

IEEE

NEWSLETTER



SONICS & ULTRASONICS GROUP

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EDITOR: Dr. E. P. PAPADAKIS
Panametrics, Inc.
221 Crescent Street
Waltham, Massachusetts 02154
617-899-2719

1972 Ultrasonics Symposium

The 1972 IEEE Ultrasonics Symposium was held at the Statler Hilton Hotel in Boston, Massachusetts, on October 4, 5, 6, and 7, 1972.

The meeting was spread out over three and one-half days instead of the usual three days to see if some of the session overlap could be avoided. The reaction of the attendees was varied, but about 200 people stayed for the two Saturday morning sessions.

Over 340 people registered, including over 60 one-day attendees and about 20 students. Half those registering were IEEE members. Only the New York meeting in 1968 had more total attendees, 392. Thirty people took advantage of our half-price offer and joined GSU.

There were special sessions organized in Acoustic Imaging and in Biological Ultrasonics, which contributed to the large number of one-day registrants. The evening session on Medical Ultrasonics just about filled the large Georgian Room. Almost half the technical program was on surface acoustic waves, and there was some slight overlap of subject matter. Rejecting papers is never an easy matter and I feel that the Technical Program Committee under Lew Claiborne of T. I. did a fine job in organizing the sessions, picking invited speakers, and soliciting papers to help set the tone of the meeting.

There was more than the usual "messaging up" of hotel reservations due to the fact that the city was filled with conventions in October. We apologize to you for these inconveniences, and the hotel management has tried to apologize to us as well. Fortunately, once the meeting was underway, the hotel facilities were good. The meeting rooms were large enough (once the microphone crosstalk was eliminated) and centrally located so people could go from session to session easily. Most of the services were done competently. Best of all, the lobby where coffee and cokes were served provided a good place for people to interact and talk.

All in all, the meeting ran smoothly, thanks in part to the help of Jim Worley of Microsonics and Sid Lees of Forsyth, who helped with local arrangements. The meeting was a financial success, and a technical success, and for those who weren't too busy, it was a gastronomical and social success as well.

Next November we try Monterey!

M. G. Holland
General Chairman
1972 Ultrasonics Symposium

New Officers

At the Ad Com meeting held October 3, 1973, the following were elected to serve during 1973:

Dr. Lawrence W. Kessler, President
Zenith Radio Corp.
6001 W. Dickens Ave.
Chicago, Illinois 60639
312-745-4880

Dr. Norm F. Foster, Vice-President
Bell Laboratories
Holmdel, New Jersey 07733
201-949-6209

Dr. William D. O'Brien, Jr., Secretary-Treasurer
Bureau of Radiological Health
12709 Twinbrook Pkwy.
Rockville, Maryland 20852
301-443-3466

Report from the President

L. W. Kessler, Dec. 1972

Administrative activities in general, are among the most difficult to understand and uninteresting topics to follow for the average scientist and engineer. Yet these are functions which are, without a doubt, as important as the purely technical. Since, in the real world one cannot exist without the other, we owe it to ourselves as individuals to pay attention to both in order to at least develop realistic attitudes about our job function, our corporate and personal goals, about the dollars and cents of decision making and about where we are going professionally (or where we will wind up). The Administrative Committee (Ad Com) is run by persons who function in both capacities to look after the activities of the Group on Sonics and Ultrasonics (G-SU). The purpose of this article is to describe some of the administrative happenings within G-SU during 1972.

Continued...

BENEFICIAL POLICY CHANGE

In the last newsletter I described the financial penalties imposed upon small IEEE Groups and Societies due to certain cash flow procedures between the account sheets of the Groups and IEEE Headquarters. The Groups receive that portion of a member's total IEEE bill denoted as "Group Membership Fees" and, in addition, a small fraction of the base IEEE dues is given to help support technical activities. For purposes of discussion a total of "A" dollars is involved as this additional support to the Group. In turn for basic administrative services rendered to the Group by the Headquarters office the group is charged back another sum, say "B" dollars. The problem is that because of the distribution formulas employed $A > B$ or $B > A$, depending very heavily upon group size and hurting the smaller groups. In essence for the case $B > A$ the group has to give up a fraction of membership fee income in order to make the payment. In G-SU's case about one half of the \$5.00 fee was returned to IEEE for administrative expenses. In the large group, where $A > B$, the net surplus income arose from the small group deficits! This did not seem equitable.

Mr. B. Schneider, Chairman of TAB Finance Committee became aware of this problem through G-SU correspondence. His committee subsequently proposed appropriate changes to correct this problem and these were approved effective for the 1973 budget. G-SU appreciates the efforts of TAB Finance Committee. For G-SU this policy change translates to an additional \$3,000 income in 1973.

ADMINISTRATIVE DIFFICULTIES IN BOSTON - COMPENSATION

The 1972 Ultrasonics Symposium which was held at the Statler Hilton Hotel in Boston (Oct. 4-7, 1972) ran into severe difficulties with hotel accommodations. The hotel reneged on their guarantee of rooms for our registrants without telling anybody about it. Just two weeks before the symposium Dr. M. G. Holland, General Chairman of the conference and myself became alerted, through persons who were unable to get rooms anywhere in Boston. The entire city was sold out for that week. Despite a contribution of rooms at another hotel through the assistance of the Boston Chamber of Commerce, the Statler Hilton reservation desk and the Nationwide Hilton Reservation Service would not accept our reservations; neither would they acknowledge the problem and refer our callers to the other hotel. As a result, attendance at the symposium was about 15% below anticipation.

There is an upshot to this story, however, under pressure, the hotel agreed to settle with us financially for a significant fraction of our anticipated losses.

An interesting sidelight to the story is that the hotel manager assured us that this sort of unfortunate situation, which was due to internal difficulties in the hotel, couldn't happen again, since a new computer system is being installed to handle reservations from now on. Any comments from the anti computer society? (This is not an IEEE sponsored society).

WHAT TO DO WITH EXTRA MONEY

Occasionally the situation arises that as year-end approaches, uncommitted funds remain on the books. Such was the case for 1972 within the IEEE Technical Activities Board (TAB). Therefore, TAB solicited individual proposals from Groups and Societies who wished to use a portion of the money for a special project. It was felt that the money would be used more effectively to support a few special activities than to increase all Groups' accounts by some small amount.

G-SU submitted a two part proposal to advertise our Transitions through specialty mailing lists, etc., and to encourage membership in the Group. Although IEEE widely circulates publications, catalogs and announcements of available publications, it is felt that certain specialized

markets such as ultrasonics cannot be fully reached by such broadly based solicitations alone. Dollars and cents wise, the Ad Com has very little if any control over the year to year variations in Transactions subscriptions. Yet this is the primary source of income for the group! Thus the proposal involved not only a mailing, but also the purchase of advertising space in appropriate trade publications.

This story concludes with good news and bad news. First the bad news . . . IEEE ultimately decided to ignore the proposals submitted and prorate the funds across the board to all Groups and Societies. Now the good news. With the support of Dr. Leo Young, Director of Division 4 and Mr. Joe Dillard, TAB Chairman, other monies were made available to support a good part of our proposal. We appreciate the support and look forward to a favorable report concerning the return on the investment.

G-SU TECHNICAL ACTIVITIES

As you may be aware, G-SU changed the method of publication of the Transactions to a less expensive printing method in 1972. The journal looks the same, but for an unjustified right hand margin, and the cost savings have been substantial. This will allow an increase in the number of published papers and an improvement in the speed of publication starting in 1973. Thus, this year, Ad Com will be concentrating on building the Transactions as regards technical coverage and subscribers list.

For those of you who missed the 1972 Ultrasonics Symposium, there is a Proceedings containing 75% of the papers. Specify IEEE Catalog number 72 CHO 708-8 SU and send 10.00 (non members or 7.50 (members) to IEEE, 345 E. 47th Street, New York 10017. Only a few hundred copies are left. Order Now. By the way, the papers were submitted at the time of the symposium Oct. 7, and the Proceedings were mailed to attendees in November. (They said it couldn't be done.)

The G-SU Technical Committee Structure under Dr. John May has broadened its scope by the addition of several new members. This is in essence a steering committee for G-SU technical activities and a review board for the standards we produce.

With regards to our Symposia, the 1973 Ultrasonics Symposium will be held in Monterey, California, and the 1974 meeting in Milwaukee, Wisconsin. Technically these meetings are very well established and attended. Here is an excerpt, reviewing the 1971 Ultrasonics Symposium, which was published in the March 1972 issue of Ultrasonics P. 90.

The 1971 IEEE Ultrasonics Symposium which has firmly established itself as a first-class meeting in the world acoustics calendar was held at Miami Beach, Florida. The program included two day and one evening tutorial sessions, together with thirteen research sessions. These included a number of invited papers amongst the contributed items, of which seven dealt with some aspect of acoustic surface waves. The topics covered in the special tutorial lectures were bubble domain technology, surface charge devices and analogue signals, integrated optics, liquid crystals in ultrasonics, and electric and optic fields.

AdCom Notes

by

William D. O'Brien, Jr., Secretary-Treasurer

The following is a brief account of the G-SU Ad Com meeting of October 3, 1972, which was held during the 1972 Ultrasonics Symposium in Boston, Mass.

The Ad Com officially extended its thanks to Dr. M. G. Holland (Raytheon Res. Labs., Waltham, Mass.), General Chairman of the 1972 Ultrasonics Symposium, and Dr. L. T. Claiborne (Texas Instruments, Dallas, Texas), Technical Program Chairman, for a job well done.

Dr. W. D. O'Brien, Jr. (Bureau of Radiological Health, Rockville, Md.) reported that G-SU will break-even financially in 1972 with the reserves essentially unchanged at \$6.7K. He also reported that the 1973 budget has been submitted and planned for break-even. IEEE has changed its allocation procedures for 1973, which partially resulted from G-SU response. See the August, 1972, Newsletter. The new allocation procedure is a flat \$10K charge per group and a prorated support according to the formula of \$7450 per group plus \$1.70 per member. With the previous allocation procedure, the break-even membership was around 3000 whereas with the new procedure, it's around 1500.

The Ad Com approved a motion to change the Transaction's editorial procedures from Method B to Method A (the best). This will result in the voluntary page charge being increased to \$60.

The Ad Com approved a motion to discontinue mailing the Symposium Abstract Bulletin to all members prior to the Ultrasonics Symposium. Instead, the Bulletin will be available only at the meeting.

Every two years, the IEEE Publications Board reviews the group and society Transactions through divisional committees. A preliminary evaluation of the G-SU Transaction was received but, based upon limited information, an examination of the evaluation was not possible. Therefore, Dr. Norm E. Foster (Bell Labs., Holmdel, NJ), Publications Committee Chairman, reported that the committee would examine the evaluation for the next Ad Com meeting.

The April, 1973, G-SU Transactions will be published jointly with G-MTT on the special topic of "Acoustic Signal Processing." Dr. T. M. Reeder (United Aircraft, Hartford, Conn.) is the guest editor.

Dr. S. Wanuga (General Electric, Syracuse, NY), Editor of the G-SU Transactions, has agreed to edit an IEEE Press Selected Reprint Series Book on the topic of Acoustic Surface Waves.

Dr. L. W. Kessler (Zenith Radio Corp., Chicago, Ill.) was re-elected President and Dr. N. F. Foster was re-elected Vice-President of the 1973 G-SU Ad Com. Dr. W. D. O'Brien, Jr. was re-appointed Secretary-Treasurer for 1973.

Dr. J. E. May (Bell Labs., North Andover, Mass.) Chairman of the Technical Committee of Transducers and Resonators, has broadened the committee scope with the additions of T. R. Meeker (Bell Labs., Allentown, Pa.) in delay lines, F. J. Fry (Indiana University School of Medicine & Interscience Research, Indianapolis, Ind.) and J. M. Reid (Providence Hospital, Seattle, Wash.) in Medical ultrasonics and S. K. Kurtz (Philips Labs., Braircliff Manor, NY) and C. E. Land (Sandia Labs., Albuquerque, NM) in ferroelectrics.

The 1973 Ultrasonics Symposium will be held at the Naval Postgraduate School, Monterey, CA, November 5-7, 1973. The General Chairman is Dr. J. Neighbors (Naval Postgraduate School) and the Technical Program Chairman is Dr. J. deKlerk (Westinghouse Res. Labs., Pittsburgh, Pa.).

The 1974 Ultrasonics Symposium will be held in Milwaukee, Wisc. The General Chairman is Dr. M. Levy (University of Wisconsin at Milwaukee).

Dr. A. J. Bahr (Stanford Res. Labs., Menlo Park, CA), Chairman of the Membership Committee, reported that Dr. I. Larson (Hewlett-Packard, Palo Alto, CA) has been appointed Vice-Chairman of the committee.

The Ad Com approved a motion to co-sponsor the 5th International Symposium on Acoustical Holography and Imaging, which will be held July 18-20, 1973, at the Rickies Hyatt House, Palo Alto, Calif.

The next G-SU Ad Com meeting will be held during the 73 Intercon.

SU TRANSACTIONS

The 1972 issues of the Transactions on Sonics and Ultrasonics comprised a total of 466 pages. Included in this total was the 272 page April special issue on "Ferroelectrics". The October 1972 G-SU Transaction was the earliest completed and mailed out of all Transactions that were due that month. Of special interest in that issue, was the announcement of the award recipient for the best paper in the 1971 G-SU Transactions and a new venture, a book review by Dr. W. P. Mason. Publication of both of these two new successful undertakings of our Group will be continued in future issues.

Two new editorial changes have occurred in the associate editor staff. Replacing Vince Salmon of Stanford Research Institute "Industrial Applications" will be E. P. Papadakis of Panametrics. W. G. Mayer of George Washington University will be taking over for Bill Cook, University of Houston, in the "Measuring Techniques" area. We are grateful for the contributions of both outgoing associate editors and express our thanks for their many years of dedicated service.

The January 1973 issue will contain 10 or 11 papers plus the abstracts from the October 1972 Ultrasonic Symposium. In addition, the issue will also include the "IEEE Standard on Magnetostrictive Materials, Piezomagnetic Nomenclature". A short editorial on "Membership" will be published on the inside of the back cover. A separate convenient form for new membership application is also included. Members are asked to invite others interested or working in Ultrasonics to join and participate in the growth of the Group on Sonics and Ultrasonics.

The April 1973 issue will be a joint G-SU, G-MTT special issue on "Acoustic Signal Processing". Both Groups will send out the issue with their covers to respective members.

The remaining issues for 1973 will contain the standard papers plus some review papers of fields covered by our Group. Also being initiated is a short form correspondence type letter for faster dissemination of short manuscripts. Plans are being formulated to publish the entire backlog of papers partially created by some of our previous financial problems. New rules are being initiated for authors, associate editors, and reviewers, that will help expedite paper processing and result in faster turn around time for paper publication.

Stephen Wanuga
Editor, Sonics and Ultrasonics

Nominations Committee

WORKS ON ADCOM

G-SU Financial Condition

H. J. Shaw of the W. W. Hansen Laboratories of Physics at Stanford University, who is presently a member of AD-COM, has been appointed Chairman of this year's Nominations Committee for the group. He is presently assembling a committee to prepare a slate of nominees for members at large of AD-COM. Mail ballots will be sent to the entire group membership for voting in the election to fill forthcoming vacancies on AD-COM. Members will be voting to select three new AD-COM members from the slate of nominees provided by the Nominations Committee. Also, other nominees can be placed on the slate by means of a nominating petition carrying a minimum of 25 names of group members. The election will be completed prior to March 1.

BY
William D. O'Brien, Jr., Secretary-Treasurer

Membership Drive A Success

AT 1972 ULTRASONICS SYMPOSIUM

by

A.J. Bahr, Chairman, Membership Committee

The special discount that was offered to IEEE members who joined the Sonics and Ultrasonics Group while attending the Ultrasonics Symposium proved to be an effective inducement. Thirty-one attendees took advantage of the half-price offer. This number represented about 15 percent of the IEEE members who attended the conference, some of whom were already members of the Group. The success of this campaign can be attributed to the advance publicity that appeared in the calls for papers and the final program, and to the promotional capabilities of the ladies who handled the registration at the Symposium. The matching funds required for the first year's fees of these new Group members are derived from the general income to the Symposium.

	Fin. Cond. as of 10/31/72	1972 Budget
INCOME		
Publications	\$19,684.61	\$16,400
Non-Member	\$12,945.76	\$11,200
Single Issue	376.10	400
Conference	702.75	0
Vol. Page	5,660.00	4,800
Membership Fees	5,723.50	6,100
Meetings	2,043.82	5,400
Interest	965.00	0
IEEE Support	6,655.00	4,300
Transfers	312.00	0
	<u>\$35,383.93</u>	<u>\$32,200</u>
EXPENSES		
Publications	\$27,172.07	\$18,900
Transaction	\$18,389.28	\$11,300
IEEE HQ	6,227.40	6,100
Other	2,555.39	1,500
Member Service	7,777.36	7,600
Meetings	0	5,400
Awards	100.00	0
Committee & Other	0	200
	<u>\$35,049.43</u>	<u>\$32,100</u>

Net Worth, 1/1/72	\$11,661
Net Operating Surplus	334
Net Worth, 10/31/72	11,995
Less Outstanding Loans	2,000
Cash Balance, 10/31/72	9,995
Less Transaction Estimate	0
Uncommitted Balance, 10/31/72	\$ 9,995

The totals for the financial condition ending 10/31/72 are very encouraging. Because of the differences between the financial condition and the 1972 budget, a word of explanation is appropriate. The largest discrepancy is under Publication Expenses. This is principally due to the Ferroelectric special issue of the Transactions, April, 1972. The anticipated Transaction expense was \$18K but, at the time of the budget preparation, the exact figure was not available. Also, because of this issue, expenses of indexing, editing, etc. were greater, bringing the expected Publication Expense to around \$26K.

Income for this difference was also anticipated. A \$2K surplus from the Ferroelectrics Symposium is shown under Meeting Income, and a \$4K special appropriation was obtained from IEEE, but credited to 1971 and, therefore, appears as Net Worth, 1/1/72.

Finally, G-SU submitted two proposals to IEEE for \$4.5K for excess, end-of-year funds. A special appropriation of \$2K was granted and this is shown under IEEE Support.

Exclusive of the \$2K special appropriation, the financial condition would show a Net Operating Deficit of \$1.6K. This is, in fact, very good since the financial condition, to be truly break-even, would show a \$4K deficit (recall the \$4K special appropriation in the Net Worth, 1/1/72).

NEWLY ELECTED Fellows

The following persons who hold membership in the Group on Sonics and Ultrasonics have recently been elected Fellows of the IEEE. Congatulation, Fellows!

Name	Citation
Bertram A. Auld	For contributions to the theory of microwave ferrite devices and microwave acoustics.
Irving Kaufman	For contributions to microwave electronics, and to education.
Herbert J. Shaw	For contributions to the field of microwave acoustics.

'73 Financial Budget

by
WILLIAM D. O'BRIEN, Jr., Secretary-Treasurer

The following is the budget submitted to IEEE:

<u>INCOME</u>	
Publications	\$24,200
Non-Member	\$11,200
Single Issue	500
Conference	2,500
Vol. Page	10,000
Membership Fees	6,000
Meetings	5,400
Interest	400
IEEE Support	5,500
	<hr/>
	\$41,500
<u>EXPENSES</u>	
Publications	\$26,500
Transaction	\$10,000
IEEE HQ	10,700
Other	5,800
Member Service	7,600
Meetings	5,400
Awards	200
Committee & Other	200
	<hr/>
	\$39,900

The above budget is based upon 250 regular pages for the Transactions and the 1972 IEEE method of support. However, the G-SU Ad Com has approved of a special joint issue of the Transactions with G-MTT for April, 1973, and this issue may cost approximately \$3K more than a regular issue. But IEEE has modified its allocation procedures which, it turns out, is in G-SU's favor. For IEEE Support, groups will receive money based upon the formula of \$7450 per group plus \$1.70 per member. Based on 1200 members, this is \$9.5K. For Member Service, IEEE will charge a flat rate of \$10K per group, regardless of size. As a result, Income increases to \$45.5K and Expenses to \$42.5K, yielding a \$3K surplus. This surplus can be used for the special issue. Therefore, the 1973 budget is planned for break-even.

Proceedings

Editorial

INTERDEPENDENCE FOR THE SELF-RELIA

The 1972 Ultrasonics Symposium, held in Boston, October 4-7, under the general chairmanship of M. G. Holland of Raytheon Research Division was a great success both in attendance and in the papers presented. L. T. Claiborne of Texas Instruments, Chairman of the technical program committee put together a very comprehensive program. The following subjects were covered: acoustic emission, biological and medical ultrasonics, industrial applications, physical acoustics, acousto-optics, amplification and acousto-electric effects, and various aspects of elastic surface waves.

Each author was invited to present his talk in manuscript form at the Symposium for publication in the 1972 Ultrasonics Symposium Proceeding and was provided with a supply of model paper for this purpose. The response was truly gratifying and as a result approximately 75% of the talks presented are now published in the Proceeding. Many sessions, notably those on medical and biological ultrasonics and on surface waves, showed near 100% participation.

This volume, edited by J. de Klerk of Westinghouse Research Laboratories, was distributed on November 20, 1972, to those who ordered their copy at the Symposium. The Proceedings is now available from IEEE, 345 East 47th Street, New York, NY 10017 at a cost of \$7.50 to members (\$10.00 to non-members and institutions) by requesting Catalog No. 72 CHO 708-8SU.

Several authors indicated that the challenge to produce a good manuscript, which resulted in better prepared talks, and the promise of publication of their latest work in a shorter time than could be achieved by the celebrated "Letters" publications, was adequate incentive for a good response.

Future plans are to publish a Proceeding of each Ultrasonics Symposium in order not only to retrieve information which in the past has mostly been lost, but to assemble the information in one volume and make it available to the public within weeks of the Symposium.

The IEEE has entered upon a new era of professional responsibility in matters of social, economic, and political consequence to its members. (See news item elsewhere in this issue.) In a nutshell, this means that the members of this august body of engineers are collectively beginning to recognize their interdependence with respect to their well being. The key word probably is interdependence.

Interdependence means sublimated self-reliance. This, in turn, means more effort toward joint activities and less blind trust that one can go-it-alone. Indeed, it may mean that the individual will need to exert more effort and skill on the over-all goals than he ever did for his own personal ends. The individual is being asked to maximize his output and productivity through use of his capabilities. Sloth is not part of the bargain.

Self-reliance is an American dogma inculcated at an early age. It has been thought of as an end in itself and as a panacea for ills. The President has recently called for a return to self-reliance for the good of the country. Self-reliance calls out the best in the individual to achieve those ends he values, and to develop himself into an effectual instrument for achieving those ends.

The ends we see as valuable now are becoming more and more communal ends, anchored in interdependence. A balanced ecology; a stable economy; avoidance of total war; postponement and possibly avoidance of the collapse of civilization (see "The Limits to Growth"). On a more mundane level, portable pensions; justice for the poor; equality for minorities; decent life for the aged.

Any call for more self-reliance at this point must be interpreted in terms of the need for more interdependence. Is there a contradiction? Possibly not, if self-reliance is placed in the right perspective. The self-reliant person knows that achieving any goal requires struggle. If he exerts his efforts to the best of his abilities in an interdependent effort, struggling for some common goal, then the good attributes of his self-reliance will be utilized and sublimated for the higher good. The President's call for more self-reliance can be construed to mean this: If you want to achieve something, you will have to struggle for it.

Who is the you in this struggle? You can be the IEEE, the labor movement, migrant farm workers, a Golden Agers federation, a Black coalition, or any grouping. The President has simply given notice that any group that wants to achieve anything through interdependence will have to struggle for its goals. The interdependent group will have to be self-reliant, organizing its constituency, forming alliances, fighting its bills through Congress, overriding vetoes, bringing class action suits to force the Executive to enforce the law of the land.

The interdependence of individuals as they form up groups will ultimately have to give way to the interdependence of all peoples as they try to keep "spaceship earth" habitable. In the meantime, let's sublimate our good old self-reliance for a bigger goal. It is all very well to hark back to the frontier where "D. Boone killed a bear on this tree", but we should remember that Dan'l was dependent on gunsmiths, cartwrights, tanneries, and powder companies as well as on himself. Interdependence.

The Private Pension Hoax

The Boston Evening Globe
Monday, September 18, 1972
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Some 30 million Americans are covered - or think they are covered - by private pension plans. But the private pension industry, with assets of a staggering \$140 billion, is an unholy mess, and last week some of the details were bared in a television documentary and by a Senate labor subcommittee which approved a bill to improve the system.

It was about time. The promise of private pensions can be destroyed after many years of hope by switching jobs to another company, by a firm's failure, or by its merger or absorption by a larger company, or by incompetent or dishonest management. The huge private pension plans are all but unregulated.

In contrast, Canada has a universal contributory special insurance program for the labor force, enacted in 1965, that covers 92 percent of the workers and is administered by the government.

A Department of Labor news release sums up our own situation:

"If you remain in good health and stay with the same company until you are 65 years old, and if the company is still in business, and if it has a pension fund, and if your department has not been abolished, and if you haven't been laid off for too long a period, and if there is enough money in the fund, and if that money has been prudently managed, you may get a pension."

The private pension system is a fine, old idea that has gone sour mostly because the funds are not universal, they are not insured against loss and, they are frequently and, curiously, legally used to prop up failing business enterprises that thereafter go bankrupt and gobble up every dollar paid into the pensioners' retirement accounts.

Since pension funds consist mostly of employer contributions, those employers who convert them to their own use or otherwise mulct them argue that the money is their own and, hence, they should be permitted to use it in any way that best serves their own purposes. But pension funds have legally been construed as deferred wages, which they are in fact, and hence as inviolable as is the regular payroll. Moreover, they are subsidized in the amount of \$8 billion a year in employer tax deductions. Yet, they are virtually unregulated in comparison with banks and insurance companies. The inadequate Federal laws that cover them, for instance, do not even require their auditing.

Only 30 million of the nation's 85 million workforce are covered. Half of the 30 million, though they work a lifetime believing that their deferred wages are piling up in a retirement fund, find upon retirement or dismissal or disability either that their earnings have been dissipated or that for some technical reason they have forfeited everything. They finish their lives either in poverty or as their children's or the state's dependents.

A difficulty in the covered as well as the uncovered worker is the disposition of some employers to think of average wage earners in private business and industry as dispensable cogs in a machine, creatures apart from government workers, the military, the judiciary, the Congress, even the President himself, all of whom retire on livable pensions, in some cases at full pay and in most at no less than half. It is argued that these contribute to their retirement fund. They do, in most cases. But so do the owners. There is no difference except in the amount of the pension and the management and guarantee of the fund.

It is also argued that Social Security was legislated as the vehicle for seeing the retired through a comfortable and carefree old age. It wasn't and it doesn't. It was legislated as a kind of crutch, a supplement to the "investments" and "other savings" which so plainly are beyond the capacity of the average wage earner. The ideal would be a Social Security system which eliminated the need for other retirement funds without eliminating them for those who wished to participate. It is the expectation of social planners in and out of Washington that the nation eventually will come to something so progressive and humane and essentially such sound business. But this is a long way off. A generous, sound and properly managed private pension system is the only alternative for now.

In a message to Congress, President Nixon has stated that "more than 4 million retired workers are now receiving benefits from private plans, and these benefits total about \$7 billion annually."

This more graphically should be made to read "less than 5 million" instead of "more than 4 million." And their average pension is a totally inadequate \$1750. Mr. Nixon correctly states that "there is much room for expanding and strengthening our private pension system." How much room is suggested by his proposal that individual contributions to retirement incomes be tax deductible up to the level of \$1500 per year or 20 percent of income, whichever is less. Thus, he calculates, a wage earner whose plan begins at age 40 could retire at age 65 with an annual pension of \$7500 in addition to Social Security benefits. How Mr. Nixon arrived at the \$7500 figure is not clear, but what is to be noted is that \$7500 is more than four times the average current pension.

The \$7500 figure, moreover, is high indeed compared with figures compiled by the subcommittee of the Senate Committee on Labor and Public Welfare. These show that the median monthly benefit in plans with 1000 or more participants is \$99. This, added to the median Social Security retirement benefit of \$129 a month, produces an annual income of \$2736. This compares with \$2892 per year which the Labor Department calls the bare subsistence level for a retired urban couple.

The ideal toward which Sen. Harrison Williams (D-N. J.), Sen. George McGovern and other Senate leaders are aiming is a system under which all wage earners and self-employed who are retired because of age or disability will be pensioned at a level which enables them not only to live in comfort but to continue as active participants in the great consumer market with whose ups and downs the whole economy sinks or swims.

This requires a system of insured funds covering all wage earners wherever and by whomever they are employed, including the self-employed - a system under which a wage earner has a vested and insured right equal at all times to the moneys contributed to the pension fund in his name, with the accumulation of such contributions moving with him from one place of employment to another until retirement. Case histories compiled by the Senate subcommittee illustrate the inadequacies of the pension system as it now operates.

Item: The bookkeeper employed for 29 years by a firm which liquidated all of its assets, including the pension fund, and went out of business. At 54, the bookkeeper not only cannot find other employment, but has no pension whatsoever. Item: The aerospace engineer whose employer went out of business when his defense contracts were not renewed. Item: The wire manufacturer who went bankrupt after investing the entire pension fund in his own securities. Item: The steel mill with total assets of \$19.5 million and pension liabilities of \$66 million.

Item: The employe of a midwest meat packer who was transferred from a plant in which he had pension rights to another in which he did not have such rights. When the second plant there-after closed, he was retired and his total pension was the lump sum of \$231.55 after 38 years of continuous employment by the same employer.

These are random selections (far from the worst) from a host of case histories.

Almost a score of proposals for broadening and insuring the whole system are pending in Congress. None of these would do all that needs to be done. The most satisfactory is probably Senate Bill 3598 introduced by Sen. Williams for himself and Senator Jacob Javits (R-N. Y.) and 10 others.

They are influential senators from both parties. The bill would charge the Labor Department with administration and supervision of all pension plans and funds, which it would also insure, with provisions for both vested rights and portability. It does not establish Utopia. But it is a forward step, providing the momentum (or so it may be hoped, at least) for building a system to enable all wage earners to enjoy the fruits of their labors of a lifetime.

Letter to the Editor

To the Editor:

The field of ultrasonics has now developed to the point where it has qualified for independent status as a scientific discipline. We propose that the science of ultrasonics be called "Ultrasonology" and workers in the field be called Ultrasonologists. The hospitals would have Departments of Ultrasonology separate from the Department of Radiology.

S. S. Fishman
Sara Scientific Co.
P. O. Box 321
San Francisco, Cal. 94101
(415) 421-3172

IEEE Amends Constitution To Encourage Professional & Related Social-Public Activities For Its Membership

The Institute of Electrical and Electronics Engineers, the world's largest engineering society, announced that it will amend its Constitution to permit greater involvement in the social implications of technology. The decision to take this action was made by the members in an overwhelming vote just tallied. The entire membership was polled for its opinions on the proposed changes. Approximately 85 percent of the vote was cast in favor in balloting which has just been tabulated.

President Tanner stated that the IEEE will now be able to proceed along two main lines of activity: its technical operations which include the publication of engineering journals and the holding of scientific meetings, and involvement in legislative, social, ethical, and economic matters.

He and his fellow officers indicated that the engineering group would now be able to embark on new programs concerning political and economic activity, the preparation of position papers to assist Government and other agencies, recommendations on professional employment practices, and establishment of a pension plan for members.

There has been a marked demand by the membership of the IEEE for increased professional activities in behalf of the electrical engineers in the nation. As a direct result, new Constitutional Amendments were proposed which extend the purposes of the IEEE from purely scientific and educational activities to the "advancement of the standing of the members of the profession." In order to accomplish this, the Amendments state that the IEEE may conduct and publish surveys and reports on matters of professional concern to the members of such professions, collaborate with public bodies and with other societies for the benefit of the engineering professions as a whole, and establish standards of qualification and ethical conduct.

One section of the Amendments states that: "The IEEE shall not engage in collective bargaining on such matters as salaries, wages, benefits, and working conditions, customarily dealt with by labor unions." In addition, the Amendments state: "The IEEE shall strive to enhance the quality of life for all people throughout the world through the constructive application of technology in its fields of competence. It shall endeavor to promote understanding of the influence of such technology on the public welfare." Since the IEEE has members in many countries outside the U. S., one section of the amended Constitution permits it to "engage in activities directed to the interests and needs of members residing in a particular country or area of the world." In specific terms, the Constitutional Amendments mean that the IEEE can now advocate certain kinds of legislation, enter more directly into phases of the employment problems of the profession, including referral and placement services, develop a more effective public communications program, establish guidelines concerning equitable employment practices, and seek means by which the IEEE membership can make social and political contributions to society.

"All of these will be done," Mr. Fink, the Executive Director, said, "without compromising the Institute's reputation for technical excellence. The demands of civilization on engineers are clearly deeper and broader than they have ever been to solve such problems as our energy needs, the transportation crisis, and the plight of our cities. At the same time, the appreciation of the role of the engineer in getting answers to these problems is at a low ebb. In both areas -- the reliance that civilization must place on the competence and breadth of engineering and the vital, creative, and essential role of the engineer -- the problems transcend IEEE traditional approaches to technology. With these new Constitutional Amendments, IEEE will be better able to meet the new challenges facing the profession, while the technical, scientific and educational objectives of IEEE continue to be strengthened."

Lets Get Back To Technical Activities

Report by Division IV Director Leo Young

The last TAB¹ meeting was in connection with WESCON in Los Angeles in September. (The next one will be in Philadelphia in February.) I also attended the TAB OpCom² meeting in September and November, and the Board of Directors meetings in September and December.

Technical activities are the lifeblood of the Institute, and the Groups and Societies have continued to deliver services to their members, with excellent support from Dick Emberson and his headquarters staff. Of course, of great interest to all of us have been the developments on professionalism. The constitutional amendment adding a new "professional" purpose to the "scientific and educational" purpose was passed by the members (87-to-13). I believe we have made a relatively good start with the Washington office and professional activities, but we are still searching for the right organizational forms. Professional activities have come under USAC³, which should be expanded to be more representative; which will cooperate with TAB as regards special U.S. Technical activities (like technology forecasting); and which must grow now that it is involved with major issues and its own funds. It would be utterly wrong to submerge USAC under some other board or committee, such as RAB⁴, for the following reasons: (1) "Professional" activities are deemed in law to be distinct from "educational and scientific" activities, and should be kept separate within the IEEE organization, (2) by keeping them separate we shall benefit both the technical and the professional activities: those responsible for technical activities can again concentrate on technical problems, and those responsible for U.S. Professional activities, paid for by the U.S. members, need not take up as much of the time and energies of the preponderantly "transnational" Board of Directors as they did in 1972. I look forward to the day when all IEEE members in the U.S. are fairly represented by a U.S. national organization (which could evolve from USAC, if properly planned), and those of us in the Groups and Societies can again get back to technical activities.

TAB and TAB OpCom have been concerned with supporting existing technical activities, fostering new ones, and with financial matters pertaining thereto. For example, one new option made available to any IEEE publication (Transactions or Conference publication) is the possibility of a mandatory page charge for excess pages. This might work as follows. A Group decides that it will charge an author's organization for all pages in excess of (say) six pages, unless there are good reasons to make an exception. Now suppose an author submits a paper dealing with a new measurement technique, and he also tabulates many of his measurements. The tables are worth publishing, but would stretch the Group's page budget. The author's organization is willing to pay the cost of the extra two pages, and so the full paper is published.

How many noticed the article in Science, Vol. 177, p. 778 (1 September 1972) on the Fischer-Spassky chess championship games? According to Science, "the Russian medical literature [describes] an ailment known as asthenic syndrome. The symptoms include weakness, fatigability, depression, antisocial tendencies, sense of fear, impairment of memory and general mental function, and an inability to make decisions. The cause of asthenic syndrome is said to be low intensity microwave radiation..." We now have an IEEE Committee on Man and Radiation (COMAR). The chairman is H. Mark Grove, Department of Microwave Research, Department of the Army, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D. C. 20012. Anyone interested may contact Mark Grove.

TAB as well as TAB OpCom have spent considerable time discussion how to help Chapters. This topic is of much concern to IEEE, since certain benefits of IEEE membership can only be conferred by meetings. It is agreed that both TAB and RAB must support Chapter activities, but it isn't always clear how. Of course the best way is through active conscientious chapter officers.

Financially, all the Groups in Division IV have at least held their own in 1972. This is partly due to lower-than-expected costs of publication and a good record of collecting voluntary page charges. A new formula for allocating TAB support to the Groups will take effect in 1973. This formula will favor small Groups, like G-SU, more than before, and is due largely to the persistent efforts of G-SU President Larry Kessler.

G-SU has also been given a special allocation of \$2000 to help the Group promote subscription to its Transactions and increase Group membership. The experiment will be watched by other Groups.

I wish all members of G-SU a Happy New Year. Let's all work for a stronger Group and a better IEEE.

REFERENCES

1. Technical Activities Board
2. TAB Operating Committee
3. United States Activities Committee, consisting of the six U.S. regional directors, chaired by the IEEE Vice President.
4. Regional Activities Board, which has six U.S. and four non-U.S. directors on it, plus an appointed chairman.

Environmental Protection Agency To Launch Noise Control Program

The U.S. Environmental Protection Agency announced today that a major study of airport noise and the development of noise standards for trains and motor carriers in interstate commerce would be the first action programs under new authorities given EPA by the Noise Control Act of 1972. Commenting on the new law, EPA Administrator William D. Ruckelshaus said, "We now have the authority to come to grips with an environmental problem that affects millions of people. The previous lack of this power represented a serious gap in our environmental authorities." The new legislation which was signed by President Nixon on October 28th gives EPA the primary role for controlling environmental noise. It was submitted to Congress in 1971 as part of the Administration's environmental "package."

Under the new authorities, EPA has the responsibility for coordinating all Federal programs in noise research and control. EPA must be consulted by other Federal agencies prior to publishing new regulations on noise. If the agency feels that any proposed new or existing Federal regulations do not adequately protect the public health and welfare, it can call for public review of them. Citizens suits are also authorized. EPA also has the authority to set standards for any product or class of products which have been identified as a major source of noise. They would be based on criteria which EPA is required to develop before proposing any standards. Categories of equipment covered by the legislation include construction, transportation (including recreational vehicles), motors or engines, and electrical and electronic.

The Federal Aviation Agency retains authority to set aircraft noise regulations, but EPA is required to recommend to FAA any regulations it feels are necessary. To fulfill this responsibility, EPA, working with representatives of the Departments of Commerce (including the National Bureau of Standards), Defense, Transportation, and Housing and Urban Development, will make a major study of existing airport flight and operational control regulations. Working groups will look at five major areas: existing legislation and institutions; source abatement technology and costs; methods of characterizing the problem; present and proposed FAA regulations; and airport operations including monitoring, enforcement, safety, and costs. The results of this study, which is scheduled to be completed within nine months, will be contained in a special report to the Congress and in proposed regulations to the FAA.

In the consumer area, EPA has authority to label products as to their noise-generating characteristics or their effectiveness in reducing noise. The standard-setting and labeling authorities apply to both domestic and imported products. Manufacturers or importers of non-conforming or mis-labeled products are subject to fines of up to \$25,000 per day for each violation and to imprisonment of up to one year. Manufacturers must issue warrants that their regulated products are in compliance at time of sale. They are also required to maintain records and provide information, including supplying products coming off the assembly line for testing, to EPA if requested. EPA is also authorized to conduct research, technical assistance, and public information and certify low-noise emission products for purchase by the Federal Government.

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All over America in large cities and small, new office buildings and apartment houses are going up, new highways are under construction, streets are being repaired, new homes are being built—construction activity envelops us and so does one of its by-products—noise.

Construction noise, especially in urban areas, today is a major environmental problem. Few of us recognize it as such, however.

Why? Because we look upon construction as something temporary, although it has become a permanent part of our modern world. No sooner are individual projects completed, than new ones begin; construction is never-ending and so is its noise.

Noise generated in construction and from other sources is certainly an annoyance, but, more important, it can impair our health. Continuous noise at high levels, is not only irritating, but it can damage our hearing and cause other ailments. More and more, people who work in construction or live in constantly noisy environments are experiencing gradual, but permanent hearing loss.

In the construction cycle, noise is usually the loudest in the ground-clearing and excavation phases. The intermediate foundation placement and erection operations generally are somewhat quieter, but again the finishing work tends to produce considerable noise.

The equipment used for heavy construction - earth movers which have high horsepower gasoline or diesel engines, large capacity air compressors, powerful rock drills and demolition tools, pile drivers, cement trucks - was designed to do as much work as possible, with little or no thought given to sound control.

Large portable compressors, for example, produce some of the most objectionable noise. Often as many as eight or nine are lined up along the curb, beside the sidewalk where people pass, and close to apartment, stores and offices, where people live and work. Sometimes the compressors, which produce about twice as much noise as a subway roaring into a station, remain in the vicinity for many months. These devices have become a target for noise control.

In open areas such equipment is not too objectionable because noise levels drop six decibels as the distance from the source doubles. But in large cities with narrow streets, noise bounces back and forth between buildings so the sound decreases little with distance.

Noise Can Be Lessened

At the present time, the most practical method of absorbing or containing noise within a compressor unit is to enclose it in a structure containing sound-insulation material, stiffeners and baffles. Using these techniques, noise levels have been reduced from approximately 105 decibels when measured at 3 feet to less than 90 (or about as loud as a heavy truck passing by, 50 feet away). Further reductions are possible.

In other construction equipment such as tractors, loaders, graders, etc., the major noise sources are the engines, engine exhausts, cooling fans, engine air inlets, transmission and drive chains, pumps, motors and valves and tires.

To reduce these noises, manufacturers are using modifications such as new muffler designs, engine enclosures, slower speed fans, hydraulic tank covers, fuel tank isolation, engine mounts, special floor mats, etc. Manufacturers estimate that these types of modifications will add 1-3 percent to the present costs.

Trucks also add to construction noise, large diesels are the biggest "contributors". In spite of problems in silencing this equipment, most manufacturers agree that they will be able to meet the operating noise level standards of 86 dbA required by the State of California for heavy trucks manufactured after January 1, 1973.

Quieter, new construction equipment, however, will not result in a dramatic, immediate noise reduction. An estimated 90 percent of the 519,000 units sold in the United States from 1960 through 1971 are still in use and an additional 100,000 units manufactured between 1955 and 1960 are still working. Attention, therefore, must be given to changing some construction activities.

One method is to regulate hours of operation; another is to consider the construction site rather than the specific equipment. For example, new quieter equipment can be used in the cities and the older equipment in suburban or rural areas. To further reduce noise, sound-absorbing barriers also can be used on urban projects. Needed to speed the application of such control techniques, however, is community action to establish and enforce local ordinances and codes to reduce construction noise.

Control Technology Exists

Draglines and pile drivers used in excavation and foundation work; portable steam boilers; jackhammers and other demolition

equipment; welding machines; power saws; pneumatic wrenches; drills; reamers; concrete mixers and dumptrucks all add to the din of the environment.

Again adequate basic technology already exists to effectively reduce noise from most of this equipment. Some examples are:

Pile Drivers. Some noise can be eliminated by replacing valves and using silencers on vents. Design changes in boilers, compressors and diesel drives are also possible. The traditional pounding, however, is eliminated in vibrator equipment, a relatively recent development, which is normally operated at resonant frequency and is unusually quiet since the only noises come from the motors and the hum of the vibrators. In addition, ground vibrations extend only a few feet away from the driver. An additional benefit is that pile driving with this new type of equipment is many times faster.

Hammers. Noise is generated by the impacting force and by the exhaust air vents. Pneumatic silencers, comparatively simple and cheap, can reduce noise levels; some air hammers already have silencers.

Riveting. Riveting sounds are in the high noise category and travel for long distances through massive steel structures. Dampening such noise is difficult, if not impossible. However, squeeze-riveting, welding or the use of high-strength bolts are possible alternatives.

Concrete Mixers. This equipment can be made less noisy by using a heavier mixing bucket or by using a sound-absorbing coating. Quieter operation can also be achieved by using plastic gears.

It has been demonstrated that when specific attention is given to noise during development of building specifications for new industrial plants, construction noise levels can be reduced. The same technique can be applied to apartment, office and other construction. Designers and specification writers can use less-noise-producing construction equipment and methods.

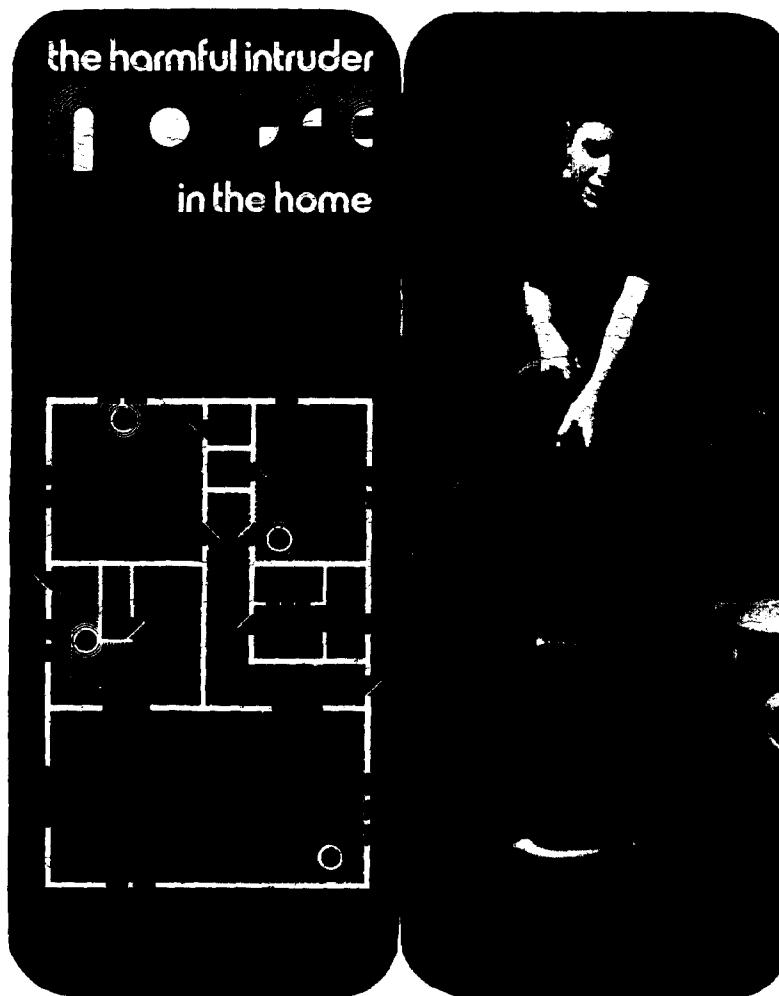
Another controllable factor in reducing construction noise is operation of the equipment itself. Just as motorcycle and sports car engines do not have to be "revved up" for efficient street use, big trucks, loaders, etc. do not have to be run at full power or at highest speed. They need not be banged around either; operators can and should control the noise output of their equipment.

Despite the anticipated manufacture of quieter products, most of the nation's urban centers will remain noisier than they need be until residents, like you, recognize that there is no such thing as "temporary" construction and you actively support the enactment and enforcement of effective noise control regulations in your community.



U.S. Environmental Protection Agency
Washington, D.C. 20460

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Printing Office, Washington, D.C. 20402



Although increasingly more conscious of the rising clamor of aircraft, highway and construction noise, many of us overlook a more immediate problem - noise in our homes which is reaching levels that can injure the human ear.

One of the worst noise polluters is the electrical appliance. Home quietude is being replaced by the din of dishwashers, garbage disposals, vacuum cleaners, washing machines, high-speed blenders and shop tools.

Added to this "necessary" noise of modern-convenience living, are the effects of cost-cutting building techniques, poorly-insulated walls and ceilings, and the choice of housing location where outside noise is prevalent and loud enough to penetrate living areas.

Some people may feel that the answer to the noise problem is to get used to it. Those who are no longer bothered by noise in their homes may not be adapting to it, but rather may be experiencing some hearing impairment.

The Culprit is Noise Level

The decibel is the most commonly used unit to measure sound intensity at its source. The decibel level starts at 0, the hearing threshold and goes to 180, the level heard when a rocket is launched. Brief exposure to noise levels over 140 decibels, however, causes pain and can rupture eardrums, resulting in permanent hearing loss. But, one can suffer hearing loss or impairment at much lower noise levels. According to some scientific opinion, continuous exposure for 8 hours to noise levels of approximately 85 decibels can also cause permanent hearing loss. It must be remembered, however, that the time exposure and decibel level which results in hearing loss may vary with individuals.

In January 1972, EPA submitted a special report to Congress, examining noise levels from 11 kinds of home-shop tools and 30 kinds of home appliances. These products were grouped into four categories based on the noise level they produce.

These Products Annoy and Disturb

The first group includes quieter major appliances such as climate-control equipment, refrigerators and clothes dryers. They produce sound levels lower than 60 decibels. Yet, even at this relatively low level, such noise sometimes interferes with hearing and speech and in some cases interferes with sleep. In addition, noise from these sources is continuous, making their noise more insidious than that of other appliances.

The second group includes clothes washers, food mixers, dishwashers, vacuum cleaners and electric knives which produce noise usually registering 60 to 70 decibels. These appliances normally require operators, and exposure time tends to be brief and infrequent. The risk of hearing damage, therefore, is negligible, but the resulting noise may be disturbing to neighbors in multi-family dwellings.

The third group includes sewing machines, food blenders, electric shavers and food grinders. They produce decibel levels between 70 and 80. The risk of hearing damage from these appliances is small, but can increase with continuous or cumulative use. Fortunately, most people use these appliances in fractions of hours per week. Generally, the noise from such appliances is annoying, particularly if it contains tones of only one frequency or has a great variation of sound levels.

The appliances in the fourth group produce the highest noise levels in the home environment - above 80 decibels. They include about 4 million electric yard-care tools and 12 million electric shop tools. Hearing may be damaged if exposure is frequent or prolonged. Any amount of exposure to such equipment will probably cause annoyance and stress.

Situations Add to The Noise Problem

Noise problems are worse in houses where the construction is of a new type that relies on thinner and lighter materials. These materials tend to transmit noise and vibration, and in some cases can actually amplify sound.

Poor siting may also add to the noise problem. Housing developments often are built in the flight paths to major airports and apartment houses are located along high-speed highways. Poor housing placement is on the increase in many communities across the country.

To cope with the problems of lightweight construction and poor planning, the U. S. Department of Housing and Urban Development (HUD) recently developed "Noise Assessment Guidelines" which will be used to help evaluate whether HUD funds will be made available to aid in community planning, new construction or modernization and rehabilitation of existing buildings.

For the community, the control of noise in the home involves proper land use, zoning and building regulations; for the construction industry, it involves better engineering, and for the homeowner, it involves acceptance of quieter, although equally powerful appliances and equipment, and the initiative to create a less-noisy atmosphere.

Try These Hints For A Quieter Home

- Use noise-absorbing materials on floors, especially in areas where there is a lot of traffic.
- Hang heavy drapes over the windows closest to outside noise sources.
- Put rubber or plastic treads on uncarpeted stairs. (They're safer, too.)
- Use upholstered rather than hard-surfaced furniture to deaden noise.
- Install sound-absorbing ceiling tile in the kitchen. Wooden cabinets will vibrate less than metal ones.
- Use a foam pad under blenders and mixers.
- Use insulation and vibration mounts when installing dishwashers.
- Install washing machines in the same room with heating and cooling equipment, preferably in an enclosed space.
- Remember that a hand-powered lawnmower does the job and gives you exercise, too. If you use a power mower, operate it at reasonable hours.
- Use a headset when you are the only one interested in listening to the hi-fi. Also, keep the volume down.
- Place window air conditioners where their hum can help mask objectionable noises. However, try to avoid locating them facing your neighbor's bedrooms.
- Be aware that children's toys need not make intensive or explosive sounds. (Some can cause permanent ear injury, in addition to getting on your nerves.)
- Compare the noise outputs of different makes of an appliance before making your selection.

In Choosing a New House or Apartment, You Should:

- Stay away from major noise sources such as airport flight paths, heavy truck routes, high-speed freeways. When buying a home, check the area zoning master plan for projected changes. (In some places, you can't get FHA loans for housing in noisy locations.)

- Look for wall-to-wall carpeting, especially in the apartment above you and in the corridors.
- Find out about the wall construction (staggered-stud interior walls are among the quietest.) Can you hear a portable radio at normal volume in the adjoining apartment?
- Check the electrical outlet boxes. If they are back-to-back, they will act as noise transmitters.
- Ask about the door construction. Solid or core-filled doors with gaskets or weather-stripping are quieter.
- Make sure sleeping areas are well away from rooms with noise-making equipment.
- Check the heating and air conditioning ducts. Inside insulation makes them quieter.



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Jan. 22, 73	Chicago, Illinois	U-20 B
Mar. 12, 73	Columbus, Ohio	U-21 B
Apr. 2, 73	Phoenixville, Pa.	U-22 B
May 21, 73	Minneapolis, Minn.	U-23 B
June 4, 73	Dallas, Texas	U-24 B
July 9, 73	Houston, Texas	U-25 B
Aug. 27, 73	Chicago, Illinois	U-26 B
Sept. 10, 73	Boulder, Colorado	U-27 B
Nov. 12, 73	Columbus, Ohio	U-28 B

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CONDENSED TRAINING COURSES ON NOISE

Institute on Noise Control Engineering

6th: Clearwater, Florida
February 12-16, 1973

7th: Dearborn, Michigan
August 20-24, 1973

Institute on Noise Control Administration

1st: Clearwater, Florida
February 12-13, 1973

2nd: Dearborn, Michigan
August 20-21, 1973

The Institute on Noise Control Engineering provides training in solution of factory, environmental and product noise problems including compliance with laws and regulations. Concurrent sessions on industrial and environmental noise permit specialization of training according to registrant interest.

Two presentations of the Institute on Noise Control Engineering are scheduled for 1973 to accommodate the growing enrollment. The next, the sixth presentation of the Institute, will be on February 12-16, 1973 at the Fort Harrison Hotel in Clearwater, Florida. The seventh presentation will be at The Dearborn Inn in Dearborn, Michigan on August 20-24, 1973.

Tuition for the Institute will be \$375 at the Fort Harrison Hotel and \$400 at The Dearborn Inn. This fee includes costs of the lecture notebook, group lunches and refreshments at breaks.

A detailed schedule of lectures is available on request.

Institute on Noise Control Administration

The Institute on Noise Control Administration provides training in management of occupational and environmental noise problems including enforcement of laws and regulations. Concurrent sessions on industrial and environmental noise permit specialization of training according to registrant interest.

Two presentations of the Institute on Noise Control Administration are scheduled for 1973. The first presentation will be on February 12-13, 1973 at the Fort Harrison Hotel in Clearwater, Florida. The second presentation will be at The Dearborn Inn in Dearborn, Michigan on August 20-21, 1973.

Tuition for the Institute will be \$180 at the Fort Harrison Hotel and \$190 at The Dearborn Inn. This fee includes costs of the lecture notebook, group lunches and refreshments at breaks.

A detailed scheduled of lectures is available on request.

ACCOMMODATIONS At the Fort Harrison Hotel, special room rates will be \$17 single and \$21 double. Rates at The Dearborn Inn will be \$17 single and \$22 double.

ADMISSION Application for admission should be made by completing the reply form attached and mailing it with the tuition to the Institute on Noise Control Engineering, P. O. Box 3164, Bethlehem, PA 18017; telephone (215) 694-0939.

PUBLICATIONS OF INTEREST

INTERIOR/EXPERIOR NOISE LEVELS OF OVER-THE-ROAD TRUCKS: REPORT OF TESTS

by William A. Leasure, Jr., Thomas L. Quindry, Denzil E. Mathews, and James M. Heinen, National Bureau of Standards Technical Note 737, issued September 1972, 317 pages; \$2.25. (Order PREPAID from the Superintendent of Documents, U. S. Government Printing Offices as SD Catalog No. C13.46:737; microfiche copies may be ordered PREPAID at 95 cents a copy from the National Technical Information Service (NTIS) Springfield, Va. 22151, as NBS Tech. Note 737.)

In a recent survey, the Bureau of Motor Carrier Safety of the Department of Transportation found a definite scarcity of published data on the interior and exterior noise levels produced by current trucks. This report makes available the results of a field study undertaken to remedy this situation, and so to provide a more adequate physical data base for regulations to protect truck drivers from damage to hearing or undue driver fatigue caused by vehicle-generated noise. The data were obtained by the National Bureau of Standards for the Department of Transportation and the American Trucking Associations, Inc. (ATA).

ULTRASONIC THERMOMETRY FOR LMFBR SYSTEMS

by Emmanuel P. Papadakis, Lawrence C. Lynnworth, Dana R. Patch, and Edmund H. Carnevale, U. S. Atomic Energy Commission Report NYO-3906-13, issued June 1972, 167 pages; \$3.00 paper or \$0.95 microfiche. (Available from the National Technical Information Service, U. S. Department of Commerce, Springfield, Virginia, 22151).

An ultrasonic thin wire thermometer system was designed to measure temperature in liquid metal fast breeder reactors, in the fuel pin, along the fuel centerline. In Phase I, the system was laboratory-tested to 2750C by simulating the geometry and temperature environment. In Phase II, a magnetostrictive transducer was tested for over 600 hours above 500C in the Bulk Shielding Reactor at Oak Ridge National Laboratory, and lines were built for in-core comparison tests with thermocouples (ORTC-4). The decalibration effect of 5, 10 and 15% Os in a Re matrix was determined to 2000C, out of pile. In Phase III a 1.5 mm OD sheathed probe was built and tested to 2200C in a geometry essentially duplicating the FFTF fuel pin. A Re sensor was also thermally cycled inside a W/Re sheath to 2650C. In some cases lines tend to bond to the sheath. Measurements of sound velocity, attenuation, temperature profile and resolution to about 2C using reverberations in the sensor are also described.

ANNOUNCEMENTS OF MEETINGS

ULTRASONICS INTERNATIONAL 1973
Eighth annual Ultrasonics Conference
27th-29th March 1973
Imperial College, London

The emphasis of the meeting will be on ultrasound research and development applications in industry.

Dr. Z. Novak,
Ultrasonics International 1973,
IPC Science and Technology Press,
32 High Street, Guildford, Surrey, England.

EIGHTY-FIFTH MEETING OF THE ACOUSTICAL SOCIETY OF AMERICA
Tuesday through Friday, April 10-13, 1973
Statler Hilton, Boston, Massachusetts

Special sessions of invited papers are planned on:

- Engineering Acoustics - Calibration Accuracy for Underwater Acoustic Instrumentation
- Applications of Acoustics to Medicine
- Musical Acoustics - Teaching Aids and Techniques in Music Education
- Noise - Power Plant Noise Control
- Applications of Correlation Techniques to Noise Control
- Physical Acoustics - Non-linear Dispersive Waves
- Shock and Vibration - Data Analysis and Analysis Systems in Vibration Testing
- Control of Shock Excited Structure-Borne and Air-Borne Noise

Contact
William T. Peake
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27TH ANNUAL FREQUENCY CONTROL SYMPOSIUM
Howard Johnson's Motor Lodge
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12-14 June 1973

Topics:

1. Quartz Crystal Resonators and Devices
2. Filters
3. Surface Properties and Resonator Technology
4. Atomic and Molecular Frequency Standards
5. Laser Frequency Standards
6. Frequency and Time Coordination and Distribution
7. Device Applications
8. Standardization

The following areas will be high-lighted by special sessions in this year's program:

1. Fundamental Properties of Natural and Synthetic Quartz Crystals
2. Quartz Crystal Oscillators and Frequency Control Circuitry
3. Definitions, Specifications and Measurements

Contact
John R. VIG, Arrangements Coordinator
27th Frequency Control Symposium, Attn: AMSEL-TL-SF
U. S. Army Electronics Command, Fort Monmouth, N. J. 07703

9TH SYMPOSIUM ON NONDESTRUCTIVE EVALUATION IN TRANSPORTATION, DEFENSE, AND ENERGY
El Tropicano Motor Hotel
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The purpose of this Symposium is to bring together technical and managerial personnel engaged in and concerned with fundamental and applied aspects of nondestructive evaluation for the exchange of new ideas, methods, and research and development results.

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FIFTH INTERNATIONAL SYMPOSIUM ON ACOUSTICAL HOLOGRAPHY AND IMAGING
Wednesday through Friday, July 18, 19 and 20, 1973
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Technische Hochschule Aachen (West Germany)
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Prof. K. Lücke, Institut für Allgemeine Metallkunde und Metallphysik, der Technischen Hochschule Aachen
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Los Angeles, California
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Contact
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IEEE ULTRASONICS SYMPOSIUM
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