

From 1955 to 1961, Mr. Buchla attended the University of California at Berkeley, studying astronomy, music, physiology and physics, and participating in research in molecular beams, spin echoes, and optical pumping. After graduating in physics, he designed instrumentation for high altitude proton flux measurement, and supervised research directed toward the development and refinement of techniques for monitoring physiological parameters in unrestrained primates on extended space flights. (Among the variables successfully measured with surgically implanted, biologically powered transmitters, were blood pressure, body temperature, respiration, pulse wave velocity, blood oxygen content, three axes of acceleration, EKG, EMG, and 12 channels of EEG.)

During this period, he constructed several stringed instruments and sonic sculptures. He became interested in musique concrete and utilized the facilities at the San Francisco Tape Music Center to realize several pieces. Later, he constructed electronic instrumentation (including the first voltage controlled synthesizer) for the Center and participated in performances there. Concurrently, he studied classical guitar, and later traveled to Spain to pursue an interest in Andalusian music.

From 1961 to 1965, with support from the Radio Corporation of America, the American Foundation for the Blind, and the Veteran's Administration, Buchla conducted independent research in the application of electronic technology to prosthetics, concentrating on development of a laser-based navigational aid for the blind. This work sparked a continuing and relevant interest in the refinement and utilization of communications channels between man and electronic system.

As a consultant to E-H International, General Measurement Research Inc., Bausch and Lomb Inc., and Hexcel Inc., he assisted in the development of electronic instrumentation for scientific research, designed electro-optical systems for high precision linear measurement, and investigated the feasibility of applying high powered lasers to the manufacture of hollow core structural paneling for aircraft.

In the late 1960's, his sonic constructions became larger in scope; he installed interactive environmental pieces in local galleries, and constructed complex environmental control systems for major entertainment centers, including the Electric Circuses of New York and Toronto, the Carousel Ballroom of San Francisco, and the Paradise Ballroom in Los Angeles. He became increasingly interested in live electronic music performance, created appropriate instruments, and founded a performance group dedicated to exploring new techniques for player interaction via electronic and wired acoustic instruments.

During this period, Mr. Buchla designed instrumentation for several studios and individual composers, and as a consultant to C.B.S., conducted feasibility studies for musical instruments that incorporated the rapidly emerging mini-computer technology. In 1970 and 1971, as technical director of the California Institute of the Arts, he designed inter-department programs and media links, implemented an experimental hybrid composition facility, and designed the first of several high level computer-based languages for music composition.

In 1971 and 1972, as technical director of the Electric Symphony, he devised electronic transducers, systems and procedures for deriving maximal information from each of the orchestral instruments. A portion of the resultant extended symphonic vocabulary was catalogued and made available to composers, and in the fall of 1972, public performances of a totally wired symphony took place.

Continuing his work in hybrid system and language development, Mr. Buchla designed and installed computer aided systems at the University of Northern Illinois, New York State University at Stony Brook, and at the Norwegian Center for Electronic Music in Oslo. In 1973, he employed computer simulation to model and optimize a small programmable performance instrument called the Music Easel, constructed and sold several of these instruments, and co-founded the Electric Weasel Ensemble, a group of Music Easel players who developed a substantial new music repertoire for five of these real-time, performance-oriented instruments.

In 1976, Buchla toured the U.S. and Canada, lecturing and conducting workshops and seminars at universities and colleges. Primary topics were musical instrument design philosophy and application of digital techniques to music composition and performance. A number of New York campus visits were sponsored by the State University of New York's "Meet the Composer" series.

In 1976 and 1977, he received commissions to build a new sort of electronic instrument for several individual composers and university studios. These instruments incorporated micro-computers, interactive displays, and a newly developed high level music language to enhance their acoustic resources and musical responsivity. At the end of 1977, he toured Europe with the Electric Weasel Ensemble, performing and lecturing in Stockholm, Ghent, Stuttgart, Basel, and Paris.

In 1978, Mr. Buchla was awarded a Guggenheim Fellowship to conduct research in interactive performance oriented computer music languages. This project took him to major studios in England, Sweden, Denmark, Germany, France, Italy, United States, and Canada, and led him to begin work on a highly general, portable language. Results of his work were presented at the 1980 International Computer Music Conference and published in the conference proceedings.

In 1979 and again in 1980, he returned to Europe for concert tours in collaboration with composer-cellist Ami Radunskaya. On both trips, he conducted extended seminars and hands-on workshops on the topics of instrument design, language application, composition techniques, and performance strategies. During this period, two new instruments, an electric cello and a computer-based keyboard instrument were completed. Three compositions were also realized, one for solo cello, one for 14 piece ensemble, and one for solo electronic instrument.

From 1981 through 1983, Buchla concentrated on the development of new techniques for real-time specification and control of timbre and on the refinement of input structures and language, subsequently incorporating these concepts in an advanced computerized instrument called the Buchla 400. Concert and lecture tours continued through this period, with presentations at numerous conferences and festivals, and several pieces for acoustic and electronic instruments realized.

Buchla presently serves as consultant to the Institut de Recherche et Coordination Acoustique/Musique (IRCAM) in the areas of input structure, language development, and instrument design. As an NEA fellow, he is currently designing instrumentation and music for a hundred piece electronic orchestra. Additionally, he functions as co-director of the Artists' Research Collective, a not-for-profit corporation engaged in researching application of advanced hardware and software tools to artistic ends.

Representative Publications and Compositions

"Remote Monitoring of Physiological Parameters in Unrestrained Primates", UCBSSL No. 152, Berkeley: University of California, 1962

"Cicada Music", for approximately 2500 6-legged performers, 1963

"A Rangefinding Travel Aid for the Blind", research report distributed by GMR Inc., 1965

"Applying ORB to Sensing Terrain Discontinuities", research paper distributed through the American Foundation for the Blind, 1966

"Five Video Mirrors", a set of video/acoustic pieces for one or two singular or multiple audiences, 1966

"Excerpt from Anognorisis", for player and vocalist, 1970

(McDermed, C., co-author) "Genesis of an Instrument", Synthesis, Vol. 1, No. 1, 1971

"On the Desirability of Distinguishing Between Sound and Structure", Source, Vol. 5, No. 1, 1971

"Harmonic Pendulum", a 200 Series Installation piece, 1972

"Electronic Music Software and Hardware", Whole Earth Epilogue, POINT, distributed by Penguin, 1974

"Garden", for three players and dancer, 1975

"Keyboard Encounter", for two pianos. Ocean Records, series 1, volume 7, 1976

Orchestration of David Rosenboom's "How Much Better if Plymouth Rock had Landed on the Pilgrims", (c. 1969 by D. Rosenboom). 1750 Arch Records, S 1774, 1978

"Q", a collective composition for 14 players. Premiered by the Arch Ensemble in March of 1979

"Sili Con Cello", a duet for electrified cello and responsive electronics, 1979

"Design of the Generative Hardware and Interactive Language for a Computer Assisted Keyboard Instrument", paper presented at the 1980 International Computer Music Conference, 1980

Orchestration of excerpts from Pierre Boulez's "Explosante Fixe", 1981

"Consensus Conduction", for interactive audience and specialized electronics, 1982

Orchestration of David Rosenboom's "In the Beginning, Etude V", 1983

"The Musical Inventions of Don Buchla", a collection of instruments, pieces and scores exhibited by the San Jose State University Union Gallery in conjunction with the CADRE festival, 1986