

Curriculum Vitae

Thomas L. Rhea, PhD

January 2001

Professional Experience

(Date indicates year of appointment)

1989 Associate Professor

Music Synthesis Department
Berklee College of Music
Boston, Massachusetts

Requested fulltime teaching status starting in 1989-1990 academic year. Currently teaching MIDI, music synthesis sound design/production, and synchronization in hands-on courses in computer-based Music Synthesis Labs and traditional MP&E recording studios. Have taught large intro survey lecture classes and small hands-on advanced classes on history/culture/technology of recording & music synthesis. This instruction involves subtractive and additive synthesis, FM, SMPTE LTC & other sync techniques, digital recording, nonlinear waveshaping, LA synthesis, resynthesis hardware (Technos Acxelizer), and Macintosh-based virtual synthesis systems (Turbosynth, Softsynth, etc.). Familiar with general and historical synthesis techniques (vocoding, single sideband frequency shifting, etc.) that will reappear as realtime Digital Signal Processing matures. Electronic music compositions performed at Oberlin College, Gettysburg College, and Small Computer in the Arts Network Symposia (SCAN) in Philadelphia and *Meet The Composer* venue in Baltimore. Research area is history of electronic musical instruments, recording media and all antecedent technologies. Lectured on the history of music technology locally at Harvard, MIT, Northeastern University, and am publishing in field in refereed journals. Research is cited in *The New Harvard Dictionary of Music* and in many entries in latest edition of *The New Grove Dictionary of Musical Instruments*. Appeared on program with the founders of the Bourges (France) Electroacoustic Music Festival at the French Embassy (Washington, D.C.) to celebrate their twentieth anniversary. Service to College has included coordination of lecture/demonstrations at Berklee on granular synthesis by Barry Truax (Simon Fraser, Vancouver, BC) in Fall, 1989. Hosted residency by Terry Fryer (Fryer Music, Chicago) on commercial & jingle production and video-audio synchronization in Spring, 1990. Faculty Advisor to Music Synthesis Student Newspaper. Own (Swiss-made) MIDI Synthophone (saxophone) and Yamaha WX7, with interest in exploration of gesture-based composition/performance using electronic wind controllers. Capacity as historian provides opportunity to own various older systems (Buchla 400, Moog 900 Modular Systems, Bode vocoder, Rhodes Chroma, Polymoog, MemoryMoog Plus, ARP 2600, Kurzweil 150 Fourier System, etc.) as well as more-contemporary instruments such as Yamaha DX7II-fd, Oberheim Xpander, Kurzweil 1000 PX, Kurzweil K-250, and Digidesign Sound Tools.

Berklee's foreign students comprise 40% of a total population of 3,300 music students. I am sensitive to the needs of students for whom English is a second language and enjoy this cultural diversity.

1987 Assistant Chair

Music Synthesis Department
Berklee College of Music
Boston, Massachusetts

Shared fulltime administration of Department and taught from 4-10 hours every semester for two years including summer semesters (six semesters). Represented Berklee as composer, author, and lecturer in a variety of venues, both commercial and academic (please see categories below).

Acting Chair in absence of Chair, who traveled considerably. Department provided instruction to some 450 students, including 180 Music Synthesis Majors. (Major comprises 30 semester hours, exclusive of traditional music and general studies courses). Students are taught hardware and software music synthesis techniques in three labs using 30 multi-instrument Macintosh computer-based workstations on a Local Area Network. Supervised service hours (union contract) of fulltime faculty of five. Inaugurated ongoing series of intradepartmental lectures called Informances (*inform* + *performance*) that provide a forum in which faculty expertise is shared. Strengthened faculty-administration relationships by performing with faculty members in public venues. Played critical role in recruiting highly visible visiting faculty member. Wrote recommendation letter for colleague who subsequently won Fulbright Lectureship. Provided opportunities for colleagues to meet luminaries in field of music synthesis due to personal contacts in the music industry. Represented Berklee as speaker in various educational and music industry venues. Editor of FM Workbook written by faculty member, and producer of graphics and other Music Synthesis curriculum materials. Defined and oversaw production of Electronic Music Repertoire tape(s) for student listening. Appeared as lecturer at student Music Synthesis Club and give guest lectures on various Music Synthesis topics in colleagues' classes. Wrote HyperCard stack used to document student projects.

1983 **Director of Marketing**

Moog Music/Electronics, Inc.
Buffalo, New York

Chief marketing executive for multi-million dollar company that changed its focus, coincidental to my tenure, from the design and manufacture of electronic musical instruments, to an emphasis as a contract electronics manufacturer. Demonstrated capacity to sell, persuade, solve problems, and manage large projects involving people, creativity, and technology. Oversaw reduction of \$5,000,000 musical instrument inventory owned by Norlin Industries, parent of Moog Music. Conceived and administered world-wide marketing plan including: development of sales strategy and special programs; conception, production, and insertion of advertising; development of alternative markets; trade show appearances; and Artist Relations with many central figures in Pop/Avant Garde music scene. Organized and participated in semiannual NAMM trade shows in California and Illinois. Personally effected largest single sale of synthesizers in company history (\$220,000) in new market. Shared budget responsibility with the company President for inventory reduction program. Defined functions and ergonomics of new products such as the Moog *Song Producer*, an early, budget MIDI computer music system. Wrote and oversaw production of 250 pages of user documentation for the *Song Producer* software.

Retained as chief marketing executive following leveraged buyout and incorporation of Moog Electronics, Inc. Conceived, guided development of, and wrote original music for OxyLights, a mammoth MIDI-based light and music system recognized (and misattributed) in the 1987 Guinness Book of World records. OxyLights has been heard/seen by some four million people at the annual Festival of Lights in Niagara Falls, New York. Acted as part time supervisor of special projects production line(s) for Westinghouse products. Wrote owner's manual and other documentation for contract clients such as GETEX (division of Lockheed) Prayer Times Clock (for Moslems). Oversaw translations of this documentation into French and Arabic and collaborated with artist using Dichomed computer graphic system to create finished manuals. Also participated in writing military technical documentation for U.S. Navy compressor system built for Dresser Industries.

1980 **Synthesizer Consultant/Technical Writer**

Nashville, Tennessee

Freelance consultant. Taught synthesis, played/programmed synthesizers locally, consultant to international musical instrument companies, and wrote various owner's manuals and sales literature. Collaborated with Dr. Robert A. Moog and James Scott in Asheville, North Carolina on the design of the Spirit Synthesizer for Crumar, s.p.a. (Castelfidardo, Italy). Designed print brochure, wrote copy, and produced six audio demonstration cassettes for Pearl Musical Instruments (Japan). Wrote Owner's Manuals for Steiner, Crumar, and CBS Musical Instruments (see Publications).

1979 Director of Evaluation and Training

Moog Music, Inc.
Buffalo, New York

Fulltime consultant living in Nashville. Duties involved global travel for retail training, artist relations, musical instrument specification, and sales and marketing analysis. Project Coordinator for Moog Prodigy, the best-selling synthesizer (units) in 1980. Positioned product in marketplace and specified: complement of musical functions; panel layout and nomenclature; and human engineering. Concluded project successfully while adhering to strictest cost control dicta. Took on responsibility for world-wide marketing; wrote owner's manual; designed and produced advertising campaign in conjunction with a Chicago agency; created Point of Purchase display; and introduced product at NAMM trade show in Atlanta, Georgia. Created the concept of *Moog U.*, proving cost-effectiveness of bringing retail salesmen to the Moog factory rather than sending a clinician to stores in different cities. Sole teacher for these five day intensive (10 hours per day) workshops on comprehensive product knowledge and sales training at Moog U. Taught a number of prominent musical artists concepts of synthesis, and/or acted as goodwill ambassador to secure their endorsement and enhance their relationship with Moog Music, including Rick Wakeman, Gary Wright, and Jan Hammer.

1975 Electronic Music Consultant

Norlin Music, Inc.
Lincolnwood, Illinois

Under exclusive full time three year contract to consult for the parent company of Moog Music, while living in Nashville. Represented Moog Music internationally with repeat appearances at Music Industry Trade Fairs in Toronto, Frankfurt, London, Paris, Milan, Copenhagen, and other foreign cities. Extensive domestic travel as demonstrator and sales trainer; also provided sales training to all major distributors throughout world. Veteran of many NAMM, MENC, MTNA, and NASM conventions. Invited speaker on program of many of these music conventions. Visited all major cities in Australia under the auspices of Norlin Music and Rose Music Pty., Ltd. in Australia in 1975 (and in 1974). Established electronic music education at all levels in Australia due to workshops for teachers (see categories below). Lectured at Latrobe University, Coburg Teachers College, Melbourne University, Geelong Grammar (college), Christ College, Sydney Conservatorium, and elsewhere. Collaborated with James Scott in the specification of Micromoog and Multimooog functions, ergonomics, etc. Wrote Micromoog and Multimooog Owner's Manuals (see publications). Acted as spokesman for electronic and new music during numerous radio, television, and press appearances throughout the world. Invited speaker at MENC and NASM conventions. Conducted interviews with Chick Corea, Larry Fast, Roger Powell, Jan Hammer, and Gary Wright, and wrote "Moog Electronic Team" piece for house publication *Imagination II*.

1974 Educational Consultant

Nashville, Tennessee

Freelance consultant. Made five trips to Oregon during 1974 and early 1975, covering the state with Teacher Training seminars, workshops, and lectures. Workshops in Medford, Coos Bay, Portland, Corvallis, and elsewhere were sponsored variously by the Oregon State Department of Education, Portland State University, Southwestern Oregon Community College, Mt. Hood Community College, Oregon State University, Multnomah IED, Oregon College of Education, Eastern Oregon College, and Oregon Music Educator Districts. Toured major Australian cities under the auspices of Rose Music, Pty., Ltd (Melbourne) providing workshops for teachers at all levels.

1973 Director of Electronic Music Education

Moog Division
Chicago Musical Instruments
Lincolnwood, Illinois

Introduced CMI (later Norlin) sales personnel to concept of electronic music synthesizer at sessions in Atlanta, Anaheim, Dallas, Chicago, and Skaneateles, NY. Traveled U. S. extensively as instrument demonstrator and retail sales trainer. Appeared with Dr. Robert A. Moog and Thomas J. Lamb at Strasenburg Planetarium in Rochester, NY for eight performances of electronic music.

1973 Vice President

Studio Systems Division
Moog Music, Inc.
Williamsville, New York

Successfully introduced Minimoog to Air Force Bands at their convention in New Orleans, LA. Wrote *Minimoog Manual*, *Minimoog Sound Chart Book*, and *Moog Accessory Manual*. Doubled sales of studio systems (Moog 900 Series Modular systems) within six months of taking job. Performed Artist Relations function with various Moog artists, including Keith Emerson and Wendy Carlos. Provided Inservice Training for teachers in Pinellas County, Florida.

1972 **Director of Electronic Music Education**

Vako Synthesizers
St. Petersburg, Florida

Consultant to Vako while living in Bradenton, Florida. Performed numerous demonstrations in local public schools. Appeared as invited speaker at several Music Educator conferences. Appeared as synthesizer soloist with Florida West Coast Symphony. Wrote the *Sonic Six Owner's Manual*, Moog Music's first professionally written manual. Provided Inservice Training sessions for teachers in Manatee County, Florida. Taught visiting students from Defiance College (Ohio) at workshop hosted by George Peabody College.

1971 **Lecturer**

George Peabody College for Teachers
Nashville, Tennessee

Taught electronic music and ear training during sabbatical of Dr. Gilbert Trythall. Tutored exchange students from Fisk University, and Washington and Lee University. Hosted and taught Winterterm short session in electronic music for students of Defiance College. Collaborated with Trythall to inaugurate "Electronic Music +," an ongoing symposium/concert that features electronic music and mixed media. Appeared as Tape Recordist with Nashville Symphony for Premieres of compositions of mixed media electronic music compositions by Dr. Gilbert Trythall.

1969 **Graduate Assistant** (three years)

George Peabody College
Nashville, Tennessee

Assisted in administration of electronically automated sight singing program and taught several sections.

1969 **Choir Director** (two years)

Montgomery Bell Academy (private male preparatory school)
Nashville, Tennessee

1968 **Trumpeter** (two years)

Nashville Symphony Orchestra
Thor Johnson, Music Director

Played second, third, extra, and fourth Trumpet on call with Symphony. Also performed various freelance work from 1966-1970, especially in area churches, with some recording studio sessions. Member of American Federation of Musicians, Local 257 during this time.

1967 **Professional Choir Member** (four years)

St. George's Episcopal Church
Nashville, Tennessee

1964 **Second Trumpet**

Tallahassee Civic Symphony
A. Rosenbaum, Conductor

Performed freelance work in Florida panhandle vicinity from 1963-1966, especially in area churches

Education

(Date when Degree was conferred)

1972 **Ph.D. in Music**

George Peabody College (of Vanderbilt University)
Nashville, Tennessee

Dissertation Topic: *The Evolution of Electronic Musical Instruments in the United States.*

Major: Music (Emphasis in Music Education/Research)

Minor: Psychology (Emphasis in Research tools, including: FORTRAN; correlation and regression analysis; motivation and programmed instruction; testing and inferential statistics; psychometrics; and learning theory).

NDEA Fellow, Title IV, 1966-1970

1968 **Master of Music Education**

George Peabody College

Applied Music: Trumpet, Piano.

Organizations: Vanderbilt-Peabody Jazz Ensemble, Peabody Wind Ensemble, Peabody Brass Choir, Vanderbilt Marching Band, Peabody Concert Choir, Peabody Antique Music Collegium (krummhorn, recorder, cornetto).

1966 **Bachelor of Music Education (Trumpet)**

The Florida State University
Tallahassee, Florida

1962 **National Merit Scholarship Finalist**

Deshler High School
Tuscumbia, Alabama

Additional Training

1999 **Physical Modeling Intensive Study**

Los Angeles, California

Undertook 16 hours of private study with Dr. Manuel Fernandez, an authority on the music synthesis technique of physical modeling, with focus of Yamaha VL70m implementation. August 8-9.

1988 **Kurzweil Music Systems**

Waltham, Massachusetts

Undertook 30 hours of tutorials with Hal Chamberlin, author of *Musical Applications of Microprocessors*, and employee of Kurzweil Music Systems in Waltham, Massachusetts. Topics include digital audio conversion, FM techniques, digital filtering, source-signal analysis (FFT), DAC and ADC technologies, etc. These tutorials, undertaken with my colleague Dr. Richard Boulanger, were a demonstration case for an alternative program for Berklee faculty development. The concept calls for made-to-fit faculty development programs in lieu of off-the-shelf offerings.

1987 **ACE Conference**

"Chairing the Academic Department"
Denver, Colorado

An intensive three day seminar undertaken November 18-20, 1987 that dealt with the problems that department chairs must resolve. Activities included role playing, scenario management exercise, group discussions, and attendance at lectures. A presentation on the Legal Responsibilities of the Chair, based on information gained at this ACE Conference was provided by this author to all Chairpersons at Berklee College of Music in 1988.

1982 Microcomputer Controls, Inc.

Nashville, Tennessee

Seven week course in FORTH computer language.

1978 IEEE Microcomputer School

Nashville, Tennessee

Two day workshop in Motorola 6800 assembly language.

1974 Buffalo Community Music School

Buffalo, New York

Private study, jazz piano.

1972 Nashville State Technical Institute

Nashville, Tennessee

Two semesters of AC and DC electronic technology with corequisite mathematics.

Awards/Residencies

E-STAR Artist-Historian in Residence, November 27 through December 4, 2000. (with follow-on residency TBA Spring, 2001). **Institute for Electronic Arts (IEA), School of Art and Design at Alfred University NYSCC**, financial support from the **Experiments in Science-Technology-Art Residencies (E-STAR)** program from the **Rockefeller Foundation**, with public funds from the **New York State Council on the Arts**, Alfred University NYSCC, Alfred, New York.

Exploration of DVD (Digital Video/Versatile Disc) technologies in support of the field of music and history, focused on the artistry and technology of electronics in the film/video score. Production of eleven DVDs featuring hundreds of edited video/audio excerpts from films/videos that document use of electronic musical instruments and electronic techniques in the underscore, from earliest examples to present uage, with illustrative examples of film scoring and sound design technology.

Music Technology Division Curriculum Development Award, 1999, Music Technology Division Convocation, Berklee College of Music, Boston, Massachusetts.

Recognition of exemplary curriculum development in the Music Synthesis Department of the Music Technology Division of the College. New Courses in Physical Modeling, Speech and Singing Synthesis, and Modular Functions and Signal Flow were created, and several existing courses were substantially restructured. Wrote new syllabi for various courses. Recognition of authorship of some 50 pages of documentation featuring accurate technical drawings and descriptions of basic principles of electronic music synthesis and modular functions. These papers are used as handouts by Department colleagues in classes throughout the MS curriculum.

Publications: History/Technology/Criticism

- Rhea, Thomas L., "Sackbut Blues, by Gayle Young," review and retrospective, *Computer Music Journal*, the MIT Press, Volume 19, Number 4, Winter, 1995.
- Moog, Robert A. and Rhea, Thomas L., "Evolution of the Keyboard Interface: The Böesendorfer 290 SE Recording Piano and the Moog Multiply-Touch-Sensitive Keyboards," *Computer Music Journal*, the MIT Press, Volume 14, Number 2, Summer, 1990.
- Rhea, Thomas L., "Electronic Music Plus 17 Festival, Oberlin Conservatory of Music, Oberlin, Ohio, USA, September 21-23, 1989," review, *Computer Music Journal*, the MIT Press, Volume 14, Number 1, Spring, 1990.
- _____, "Some Random Remarks About Music Synthesis," *Proceedings of the 8th Annual Symposium on Small Computers in the Arts*, Philadelphia, 1989.
- _____, "Clara Rockmore: The Art of the Theremin," review and retrospective of Delos D/CD 1014, *Computer Music Journal*, the MIT Press, Volume 13, Number 1, Spring, 1989.
- _____, "Perspectives on Electronic Musical Instruments: Past, Present, and Future," Videotape 88-03, 1989 SCAN Merchandise Catalog, from *Eighth Annual Small Computers in the Arts Symposium*, Philadelphia, November 11, 1988.
- Rhea, Thomas L., et al, "Pioneers Panel," Videotape 88-01, 1989 SCAN Merchandise Catalog, from *Eighth Annual Small Computers in the Arts Symposium*, Philadelphia, November 11, 1988.
- Rhea, Thomas L., "Reynold Weidenaar: The Telharmonium: A History of the First Music Synthesizer, 1893-1918," review and retrospective on Reynold Weidenaar's Ph.D. Dissertation, *Computer Music Journal*, the MIT Press, Volume 12, Number 3, Fall, 1988.
- _____, "Perspectives on Synthesizers," in *Synthesizer Basics*, compiled by the Editors of Keyboard Magazine, (Cupertino, GPI Publications), Milwaukee, Hal Leonard Publishing Corporation, revised edition, 1988.
- _____, "Perspectives on Synthesizers," in *Synthesizer Basics*, compiled by the Editors of Keyboard Magazine, (Cupertino, GPI Publications), Milwaukee, Hal Leonard Publishing Corporation, 1984.
- _____, "The History of Electronic Musical Instruments," in *The Art of Electronic Music*, Greg Armbruster, ed., New York, Quill, A Division of William Morrow & Co., 1984.
- _____, "Electronic Perspectives," monthly column in *Contemporary Keyboard Magazine (Keyboard Magazine)* January 1977 through March 1981.
- _____, *The Evolution of Electronic Musical Instruments in the United States*, Ph.D. Dissertation, George Peabody College, Nashville, Tennessee. University Microfilms, Ann Arbor, Michigan, 1972. Cited in *New Harvard Dictionary of Music* under "Electronic Instrument." Cited in *Grove Dictionary of Musical Instruments* in numerous entries on electronic musical instruments.
- _____, "Precursors of the Telharmonium," *Synthesis Magazine*, Volume I, No. 2 (1971), 28.
- Rhea, Thomas L., et al, "History of Electronic Music, Part I," *Synthesis Magazine*, Volume I, No. 1 (1971), 1-24.

Addresses/Papers: History/Technology

- "Music Technology is Hiding Everywhere: From the Blatant to the Unobtrusive, with Examples in Contemporary Music," **Institute for Electronic Arts, School of Art and Design at Alfred University NYSCC**, financial support from the **Experiments in Science-Technology-Art Residencies (E-STAR)** program

from the **Rockefeller Foundation**, with public funds from the **New York State Council on the Arts**, Holmes Auditorium, Alfred University NYSCC, Alfred, New York, December 1, 2000.

"A History of Electronic Musical Instruments," **Institute for Electronic Arts, School of Art and Design at Alfred University NYSCC**, financial support from the Experiments in Science-Technology-Art Residencies (**E-STAR**) program from the **Rockefeller Foundation**, with public funds from the **New York State Council on the Arts**, Holmes Auditorium, Alfred University NYSCC, Alfred, New York, November 30, 2000.

"Gliding Pitch Technology in Electronic Musical Instruments: A Retrospective," Invited Speaker, **Audio Engineering Society Fiftieth Anniversary (103rd) Convention**, "Electronic Music Synthesis and Control" session M chaired by Dr. Robert A. Moog, The Jacob K. Javits Convention Center, New York, New York, September 29, 1997.

"MIDI and the Music Entertainment Industry: Retrospective and Perspective," **National Conference of MEIEA (Music Entertainment Industry Educators Association)**, Conference-wide program at Berklee College of Music, Boston, Massachusetts, March 13, 1992.

"Antecedents of Electroacoustic Music: Parcours Historique et Projections," **XXI Festival International de Musique Experimentale**, Palais Jacques-Coeur, Bourges, France, June 12, 1991.

"Historical Development of Electroacoustic Musical Instruments," **A Tribute to the 20th Anniversary of the Bourges International Festival of Electroacoustic Music**, La Maison Francaise de Washington, Embassy of France, Washington, D. C., November 9-10, 1990. On program with founders Françoise Barrière and Christian Clozier, who were in attendance.

"Electronic Music and Instruments: A Retrospective/Perspective," **The Ninth Symposium on Small Computers in the Arts**, Philadelphia, Pennsylvania, November 4, 1989. Program coordinator (four sessions) and lecturer (one session).

"History of Electronic Music," **Electronic Music Plus 17 International Festival**, Oberlin College, Oberlin, Ohio, September 22, 1989.

"Electronic and Computer Music," (Robert A. Moog and Thomas L. Rhea) on the SCISTAR Interactive Educational Television network series: **On the Shoulders of Giants, Talcott Mountain Science Center for Student Involvement**, Avon, Connecticut, March 13, 1989.

"*Music of the Electron: A Concert/Demonstration*," **Talcott Mountain Science Center for Student Involvement**, Avon, Connecticut, March 12, 1989.

"Pioneers Panel," comprising several of the pioneers in the use of electronics in the arts: Max Mathews, Don Slepian, Laurie Spiegel, Robert Moog, Tom Rhea (moderator). **The Eighth Symposium on Small Computers in the Arts** (November 11-13), Philadelphia, Pennsylvania, November 11, 1988.

"Perspectives on Electronic Musical Instruments: Past, Present, and Future," luncheon address, **The Eighth Symposium on Small Computers in the Arts**, Philadelphia, Pennsylvania, November 11, 1988.

"An Historical, Sociological, Pedagogical, and Financial Perspective on Electronic Technology and Music," from "The Music Synthesis Program at Berklee College," a presentation at **Computing in the Undergraduate Fine Arts: A Practicum, Academic Computing Center, Gettysburg College**, Gettysburg, Pennsylvania, June 22, 1988.

"MIDI and Music Education," Keynote Address for **A Statewide Electronic Music Conference, Brookdale Community College**, Lincroft, New Jersey, April 22, 1988.

"MIDI and Education," address and panel discussion, **First MIDI Expo**, Manhattan, New York, December 6, 1987.

"Technology and Tradition: *Ever the Twain Shall Meet*," **Music in America Conference, Smithsonian Institution**, Washington, D. C. May 4, 1985. (A conference in which some 35 invitees nationally were asked to address the Institution concerning its future policies on American music.)

"*Electronic Music Education, or Electronic Music Education?*," **Seminario I Nuovi Strumenti, Accademia Musicale Chigiana**, Siena, Italy. August 24, 1977.

"The World of Electronic Music," **University of Calgary**, Calgary, Alberta, Canada. March 20, 1975.

"The Synthesizer in Jazz," Hampton Jazz Festival, **Hampton Institute**, Norfolk, Virginia. September 1974.

"The Evolution of Electric Musical Machines," **Philadelphia Musical Academy**, Philadelphia, Pennsylvania. May 8, 1974.

"Electronic Music Composition," **University of Portland**, Portland, Oregon. February 6, 1974.

"The History of Electronic Musical Instruments," **NASM National Convention**, Denver, Colorado. November 1973.

"The New World of Electronic Music," **Delta College (sponsored by Bay Music Foundation)**, Saginaw, Michigan. July 17, 1973.

"Synthesizers in Commercial Music," **NARAS Symposium**, Nashville, Tennessee. 1973.

"An Evening of Electronic Music," **Manatee Jr. College Music-Humanities Series**, Bradenton, Florida. September 1, 1972.

"What is Electronic Music?" **Lee College**, Cleveland, Tennessee. March 14, 1972.

"The New Electronic Keyboard Medium," **AGO, Nashville Chapter**, Nashville, Tennessee. 1972.

Publications: Technical/Pedagogical

Rhea, Thomas L., *Introduction to Music Technology MTEC111 Handbook (Course number change)*, Berklee College of Music, Boston, Massachusetts, 1998.

_____, *Introduction to Music Technology MT010 Handbook (Revised ed.)*, Berklee College of Music, Boston Massachusetts, 1995.

_____, *Introduction to Music Technology MT010 Handbook*, Berklee College of Music, Boston, MA, 1994.

Rhea, Thomas L., et al, *Kurzweil 1000 Series Expanders Musician's Guide*, Waltham, Kurzweil Music Systems, 1987.

Rhea, Thomas L., *OxyLights Users Documentation*, Niagara Falls, Occidental Chemical Corporation, 1986.

_____, *Owner's Manual for Moog Song Producer*, Buffalo, Moog Electronics, 1985.

_____, *Prayer Times Clock Owner's Manual*, Revised Edition, Atlanta, GETEX, Lockheed Air Terminal, 1985.

_____, *Prayer Times Clock Owner's Manual*, Atlanta, Lockheed Corporation, 1984.

_____, "Synthesizer Basics," in *Polaris Owner's Manual*, Fullerton, CBS Musical Instruments, 1983.

_____, *Crumar Spirit Owner's Manual*, Castelfidardo, Italy, CRUMAR, s.p.a., 1983.

_____, *Crumar Stratus Owner's Manual*, Castelfidardo, Italy, CRUMAR, s.p.a., 1981.

_____, *Moog Prodigy Owner's Manual*, Trilingual Edition, Buffalo, Moog Music, 1981.

_____, *Steiner Electronic Valve Instrument Owner's Manual*, Garden City Park, Music Technology, 1980.

_____, *Steiner Master's Touch Owner's Manual*, Garden City Park, Music Technology, 1980.

_____, *Moog Prodigy Owner's Manual*, Buffalo, Moog Music, 1979.

_____, *Multimoog Operation Manual*, Buffalo, Moog Music, 1978.

_____, *Micromoog Operation Manual*, Buffalo, Moog Music, 1976.

_____, *Moog Synthesizer Accessory Operation Manual*, Williamsville, Moog Music, 1974.

_____, *Minimoog Sound Charts*, Williamsville, Moog Music, 1974.

_____, *Minimoog Model D Operation Manual*, Williamsville, Moog Music, 1974.

_____, *Meet Moog and Make Music*, school curriculum, Williamsville, Moog Music, 1972.

_____, *Sonic Six Operation Manual*, Williamsville, Moog Music, 1972.

Numerous Music Trade Magazine articles; the following is representative:

Rhea, Thomas L., "Assemble Your Own Sounds," *PTM World of Music*, LXXI, No. 11 (1974), 16-.

Concerts/Recordings

Caminantes: 1,500 km de aventura, riesgo, cultura, emoción y sorpresas a través del México eterno, Una producción de CD-International, Una coproducción del Instituto Nacional de Antropología e Historia, Mexico City, Mexico, 1996. Award winning Hispanic CD-ROM with soundtrack produced by (Berklee) students mentored by Tom Rhea. Also, Tom Rhea, EVI (Electronic Valve Instrument).

Moments and Choices, interactive computer music composition with audience participation. **A French-American Love Affair in Concert**, Baltimore, Maryland, November 13, 1990. Sponsored by Res MusicAmerica and Meet the Composer, on program with Christian Clozier and Françoise Barrière, founders of the Bourges International Electroacoustic Festival.

"New Video/New Audio/NEWCOMP: **An Eclectic Concert of Music and Images for Electronic Media**," Artistic Director and Program Coordinator, Cambridge, Massachusetts, March 17, 1990.

"*Eclectic Electrix*" Program Coordinator. Concert for **The Ninth Symposium on Small Computers in the Arts**, Philadelphia, Pennsylvania, November 3, 1989.

Museum Music 1.0, on Concert for **The Ninth Symposium on Small Computers in the Arts**, Philadelphia, Pennsylvania, November 3, 1989.

Museum Music 1.0, **Electronic Music Plus 17 International Festival**, Oberlin College, Oberlin, Ohio, September 23, 1989.

An Interactive Realtime MIDI Performance, featuring members of the Berklee Music Synthesis Faculty with special guest Gary Lee Nelson, **The Eighth Symposium on Small Computers in the Arts**, Philadelphia, Pennsylvania, November 11, 1988.

"*The Second Annual BCS (Boston Computer Society) Music and Computers Conference Concert*," **Boston Computer Society**, Boston, Massachusetts, October 29, 1988.

"*The World of Electronic Music*," compositions by Thomas L. Rhea and Richard Boulanger, Performing Arts Center, **Brookdale Community College**, Lincroft, New Jersey, September 24, 1988.

"*Electronic Music Concert*," works by Rhea, et al, **Gettysburg College**, Gettysburg, Pennsylvania, June 22, 1988.

"Music Synthesis Faculty Concert," Berklee Performance Center, **Berklee College of Music**, Boston, Massachusetts, March 23, 1988.

Lecture-Demonstrations

The following are representative of early activities at secondary level of electronic music education:

"Synthesize Your General Music," **Oregon Music Educators Convention**, Portland, Oregon.
November 28-29, 1975.

"Playing the Synthesizer Live," **Tri-State Music Festival**, Enid, Oklahoma, May 1, 1975.

"Taking the Synthesizer to School," **MENC Northwest Division Regional Convention**, Spokane, Washington. February 16, 1975.

"Electronic Music in Education," **MENC Western Division Convention**, San Francisco, California.
February 1975.

"Switched-On Music-Making," **East Aurora Senior High School**, East Aurora, New York. February 14, 1974.

"The Musical Electron in the Classroom," **Dry Hollow Grammar School**, The Dalles, Oregon. February 8, 1974.

"Electronic Music and Synthesizer Demonstration," **Louisiana Music Teachers Association (MTNA) Convention**, University of Southwestern Louisiana, Lafayette, Louisiana. October 28, 1973.

"Discovering the Electronic Music Synthesizer," **South Carolina MENC State Convention**, Charleston, South Carolina.
March 30, 1973.

"Demonstration of Moog Synthesizer," **MENC National Convention**, Atlanta, Georgia. 1972.

"Electronic Music Workshop," **MENC Southern Regional Convention**, Daytona, Florida. 1971.

The Electronic Arts Foundation

The Electronic Arts Foundation was chartered in Florida as a nonprofit organization in 1972 by Tom Rhea, Dave Van Koevering, and Les Trubey. The Foundation was the personal expression of the desire of the founders to explore electronic art forms and preserve their history. Some 9,000 lbs. of artifacts were collected toward this end.

Some fifty antique electronic musical instruments and 80 gallery-sized archivally-mounted historical photographs were displayed at the NAMM (National Association of Music Merchandisers) Show in the summer of 1976. The Foundation, in conjunction with Hofstra University, put on a similar display at the Emily Lowe Gallery at Hofstra, from January 31 through February 14, 1979. The associated Symposium included performances and a panel discussion on February 1 with Herbert A. Deutsch, Robert A. Moog, Thomas L. Rhea, Konstantin Simonivitch, and Vladimir Ussachevsky as panelists. Much of the collection was lost when Van Koevering's home was destroyed by fire. Many instruments that were housed elsewhere, including the first Model D Minimoog, and the only extant Raymond Scott Clavivox were donated by Tom Rhea to the Audities Foundation, Calgary, Alberta in 2001.

Memberships

Voting member, National Academy of Recording Arts and Sciences (NARAS), Nashville Chapter