

THE AUSTRALIAN METROLOGIST

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FILL THIS

SPACE

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FROM THE PRESIDENT

The formation of the **METROLOGY SOCIETY OF AUSTRALIA**, only five months ago, has been greeted with enthusiasm and support by all sections of the Australian measurement community. This has been both gratifying and intimidating for the members of the Committee of Management. Gratifying because in these difficult times of economic restraint and laboratory closures, we are happy to be involved in the building of an organisation with so much potential. Intimidating because while the Metrology Society is an idea whose time has definitely come, it still requires careful nurturing in these early stages if it is to ultimately live up to expectations.

The Committee is keenly aware of the responsibility and trust the metrologists of Australia have placed on our shoulders in this regard. Therefore, since the inaugural public meeting in September 1993, *we* have been working very hard to maintain the momentum, establish the correct frameworks and structures and establish a strong membership.

Some issues and concerns we have been working on include:

- (i) Promotion of the MSA within Australia's measurement community
- (ii) Drafting of rules for final acceptance by Membership
- (iii) Formation of the Membership Qualifications, Communications, Education and Social Sub-Committees
- (iv) Design and establishment of Membership Register and Database.
- (v) Establishment of a bank account and financial procedures.
- (vi) Involvement of MSA in measurement courses and seminars etc.

- (vii) Social activities, including regular meetings, annual dinner dance etc., metrology awards.

- (vii) Incorporation.

A great deal has already been achieved. This is due entirely to the hard work and dedication of the Management Committee and I would like to thank each of them for their enthusiasm and willingness to work.

At the time of writing this column, **over seventy people have applied for, and been granted, membership in the Society.** This is an excellent response for the Christmas period. What is even more pleasing, given our aim of evolving to a truly national organisation as soon as possible, is that about half of our members are already from States other than Victoria.

If you haven't joined yet, hurry or you will miss being a Foundation Member of what undoubtedly will become a major component in Australia's measurement system. Remember the Society accepts applications from all areas of metrology, including electrical, dimensional, mechanical, flow, mass, time, volume, colour, chemical and environmental testing, etc.

Finally, welcome to *The Australian Metrologist*. This publication is seen as crucial in achieving the aims of the Metrology Society of Australia. Metrologists throughout Australia often work in small laboratories in isolation from others working in the same field. It is very difficult for these people to keep in touch with developments in their field or in the wider field of metrology. The *Australian Metrologist* is intended to provide a forum for the exchange of ideas and information and for the promotion of Metrology to the wider community. I am confident the Editor, John Mitchell, and his Communication sub-committee, will do a great job in keeping us all informed and in touch.

John Miles

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A BEGINNING

For the first issue of *The Australian Metrologist*, it was necessary to start somewhere. This rather modest offering bears little resemblance to what those of us responsible for its publication hope it will become. At this early stage in the life of the Metrology Society of Australia, its prime function must be that of a newsletter. Indeed, until we have established core groups in each State with their own committees, meetings and networks, it will be the means by which the Society's members learn of the Society itself and of activities of interest. In the not too distant future, it will be bigger, better and take more the form of a magazine or journal.

The vision we have for this publication is similar to that which we have for the Australian Metrology Society itself; that is, its development into something which is professional, respected and influential in the metrology community.

Exactly what *The Australian Metrologist* develops into in terms of content is very much, however, up to the Members as it is to be their publication. While there have been many suggestions as to the things which might be included, we want our Members ideas. The following have so far been proposed.

- President's Column*
- Editorial*
- Letters - Readers comments*
 - *Readers questions*
 - *answers*
- State News*
- News Briefs*
- Articles*
- Forthcoming*
 - *Courses,*
 - *Conferences*
 - *Meetings*
- Social activities*
- Subcommittee reports*
 - *Communications*
 - *Education*
 - *Finance*
 - *Membership*
- New Members*
- Technical Papers*
- Positions wanted*

Readers are invited (implored) to provide suggestions of what they wish to see, what they don't want to see,

improvements to the layout, etc. If you do not respond, you will get what the editor thinks you want which is not the point of the exercise.

CIRCULATION

This issue has been sent to all who have joined the Society and to all of those who expressed an interest following our initial mail-out. **Future issues will be sent only to members.** Should you not have joined as yet, this will be the last direct invitation to do so from the Society. We very much hope that you will join us and, to save you having to chase up people for membership details, an application form for FOUNDATION MEMBERSHIP together with a reminder of membership categories will be found enclosed with this issue. This application form may be copied as many times as you wish if there are others you know who may want to join. Similarly, if people want to know more about the Society, please feel free to make copies of this whole issue.

CONTRIBUTIONS

If you would like to contribute articles, letters or news, the preferred formats are:

1. *WordPerfect file*
2. *ASC (unformatted) text file*
3. *Typed text*
4. *Neat handwriting*

Contributions should be sent to:

The Editor
The Australian Metrologist
c/o 7 1-73 Flemington Road
North Melbourne VIC 3051

or faxed: (03) 326 5148

**The deadline for the next issue, due out in June, is
31 May**

I look forward to hearing from you.

John Mitchell

Would you or your company be interested in sponsoring future issues of *The Australian Metrologist*?

Write or fax the Editor if you are.

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NSC DEVELOPING NATIONAL METROLOGY POLICY

Federal government funding approved in 1992 has permitted the National Standards Commission to undertake development of a national metrology policy.

As a major focus of the national metrology policy is to assess the contribution that industrial measurements make to productivity and international competitiveness and economic growth, the Commission established an Industrial Measurements Committee.

Other aspects of the national metrology policy will be addressed by specialist subcommittees from existing Commission committees such as the National Time Committee, the Measurement Skills Committee, the Standing Committee on Trade Measurement, the Medical Measurements Committee and the Chemical Metrology Committee. Advice will also be sought from existing metrology committees from outside the Commission such as the CSIRO Standards Advisory Committee, the NATA Metrology Registration Advisory Committee and the Defence Calibration Committee.

The Industrial Measurements Committee has the following objectives:

- To analyse the economic importance of measurement within industry and commerce and of its contribution to industrial production and international competitiveness.
- To identify the needs of industrial measurements in the national measurement policy.
- To provide feedback between industry and the Commission on measurement needs and new technologies.
- To strengthen the links between industrial measurement and quality assurance.
- To promote discussion between industrial uses of measurement and national measurement authorities on infrastructure needs, for example skills, calibration systems.

Before convening the first meeting of the Industrial Measurements Committee the Commission surveyed approximately 350 organisations and individuals. Major issues considered in the survey included:

- Legislation

Is a lack of national uniformity in measurement requirements creating inefficiencies?
- Government Policies

Is government investment in national calibration and test facilities adequate?

Should the use of such facilities be subsidised by the Government?

Should the Government provide similar support for improved metrology as it does for quality improvements?

Should the Government support similar programs to those in the United Kingdom on industrial measurements, nanotechnology and metrology audits?
- Measurement and Quality

How has the introduction of quality systems affected metrology?
- New Technology

Is Australia obtaining the full benefits from new, measurement-intensive technologies, for example optoelectronics and nanotechnology?
- Traceability of Measurement

Is the traceability of measurements in industry adequate to meet trade, contractual and legal requirements?
- Measurement Skills

Is existing formal and informal training adequate for industry needs?

Is existing training responsive to new technologies?

The results of the survey were discussed at the first meeting of the Industrial Measurements Committee which was convened by the Commission in September and consisted of twelve major users and suppliers of industrial measurement. There was general consensus that the issues outlined in the survey need to be addressed by government policy in order to improve productivity and competitiveness.

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A draft paper based on the national metrology policy will be considered by the next Commission meeting in March before being submitted for ministerial consideration and inclusion in an industry statement which will be made before the next Budget which is due in May.

Our thanks to the National Standards Commission for permission to reproduce this article from the *NSC Bulletin*.

NATIONAL STANDARDS TO ADOPT 95% CONFIDENCE LEVEL

The National Measurement Laboratory (NML), which has responsibility for developing and maintaining Australia's national physical standards, will be adopting a 95 % confidence level for statements of uncertainty.

A measurement result is not meaningful unless it includes a statement of the uncertainty attached to the result e.g. 10.0 ± 0.1 mm. The statement of uncertainty is not complete, however, unless the level of confidence with which the uncertainty is known is also stated. For example, if the result is stated as 10.0 ± 0.1 mm at the 95 % confidence level, we would know that there are only 5 chances in 100 that the actual value is less than 9.9 mm or greater than 10.1 mm.

In the past, industry has often treated the results obtained in NML measurement reports as though the uncertainties were absolute limits.

NML therefore took the view that its results should be quoted at the 99% confidence level to minimise any problems and NATA-registered calibration laboratories adopted the same practice.

In recent years, there has been a growing trend internationally to use 95 % confidence levels. In theory, provided sufficient information is given with the statement of uncertainty, it is possible to convert a 95 % confidence level to a 99% confidence level (and vice versa) for the purpose of comparing values quoted at different levels. Unfortunately, some users of measurement reports who were not aware of the significance of statements of uncertainty simply treated the confidence intervals as though they were absolute limits and (incorrectly) assumed the 95% confidence interval reflected a better measurement than the larger 99 % confidence level.

In line with this international trend, NML proposes to adopt the 95% confidence level in its statements of uncertainty. The change from 99 to 95% confidence levels will be implemented as soon as legislative amendments can be made to the clauses in the National

Measurement Regulations which are affected by the change of practice. The legislative changes should be made by mid-1994.

Glenda Sandars
NML Standards Liaison Officer

COORDINATE MEASURING MACHINE GROUP - CHAIRMAN'S COMMENT

A few words from Ron McBain, Chairman of the CMM Group Australia.

As chairman of the CMM Group in Australia, I have been prevailed upon to write a few words for this inaugural issue of the Metrology Society of Australia Newsletter.

As an opening comment I must say that the formation of the Metrology Society is long overdue and that the "inauguratee's" of the Society should accept all of the plaudits being heaped onto them with a warm feeling of a job being well done.

As a foundation member of the CMM Group and being involved from the embryonic stage, I must congratulate the committee members and at the same time commiserate with them when I think of all of the work that lays ahead. However, hard work has never stood in the way of a good Metrologist even though his/her uncertainty calculation may suffer significantly.

Being a member of the CMM Group has led to many pleasant happenings, both technically and socially. Many meetings, held in various states of Australia, have involved technical discussions related to both CMM and Metrological activities and we have had the pleasure of having a number of invited Overseas guests or Keynote speakers on occasions. These meetings have led to an interesting exchange of information and ideas which have assisted many members, and, at the same time surprised many an overseas visitor with the technical competence and expertise in Australia.

It is along similar lines that the Metrology Society could structure their workings.

I look forward to a rewarding experience with the Metrology Society and a happy and intimate/co-existence between both groups.

Ron McBain

[Editors note. It is intended that an update of CMM Group activities and issues relating to CMM's will be a regular feature.]

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MSA COMMITTEE OF MANAGEMENT

Following are the committee members elected at the inaugural meeting held in September.

Dr John Miles (President)	CSIRO Division of Applied Physics
Dr Barry Inglis (Vice-President)	CSIRO Division of Applied Physics
Mr Colin Wagg (Secretary)	NATA
Mr Stuart McDonald (Treasurer)	State Electricity Commission of Victoria
Mr Bill Cerutti	Hewlett Packard
Mr Bob Collins	ASTA Components
Mr Jack Deller	Defence Quality Assurance Organisation
Dr Graeme Harvey	National Standards Commission
Mr Ron McBain	Australian Defence Industries
Mr John Mitchell	NATA
Mr Horst Sieker	ACM Laboratory
Dr Jane Warne	Bureau of Meteorology

MEMBERSHIP QUALIFICATION SUB-COMMITTEE

Dr John Miles (Chairman)
Mr Jack Deller (Secretary)
Mr Bill Cerutti
Mr Horst Sieker

FINANCE SUB-COMMITTEE

Mr Stuart McDonald (Chairman)
Mr John Mitchell

SOCIAL SUB-COMMITTEE

Mr Ron McBain (Chairman) [Ed:Help!]

EDUCATION SUB-COMMITTEE

Dr Graeme Harvey (Chairman)
Dr Barry Inglis

COMMUNICATIONS SUB-COMMITTEE

Mr John Mitchell (Chairman)
Mr Jack Deller
Mr Ron McBain
Mr Colin Wagg
Dr Jane Warne

MEMBERSHIP QUALIFICATION COMMITTEE REPORT

The Membership Qualification Committee has held four meetings to assess the applications received. As of the 8th of February, 80 applications have been processed through the committee. It has been good to see that most disciplines of metrology have been represented.

There have been 10 applications for associate membership with the remainder being for full membership.

It is very pleasing to report that a good response is coming from the states other than Victoria. The distribution is: - Victoria 46; New South Wales 14; Queensland 9; South Australia 7; Western Australia 4.

The committee has had minimal problems while addressing applications with only a few being referred back to the Management Committee for guidance. The Management Committee has given the Qualification Committee the following guidelines to work to:-

- a) Metrology sales people with only five years sales experience will not be eligible for full membership unless this is augmented with practical experience, ideally in a laboratory environment. Where, however, a salesperson has specialist technical skills acquired over a period in excess of ten years, they may be accepted as full members.
- b) For the period up to the end of March (Foundation Membership), members may submit a personally signed statement of their experience in lieu of the need to have a signed statement from their employer.

From April, any new applications for full membership will require a Proposer and Seconder, thus assuming that the proposer and seconder will have the knowledge of the applicant's qualifications and experience to recommend them for full membership.

New application forms will be available for all prospective members after the 31st March 1994.

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It is with much pleasure that we announce that the following metrologists have been granted Foundation Membership of the Metrology Society of Australia.

New South Wales

Dr Barry Inglis	Electrical
Dr Graham Harvey	Multi-disciplinary
Ms Glenda Sandars	Multi-disciplinary
Mr Laurie Besley	Temperature
Mr Robert Frenkel	Electrical
Mr Doan Lam	Electrical/Dimensional
Mr Errol Atkinson	Radiometry
Mr Philip Ciddor	Dimensional
Mr Robert Kelly	Dimensional
Dr Tony Collings	Physical
Dr Nicholas Brown	Dimensional
Mr John Connolly	Temperature
Mr George Tanos	Acoustic
Mr Mark Daniels	Dimensional

Queensland

Mr Douglas Quinn	Electrical
Mr Brian Phillips	Dimensional/Mass
Mr Terance Albury	Electrical
Mr David Martin	Electrical
Mr William Chappell	Dimensional
Mr Erwin Schilling	Dimensional
Mr Roy Hood	Electrical
Mr Ian Kendall	Dimensional
Mr Gregory Hicks	Electrical/Dimensional

South Australia

Mr Jeffrey Tapping	Temperature
Mr Mark McEwen	Dimensional
Mr Warwick Neil	Dimensional
Mr Maurice Hooper	Multi-disciplinary
Mr Richard Ashley	Dimensional
Mr Tony Adams	Dimensional
Mr Peter Crawshaw	Electrical

Western Australia

Mr Paul Edwards	Dimensional
Mr Denis Baylis	Dimensional
Mr William Deusien	Electrical
Mr David Pack	Physical

Victoria

Dr John Miles	Dimensional/Physical
Mr Colin Wagg	Multi-disciplinary
Mr Stuart McDonald	Electrical/Phometry
Mr William Cerutti	Electrical
Mr Robert Collins	Multi-disciplinary
Mr Jack Deller	Dimensional
Mr Ronald McBain	Dimensional
Mr John Mitchell	Multi-disciplinary
Mr Horst Sieker	Dimensional
Dr Jane Wame	Chemical/Physical
Mr Hemando Esquivel	Electrical
Mr Mario Padalini	Electrical/Acoustic
Mr Eugenio Bini	Dimensional
Mr Gordon Povey	Electrical
Mr Alan Catt	Dimensional
Mr Patrick Fogwill	Multi-disciplinary
Mr Ronald Guest	Electrical
Ms Tina Marmo	Dimensional
Ms Carol Sieker	Dimensional
Mr John Weir	Electrical
Mr Gary Heffeman	Electrical
Mr Andrew Connell	Physical
Mr James McCartan	Physical
Mr Steve White	Physical
Mr Ashley Gracias	Dimensional
Mr Ian Richards	Dimensional
Mr Alfred Tiedemann	Dimensional
Mr Tim Kennon	Dimensional/Physical
Mr Ronald Cook	Electrical
Mr Neville Owen	Physical
Mr Paul Zechovsky	Electrical
Mr Ian Ogilvie	Temperature/Dimensional
Mr Bonifacio Olaver	Dimensional
Mr Bruce Grigson	Dimensional
Mr David Wallace	Electrical
Mr Wayne Eames	Dimensional
Mr Kenneth Bamett	Dimensional
Mr Denis Sexton	Dimensional
Mr Ian Jackson	Radiometry
Mr David Roberts	Electrical/Physical
Mr Bojan Kocet	Dimensional
Mr Alex Smart	Dimensional
Mr Stephen Theuma	Dimensional
Mr Graeme Richardson	Electrical

Jack Deller

FORTHCOMING COURSES

MEASUREMENT AND QUALITY ASSESSMENT
A ONE DAY CONFERENCE AT RMIT
THURSDAY 31 MARCH 1994

"Measurement began our Might" Yeats

This is a one day Conference designed to bring together people concerned with measurement methods and techniques to improve the quality of their products or processes. It will focus on research and development in industrial laboratories within the Melbourne area with a view to broadening knowledge of what is happening at the local level. It will be of interest to a broad range of scientists, engineers, technologists and others concerned with quality assurance.

The morning session will be devoted to general topics covering a variety of important advances applicable to industrial measurement areas.

- The Role of Measurement in the Assessment of Quality in Products and Processes.
Dr Peter Harvey (Kodak)
- Developments in Metrology for the Future of Industry
Dr Barry Inglis (CSIRO)
- Trends in Sensor Systems
Mr John Ralton (Applied Measurement)
- Does a Graduate with Tertiary Education move easily within the Quality Control Framework?
Dr B Forgan (Bureau of Meteorology)
- Targeting Waste Minimisation
Mr Norm Parris (EPA)
- Vision Measurement Systems
Mr Ian Macintyre (CSIRO)

In the afternoon, the Conference will be organised into a number of parallel sessions, each dealing with a specialised area of interest. Following are listed some of the topics in which interest has been shown.

- Current progress in the mineral processing industry
- Advances in temperature measurement
- Collaboration and consultation
- Fibre optic sensors
- Standards & modern measurement techniques
- Nuclear instrumentation developments

- Advances in ultrasonic and acoustic measurements.

The organisers wish to tailor the afternoon sessions according to the interests of the delegates. They have, therefore, been calling on individuals or groups to indicate their particular interests, perhaps within the topics given above, or in other areas which they might wish to be covered.

The Conference will end with a discussion panel on methods of improving collaboration within the Melbourne region.

Conference fee is \$85 which includes lunch and refreshment breaks.

Venue is the Glasshouse Theatre, RMIT

Anyone interested in obtaining further information should contact Mr Ken McGregor of RMIT, Department of Applied Physics on 03 660 3396 or fax 03 660 3837.

TEMPERATURE MEASUREMENT

A FIVE DAY INTENSIVE COURSE AT THE
NATIONAL MEASUREMENT LABORATORY
OCTOBER 1994

The CSIRO Division of Applied Physics is running this course in the theory and practice of temperature measurement at the National Measurement Laboratory, Bradfield Road, West Lindfield NSW 2070.

The course provides the opportunity to gain knowledge about general principles of measurement as well as particular techniques and consists of both lectures and practical sessions. It will be of value to technicians, engineers, scientists and others involved in, or responsible for, work in which temperature measurement is important.

Lectures will be given by members of the Division, each a specialist in the appropriate subject with experience in calibration, research and industrial consultation. Nineteen hours of lectures will be given on a wide range of instruments including platinum resistance and liquid-in-glass thermometers, thermocouples and radiation pyrometers. Cryogenic thermometry and humidity measurement will also be covered.

Ten hours of hands-on practical exercises and demonstrations will illustrate and reinforce the course work. Ample time will be allocated for informal discussions with lecturers. Detailed notes will be issued on all lecture material.

For further information, contact the organiser, Mr Robin Bentley, on (02) 413 7764.

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MEASUREMENT AND TEST EQUIPMENT IN QUALITY ASSURANCE

The interpretation of the clauses in the ISO 9000/AS 3900 series of quality system standards dealing with control of inspection, test and measuring equipment has been difficult for the non-metrologist (and for many metrologists too!)

The QR/9 Committee of Standards Australia deals with the measurement and test equipment requirements in quality systems standards and has undertaken a project to develop a series of guidance documents dealing with various types of measurements. The guidance documents planned for completion in the first half of 1994 are:

A Guide to the Selection, Care, Calibration and Checking of Measuring Instruments in Industry.

Part 1 : General Principles

Part 2 : Simple Length and Angle Measuring Instruments

Glenda Sandars

MSA LOGO DESIGN

You may have noticed "Fill this space" on the front of this issue. You may have also twigged that the Metrology Society of Australia does not, as yet, have a logo. Do you have any ideas?

Mr Alex Smart of S G Prittie Precision Gauges Pty Ltd fame has very generously offered to employ the services of a graphic artist to design our logo professionally rather than have some hack editor come up with an utter abomination. If you have some ideas of what the logo should look like, please do not be shy. If you can't draw to save yourself but could describe the general form you have in mind, get in touch.

Two things to remember are that 1) the MSA represents all metrology disciplines, not just yours, and 2) we do not want to reinforce the view held in some quarters that metrology has not changed since the industrial revolution. Hence, the two-pan balance not only represents too narrow a field, it is also hardly indicative of modern metrology practice.

The dead-line for suggestions is 31 March.

Don't miss this opportunity to become an MSA legend.

MEMBERS MEETING

All members are invited to attend a Special General Meeting to accept the Rules and to vote on Incorporation of the METROLOGY SOCIETY OF AUSTRALIA. If it is at all possible for you to get to this meeting, it should not be missed. This is your opportunity to participate in the legal constitution of the society.

MONDAY 21 MARCH 1994

at

**THE DAVID RIVETT LABORATORY
CSIRO DIVISION OF APPLIED PHYSICS
BAYVIEW AVENUE
CLAYTON
VICTORIA**

commencing at

7.00pm

Following the formal part of the meeting, Dr Graeme Harvey, Deputy Director of the National Standards Commission will speak on "A National Metrology Policy for Australia."

A supper will conclude the evening.

For further information, contact the Secretary, Colin Wagg, on (03) 329 1633, or the President, John Miles on (03) 542 2964.

See you there.

DATES TO REMEMBER

21 March Special General Meeting

31 March RMIT Seminar

Closing date for Logo suggestions

**Deadline for Foundation
Membership Applications**

**31 May Deadline for The Australian
Metrologist contributions**

**October Temperature Measurement Course
at NML**