

THE BULLETIN  
OF THE  
AUSTRALIAN ACOUSTICAL SOCIETY

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## EDITORIAL

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Before the issue of the next Bulletin there will have been appointments to the Council for the next year. Members of the recently formed Division in Western Australia will be represented on Council and it is delightful to record their presence. Change is inevitable and with it goes that necessary ingredient of new blood, a transfusion for a look at things in some way new. Divisions will also feel the effect of the same need as time slips by. It is this sort of thing that is so important for the Society if its aims are to be achieved. The successful term of office of our first President, Mr. Vivian Taylor, is rapidly closing and in this issue is a message from the President. His words are significant and most welcomed at this stage of the Society's development. His wisdom and efforts have guided the Society through this important period immediately after incorporation. The articles of Association clearly forbid a President to stay in office for more than two consecutive years. Perhaps a harsh rule for the more able, but a necessary one for a Society thriving on guidance and new ideas. And now the office of President has clearly been stamped by a standard set high indeed. With the vacating of that office by Mr. Vivian Taylor, goes the Society's thanks and gratitude for the contribution he has made and the inspiration he has given to others.

The evolving of new measures opens many avenues to contribute towards their success. The Bulletin is a new vehicle with a specific purpose. It is to inform. Council resolved that the Winter issue should contain as comprehensive a list of members of the Society as is possible. This has been done. The members are parts of a web who can inform and

who should be informed about the happenings to do with acoustics in this country. The articles, technical notes and notices in this issue are intended to help in achieving the aim of communicating within this web. It is of interest to note that Leo L. Beranek announced recently that a newsletter, NOISE/NEWS, will be published bi-monthly by the Institute of Noise Control Engineering. It is to be published in cooperation with the Acoustical Society of America. It is to contain information on technical meetings, short courses, standards development, contract information and awards, government news, legislation and similar items. The office of each Divisional Secretary in this country looks forward to the response of members to make our Bulletin effective.

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THE PRESIDENT'S MESSAGE

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Although the Society has been functioning for several years in New South Wales and Victoria, this is the first year of the official incorporation. That I have been privileged to be your first President is an honour to which I am acutely sensitive.

In carrying out the duties of this office, I am ably assisted by the Federal Council, supported by the Divisional Committees. Much initial work has necessarily evolved around the formal establishment of the Society on a solid foundation upon which it is hoped a sound and creditable super-structure will rise.

The creation of a new division in Western Australia is a forward move, and the next Federal Council will include Councillors from all formally established divisions. It is hoped that shortly a division will be formed in South Australia.

The Society has made, and is still making, a significant contribution in the formulation of acoustic standards, and is well represented on the various committees and working groups of the Standards Association of Australia. Documentation from these, in the form of standards and codes, will not only furnish valuable guide lines, but also do much to improve the status of acoustics in the community. It is expected that in due course, many of these standards will be adopted by regulating and controlling authorities and this in turn will give benefit not only to those working in the acoustic field, but also to the community at large.

Interesting developments have taken place in the field of environment control. An announcement by the Federal Minister for the

Environment that uniform regulations will be promulgated throughout the various states has led to the hope that much of the competent work that has been put into acoustic standards will become useful in the immediate future.

You may be interested to learn that I have accepted the appointment as Chairman of an Ad Hoc Committee on Noise Control Policy to the Environment Protection Authority, and we look forward to making a significant impact on the acoustic thinking in this direction.

An outstanding event was the representation of the Society at the International Congress on Acoustics at Budapest in the latter part of last year. With Jack Rose, I was proud to represent Australia at the meeting of the Presidents of the many international Acoustic Societies, and Australia was put well on the map. At this meeting we put the plea for a meeting of I.C.A. in Australia. This was favourably considered, and later an official submission from the Society brought the reply that the Commission was impressed with the proposal, but the next venue would be at London, the following at Madrid in 1977, and that in all probability, the 1980 Congress would be in Australia.

During the visit of the "Concorde", a special group of the Society members, supported by C.E.B.S., C.S.I.R.O., Universities of New South Wales and Monash and R.M.I.T. were privileged to participate in an interesting series of field measurements in collaboration with the officers of the Department of Civil Aviation, thus obtaining first-hand information on aircraft noise as affecting the environment. Our special thanks are tendered to Sir Donald Anderson, the Director-General of the Department of Civil Aviation, who made possible, and gave cordial support to the arrangement. Thanks are due also to the organisations and the individual members who participated in the exercise and

contributed something worthwhile, and enhanced the status of the Society in this field of interest.

In a short term of office with much time devoted to fundamental administrative matters, it has not been possible to deal with many other matters of importance which I would have wished to do, such as the formulation of A Code of Ethics. I am aware that this is needed; at the same time I know that I have had the confidence of the Society demonstrated by members who have had occasion to approach me with their problems and aspirations.

I believe one of the most important things that has been established has been a spirit of camaraderie and unbounded enthusiasm which augurs well for the future of the Society. It is good to get to know those working in the field.

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## A.A.S. ACTIVITIES

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### 1972 CONFERENCE "NOISE LEGISLATION AND REGULATION"

This Conference will be held at the Hotel Florida, Terrigal, N.S.W., 29th September to 2nd October 1972.

Conference Aims: With the increase in the awareness of noise and its detrimental effects, there is a corresponding increase in the need for legislation to regulate and control noise output. This Conference will consider four critical areas where noise control is required.

- \* Hearing Conservation and Industrial Noise
- \* Acoustic Requirements in Buildings
- \* Industrial Equipment and Domestic Appliance Noise
- \* Community Noise Annoyance

The papers given at the Conference will attempt to examine the problems involved in providing legislation for the control of noise in these areas as they are seen by acousticians, sociologists, psychologists, physiologists, lawyers and local government authorities who may have to enforce noise legislation. The Conference will start by indicating the present position with regard to noise control in Australia from both legal and measurement aspects, and proceed to examine the sociological and psychological implications of noise control; the medical aspects of excessive noise on the human ear; existing noise control legislation in other countries; the need and plans for noise control in Australia and the problems involved in administering such legislation. The Conference will conclude with a general discussion session. Experts will be asked to provide a written paper on each of these topics, which will be distributed to delegates before the Conference. At the Conference, the

speakers will present a verbal summary of their paper and this will be followed by a general discussion on the points raised by the speaker.

The intention is that the Conference should provide a forum at which anyone concerned with the above topics will be able to present and discuss their views and interests. The Society therefore hopes the delegates will include acousticians, design engineers and architects concerned with the acoustic design of equipment and structures, lawyers and local government officials who may have to administer noise regulations and manufacturers, industrialists and planners who must be aware of the constraints that noise control might place on them.

Conference Secretary: Dr. V. Mason, School of Mechanical and Industrial Engineering, University of New South Wales, P.O. Box 1, Kensington, N.S.W., 2033.

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NEWS AND NOTES

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NEARLY A DECADE.

Next year the Institute of Sound and Vibration Research, University of Southampton, will be celebrating its tenth anniversary. Some parts of a speech made by the Director, Professor B.L. Clarkson at the opening of the Rayleigh Building in 1968 highlight how it all came about.

"In the decade before 1962, a major research effort in noise and vibration had been built up in the Department of Aeronautics and Astronautics of the University of Southampton, under the direction of the Head of Department, Professor E.J. Richards. Accordingly the University established in 1962 a Noise and Vibration Research Unit Advisory Committee to guide development of the noise and vibration work. By October 1962 the Committee had come to the conclusion that the work would best be furthered by establishing an Institute of Sound and Vibration Research as a department of the Faculty of Engineering.

The Committee's recommendations were approved by the University and in March 1963 a formal request was made to D.S.I.R. for a major grant to develop the Institute and its work in applied acoustics and noise control. This request was favourably received and a grant was made of £142,000 for the period 1 August 1963 to 31 July 1967. Within a year, however, the need for expansion of the acoustic facilities originally requested was already apparent. A supplementary request was therefore made to the Science Research Council, which had then replaced D.S.I.R., and granted early in 1965, the final total contract tender cost of the facilities being £193,990. The acoustic facilities, were completed in March 1968, and have been given the name "Rayleigh Building".

The growth of the Institute's research activities as well as its physical growth has been at an average of 35 percent per annum over the period of the grant. The effectiveness of the major grant in enabling the Institute to enter non-aeronautical fields is especially well illustrated by the establishment and growth of two of the major research groups of the I.S.V.R.: namely the Audiology and Human Factors Group, and the Industrial Noise and Vibration Group. Many of the research programmes of the Institute are related to the immediate and future needs of industry. The links have been strengthened during the past year by several new developments.

In the first place several industrially sponsored temporary lectureships have been established. These are for a five-year period (hopefully to be renewed when they have been seen to be a success!) and have rather more specific terms of reference than the usual type of academic appointment. The person appointed to such a lectureship is required to spend the equivalent of one day per week with the Company, either on visits or in discussion with their staff in Southampton. During the remainder of his time he is engaged on teaching and leading a group of research assistants and students on programmes of work. This should provide a very close link between the Institute and Industry and ensure that new ideas generated here get considered at an early stage in industrial design.

The more immediate industrial problems on noise and vibration control are now being handled by the Industrial Noise Unit. This was established by the University on 1 March 1968 and aims to provide a service to industry over a wide range of topics in noise and vibration. This unit operates commercially and therefore charges a consultancy fee for work done. There are six full-time members of the unit but part time

help can be obtained from the research staff of the Institute. The staff of the Institute are drawn from a wide range of academic disciplines which include medicine, pure science-mathematics and engineering. The presence of relatively senior people on visiting scholarships and fellowships from other countries is a great source of strength to the Institute and ensures a lively development of new ideas.

Noise is becoming an increasingly serious problem in this and other highly industrialised societies. Each day sees the mention of some noise nuisance and many technological developments are being held up because of the noise produced. Thus the Institute is placed in an excellent position to lead the way forward in research and design to produce a quieter environment."

No doubt subsequent decades will be shown to be as successful as the first. Many members of the Australian Acoustical Society have firm links with the Institute. Each year these contact continue to grow and further benefit accrues.

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NOISE, SHOCK AND VIBRATION CONFERENCE

May 1974 at Monash University.

Sponsored by:

Australian Acoustical Society

Monash University

National Committee on Applied Mechanics

The Institution of Engineers Australia

## MEMBERSHIP 1972

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Subscribers:

ALLEN-WILLIAMS, Prof. D.J.A.	Uni. of W.A., Mech. Eng., NEDLANDS, W.A. 6009.
FERRERO, Thomas T.	18 Kingsland Avenue, CITY BEACH, W.A. 6015.

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TECHNICAL NOTES

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Contributor: R.D. Mearns  
Organisation: Standards Association of Australia, Melbourne  
Topic: ACOUSTICS IN THE STANDARDS ASSOCIATION OF AUSTRALIA

Historical: The Association's Acoustics work commenced in October 1963 when a public conference was called by the Association to which interested individuals were invited. From this conference a Steering Committee was elected to examine the need for Australian Standards in Acoustics.

The Steering Committee became the nucleus for a number of ad hoc technical committees which were assembled under the Association's Miscellaneous activities. These were

Terms, Units and Symbols  
Instrumentation  
Bio and Psycho Acoustics  
Architectural Acoustics

It was further hoped that the Association's entry into acoustics would offer an opportunity for the Australian view to be presented to the International Standards Organization. The late N.E. Murray, who at the time was Director of the Commonwealth Acoustic Laboratories, had supported the Association's entry to this work.

The ad hoc committees recommended the issue to public review of a number of draft documents based on overseas standards from the International Standards Organization, the International Electrotechnical Commission, the American Standards Institute, the British Standards Institute, and the publications of various scientific and technical societies.

From these beginnings the Association set up in August 1968 the Acoustics Standards Committee which formally incorporated the work of the ad hoc committees and set up a new structure of technical committees which has been developed further since then.

Structure: The Association's Acoustics work is approved by an Acoustics Standards Committee which has a wide representation from industry and commerce, people versed in the science of acoustics as well as representatives from local government authorities, the medical profession, and educational and research establishments. Its work is carried out by a number of technical committees each producing standards appropriate to their responsibilities which are discharged by acknowledged technical experts in the particular speciality under consideration. The present composition of these committees is as follows:  
Technical Committee AK/1 - Acoustic Terminology, Units and Symbols

Technical Committee AK/2 - Instrumentation

Sub-Committee AK/2/1 - Instrumentation for Otological and Audiological Measurements

Technical Committee AK/3 - Hearing Conservation

Sub-Committee AK/3/1 - Hearing Protection Devices

Sub-Committee AK/3/2 - Hearing Conservation Programmes

Sub-Committee AK/3/3 - Speech Audiometry

AK/3/WG/1 - Definition of Hearing Impairment

AK/3/WG/3 - Engineering Analysis

AK/3/WG/6 - Statistical Analysis

Technical Committee AK/4 - Architectural Acoustics

AK/4/AK/6/WG/1 - Building Insulation for Aircraft Noise

AK/4/WG/1 - Plumbing Noise

Technical Committee AK/5 - Community Noise

AK/5/WG/1 - Motor Vehicle Noise

Technical Committee AK/6 - Aircraft Noise

Technical Committee AK/7 - Engineering Acoustics

Sub-Committee AK/7/1 - Noise in Ships

Standards Published:

- AS Z41 Octave, Half Octave and One-third Octave Band Pass Filters  
Intended for the Analysis of Sound and Vibrations
- AS Z43 Instrumentation for Audiometry  
Part 1 - Pure Tone Audiometers  
Part 11 - Reference Zero for the Calibration of Pure  
Tone Audiometers  
Part 111 - Reference Coupler for the Calibration of  
Earphones Used in Audiometry
- AS Z44 Expression of the Power and Intensity Levels of Sound or Noise
- AS Z37 Sound Level Meters, Type 1 - General Purpose
- AS Z38 Sound Level Meters, Type 2 - Precision
- AS 1045 Method of Measurement of Absorption Coefficients in a  
Reverberation Room
- AS 1047 Method of Expression of the Physical and Subjective Magnitudes  
of Sound or Noise
- AS 1217 Method of Measurement of Airborne Sound Emitted by Machines
- AS 1088 Methods of Measurement of Electro-Acoustic Characteristics of  
Air Conduction Hearing Aids
- AS 1089 Reference Coupler for the Measurement of the Electro-Acoustic  
Characteristics of Hearing Aid Earphones

Work in Progress:

Glossary of Acoustical Terms

Pressure Calibration of Microphones by the Reciprocity Technique

Free Field Calibration of Microphones

Mechanical Coupler for Calibration of Bone Vibrators Used in Hearing Aids

Wide Band Artificial Ear

Measurement of Airborne noise Emitted by Rotating Electrical Machinery

Precision Sound Level Meter for the Measurement of Impulsive Sounds  
Code of Practice for Hearing Conservation  
Specification for Hearing Protection Devices  
Method of Rating of Sound Insulation for Dwellings  
Methods of Test for Silencers for Air Distribution Systems  
Noise Assessment in Residential Areas  
Motor Vehicle Noise  
Pure Tone Audiometer for Advanced Audiological Use  
Additional Requirements for a Precision Sound Meter  
Aircraft Noise  
Sound Insulation and Noise Reduction  
Noise Annoyance in Commercial Areas  
Noise Annoyance in Industrial Areas  
Field and Laboratory Measurement of Airborne and Impact Sound Transmission  
Speech Audiometry and its Relationship to Pure Tone Audiometry Use  
Reflection:

The Standards Association depends for its work in Acoustics, as indeed for all its work, on the knowledge and guidance offered to it by the members of its various committees. The work it does, reflects the demands made upon it and the capability of its committees to make available through the members the time and knowledge which they possess in support of this work.

Contributor: G. Harding  
Organisation: Nonoy Pty. Ltd.  
Topic: Report of the 5th Technical Meeting Victoria Division  
Subject: Design, Construction and Commissioning of Organs  
Speaker: Mr. David Fincham of George Fincham & Sons

Mr. David Fincham explained that the making of organs was a time honoured craft, little changed by modern technology; George Fincham & Sons' business having been in the present building for 110 years, and with David Fincham as the 7th generation of Finchams building organs in Australia.

He explained that historically organ construction and concept had from time to time varied so that one could describe various eras of organ construction. Fundamentally, an organ is analogous to "Pan's" pipes which were a series of pipes played by blowing wind across the selected pipes. In an organ, ranks of pipes are connected to a wind box and played selectively by opening valves between the pipes and the wind box. Early organs had valves directly controlled by the keyboard, and had the advantage of "feel" in the keyboard and variation in the attack of the notes; they did however suffer the disadvantage that the console had to be close to the pipes so that the organist was unable to hear properly the balance between the organ and, say, the choir.

In attempting to get the consoles remote from the pipes the later organs had pneumatically controlled valves which had the disadvantage of a time delay between the depression of a key on the console and the speaking of the pipes. Still later, organs used electric consoles which overcame the time delays associated with pneumatic controls and had the advantage for the organist of hearing the balance between the choir and the organ, but there remained the disadvantage of lack of "feel" at the keyboard, and the lack of any controlled attack of the notes.

As a device to provide variation in tonal quality, "stops" are provided which operate slide valves so that as a key is pressed, one, two or three pipes will speak together. At the present time organ manufacturers are returning to direct mechanical operation of the valves, and are using modern methods to provide light operating pressures at the keyboard with

the keyboard to some extent remote from the pipes.

Inspection of the Factory Processes: Mr. David Fincham showed members and visitors over his factory including those parts where the following processes were carried out:

Casting sheet lead/tin alloy; Rolling the pipes; Soldering the pipes; Voicing the pipes; Tuning the pipes.

During the inspection he described the various processes and engaged in a continuous discussion of the merits of the various processes and materials. He explained, for example, how a lead/tin alloy was the preferred material for pipes, and compared this with pipes made of zinc, lead/antimony, wood and other materials; he explained how pipes have slight variations in design to give variations in tone or loudness for the same pitch. All agreed that the knowhow was there and that in Australia the art and craftsmanship was of a high standard in the making of organs.

Contributor: R.J. Alfredson

Organisation: Dept. of Mechanical Engineering, Monash University.

Topic: Air Conditioning Duct Liners

There is reason to question whether "Insertion Loss" is the most appropriate parameter to describe the performance of an Airconditioning Duct Liner and to see if the procedure indicated by Mr. Irvine, Ref. [1], requires some modification.

Let us consider firstly the properties of insertion loss and secondly its method of measurement.

Insertion loss is defined in Ref. [2] and is primarily concerned with the ratio of power delivered to the section of the system immediately following the liner position, with and without the liner in-

sented. Thus insertion loss measures the change in performance of a system and as such is influenced by all components of the system, e.g. source, connecting ducts, liner, coupler and termination (refer Fig. 1 of Ref. [1]). One cannot guarantee that insertion loss will give any meaningful information on the performance of one part of the system, i.e. the liner, since the influence of other components of the system usually cannot be ignored. It is possible in principle to assess liner performance (say attenuation) from insertion loss measurements but this requires detailed information on the characteristics of all other components of the system. The problem becomes extremely complex in the presence of higher order modes. Rating a liner on an insertion loss basis may give misleading impressions on the performance of the liner itself.

Consider now the method of measurement. As indicated above we are primarily concerned with measuring power. With plane mode propagation this is relatively easy even if a standing wave pattern is set up downstream of the liner. However, a series of measurements are needed in the axial direction. When higher order modes of sound are present (and this will certainly be the case for the frequency range and duct dimensions given) the measurement of power is very complex since the higher order modes may or may not contribute to the transport of acoustic energy [3]. It would be more reliable to connect the duct to a reverberation chamber and measure the power there. Of course this would apply a different boundary condition to the duct and thus in general a different insertion loss.

It is not clear why it should be 'vital' to maintain 'a constant sound source', Ref. [1]. Inevitably the liner will produce some back reaction on the source and will influence the power developed there.

Maintaining a constant sound pressure level at the source will not compensate for this (since power is a function of particle velocity also) and will result in the measurement of something other than insertion loss as defined in Ref. [2].

It is considered that a superior method for rating and measuring the performance of liners is given by Melling and Doak, Ref. [4]. Here energy dissipation in the liner is measured. The experimental procedures are simple and the accuracy appears to be good. Provision is made also to include the influence of a mean gas flow past the liner. This method deserves further investigation since it gives more fundamental information on the performance of a liner than does insertion loss.

To summarise: Insertion loss is of limited value in rating liner performance. There are some modifications needed to the measuring system indicated. A superior basis for rating and measuring liner performance has been proposed and deserves further consideration.

Finally on the article by Mr. Knowland, Ref. (5). I am impressed that insertion loss has been predicted for comparison with the measured results. I would be interested to know the assumption made concerning the source and termination of the system. It is of interest to know that a study was commenced here some time ago to evaluate and compare the various methods available in the literature for predicting attenuation (rather than insertion loss). Particular attention is being given to assumption made and range of validity of the different methods. The results should be available shortly.

References:

- [1] Irvine, J.A. 'Air Conditioning Duct Liners - A new Test for Rating Acoustical Performance', Bulletin, A.A.S., Autumn 1972, pp 9-18.

- [2] Standards Association of Australia, "Glossary of Acoustical Terms", Doc. 1698 Draft Australian Standard, 1971, p.28.
- [3] Richards, E.J., Mead, D.J., "Noise and Acoustic Fatigue in Aeronautics", John Wiley and Sons, London 1968. pp. 52,53.
- [4] Melling, T.H., Doak, P.E. "Basic Design Considerations and Theoretical Analysis of Double Reverberant Chamber Duct Lining Test Facilities", J. Sound Vib., Vol.14, No.1, 1971, pp. 23-35.
- [5] Knowland, P.R., "Some Reflections on the Duct Liner Test", Bulletin AAS, Autumn 1972, pp. 19-22.

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FULL TIME COURSE

7 - 10 NOVEMBER 1972

NOISE AND ITS CONTROL

A full time course, intended primarily for engineers and architects who are involved with reducing noise and minimising the disturbance caused by noise, will be presented by the Department of Mechanical Engineering of Monash University, Clayton, Victoria. The course will combine a lecture series on "Noise and Its Control" with laboratory and field exercises in the use of sound measuring and analysing equipment.

The course will run for four days from 9 a.m. to 6 p.m. and will be held from Tuesday 7 November to Friday 10 November 1972 inclusive. Accommodation can be arranged if required.

The fee for the course will be \$120 and this will include lecture notes, trade literature, stationery and light refreshments. There will be a limitation on the number of participants in the course.

Full details can be obtained from the course organiser:

Dr. Robin Alfredson,  
Department of Mechanical Engineering,  
Monash University, Clayton, Vic. 3168.  
Telephone: 544 0811 Ext.3547 or 3510.

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COUNCIL MATTERS

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Meetings:

During the current year, the Council has met on three occasions, in Sydney on the 17th July 1971 and again on the 4th March 1972, and in Melbourne on the 7th November 1971.

Proceedings

While the Divisions of the Society retain a high degree of autonomy it is the function of the Council to manage the affairs of the Society for the uniform benefit of all members. The Council has consequently dealt with many matters of general interest; the most important of these are mentioned here.

The Council has given effect to the Special Resolution of the 1st Annual General Meeting that members of the Society be empowered to use the appropriate letters to indicate the grade to which they belong, i.e. F.A.A.S. (Fellows), M.A.A.S. (Members), A.A.A.S. (Affiliates). All Divisional Secretaries have been asked to inform members accordingly.

Preliminary steps were taken to establish a Division of the Society in Western Australia and subsequently a foundation Committee for the Division was appointed to act as from the 1st April 1972. The Acoustical Society of Western Australia was wound up on the 31st March 1972 in accordance with its constitution. The Western Australia Division is now thriving.

The membership of the Council needs to be reconstituted after the formation of the Western Australia Division. The Council that will take office after the next Annual General Meeting of the Society will have the following representation:

<u>N.S.W.</u>	<u>VIC.</u>	<u>W.A.</u>
4	4	2

The Society was represented at the 7th I.C.A. Congress in Budapest by the President and the Chairman of the New South Wales Division who reported on this meeting to Council. Unfortunately, our application for the Congress in 1977 was rejected but the possibility remains of obtaining the following Congress in 1980, despite the distances that separate Australia from both Europe and North America. In view of the assistance rendered to the Society by QANTAS Airlines, particularly in regard to the representations made by the Society to the I.C.A., Sustaining Membership was conferred by Council on that organisation.

A number of subcommittees appointed by Council have been active. The forms necessary for the use of persons applying for membership of the Society have been completely redrafted together with an information sheet. A booklet giving general information and a survey of acoustical research, theory and practice in Australia are in the course of preparation. A Bulletin has been initiated. The Society continues to award a Bursary tenable at the University of New South Wales during the current year.

Admissions to the Society so far this year are as follows:

Members	17
Affiliates	2
Subscribers	2
Students	4

One resignation was received and 10 applications for membership or grade-transfer are being dealt with by the membership committee of the Council.

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SOCIETY COMMITTEES

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The composition of the Society Committees is listed here for the interest of members:

FEDERAL COUNCIL

H. Vivian Taylor	President
P.R. Knowland	Vice President
J.F.M. Bryant	Secretary
J.A. Irvine	Treasurer
R.G. Barden	
G.E. Harding	
Mrs. A.B. Lawrence	
J.A. Madden	
G.A.B. Riley	
J.A. Rose	

N.S.W. DIVISION

J.A. Rose	Chairman
R.C. Wilkinson	Vice Chairman
J.I. Dunlop	Secretary
J.A. Irvine	Treasurer
G. Kimpton	
P.R. Knowland	
J.A. Madden	
G.C. Pickford	
E.T. Weston	
J.A. Whitlock	

VICTORIA DIVISION

G.A.B. Riley	Chairman
J.F.M. Bryant	Vice Chairman
G.E. Harding	Secretary
A. Williams	Treasurer
R.G. Barden	
A.C. Clutterbuck	
J.A. Moffatt	
J.R. Martin	
H. Vivian Taylor	
J.G. Twiss	