

The newsletter of the  
Acoustical Society of America

# ECHOES

Volume 1, Number 1  
Spring 1991

## The New Airport Noise Legislation



**D**uring the final days of the battle of the budget, Congress approved important legislation on airport noise. Although it seemed as if the bill were dead in the water at times, a vigorous lobbying campaign by Secretary of Transportation Samuel Skinner and officials of the airline industry helped get it passed, effectively without opposition.

In drafting the Airport Safety and Capacity Expansion Act of 1990, Congress acknowledged that local opposition to aircraft noise was creating a serious impediment to airport expansion. Senator Wendell Ford, who sponsored the bill, was concerned that individual communities had imposed a variety of "uncoordinated and inconsistent" restrictions on the nation's airlines, which he considered to be an undue burden on interstate and foreign commerce. The intent of the Act, therefore, was to facilitate airport expansion by increasing the federal government's role in airport noise control, while decreasing the authority of local airports. By requiring the phase-out of the noisiest members of the air transportation fleet, the legislators also sought to reduce the overall noise level.

Under the provisions of the Airport Safety and Capacity Expansion Act of 1990, the Department of Transportation (DOT) must develop and issue regulations

establishing a national noise policy by July 1, 1991. The Act also requires airlines to phase out 85 percent of their Stage II aircraft by the year 2000, in preparation for a total Stage III fleet. By the year 1994 the remaining 15 percent must be phased out. During the phase-out

period, no Stage II aircraft can be added to the U.S. fleet unless

it is modified (by installing a "hushkit," for example)

to meet Stage III noise requirements. This is to prevent the "dumping" of European Stage II aircraft on the American market, since the

EEC nations are expected to perform the phase-out sooner than the U.S.

Probably the most controversial provision of the Act requires the DOT to issue regulations creating a program in which the DOT (actually, the Federal Aviation Administration, FAA) will review aircraft noise restrictions imposed after October 1, 1990 by any airport. With respect to Stage III aircraft, the new legislation means that local airport authorities will not be able to impose any noise abatement measures, such as evening or nighttime restrictions, curfews, penalties, or noise budgets, without the FAA's approval, or the approval of all of the airlines using that airport. Stage II restrictions would not necessarily need FAA approval, but would have to go through a rigorous public information and notice process, which would

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ISSUE . . . PREMIERE ISSUE . . . PREMIERE IS



## "We hear that . . ."

**Tom Rossing**, a Fellow in our Society, is now serving as president of the American Association of Physics Teachers (AAPT).

**Bob Beyer** has retired from the AIP Executive Committee after more than 15 years. He will, however, remain on the Governing Board. His position on the Executive Committee was not filled by a member of the ASA, but **Murray Strasberg** will serve as a non-voting participant.

**Charles Schmid**, the ASA's Executive Director, was recently appointed to the AIP Governing Board to fill out Fred Fisher's term, who resigned due to increased responsibilities at the Marine Physical Lab.

**The Acoustics Speech and Signal Processing Society** (ASSP) of the IEEE has been renamed the Signal Processing Society (SPS). The journal will be called *Signal Processing Magazine*. But the major conference held in the spring of each year will remain the International Conference of Acoustics Speech and Signal Processing (ICASSP).

**Logan Hargrove** looks like he's getting an excellent course ready on physical acoustics to be held from June 24 to July 1 in 1992 at the Asilomar Conference Center in Pacific Grove, California. He already has nine well qualified instructors lined up as lecturers. This will be an interesting week for physical acoustics enthusiasts.

**William Goehner**, of Lakewood NJ, has recently written to the ASA indicating that he has decided to retire

and assume emeritus status. He is one of five charter members now with the Society. He mentioned working with some of the founders, including Harvey Fletcher (ASA's first president) and Leon Sivian. When he worked for Sivian, he set up a demonstration of binaural hearing for Alexander Graham Bell.

**Manfred Schroeder** will receive the Gold Medal at the Baltimore meeting. **Yves Berthelot** and **Joseph Cuschieri** will each receive the R. Bruce Lindsay Award. The Medals and Awards Committee decided to present the award to two candidates this year, since the voting was identical for both. The last time the award went to two people was in 1956, when it was known as the Biennial Award, and it went to Ira Hirsh and Ernest Yeager.

**John Gilheany** and **Orest Diachok** did an outstanding job organizing the paper-sorting meeting in Baltimore this January. It's not a straightforward job to place 660 papers into 64 sessions in a few days. But with the help of a computer database program and their technical program committee, they got the job done.

The **Noise Control Products & Materials Association** has changed its name to the Noise Control Association. So the NCPA is now the NCA. ASA member **John Flood**, NCA president, is also president of Eckel Industries, a sustaining member of the ASA. ■

## Letters

Dear Charter Reader,

The debut of this newsletter is the result of the ASA Executive Council's approval of a funding request by the Public Relations Committee to publish two trial issues. The newsletter before you should have arrived at your doorstep before the upcoming meeting in Baltimore, and in fact contains some last-minute information about that meeting. The second issue of *Echoes* will arrive about two months after the Baltimore meeting. If the Society decides to continue publishing after two newsletters, this schedule will produce a quarterly publication.

The Executive Council will decide if the Society should continue to publish a newsletter based on responses from you. The question they had, and one you might well ask, is: "Do we need anything more to read than we presently get in the Journal?" So take a look through this first issue, and let us have your comments using the last page. Even if you don't write, take a look through it anyway—for we hope you will enjoy *Echoes*.

Charles Schmid and Alice Suter  
Ad-Hoc Editors for *Echoes*



### ECHOES

Newsletter of the Acoustical Society of America  
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The Acoustical Society of America was organized in 1929 to increase and diffuse the knowledge of acoustics and to promote its practical applications.

This newsletter is provided as a free benefit of membership to all Acoustical Society members.

Ad hoc editors . . . . . Charles Schmid & Alice Suter  
Design & typography . . . . . Linden Design  
Printing . . . . . American Institute of Physics

The Far Side cartoon on page 3 is reprinted by permission of Chronicle Features, San Francisco, CA.

Phone inquiries should be directed to 516-349-7800, facsimile transmissions to 516-349-7669. Article submissions and correspondence should be directed to: *Echoes* Editor, Acoustical Society of America, 500 Sunnyside Blvd., Woodbury, NY, 11797.



# 121st ASA Meeting: April 29 to May 3

## Baltimore has plenty of music and concert hall acoustics

Thursday, May 2, promises to be an interesting day for members interested in concert hall acoustics and music in general. ASA attendees have been invited to attend the rehearsal of the Baltimore Symphony Orchestra at the Meyerhoff Hall on Thursday morning. Peter Serkin is the guest soloist. All those attending should be there by 9:55 a.m., and can only be seated or leave between musical pieces. Later that afternoon, the Meyerhoff will be the site of the Knudsen Lecture on Concert Hall Acoustics given by Leo Beranek. Dr. Beranek has written many books and articles on the subject, and received ASA's Gold Medal in 1975 and the Wallace Clement Sabine Medal in 1961.

On Monday, the Technical Committee on Architectural Acoustics has scheduled tours of local buildings, including the Mammal Pavilion of the National Aquarium, Friedberg Concert Hall at the Peabody Conservatory of Music, the Lyric Opera House and the Morris A. Mechanic Theater.

Two sessions on bowed string instruments will be given honoring Carleen Hutchins on Wednesday, May 1. In addition, there will be a special session on glass musical instruments on Friday, May 3—come and hear a glass harp! Two workshops on teaching musical acoustics for high school, pre-high school and college-level teachers will be given on Friday and Saturday following the meeting. These workshops are a result of the Technical Initiative Program, discussed on page 5 of this newsletter. Also, the Committee on Education in Acoustics will have a session on Demonstrations in Acoustics on Wednesday afternoon; and the Catgut Acoustical Society, co-founded by Carleen Hutchins, will meet the weekend after the ASA meeting. In addition, there will be tours of the McShane Foundry, which is one of the few places in the United States still casting church bells. ▽

## ASA census nearly complete

For the past two years Chester McKinney has been asking acousticians a lot of questions. He and sidekicks Burt Hurdle and Joe Blue have spent countless volunteer hours trying to find out how many people are working in all aspects of acoustics, and how many of them are ASA members. An additional goal they have taken on is to figure out why those who aren't ASA members haven't joined the Society.

A draft report containing very interesting information on the numbers of people working in various branches of acoustics in the U.S. should be finished about the time we meet in Baltimore. ■

## Baltimore meeting coming up—with a number of papers on noise

The 121st meeting of the ASA will convene in Baltimore from April 29 through May 3rd. If you're an ASA member, your program should be arriving about the same time you get this newsletter. (Non-members interested in attending should call ASA's office at (516) 349-7800, extension 481, to request a copy of the program.)

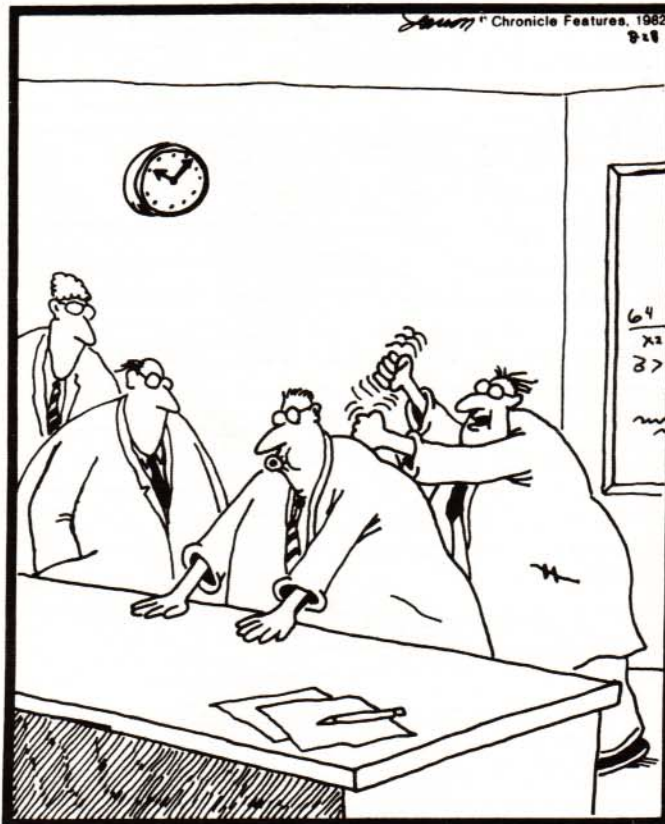
There are 660 papers on acoustics scheduled to be presented in 64 sessions. One session will be on Airport Noise Monitoring (Session 2NS Tuesday morning), and will cover some aspects discussed in the front page article of this newsletter. Also dealing with noise and its effects are sessions on Quiet Product Design (7EA on Thursday) and Industrial and Machinery Noise Control (Session 6NS on Thursday) and a special session on Hearing Loss Prevention and Compensation (Session 4NS on Wednesday).

### Tired of using traditional transducers? Try lasers

Find out how to use lasers to generate sound at ultrasonic frequencies in Session 4PA, Photoacoustics and Laser Acoustics, on Wednesday morning. ■

## THE FAR SIDE

By GARY LARSON



"And notice, gentlemen, the faster I go, the more Simmons sounds like a motorboat." ■



# Miscellaneous Soundings

## Acoustics research in Europe and the Soviet Union

David Feit, an ASA Fellow, recently visited the Soviet Union and a number of European countries to write his report: "Acoustics Research in Europe and the Soviet Union." He has also written a couple of short reviews on special workshops on "Applications of Active Control to Engineering Systems," and on "Natural Sources of Underwater Noise in the Ocean" held in Cambridge last year. If any acousticians are interested in these two fields, and want to know who's working in them, they should start with David Feit's overview. Likewise, anyone wanting a good introduction to European or Soviet acoustical activity should definitely get hold of this bulletin. This "focused issue" on acoustics appears in ONR's European Science Notes Information Bulletin 90-09. For a copy, write to the attention of Ms. Connie R. Orendorf at:

Commanding Officer  
ONR European Office  
Box 39  
FPO New York 09510-0700

## Amendments to Society Bylaws change its structure

### New method for electing Technical Committee chairs

An amendment to the Bylaws was passed at the San Diego meeting allowing members of each Technical Committee to choose their own chair. The previous method was appointment through the President of the Society. This amendment permits more involvement by Technical Committee members. Each Technical Committee can choose its own method to elect a chair. The two general methods committees have chosen are: (1) mail ballot to committee members, and (2) voting of attendees at the Technical Committee meeting at the ASA meeting.

### Executive Director position established

Another amendment to the Bylaws of the Society was passed at San Diego establishing a new position of Executive Director. This position replaces the previous position of Secretary of the Society.

As most of you know, Charles Schmid has been selected to be the new Executive Director. Murray Strasberg, the outgoing Secretary of the Society, remains active with a number of tasks, which include the position of non-voting ASA representative to the American Institute of Physics. ■

## ASA services—electronic mail and abstract searching

PINET (Physics Information Network) is the computer network for the American Institute of Physics (AIP). Since the ASA is a member organization of the AIP, you are eligible to join at a discount rate. All you need is a computer and a modem with the appropriate software. Then you're ready to call up a 1-800 number and get such services as:

- Electronic mail to transmit messages to colleagues
- Job opportunities to see what's available
- Advance and published abstracts (the beauty being that you can scan for key words)
- Member directory information (again, scanning on key words)
- News from Washington D.C. (important legislation affecting the technical world is updated weekly)

Using PINET we found that there are 114 Charleses, 33 Alans, 13 Allans, and 5 Alices in the Acoustical Society! There are obviously a lot more important facts to be found.

To get your AIP User ID and password, dial 1-800-727-4638 on your modem and log in to the PINET computer as "new." For further information, call Suzanne Pischel in the Woodbury, N.Y. office at 516-349-7800, extension 441. Your credit card can be used for billing, or if you don't have one of those, you can prepay your account with a check.

Connect costs for ASA members range from \$10 to \$25 per hour depending on your status and whether you connect during prime time or at night. ■

## Distribution center for ASA Standards changed

The Acoustical Standards published by the ASA are now available through a new distributor:

Professional Book Distributors (PBD)  
ASA Standards Distribution Center  
1650 Bluegrass Lakes Parkway, P.O. Box 6996  
Alpharetta, Georgia 30239-6996  
Phone: (404) 442-8631; Fax: (404) 442-9742

The change to a new distribution agency was done to improve the method and timeliness of the delivery of standards to ASA members and other customers. All orders will now be sent first class or UPS. The staff at the ASA Standards Office is looking forward to having a new distributor and improved service. If you want the Standards catalog or have any questions on Standards in general, call the ASA Standards Office in Manhattan at (212) 661-9404, extension 561. ■



# Will AO become a TC?

## Acoustical Oceanography: On the threshold of TC status

The Executive Council voted on November 30 to approve a change in status for Acoustical Oceanography (AO) from a Technical Specialty Group (TSG) to a Technical Committee (TC)—provided that 2 percent of the total membership chooses Acoustical Oceanography as their first choice of 12 technical fields. The number of AO first choices will be taken from the questionnaire for the directory recently mailed to all members. The 2 percent figure represents approximately 140 members.

The Acoustical Oceanography group has been sponsoring a number of very popular sessions at the last few ASA meetings. Much of this interest stems from the efforts of Herman Medwin, who chairs the committee. Medwin recently was featured in a *New York Times* article, "Tiny Bubbles Explain the Babble of Undersea Noise." The article, in the *Science Times* section, said: "Acoustical

Oceanography, as the new science is called, was the subject of a special session held last month at the meeting of the Acoustical Society of America in San Diego. Reports presented at the meeting, which have riveted the attention of physicists, oceanographers and climatologists, focused on microbubbles." It's good to see the ASA and acoustics get some press, and that members are "riveted" at the meetings!

Three special sessions in Baltimore will be open workshops on "Gassy Seafloor Sediment: Field Measurements," "Remote Sensing of Sediment Properties by Measurements in the Water Column," and "Remote Sensing of Sediment Properties by Measurements on or Near the Seafloor." Also in Baltimore we will find out whether or not the 2 percent threshold was met, and if there will be a new Technical Committee called Acoustical Oceanography. ■



## Technical initiatives: Bringing innovative ideas to the Society

The Technical Council has received \$24,000 per year from ASA funds to spend on technical initiatives. The goal is to bring innovative ideas to the Society. These projects are submitted to the Technical Council for approval from any of the ten Technical Committees or two Technical Specialty Groups. A number of the new programs in Baltimore, such as the Musical Acoustics Workshop and Awards for Best Papers in Speech, are funded through this program.

The technical initiatives that have been proposed or passed are shown below. Those marked with an asterisk (\*) have been approved by the Technical Council.

### ACOUSTICAL OCEANOGRAPHY

- Breakfast reception for invited speakers in AO-sponsored special sessions

### ARCHITECTURAL ACOUSTICS

- Sabine Lecture
- Resource Program for Teaching Architectural Acoustics\*

### ENGINEERING ACOUSTICS

- Travel Subsidy for Invited Speaker\*
- Travel Subsidy for Students
- Travel Subsidy for Paper Sorting\*

### MUSICAL ACOUSTICS

- Workshops for Teachers\*

### NOISE

- National Hearing Conservation Assoc. Conference\*
- Student and Recent Graduate Support
- Honorarium and Travel for Foreign Speaker
- Prizes for Best Noise Paper in JASA

### PSYCHOLOGICAL AND PHYSIOLOGICAL ACOUSTICS

- Interchange between a Psychological Acoustician and Physiological Acoustician Resulting in a Joint ASA Presentation

### SPEECH COMMUNICATION

- Student Best Paper Awards\*
- Travel Subsidy to Researchers to ASA Meetings
- Informal Reception for Students with Researchers\*

### SPEECH AND P&P

- Workshop on Speech Signal Processors for Auditory Prostheses

### STRUCTURAL ACOUSTICS AND VIBRATION

- Best Student Written/Oral Paper Prizes\*
- Best SAV Paper Award



# The new airport noise legislation

## Airport noise legislation — from pg. 1

include analyzing the costs and benefits of various alternatives. Any airport plan must show that its noise abatement procedures do not place "an undue burden on the national aviation system."

It appears that Congress wanted to exempt certain airports from this legislation. This was accomplished without naming these airports in the Act, but by listing regulatory details pertaining to each one. FAA watchers currently interpret these airports to be: Minneapolis, Seattle, Denver, Orange County, Long Beach, Palm Beach, Detroit, Westchester County, and Van Nuys. The choice of these airports is undoubtedly related to the amount of pressure applied on certain congressional representatives by their constituents.

In return for losing a large share of their current autonomy, airport operators will be able to institute passenger facility charges, often referred to as "head taxes," to be used for airport expansion and noise abatement programs. This new tax comes in addition to the ticket taxes that traditionally have been earmarked for the Aviation Trust Fund, which is supposed to support noise abatement programs, among others.

The one group that vehemently opposed the bill was the anti-noise lobby. Although citizens groups sent their representatives around Capitol Hill in the final days of the debate, their efforts were too little and too late. On the basis of past experience, the citizens feared long delays in airport plan approvals and lack of responsiveness on the part of FAA officials. They believed that they were the only ones who would be adversely impacted by the new legislation, and yet they were not consulted in its formulation. (There were no public hearings on the bill.)

Citizens groups also maintain that the phase-out schedule is a phony benefit, because aging aircraft and higher fuel costs would accomplish it naturally. Moreover, they fear that the continuing escalation of air traffic will probably offset any benefits to be derived from a quieter fleet. Representatives of citizens groups plan to meet within the next few months to develop a national legal and political strategy on the airport noise problem.

In the meantime, the FAA is under the gun to develop its national noise policy by the July 1 congressional deadline. Within the next few months, the FAA must also come

Learn the latest news in Baltimore when John Wesler discusses "The Status of Federal Aviation Noise Regulation" at 9 a.m. on Tuesday, April 30, in Session 2NS, Airport Noise Monitoring.

up with policies on passenger facility charges, the phase-out and non-addition of Stage II aircraft, and the extent to which airports can restrict operations of both Stage II and Stage III planes. The FAA recently issued notices of proposed rulemaking in the Federal Register. In response to requests from citizens groups, the agency also held public hearings on the phase-out and restriction issues in the Washington D.C. area, Chicago, and Seattle during the first two weeks of March.

At this time certain questions remain unanswered, and it is doubtful whether the FAA's rulemaking will make everything crystal clear. The phase-out schedule should be straightforward, once the FAA issues its final rule. But such issues as the definition of an "undue burden on the national aviation system," the liability for noise damages, whether business jets are treated as Stage II or III aircraft, and the criteria for approval or disapproval of an airport's restrictions on Stage III aircraft may continue to keep the lawyers and the bureaucrats busy.

Another issue that remains to be resolved at this point is whether some airports can institute accelerated phase-out plans for Stage II aircraft. Controversy over this issue is currently brewing in New York and New Jersey. Legislators in both states have sponsored bills requiring drastic reductions by 1992 in the proportion of Stage II planes operating at the three Port Authority airports operated jointly by those states. FAA director James Busey fired off a letter to these state legislators calling the bills "blatantly illegal" and threatening to withdraw federal funding for their noise abatement programs. In response, a New Jersey congressional delegation headed by Senator Frank Lautenberg, chairman of the U.S. Senate Transportation Appropriations Subcommittee, wrote back stating that Mr. Busey had misinterpreted the law, and warning the FAA not to interfere with local determination on this issue.

Whether or not the new legislation will accomplish its primary purpose of facilitating airport expansion is not at all clear. Indeed, there is the possibility that it would actually thwart expansion because it permits virtually unlimited operations by Stage III aircraft (day and night), and airport neighbors may be inclined to block any future airport expansion with lawsuits or any other means available to them.■

*Alice Suter is a consultant in community and industrial noise and is a Fellow of the Society. She and several other ASA members were featured in articles dealing with the health aspects of noise in recent issues of Redbook and Environmental Action.*

Anyone interested in obtaining copies of the FAA's proposals or final rules may contact the FAA's Office of Public Affairs at (202) 267-3484. To keep up with the events surrounding the Airport Safety and Capacity Expansion Act of 1990, along with other news about airport noise, interested readers can subscribe to:

Airport Noise Report  
43978 Urbancrest Court  
Ashburn, VA 22011



# A revived federal noise program?

## A revived federal noise program?

In 1982 the U.S. Environmental Protection Agency dismantled its noise program and closed the Office of Noise Abatement and Control (ONAC). Recently, the EPA has begun to reevaluate its responsibilities under the Noise Control Act, and has asked the Administrative Conference of the United States to assess the current situation and propose alternatives for the future. The Conference is a small government agency, funded by Congress, whose purpose is to study the policies and procedures of the administrative agencies (such as EPA), and to make recommendations as it sees fit. To assist it in this endeavor, the Conference has contracted with administrative law professor Sidney Shapiro of the North Carolina School of Law, and ASA member and noise consultant Alice Suter of Cincinnati.

Shapiro and Suter will develop a lengthy report and submit it to the Conference in July of this year. After that, the Conference will hold public meetings to discuss the report and its recommendations, and develop its recommendations to the EPA.

In the meantime, the Conference is soliciting comments and suggestions on issues surrounding governmental noise policies. Among the issues of interest are:

- Whether a federal noise program should be reestablished, and if so whether it should be placed in EPA or in another agency

- Strengths and weakness of EPA's former noise program in the Office of Noise Abatement and Control (ONAC)
- The value of ONAC's publications and information program
- The value of ONAC's research on noise effects and noise control technology and the merit of establishing new research programs
- The usefulness of federal noise emission regulations
- The value of technical support to state and local noise programs
- Whether a noise labeling program should be reestablished
- The usefulness of a model community noise ordinance
- The role of the EPA in the mitigation of aircraft noise exposure

The Conference will also welcome comments on other issues pertaining to noise control and the federal role, and would urge individuals to support their comments and suggestions with information and experience whenever possible. Communications should be directed to:

David M. Pritzker  
Administrative Conference of the U.S.  
2120 L St. NW, Suite 500  
Washington, D.C. 20037

## Election results imminent

The ballots for President-Elect, Vice President-Elect, and two members of the Executive Council will be counted on April 9th, with results announced at the Baltimore meeting. The person with the most votes will become the 44th President-Elect. Eric Ungar, current President-Elect, will become the 53rd President of the Society at the Baltimore meeting. The difference between the two term numbers is due to the ASA's not establishing the position of President-Elect until 1948, when the Society decided that the experience gained during the "elect" phase would be useful for incoming officers. ASA's incoming Vice President, Robert Apfel, also served one year as Vice President-Elect.■

## ASA resumes sending journals to the Mideast

Services to the Mideast were stopped during the war with Iraq. The ASA has members in Iran, Israel, Jordan and Saudi Arabia who didn't get their journals during this period, but back issues will now be mailed to them.■

## Directory questionnaire mailed

A questionnaire was mailed to all of the 6700 members of the Acoustical Society of America in March. This information will be used to update the Directory, affectionately known as the "Green Book," which will be published this fall. Murray Strasberg, recently retired Secretary of the Society, did a great job incorporating important information into the 1989 directory. He is also in charge of updating the 1991 directory. Give him a call if you have any suggestions for improvement.

About 750 members of the society did not report their birth dates (and hence their age) on the questionnaire two years ago. This is fine—but please note that anyone not registering a date of birth will not be listed for consideration for the R. Bruce Lindsay award, since the first requirement for consideration is to be under 35. (Those over 35 can remain quiet if they want!)■

*"The nervous system is the product of a superb architect and a sloppy workman."*

J.C.R. Licklider  
In the May 1951 JASA



## Your thoughts on our newsletter

The Executive Council has authorized publishing two issues of the newsletter *Echoes* on a trial basis. The publication of *Echoes* is meant to supplement information found in the back of the Journal with content that is timely and non-archival in nature.

We would like to hear from you regarding what types of information you would like to see in *Echoes*. Likewise, we want to know which of this issue's subjects you liked and which you didn't like.

Please take a moment to fill out the accompanying form and drop us a line about your thoughts. You can send your completed form to:

*Echoes*  
Acoustical Society of America  
500 Sunnyside Avenue  
Woodbury, NY 11797

Or drop it off at the registration desk at Baltimore.

- ☐ *Echoes* should be continued
- ☐ *Echoes* should not be continued

What I liked about *Echoes*:

What I didn't like about *Echoes*:

Material I'd like to see in future issues:

## 1991 Calendar

See page 1468 of the March issue of JASA for detailed calendar information.

- April 29– May 3 121st Meeting of the Acoustical Society of America, Baltimore, Maryland. (Call Elaine Moran, 516-349-7800)
- May 3–5 Workshop in Musical Acoustics and Catgut Acoustical Society Meeting. (Call Tom Rossing, 708-972-6316, or 815-753-6493.)
- May 10–11 Speech Perception in the Hearing Impaired: Implications for Hearing Aid Technology. (Call Carl Crandell, 214-905-3102)
- May 14–16 1991 SAE Noise and Vibration Conference, Traverse City, MI. (Fax to Pat Kouhig, 412-776-0002.)
- July 14–16 NOISE-CON 91 "Noise Control: 20 Years of Progress," Tarrytown, NY, sponsored by INCE/USA. (Write to NOISE-CON 91, P.O. Box 2469, Arlington Branch, Poughkeepsie, NY 12603)
- November 4–8 122nd Meeting of the Acoustical Society of America, to be held in Houston, Texas. (Call Robert Finch, Chair, at 713-749-2437.)

**Reminder: Abstract deadline July 8th.**  
**You will receive a call for papers in May.**



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