUL DE MARINIS
JOHN DUNCAN MICHAEL LE DONNE-BHENNET
RICHARD DUNLAP
JACK EDWARDS STEPHEN SCOTT BISH EDWARDS
DENNIS EVANS
BRUCE FIER
BILL FONTANA
LLYN FOULKES
TERRY FOX
ARTHUR FRICK
RON GEORGE
STEPHEN GOODMAN
JIM GORDON
JIM HOBART
DOUG HOLLIS
TOM JENKINS
MIKE KELLEY
CHRISTINA KUBISCH
RON KUIVILA
JOAN LA BARBARA
ALVIN LUCIER
TOM MARIONI
GERALD OSHITA
WILL PARSONS GRACE BELL
JIM POMEROY
SUSAN RAWCLIFFE
TOM RECCHION
PRENT RODGERS
STEPHAN VON HUENE
YOSHIMASA WADA
RICHARD WATERS
BOB WILHITE
KAREN WOLFF WILLIAM KINGSBURY

That sound should find such easy acceptance as a medium for the visual artists assembled in this exhibition is persuasive testimony to the powers of appropriation now exercised by contemporary art forms. Artists use whatever they feel is needed as medium; their appetite for new means and dimensions seems to grow concomitantly with the scientific exploration of space, both intergalactic and sub-particle. From our vantage the hybridization of painting and sculpture, begun early in this century with collage and assemblage, appears almost tame by comparison with the insatiable fusion of music, constructions and narrative, invented by the Dadaists in the years immediately following World War I. That fusion has since fueled any number of revivals of performance-oriented "art." The immediate forebears of a good part of the work included here are Oldenburg's and Kaprow's "happenings" of nearly twenty years ago. Their progeny range from Vito Acconci and Laurie Anderson to Tom Marioni. Common to all the work of this genre is the artist's central presence as performer. The principal instrument, more often than not, is the voice. The work's content is fundamentally literary and self-descriptive. A separate, but comparable in its dependence on performance, group can be considered more object-oriented. These are artists who build instruments meant to accommodate analysis both in an inert, sculptural, and in an active, sound-producing, condition: Bob Wilhite, Jim Pomeroy, or Tom Recchion for example. I mention these three because they employ sound in an abstract, deliberately nonmusical way in their work. Their instrument-making peers, by contrast, are very interested in creating music: Susan Rawcliffe, Bob Bates, or Emmet Chapman come to mind. It is precisely here, at the intention to either make or to avoid music, that the artists in this exhibition diverge, irreconcilably. For the musicians, form must follow function. For the others (and these are the artists most likely to have trained as painters and sculptors), function — any sound-making — is subordinate to form.

Yet another style is evident as well. In it, abstract, architectural situations are either built or isolated for uncommonly close attention, in order to enforce an experience of perceptual revision. Michael Brewster, Bill Fontana, Karen Wolff and William Kingsbury work in this mode. Actual spatial definition being their shared intent, they are most logically thought of as sculptors using sound.

But in a wider sense nearly all of the artists shown (or heard) here are sculptors. The instruments they make and the sounds the instruments produce occupy three-dimensional space. The theoretical antecedents for this kind of radically reduced sculpture of inferred mass are found in the work, mostly accomplished in the early and mid-1960s, of such minimalists as Don Judd, Robert Morris, Barry LeVa and Carl Andre. These artists' fundamental reliance on unadorned materials and abstraction based on architectural context almost forced a reaction that would counterpropose elaborate use of erstaz materials and expressionist

form patterning and decoration and/or theatrical uses of architecture — performance art and its instrument making. The work of such tableau builders as Donna Dennis, Alice Aycock, Michael McMillon, et al. are a parallel, if somewhat more traditional, manifestation of the same reaction.

In his investigations of the past seven years or so Michael Brewster has attempted to depict the volumes of a series of particular spaces, usually cubical interiors, in other than visual ways. His "clicker drawings" of a few years ago, consisting of active, randomly sounding mechanical clickers buried and camouflaged at various points in the walls, established his style as an essentially linear one. The snip of the clickers moved quickly from one to the other in a sort of concert the dots drawing. With the introduction of amplifiers in installations at Baxter Gallery, Cal Tech and the La Jolla Museum of Contemporary Art, Brewster expanded his lines to planar configurations by consciously manipulating standing waves. Most recently at Cirrus Gallery, Los Angeles he reverted to a single sound emitter within the wall, which made a cackling noise that rippled across the face of the four walls of the room — an aural analogue to a line drawing of the perimeter of the space.

Bill Fontana, a musically-trained artist working in San Francisco, recalls Brewster in his concern for delineating mass through sound, but Fontana has developed an altogether more tolerant, almost figurative, style. Recording ambient sound — vehicles crossing a wooden bridge or the natural cacophony of a rain forest affected by a solar eclipse — Fontana displaces ambience by using his recorded sounds outside their indigenous settings. His method resembles collage in its radical alteration of context, and in its essentially planar quality. His tapes stimulate visualizations beyond our normal sensate reactions; the eclipse moves like a hovering plane above the rain forest, temporarily quieting it. In other pieces Fontana reasserts his planar composition by using time-delayed noise sequences in a predetermined layering over one another.

In a work realized at Morgan Thomas Gallery, Los Angeles in 1977, Karen Wolff and William Kingsbury abridged both linear and planar elements. Eight rectangular dry wall slabs were arranged, obliquely and symmetrically, toward a single upright slab. This central slab served as sounding board for a consistent noise emitted through one set of four side pieces, deflecting it through the remaining four.

All of this work takes the isolation and manipulation of a single sense, hearing, as its subject. Perception itself is scrutinized for inherent meaning. By removing any object of focus, sound acquires tactile qualities. In defining the volume of a space at hand (Brewster), space as recreated in a recording (Fontana), or of an intentionally constructed space (Wolff & Kingsbury), we are obliged to learn spatial fullness and confines more intimately than ever before.

Faced with an object, formal questions on how a thing looks, and why, arise. That they must function in other than a preeminently visual manner precludes appraising most of these instruments by the same critical standards as one might sculpture in general. These contraptions must do something, and they are for the most part more akin to Rube Goldberg than to Brancusi or David Smith. Their roots are found in folk art and where "necessity-is-mother-of-invention." Jim Hobart confesses his maraca instrument — an assemblage of bottles, stones, and bicycle tire on wood — came to him while repairing one of his bike's tires. Prent Rodgers' "aeromembranophone" is a peanut butter jar with a balloon membrane stretched across it. Tom Recchion's contrivances are even more consciously "dumb," a favored avant-garde attitude since the 1920s. In his *Run Bar* a wooden dowel is affixed at right angles to a bamboo tube and "played" by running or walking with the dowel end to the ground. Similarly, the *Nail Shoe*, with its nails protruding downward from a plywood base strapped to shoes, makes sounds as the nails scrape across the floor.

Susan Rawcliffe's baked and painted clay pipes, "ocarinas," have a decidedly anthropological air to them. The instruments, which resemble one known to us as a "sweet potato," were common possessions in pre-Columbian Central American cultures. Tom Jenkins' hand-made wooden tops are another adaptation of folk culture. When spinning, his pieces produce an amazing variety of pitches.

Bob Bates' development during the past four years from painter to instrument-maker and musician is characteristic of the evolution of all the artists in this exhibition. Bates was dissatisfied with the static, unavoidably historical nature of painting as enforced on students of art. His introduction to playing music, by means of a simple pipe recorder, proved exhilarating and addictive. With practice he taught himself a rudimentary tonal structure, then, as a surrogate for accompaniment, he built a pendulum-operated bowing machine with a single string and coffee-can resonator. Set up on wooden stilts to human height and carefully constructed with an eye to exploiting the natural beauties of simple materials, Bates' *Solo Drum* resembles nothing so much as an H.C. Westermann sculpture, as do the two more complicated machines he has since built. Their construction has completely supplanted his painting, although his considerable drawing skills still find an outlet in the relatively complex working drawings necessary to the machines — the *Converter*, the *Fuser* and a yet untitled work. His *Fuser* allows two players, each working a treadle turning a drum that rubs a single string, to produce a range of fluctuating, rather shrill tones from its two sets of forty keys. The mechanism is supported by a pair of highly polished, gently splayed metal tubes, all the working parts beautifully crafted woods and wood laminates. Bates' careful attention to the instruments' finish is directly attributable to his training as a visual artist, something equally true of Stephen

Goodman's and Dennis Evans' meticulously finished instruments.

That Bates insists on building everything he uses, so that his instruments are home-made aggregates, underscores an instinctive empiricism common to most of the artists in the show. Most of them have consciously side-stepped western musical tradition in order to reinvent instruments and tonal systems uniquely their own; they have chosen to reinvent the wheel, musically speaking. The more theoretically-minded, such as Ivor Darreg, have worked out alternative systems of organizing and producing sounds. As with all forms of the avant-garde this resistant, skeptical aesthetic avoids a priori formulations, but unlike the plastic arts, where interpretation itself can constitute a style, music is a fixed repertoire of sounds; interpretation is limited to technique only.

Either to circumvent this limitation or because they are unabashed tinkerers at heart, such artists as Jim Pomeroy, Paul De Marinis and Alec Bernstein employ preexistent sound-makers in their work. Pomeroy's piece *Mozart's Moog*, for example, combines the musical parts of several wind-up music boxes in a single instrument where any combination of melodies, by Ravel, Gershwin, Tchaikovsky and a host of others, can be played and amplified. A tinny Beethoven tune coexists beside a rock-and-roll classic, an artificial synthesis resulting in music to go mad by. Pomeroy's taste for corny puns animates his work, which, beneath its veneer of satire, embodies a fascination with mixing and hybridizing simple technologies.

Subverting technology is one of Paul De Marinis' methods as well. A music theoretician employing state-of-the-art electronics, he chooses to produce parodistically uncomplicated electronic melodies. His *Pygmy Gamelan*, a four unit micro-music-maker, plays, synthesizes and amplifies computer-age sound.

Uncomplicated sound generators — single string instruments — enlarged to architectural proportions are common to Doug Hollis' wind harps and Terry Fox's environmental string installations. Hollis' *Aolian Harp*, installed on the roof of San Francisco's Exploratorium, uses stainless steel concave ellipses to funnel wind against taut wire strings. The tones resulting from the friction are amplified through a network of guy wires connected to a cluster of circular stainless speakers. The fluctuating resonance of the wind and the sculptural ensemble of the metal apparatus creates unusually eidetic images for this medium. Fox employs resonating wire strings in such works as *552 steps through 11 pairs of strings*. As set up in his former studio in San Francisco, the long strings of a floor-anchored instrument produced a pulsating, space-filling range of tones when struck by Fox. The floor in this case operated as a resonator. The sound's effect was introspective, and more concerned with psychic, as opposed to purely physical, space — not unlike the role of bells in religious ceremony.

Richard Dunlap is committed to both music and painting, and to their independent existences within his oeuvre. In both activities his strong sense of visual composition is paramount. Dunlap's *Air Columns in C and G*, installed last year at the Santa Barbara Museum of Art, was made up of sixteen varying lengths of pipe suspended by wires in front of a wall at angles calculated to produce different pitches when blown into. Its aural capabilities aside, the pipe and wire arrangement combined to make a fine drawing in space.

The ahistoricism and rough logics that nurture many of the other instrument-makers in this exhibition are gently satirized in Bob Wilhite's elegant pieces. Built mostly as part of a series of theatrical ensembles, in collaboration with another Los Angeles artist, Guy de Cointet, Wilhite's instruments sustain attention as modernist sculpture. For the play *Ethiopia*, Wilhite fashioned a cone, cube, and sphere that contained respectively, bass fiddle strings, a player piano suction pump and bagpipe reeds, and a tangle of telephone bells. Wilhite's acknowledgement of the forms of Cézanne was a covert simultaneous tribute to string, wind, and percussion. Within the context of the plays' earnestly nonsensical deliveries, Wilhite's instruments are used as a counterpoint to the actors' voices, and work as a sort of chorus. One particularly interesting piece, a waist-high black cube with a protruding tubular piece, represents a factory — its constant drone activated by human proximity. Here Wilhite proposes sound as locator. Subsequently Wilhite and Cointet collaborated on a large-scale outdoor production seen against the Churiguèresque facade of a building at Cal Tech, where Wilhite sought to cloak human presence by dressing the instrumentalists in black hooded costumes. For this production, *Ramona*, the accompaniment was reduced to a very minimal set of three gongs — a circle, square, and a triangle. Wilhite brought together his entire instrumental output for a concert, dubbed "Chinese Cocktail," at the San Francisco Art Institute, 1978. His latest pieces have been furniture-like painted constructions, reminiscent of *Reitveld*, which seem to portend a more traditional and exclusively sculptural direction for his future work.

Tom Marioni's various performances have often featured sound components. His drumming on paper, which itself results in a drawing, is directed toward mesmerizing his audience so that he can communicate with them telepathically.

The success of Mike Kelley's carefully scripted and elaborate slapstick pieces depends largely on his incantatory powers. His is a mesmerization using repeated key phrases. Kelley's deductive logic is patently absurd, but by conforming to notions of rational behavior his antics assume wide, metaphorical meaning. So with his props or instruments, such as the "Perspectophone" or the "Moaning Drum." His peculiar inspired combinations of words assume larger than poetic dimensions by Kelley's uninflected droning delivery —

they seem maniacally prophetic. The instruments are similarly uninflected, mostly producing a single sound. In this conjured landscape of flat, aural expanses, every verbal or musical incident becomes singular, unassailable, revelatory.

Anatomically, we are given two relatively easily trained physical media for self-expression, the voice and the hands. Typically the visual arts have relied exclusively on manual facilities. In "Sound" we are confronted with a variety of attempts to multiply the powers of both aural and visual communicators. In its insistent disregard for the traditional boundaries of the arts, the ambition is a relatively new one. But at their best, the results are timeless.

An "ability" to assemble historical substantiation for nearly any position may eventually come to be seen as the common denominator of our period. Painting and sculpture seem to work from an additive model of history, so that with time, successive styles couple onto one another, box-car-like. From outside the discipline, it appears a predeterminism is at work; from inside, the challenge of invention is practically overwhelming. Another view of history might be likened to a cross-section cut. In it, empiricism powers intelligence toward an introspective center. Every artist is taken to be a microcosmic distillation of time, his or her work comparable to a layered section — slices of varying depths from the shared body of self-expression.

Both positions, as well as a good dose of ahistoricism, are present here. All are vital, as the sounds heard and seen in this exhibition attest.

Richard Armstrong

The age of specialization is losing its grip on our thinking. As contemporary philosophers and social analysts insist, our world is becoming more and more diversified, multi-experiential, and simultaneous. Phenomena manifest themselves beside, inside, or around one another. Traditional causal logic and all forms of linear, stepwise reasoning and acting have become — well, not obsolete so much as just not enough.

In this burgeoning age of fluidity, artists — always the heralds of social change — have been expanding the range of their own activities. To supplement (not to replace) the traditional media, vanguard artists from all disciplines have been exploring the areas of potential activity existing between these media. As the roster of "traditional" lively arts has been expanded to include industrial-age media — photography, cinema, video — many new intermediate regions are opened for artists to examine. Between dance and film, for instance, choreographers and filmmakers can collaborate or, individually, borrow one another's materials, techniques, and approaches. Painters and poets can join forces to produce illustrated books, or they may share ideas and come up with visual poetry and artists' bookworks. Happenings, performance art, conceptual art, environmental and installation art, documentation art using written texts, photos, movies, TV, and so many other permutations and combinations of the arts already exist as forms of intermedia, not just combining, but serving to fuse, the various arts' heretofore exclusive domains.

Current musical art combines current musical practices with current visual concerns. But it has its origins in earlier attempts to blend the two media. There are numerous examples of creative individuals who, although noted especially for their work in one art form, were proficient in another. Arnold Schoenberg, Austrian inventor of the twelve-tone method of musical composition, painted in the expressionist manner of his artist friends. Erik Satie, musical collaborator with many of the *École de Paris* greats, was a deft draughtsman and caricaturist. American pioneer experimentalist composer Carl Ruggles took his oils and watercolors seriously. By the same token, such diverse artists as Henri Rousseau, Marcel Duchamp, Kurt Schwitters and the American Synchronist Morgan Russell composed music. Several records have recently appeared featuring interpretations of Duchamp's *Erratum musicale* and the musical version of *The Bride Stripped Bare by Her Bachelors Even*.¹ Schwitters composed several pieces for the piano; more importantly, his *Sonata in Uhrlauten* was designed as a sonata in true classical form, consisting of four movements and including an introduction, a coda, and a fourth-movement cadenza. Markings indicating pitch, tempo, and dynamics run in a column alongside the stanzas. I say "stanzas" because the *Ursonate* is a poem, a fully written-out poem of nonsense words and syllables.

At one point in his career Russell devised a system equating the

twelve tones of the western musical scale with subdivisions of the color wheel. Such a system of color-pitch equivalents typified a tendency in early twentieth century aesthetics, which sought to establish and formalize relationships between the senses and, by extension, the artistic media. The Russian composer Alexander Scriabin was one of many people to build a "color organ" that projected hues when its keys — corresponding to musical notes — were depressed. Thomas Wilfred was another to work on such a machine, and his famous *Lumia Suite* of shifting light projections is programmed in time along musical structures of thematic development. Wassily Kandinsky, for his part, postulated a pitch-color equation that led to his stage play, *The Yellow Sound*.

These experiments in synesthesia influenced the avant-garde movements of the post-Victorian era, but the Futurists, Constructivists, and Dadaists throughout Europe did not seek tables of sensory exchange rates so much as they sought to express their dynamic world views in as complete a range of media as possible. Futurist painter Luigi Russolo built a battery of *intonarumori*, mechanical noisemakers — howlers, cracklers, roars, bubblers, etc. — for which he and others wrote concert scores. The 1912 opera *Victory Over the Sun* blended abstract decor, abstract music and the abstract language called *Zbun*, which Russian Futurist writers and painters had devised. Similarly, the post-revolutionary *Concert for Factory Whistles*, conducted from a rooftop by a man with semaphore flags, was composed by several writers and artists. Dutch composer Jacob van Domselaer conceived of a musical equivalent for the neo-plastic art of his friend Piet Mondrian, and the American "bad boy of music," George Antheil, was a member of Mondrian's group *de Stijl* for a time.

Antheil's piece de scandale, the *Ballet Mecanique* scored for eight pianos, four player pianos, an armada of percussion instruments and an airplane propeller, was written for the soundtrack to Fernand Leger's film of the same name and emulated its ostinato rhythms and cyclic themes. Satie also wrote music for artists' films, specifically Rene Clair's and Francis Picabia's *Entr'acte* which starred, among others, Duchamp and Man Ray. When German-born Dadaist-Surrealist Hans Richter put together his film *Dreams that Money Can Buy* in New York in the 1940s, he solicited scenarios from artists such as Leger, Ray and Duchamp, and music from composers like Darius Milhaud and John Cage.

John Cage is the creative personality from whom most postwar music-art hybrids — and most other kinds of intermedia — generate. He is the outstanding link between the generations of European avant-gardists who experimented in many media and the intermedialists, in America and in Europe, who have grown so spectacularly in number and influence over the last two decades. Cage, a student of Schoenberg's who was influenced by the wry attitudes and works of Satie and Duchamp — and by extensive

study of Oriental religions, notably Zen Buddhism — has associated from the outset of his career with visual artists and dancers more than with other musicians. Cage has long been attracted by visual formats and by the time-space realm occupied by the dance; in turn, artists and dancers have been far more responsive than musicians to the radicality of Cage's experiments. Cage's collaboration with his choreographic counterpart Merce Cunningham goes back over thirty years, and has incorporated the talents of many visual artists, including Robert Rauschenberg, Robert Morris, Frank Stella, and the current artistic director of the Cunningham Dance Company, Jasper Johns.

The group of nonacademic American composers who gathered around Cage in New York in the early 1950s was comprised of people who also preferred the company of artistic coevals. Morton Feldman, Earle Brown, Christian Wolff, David Tudor and the others were on intimate terms with many of the Abstract Expressionists; among Feldman's compositions are ones dedicated to Willem de Kooning, Mark Rothko (the inaugural music for the Rothko Chapel in Houston), Philip Guston, and the late poet, critic and curator Frank O'Hara; while Brown's oeuvre includes a work for percussion quartet that uses a Calder mobile as an instrument and conductor!

It was Brown who, towards the end of 1952, developed a method for notating the kind of nonspecific, indeterminate composition he, Cage, and the others were writing. "My basic background is jazz," says Brown, "Improvisation is a very natural thing for me. I want to activate improvisation in classically-minded musicians, and the less I notate it exactly, the more feedback comes out of the performers." In successive works from his *Folio*, Brown composed without rests, then ran the bar lines together, and, in *December*, 1952, realized a score that did not specify what instruments were to play, what notes were to be played, or how long the notes — and thus the whole piece — was to last. He considered these "values" to be relative, to be decided by the performers and applied to the page of thick and thin vertical and horizontal bars. The resemblance to visual art was no accident in the work of a composer who, in an important essay on form, cites examples and notations by artists and critics, e.g., Jackson Pollock and Lawrence Alloway, but hardly so much as mentions another composer by name!²

In the '50s John Cage provided a galvanizing force for other experimental, art-minded musicians like Brown, and as a teacher, inspired a whole younger generation of artistic polymaths. During the later '50s Cage taught a course, ostensibly in composition, at the New School for Social Research in New York. In this class Cage encouraged his students not to be intimidated by traditional divisions between the arts; if a nascent work seemed more like visual art or poetry or dance, that was no reason not to "compose" it. As Happenings artist Al Hansen recalls, Cage "was quite sure that someone who was going to take his course must have studied

some kind of music somewhere before, but no matter how many different hooks he could think of, I didn't fit on any of them. As he began to run out of things, he became more and more delighted and his face began to hang open in the smile that I've come to love so much . . ." By the end of the course, Hansen, who had originally enrolled as a filmmaker following Eisenstein's dictum that "all the art forms meet in the film frame," came to realize "that all art forms do not meet in the film frame, but in the eyeball. In the head of the observer, for better or worse."⁴

Cage's class was attended by painters, poets, dancers, dramatists and even a few musicians. The seeds of Happenings, conceptual art, and most other forms of Intermedia in America were sown in this class. Among those attending were Dick Higgins, the artist-writer-composer who coined the term "intermedia" and championed it with his *Something Else Press* — America's first artist's-book publisher — in the '60s; Jackson Mac Low, whose performance-poetry includes musical passages; George Brecht, whose conceptual compositions exemplify the wry, restrained intermedia of the FLUXUS aesthetic; and Allan Kaprow, known as the inventor of the Happening. In fact, Kaprow coined the term "Happening" and formulated its multi-art dynamic, not long after attending Cage's class; it was Cage himself who, with David Tudor, Merce Cunningham, Robert Rauschenberg, poet Charles Olson and others, mounted what could be considered the first true Happening, at Black Mountain College in 1952.

In Europe, too, the '50s and early '60s were fertile times for the interaction of art and music. Many artists tried their hands at composing, utilizing especially the tape recorder and other new techniques of electroacoustic music-making. Jean Dubuffet, Karel Appel, Asger Jorn, Yaacov Agam, and Nicholas Schoffer are among the better-known artists who have created their own tape music. Greek-born composer Iannis Xenakis was Le Corbusier's assistant in the designing and building of the Philips Pavilion at the 1958 Brussels World Fair. With the emergence of the nouveaux realistes toward the end of the '50s, music, along with art and literature, enjoyed its first intermedial orientation in Europe. Yves Klein, the most audacious of these "new realists," realized a *Symphonie monotone* — a single note played for ten minutes, followed by ten minutes of silence — which might or might not have stolen a beat (as it were) from Cage's 4'33", the infamous silent piece for piano. The *Symphonie monotone* certainly did prefigure the mantric drones of La Monte Young.

"New realist" music continues in Europe. Mauricio Kagel, an Argentinian living in Germany, has developed a musical performance style which emphasizes exotic devices and often almost vaudevillian sight gags. Italian Giuseppe Chiari performs piano concerts in which he twits conventional concert stylizations by gesticulating, abusing the piano, and otherwise parodying the

histrionic conceits of the recital stage. Joseph Beuys has given "concerts" of extended chanting, lecturing, and manipulation of objects. And so on.

The frequent presence of Cage and his circle in Europe in the late '50s and early '60s was an important factor in maintaining the intermedial nouveau realiste spirit there throughout the succeeding decade. Another factor was the increasingly frequent visits during the '60s of Cage's American legateses. These inheritors, direct and indirect, of Cage's attitudes, coalesced into a loose-knit movement that emerged in New York around 1960. The "new spirit" of this movement received its impetus not only from Cage's students, but from non-New York dancers, writers, filmmakers, artists, and musicians of similar bent. A sizeable group of Californians — including dancers Simone Forti and Yvonne Rainer, artists Walter de Maria and Robert Morris, and musicians La Monte Young and Terry Riley — made their way east, bringing with them the spirit and practice of a multi-artistic community influenced by the ironies and open-minded spirit of Zen. Also participating in the "new spirit" were several expatriate Japanese, veterans or acolytes of the intermedial Japanese Gutai and Ongaku groups. Music, rather than static or physically kinetic art, came to be the *lingua franca* of this movement. But in concerts given at downtown lofts such as Yoko Ono's, at certain uptown galleries, and in their publications, the artists of the new spirit expanded the definition of music to include any action or state that indicated a heightened awareness of the real, unbound by time space. The "score" to Ono's *Wall Piece for Orchestra*, for example, contains one line of verbal instruction:

● Hit a wall with your head

Similarly succinct musical works were conceived by Young, whose *Compositions 1960* include a fifth interval "to be held for a very long time"; the instruction "Draw a straight line and follow it"; a little card with a straight line on it; and the statement, "This piece is little whirlpools out in the middle of the ocean."⁵ George Brecht's similar card scores (illustrated) are even more devastatingly concise:

CONCERTO FOR CLARINET
nearly

By the time George Maciunas had begun publishing a similar kind of work under the rubric "FLUXUS," many of its principal practitioners were already moving in other, if related, directions. But the name "FLUXUS," indicating change, mutability, and infinite possibility, came in its aptness to be a handy label for this new mentality. Maciunas (who died last year), Brecht and others have formed to this day a constantly shifting, sometimes almost dormant, but more and more pervasive FLUXUS alliance. Maciunas, Dick Higgins and Alison Knowles brought FLUXUS spirit and practice to Europe in 1962. Like their mentors before them, the Fluxists found far greater responsiveness there than here. For the Europeans'

part, FLUXUS provided not only a name, but something of a unified aesthetic, through which those post-nouveau realistes of similar spirit but divergent method could cooperate.

The Korean Nam June Paik, who had been studying music in Germany, was profoundly influenced by Cage at the turn of the decade. His example opened up Paik's mind to the possibility of action-music, music not as sound but as gesture, wherein destroying a piano is considered to be as valid and effective as playing it (it is playing it) and pouring water over oneself is thought to be as musical as a sonata. Paik's mind broadened enough to include — in fact, to conceive of — the idea of music, or some sort of art, made with television. Paik's subsequent experiments with screen and reception manipulation led him to become the "father of video art," a distinction he continues to live up to with his crazy, entertaining video devices and environments. Paik, who moved to New York in 1964, also continues his involvement with FLUXUS-related music, giving concerts and devising new performance pieces for his equally dogged colleague, cellist Charlotte Moorman. For her part, Moorman has brought intermedia to the masses with her annual Avant-Garde Festivals, held in New York since 1963 and in public spaces — Central Park, the Staten Island Ferry, Shea Stadium, the World Trade Center — since 1966.

The spirit of intermedia propagated by Cage and the FLUXUS artists gave rise during the 1960s to such phenomena as the ONCE Festival, a yearly multimedia presentation at the University of Michigan in Ann Arbor featuring music, film, abstract and dramatic movement, light and kinetic art. Operated by several experimental musicians, the ONCE Festival in turn not only spawned such intermedial groups as the Sonic Arts Union, but contributed to the strobe-lit be-in Zeitgeist of the late '60s. Also later that decade, the boundaries between the avant-garde scenes in music and art in England became increasingly fuzzy with the efforts of Cornelius Cardew, John Tilbury, and other young composers who came increasingly to seek a music that was accessible to nonspecialists, even untrained ones. The indeterminate, nonspecifying formats of FLUXUS compositions seemed to provide a way of bringing students to an understanding of how things can and might work without insisting that things must work that way.

In England, Ann Arbor, and most other places, intermedialists found that the most responsive audiences were not in the conservatories and concert halls, but in the art schools and galleries. It has become a truism of our age that the visual art audience can tolerate experimental formats much more readily than can its musical and literary counterparts. The modular music of Steve Reich and Phil Glass, for instance, pure music but coming directly out of the expanded musical attitudes that informed pre-FLUXUS composers like Young and Riley, attract crowds when played in museums, but send subscription audiences fleeing when Michael Tilson Thomas

or the Metropolitan Opera House mount performances of it.

One result of this open acceptance in the art world of new musical and fused musical-artistic forms is the emergence of musical art of all kinds. Another result is the increasing involvement of galleries and other visual-art support organizations in the promulgation of new music and musical art. The now-defunct Bykert Gallery, for example, was the principal support source of New York's Chatham Square Records, a company that makes the music of Glass and other modular and modular-related composers available on disc. The active or tacit support of galleries continues to support such newly-emerging ventures as 110 Records, the first album which will feature sound works by over a dozen visual artists.

All this activity in New York signals the arrival of musical art as the newest experimental format in this format-hungry city. Like artists in Europe and in California, New York artists have found musicians in their midst and like it that way. Even those artists who do not create their own equally-measured fusion of music and visual art have been utilizing music as supplementary and occasionally alternative modes to their usual visual-tactile output. Vito Acconci finds that the music of turn-of-the-century avant-gardist Charles Ives helps establish the right dramatic tension and irony in his brooding videotapes and ominous installations. Lawrence Weiner has come to include music as one of many elements in his own highly cerebral videotapes and recordings. Joan Jonas' and Julia Heyward's accurate or improvised recollections of childhood songs flavor their performances with a sweet nostalgic tinge. Jacki Apple's present-tense autobiographical environments have begun to include her own popular-style songs. The prolix Art-Language group has issued a recent version of its increasingly Marxist statements and analyses as a record of painfully, but honestly and unadornedly, sung ditties.

Popular, as well as classical or experimental, musical modes have also attracted visual artists. Most confine their involvement to ardent concert attendance — with perhaps a record jacket design here and there (Richard Hamilton's for the Beatles and Rolling Stones come to mind) — but more than a few have taken matters into their own hands, with impressive results. Larry Rivers, Larry Poons, and Walter de Maria all established reputations as accomplished jazz musicians some twenty years ago; more recently, the Artists' Jazz Band from Toronto has featured the sonic skills of Michael Snow. Jim Dine has written and even recorded pop songs in collaboration with fellow painter Rory McEwen and, of course, it was under Andy Warhol's aegis that the Velvet Underground formed in the mid-1960s and went on to change the course of rock music. Many of the Punk/New Wave/No Wave inheritors of the Underground — including some of the conceptually and sonically most innovative — have art studio rather than recording studio training. But this only follows an old pattern in which art students such as Brian Eno,

Peter Townshend, and John Lennon blew their art careers by spending their time playing in rock and roll clubs.

Frequenting art circles has its effects on the lives and outlooks of musicians, too. Jon Gibson and Dickie Landry, two members of Phil Glass's ensemble who are outstanding composer-performers in their own right, have also taken up visual forms. Landry began by making videotapes from his solo performances; more recently, he has produced a series of exquisite drawings on vellum that evolve from video images. Gibson's drawings have evolved structurally from his own solo compositions.

"When I began dealing with music in a very formalistic way, I became interested in my compositions as structure as well as sound," says Gibson. "The visuals are not scores, but represent just one aspect of the musical work, a skeletal image relating to the structure or process."

At first Gibson would present these black and white, geometrically-patterned drawings as slides along with his performances, exploiting their visual resemblance to piano rolls as a way of demonstrating structures to the audience. Now, however, Gibson presents the designs as self-sufficient drawings, and has even produced a suite of silkscreens.

Composers have not only been invading the traditional realm of visual artists, but are reclaiming some of the performance-art area for their own. Connie Beckley, who was studying musicology at Hunter College only two years ago, has for the past several years been creating performances, usually solo, where the elements are kept simple — "I have a strong aversion to sloppiness and clutter" — and dramatically lit, "controlling the environment and directing the audience's attention to the sound and action."

"Many of my works," Beckley attests, "are about determining an orderly process — a momentum which suggests direction — and following through on this momentum with a twist that determines an actual time span."

That twist in each of Beckley's works keeps the audience aware of the piece as an event unfolding in time, not just the predictable, implicitly optional, realization of a concept. For example, in her concert at the Kitchen in New York last March, Beckley presented a work entitled *Showdown*, in which she and a tape recorder faced each other across the length of the space. Beckley and the machine were attached to one another by a rope on a pulley and were brightly spotlighted in a room otherwise dark except for another spot falling on the midpoint between the two. As Beckley walked toward that midpoint, the tape deck was pulled towards it, too; as she and the deck approached each other, her wordless singing descended in a gradual, continuous arc, while the tape of her voice on the machine, originally two octaves lower, ascended. It was obvious that the two would be emitting the same note at the midpoint. But at

the midpoint, just as they reached union, Beckley stopped singing and a speaker at her point of origin took up where she left off. The spatial position of her voice was suddenly relocated, while Beckley herself, continuing to pull, did not change her relative location.

Christina Kubisch, a German-born musician now living in Milan, has entered the region of performance-art in the last few years, often in collaboration with Italian artist Fabrizio Plessi. Kubisch devised several pieces that combine, often comically, playing conventional instruments with the use of incongruous devices. In her *Emergency Solos*, 1975, Kubisch plays the flute with her hands clad in mittens ("Silent Night"), boxing gloves ("Break"), and thimbles ("It's so Touchy"), as well as playing through a gas mask ("Weekend") and adding an inflatable plastic sausage ("Variations") and a prophylactic ("Erotika") to the end of the flute. Her exploitation of sexual devices continued in the 1975 *Vibrations*, where she applied vibrators to the instruments in a string quartet. This last device reappeared in *Two X Two*, a four-part work Kubisch and Plessi presented throughout Europe in 1977 and 1978. Separated from the audience by a row of eight video monitors, which show close-ups of their actions, Kubisch and Plessi hum through a flute, bring a radio near to and away from a microphone, train a garden hose on a steel drum, and indulge in other burlesque gestures. As funny as these activities are, they bear symbolic import — the four natural elements are represented by the four pieces — and they have been devised to produce new and unusual sounds.

Not surprisingly, sound usually seems to play an important part in the art-performance work of people who are or once were musicians. The solo body works of Charlemagne Palestine relate to his solo piano performances in the demands on his strength and ability to concentrate. They also explore the same principles of overtone and sympathetic resonance that Palestine deals with in his vibrant, thunderous piano concerts: as Palestine walks, or runs about a space, humming with his mouth open, closed, or buried in his hands, he changes the tone and the luster of the note(s).

Jim Burton, who has invented such intriguing musical instruments as the "springed instrument" — an amplified spring struck with a mallet — and who plays with a SoHo-based country band called the *Prairie Oysters*, recently premiered his vaudeville monologues during a "residency" at the summer arts program in the old Custom House near Battery Park in Manhattan. Although sound is not Burton's principal concern, his sensitivity to sound and sound-producing devices is evident in pieces like his physics lecture, which ends with the old mousetraps-and-ping-pong-balls demonstration of a chain reaction.

William Hellermann, once a composer of nonintermedial electronic music, began to experiment with the sounds produced by the guitar while in residency at the American Academy in Rome. Since his return to New York, Hellermann has given several concerts where

he has built conceptual and theater pieces around the "prepared guitar." Hellermann, perhaps influenced by the meditative, participatory musics of Philip Corner, has also moved into less instrument-oriented performances. Hellermann prompts his spectators to lie on the floor with their heads underneath little umbrellas, and he walks around dropping water on the umbrellas, encouraging everyone to concentrate on the sound.

Other musicians moving into performance-art include John Zorn, jazz musician and creator of the intimate, object-oriented "Theater of Musical Optics," and a loosely-associated group of New Yorkers whose schooling and residency in California in the early '70s exposed them to currents and counter-currents of new musical, artistic, and literary ideas. Jill Kroesen, composer and writer, has created several lightly-conceived but informally-presented theater pieces. Beth Anderson also combines literature with sound in her art, moving into the realm of sound poetry. Peter Gordon, an organizing force behind the SoHo rock orchestra *Love of Life*, has presented talk-sound pieces as low-key, personal, rambling, and funny — if not as thematically ambitious — as Kroesen's.

Gordon, a versatile musician, has been one of the players in the loose amalgam of instrumentalists — hardly a "band" — that back up Laurie Anderson. Anderson, known for her autobiographically narrative performances, was trained as a classical violinist, and uses the violin in many of her accounts — not like an artworld Henry Youngman, punctuating her monologues with scrapes on the fiddle, but incorporating, even focusing her stories on the instrument. Partly as a result of her increasingly informal association with professional musicians, and partly out of a feeling that she's talked enough about her own life, Anderson has moved into a less personalized area of musical and verbal invention. She has moved into songwriting — her *Songs for Lines/Songs for Waves* all have humorous lyrics pertaining to ethics, aesthetics, and other social phenomena — and her new instrumental inventions have become a preoccupation. These can be as sophisticated as the use of the new Slow Scan Video to generate sounds and images at once. (Slow Scan Video, as Anderson explains, "is a system that doesn't use videotape. The camera looks at something, codes it into sound, and translates this directly into a visual image.") Or, it can be a device as simple as the "tape violin," where the bow is strung with a strip of recording tape and is run across a tape head on the amplified violin which plays the tape backwards and forwards.

The fact that instruments comprise a certain class — in fact several classes — of what might be called "sculpture" has been lost neither on visual artists nor on musicians. The course of instrumental invention in this century has been jarred fortuitously off course by artists' attempts at fabricating sound-producing devices and musicians' attempts to devise new instruments whose physical and

aural presence addresses aesthetic concerns. In the 1930s and '40s the hobo-musician Harry Partch fashioned a whole new orchestra out of carved wood and discarded metal and glass objects in order to perform his music written in a 43-tone (rather than standard 12-tone) scale. The grace, elegance and personalized craft of these instruments lends them sculptural as well as sonic resonance. The ensemble of interactively sonant glass and stainless steel structures that Bernard and Francois Baschet built in France in the early 1960s has justifiably been seen and heard in art galleries far more frequently than in concert halls. Likewise, the wood and metal percussion objects of Lucia Dlugoszewski, the hanging glass "forest" of Anna Lockwood, and the sail-like "steel cellos" of Robert Rutman go back at least a decade.

Like sculptural instruments, sounding sculptures have acquired a pedigree since the Second World War. Frederick Kiesler and Gyora Novak have been among those who exploited the fact that their brass or steel pieces could be struck to produce attractive tones. Until his death last year Harry Bertoia welded clusters of vertical brass rods which emit shimmering clangors when stroked. Many other postwar artists have utilized some form of electrically operated mechanism to include sound in their work. Among the best known of these are Bruce Conner's wall assemblage, *Tick Tock Jelly Clock Cosmotron*, which incorporates a tape recorder, and *Oracle*, the five-part junk sculpture made by Robert Rauschenberg in 1965. Like earlier of Rauschenberg's combines, *Oracle* incorporates environmentally responsive radio cells; unlike the earlier works, *Oracle*'s sound components operate on an elaborate system of feedback triggering. This and other electronically activated devices of Rauschenberg's — many realized in cooperation with Billy Kluver and the Experiments in Art and Technology Foundation in the 1960s — stand halfway between the robot-like music machines, which FLUXUS artist Joe Jones has been fabricating since the early '60s and the sophisticated electronic sound-emission devices that James Seawright, Howard Jones, the Palsa group at Yale, USCO, and other individuals and groups originally devised in the flurry of art-and-technology research a decade ago.

These days, sound-producing structures combine simplicity and complexity, both technical and conceptual. Bob Wilhite has invented a very simple one-string device — an odd kind of monotone zither — which he has played not in live concert, but in a radio show broadcast from an art gallery. In the last year or so Wilhite has made large geometric sculptures as the sets for performance-plays by Guy de Cointet; when moved or otherwise manipulated, these sculptures produce sounds, and de Cointet has worked these sounds into the continuity of his theater pieces.

David Askevold has created equally odd stringed instruments,

resembling zithers, which are activated by combinations of suspended steel balls and, ideally at least, suspended snakes. David Jacob's *Wah Wah* sculptures inflate and deflate, giving out a wide variety of sounds as they writhe. Jacobs's more sober *Hanging Pieces* provide a limited variety of sound-types, but these rubber pillars, reminiscent of Brancusi's *Endless Column*, are capable of a wide range of tones and overtones.

Stephan von Huene, a California sculptor, has spent the last decade building mechanically complex sculptures — musical machines. These have incorporated organ pipes, player piano parts, vacuum cleaner motors, pneumatic valves, perforated recording tape, photosensitive cells, and, more recently, glass piping. The vertical chambers in each of the five *Totem Tones* through which the air, organ-like, is pumped, have beveled caps at their apertures, and evoke different overtones. In certain of the *Totem Tones* the central, largest chamber also has a membrane containing BBs that provide percussive accompaniment. The simply-named *Drum*, which von Huene built with composer James Tenney in 1975, is an entirely percussive machine. The rotating circular disc contains programs for three of Tenney's compositions, and operates a bellows-driven vacuum motor, which in turn manipulates a circle of mallets poised over a tympanum.

There is a great deal of interest in sonic installation on the west coast, part of an interest in the subtle manipulation of space, light, and time. The most active maker of such soundpieces is probably Los Angeles artist Michael Brewster, who works both indoors and outdoors. For an exhibition April 1977 at New York's Artists Space, he embedded several speakers in the walls of the smaller room and programmed the speakers to emit little clicks in a random but interactive pattern, while in the large room Brewster suspended a single large speaker which emitted a single low (92 Hps) sinusoidal tone. The tone filled the room, not with a uniform drone, but creating pockets of greater and lesser intensity.

Brewster achieved much the same thing in a pedestrian tunnel underneath a road near the beach in San Francisco January 1977. The diffusion of the sound (85 Hps this time) outside beyond the tunnel, however, and the infusion of the whoosh of passing cars and the roar of the surf, modified the sound, depending on the listener's vantage. These and other of Brewster's works do not operate, according to him, from any musical standpoint, rather, he has always been concerned with space. While working with visual pieces, especially scattered light sculptures that functioned like barricade flashers, Brewster found that "you could only see 210° of the activity, no matter how good your vantage was, because of the limits of your vision. Then I realized that you could hear everything." Brewster hooked up the relay of electromagnetic switches to the tuning circuit of his light apparatus and came up with the random clicks, which he calls a "Clicker Drawing."

"Since I began working in this fashion," claims Brewster, "I can hear space — echoes, etc. It's not something I've refined, but it's developing. It's like the sonar acuity that blind people develop."

In New York the pioneer sound-environmentalist has been Max Neuhaus, who evolved towards the installation format after abandoning his career as a percussionist in the middle '60s. Neuhaus created a series of electronic devices that altered sonic input, devices ranging from the transistor-radio-like *Max-Feed* to the telephone works, *Public Supply* and *Telephone Access*. In *Public Supply* callers contributed sounds to a vast polyphony broadcast for several hours over a local radio station, while in *Telephone Access* callers spoke a word into the phone and, moments later, heard that word transformed by the responding mechanism into something entirely different. Neuhaus's more recent, spatial pieces began with the 1967 *Drive-in Music*, described by the composer — er, artist — as "many small, low-powered radio transmitters set up along a mile of roadway, each one transmitting a weather-sensitive sound. Because they were low-power, each one had just a specific area where it could be received. As people drove along, they heard the piece, and depending on how they drove, how fast, whether they stopped, or what the weather conditions were, they had a different sound." *Walkthrough*, installed at a public building in Brooklyn in 1973, was also modified by the weather, which acted upon the patterns of delicate clicks given off by the 22 loudspeakers scattered about the site. In *Water Whistle*, a system of plastic hoses was rigged to a machine that sent water through them at high pressure. Whistles were attached to the hoses; the water pressure activated the whistles, but only in other water. Installed in pools, *Water Whistle* provided a sonic experience that changed in pitch and intensity as each listener swam about.

Other sound-installation artists active in New York are Marvin Torfield and Liz Phillips. Torfield's large, clean structures, shown at the Whitney Museum and Harvard University, serve simply to reflect sound, to cast the sound that viewers-listeners make back at them, or to deflect such sounds — and sounds fed into the structures by the artist — so that they are heard as if the sound source were immediately nearby. Phillips, closer in philosophy and technology to Neuhaus, makes environmental soundworks the patterns of whose electronically generated sounds are activated and modified by the viewers themselves. In *Broken/Unbroken Terracotta*, a piece exhibited at the Kitchen, at the Wadsworth Atheneum in Hartford, Connecticut, and at Mills College in Oakland, California, metallic forms, placed on the wall, floor, and ceiling, are hooked into the continuous sound source. These forms are sensitized to human presence, so that nearing or touching them changes the sounds, often rather drastically. This description vastly oversimplifies the sophisticated electronic infrastructure of *Broken/Unbroken Terracotta* — and that piece seems child's play

next to *City Flow*, the work Phillips installed in the street-level plaza of New York's City University Graduate Center in April. This piece, active 24 hours a day, included among its sound sources the amplified sounds of the outside traffic, and it was modified not only by human presences, but by a hook-up to the sonic scanners which read traffic patterns for the New York City Traffic Department.

Phillips describes the work as reflecting "a city in motion, dynamically transforming itself, changing its speed and direction of flow around the clock. An electronic system open to the environment, *City Flow* not only coexists comfortably with its surroundings, but in large measure is carved out of its surroundings, in much the same way a sculptor extracts a shape from a wooden log."

In contrast to these musical presences, presenting sound as an almost physical phenomenon, the scoring of distinctly temporal events remains another means of creating musical art, as well as traditional music. The "look" of the score has become infinitely more varied in the last two decades. The idea of nontraditional, graphically-oriented notation introduced by Earle Brown has now become accepted worldwide, practiced in varying manners by thousands of composers. There have been numerous exhibitions of these often visually striking scores, and many composers employing graphic notation have made the leap from them to outright visual (if usually performable) artwork.

John Cage, pages of whose original manuscripts are sold as artworks, realized a series of plastic panels engraved with cascades of fragmented words and letters. These *Plexigrams*, made with Calvin Sumison as multiples, are dedicated to the memory of Duchamp, but their verbal content is drawn from the writings of Henry David Thoreau. The drawings of that cantankerous American philosopher provided the graphic material for Cage's recent *Renga*, in which he scattered Thoreau's sketches and diagrams across striated horizontal paths and added the merest musical notations. *Renga* was coincidentally seen (at the Museum of Modern Art) and heard (at Avery Fisher Hall) in New York in the winter of 1978.

Austrian composer Roman Haubenstock-Ramati published a suite of lithographs in which a graphic image, its forms vaguely resembling the notes in a traditional score, was subjected to a series of overlaid coloristic and formal permutations. Michel Magne, a Frenchman whose "musique visuelle" — in essence sonic cartoons drawn out on music paper for performance — led him to work with leading French painters in the 1950s and compose the music for over 100 French films (including *Belle du jour* and *La ronde*).

The visual punning that goes on in Magne's "musique visuelle" scores — notes turning into little railroad trains, clouds clotting staves, "neutral zones" demarcated across whole bars — finds

equivalents in the drawings of the younger American composers Tom Johnson and William Hellermann. Johnson often uses his deft renderings of anthropomorphic musical notes to illustrate points made in his columns of music criticism in the *Village Voice*. He has collected some of these drawings in an entertaining volume of *Imaginary Music*. Hellermann, for his part, has exhibited his "eye scores" — and had them performed — in a New York gallery. Painstakingly drawn, Hellermann's "eye scores" make the surreality of the art-music meld explicit in a humorous manner. Sometimes the "eye scores" are sculptural, as in a tray of ersatz ice cubes, pieces of what seem to be musical notes embedded in them, entitled *Music Isn't Melted Architecture*. Harley Gaber, another composer exploring graphic idioms, has exhibited freely-drawn, almost abstract expressionist scores, plus silkscreened images of Schoenberg, over which Gaber jotted numerical configurations relating to the 12-tone compositional system.

An artist who has brought visual art, music, and literature together into an almost seamless *Gesamtkunstwerk* is the English Tom Phillips. Phillips, best known for the impressive range and brilliant wit of his visual work, has also participated since the late 1960s in FLUXUS-oriented musical activity in his country. References to Brahms, Schumann, and other, often rather obscure composers abound in Phillips's paintings, drawings, collages, and prints — as they do in his partly notated, partly graphic, partly conceptual scores. Phillips's *magnum-opus* is an ongoing manipulation of a rather banal late 19th century novel called *A Human Document*. After Phillips's myriad graphic treatments, which serve to obscure most of the words on each page amid pools of vivid color, the text is transformed into *A Humument*, another story told in a fragmented, but ultimately logical, sequential text. Parts of *A Humument* have been further transformed — or, rather, designated — by Phillips as an "opera," called *Irma*.

A musical score that looks like a Mondrian. One-word instructions for concert pieces. A room full of clicking. Rock and country bands in art-performances. Musicians playing sculpture. An artist playing a flute through a gas mask. A fragmentary opera gleaned from the words of a sodden Victorian novel. All these things and more comprise the breadth of contemporary research into the fusion of art and music — a fusion that is as old as the century, but is constantly being rediscovered as a potent alternative to the same old formats, the same old ways of thinking.

The tendency has lately even taken on the trappings of a trend. As with any intermedium, however, the fusion of art and music is not a mere fad; although some artists may move into it and out of it as if it were just another fashion, the implications and potential of this interface are far too great to fade with the waning of a few style-chasers' interest. On all levels of thinking, from the most mechanistically technical to the most abstrusely theoretical, an

intermedium lying between visual art and music just keeps blossoming with promise.

Peter Frank

¹ *The Entire Musical Work of Marcel Duchamp*, ("The Bride Stripped Bare by Her Bachelors Even, Erratum Musical," "Erratum Musical 1913," and "Musical Sculpture") performed by the S.E.M. Ensemble, (Milan: Multhipla Records n.1., 1976).

"The Bride Stripped Bare by Her Bachelors Even, Erratum Musical" (with "27'10.554" for a Percussionist" by John Cage) performed by percussionist Donald Kneack, (New York: Finnadar Records SR 9017, 1977). Side one.

² Earle Brown, "On Form in New Music," *Darmstädter Beiträge zur Neuen Musik* X, 1966, pp. 57-69.

³ Al Hansen, *A Primer of Happenings & Time/Space Art*, (New York: Something Else Press, Inc. 1965), pp. 93-94.

⁴ Ibid.

⁵ La Monte Young, *An Anthology*, La Monte Young, ed., (New York: n.p., 1963).

⁶ Max Neuhaus, In conversation with Hittner, (Amy. n. p., 1973).

XENHARMONICS: EXPLORING MICROTONAL RESOURCES

This story made the rounds of Hollywood a few years ago:

"Do you like modern music?"

"Well maybe — but it won't ever take the place of the old-fashioned earache!"

Sometimes the pop bands scare people by playing so loud, and a few of the more serious avant-gardists have used painfully loud sounds on occasion. That's one way of trying to extend the musical vocabulary — go the limit in both soft and loud — but that limit is soon reached. Nothing new about that, really: Liszt was famous for breaking piano strings and hammers in public. I got myself a pair of potent earmuffs disguised as headphones, for such emergencies.

For most of the 20th Century, *atonality* has been the accepted method for musical explorers. As all the chords and patterns within the classical harmony and key-system were used up, composers sought ever more pungent dissonances, finally reaching the tone-clusters — whole fistfuls of adjacent piano-keys — of Cowell and others. With myriads of composers exploring every nook and cranny of the conventional musical field for centuries, it became more and more difficult to find something that had not been done before while still obeying the classical rules of harmony and counterpoint.

Schoenberg and his successors, concerned lest total abandonment of those rules lead to chaos and anarchy, tried to invent Systems, which would impose new kinds of form and order upon the music. Unfortunately, the structure and order imposed by such systems as 12-tone Serialism is far more evident to the reader of the printed score than it is to listeners of the actual sounds of performing such a score. Each interval or combination of musical tones has a smooth or rough resultant wave-pattern in the air, which we hear as consonance or dissonance or something in between, and any system that ignores the physical facts is going to be less expressive and more limited in its vocabulary.

It is easy enough to write serial 12-tone music that *looks* novel, but very difficult indeed to write some which *sounds* different enough to be worth all the trouble. For one thing, it is necessary to avoid all the patterns of conventional "tonal" music, i.e. the harmonies of the usual key-system, as much as possible. This restricts the emotional range, making some critics refer to serialism and other premeditated atonality as "music in cold blood."

One way to escape this impasse would be to go in for unpitched and indefinitely-pitched sounds: the noise-music of the Futurists and the variegated effects in *musique concrète*, the old and new percussions of the present day, and new electronic resources of this genre. Some effective pieces of this kind have been done lately.

But I mentioned "microtones" at the beginning, and now I referred

to *twelve-tone* atonality and serialism. What's 12 got to do with it? All down through the years, people have told me: "I thought there were 8 tones in an octave — doesn't 'octave' mean 'eight'?" Then someone else will say: "Aren't there *seven* notes in the scale: do re mi fa sol la ti?" So when I try to tell them about the 12 pitch-classes in ordinary music and the 12 as 7 white and 5 black keys on the keyboard and 12 frets per octave on guitars, they get confused and seldom wait to hear me out. Even professional musicians usually believe that the 12-tone equally-tempered scale is the *ONLY* equal temperament there is. So much serious misinformation is taught on that subject that I despair of ever setting it right.

Nevertheless, before I can tell you anything about non-twelve-tone music I have to explain: *Why* twelve? Bluntly, because it's cheaper. Twelve pitches per octave is the least expensive and least complicated tuning-system that can furnish tolerable music on certain conventional instruments. On the organ keyboard, every interval except the octave (yes, octave does mean 8 — 8 inclusively-counted degrees on the staff or 8 successive white keys on the keyboard; and this originated as an aid to singing) is out of tune. On the piano keyboard, even the octaves themselves are slightly stretched, because of the nature of piano strings. "Tempered" might almost be respelled as "tampered with" — to make-do with only 12 pitches per octave, one must distort the ratios of the musical intervals from their ideal theoretical values.

Inevitably, these distorted intervals (the major third such as C to E, and the major sixth such as C to A on the piano are too sharp) create an overall general effect of restlessness and harshness. This is to some extent subconscious, and the piano has evolved in such a way as to conceal it partially — the tones die away; and one instinctively plays fast to help conceal it. On the organ one pulls out the tremulant stop to cover it up. Why have we put up with the 12-tone system for over two centuries? (1) Back in the old days, composers had not mined it to exhaustion — there was room then for everybody to do his or her own thing. (2) For almost 200 years, the piano has been the principal instrument, and it is not practicable to make piano actions any narrower (to squeeze more notes into an octave) than they are already — the hammers etc. would be too flimsy. Furthermore, the design of the piano had to be frozen in order to affordably manufacture them in quantity. (3) Piano and organ tuners learn a stereotyped routine that is difficult to acquire, and they would almost all refuse to learn more routines to tune other systems. (4) Manufacturers and engineers and teachers and tuners are never told why the 12-tone system is standard, and they wouldn't care anyway! What a composer might want to try, cannot prevail against such a hidebound Establishment.

Just recently, all that has changed. Electronic organs and synthesizers do not have the piano's mechanical limitations. Guitars can be fretted to other scales at nominal cost. All kinds of electronic

precision tuning devices are on the market, and better still, there are instruments with their own automatic tuning built right in, or it can be programmed in, computer-style.

You can't make your own piano at home — it was designed for mass production in factories. But you can make your own electronic organ or harpsichord or clavichord or guitar; and with the growth of the do-it-yourself and handicraft movements the BUILDING of musical instruments as well as the playing of them is returning to the individual at home, where it belongs.

Near the top of the list of innovators in recent memory stands the late Harry Partch, who against fierce and fanatical opposition persisted for years and years, developing a new musical system and building the instruments to make it possible, then painstakingly training the performers to put on theatrical spectacles. Truly, he did it the hard way; but this has made things much easier for us who come after him. He rejected all temperaments for a just or untempered tuning, and for his particular scheme of composing, chose a set of 43 unequally-spaced tones. (This has been misunderstood so often that I have to emphasize: these pitches are *unequally* spaced through each octave; they are justly-intoned, which means all their intervals have exact integer ratios. His 43-tone scale does not sound like 43-tone equal temperament; indeed it sounds more like 41-tone equal temperament, or some other equal system with a larger number of tones.)

Just intonation, or the pure or untempered scale, does not have to be laid out in Partch's individual way. There are dozens of possibly just systems. Its value is that exact-ratio intervals have a restful, calm, unruffled smoothness, creating a mood impossible in the 12-tone system. With new electronic equipment and calculations, great precision of tuning is now available to the average experimenter. I don't have to overplead the case for serene harmonies to soothe people in these agitated troubled times. To hear just tuning is persuasion enough.

But we human beings have a wide range of emotions to express. There are storms and yearnings and passions and searchings; there are nameless feelings hard to put in words, and there are peculiarly musical emotions also. The unruffled calm of the just scale cannot take care of everything. That is why the crusaders for untempered tuning in the last century — notably Hermann L.F. Helmholtz in his *Sensations of Tone* 101 years ago, and his English translator, Alexander John Ellis, who wrote his own book on the subject, but modestly called it an *Appendix* to Helmholtz's, didn't get very far. The Romantic Period in music was then at its height; the divorce between art and science was virtually complete, so the crusade for just intonation was cruelly misunderstood by writers on music ever since, who even to this day pour out polemics and ridicule every time the subject is brought up. I hope we can be wiser and more reasonable now.

It's also time to correct the nonsense copied slavishly from one book to another, about Bach having invented equal temperament (it was on fretted instruments long before him) and about the meantone temperament for keyboard instruments being incapable of functioning in distant keys like B major or G-flat major. Meantone temperament requires more than 12 tones per octave to play in a wide range of keys and if for mechanical and financial reasons the additional keys were not provided, discords were heard when G-sharp was used in place of A-flat, for example. This is no longer necessary today, since we have better instruments and many new possibilities at reasonable cost.

Nor is it necessary to abolish the 12-tone system, since it has moods of its own, which are still suitable for certain kinds of music: the restlessness of 12-tone temperament is appropriate for the storm-scene in an Italian opera or for a military band marching the soldiers from point A to point B. Certain atonal compositions are properly harsh and restless. But the 12-tone mood cannot be appraised unless one has SOMETHING ELSE TO CONTRAST IT WITH! The fish is not aware of the water unless and until he gets caught.

It was my good fortune a while ago to discover that certain of the non-12-tone tuning-systems had new moods of their own. This has been hinted at in the literature, but never stated openly, because experimenting with a variety of different tunings has been impossibly expensive until just lately. So if you are wondering, Why bother with microtones and xenharmonics (strange harmony), this is the good and sufficient reason: new ways of tuning instruments add greatly to the composer's vocabulary. Also, a great deal of existing music can be played in other systems, often enhancing its value.

There was no mathematical or theoretical way to predict these moods, much less to predict that any of them would have new values. Until now, all the arguments about scales and tunings and harmony have been purely on paper, and highly prejudiced. So long as the Piano was the Only Game in Town, and all composers were commanded to be pianists, and even the violins and trombones had to pretend they had 12-tone keyboards, and voice-teachers used a piano in the vain attempt to install 12-tone frets on our vocal cords, experiment was suppressed and laughed out of court. Now we have guitars and synthesizers and electronic organs, and electronic devices to replace the trained tuner, so the only obstacle facing us is the Piano's Ghost.

In fashionable computerese jargon, hardware is not subject to software. We can program instruments and people to any tuning we like. Design is unfrozen and free once more. Moreover we can now afford it.

Getting down to cases: Ervin Wilson has built many new instruments in a variety of scales. He encouraged me and a number

of other people to refret guitars. He has developed tubular metallophones in a variety of tunings, both just and tempered, particularly for the 31-tone equal temperament. Glen Prior has even presented his 31-tone compositions in public, and they collaborated to provide me with a 17-tone metallophone of this kind which is impressing visitors. I refretted a number of guitars to such systems as 17, 19, 22, 24, and 31 tones per octave, and have composed for them, and published an article which in turn is inducing others to refret and compose on their own.

Just intonation, as stated above, is calm and smooth and soothing. 17-tone equal temperament is brilliant to the point of harshness, with considerable clout. 19-tone temperament is aggressive and carries a great deal of zonk — it can jar people out of their 12-tone ruts almost instantly. Dr. M. Joel Mandelbaum wrote a thesis on Multiple Division of the Octave and happily produced a set of 9 frets for two pianos so tuned between them, which turned me on, back in the '60s. He is now composing in 31. The 22-tone system has an entirely different, somewhat more restful, mood than the 19 has. I have conducted several years of comparisons and interviews involving over 200 persons, with the result that there seem to be 'Nineteen' and 'Twenty-Two' types of personality: usually people are for one or the other and find it difficult to be impartial in this matter. 31 is very calm; it is also so close to the old meantone system that only under laboratory conditions is there any measurable difference. Thus 31-tone provides a needed bridge between Renaissance and Baroque keyboard music before Bach, and the present day, neatly getting around the immense amount of musical literature produced during the 19th century and then in the atonal/serial period. George Secor, with a special generalized keyboard for the Scalatron (a new kind of electronic organ that is also a polyphonic synthesizer) has composed in 31-tone as well as other systems; he has also evolved new temperaments, some of which are unequal. His keyboard is easy to learn and use despite its initial impression of complexity. Ervin Wilson has invented many keyboard designs. The Huygens-Fokker Foundation, based in the Netherlands, promotes 31-tone music and a special 31-tone organ called the Archiphone, with a different keyboard and layout. They have succeeded in having a number of contemporary composers embrace the 31 system.

Beyond the 31-tone system there are such temperaments as 34, 36, 41, 43, 50, 53, 65, 72 . . . as far as the imagination will stretch. I. E. Hanson has had a 53-tone metallophone built; the effect is very intriguing. Since keyboards may get unmanageable beyond 53, we may have to go to computers and automatic playing to explore the higher systems thoroughly.

Time for a little history. Music uses a surprising number of Ancient Greek words: tone, harmony, rhythm, melody, theme, chord, diapason, lyric, polyphony, tetrachord . . . and this is no accident.

Unfortunately some of these terms are not used with the ancient meanings, so there has been confusion. Relevant here: ENHARMONIC, which originally meant "suitable" or "fitting," i.e., "in harmony with." Then it came to mean a special configuration of the tetrachord (four strings, hence four notes in a scale) containing small intervals, approximately what is now called a quartertone. During the 19th century, an entirely different meaning was invented, "synonyms — two or more names for what is only one and the same pitch on 12-tone keyboard instruments, such as G-sharp and A-flat."

So, much as I would like to call much of the new music and instruments and tunings enharmonic, I can't; so I devised the term "xenharmonic" to refer to everything that does not sound like 12-tone equal temperament. This includes systems like 5, 7, 10, and 11 tone with larger intervals than our standard semitone — now you can't call them "microtones!" Xenos means "strange" in Greek; it also means "hospitable" — I hope we will become hospitable to new strange harmonies.

Caution: I mentioned the 22-tone equal temperament. This is not the same as the 22 srutis of the Hindu scale, which are quite unequal, and based on just tuning. There is only a slight cousinly resemblance between the equal and unequal 22-tone systems.

Quartertones or 24-tone equal temperament continues a notion that goes back to the ancients, and indeed many people think that this is all that lies beyond the ordinary twelve semitones. Earlier in this century and on into the '20s, a number of composers went to the trouble and expense of acquiring quartertone pianos, or using two pianos tuned a quartertone apart: Alois Hába, Ivan Vyshegradski, Julián Carrillo, Hans Barth, Charles Ives, and Mildred Couper. Why hasn't this set the world on fire?

The explanation lies in the tone-quality and physical constraints of the standard piano. Had the quartertone system been advocated in the clavichord and harpsichord era, the story might have come out very differently — but the piano evolved during the 19th century in just such a way as to make quartertone intervals and chords sound worse. The 7th and 11th harmonics upon which the brilliance and definition of the new quartertone intervals depends, were suppressed and almost eliminated from most piano tones. You can't jam twice as many keys and hammers and tones and strings into a piano's interior space. Doubling the tension on the frame would collapse it!

So what do you do? Either you pile two grand pianos one on top of the other, creating a nightmare monster (how dare you be so cruel to piano movers?), or you tune two pianos a quartertone apart and hire two pianists. In this second case you destroy the very soul of the piano, its crowning glory, which is the sympathetic resonance and reaction of all the strings through the soundingboard upon each

other. You convert a cooperative association of all those strings into two armed camps battling it out across the stage. The quartertones will sound even more like unwelcome intruders than they should. The fact that the two sets of 12 tones each are not related by any familiar intervals such as fifths or thirds is exaggerated to an intolerable extent.

So, if you would like to try quartertones, and they do have great melodic possibilities and can render the Greek enharmonic genus passably well, then do it on a harpsichord, a clavichord, violins, or a special organ or synthesizer. Forty years ago I composed in quartertones for the cello. Fretting guitars to quartertones is easy.

Since quartertones still contain the ordinary semitones, the restless mood of 12-tone remains and even increases; 24 is a divisible number like 12, which means that the patterns are too symmetrical, and cannot avoid certain clichés we already are tired of in 12-tone.

Third- and sixth-tones, as proposed by Busoni, Hába, and Carillo, share this fault. Some 18- and 36-tone compositions sound like warmed-over Debussy. (Debussy exploited the 6-tone or whole-tone system to the limit — everything in it since then is anticlimax.) The 8-tone scale within quartertones sounds much like the whole-tone scale, sharing that mood of vague dreaminess.

When systems such as 17 19 22 31 are adopted, there are new melodies, new chords, and new rules of harmony, different for each system. This automatically avoids clichés and affords variety. More and more information on non-twelve systems is being published.

Many people have tried non-12 and it works. I don't want my negative remarks about the limitations of 12-tone atonality and serialism to be taken as a blanket condemnation — this is a phase through which music necessarily had to go; and now great possibilities are open. Atonal music will be far more effective and worthwhile in inharmonic scales such as 13-tone or 11-tone or 23-tone temperament. Serialism can be applied to any tuning-system whatever — it is not restricted to the 12-tone keyboard.

Most music theorists have ignored the profound influence of timbre — tone-quality and overtone-proportions — upon the "rules" of harmony. Accordingly this is seldom taught composers and arrangers, even in books on orchestration! By choosing certain tone-qualities, it is possible to make any tuning-system sound excellent or horrible, at will. There has been too little control over tone-quality on conventional instruments, but this is changing. Those opposed to non-12 music can "doctor" the results by choosing this or that instrument with its timbre — so the musical world has too long been denied its rightful resources.

Musical notation and abstract purely-visual drawing have merged. There has been too much concentration on writing down all

compositions, as if we could do just as well if totally deaf. Recently, counter-movement featuring improvisation and spontaneity has surfaced. The tape-recorder is another aid which can preserve the music as spontaneously performed, and then the "clinkers" can be edited, without destroying any spontaneity. If I wish to express myself visually, I am fully capable of doing so — why should I disguise it or smuggle it in as "musical notation?"

There is no law against decorating and ornamenting one's instruments, or lighting up the stage, or using visual art on album covers or having it around while the music is going on. Just that they shouldn't be yoked tightly together like a team of cat-and-zebra.

While we are about it, the restriction to 12 tones per octave, and those 12 equally-spaced, is something like Paint-By-Number. All right for beginners, perhaps, but crippling to explorers and innovators. Just as the limited palette does not exercise our vision fully, the 12-tone scale does not use our hearing efficiently. It wears ruts and grooves overly deep while ignoring wonderful resources we aren't supposed even to desire. Unaware of what they are doing, jazz and rock musicians "bend" tones or play "blue" notes to use their hearing in a better way.

In examining some of the physical-mathematical-acoustical underpinning for just intonation, we must consider the Harmonic Series — the overtones or partials (although overtones and partials can also be inharmonic, or subharmonic in rare instances). Every normal musical tone is accompanied by subsidiary vibrations of twice, thrice, four times, etc. the frequency of the first harmonic or fundamental. There may also be noise and inharmonic partials. Some tones do not have harmonics, or their components are not harmonically related: clock-chimes, bells, certain drums and plucked reeds, xylophones, gongs, etc. Some tones do not have all the harmonics: clarinets, square-wave on synthesizers, stopped flutes on pipe-organs, etc. But it is possible for recording machines, amplifiers, fuzzboxes, and other apparatus to insert normal harmonics into tones lacking them.

Thus a normal musical tone from, for example, a cello or violin, trombone or trumpet contains a set of simple tones (a dull hum — like a tuning-fork or softly-played ocarina) which are harmonically-related and ordinarily fuse mentally into a compound tone possessing a characteristic "coloring" (hence the French word *timbre*). By training the attention, one can analyze a compound tone and actually hear the individual components, or at least one or two of them, that is, according to the listener's attitude and training, the same sound can be heard as one or several entities. A sung vowel can also be heard these two ways, and in a third way as a speech-sound such as OH or AW or EE. Our hearing has developed to meet the needs of speech-recognition. Incidentally, it

is also suitable for music. The combination of harmonics forms a chord, and these chords suggest harmony and scales, indirectly.

Jonathan Glasier and his collaborators in San Diego are becoming known as a new microtonal center; they build instruments, compose and improvise and teach. Recently they have been developing the concept of singing inharmonics — in such a way that the fundamental constitutes the bass to some tune, while the particular harmonic of the vocal tone that is accentuated at the moment is the melody. This is a novel approach to just intonation, using the instrument humans are "factory-equipped" with. The listeners must cooperate by training their attention in the right direction.

Normal musical tones must contain exact harmonics, but when these tones are tuned to a tempered scale, their harmonics interfere with those of other tones sounded with them, causing "beats" or "waves." Some tempered scales have good approximations to the Harmonic Series; others do not. We can change the effect of the music by choosing this or that tempered system, or not using temperament at all. In particular, the 12-tone equal temperament represents Harmonics 1 2 3 4 6 8 9 well, 5 and 10 poorly, and 7 and 11 not at all. If we want new harmonies and new chords, we are going to have to adopt systems that either are untempered or have good approximations to Harmonics 7 and 11, and possibly 13.

Sometimes melody is more important than harmony, or we really need atonality — no chords, no keys, just dissonant counterpoint all prickly and porcupinish — and in that case, will deliberately pick an inharmonic scale and/or abnormal tone-qualities with inharmonic partials. The whole continuum between pure tones and random noises is available to us. Why should noncomposers be allowed to tell us what not to compose? It's not a question of revolution — abolishing anything we already have, but of adding to it. It is not a question of evolution, gradual change, because normal changes have been stymied for two centuries. Rather it's a question of making up for that much lost time. The symphony orchestra is no longer a viable outlet for today's composers. The piano belongs to the 19th century. That doesn't mean, throw them out. It means, respect them for what they are, preservers of the dead past. And go on to new instruments and new ways of using existing ones.

Ivor Darreg

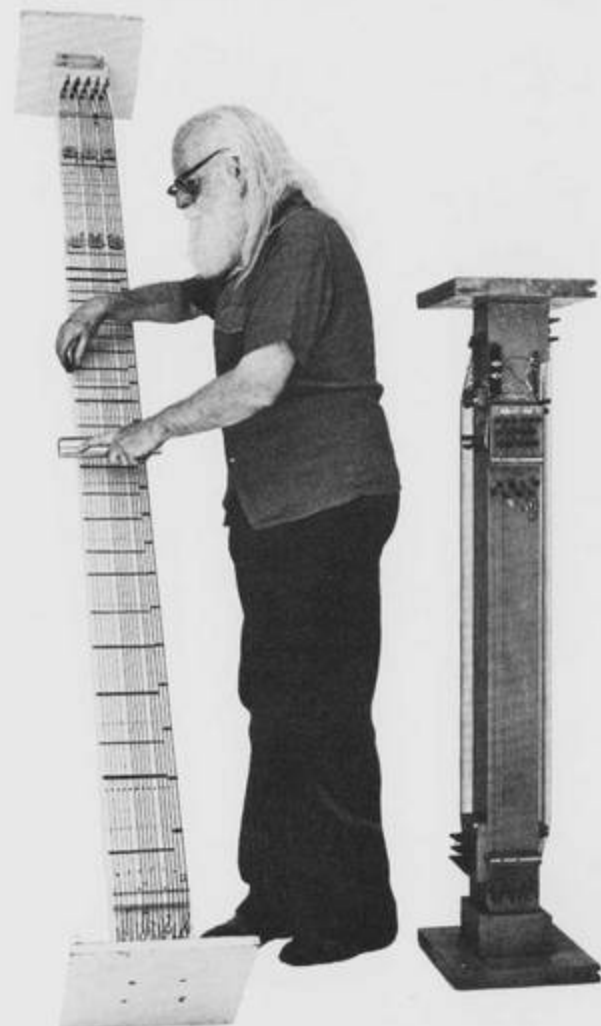
Born May 5, 1917, Portland, Oregon. Studied piano from age 7, later under Lucien Emil Becker and R. Arthur Johnson. Began violincello under Ferdinand Sorenson at age 14. Studied composition under Charles Wakefield Cadman, Glendale, California. Designed and built numerous instruments and completed over 120 compositions, edited improvisations and overdubbing in different tuning systems. Published *Xenharmonic Bulletin*, pamphlets on creativity and linguistics, audible communications, semantics and aesthetics. Constructed NUMAUDO, a syllable-code for speaking mathematics and symbolic logic. Currently performing in San Diego with the Microtonal Consort under direction of Jonathan Glasier, in various xenharmonic systems.

The ordinary musical tuning-system of 12 equally-spaced tones per octave has been exhausted by myriads of composers during the last few centuries. They have been repeating themselves and each other. Atonality, serialism, aleatory or chance music, and composing with noise have all been tried, only confirming the dead end.

The piano until recently has held the status quo in place. Now one can build electronic instruments, refret guitars, and resort to computers so that it is possible to hear and compose for "impossible" instruments. Tape recording eliminates the need for captive audiences in concert halls and saves everybody money and time.

Having tuned pianos and organs to 12-tone temperament for 40 years, I am tired of it and so I escaped; I built many instruments, refretted guitars, and made overdubbed tapes which I then copied for other people. Now I have collaborators, and in return I collaborate on the new magazine *Interval*, which deals with just intonation and new kinds of tempered tuning with more notes per octave. It is no longer necessary for me to risk sounding like 19th-century composers. Of course, I still play my early compositions on pianos to show that I went as far as I could go with conventional instruments and tuning. I am not destroying the past, but adding to it.

Among my instruments are: the amplifying Clavichord, 5-string amplifying cello, 17-tone metallophone (collaboration with Ervin Wilson and Glen Prior), Electronic Keyboard Oboe (detailed in Issue #3 of *Interval*), thereminvox, Electric Keyboard Drum, Guitars refretted to 17, 19, 22, 24, and 31 tones per octave (see *Guitar Player* February 1978 p. 24), Kosmolyra (4-sided steel-guitar instruments with just chords), Hobnailed Newel Post (4-sided steel with 16 strings per side), Megalyra (contrabass steel with different tunings on its two sides, and up to 8 feet long), and an electronic organ which can retune itself and can be put in several different scales.

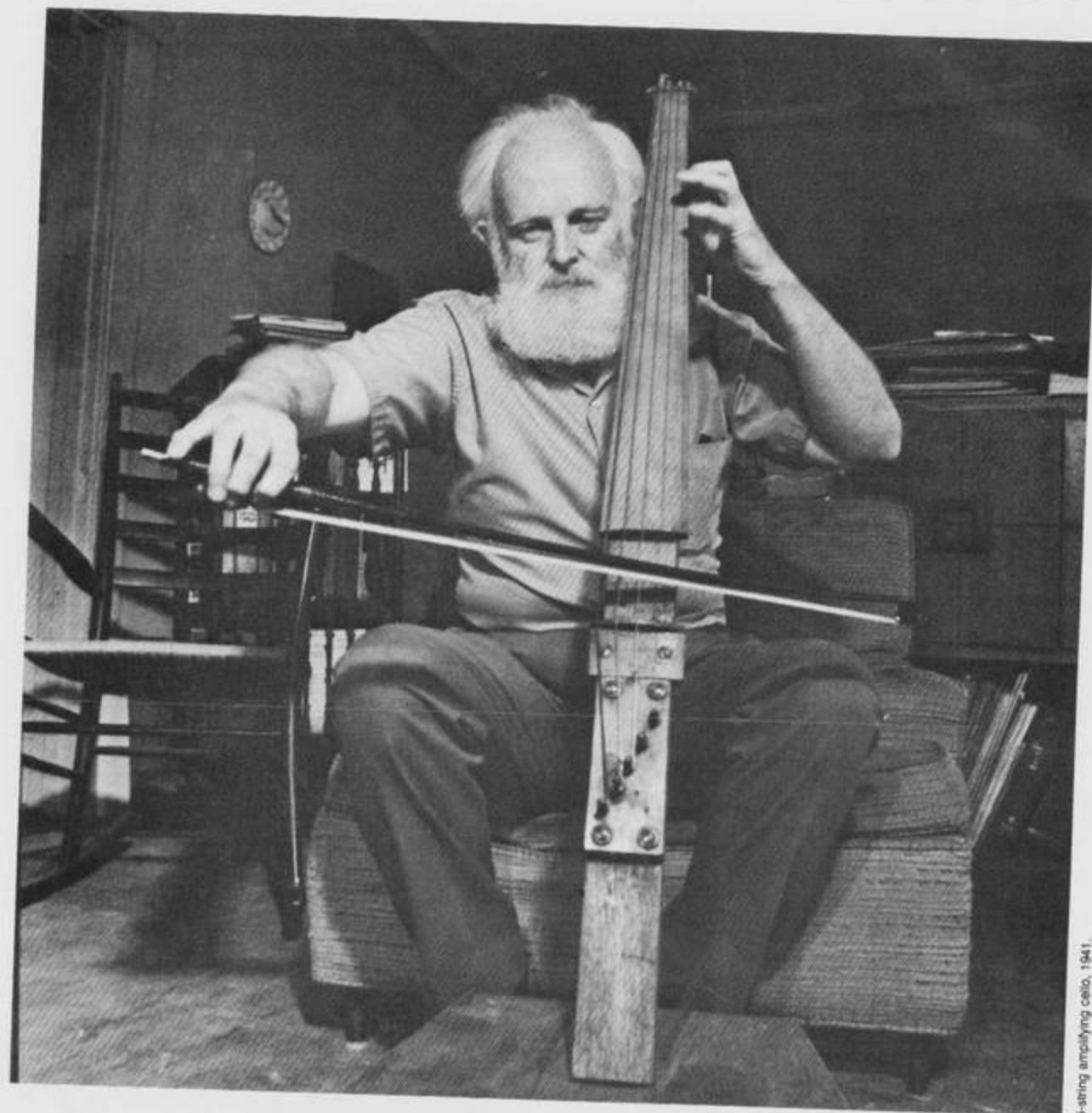


8 ft. Megalyra and Hobnailed Newel Post.

I publish *Xenharmonic Bulletin*, which contains both theory and how-to, and all issues are still available. Also pamphlets and tables and informative leaflets, as well as copy tapes and cassettes.

Further information can be obtained by writing Jonathan Glasier, Box 8027, San Diego, CA 91202. (Pictures and description of the Megalyra instruments appeared in *Interval* which he publishes).

Unfortunately the reference books dealing with non-twelve-tone music are hard to read and even harder to obtain. We must hope for better materials to appear in the next few years.



5-string amplifying cello, 1941.

Born 1951 in the United States, raised in the Middle East. Educated at the American University of Beirut; the University of Michigan; San Diego State University, and the University of California, San Diego. Has been involved in many creative endeavors, including: publishing poetry and music in the United States and abroad; founding a national organization, *Spectacle*, at 27 universities; establishing *Tugboat*, an interdisciplinary monthly magazine of the arts; writing 3 plays, a book of collected essays on a philosophy of action and a film. Presently sings, plays guitar and bouzouki, is at work on *The Frick Show*, and on constructing giant sculptural instruments. Currently lives and works in San Diego.

It is not a so subtle commentary on the vulnerability of awareness during these times that people read the title before the painting, announce the group before the song, require the statement to go with the presentation.

First some reminders that most people know:

1. It is useless in many cases to trap your creative intentions in a few quotes. An artist should well be in the position of ease with the other possibilities — the otherwise is well known.
2. We are very aware of the effects of PR and how, in many cases, to read through it. Unfortunately, in many cases, things aren't understood without a moronic delineation. If a work of art has any universal potentiality, what maker is going to feel like crushing it into a few words.
3. It is an effort to make something good. It is a great effort to then regress it into its elements and explain why it is good. Art has a certain amount of balls in what it does not say directly. The maker, of all people, is not going to be the first to castrate.
4. There has always been a great magnetism between art and analysis. Analysis is sometimes a great grid of a tool for straining out the imaginative spaghetti. A builder who has just finished a house may be proud of his tools — but what are they compared to the house!
5. Statements effect people in various conventional ways: some prefer to linguistically contemplate, some have nostalgic ego for manifestos, some like the perfumed tongue of a quote, some want to know "Aw what it is you're REALLY trying to do," some believe in the crass functionalism of necessary PR, some would rather really know more about it but would rather really not have to think about it alone, some would like to get closer to the heroic personality, some would prefer to experience defensively, some are just humanly interested in what it took.

Every work has its incidences. Some humorous, some dull some extremely exciting. The differential between what you wanted and

what you got is sometimes a blessing and sometimes a secret. If there is then something to be said, what is the question.



The Sniper Tower.



The Beep Mobile.

RON GEORGE

Born 1937. Attended Indiana University, M.M., Percussion; University of California, San Diego, M.M., Theoretical Studies. Studied with Robert Erickson and Pauline Oliveros. Has been a member of numerous performing organizations including the Milwaukee and San Diego Symphony Orchestras; San Diego Starlight Opera Orchestra; co-founder of Milwaukee Contemporary Chamber Ensemble. Currently is a free-lance percussionist in the San Diego area, and is an Associate Fellow at the Center for Music Experiment at University of California, San Diego.

The Music of Sound and Light is a unique ensemble of percussion, clarinets and tympanum luminorum with Ron and Joan George performing with John Forkner. The tympanum luminorum is an opto-mechanical image-synthesizing projector developed by Forkner in 1967. It gives the performer complete control of the patterns, colors and contrasts of projected visual images in real time. The projector is consciously patterned after the mechanical or

tracker action pipe organ. It has many closely related features such as stops and pedals. The stops are tubular mirror-tunnels that modify the imagery generated by a thin, flexible mirror (the keyboard), which is manipulated by the performer's fingers. The pedals serve to control brightness, color mixing and cross fading between stops. Because the operation of all controls is strictly mechanical, this optical performing instrument corresponds more closely to acoustical rather than electronic musical instruments.

Recognizing that sound and light have a natural affinity, the performers developed *The Music of Sound and Light* as a result of extensive experimentation into the ways that sound and light could be harmoniously combined to either reinforce or create contrast in a composition. By combining both light and sound together in carefully prepared compositions, the ensemble demonstrates that the result extends the limits of media expression beyond that of the individual instruments.

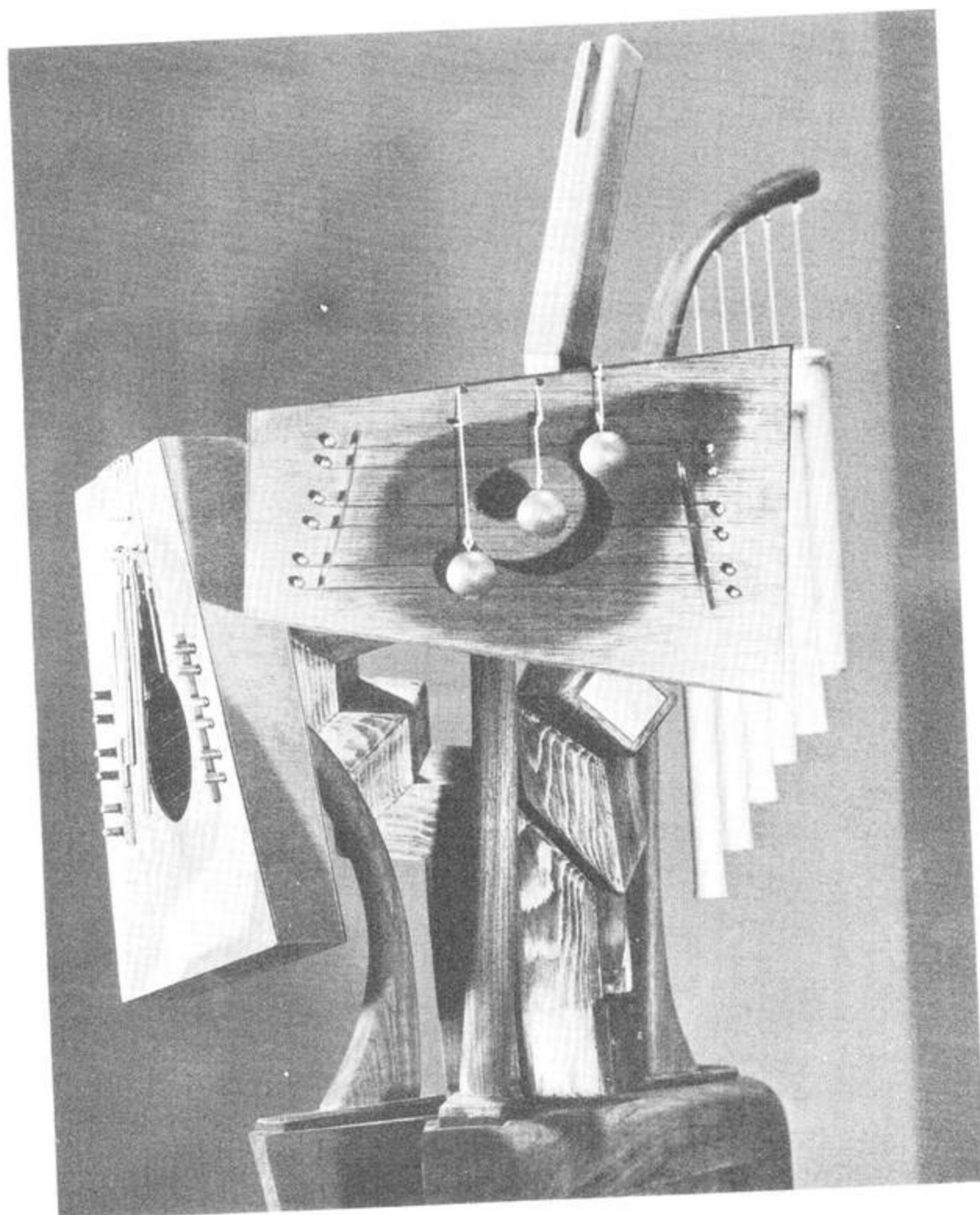
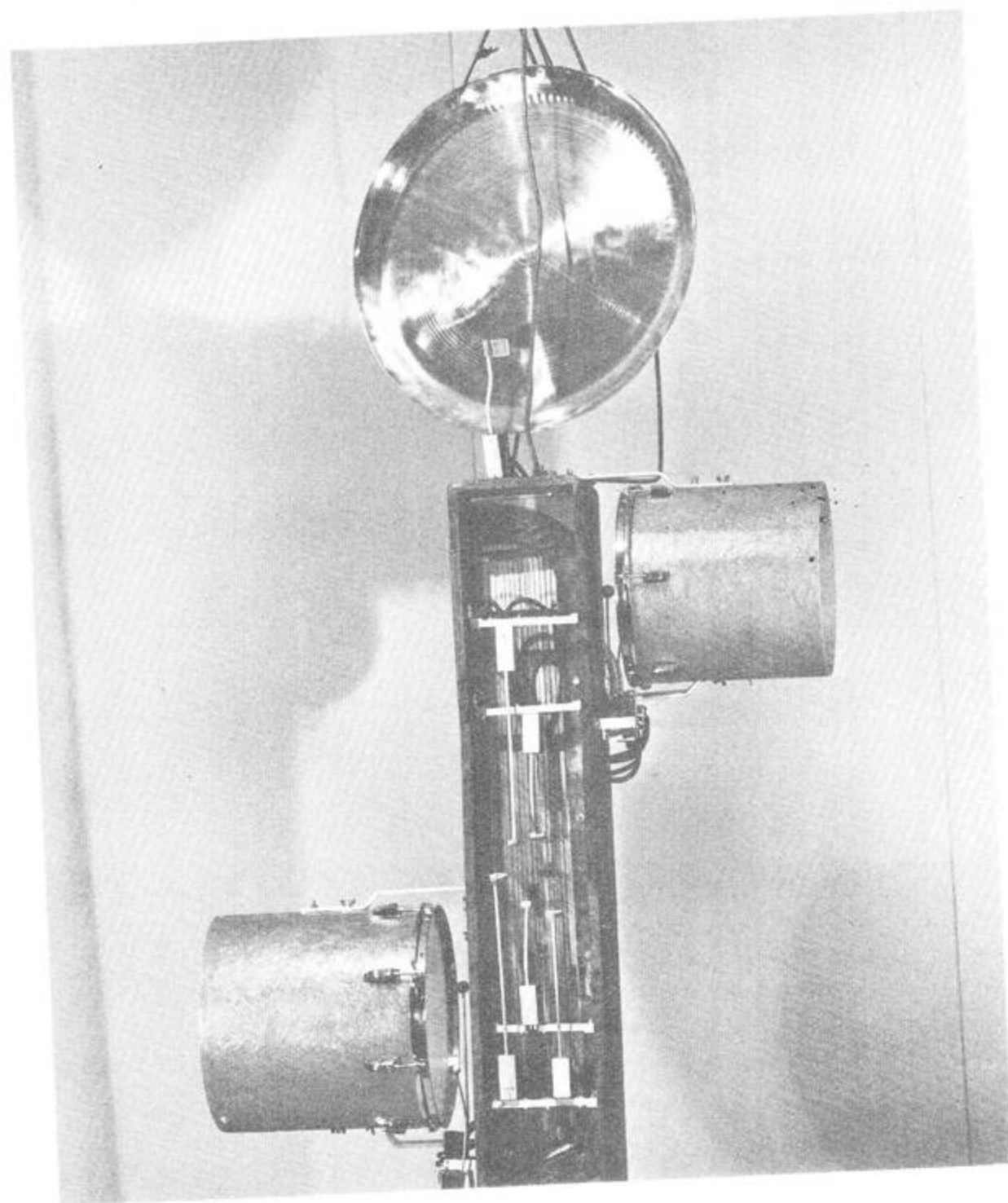


STEPHEN GOODMAN

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Born August 12, 1949, Glendale, California. Attended the University of Southern California, Los Angeles, and the California Institute of the Arts, Valencia. Studied privately with J. Lee Haggart, Master Organ Builder and acoustician. Guest soloist with the Guggenheim Foundation Summer Concert Series in Central Park, New York at age 16. Realized first sound sculpture in 1976. Has had exhibitions and performances at a number of institutions including the Exploratorium in San Francisco, 1976; Riverside Art Center and Museum, 1977; California Museum of Science and Industry, 1977-1978. Presently lives and works in Beaumont, California.

I wish to develop the automatic musical instrument into a contemporary idiom; both visual and aural meaning as a product of its language. The result is to create new music; music unique to the particular grouping of structures and their acoustical contents. The future applications of my work will be directed towards healing and psycho-acoustic applications, areas which neither science nor art have fully explored."



Studied saxophone and flute with Albert Cicerone for ten years. Attended San Francisco State University, B.A., Music, 1967. Private study with Paul Renzi of the San Francisco Symphony Orchestra. Has performed throughout the United States, Japan and Europe, including jazz festivals in Switzerland, France, Holland and Germany. Has recorded several records, and is presently living in San Francisco, working on a duet for Sarousaphone and Voice.

New Works ré Extinct Series

The evolution of the saxophone took many forms other than what we see today. Many of these instruments had striking individual tonal qualities and a character indigenous to its body design. Evolution has deemed these instruments to be extinct. *New Works ré Extinct Series*, was created to explore these indigenous characteristics in a new and meaningful way.



Gerald Oshita playing the Sarousaphone.

Born July 28, 1942. Has worked as a percussionist/composer in the fields of experimental music and mixed-media since the early 1960s. Has performed throughout the United States and Europe with the University of Illinois Contemporary Chamber Players; the Harry Partch Ensemble; the University of Iowa Centers for New Music and New Performing Arts. Currently is a fellow with the University of California, San Diego Center for Music Experiment.

GRACE BELL

Has worked professionally in several visual art fields as jeweler, photographer and gallery manager. Has performed throughout the Midwest and southern California with a variety of ensembles including the A. Ludwig Dance Company, the University of Iowa Center for New Music, Jupiter Fish (experimental jazz) and the DeGroot Expedition. A self-taught musician, she has worked with Will Parsons since 1974.

will (parsons)s and grace (bell): *Shakeyside to Dirtyside* (coast to coast) Because we want to travel, we are concerned with portability. Because most people aren't musicians, we are concerned with accessibility: rhythmic, tonal and visual. Most of our recent pieces are inspired by specific places we've visited: Arizona Desert, Los Angeles, La Jolla tidepools, Mississippi River towns, Wyoming Mountains, etc. We use instruments from many cultures (Africa, Cuba, Brazil, India, Japan, Mideast, etc.) in combinations that seem appropriate (i.e., "Roadrunner" from *Desertlife* uses an Indian brassflute, a Brazilian berimbau, a Harry Partch instrument — Ectara — and two American bicycle horns). We plan to release an album of our music in early 1980. We hope to arrange our first *Shakeyside to Dirtyside* tour (Amtrak) for spring 1980.



Photo: Dom Franco, 1978.

Has appeared in numerous exhibitions including solo shows at Union Gallery, San Jose State University, 1971; California State University, Sacramento, 1975; Hansen-Fuller Gallery, San Francisco, 1975; and Artists' Space, New York, 1978. Has done performances at Fort Worth Art Museum of Modern Art, Texas, 1975; San Francisco Museum of Modern Art, 1976; Los Angeles Institute of Contemporary Art, 1977; Mills College, Oakland, California, 1978; 80 Langton Street, San Francisco, 1977; and Artists Space, 1978. Presently living and working in San Francisco, where he teaches at the San Francisco Art Institute.

Long before the advent of the doorbell, the blender, the vacuum cleaner, the toaster-oven, the bicycle, the skateboard and the skate-bored, the automobile, the assembly line and the picket line, the genie magic garage door opener, the PET home computer, television and the hi-fi, the patty melt and the melt-down, there was the music box.

the music box was the first automaton, the first robot, the first juke box, the first home entertainment center, the first mechanical portable domestic private fantasy.

the roots of the industrial revolution are to be found in the insidious seductive tinkling of these tiny little orchestras . . . ticking away . . . the vanguard of vast armies soon to sweep the world into the maelstrom furies of MODERN TIMES.

tinkle tinkle little start, how I wonder what you art?

Parody is an obvious consideration, but so is experience, play, reflection, transfer, appropriation, invasion, contrariness or perversity. There isn't enough time to start from scratch, but maybe it's possible to slide in from the outside. Things are getting more and more diffuse. Post-Einsteinian aesthetics exercise something of a continuum in terms of space/time disciplines. The strategies are the same. Only the socialization is different. Someone still has to learn to draw, someone still has to memorize scales. Scale and perspective are important ideas to abuse. Better learn to play by ear (with a good ear for corn).

Look at the landscape. Substitute *coulisse* and *repoussoir* with *domestic* and *industrial*. Filter the vision through the dramatic aerial perspective of atmospheric pollution. Listen for the sixty-cycle hum. Regard the colorful peasants frolicking beneath the shade of a freeway overpass, picknicking on an elegant repast of Ripple and Wonderbread (where have all the flours gone, Omar?). Soak up the pastoral fullness of rush-hour commuting, the formal grace of double-knit disco wear, and the romantic counterpoint of epic folk narratives, as the world turns. There's no longer room for cellos and clavichords — they're out of tune with the time. We have an ancient responsibility to temper our present with decorous harmonies, in

Mozart's Moog, 1978, first performed at the Exploratorium, San Francisco. Electronically amplified mechanical "synthesizer" consisting of 32 prepared movements, for live performance.



keeping with the decor.

In keeping with the traditions of the avant-garde, observe the rule: Discard. The second: Appropriate the ethnic. The third: Conceal your tracks. The fourth: Dramatic foreplay. The fifth: Contrive a discovery. Voila! (or Eureka!) Acclamation, a provocative innovative statement of overwhelming social importance and obscure legibility. Time marches on.

It's the same game across the board. And it's easier when the tradition you're discarding is an entire artform. Like music. If you use your axe for a crowbar, you don't need music lessons. If vacuum cleaners can't read anyway. But they play a hot Shaku-hachi. Combination wrenches aren't usually tuned, but are usually roughly ascendant. Are these not common instruments of the common folk? Are we not men?

So much for indulgent arrogance (Byte Miopus!) What seems important might be notions of play, contemplation, and acceptance. Somehow finding tools to work along a vein, affordably. How tone deaf musical illiterate get along in the music world. (Hirshhandicapped?) 'I don't care what ya' smell like, just so long deliva th' goods' Maybe it's a little underground, but it's not underhanded.

'We're little black sheep who have gone astray. Baa, baa, baa.'

SUSAN RAWCLIFFE

60

Attended New York University and the University of California, Berkeley, B.A., 1968; Pepperdine University, Los Angeles, M.A., 1975. Has been included in a number of exhibitions and performances, at institutions including Idea Company, Santa Monica, 1975 and 1976; Pacific Design Center, Los Angeles, 1976; Independent Composers Association, Los Angeles, 1978; Craft and Folk Art Museum, Los Angeles, 1978; and the Renwick Gallery, Smithsonian Institute, Washington, D.C., 1978-1980. Has appeared on radio and television broadcasts; set up workshops; and lectured throughout southern California. Presently lives and works in Los Angeles.

Some people, upon seeing my instruments, ask me, "don't you have any real flutes?"

Flutes are among the oldest musical instruments and are found in multitudinous forms around the world. Ocarinas are a vessel flute and generate a pure tone; this gives them their special sound quality and limits the range. The tube, conical or cylindrical, of which most of our traditional wind instruments are constructed, gives overtone series through the method of blowing. The presence and strength of particular overtones is one thing which gives each instrument its particular character. Tone color is also controlled by the type of mouthpiece used, whether reed-double or single, air duct, blow hole or end blown and is the method of exciting the air volume to sound.

I have researched some questions which interest me, including: flutes of Central and South America; aperture shapes and sizes for air duct mouthpieces; form and its relation to tone; the effect of membranes on the sound. I now find that I can manipulate the sound to some extent by the way I construct my flutes and ocarinas.

It's an exciting process, making a new instrument and then learning its sound potential. Some of my instruments are tuned to preconceived scales; some are tuned by chance. If tuned by chance, in playing, I must follow the instrument, learning its melodies. Chance is a constant source; chance keeps me loose. Tuning to preconceived scales is a challenge to my ear and to my fabricating skill, and in playing, enlarges the music potential.

I like the simplicity which my instruments represent. It is important to rescue from oblivion early inventive musics and instruments. I am a sound nut on the trail of Sound. In my bag, I carry fish skin, beeswax, bamboo, string, wire, wood, paper, books, clay, lips, hands and arms, ready to wrap around some sound found there, in the field. Strange sounds, wonderful sounds, melodies from long and far ago.



Photo: Rob Levine.

PRENT RODGERS

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Attended Bennington College, Vermont, B.A., Music, 1975; University of California, San Diego, La Jolla, M.A., Music, 1977. Coordinated concert series of new electronic and acoustic music at University of California, San Diego, 1976-1977. Designed and built instruments and composed, with Tom Nunn, the music for the performance of *Golden Mountain* at the Salk Institute, La Jolla, California, directed by Yen Lu Wong. Presently lives and works in Lemon Grove, California.

I am an instrument builder concentrating on electro-acoustical instruments. The sound sources are mechanical vibrations transduced with contact microphones, magnetic transducers and air microphones, and amplified through a conventional amplification system. I am especially interested in the application of this technology towards the design and construction of microtonal string, reed and wind instruments. The tuning system I am currently using is Just intonation, although some are in 31 tone equal temperament.

In addition there are instruments that are not tuned to any particular intonation system; they are designed to explore amplified timbres produced by rubbing, scraping, bowing, hitting, and plucking objects attached to the instruments.

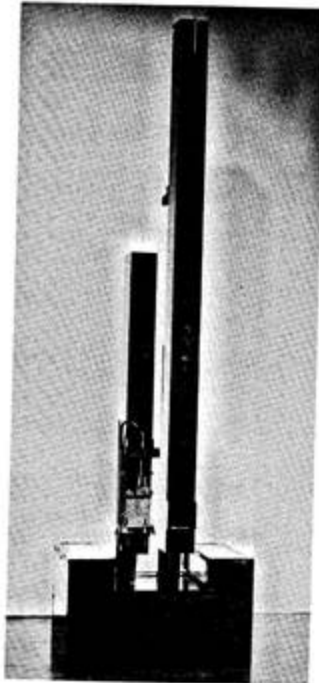
STEPHAN VON HUENE

Attended Pasadena City College, 1950-1952; U.C.L.A., 1952-1953; Chouinard Art Institute, B.F.A., 1959; U.C.L.A., M.A., 1965. Has been in numerous exhibitions, including solo shows at the Whitney Museum of American Art, New York, 1970; Venice Biennale, 1976; and Galerie Beacker Bochum, 1977. Presently lives and works in Valencia, where he teaches sculpture at California Institute of the Arts.

Totem Tone is a work that operates totally by itself. Two organ pipes driven by a vacuum cleaner motor comprise the sound-making elements. This sound is further adjusted, in one pipe, by automatically opening & closing the aperture at the mouth. In the other pipe, sound is adjusted by automatically opening and closing the top of the pipe. Other variations occur by acoustic interaction, and by the use of a balanced air system. The whole work is controlled by a perforated tape and photo cell programmer.

Both in look and sound this *Totem Tone* refers to and commemorates all the early California houses (mostly derived from Green & Green), that I lived in most of my life. In particular the sound concerns the noise of the empty spaces within.

Totem Tone was completed in 1970.



YOSHIMASA WADA

Attended Kyoto University of Fine Arts, B.A., 1967. Studied with Shoji Miyazaki, Japan, 1964-1966; electronic music with John Watts, New School for Social Research, New York, 1969-1971; classical western theory with Marin Verdrager, New York City, 1973-1974; Macedonian singing with Carol Freeman, New York; Northern Indian classical vocal, with Pandit Pran Nath, New York, 1970-1979; Kirana Style vocal, electronic music, theory and composition, with La Monte Young, New York, 1970-1979; Northern Indian classical style percussion with Kocherlakota Paramjyoti, New York, 1970-1979. Has been involved in Fluxus activity 1968-1975, and has given performances at the Kitchen Center, New York; Phil Niblock Studio, New York; Nassau Coliseum, Long Island; the Institute for Art and Urban Resources, New York. Has worked singly and in collaboration with Nam June Paik and Charlotte Moorman, Peter Van Riper, Rhys Chatham, Garrett List, Liz Phillips, Jim Burton, Barbara Stewart. Presently living and working in New York.

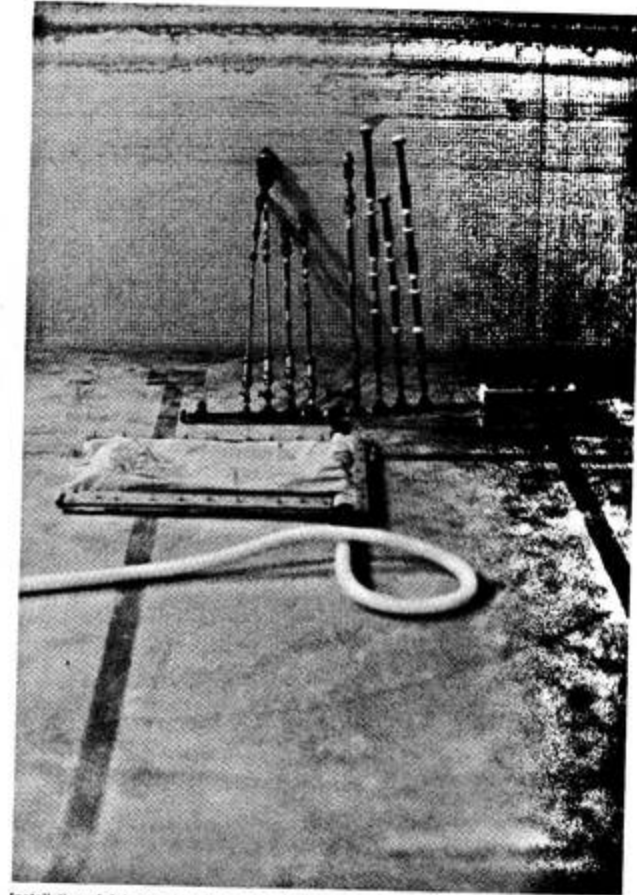
The Adapted Bagpipe Series I am currently working on is an experiment with reeds and singing within a modal structure. This instrument, which so far consists of 8 drone pipes and 1 drone box, can be played solo or as a drone accompaniment for singing.

When I first began to work with these cane-reed pipes, I realized that they could be tuned to produce extremely fine tolerances of the intervals. One can easily hear the characteristics of the reed by playing more than two pipes at the same time, either in unison or in different intervals in perfect tune. There is a very strong clarity of harmonics and partials in the higher octaves.

Three different sets of chord arrangements are provided for this bagpipe, and when the pipes are in tune, one can hear the high, microtonal partials quite clearly.

I first commenced working with a very simple singing of the overtone series, but then gradually came to develop a series of intervals which feel more personal and contain a strong feeling for me.

I am most concerned with the timbre and the tuning of the multiple chords which enable me to evolve my improvisational singing and develop the mode in progression.



Installation of Adapted Bagpipe at Media Study, Buffalo, N.Y., May 5, 1979.

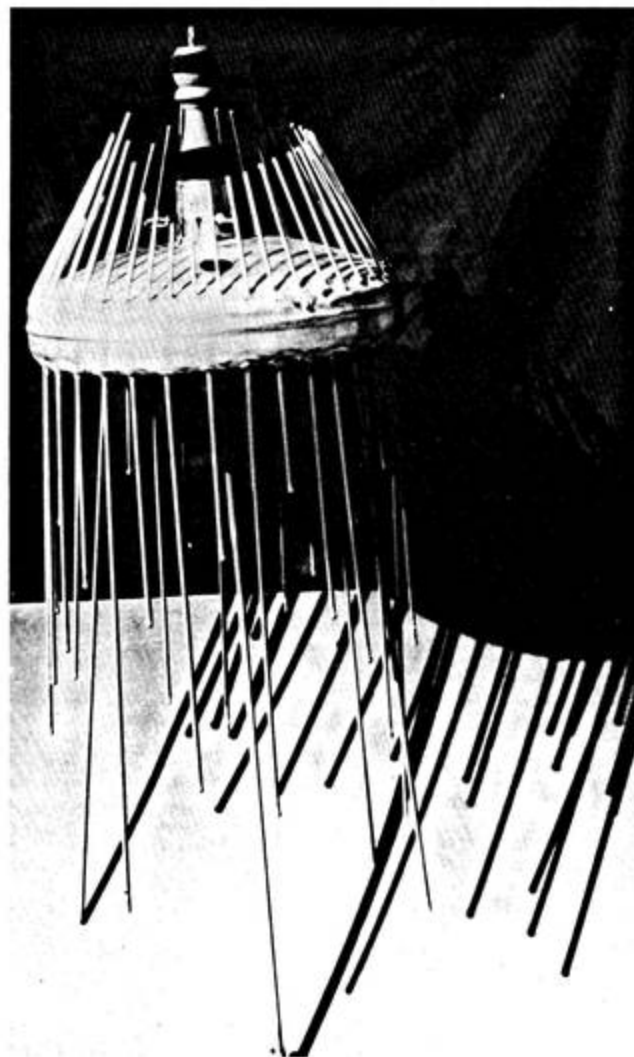
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Born 1935, Dubois, Pennsylvania. Educated at the University of Southern Mississippi, Mattiesburg, B.A., Painting & Drawing, 1961; California College of Arts and Crafts, Oakland, California, M.F.A., 1965. Began designing, building and playing musical instruments and kinetic-phonetic sculpture in 1966; invented "Waterphone" in 1967. Has been included in a number of exhibitions, including shows at Oakland Museum, 1977 and the Palace of Fine Arts in San Francisco. Presently lives and works in Sebastapol, California.

Optical, Kinetic, Phonetics

I am a multi-media artist working between fine arts, crafts, and music. I design, build, play and perform with experimental music instruments, sound devices and sound sculptures. My musical pieces are better realized in group situations, so I often present my instruments and sculpture via my new music ensemble, the "Gravity Adjusters Expansion Band."

I am for an art form that allows people in, feeling and thoughts out, and rapid fun, progression (backyard jug bands). I want a new music, organic and exotic, made from tin cans, rubber bands, popsicle sticks, and hubcaps played by anyone, anywhere, anytime.



Waterphones.

Born 1946, Santa Ana, California. Attended the University of California, Irvine, B.A., 1970; M.A. 1971. Has had many group and solo exhibitions and performances, at institutions including Broxton Gallery, Los Angeles, 1976; Cirrus Gallery, Los Angeles, 1977; San Francisco Art Institute, 1978; Baxter Art Gallery at Cal Tech, Pasadena, 1978; Los Angeles Institute of Contemporary Art, 1977 and 1978; Newport Harbor Art Museum, Newport Beach, 1978; Franklin Furnace, New York, 1978. Presently living and working in Los Angeles.

During the last 5 years I have done a number of sound-oriented performances. The events have been in the form of plays, concerts, environments, performances and gallery exhibitions. The sound in each of the pieces assumed a different role; sometimes as music to accompany another activity, and at other times functioning as the event. The performances have been both an auditory and visual

means of presenting sculptural objects to an audience. I feel there is a middle ground between visual art, narrative, and sound works where one discipline can enhance another to create products impossible to one alone.

In the performance, *Sculpture*, I used a hypnotic induction and verbal description as a means of presenting a visual object to an audience. Oddly enough a hypnotic induction is very close to being music. The ingredients are the same, the rhythm and tone control are as critical for success as they are in singing a song.

In the play *Ramona*, which I did in collaboration with Guy de Cointet, I made three gong-type instruments with chairs to match. The set was the entrance to a deserted three-story building which had a strange resemblance to Versailles. The three gongs functioned as the orchestra for the play. The varied materials and shapes of the different gongs created a wide range of resonance. The

