

THE AUSTRALIAN METROLOGIST



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MSA 97 POST CONFERENCE ISSUE



Dr John Miles handing over
the reigns of the MSA to
Dr. Jim Gardner



Horst Sieker ACM Laboratory.
Winner of the MSA "Achievement
and Excellence award 1997



Keynote Speaker Prof. Dr. Volkmar Kose
with President John and Barry Inglis

THE AUSTRALIAN METROLOGIST

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Victoria, putting in the time and effort to keep the Society active. A special presentation was made to John Miles at the MSA'97 dinner, in recognition of his personal effort and dedication - well deserved.

The job is now ahead for the NSW based committee to continue advancing the Society. A particular task is to broaden the membership in NSW among the "hands-on" metrologists. One activity staying in Victoria is the production of TAM, on the basis that "if it ain't broke, don't fix it". Thanks to Jack Deller for staying on as editor. Keep those articles rolling to him.

More of the job ahead, and a return to the theme of overseas calibrations raised in John Miles' last Presidents Column, in later issues of TAM. Now, though, is the time to reflect on MSA'97. The Conference was successful beyond the dreams of the organising committee, both professionally in its quality of presentations and attention to organisational detail, and in its financial outcomes. Walter Giardini and his band of workers did a fairly magnificent job deserving of hearty congratulations from all of us. Well done team.

Talks at the conference covered the gamut from practical problems with measurement on the shop floor to esoteric measurements on silicon spheres with the ultimate goal of replacing the kilogram. A recurring theme was that of education in metrology.

FROM THE PRESIDENT



Time marches on, so it was inevitable that the mooted changing of the MSA guard would finally take place. This of course happened at the AGM held during the Conference in Melbourne, when the

running of the MSA was effectively passed from Victoria to NSW. In the space of four years, MSA has gone from zero to a membership of some 300, largely due to recognition by John Miles, John Mitchell and others of the Victorian stalwarts that the time was ripe for formation, followed by a larger group, again in

This seemed to carry two messages.

The first was that a fair effort has gone into preparing accredited courses, but that employers see little need to support their staff to improve skills and have them recognised by taking these courses. The second was that much was to be done to educate the user community that traceability is more than measurement artefacts, and that demonstration of competence in measurement is a key element.

There is likely to be a continuing role for the Society in both these elements. The Society has an active education subcommittee, headed by Helmi Salem, and a number of the new committee members have experience with training in metrology. The raising of awareness about traceability is a job for us all.

Cheers,

Jim Gardner

Editors Column

Issue 14 of TAM is dedicated in the main to MSA97.

For all members who attended the conference I think you would all agree that it was certainly a highlight in the short history of the MSA.

From the "NATA Starter" through the conference and on to the Conference Dinner, everything appeared to flow smoothly. Of course that observation is from someone who was not on the organising committee and to achieve that result the committee is to be congratulated.

One very pleasing situation that did arise from the conference committee was the amount of untapped talent we have in the society and that point augers well for the future of the MSA when a National Committee is again required from Victoria.

May I add to Dr. Jim's congratulations to our outgoing President Dr. John Miles. Having worked very closely with John over the past 4 years on the MSA, the situation in which the society now finds itself is a direct relationship to the amount of time and effort contributed by both John and Colin Wagg our foundation Secretary. While others on the committee have also worked very hard over the time we were organised by these two very professional operators who should be now wondering what to do with their spare time.

I was very pleased with comments from members on the last edition of TAM. The problem for us now is to maintain the standard.

Any ideas for interesting additions to our magazine will be listened to with enthusiasm.

We have commenced in this issue a new segment titled "Metrology in Retrospect". Julian Holland from Macleay Museum has offered to contribute an article for each issue. We hope you find them interesting. My thanks to Julian for giving members an insight into the history of the science of measurement.

Jack Deller

Management Committee News

The first meeting of the MSA Management Committee was held at NML Lindfield on February 17th 1998.

President Dr. Jim Gardner welcomed the new members and requested that each give a short introduction of themselves.

The minutes of the previous meeting were read and circulated in printed form. It was resolved that all actions from that meeting had been addressed and the new NSW based committee would be starting with a clean slate.

Major topics discussed at the meeting were:

The MSA had been formally invited to be Australia's representative to the international measurement forum, IMEKO. The first task in this representation was to be present at the IMEKO conference in Vienna, Austria later in 1998. It was hoped that Jane Warne or John Miles would be able to represent the MSA there.

Richard Duncan had alerted the MSA to the holding of a meeting of ISO Technical Committee 213, on dimensional metrology, in Australia in early 1999 and had suggested that the MSA should initiate some interaction. Gary Price remarked that the same consideration should be given to the CITAC meeting (chemical traceability) to be held in Sydney in Oct., 1998. Laurie Besley also mentioned the meeting of the ISO committee on force measurement to be held in Sydney later in 1998.

The Committee agreed that the MSA should be raising the consciousness of the metrology community in Australia to these meetings. It decided that details of the meetings should be published in TAM, and that the Coordinate Measuring Machine Group in particular should be alerted to the ISO TC213 meeting.

National Liaison Officer

It was decided to create this position on the Committee, with responsibility for the Committee's interactions with TAM

MSA Webmaster

State Contacts

Mark (Mickey) Spillane undertook to accept the role for 1998. His job will be to co-ordinate the above three tasks.

Kerry Marsten (NSC) will be asked to chair the 1999 Conference Committee with members being drawn from a wide representation of the membership.

Next Meeting will be held at NML on Apr. 21st at 10am

Letter to the Editor

I read with great interest our Presidents editorial in Issue 13 of TAM. The solution to the problem of overseas laboratories is not just telling clients that our services are better than the cheaper alternative. That marketing concept is not viable. Whoever heard of trying to convince a poor man that he really should spend more money to buy the same product as he could have had by spending less. Also asking the government for assistance to establish a strong measurement infrastructure is not a viable alternative. Remember that the only thing that politicians are any good at is counting. Counting votes I mean. I get really angry when I hear people asking the government to help. Governments do not have any money. WE DO. It is OUR money and OUR resources. So shouldn't WE be doing what is required to fix the problem?

The MRA's are another issue which is contentious. An MRA is just as it says. It is an agreement and not a guarantee. I'd be surprised if any document we have signed indicates that any organisation who has also signed it would be a party to an agreement where they would or could be commercially disadvantaged. If that is what we believe then we are living in a fools paradise

John was right to talk about living in a global economy. Reality is that Australia is no longer an island commercially. The world is minutes away and so we as business owners and operators have to compete with other countries for business regardless of trade barriers and exchange rates.

I'd like to share with you a story regarding an overseas laboratory that illustrates the point that President John was making. It is a true story and happened just a couple of weeks ago. As the operator of a calibration laboratory I had the need to contact a NATA accredited lab. to get a quotation for the recalibration of a set of 11 standard setting rods The quotation arrived on my desk and as is the norm, I sat down to look at the quote to see what I was being offered. The first thing that I saw was that this laboratory could certainly provide me with a NATA certificate but to my horror, they were unable to supply the accuracy I required. In fact the best they could do was about eight times worse than I required. Totally unacceptable. The next thing I saw was the

price. I could have almost bought a new set including a NAMAS certificate for the price. The price was in the four figure bracket.

Since the only alternative in Australia was to contact NML and wait forever for the return of the rods and still pay more than I would have at our NATA lab., I contacted the manufacturer of the rods in the UK and waited for their quote It arrived within twelve hours of my request and I began to read the offer. The first thing I saw was that they could accommodate my request for the accuracy requirements. The next thing I saw was the price. This time it was a quarter of the price of the NATA lab. With a really fast TAT. I then obtained quotes for the transport to and from the UK. The total cost of both calibration and air transport came to less than our Australian lab. Now, I am fiercely proud of my country and our achievements but cannot justify the outrageous prices that our Australian labs try to charge. As a result, the rods did not go to the NATA lab.

Any businessman will tell you that first and foremost he is in business to make money. He will also tell you that one of the first rules of business is that customers are neither stupid or loyal. They will only go where they feel they are being given a fair deal. Unless we can compete with our overseas counterparts the likelihood that many Australian laboratories will stay in business is slim. The overseas businesses have as much right to trade internationally as we have. We accepted that premise the day that the Australian Dollar was floated. It's time to stop crying and accept that we are now competing internationally. The government will not help us. As one well known radio broadcaster says, Governments do not have any money. It is ours. So by asking for money to help the problem we are merely taxing ourselves.

A very good friend who operates a very successful business in Singapore passed this advice to me in 1979. He said "You Australians are very silly. You all expect to make a fortune in a very small time. Remember, a lot of very small profits make one large profit." I have never forgotten his advice. Maybe he is right and this is the crux of our problem.

Glen Hay (Manager)
Rebtec Calibration Services Mackay Qld.

MSA97

Opening Address presented by Mr. Bruce Kean

(Mr. Kean has held many high level positions in Australian Industry and was appointed as Chairman of the Governments Committee of Inquiry into the Standards and Conformance Infrastructure of Australia. Handed down in March 1995 and widely known as "The Kean Report")
(Reprinted with the permission of Mr. Kean)

Good morning ladies and gentlemen, distinguished guests all, and thank you chairman for your kind introduction. It is indeed an honour to have been asked to make this opening address at your conference.

This month seems to be fashionable for conferences - on Monday the academy of technological sciences and engineering held their conference in Sydney and next week the Asia Pacific metrology programme is holding it's meetings in Sydney. In Canada the prime minister has attended the apec leaders summit and shortly the Kyoto climate conference will be held and then in Kuala Lumpur the Asian business conference is to take place.

Not one of these meetings would have been possible or have any purpose if it were not for the science and practice of metrology. Without metrology there would be no investment, no manufacturing, no trade, and no understanding of weather or of pollution. Metrology is the very foundation of all we do. Metrology is dynamic, universal in it's application and underpins the future of science and commerce.

I am constantly struck by the paradox of metrology - the extreme precision of measurement and the incredible disregard for precision in modern life. When captain cook discovered Australia he used the most advanced navigation system available - a sextant and a chronometer which had the remarkable accuracy of 4 minutes over a year at sea. He was able to navigate within a few kilometres of points on his chart and predict his arrival to within a few days. Today our quartz movement watches are throw away items and keep time to a few seconds a year. At the extreme the time measurement standard held by NML has an accuracy of around '10 to the minus 12' seconds and when coupled with the satellite positioning system can guide a 747 aircraft to a point within a few millimetres, anywhere in the world - BMW now offer an in dash system that will place a car within 10 metres of its true position. Wonderful, marvelous. Yet my one hour flight from Sydney was the usual 20 minutes late and road congestion added another 30 minutes whilst road works left me to park almost a kilometre from my destination. Have we really progressed ?

I am not for one moment suggesting that we should disregard accuracy or metrology standards. But it is important that we understand the level of accuracy and traceability that is actually required for each particular measurement.

Let me remind you:-

that data is not information
that information is not knowledge
that knowledge is not experience and
that experience is not wisdom.

In the world of metrology data is the product of your measurements. On it's own it is useless. Let me give you an example in the 747 aircraft. The level of measurement, calibration and legal traceability that is built into both the mechanical and navigation systems is quite literally state of the art. The reliance on external facilities by way of satellites, beacons, maintenance and refueling is equally precise and quality

assured. Now let's turn on our in-flight video system and watch the computer-generated display as we approach Melbourne airport. What we are watching is the transformation of navigation data into information as it is matched to the flight plan. But hang on, we are not yet on the ground but the time elapse to arrival has just moved to zero. The panic and distrust of the system quickly passes as we remember that the aircraft is no longer on computer control - the pilot can see where we are. What we have seen is the deviation from the original flight plan and the actual approach managed by air traffic control. This additional information provides the certainty and comfort of knowledge. However the seasoned traveller who has watched this discrepancy relaxes from his added perspective of experience and knows that it is all academic since there will be at least 30 minutes delay in retrieving the luggage. In fact with much experience the traveller has the wisdom from the start of the journey not to make any plans for several hours after the scheduled arrival time. Whilst every one of these observations is based on elapsed time - which requires absolute time measurements at different locations - the accuracy required is fundamentally different for each application.

Let me move on to the future. The experts in Europe, the USA and Japan have all concluded that the growth in world GDP in the next millennium will be based on the commercialisation of new technologies. The list can be condensed to:-

- advanced materials
- nanotechnology
- microelectronics
- photonics
- microsystems engineering
- software and simulation
- molecular electronics
- cell biotechnology
- information, production and management engineering

They are all multidisciplinary and the list can be further reduced to three basic groups :-

- nanotechnology and microsystems,
- data transfer and software and
- micro biology including genetics.

Historically your profession has been focussed on physical measurement, and this is still the basis of the legislation. However the strict application of physics and the adoption of the SI system of units has allowed standards to migrate to a universal atomic basis. I started my career as a chemist and it is with some dismay that I recognise that there is still no standards or legal traceability for chemical metrology. Yet many of today's measurements from process control to food, pharmaceuticals, waste management and environmental pollution - including the greenhouse gases rely entirely on chemical metrology. The potential impact on trade is horrific. Much effort is now being applied to resolve this dilemma - in the meantime the lawyers are set to become very rich.

Approaching us at breakneck speed are the new challenges I have outlined above - nanotechnology, it and all it encompasses and genetics. All will require increasingly higher levels of accuracy, precision, certainty and legal traceability.

I know you have the skill and the ambition to resolve the challenges ahead and to deliver all the data that will be required in the future to the accuracy that is needed. I trust that you will also continue the pursuit of wisdom so that you can direct the use of the data to the betterment of mankind.

I wish you well in your deliberations.

Member Profiles



Laurie Besley's main passion in metrology is to ensure that a suitable metrological system for quantitative chemical measurements is put into place for Australia and that NML plays a significant role in the provision of

standards for this purpose. Laurie obtained a PhD in physical chemistry from the University of Western Australia in 1972 and has worked (mostly happily we are told) for the CSIRO Division of Physics in Sydney ever since. He has carried out research in a variety of fields including cryogenic thermometry standards, and has lead projects involved with areas such as the destruction of ozone depleting chemicals and developing domestic gas meters using ultrasonic techniques. At the moment Laurie regards himself as quite definitely bimodal, leading a new project in chemical metrology and acting as a scientific discipline leader with responsibility for mass, ultrasonic, acoustic and vibration standards as well as for the Melbourne branch of NML. All this and he still finds time to be a member of the Australian Institute of Physics, the Royal Chemical Institute and now of course has additional duties on the new Metrology Society of Australia Executive Committee as treasurer.



Marian Haire is currently Measurement Skills Policy Officer to the National Standards Commission, with responsibility for the Measurement in Sport project. After obtaining a science degree from University College Dublin

Ireland in 1969 Marian worked in Canada for Bell Canada as a service representative. Taking time off to raise a family of 3 children, Marian then completed a diploma in education at Sydney University in 1986 and started teaching at Colyton High School in western Sydney. 1991 -1995 saw her working as a science consultant for Metropolitan West (and then East) Region in Sydney, where she developed many resources for use by science teachers in schools, as well as organising and coordinating comprehensive training programs for teachers to enable them to implement department of education policies. Marian has been a council member of the Science Teachers Association of NSW since 1991 and is currently the president of this organisation after serving as both Treasurer and Vice president. She also manages to find time to be president of the Sydney Children's Museum, NSW representative on the Australian Science Teachers Association, and is now also on the new executive committee of the Metrology Society of Australia.

News From the States

VIC.

A meeting to elect a State Committee for the MSA will be held in conjunction with a technical night at:

GUP PowerNet Pty. Ltd.

308 Hyde Street,

YARRAVILLE

on

Wednesday 18th March 1998

6.30pm - 7.30pm (Meeting and light refreshments)

7.30pm - 9.00pm (Talk by Stuart McDonald on the Use of and Automated Calibration of Electrical Transducers including the Evaluation of Uncertainty)

Please let Ron McBain know as early as possible if you are attending so we can arrange catering.

Contact Ron on: Phone/Fax: 9852 0466

NSW

In December the Metrology Society of Australia, NSW Branch, went on a tour of air traffic control at Sydney Airport. The visit was well attended and members enjoyed seeing two generations of technology, the current system and the new system, which is currently being installed, set up and tested.

A meeting was held at NATA on 18 February 1998 and was attended by about 24 members. Past president Dr. John Miles gave an excellent presentation on the history of the MSA.

(Johns talk appears later in this issue)

New Committee members elected were:

Ilya Budovsky, Marian Hare, Robert Kelly, Brian Pritchard, Mary Ryan

For news from Queensland to page 20 please,

MSA97

A brief overview from Walter Giardini & Mark Thomas

Our second conference has now come and indeed gone, and we can all look back with pride and satisfaction as our Society continues its journey of growth and development. From the outset, as the long line of people formed on the morning of day one, cuing at the registration desk chatting to each other, renewing acquaintances, and meeting others for the first time, there was a momentary surprise at the actual experience of the number of people attending. Not only from around Australia, but clearly from much further afield, in our region, and the world - from wherever the science of metrology is practiced. It became obvious to us all how 'small' the world has truly become.

The conference really began the previous evening, on a balmy and warm Melbourne evening, as delegates gathered for the NATA starter. With food, drink, music and excellent company, metrologists from around the world enjoyed what for some was a welcome break from the northern winter. The cooler night air beckoned to the lively crowd which spilt gently to the outside courtyard. Following a brief return to the more formal interior for an official welcome from Colin Wagg on behalf of NATA the courtyard beckoned yet again, where the evening flourished before waning gently with the starry western sky.

The next day, the opening comments in the large lecture theatre began with Mr. Bruce Kean as he outlined the role and place of metrology in the national and international infrastructure. It was impressive to see so many people gathered together with a common interest eager and willing to exchange ideas. The first keynote address by Dr. Thomas Huttemann reinforced and strikingly made evident the critical role of metrology and the main theme of the conference, as he explained the problems and challenges faced by large multinational companies in establishing a global quality system. We saw that the problems and issues of measurement in the company are becoming more important as the world becomes 'smaller', driven by free trade and rapid transport. The critical requirements for careful organisation and thorough planning to maintain a quality system throughout all the manufacturing sites was made evident.

The second keynote address made the following day by Professor Volkmar Kose focussed on the progress being made internationally to remove the barriers faced by multinational companies. Barriers which apply equally to small business trying to expand into foreign markets. This very much reinforced the first day's speakers' comments with accounts of how countries around the world are moving to standardise measuring systems and calibration reports that will be globally recognised.

This leads to the "One-stop measurement to achieve world-wide acceptance" to achieve a level of certification of the product which will be recognised world wide avoiding costly and time consuming re-certification of items because the original certification is not recognised in the country of use.

The third day saw Dr. Barry Inglis present a keynote address which looked at the national perspective. All journeys begin with the first step, and in this case it is all of us, working in our particular context, environment and with our own objectives and desired outcomes who will take those important steps into our future. Dr. Inglis's talk shed much light on our own context, neighbourhood and issues, and his talk included much on the advances towards the global traceability of measurement being made in the Asia-Pacific Region.

The papers presented during each days sessions were varied and of high standard, one of the most gratifying comments heard by the committee was that some delegates had difficulty choosing which lectures to attend. The technical content varied from complex to intermediate but found their mark always with direct relevance to a reasonable proportion of the audience. Achieving a mix of presentations, with an eye on both general relevance and specialist detail was one of the aims of the conference given the broad range of metrology disciplines represented by delegates. The value of attending some lectures outside of one's own direct field was also obviously appreciated by many, who took the

Cont' on page 8

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opportunity to gather a taste and some understanding of what is involved in a different discipline. Workshops on Asia-Pacific issues and Measurement in Sport were well attended also.

This was our first conference with posters. Whilst few in number this time around, we saw some excellent presentations, which gave us a glimpse into some of the detailed experimental and metrology developments being performed by our colleagues around our country.

The history component of the conference was one of the most popular with most sessions on these topic being very full. It was truly an exciting aspect of this conference to see the genuine meeting of so many bench metrologists with the speakers, finding so much of interest in each others perspectives. Seasoned veterans of metrological practice fascinated by the past history of their field, and equally, meticulous and thoughtful historians, fascinated to experience the living, beating heart of a very live science as it grows, develops and evolves to tackle the challenges of the present.

On the general "layout" of the conference, the morning and afternoon teas were a welcome break to the sometimes intense schedule and the history exhibit was of interest to all. The lunches were lavish and no empty tables were seen; sweets on day one were said to be particularly exquisite. The only complaint heard was that lunches could have been a bit longer as many lunchtime conversations quickly developed into serious and/or delightful dialogue with many people getting very involved in their discussions and losing track of time.

The Conference Dinner was a great success and enjoyed by all who attended. It was a little unusual to see metrologists, who might normally be perceived as being rather on the conservative side of social behaviour, letting go and enjoying themselves. At least one conga line was started and very few were left sitting. The night was well rounded with the humour and music of the group Jugularity.

Alex Smart gave a wonderful and heartwarming speech, ranging over all things Australian and metrological from a very human perspective. He expressed for many of us, our basic pleasure and

pride in what we do and who we are, and some of our dreams not only now, but for future generations. At the dinner, our outgoing President John Miles also presented the award for the Metrologist of the Year to Horst Sieker for innovation in linear measurement.

The conference was sponsored by a number of companies. Truly, without their support the conference would have been far less than it was, and it was with pleasure and heartfelt thanks that presentations to the major sponsors were made in the closing ceremonies. The closing ceremony too was a chance to thanks all those people, (and there were many) who contributed to it, and for the official handover to Dr. Jim Gardner as the new President of the MSA, and to the new Sydney based committee. Dr. John Miles spoke with a certain sense of occasion and all the subtle emotions that go with it, as he signalled the end of one era in the life of our Society, and the beginning of a new one.

The closing barbecue was the final celebration of MSA97 and was marked by many smiling faces and pleasant conversations. Old friends and new shared this final moment with a cold drink and a sausage, in the shade of a large courtyard tree, on a warm Melbourne evening. A most Australian and delightful ending to what (hopefully for many) is now a wonderful memory in the life of the MSA.

Mark Thomas and Walter Giardini

MSA97 *a conference committee members view.*

It had to Work / It had to Happen

Another perspective of the conference from Ron McBain

When you have invited a number of overseas dignitaries, you see a large number of delegates coming from overseas, and you see the numbers increasing every day, you wonder why on earth am I doing this thing, it is these elements that assist you in becoming somewhat faint and uneasy about your ability to complete what you started.

However when you see your fellow committee members in a similar state of unease you draw

strength from each other and blindly thrash forward regardless. In the end, **it had to work, it had to happen**, and thank god **it did**.

Starting on a balmy warm Melbourne evening in the surrounds of the Melbourne University, the **NATA Starter** kicked off **MSA97** in fine style. The mingling of delegates and especially our overseas guests was great to see, at this early stage you could ascertain that there was a feeling of open friendliness and mateship that would permeate over the next three days of the conference.

From this early social gathering did arise the beginning of **MSA97**.

From a conference committee persons point of view I looked upon this task as a challenge, a challenge in assisting the organisation of the conference, a challenge in working with other committee members, a challenge in trying to better MSA95. To this day I know that I, in conjunction with my fellow committee members successfully achieved our aims.

When a conference is labeled International, it puts additional strain on any committee, the work involved in obtaining overseas dignitaries as keynote speakers and the work involved in physically getting them down under was immense and cannot be understated.

In sitting back and analysing MSA97 you can't help but feel a warm glow and sense of achievement when you peruse the many papers presented in the conference proceedings, the challenging statements and technical diversities leave you feeling that you have attained further knowledge and skills, all attained from attending a three day conference.

The three keynote addresses by each of the keynote speakers, Dr Hutteman of Kodak US, Prof, Dr Kose of PTB Germany and Dr Ingliss of NML Australia, put the conference on a steady foundation.

They established the datum point, the launching platform for the many papers presented.

Whilst absorbing the intricacies of density measurement in silicon spheres, stabilised diode lasers in research of caesium atomic fountain clocks, to the wavelength standard with flying

lasers, one cannot be said to having not learned or advanced their understanding and knowledge of matters outside their own domain.

The uncertainty of measurement uncertainty was discussed at great length thus increasing the greater uncertainty of our estimated uncertainty.

From infrastructure to education, to the measured life of Captain Henry Kater, from grains to micrograms, to nanograms, from temperature to environmental radio frequency levels, all were presented and discussed at great length by experts in there respective fields.

Who can forget the conference dinner, wonderful food, great atmosphere, great venue, great mateship, all culminating in a great time for all, topped of by a great oration by our bearded guest speaker.

In plagiarising the words of our president, MSA97 did celebrate 3 days of meeting old friends and making new friends, we exchanged ideas and information, we learned new skills in extending horizons and we certainly opened up new possibilities for which the MSA can justifiably be proud.

To John Miles and the outgoing members of the national committee, to the members of the Conference committee led by Walter Giardini you can feel proud of your achievements. In conclusion I must reiterate the words of our new President Dr Jim Gardner when closing the conference stated: "a grand effort by a bunch of so called amateurs".

Ron McBain

Would you or your employer like to advertise in TAM.

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Metrology In Retrospect

Trial by Fire

There are two sorts of tests, those conducted to find out information and those conducted to convey information already known. The work of metrologists is generally of the first sort. It occurs in laboratories the public never visit and often don't even know about. The other sort of test is familiar from TV advertisements ('This washing powder ...'), though these are often undermined by the subtitle 'SIMULATED TEST'. The purpose of such demonstration tests is not to find out, but to persuade.

The distinction between such investigations and demonstrations has not always been so clear. Perhaps the most remarkable public test of a product in Australian history occurred in Sydney in 1859.

With the accumulation of wealth during the gold rush of the 1850s, the market for safes no doubt expanded significantly. The Sydney firm of jewellers and opticians, Brush & MacDonnell, were agents for the London safe maker, John Tann. Fireproof safes were only introduced in the 1830s. The loss of the parliament buildings at Westminster in a massive conflagration in 1834 was no doubt a wonderful stimulus to the ingenuity of safe makers. Among a series of patents for improvements to safes was that of Messrs Tann in 1843 for a method of producing vapour in the lining of the safe.

Brush & MacDonnell believed Tann's Patent Reliance Safes were the best on the market. 'Having ourselves had many opportunities of comparing the internal structure and arrangements, not only of Tann's, but of safes by other makers, we have never felt hesitation in commending the superiority of Reliance Safes. They are faithfully and honestly made in every respect, and the inner parts not easily accessible, and hidden from the eye, are as carefully fitted as those which are visible.'ⁱ

Besides being opticians, gold and silversmiths, watchmakers and jewellers, Brush & MacDonnell was one of the principal retailers of scientific apparatus in Sydney.ⁱⁱ As a prominent retailer with strong scientific interests and as a member of the Philosophical Society of New South Wales, William MacDonnell would have been well acquainted with a wide range of public figures.

For a trial of the fire-resisting powers of Tann's Reliance Safes, MacDonnell secured the permission of the Government to use newly reclaimed land in the Botanic Gardens. The preparations must have generated a good deal of public curiosity. An advertisement on Saturday, 16th July announced: 'To suit the convenience of many gentlemen the test will be proceeded with at 1 o'clock TO-DAY, precisely by gun fire.'ⁱⁱⁱ The whole event was to be presented in a precise and scientific way.

A 'funeral pyre' of monstrous proportions was prepared. A ton of coal, several loads of firewood, tar barrels, packing cases and plenty of loose timber created a structure some three metres square and more than two high.

Into the safe were placed account books, printed papers, copies of Sands and Kenny's Sydney Directories and of Waugh's Almanac. So were a Bank of New South Wales note for five pounds, inserted in one of the account books, and a watch. All this preparation was observed by a dignified assortment of gentlemen, headed by the Registrar-General, Christopher Rolleston. Joseph Trickett, Superintendent of the Coining Department at the Sydney Royal Mint, Robert Hunt and Elliot Knipe, also from the Mint, John Smith, Professor of Chemistry at the University of Sydney, W.R. Piddington, a Member of the Legislative Assembly, various engineers, builders and merchants also lent their standing to the event. Among the items they saw placed in the safe was a blank piece of paper.

'Precisely at gun-fire', the *Herald* journalist reported, 'all was announced as ready, and the various articles having been duly examined, the safe was locked by Mr. MacDonnell, and the keys handed to Mr. Trickett.'^{iv} A brick plinth had been prepared in the middle of the pyre. The safe was placed on this and a chain secured around it and leading out in front.

The pyre took light quickly. The flames were soon raging, 'the heat compelling the spectators - even those to windward - to retreat from its scorching influence.'^v The chain about the safe became red hot and still the flames, 'swayed to and fro by the wind', continued to intensify. Could any safe endure such conditions? Its walls were now glowing red. Only time would tell.

After an hour and twenty minutes, the safe was pulled from the fire by the chain. It was still 'giving out a fervid glow of heat'. Continued applications of water, rapidly transformed to steam, eventually cooled the safe to the point when it could be opened. The key operated without difficulty. Would anything remain of the contents?

The walls of the safe contained chemicals that produced vapour in heat. This vapour had penetrated the contents and dissolved the glue binding the volumes. Their pages were damp but otherwise unharmed. The bank note was fine. The watch, steamed-up but ticking, indicated twenty to three.

The blank piece of paper was now put to use. The various gentlemen from the Registrar-General down, 18 in all, signed a statement written on the paper to confirm that they had observed the whole procedure and expressing their 'satisfaction with the trial, and our confidence in the perfect security attainable in case of ordinary fire by means of this invention'.^{vi} Indeed the certificate was not signed there and then, at least not by all. Perhaps the wind made it inconvenient.^{vii}

It had been a fine winter bonfire but there is always someone who wants to take advantage of other people's efforts. A notice for a different make of safe was prominently posted inside the entrance to the Botanic Gardens on the day of the trial. We 'have no hesitation in rebuking such a mode of taking advantage of other persons' anxiety, labour, and expense in conducting this experiment,' Brush and MacDonnell indignantly informed the public.

'We do not know who caused the placard to be put up, but whoever they may be, we beg to tell them, if they wish the benefit of an experiment, let them make one on their own account if they have courage to do so. Let them have a real test, identical in all respects to ours, which was no measure of an ordinary house burning, but a fierce furnace heat for more than an hour, of so destructive a character that few expected to see any thing preserved. Let them do this if they have faith in their representations, and thus by honourable means secure public approval.'^{viii}

This was perhaps an overreaction. Nevertheless MacDonnell was entitled to the benefit of his risk and expense. The safe itself, bearing as evidence of its trial warped sides and door and scaling of the iron plates, together with its contents, were long exhibited in Brush & MacDonnell's shop in George Street. Tann's safes were supplied to numerous branches of the Bank of New South Wales as well as to other banks, insurance companies and merchants in New South Wales and adjacent colonies.

Where a public trial of the safe's ability to withstand thieves was more difficult to arrange, a testimonial would do instead. The citizens of Newtown had reason to be thankful that their funds were secured when thieves broke into the Council Chambers in September 1863. In the early hours of Monday the 28th burglars entered the Chambers and attempted to brake into the safe, 'one of Tann's patent, lately purchased from you by the Council'. Despite determined efforts, including the removal of a handle, the safe 'completely baffled the ingenuity of the burglars'.^{ix}

In selecting a sound product and dramatically demonstrating its capacities before the public, Brush & MacDonnell did both good business and good service to the market. That there was a continuing and growing demand for safes of many descriptions is indicated by the 32-page illustrated booklet William MacDonnell published in 1863, and the prominence with which Tann's safes were announced on the firm's building on the corner of George and Bond streets later in the century.^x

Perhaps there is more scope today for some of the work of metrologists to be brought before the public in dramatic and interesting ways.

Julian Holland
Macleay Museum

¹ William MacDonnell, *Observations on Secure and Insecure Safes, with suggestions for the proper selection of reliable depositories secure against fire and thieves* (Sydney, Brush & MacDonnell, 1863), p. 20

¹ Julian Holland, 'Useful, Ornamental and Scientific: An Irish Contribution to Australian Retail History', *The Australian Antique Collector*, 51st Edition, April-October 1996, pp. 184-187

¹ *Sydney Morning Herald*, Saturday, 16 July 1859, p. 1

¹ *Sydney Morning Herald*, Tuesday, 19 July 1859, p. 2

¹ *Ibid.*

¹ MacDonnell (note 1), p. 25

¹ Brush & MacDonnell advertised the following Tuesday (*SMH*, 19 July 1859, p. 6) that they 'would feel obliged to those gentlemen who witnessed the SAFE being removed from the fire and saw it opened, if they would be good enough to sign the CERTIFICATE to that effect, which now remains at their establishment'.

¹ *Sydney Morning Herald*, Tuesday, 19 July 1859, p. 6

¹ Testimonial in MacDonnell (note 1), p. 19

¹ MacDonnell (note 1). The firm became W. MacDonnell & Co. in 1867 and continued in business until about 1891. The redoubtable William MacDonnell himself died in 1883. The building was illustrated on the firm's billhead.

Address to MSA NSW Branch AGM, 18th February 1998

Dr John Miles, Immediate Past President, National Management Committee.

Good Evening Ladies and Gentlemen,

Thank you for the invitation to give my perspectives on the history of the MSA and the current state of Australian metrology.

When I was a young and aspiring physicist, I believed scientists worked alone, creating theories of the world much like a poet writes poetry. I was wrong. The romantic image of a scientist working at a desk by moonlight, isolated and outcast, is just an image. Certainly science is a creative activity and some exceptional individuals have produced great work in isolation. However, most science, particularly modern science, is a social activity. It relies on the exchange of information, on social interaction, on teaching and learning, on the testing of ideas in a public forum, on patterns of behaviour, etc. The science of measurement, metrology, is no exception, and good metrology flows from a healthy social context as much as anything else.

That is one reason why the Metrology Society of Australia is so important. It is a concrete expression of the social context of Australian measurement science, providing a focus and a forum for Australian metrologists.

In my view, we can view the beginning of the MSA as a response to the lack of a proper social context for Australian metrology in the early 1990's.

Then, metrology in Australia was undergoing significant change. Many large metrology laboratories in government and industry were closing under the remorseless, pitiless and shortsighted gaze of economic rationalism. Apart from destroying technical resources and infrastructures built up over decades, these closures were also removing the arenas where much of the social interactions in metrology occurred. The situation may be likened to the loss of ecosystems by the destruction of critical habitats.

Around this time, I had come to the conclusion, after about ten years of NATA assessing, that many metrologists were socially and technically isolated from each other. They worked in numerous, often small, laboratories scattered throughout the country, lacking contact with other metrologists or with the broader national and international events that were shaping their profession. Indeed, NATA assessors were often providing the only indirect contact these laboratories had with the wider community of metrologists.

It was in this context that I have my first recollection of the mention of a metrology society. This was during a discussion in 1992 in Singapore with NATA's Metrology Manager, Colin Wagg. Colin and I had completed a day's assessment at a NATA laboratory in Singapore and were relaxing over a beer in the Carlton Hotel. I remember suggesting to Colin that what Australian metrology needed was an organisation to bring together metrologists from all over the country.

I have subsequently learned that this idea had been floating around for many years, but that nothing had ever been done to actually bring the idea to reality. In fact, nothing is also

what happened in 1992. Both Colin and I agreed that it was a good idea but took no further action at the time, both being very busy people.

It wasn't until 1993 that John Mitchell and Colin Wagg raised the idea again. John was working with Colin in the NATA Melbourne office. In May 1993, John contacted Ron Cook, the Officer in Charge of the Melbourne Branch of NML, and me and invited us to a lunch meeting on the 14th May to discuss a Metrology Association. As I recall, the meeting was held in a pub in Melbourne somewhere between NATA and NML (neutral ground!).

I'm not exactly sure what prompted John Mitchell and Colin Wagg to take this action. Perhaps it was just a good idea whose time had come. There was some suggestion that it was related to the territorial dispute NATA was having with Standards Australia at the time over laboratory accreditation. An organisation consisting of metrologists, many of who would also have been NATA assessors with sympathy for NATA's position, was a potentially valuable ally for NATA. Whatever the reason, the MSA would not exist today if not for John and Colin's actions.

At the pub meeting, the four of us agreed that the idea was a good one and decided that the formation of a steering committee was the best way to proceed. The first meeting of the steering committee was held at NML Melbourne on Friday 4 June 1993. Ron Cook chaired the steering committee that consisted of Allan Griffiths, Stuart McDonald, John Mitchell, Colin Wagg, Jack Phillips, Ron McBain and myself. Two other meetings of the steering committee were held in June and July.

During these meetings, proposals for the name and objectives of the society, the constitution, membership eligibility and fees were formulated. Ron Cook provided the first drafts of the objectives and membership qualifications. Some of the alternatives considered for the name were: *Metrology Institute of Australia*, *Measurement Society of Australia*, *Australian Measurement Society* and *Australian Institute of Metrology*. The final decision to use the word Metrology rather than Measurement was a considered decision, the reasoning being that the Society should promote the correct use of the term Metrology in the Australian community.

Once these basic issues had been resolved within the steering committee, it was decided that a public meeting should be held to launch the newly named Metrology Society of Australia. Remember that at this point in time, we had no idea whether or not Australian metrologists supported our proposal. Obviously if there was no support for the Society, then that was it, there was no point in proceeding.

It was therefore with some trepidation that the steering committee tested the water in August 1993 by sending our proposals to about 600 metrologists from all over Australia. We included an invitation to attend the public meeting at 6:30 PM on Wednesday 22nd September at NML Melbourne Branch. It was felt that if perhaps 30-40 people

indicated support, this would be enough to justify proceeding.

In the event, 300 letters of support were received from individuals and organisations from all States of Australia. More than 100 people attended the public meeting, including attendees from Tasmania, Queensland, NSW and SA! The meeting unanimously voted to form the new Society and the MSA was on its way! The strength of this grass root support has been absolutely critical in first establishing the MSA and maintaining the momentum as it has developed. The MSA is truly an expression of its members.

The first national management committee was elected at the public meeting. It consisted of myself as President, Barry Inglis (NML) as Vice President, Colin Wagg as Secretary, Stuart McDonald (SECV then, now GPU Power Net) as Treasurer, and ordinary members, Grahame Harvey (NSC), John Mitchell, Horst Sieker (ACM Laboratories), Ron McBain (ADI then, now Quality Calibration Services), Bill Cerutti (Hewlett-Packard), Jack Deller (Defence Quality Assurance then, now LaMETS Pty.Ltd.), Jane Warne (Bureau of Meteorology) and Bob Collins (ASTA). Bob Collins dropped out of the committee within several months due to work commitments and was replaced by Glenda Sandars (NML). One of the reasons for the ultimate success of this committee was its diversity of organisations, backgrounds and skills.

The first official meeting of the MSA management committee was held on the 25th October 1993 at NML in Melbourne, just 5 months after Ron, Colin, John and I met in the pub.

There was a great deal of basic work that needed to be done in those early days. The most important task was simply to gain membership, but we also needed to design a logo and letterheads, finalise the constitution, decide on membership qualifications, design application forms, develop a member database, set up the financial accounts, raise money, establish forms of communication such as TAM, organise social and technical evenings, become incorporated, and so on.

These were exciting and demanding times. The committee met every month for the first year or so in order just to get through it all. Things moved very quickly. By March 1994 the membership was more than 150, there was about \$8000 in the bank, the first issue of TAM had been published under the editorship of John Mitchell and a general meeting of MSA members had been held to ratify the constitution and vote on incorporation.

By October 1994 there were over 250 members, the MSA was incorporated, we had made a submission to the Kean review and pressure was building from the other States to develop their own State organisations. This development had always been planned for the future but we had anticipated that it would be about 3 to 4 years before it happened. The rapid growth and enthusiasm of the State branches demanded that the structure of the MSA be revised quickly to incorporate them into the national structure.

By June 1995, we had held 14 management committee meetings, we were planning our first national conference, the Pressure Technical Group had been started, State groups were operating successfully and the 5th issue of TAM had

been published. There is no doubt however, in my mind, that the culmination of the early development of the MSA was the first national conference, held at NML in Sydney in December 1995. This was a significant milestone in the short history of the MSA, being the first major national event we had conducted.

The NSW branch of the MSA was instrumental in the success of this event and the MSA owes them a debt of gratitude for their work. I wrote in the foreword to the conference proceedings that:

"Running a national conference is a major undertaking for any organisation. Asking a new State Branch to conduct the first national conference of an organisation that was itself only two years old was, in retrospect, perhaps a little unfair."

It is now a matter of history that the challenge was not only accepted but has resulted in an extraordinary success. These proceedings will continue to serve as a reminder of the sheer hard work, dedication and professionalism of those who took up the challenge and made it all happen, particularly the conference committee consisting of Kerry Marston, Glenda Sandars, Ilya Budovsky, Bob Kelly and Barry Sutcliffe. That this small group have organised a 40 paper, three parallel session national conference in under 12 months is a miracle.

My own memories of that conference include the enthusiasm of Professor Paul de Bievre, the superb organisation and, of course, that conference dinner spent cruising Sydney Harbour with the Harbour Bridge and the Opera House as a magnificent backdrop.

Since 1995 we have, of course, gone on to even bigger and better things. Our membership has grown to more than 350, 13 issues of TAM has been published, with colour now beginning to appear in its pages, we have established international links with the NCSL, the Chinese Metrology Society, the Metrology Society of Thailand and we are about to become Australia's Member Organisation on IMEKO, the International Measurement Confederation.

This all culminated recently in MSA97, the 2nd MSA International Conference in Melbourne, and the transfer of the Management Committee from Melbourne to Sydney for 2 years.

MSA97 was a spectacular success. Under the chairmanship of Walter Giardini, the conference committee put together a 3 day international conference, attracting many eminent metrologists from Europe, the Asia-Pacific, United States, Canada and South Africa. The range of papers presented was most impressive, the organisation superb and I'm sure the 180 or so delegates thoroughly enjoyed themselves.

The move of the committee from Melbourne to Sydney is, in my view, exactly what the MSA needs at the moment. The 1997 retiring committee included many of the inaugural committee from 1993. Quite frankly, they had done their job and needed a break. The 1998 committee is full of new ideas, enthusiasms and different perspectives. I am confident that under the Presidency of Jim Gardner, the MSA will be an even stronger and more vibrant society in 2 years time.

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I am also confident the long-term future of the MSA is bright and in good hands. I hope that in twenty years I will sit at the back of the room for the 25th MSA AGM and see the newly elected President of the MSA, Ms. Amber Smith, rise to the acclamation of perhaps hundreds of Australian metrologists representing a membership of over one thousand.

Looking back, the MSA was an idea whose time had come and in many ways we all just hung on for the ride. The support of the large measurement organisations in Australia, NATA, NML, NSC, was absolutely critical and we all should be grateful to them. However, fundamentally it was the good will and widespread support of Australian metrologists, above all that made the MSA and continues to nurture it.

For me personally, the experience has been exciting, demanding, creative and satisfying. When the four of us sat down in that pub in 1993, we would certainly never have predicted that the next 5 years would see a society of over 350 with international links, making government submissions, publishing a metrology journal, running its own web site and organising two major international metrology conferences.

I would now like to briefly give you my views on the way that metrology is heading, both in Australia and internationally.

As I mentioned previously, the last ten years has seen the closure of many of our top metrology laboratories, particularly in government and Defence, and economic pressure on the remaining labs to rationalise their services and cut costs. This has undoubtedly lowered the technical and human capability of Australian metrology.

Balanced against this recently is the number of small one or two person laboratories that have sprung up. As the larger companies increasingly outsource their metrology work, these small labs are reaping the benefits. There has also been an increased demand for calibration work as a result of the growth of quality systems certification.

I believe we are slowly winning the battle against those who would make Australia technically dependent on the US or Europe. I believe we have also finally begun to demonstrate

the economic value of our measurement system. This will ultimately stop the closures and cut backs and begin to restore our measurement system to where it should be.

A critical element of all this is education. I see one of the main issues confronting the new MSA committee is metrology education, both for the community and in training new metrologists. The moves in the last 5 years to introduce metrology training programs have not been particularly successful. Perhaps the MSA needs to start to look laterally, using distance education and the Internet a lot more.

On the international level, there is no doubt that the globalisation of metrology will continue. We continue to see mutual recognition agreements being reached between more and more countries. In Australia, calibrations are being offered by overseas laboratories at prices less than Australian laboratories, even allowing for the costs of transport.

We need to ensure that the quality of the calibrations offered by these overseas laboratories is both sustainable and sufficient for the task.

On the positive side, I see tremendous opportunities for our local laboratories in moving into the international arena, particularly the Asia-Pacific. NATA has a tremendous reputation in the region, so much so that we are seeing overseas labs seeking, and obtaining, NATA accreditation. Why don't we market our NATA registered calibration services into Indonesia, like SGS Singapore is doing? Why don't we market into Singapore itself, or Thailand, or the Philippines?

Finally, Australia is currently ahead of many of the developing nations in our region in terms of equipment and expertise. However, we are rapidly losing this position as more and more of these countries spend millions of dollars on their measurement infrastructures. I believe that we need to at least keep up with these countries if we are to have an equal political and technical position in our region.

Thank you for the invitation to address the NSW AGM and I wish the NSW State branch an interesting and successful 1998.

Thank you.

John Miles



Stan and Alice Prittie (centre) with Alex and Wendy Smart and Neil and Beverly Prittie

S.G.Prittie Precision Gauges 50 Years

S.G.Prittie recently celebrated 50 years of production and calibration of Precision Gauges for industry. The company was started by Stan Prittie in his workshop at home in 1947 before moving to a factory in Coburg. SGP also was one of the very first private NATA registered Metrology Laboratories. Stan sold the business a few years back and it is now jointly owned and operated by MSA member Alex Smart and Partners from a large premises in Airport West.

The celebration took the form of a luncheon to honour Stan and his wife Alice and was attended by all the present staff and many people who have had dealings with the firm over the past 50 years.

National Standards Commission News

'AUSTRALIA MUST ENSURE THAT MEASUREMENTS ARE WHAT THEY PURPORT TO BE AND GIVE LEGAL SANCTION TO ITS NATIONAL STANDARDS OF MEASUREMENT.'

HON. J. J. DEDMAN, HOUSE OF REPRESENTATIVES 9 JUNE 1948

(NSC MISSION STATEMENT)

NSC ON THE WEB

Find out more about the National Standards Commission by visiting our Web site on www.nsc.gov.au. You will have access to the many programs carried out by the Commission which support Australia's measurement infrastructure. The site contains the following sections:

NSC Programs;
National Measurement System;
Legal Units of Measurement;
Information Services;
Trade Measurement;
Measurement in Sport;
APLMF; and
NSC Contacts.

You can also find out more about why the Commission exists and how it functions by looking at our vision, mission, constitution, structure role, chairs overview and service charter. The site is linked to the APLMF Web site where you can learn more about Legal Metrology in the Asia Pacific region.

NSC-Industry Forum and Open Day

More than fifty industry delegates as well as members and staff of the Commission attended the NSC-Industry Forum and Open Day which was chaired by Bill Wedderburn. The presentations stimulated lively discussion and the Commission will be discussing with the Industry Liaison Committee whether to establish the Forum as a regular event.

Opening Addresses

The opening addresses were by two distinguished overseas legal metrologists who were visiting Australia, Dr Knut Birkeland and Richard Knapp. Dr Knut Birkeland, who was President of OIML from 1980 to 1994 and Director General of the Norwegian Metrology Service, spoke on trade measurement in the twenty-first century. Dr Birkeland is currently undertaking a study for OIML on the global measurement system and he was able to highlight the changes in technology, the marketplace, the role of government and the scope of legal metrology that are currently impacting on trade measurement systems throughout the world.

Dr Birkeland stressed that moves towards a global measurement system would require greater unification of national measurement systems and increased use of accreditation to establish confidence in measurement capability.

Richard Knapp, Director General of Canada Legal Metrology from 1983 to 1995 spoke on the Canadian national legal metrology system.

When Canada federated in 1867 the Federal Government was given constitutional responsibility for weights and measures. A national weights and measures system was established in 1871 and has since expanded to include electricity and gas metering. A review of the system in 1993 resulted in a change of name to Measurement Canada and an increased degree of autonomy.

Canada has established a comprehensive database of trade measurement instruments and their performance which has been used for target reverification activity. An extensive study showed that whilst regular periodic inspections had a cost benefit ratio of 1 to 11 (i.e. for each dollar spent on inspection eleven dollars of short measure was discovered and corrected), targeted inspections were more than twice as effective in finding and correcting trade measurement inequity.

Commission Speakers

Ian Hoerlein explained the OIML certificate system and OIML recommendations whilst John Birch, who is also Convenor of the Asia-Pacific Legal Metrology Forum, spoke on cooperation in the Asia-Pacific on legal metrology.

Mr Birch also spoke on acceptance of overseas test reports highlighting that this was likely to be phased in on both an instrument and country-by-country basis which could affect the current even-handedness of the present national system. The broad criteria for acceptance of overseas test reports was confidence in the capability of the tester to meet Australian and international requirements. This would be established through intercomparisons (currently in progress) and mutually recognised accreditation.

Dr Grahame Harvey spoke on compliance of production instruments and the problems that had been identified both in Australia and overseas. The moves towards a global system of pattern approval could exacerbate these problems and consideration needed to be given to how confidence could be maintained.

Norm Baillie spoke on the Commission's modular fees structure and the time taken for pattern approval. Modular fees appear to be working well in providing greater information to submitters on the progress of their instruments through the testing program. The Commission was still committed to finalising testing in twelve weeks for straightforward testing but instruments that failed one or more times were disruptive to the testing program.

Certificates of Approval on CD-ROM

The Commission's certificates of approval of measuring instruments are now available on two CD-ROM's, one for weighing instruments (volume 1) and the other for flowmeters (volume 2). Each CD-ROM also includes all supplementary certificates, general certificates and other categories such as milk tanks, dimensional-measuring instruments, area-measuring instruments, spirit dispensers etc.

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NSC News cont'

Brake Force Measuring Instruments

The Commission has just published *Document 126. Brake Force Measuring Instruments* (1998, first edition) which is available from the Commission for \$73.

OIML R 76 -Train the Trainer Module IS NOW Available

For the last two years the Commission and the China State Bureau of Technical Supervision have been collaborating on a training program aimed at harmonising the testing procedures for non-automatic weighing instruments (based on OIML R 76) within the Asia-Pacific region. This training program is now fully developed and was presented for the first time after the Asia Pacific Legal Metrology Forum in Japan in early October 1997. It was enthusiastically received and will be presented again in 1998 in China. The module is available for purchase from the Commission.

The Commission is seeking expressions of interest to hold an industry training course on the requirements for the pattern approval of non-automatic weighing instruments to meet OIML R 76 standards. It is planned to hold the course over five days in early-1998. Attending this course will allow manufacturers to become familiar with the OIML pattern approval requirements before starting to design an instrument or new models. As a result resubmissions will be less likely and cost and frustration will be reduced. The course will be held at the Commission where participants will have access to the facilities in the Pattern Approval Laboratory. For further information contact Kerry Marston at the Commission (e-mail: kmarston@nsc.gov.au).

Commissioner Appointments

Two new members, Murray Gordon and Dr Terry Edwards, were appointed to the Commission in November and Judy Stockdale was reappointed for a further term. The members of the Commission contribute to the Commission's legislative responsibilities for coordinating the national measurement system and advising the Minister on the needs of the system.

METROLOGY TRAINING IN AUSTRALIA

At the recent Metrology Conference in Melbourne a paper on Metrology Education challenged the audience to provide ideas and suggestions for ways to provide access appropriate metrology training within Australia. The response was overwhelming with many people providing suggestions and valuable insights into their training needs. The major difficulty is the spread of areas affected by measurement skills, the small numbers of people involved, the practical nature of the training and the distance between potential students.

Many of the suggestions are being followed up and hopefully a solution will develop from this valuable exchange of ideas. It was clear the audience felt there was a

need to increase skills by providing training and that employers need to be aware of how measurement has the potential to improve profitability and by improving measurement skills they can maintain quality and a competitive edge in the marketplace. Many decisions are made based on measurements of one kind or another. These measurements need to be appropriate and accurate or the decisions may be flawed.

If you have any measurement stories which show how you increased profitability or efficiency please share them by contacting Marian Haire at NSC. These may be stories of how training or a new piece of equipment improved your measurement capability. Real stories from the Australian workplace will assist us to strengthen the awareness of the importance of metrology skills area. Contact Marian Haire on (02) 9888 3922.

Utility meters

Meters for water, gas and electricity are currently exempt from the provisions of Australia's Uniform Trade Measurement Legislation and have historically been regulated by individual States and Territories or in some cases by utility authorities themselves. (They must still however comply with the provisions of the National Measurement Act for traceability to national standards.) For example there are 420 water metering authorities with no national uniform requirements for meter performance. This has led to a fragmented market for meter manufacturers and reduced community confidence in meter accuracy, at a time when water is increasingly regarded as a commodity which is bought and sold by measured volume. The electricity industry has also been undergoing profound change with privatisations and the evolution of a national market, both of which bring new imperatives for increased sophistication and confidence in metering systems.

For some years the Commission has been consulting with utility authorities, regulators and manufacturers, on the introduction of metrological control systems for meters used for billing purposes and a large measure of agreement on principles and systems has been achieved. The 1995 Report of the Committee of Enquiry into Australia's Standards and Conformance Infrastructure (Kean Review) recommended that the National Measurement Act be amended to provide for mandatory requirements for utility meters and legal measuring instruments. Both the government of the day and the present government endorsed this recommendation and amendments have been drafted for presentation to parliament later this year. The Commission has reached agreement with the authorities for the development of the national electricity market regarding the phasing-in of national statutory requirements for pattern approval and verification for electricity meters and has been preparing draft technical requirements for these and for water meters.

National Measurement Laboratory News

The National Measurement Laboratory now responsible for UTC in Australia

Until mid 1997, Australia's 'National Measurement Act' explicitly deemed the time of day not to be an Australian legal unit of measurement and, therefore, the National Measurement Laboratory's Time and Frequency role had been limited to the maintenance and dissemination of standards for frequency and time interval. The reference for time of day, known as Australia's realisation of Universal Coordinated Time (UTC [Aus]) was maintained by the Australian Surveying and Land Information Group (AUSLIG) under contract to Australia's legal metrology body, the National Standards Commission (NSC).

In June 1997, the National Measurement Act was amended to include time of day as a legal unit of measurement, and to include UTC (Aus) as the reference time scale for the time of day in Australia. The amended Act provides a common legal time reference for all matters, technical and otherwise, in which the precise time of occurrence is an issue, and implicitly places responsibility for UTC (Aus) on NML. The responsibility for the maintenance and coordination of the UTC (Aus) function transfers to NML on April 1, 1998.

Restructuring of CSIRO leads to a focusing of "Measurement Standards" activity

A number of organisational structural changes have occurred within the Commonwealth Scientific and Industrial Research Organisation (CSIRO) over the past 18 months following the appointment of a new Chief Executive in early 1996. The main change has been a re-structure of the Organisation's interface with industry along matrix lines. The operational units remain as "Divisions" but the activities of the Organisation are now grouped by "Industry Sector". Funding within CSIRO is now allocated on a Sector basis and this flows to individual projects through the Divisions. Each Sector has an "Advisory Committee" which reports directly to the Chief Executive.

In the area of measurement standards, the National Measurement Laboratory (NML) has been given the special status of "National Facility" within CSIRO's Division of Telecommunications and Industrial Physics (TIP). The special nature of measurement standards is recognised within CSIRO by the creation of a "Measurement Standards Sector" of which NML is the sole occupant. The Measurement Standards Sector Advisory Committee (MSSAC) comprises representatives from industry, government and other elements of the national standards and conformance infrastructure (including NATA). It meets approximately twice yearly and provides advice and guidance to NML, particularly on strategic issues.

NML, CSIRO, proud hosts of the 1997 annual APMP meeting

The 13th Committee Meeting of the Asia-Pacific Metrology Programme (APMP) took place on December 1 and 2, 1997, hosted by the current APMP Regional Coordinator, Dr Barry Inglis, Director of the National Measurement Laboratory (NML), CSIRO, and held at NATA, courtesy of Mr John Gilmour, NATA Chief Executive. This year's meeting marked the 20th anniversary of the Programme and brought together members from 18 APMP economies, with observers from associated laboratories in the region. In addition, key representatives from the international standards and conformance community participated in the meeting. A full agenda included discussion of means by which APMP members can participate in the global Mutual Recognition Agreement (MRA) in measurement standards which is currently being drawn up by the BIPM as a vital step in the establishment of trade agreements between economies. In support of the Asia-Pacific region's involvement in the global MRA, APMP members are committed to linking future APMP comparison programs to the "key comparison" programs being developed through the BIPM as the technical basis of the global agreement.

The global MRA has drawn world-wide attention to the importance of traceability of measurement, and provided the impetus for the one-day "APMP Symposium on International Traceability of Measurement" held on December 3 at NML, Sydney. The Symposium was attended by over 100 delegates. The international, regional and national imperatives of standards and conformance bodies in developing measurement traceability provided an in-depth background to industry discussion which focused on traceability requirements of the US Government's Federal Aviation Administration (FAA), a current "hot" topic for the Australian aerospace industry.

In association with these meetings, the APMP Secretariat organised 3 one-day workshops in the areas of Time & Frequency, Electrical Metrology, and Dimensional Metrology, which were conducted by NML scientists on December 1, 2 and 5. Six APMP representatives participated in the Time & Frequency and Electrical Metrology Workshops while 14 participated in the Dimensional Workshop. The Dimensional Metrology Workshop included the second meeting of the APMP Working Group on Lasers and Dimensional Metrology.

The 13th APMP Committee Meeting and associated activities were generously sponsored by the Australian Government's Department of Industry, Science and Tourism (DIST). The APMP Secretariat acknowledges the cooperation and support from NATA for the APMP Committee Meeting, and also gratefully acknowledges sponsorship of the APMP Symposium by both NATA and APLAC. For further details, please contact Dr Angela Samuel, APMP Secretariat, National Measurement Laboratory, CSIRO (Ph: +61 2 9413 7788; Fax: +61 2 9413 7383).

Member Seeking Employment

Qualified and well-practiced Chemical Engineer and Industrial Chemist with 25+ years experience in a variety of technical and management positions in industry would be delighted to obtain part-time (0.6-0.8) or project work in any Melbourne organisation wanting an enthusiast to strengthen its technical and Measurement programs.

Has been a NATA representative and signatory in a gas analysis laboratory and has extensive ISO 9000 experience.

Please contact:

Brendon Dickins

Phone: (03) 9842 3676

State News cont'

QLD.

The MSA Queensland Annual Dinner and AGM has been booked as follows:

Date: 24 March 1998
Time: 6.30pm for 7.00pm
Venue: Abbey Plaza Hotel - Brisbane

Parking: 50% discount for parking in Roma St. transit centre

Contact: Shane Brann Ph.(07) 3893 0800
Fax: (07) 3893 0399

Geoff Barnier Ph.(07) 3810 6386
Fax.(07) 3810 6366

Reminder!!!!

Victorian Members:

Don't forget the meeting to elect a State committee at:

GUP PowerNet Pty. Ltd.
308 Hyde Street,
YARRAVILLE

on Wednesday 18th March 1998

6.30pm - 7.30pm (Meeting and light refreshments)

7.30pm - 9.00pm (Talk by Stuart McDonald)

See page 6 for contact details.



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- ◇ MQ2 (2 days): *The use & Calibration of Co-ordinate Measuring Machines*
Dates: **21st & 22nd May**
- ◇ MQ3 (1 day): *Uncertainty of Measurement*
Dates: **27th March or 27th May**
- ◇ MQ4 (1 day): *Essentials for Working with Quality*
Date: **29th May**
- ◇ MQ9 (2 days): *Precision Electrical Measurements & the Analysis of Measurements*
Dates: **11th & 12th June**
- ◇ MQ10 (1 day): *Measurement Systems Analysis: Repeatability and Reproducibility for QS9000 users.*
Date: **2nd May**

**For further information and registration
please contact: Mr. Helmi Salem on
Ph. (03) 9890 0865
Fax. (03) 9897 1147**

THE AUSTRALIAN METROLOGIST

The Australian Metrologist is published four times per year by the Metrology Society of Australia Inc., an Association representing the interests of metrologists of all disciplines throughout Australia. Membership is available to all appropriately qualified and experienced individuals. Associate membership is also available.

Membership Enquiries

Contact either your State Coordinators or the Secretary, Dr. Laurie Besley on (02) 9413 7770 or fax (02) 9413 7202, or write c/o:

The Secretary Metrology Society of Australia
c/o:CSIRO (NML)
North Melbourne VIC 3051

Membership Fees

Members	\$30 Joining Fee
	\$30 Annual Subscription
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Contributions

Articles, news, papers and letters, either via email, disk or hard copy, should be sent to:

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c/o 8 Talia Court,
WERRIBEE VIC 3030
Phone: (03) 9741 5446
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The deadline for the next issue is **20th April 1998**

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Letters to the Editor

Letters should be limited to 200 words. Authors will be contacted should editorial changes be considered necessary.

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The editor welcomes all material relevant to the practice of Metrology. Non-original material submitted must identify the source and contact details of the author and publisher. The editor reserves the right to refuse material which may compromise the Metrology Society of Australia. Contributors may be contacted regarding verification of material.

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State Contacts

NSW		Barry Sutcliffe	(02) 9736 8222
		Marian Haire	(02) 9888 3033
		Ilya Budovsky	(02) 9413 7201
Postal	C/O	Mr Barry Sutcliffe	
		NATA	
		7 Leeds Street	
		Rhodes NSW 2138	
Queensland		Geoff Barnier	(07) 3810 6386
		Shane Brann	(07) 3893 0800
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Postal	C/O	Mr. Geoff Barnier	
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South Australia		Brenton Watkins	(08) 268 6077
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Western Australia		Denis Baylis	(09) 333 8832
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Postal	C/O	Mr P Edwards	
		NATA	
		Suite 5, Technology Centre	
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		Bentley WA 6102	
Northern Territory		Les Anderson	(08) 8922 0868
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TAM Editor

Jack Deller



Conference Delegates

Delegates in discussion during a coffee break

