

**TECHNICAL COMMITTEE ON ARCHITECTURAL ACOUSTICS,
(TCAA)**

Date: January 29, 1997
From: TCAA Secretary - Ron Freiheit
Subject: TCAA Minutes of December 3, 1996.

Documented at the Third Joint Meeting of the Acoustical Society of America (ASA) and Acoustical Society of Japan, in Honolulu, Hawaii.

TCAA CHAIR: Dana Houglund

TCAA SECRETARY: Ron Freiheit

ATTENDEES:

David Adams, John Bareham, David Braslau, Leo Beranek, Soren Bech, Bennett Brooks, Wolfgang Ahnert, Yoichi Ando, Steven M. Brown, Bill Cavanaugh, Antonio Pedro O. Carvalho, Elizabeth Cohen, David A. Conant, Tony Embleton, Robert Essert, Martin A. Gold, Dr. J. Christopher Jaffe, Mendel Kleiner, Dana Kirkegaard, Ed Logsdon, David Lubman, Daniel W. Martin, David Marsh, Richard J. Peppin, Dennis Paoletti, Michel Picard, David Quirt, Roy L. Richards, Roberto Pompoli, Joe Pope, Jens Rindel, Kenneth Roy, Neil Shaw, Gilbert Soulodre, Nancy Timmerman, Lily M. Wang, Jason T. Weissenburger, Alf Warnock, Ewart A. Wetherill, George Wilson, Michael Yantis, Vicky Valiani, Robert Young, Peter R. Holmes, Brian Conolly.

ANNOUNCEMENTS:

Hideki Tachibana made an invitation to the TCAA to attend the International Symposium on Simulation, Auralization and Acoustic Research and Education (ASVA); April 2-4, 1997 in Tokyo, Japan. **Masayuki Morimoto** introduced the symposium agenda to the group; 35 invited papers and 80 contributed papers. The 35 papers will be presented for 9 sessions in three days. The feature of this session will be multimedia presentations including computer, video, audio, etc., to allow attendees to have the "experience" as desired by presenter. "Seeing is believing and listening is believing".

Chichen Itza Acoustics Measurements in Mexico: The following information was provided on the network regarding acoustics measurements of Chichen Itza.

To: tarchasa@aip.org
From: **Arno S. Bommer**
Subject: Investigation of Acoustics at Chichen Itza

There have been many comments on the acoustics of the Mayan Ruins of Chichen Itza in the Yucatan peninsula of Mexico. Most information is anecdotal ("it sounds neat"), many phenomena are probably easily explained (flutter echoes, pitch change from time-delay reflections of steps, etc.), and some of the analyses seem a bit far-fetched ("the Mayans must have been more advanced acoustically than we are now"). But the "room acoustics" of the great ball court, a 100' x 500' court with tall stone walls on the sides and a temple at each end, seem to be interesting. Years ago, scientists working in the ruins would host concerts in the court using a gramophone as the musical performer. **Leopold Stokowski** of the Philadelphia Symphony Orchestra visited the site in 1931 to study the acoustics. Recently, the San Diego Orchestra performed there.

Dr. Fernando Elizondo of the Acoustics Lab at the University of Nuevo Leon, is currently seeking a permit to make sound measurements at the site sometime in 1997. The exact schedule of the

measurements will depend on when access is allowed, when the weather is best, and when volunteers can go to the site.

Assisting **Dr. Elizondo** will be acoustical consultants **Arno Bommer**, **Angelo Campanella**, and possibly several others. In the past, there have only been a few brief measurements (that I know of). We are most interested in making measurements of the "room acoustics" of the great ball court and then trying to model it.

Before making our measurements, we'd like comments and suggestions from other interested and knowledgeable people on what to look for, what to measure, how to analyze the data, what models to use, etc. This is all being done on a volunteer basis, so there will be no financial incentives for anyone's help (though names of possible sponsors would be welcome).

Volunteers to help with the measurements will also be welcome. For more information, see: <http://interact.uoregon.edu/MediaLit/FC/WFAEMusings/Mayan>. If you are interested in further information, contact **Arno Bommer** at phone: (281) 492-2784; fax (281) 492-1434; or c/o eld@hsoft.com

Dana Houglund reminded the TCAA members that all abstracts need to be submitted through the ASA New York office. Some presenters were not included in the current program because no abstract was received.

ACKNOWLEDGMENTS:

Many thanks to the meeting paper sorters, **David Adams** and **Angelo Campanella**, and to the sessions chairs and cochairs: **David Braslau**, **Kazutoshi Fujimoto**, **Neil Shaw**, **Masayuki**, **Mendel Kleiner**, **Yasuhisa Toyota**, **Gary Siebein**, **Trevor Nightingale**, **Kimiori Sakagami**, **Anthony Nash**, **Sho Kimura**, **Dana L. Kirkegaard**, **Yoichi Ando**, **Anders Gade**, **Hideki Tachibana**, and **Joe Pope** for all their hard work and excellent planning.

PREVIOUS MINUTES:

Acceptance of minutes of the Indianapolis meeting: Motion made by **Neil Shaw** seconded by **Red Wetherill**.

OLD BUSINESS:

Student Design Competition:

Due date for the student competition is June 3, 1997. Please encourage involvement by schools that you may be associated with.

Classroom Acoustics:

Discussion is going on via e-mail. **Dave Lubman** reported on the ADA federal notice rule-making; nothing was included for communication standards. **Buzz Towne** and **Mike Nixon** responded back to the Architectural and Transportation Barriers Compliance Board (the Access Board) and the Department of Justice on the behalf of the TCAA and the president of the ASA. The goal is to get together a meeting of specialists including audiologists, acousticians and buildings people to come up with a consensus of areas of concern. There are activities planned for Penn State.

Meeting Room Acoustics:

Red Wetherill reported that he had a call from **Fred Fisher** with interest in this subject area. This may be a session for San Diego meeting. **Dave Lubman** reported that an idea would be to invite "meeting planners" from the San Diego area to attend this meeting and participate in the Meeting Room Acoustics session. **Charles Schmid**, Executive Director of ASA has arranged for several committee members to present papers at the Council of Engineering and Scientific Society Executives (CESSE) in late July. Speakers include **George Maling**, **Ewart Wetherill**, **Richard Talaske**, and **Howard Kingsbury**.

FUTURE MEETINGS:

PENN STATE MEETING: Spring 1997 (Joint with Noise-Con)
Jiri Tichy (INCE chairman) - If there are papers related to noise, it is suggested that they be moved to INCE meeting presentation. It was suggested that their not be competing papers in Noise during the ASA meeting.

Joint with Noise-Con: Discussion of Format for joint sessions- It was suggested that papers submitted for joint sessions be submitted to Noise Con for publication in the Noise-Con 97 Proceedings. Final date for submission of papers for publication is April 2, 1997.

Measurement and Modeling of Flanking Transmission: Organizer **Trevor Nightingale**. This session has been moved to Seattle in order to encourage participation from foreign researchers.

Speech Intelligibility in Rooms (Joint with Noise-Con): Organizers - **Jerry Marshall** and **John Bradley**
The session will happen. Some of the papers may talk about need for room acoustics and sound reinforcement since their appears to be different views on how to accomplish effective speech intelligibility.

Classroom Acoustics (Joint with Noise-Con): Organizer-**David Lubman**.

Workshop on Classroom Acoustic Standards: Organizers - **Mike Nixon** and **Buzz Towne**.
Proposed open discussion format. Hoping to get someone from speech or P&P group to discuss the impact of noise on speech intelligibility.

Proposal for Distinguished Lecture: **Bill Cavanaugh** reported that **George Izenour** has been asked to speak on multiple-use concert hall-theater design.

Other Sessions and Events

Bob Coffeen suggested that a poster session on large audience spaces could be presented. The poster session would include topics in acoustics, sound systems and noise control. **David Marsh** and **Ed Logsdon** also expressed interest in working on this session.

Student Reception: A student reception joint with the Speech TC will be held on Wednesday June 17th from 6-7 pm.

SAN DIEGO: Fall 1997

Recording, Production and Editing Facilities: Organizer - **David Prince**
The concept is for a poster session along with a book (or CD-ROM). **Russ Berger** has agreed to help with this session.

Loudspeaker for hi-fidelity production: Organizer - **Neil Shaw**

Manufactures of transducers, compression drivers and direct drivers. **Steve C. Butler** suggested having a joint session with Engineering Acoustics as a co-session. It was also suggested that a number of number of speaker manufactures be invited to participate in this session.

Multi-Channel Room: Organizers - **Elizabeth Cohen** and **Brian Conolly**

Knudsen Lecture: **Bill Cavanaugh** proposed that **Christopher Jaffe** present the Knudsen Lecture at San Diego.

Dave Lubman suggested that there be a session on microphone technique for various musical instruments. **Dick Campbell** agreed to work on this. **Elizabeth Cohen** suggested that AES and ASA work together jointly on this session.

FUTURE MEETING LOCATIONS:

SEATTLE - Spring 1998 (Joint meeting with ICA)

Format for meeting - planning for sessions will be done by the TCAA committee.

TCAA Advisory Representatives- **Mendel Kleiner**, **David Lubman**, **Jerry Lilly**, **Red Wetherill**.

Larry Crum commented that this will be a true international meeting. It will be the first time in 40 years that the ASA and ISA will meet together. Special Sessions will have to be in place by the end of the Penn State meeting due the publication of papers for this meeting. He encourage participation in this unique meeting. Abstracts will require a 2 page pre-print paper.

Proceedings may be available on CD-ROM. There are 16 plenary speakers for this session.

Measuring and Modeling Noise Flanking Transmission in Floors: Organizer - **Trevor Nightingale**

Case Studies of a Hall in Japan from the Designer, Researcher and Acousticians Perspective: Organizer - **Christopher Jaffe** (Session title fabricated by Chair for lack of better name).

The presentation will be about the Tokyo Forum project in Japan. Presentations will be made from the designers about \$1.7B project which included; multi-purpose hall, broadcast production, convention center, and three subways connecting to this facility, along with the integration of active acoustics in certain aspects of the project.

Integration of MCHA and CIARM - **Yoichi Ando** The MCHA and CIARM negotiations are on-going and sessions will be integrated with the ICA/ASA program

Opera House Acoustics:

Yoichi Ando and **Roberto Pompoli** suggested a series of special sessions on Opera House Acoustics. There seems to be a renewed focus on acoustics for music in the opera house. **Roberto Pompoli** mentioned the work that he has done in Opera House Acoustics in Italy. **Bob Essert** presented a proposal for a joint session (possibly 2 days, 4 sessions on Music and Opera House Acoustics. It was also proposed there be session that included: 1 - Acoustics from the performers and singers perspective (1/2 day), including orchestra pit acoustics, acoustics of stage enclosures for opera houses and multipurpose halls used for operas and relationships between orchestras and singers; 2 - Acoustic factors of the sound field for the audience including what are the objective parameters and the measurement techniques of these parameters (ISO standards), 3 - Opera house design including historical models, current and future designs. A student competition could be done that focuses on opera house design; 4 - A panel discussion on preparing an acoustical brief on opera house design including defining the brief and specific content. This could be a joint session with Musical Acoustics. **Elizabeth Cohen** suggested that this may be good for integration of new multimedia technology. **Red**

Wetherill suggested that the design competition should not be limited to student design. **Leo Beranek** commented that Tokyo will open a new western style opera house in October 1997. The project also included a concert hall and legitimate theater. **Dana Kirkegaard** suggested that this be a case study.

Elizabeth Cohen suggested a session environments for Internet Audio (personal listening environments).

The chair opened up the discussion for a parallel sessions at this meeting. There has been an effort in the past to try to avoid parallel sessions at the meetings. The consensus of those present was to continue to avoid parallel sessions at the Seattle meeting.

George Wilson suggested that the new concert hall in Seattle will be opening about the time of this meeting (it has a train tunnel running underneath of it). It was suggested that there be a special session on trains and their impact on concert hall and opera house design.

NORFOLK - Fall 1998

Moveable acoustics - i.e. for Cruise Ships: Examples were cited of 12 large scale cruise ships coming into use in 1997.

BERLIN - Spring 1999

Basic Schedule Information - Not available at this time.

TECHNICAL INITIATIVES:

New format - Some technical initiatives are ongoing with set specified limits for them. These will be automatically approved. Examples are these are travel expenses for speakers, home page development. This will help dispense with discussions on routine disbursements.

TCAA Home Page - **Scott Pfeiffer** is currently working on this. Suggestions should be sent via e-mail to PfeifAgar@aol.com. There will be more discussion at the Penn State meeting.

Classroom Acoustics - an amount of \$2,000 in seed money to plan a satellite meeting with other societies was requested and approved. Nothing definitive yet.

Concert Hall Research Group Project - An additional \$2000 was approved for the CHRG for continued research. **Chris Jaffe** asked if the information from the research this would be distributed internationally (?). **Leo Beranek** responded that the format for the information is out for comment, but not complete yet. **Chris Jaffe** asked about the status of the CD-ROM. **Leo Beranek** was not sure how much data will be on the CD. **Bill Cavanaugh** mentioned that the members of the CHRG will get the CD first, then it will be made available to the ASA for distribution. **Elizabeth Cohen** suggested that the web page might be a place to make the information available.

Dana Kirkegaard will submit a request to the technical committee for support again on his research in seating acoustics.

Travel Support in the amount of \$800 was approved to assist student travel related to the competition.

EXECUTIVE COUNCIL REPORT:

Bill Cavanaugh reported that **George Izenour** is the distinguished lecturer for Penn. State meeting. Lot's of work going on in the area of electronic publishing.

TECHNICAL COUNCIL REPORT:

Technical Organizer - **Dana Houglund** will serve as paper sorter for the Penn State meeting.

Membership - the Chair presented information on ASA and TCAA membership. TCAA has experienced slow steady growth over the last 25 years, with most of our members coming from engineering fields. TCAA has fewer members under the age of 40 than most technical committees. It also has the lowest percentage of female members of any technical group. **Neil Shaw** suggested increased involvement with physics teachers. **Red Wetherill** suggested that we should volunteer to work with the local schools to increase our exposure. **David Marsh** suggested involvement in science fairs.

Dave Lubman suggested giving guest lectures and providing copies of "Echos" from the ASA. Refer interested people to the TCAA web site. **Chris Jaffe** mentioned that **Steve Haas** has been making presentations to High Schools. He might be able offer an example for these types of presentations.

INTRA SOCIETY:

CHRG: - CD-ROM (**Dick Campbell**) Currently there are two students working on creating the CD-ROM. The drawings provided by **Gary Siebein** have been scanned in. Part of the Mechanics Halls is complete. Impulse responses will be added. Matlab will be used as the common format. **Dana Kirkegaard** has contributed a large bibliography section. There are some copyright issues to be discussed within the ASA. It's desirable to include photographs of the halls. It will be in Adobe Acrobat format with support for hyperlink and will be searchable. The current resolution will be 600 dpi. Currently there are over 100M of drawings loaded so far. **Dick Campbell** is seeking suggestions on the directory structure. **Doug Rife** has arranged that a MLSSA demo version to be included with the CD-ROM. The goal will be to have a CD-ROM by the Spring ASA 1997 meeting.

Sound Quality Meeting - **Dick Lyon** is organizing a meeting on Sound Quality for September 1997.

INTER SOCIETY:

NCAC: - Hosting a reception that is open to all (at the Hawaii meeting).

AES: - Current has a web page available at www.aes. AES: The Spring meeting is March 22-25, 1997 in Munich, Germany; the Fall meeting is September 26-29, 1997 in New York, New York; a special session on small room acoustics will be held in November 1997.

MEETING ADJOURNMENT:

A motion for meeting adjournment was made by **Neil Shaw**, and seconded by **Elizabeth Cohen**.