



## President's Column

For any organism to prosper and be healthy, growth and renewal are absolute prerequisites. This is especially true of a learned society such as the Southern African Acoustics Institute.

For us to successfully pursue our ideals and objectives and make a substantial contribution to the society in which we live and which we intend to serve, SAAI must continuously grow and renew. We constantly need new members and new ideas, to dynamically interact and unite with the energy and experience of our existing membership.

Council has now launched a new drive to identify and approach suitable new talent. Such an isolated endeavour is however not sufficient. Proper growth of our membership in terms of the required quantity - but more importantly the required quality - can only be accomplished through consistent and enthusiastic participation of each and every present member.

To attain the most beneficial effect, we should now focus our energy on the identification of full Members.

Briefly summarised: to be elected as Member, a candidate shall:

- a) be no younger than twenty six years of age;
- b) have attained at least a Senior Certificate plus three years of academic education at a tertiary educational institution in the field of acoustics or in a field which forms a basis for his work in the field of acoustics;
- c) in his profession or field of employment have been actively engaged in an activity related to acoustics over a period of at least five years.

I am convinced that most of you will be able to identify at least one excellent candidate who is not yet a member. I challenge you to sit down and for ten minutes focus your mind on suitable candidates, identify the single best candidate, approach him/her and send him/her a copy of the membership application form included with this newsletter.

Ek vertrou dat u op hierdie wyse 'n baie waardevolle bydrae tot die langtermyn gesondheid van hierdie instituut gaan maak.

Dankie vir u bereidwilligheid!

Stephan Heyns

The annual general meeting will take place middle November 1997. More details will be supplied soon.

## Background on SAAI

The following background on SAAI was supplied by Mr. G.V. Meij.

The SOUTHERN AFRICAN ACOUSTICS INSTITUTE held its inaugural meeting on 15 October 1975 in Pretoria where 45 scientists, engineers and others interested in acoustics met. They all felt the need for a body which would establish cohesion between people engaged in the broad subject of acoustics and which would act in a professional manner with authoritative and consultative functions.

By May 1976 when the first general meeting was held, the Constitution drawn up by SAAI members themselves, was unanimously adopted and Council members were elected. The first President was Dr. A. Semmelink of the Department of Electrical Engineering of the University of Cape Town. At this meeting it was announced that SAAI had been invited by the International Institute of Noise Control Engineering to become a member. Professor F. Ingerslev of Copenhagen was President at that time. SAAI gratefully accepted this invitation and has been receiving 100 complimentary copies of the IINCE Newsletter ever since that time. It is read with great interest by our members and supplements our own Newsletter.

The membership of SAAI is divided into two main classes: Corporate and Associate members. The constitutional requirements for Corporate membership are academic training and practical experience in a field related to acoustics. The required standards of training and experience are lower in the case of associate membership and so also is the minimum age for acceptance. Membership is also available to students and sponsors.

In order to encourage contact between members, after-noon meetings, symposia and general meetings are held. The Council endeavours to obtain the services of speakers who are specialists in the fields of acoustics with which the SAAI is involved. Generally these

speakers are Institute members but often South Africa has been honoured by the presence of speakers from abroad. Some of these have been Dr. P.V. Brüel of Denmark, Prof. Myncke of Belgium, Dr. A. von Meier of the Netherlands, Dr. Theodore Schultz of the USA and Mr. John Manuel of Canada.

We have over 100 members in South Africa as well as members in Namibia, Australia, Asia, Europe and North America.

Committees of the Council are involved in serving the community in matters of environmental noise control, traffic noise and legislation on noise. Recently two of our senior members who have extensive experience of noise control visited a large number of towns in South Africa to tell the local government staff of the new regulations on noise control and their application.

Matters involving noise are seen to take a very prominent place in the activities of the SAAI but true to its original aims, it endeavours to do justice to other aspects of acoustics such as underwater acoustics, musical acoustics, physical acoustics, speech and hearing, measurement and instrumentation. One of our members developed an instrument for sound intensity measurement, others built devices for speech training of deaf children and another for automatically photographing vehicles which exceed the traffic noise limits.

Research by University students at post graduate level has been encouraged by SAAI and the resulting

publications may be rewarded by a substantial grant to the university if of sufficient standard for publication in the official journal of SAAI.

It has been endeavoured to interest secondary schools in acoustics by offering prizes for essays on acoustic subjects. Senior school children have displayed a remarkable insight and may emerge as future acoustic consultants. Other matters with which members of SAAI have been involved include auditorium acoustics, speech intelligibility in school rooms, underwater acoustics, research into the human hearing mechanism and cochlear mechanics, damage to hearing by impulsive noise for which the ear's protection mechanism acts too slowly.

## History of Acoustics in South Africa

Council would like to collect documents and recollections on the history of Acoustics in South Africa. Members who were present at the inaugural meeting are kindly requested to help us make certain that the initial 25 years of SAAI's existence are documented. The following list of events was supplied by Mr. G.V. Meij. Please inform us if you have corrections and additions, or any other interesting bit of information which may be of historical interest.

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### NOISE MANAGEMENT - HISTORY

1950 SA National Council for the Deaf (SANCD) noticed deafness in Industrial workers

1960 SANCD asked SABS for recommendations for management controls

1964 Publication of Code of Practice SABS 083 'The measurement and assessment of occupational noise for hearing conservation purposes'

1974 Publication of Factory Regulations mandating SABS 083

### ENVIRONMENTAL NOISE - HISTORY

1965 Johannesburg City Council started to receive noise complaints and requested assistance from SABS and CSIR

1967 Publication of Code of Practice SABS 0103 'The measurement and rating of environmental noise with respect to annoyance and speech communication'

1978 Noise Regulations promulgated; first in Pretoria then Johannesburg and soon thereafter in the rest of the Province

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**TRANSPORT NOISE - HISTORY****Road traffic**

1965 Publication of Code of Practice SABS 097 'The measurement of noise emitted by motor vehicles in motion'

1981 Publication of Code of Practice SABS 0181 'The measurement of noise emitted by road vehicles when stationary'

1982 Regulation for Roadworthiness referred to SABS 097

**Air traffic**

1968 A Cabinet Committee is formed to investigate the noise from the Jan Smuts International Airport near Johannesburg

1974 With assistance from SAAI and CSIR, the following Codes of Practice were published:

SABS 0115 The measurement of noise and the determination of disturbance from aeroplanes for certification purposes

SABS 0116 The procedure for calculating basic noise parameters from ICAO aeroplane noise certification data

SABS 0117 The determination and limitation of disturbance around an aerodrome due to noise from aeroplanes

1974 The Cabinet placed limitations on the development of housing estates near airfields, but was never incorporated into legislation

**ATTEMPTS TOWARD CO-ORDINATION AND LEGISLATION**

1968 SABS formed a Steering Committee for Acoustics and Noise Control

1974 Factory, Machinery and Building Construction Act

1975 Founding of the SA Acoustics Institute (SAAI)

1978 Local Council Regulations

1982 SAAI formed a Noise Committee to assist the Council for the Environment

1987 Machinery and Occupational Safety Act

**COUNCIL FOR THE ENVIRONMENT—NOISE COMMITTEE**

1983 The Council for the Environment established a Noise Committee. The intention was, at that stage, that the Council would co-ordinate all the regulations in SA

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## Questions and Answers

Do you have a technical or other interesting question for discussion?

Die nuusbriëfredaksie wil graag lede aanmoedig om interessante vrae hier in die nuusbrië aan kollegas voor te lê. Op hierdie manier kan ons mekaar beter leer ken en mekaar help. Ons hoor graag van u.

## Standards

### INFORMATION REGARDING SABS ACOUSTICS STANDARDS

The following new standards were published:

SABS 083-1996 The measurement and assessment of occupational noise for hearing conservation purposes

SABS 0154/1 Calibration of pure-tone audiometers—Part 1: Air conduction (Revision of SABS 0154-1983)

SABS 0154/2 Calibration of pure-tone audiometers—Part 2: Bone conduction (Revision of SABS 0154-1983)

SABS 0210 Calculating and predicting road traffic noise (Revision of SABS 0210-1986)

SABS ISO 140/2 Acoustics—Measurement of sound insulation in buildings and of building elements—Part 2: Determination, verification and application of precision data.

SABS/ISO 3746 Acoustics—Determination of sound power levels of noise source—Survey method employing an enveloping measurement surface over a reflecting plane

SABS ISO 8253/1 Acoustics—Audiometric test methods—Part 1: Basic pure-tone air and bone conduction threshold audiometry

SABS ISO 8253/2 Acoustics—Audiometric test methods—Part 2: Sound field audiometry with pure-tone and narrow band test signals

SABS ISO 9614/1 Determination of sound power levels of noise sources using sound intensity—Part 1: Measurement at discrete points

SABS ISO 9614/2 Determination of sound power levels of noise sources using sound intensity—Part 2: Measurement by scanning methods

SABS ISO 11690/1 Noise reduction—Design of low-noise in work-places containing machinery—Part 1: Noise control strategies

SABS ISO 11690/2 Guidelines for the design of low-noise workplaces—Part 2: Noise control measures

The following standards were amended:

SABS 0103:1994 The measurement and rating of environmental noise with respect to annoyance and to speech communication. Amendment No. 1

SABS 083-1996 The measurement and assessment of occupational noise for hearing conservation purposes. Amendment No. 1

The following standard was withdrawn:

SABS 0197:1984 Superseded by SABS ISO 3746-1995 Acoustics - Determination of sound power levels of noise sources - Survey method employing an enveloping measurement surface over a reflecting plane

The following Draft South African Standards were circulated:

SABS and /DSS 458 Hearing Protectors—Recommendations for selection, use, care and maintenance—Guidance document. (Approved for publication)

DSS for SABS ISO 8253/3 Audiometric test methods—Part 3: Speech audiometry

DSS for SABS ISO 11690/3 Guidelines for the design of a low-noise workplace—Part 3: Sound propagation and noise prediction in workrooms

Work in progress:

Revision of SABS 0182:1982 The measurement and assessment of acoustic environments for audiometric tests

Revision of SABS 0218:1988 Acoustical properties of buildings

SABS 1451 Hearing protectors—Part 3: Ear-muffs attached to an industrial safety helmet

SABS ISO/DSS 10843 Methods for the measurement of isolated burst of sound energy emitted by machinery and equipment

V. Robertson

### News from abroad

Council of the Institute of Acoustics in the UK agreed in February 1997 to a revised Code and Rules of Conduct. The rules of conduct have been grouped under three headings: i) professional competence and integrity, ii) public interest and iii) duty to employers. The rules are discussed in the March–April volume of the Acoustics Bulletin, (Vol. 22 no. 2). A procedure for dealing with complaints is also described.

### History of Acoustics

In *The Brickbuilder* vol. xxiv, no. 2, Febr. 1915, W.C. Sabine published a paper on “The Insulation of Sound”. He wrote:

“The insulation of sound as an unsolved problem in architectural acoustics was first brought to the writer’s attention by the New England Conservatory of Music, immediately after its completion in 1904”

He then discusses three buildings where during construction “it had been regarded particularly important that communication of sound from room to room should be avoided, and methods to that end had been employed which were in every way reasonable.” However, it appears that the very reasonable measures were not very successful, since Sabine writes:

“The results showed that in this phase of architectural acoustics also there had not been a sufficiently searching and practical investigation and that there were no experimental data on which an architect could rely.”

Sabine then discusses sound transmission from a theoretical and practical point of view. His analysis is based on the questions:

“What manner of walls conduct sound with the greater readiness? Is it true, as so often stated, that modern concrete construction has contributed to the recent prevalence of these difficulties?”

In an experimental study, he determines the sound insulation properties of various partitions, by generating sound in one of two connected rooms, and adjusting the generation level until the sound is barely audible in the other. For felt layers he found a constant coefficient of absorption, but not for walls. He comes to the conclusion:

“The walls do not act by absorption, as in the case of the felt; do not act by a process which is complete at the point, but rather by a process which may be more or less likened to reflection. In fact, the process must be regarded as that of a structure which must be considered dynamically as a whole.”

### Conferences

A call for abstracts and registration for the 2<sup>nd</sup> Acoustics and Ultrasonics Symposium, to be hosted by the University of Cape Town and the Cape Technikon on the 4th & 5th December 1997, was recently send out. Mr. Gijs-jan van Blokland, of M+P Consulting Engineers in the Netherlands, will be a special guest at the symposium, sharing his knowledge and experience on transportation noise. For more information contact:

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e-mail: [ajongens@eleceng.uct.ac.za](mailto:ajongens@eleceng.uct.ac.za)

The 1998 International Congress on Noise Control Engineering will be held in Christchurch, New Zealand, on 16—18 November 1998. The theme is: “Sound and Silence: Setting the balance”. Related conferences are planned on “Noise as a Public Health Problem” on 23–27 November in Sydney, Australia, and on “Recreational Noise” in Queenstown, New Zealand. Abstracts for papers for the NCE conference must reach the secretariat no later than 16 February 1998. Enquiries:

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A call for papers for the International Conference on Noise and Vibration engineering, scheduled for 16–18 September 1998 at the Katholieke Universiteit, Leuven, Belgium, was received. Special attention will be paid to recent applications in automotive, aerospace and civil engineering. Abstracts must be submitted before January 1, 1998. Contact:

The updated calendar of conferences scheduled for 1997 and 1998, as published by the Acoustical Society of America, appears overleaf.

For more information contact SAAI.

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### Conferences

#### 1997

- 18–19 Sept Guanajuato, Mexico, *4th Mexican Congress on Acoustics*, fax: +52 5 523 4642, sberista@vmredipn.ipn.mx
- 18–20 Sept Athens, Greece, *Intonation: Theory, Models and Applications*, fax: +30 1 72 28 981, tonesca@di.uoa.gr
- 21–23 Sept Cape Cod, USA, *Product Sound Quality 1997*, fax: +1 617 864 0779, rhlyon@mit.edu
- 22–24 Sept Bethesda, MD, USA, *2nd Biennial Hearing Aid Research and Development Conference*
- 22–25 Sept Patras, Greece, *5th European Conference on Speech Communication and Technology (Eurospeech '97)*
- 23–26 Sept Delft, The Netherlands, *Fluid-structure interaction in acoustics*, burgh@dv.twi.tudelft.nl
- 27–28 Sept Rhodes, Greece, *Audio-Visual Speech Processing*, esca@icp.grenet.fr
- 07–10 Oct Toronto, Canada, *1997 IEEE Ultrasonics Symposium*
- 8–10 Oct Windsor, Ont. Canada, *Acoustics Week in Canada 1997*, fax: +1 905 670 1698
- 23–26 Oct Windermere, UK, *Reproduced Sound 13*, fax: +44 1727 850 533, acoustics@clus1.ulcc.ac.uk
- 30–31 Oct Bern, Switzerland, *Swiss Acoustical Society Meeting*
- 19–21 Nov Hong Kong, *WESTPRAC '97*, fax: +852 27746146, besktang@polyu.edu.hk
- 27–30 Nov Windermere, UK, *Autumn Conference: Environmental Noise*, fax: +44 1727 850 533, acoustics@clus1.ulcc.ac.uk
- 01–05 Dec San Diego, USA, *134th Meeting of the Acoustical Society of America*
- 15–18 Dec Adelaide, Australia, *5th International Congress on Sound and Vibration*, fax: +61 8 8303 4367, icsv5@mecheng.adelaide.edu.au

#### 1998

- 02–06 Febr Moscow, Russia, *Ultrasonic Technological Processes—98*, fax: +7 095 151 7911, utp@madi.msk.su
- 23–27 March Zürich, Switzerland, *DAGA '98—German Acoustical Society Meeting*, fax: +49 441 798 3698, dega@aku.physik.uni-oldenburg.de
- 05–08 April Ypsilanti, MI, USA, *NOISE-CON 98*, fax: +1 914 462 4006, inceusa@aol.com
- 12–15 May Seattle, WA, USA, *1998 IEEE Conference on Acoustics, Speech and Signal Processing*
- 18–22 May Gdańsk, Poland, *7th Spring School on Acousto-optics and Applications*, fax: +48 58 41 31 75, school@univ.gda.pl
- 25–27 May Naples, Italy, *Noise and Planning 98*, fax: +39 2 48018839, md1467@mclink.it
- 8–10 June Tallin, Estonia, *EAA/EEAA Symposium "Transport Noise and Vibrations"*, fax: +7 812 127 9323, krylspb@sovam.com
- 09–12 June Umeå, Sweden, *8th International Conference on Hand-Arm vibration*, fax: +46 90 16 50 27, hav98@niwl.se
- 20–28 June Seattle, WA, USA, *Joint Meeting: 16th International Congress on Acoustics (ICA) and 135th Meeting of the Acoustical Society of America*
- 21–26 June Gainesville, USA, *13th U.S. National Congress of Theoretical and Applied Mechanics*, fax: +1 352 392 7303, meise@eng.ufl.edu
- 16–18 Sept Leuven, Belgium, *International Conference on Noise and Vibration Engineering*, fax: +32 16 32 29 87, lieve.notre@mech.kuleuven.ac.be
- 12–16 Oct Norfolk, VA, USA, *136th Meeting of the Acoustical Society of America*
- 16–18 Nov Christchurch, New Zealand, *Inter-Noise 98*
- 22–26 Nov Sydney, Australia, *Biological Effects of Noise (ICBEN 98)*
- 30 Nov–04 Dec Sydney, Australia, *5th International Conference on Spoken Language Processing*, fax: +61 2 9262 3135, tourhosts@tourhosts.com.au

#### 1999

- 15–19 March Berlin, Germany, *Forum Acusticum and 137th Meeting of the Acoustical Society of America*
- 01–05 Nov Columbus, OH, USA, *138th Meeting of the Acoustical Society of America*