



AEES Newsletter

No 3/92

The Society

Treasurer's report - David Rossiter The Society now has a membership of 171. Apart from Australia we have members in: the US, UK, PNG, NZ, Hong Kong, Singapore, Fiji and Japan. Please note the attached membership renewal form. Those persons in the Institution of Engineers should nominate the AEES as their preferred Society and pay their subscriptions directly with their Institution fees, due in January. If you do pay via the Institution, please still complete and send us the form for our records.

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President's column - Charles Bubb
(Text of the President's report to the AGM held at Sydney on 25 September last).

The main thing to report is that the Australian Earthquake Engineering Society, a Technical Society of the Institution of Engineers Australia, is alive and well and has just successfully conducted its first seminar.

Our official beginning as a Technical Society of IEAust was on 10 December 1990. On this date the Board of Engineering of the IEAust endorsed AEES as a Technical Society and provided an establishment grant to get us started. The advantage of the grant is that it gave us the necessary backing to embark on our seminar and underwrite the cost if it proved to be a loss making venture. This backing also allowed us to make formal contact with the New Zealand National Society for Earthquake Engineering through our secretary Kevin McCue.

This formal contact generated an offer from New Zealand for AEES to host the next Pacific Conference on Earthquake Engineering in 1995. This would be the 5th such Conference - all previously held in New Zealand and should be a major International Conference as the earlier ones have been.

Preliminary discussions with IEAust have produced an informal undertaking from IEAust to underwrite the 1995 Conference. Also, NZ will be supporting the technical program and providing speakers with sponsorship for the international travel.

It would seem therefore to be largely risk free from a financial viewpoint although a lot of volunteer work will be required from members to make it a success.

The Executive of AEES will be seeking the formal support of this meeting for the holding of the 5th Pacific Conference at an Australian venue to be decided. (The meeting strongly supported the proposal and requested the Executive to report back in 6 months - Ed.)

A big advantage of our status as a Technical Society of IEAust has been our access to their full membership of 60000 through their annual subscription process and subvention. This, although rewarding in membership numbers, has been far from painless and I shall leave it to the Hon Treasurer to enlarge on this item. Our membership situation is very good at this stage.

Our main challenge for the immediate future will be to hold on to those members and to meet their expectations as far as is practicable for a small voluntary group. To this end we shall need to increase our numbers on Committee so as to have more input and a greater geographical spread. Then of course we will need to solve the meeting, communication and travel problems which will arise.

It is possible that some of our communications problems could be assisted by joining the new IEAust electronic network. This at least would provide AEES with an E-mail service. Again later in the meeting we may have the opportunity to discuss some future possibilities and future venues for meetings.

In conclusion I would like to thank the Hon Secretary Kevin McCue and Hon Treasurer David Rossiter for their work in those capacities and also in producing this NEWSLETTER and organising the seminar.

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SEMINAR AGM & ELECTION

Seminar Some 80 registrants attended the AEES/SG² Seminar *Earthquake Resistant Design and Insurance in Australia* held at

IEAust Sydney on 25 September last. There were 10 speakers from Government, University and Industry who addressed the topics: Seismology, Earthquake Engineering and Earthquake Insurance. The President, Charles Bubb opened the conference with a discussion of WSSI (see last newsletter), welcomed the attendees and then chaired the morning sessions.

Review papers on intraplate earthquakes were presented by David Denham and Gary Gibson. Brian Kennett was unable to attend but made his results and overheads available for Vaughan Wesson to present a joint paper on the final location of the Newcastle earthquake. They found that the best solution for the focus is onshore between Booleroo and Redhead and close to the aftershock at a depth of 9 to 13 km.

The proposed new Loading Code was given an airing by John Woodside, the Standards Australia Loading Committee chairman whilst Kevin McCue explained the background to the new earthquake hazard map incorporated in the code. Prof Graham Hutchinson gave a stimulating paper on earthquake engineering basics, whilst shake table results obtained in his Adelaide Uni lab, and an informative video, were presented by Dr Mike Griffith.

Practical seismic design of bridges (in Turkey) and dams (in Australia) were the subject of talks by Doug Jenkins and Graeme Bell.

After Norm Griffiths review of earthquakes from the insurers' and reinsurers' perspective, interesting new results on damage ratios from Newcastle insurance claims were presented by both Russell Blong and Jim Irish. These are the first damage ratios applicable to the Australian region, so of great interest to the insurance industry.

The venue and audience were well suited and strong interaction took place between participants in the different disciplines which was one of the prime objectives of the organising committee (the executive).

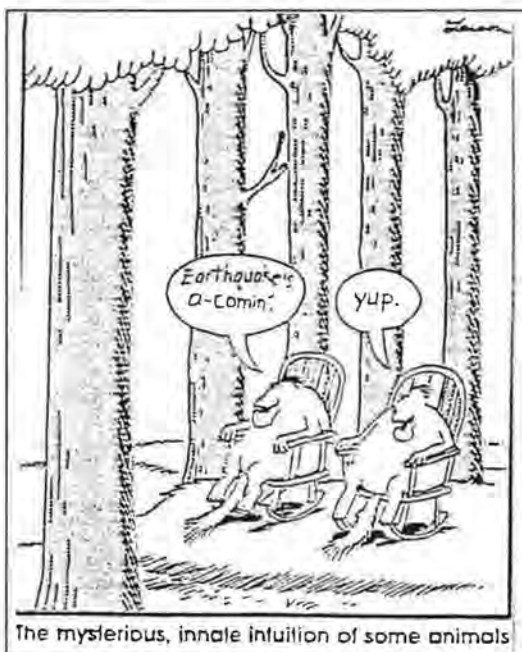
It is intended that the seminar papers will be published in an AEES special publication.

AGM The AEES inaugural AGM was held immediately after the seminar concluded. Charles Bubb took the chair initially and welcomed the 32 members present. He outlined progress since the formation of AEES and highlighted advantages of being a technical society of IEAust. He also noted that the AEES ties to the NZNSEE and IAEE had indeed been strengthened with McCue's attendance at the PCEE and 10 WCEE. The President then briefed members on plans to hold the 5th PCEE in Australia as a joint venture with the NZNSEE, which generated considerable discussion. The idea was welcomed in principle but it should be left for committee to make a final decision in 6 months time. The Treasurer, David Rossiter

outlined the AEES financial situation - healthy but dependent, as pointed out by the President, on the subvention fee.

The President stepped down from the chair after appointing Mr Vaughan Wesson the returning officer for the election of a new executive (see below for results). After the election the meeting decided that the next AGM would be held in Melbourne at a date and venue to be decided.

Election of Executive The current executive of Charles Bubb, David Rossiter and Kevin McCue was elected unopposed for a further year. A committee was also elected, consisting of: Mr Russell Cuthbertson, Qld Dept Res Ind
Dr Mike Griffith, Adelaide Uni
Prof Graham Hutchinson, Melbourne Uni
Prof Harry Poulos, Sydney Uni & Coffey & Partners.



NEWS ITEMS

• The 5th and *final* (?) pre-postal ballot meeting of the Standards Australia Loading Committee BD/6/4 was held in Melbourne on 20/21 October 1992.

◦ **Visit to Australia by Chinese engineering seismologists** Three visiting engineering seismologists from China visited the Seismology Research Centre (SRC) at RMIT, Melbourne Uni, and Australian Seismological Centre, Canberra, in the week commencing Monday 9 November. They presented ASC with a new Earthquake Hazard Map of China as part of the joint project comparing earthquake hazard in the 2 countries. Their resulting map has many similarities with the new Australian map except they have contoured MM intensity rather than an acceleration coefficient.

As part of the strong motion project under which Australian seismologists Gibson (SRC) and Gregson (ASC) installed 2 Kelunji recorders near Tangshan, China in October/November 1991, the Chinese delegation presented us with nearly 40 accelerograms from close small earthquakes. Three earthquakes were recorded on both recorders, one on rock, the other on 40 m of firm soils. The data are now being evaluated and the project has been extended for another year.

• Fiji is taking delivery in December of two Kelunji digital accelerographs for monitoring 2 dams. The Seismology Research Centre's Director Gary Gibson and Trevor Jones from the Department of Mineral Resources, Fiji will supervise the installation.

• **Earthquake Engineering Conference - Perth.** IEAust took the opportunity of a meeting of the IEAust National Committee on Structural Engineering in Perth to host a conference on earthquakes in Australia. Despite the short notice and minimal advertising, the half day meeting on 5 October 1992 attracted an audience of about 80 engineers. AEES members, Prof Graham Hutchinson and Prof Rob Melchers presented papers *Proposed Revisions to the Building Code* (co-authored by L Pham, CSIRO) and *Lessons from the Newcastle Earthquake* respectively. The other abstract in hand (Ed.) was by Geoff Boughton from Curtin Uni titled *Earthquake Engineering - A Western Australian Perspective*. These papers make a useful adjunct to the proceedings of our own Seminar.

• **AGSO review** The Australian Geological Survey Organisation is under review (again!). Dr Richards, a Director of CSIRO, is heading the 4-person review team which will hand down its report by this Christmas. AEES Executive is preparing a submission, yours too would be welcome. Send to: Geoff Gorrie, Dept Primary Industries & Energy, GPO Box 858, Canberra.

• **PCEE '91 - Proceedings** are available. The 1120 page 3-set volume contains the 87 programmed papers, 3 on the 1989 Newcastle earthquake, and addresses of the keynote speakers on theme issues: Microzoning, Non-structural elements, Areas of low seismicity and reinforced concrete design. Price \$NZ150.00 incl post. from: NZNSEE, PO Box 17-268, Karori, Wellington, NZ.

• A video of the effects of the October 1989 Loma Prieta earthquake is available on loan to members of IEAust, from IEAust Canberra.

COURSES & CONFERENCES

• International workshop on the Erzincan

earthquake, Erzincan, Turkey, 23-25 October 1992.

• 3rd International Conference on Case Histories in Geotechnical Engineering, 1-5 June 1993, St Louis, MO, USA.

• 10th International Caly Conference, University of Adelaide, SA, 18-26 July 1993.

• The 10th European Earthquake Engineering Conference: 28 August to 2 Sept 1994, Vienna, Austria.

• **The 5th Pacific Conference on Earthquake Engineering, Australia, 1995.**

(copies of flyers available from Hon Secretary)

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Recent Australian earthquakes

The following table summarising recent Australian earthquakes was supplied by the Australian Seismological Centre, BMR. The Centre publishes a more detailed monthly list for subscribers and contributors.

The Arnhem Land earthquake is very interesting. Depth phases recorded on distant seismograms indicate a focal depth of 40 km which is near the crust/mantle boundary and the deepest known Australian earthquake.

A small ML 2.4 earthquake under Croyden, a suburb of Melbourne, on 24 October was widely felt and excited considerable interest amongst local residents and the media.

July - Sept 1992 Earthquakes

1992	ML	Place
Sept		
23	3.1	70km W Tennant Creek NT
30	5.1	off coast Arnhem Land NT
August		
02	3.2	234km N Tobin Lake WA
17	3.2	Clare SA
19	3.3	33km NW Armidale NSW
21	3.9	Humbert R (SE Kununurra) NT
22	3.8	30km SE Mallacoota Vic
22	3.8	248 km SE Warburton WA
27	3.7	638km N Broome WA
30	3.1	237km N Port Hedland WA
July		
01	4.7	NNW Exmouth WA
02	3.0	Dalton NSW
07	3.2	112km E Marble Bar WA
12	3.0	232km SSE Broome WA
12	3.4	190km WSW Perth WA
14	3.7	Tobin Lake WA
14	3.5	NT/WA Border
15	4.8	E Canning Basin WA
15	4.4	39km E Tobin Lake WA
15	3.5	Tennant Creek NT
27	3.0	68km NNE Docker R WA
27	4.0	40km NNW Broome WA
28	3.8	40km N Wilpena Pound SA
29	3.1	50km NNW Broome WA

EARTHQUAKE PUBLICATIONS

• *EARTHQUAKE TREMORS FELT IN THE HUNTER VALLEY SINCE WHITE SETTLEMENT* can be purchased for \$18.50 (+ \$1.50 postage) from Hunter House Publications, PO Box 536, Raymond Terrace 2324.

• The IEAust Newcastle Earthquake Study is still available at LEA Books, PO Box 588, Crows Nest NSW 2065 at the reduced price of \$30.

• The Association Française du Genie Parasismique has sent AEES complimentary copies of the following 4 books which should be of great interest to members:

- Recent Advances in Earthquake Engineering and Structural Dynamics (Ed V Davidovici).
- Handbook of Impedance Functions by Sieffert & Cevaer.
- Seismic Hazard Determination in areas with Moderate Seismicity.
- Slope Stability in Seismic Areas.

• A number of AGSO (BMR) Bulletins and reports describing earthquake activity in Australia can be purchased from AGSO. The Isoleismic Atlas, parts 1 & 2, (Bulletins 214 & 222) contain maps and descriptions of 149 felt and damaging earthquakes. A third edition with another 80 odd maps is being prepared. The Australian Seismological Centre also publishes an annual report featuring the year's seismicity with summary, glossary and descriptions of the larger earthquakes. Reprints of papers on the Newcastle and other important earthquakes may still be available from the authors. A monthly summary of Australian and world-wide activity is distributed at cost to subscribers.

Results of WSSI questionnaire

The President Charles Bubb has analysed the returned questionnaires he distributed at the Sydney Seminar. The results are an indication that in Australia, we feel the need to receive rather than transfer earthquake engineering knowledge, which reflects the feeling of the Seminar and the executive who have consequently adopted WSSI with this minor change and it now reads:

The World Seismic Safety Initiative will:

Promote hazard reduction projects in individual countries at seismic risk.

Collect and synthesize seismic safety knowledge and practice.

Exchange seismic safety knowledge and practice world-wide.

Enhance international cooperation to address gaps in knowledge and practice.

The World Seismic Safety Initiative is driven by nine high-priority seismic safety needs - needs

shared by everyone at risk from earthquakes, wherever they may live:

1. Develop reliable ways to characterise earthquake hazards and risks.
2. Develop a consensus on desired performance in earthquakes for buildings and other structures.
3. Assess ways to achieve these desired performance levels, including both structural and land use approaches.
4. Develop technical measures to reduce earthquake losses to existing structures so that desired levels of performance are achieved.
5. Ensure the continued operation of critical facilities during and following earthquakes.
6. Transfer knowledge, practice, and resources worldwide to reduce seismic risk.
7. Respond to emergency needs effectively during and after earthquakes.
8. Restore social and economic activity promptly after earthquakes.
9. Reconstruct earthquake-damaged buildings, facilities, and communities safely and economically.

Next issue We hope to be able to include the Contents page of the latest volume of the journal *Earthquake Engineering and Structural Dynamics* which is the official publication of the IAEE.

Any articles that you the members would like to submit will be gratefully accepted for review by myself (Kevin McCue at the address on title page) or Assistant Editor John Wilson at the Civil Engineering Dept, Melbourne University.

IDNDR International Symposium on Earthquake Disaster Reduction

Technology A 3-day Symposium in Tsukuba, Japan has been organised for 15-17 December to commemorate the 30th anniversary of the International Institute of Seismology and Earthquake Engineering. Natural disasters have claimed the lives of 4 000 000 people this century, and earthquakes have accounted for half of the fatalities. The WSSI program and the conference organisers claim that most of these lives would be saved if existing disaster prevention technology was disseminated and applied (presumably to existing as well as new structures - Ed.).

Thanks! AEES executive extend thanks to Teledyne Industries International who through Kyle Clevenger and John Rickards supplied the post-seminar and pre-dinner wine and cheese tasting.

Membership renewal
to 30 November 1993
or
New application

Name

Occupation (Please circle the appropriate category)

Engineering

Civil Mechanical Structural
 Geotechnical Geomechanics
Other (specify)

Science

Seismology Geology Geophysics
 Mathematics Physics
Other (specify)

IEAust Membership No (if applic)

(Continued next column)

(in next) →

Preferred mailing address

postcode

Country

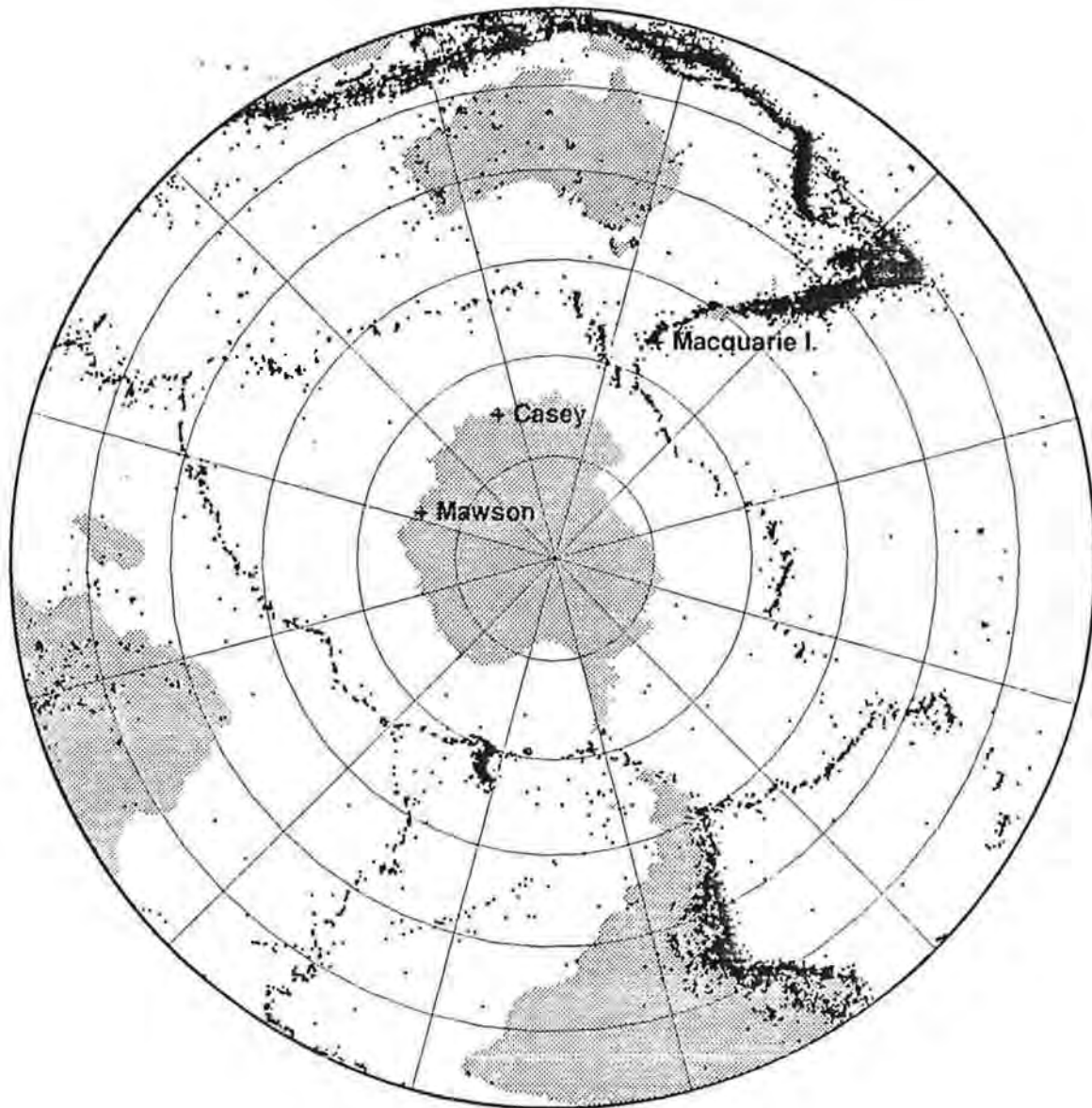
Telephone *(07) 3689130*

Fax *(07) 3689229*

\$25 annual subscription fee or
new membership fee is due now for
year ending 30 November 1993,

\$10 for IEAust members who
nominate AEES as preferred Society

please note: could all members - please
complete & return this form for our records.



This epicentre map was created by Graeme Small (ASC) from the AGSO World Earthquake Database which was set up by the Information Systems Branch's Sonja Lenz. It depicts Southern Hemisphere earthquakes of magnitude ML 4.9 and above, between 1900 and 1991. The Antarctic Plate is clearly defined by the continuous band of shallow epicentres.