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Exceptional fossils and biotas of Gondwana: the fortieth anniversary issue of *Alcheringa*

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Forty years of Alcheringa

The first issue of *Alcheringa* was published in 1975, but it took three years to accumulate sufficient manuscripts to complete the first volume. The origins of *Alcheringa* and its parent organization stem from much earlier times. The 1962 formation of the *Queensland Palaeontographical Society* and the 1968 establishment of the Geological Society of Australia's Specialist Group in Palaeontology and Biostratigraphy were followed by the amalgamation of these two groups as the *Association of Australasian Palaeontologists* (AAP) in 1974. This association has remained a specialist group under the auspices of the Geological Society of Australia, although to comply with naming rules within Australian corporate law, the group's name was officially changed to *Australasian Palaeontologists* in mid-2016. *Alcheringa* has been the flagship publication of this specialist group since 1975, with Taylor & Francis having been contracted to publish the journal since 2007. *Alcheringa*'s sister journal, the *Memoirs of the Association of Australasian Palaeontologists* (now *Australasian Palaeontological Memoirs*), has published complementary studies mainly in the form of monographic works, conference proceedings and thematic issues since 1983.

In the early 1970s, there was a general opinion in the Australasian region that many palaeontological journals had primarily a Northern Hemisphere focus with respect to content and readership. As outlined by Runnegar (1975) in the journal's first editorial, the initial mission of *Alcheringa* was to 'publicise the many excellently preserved fossils and sequences of fossils from Australasia and neighbouring regions'. After 40 volumes, *Alcheringa* has now published just over 1000 papers. Of these, around 550 papers have first authors that are based in Australia or New Zealand (Fig. 1). Moreover, the geographic range of studied fossil assemblages published in *Alcheringa* since 1975 shows strong and widespread representation of investigations, not only from Australia and New Zealand but from the greater Oceania region, including New Caledonia, New Guinea and Timor (Fig. 2B). Clearly, with respect to the journal's initial goal, one can report 40 years later—'mission accomplished!'

That said, there is still much to be done in the region. Northern and southwestern Australia are still under-represented by palaeontological studies with the exception of a few exceptional deposits (e.g., the Riversleigh vertebrate faunas and the Canning Basin Devonian reefs). Relatively few of *Alcheringa*'s papers have dealt with fossil assemblages from the Australian Antarctic Territories or from areas of New Zealand's interests in Antarctica. Studies of Archean, Proterozoic and Carboniferous assemblages are under-represented with respect to those from other time periods (Fig. 3), despite the presence of world-class fossil assemblages of these ages in southern, western and northeastern Australia. Clearly, there are exciting palaeontological opportunities for new researchers to pursue in these stratigraphic intervals.

An international journal

Alcheringa is now a truly international palaeontological journal. Although the early issues had a strong focus on Australasian fossil material, recent issues have published papers on material from all parts of the globe. Nevertheless, the equatorial belt remains strongly under-represented (Fig. 2A). In recent years, the journal has published around two-thirds to three-quarters of its content from contributors located outside Australasia. Particularly rich contributions have been forthcoming from China, Argentina and Brazil (Fig. 1). There is also the

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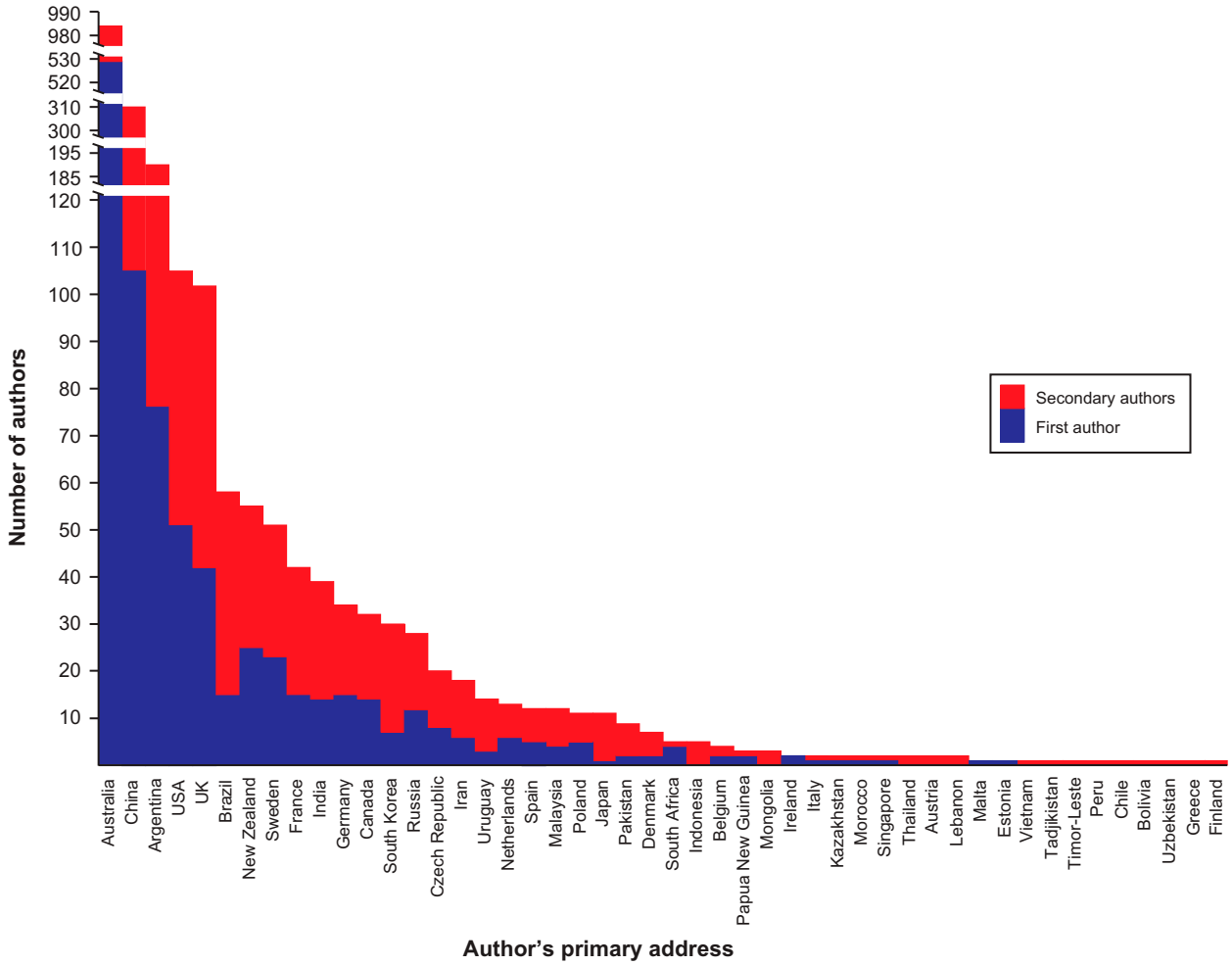

Fig. 1. Plot of the numbers of primary and secondary authors having published in *Alcheringa* (1975–2016) according to country of residence.

prospect of receiving more contributions from southern and southeast Asia in the future as nations in these regions begin to develop their own world-class palaeontological research programs. A notable feature of the survey of authorship is the increase in multi-authored papers from the mid-1990s. This probably relates to enhanced collaboration through better inter-institutional communications with the arrival of email and the Internet, but may also be a response to increased pressures on researchers to 'publish or perish'.

Alcheringa has always had a strong focus on systematic palaeontology. The editorial team recognize the importance of such fundamental research, since the description of taxa accompanied by precise locality and stratigraphic information provides the raw data that underpins the interpretations that are drawn in more synthetic studies of biostratigraphy, palaeoecology and biogeography. *Alcheringa* is notable for the very broad array of fossil groups published (Fig. 4). The journal has always had strengths in the publication of studies on molluscs, brachiopods, land plants, trilobites, fish and mammals (Fig. 4). However, in the last 10 years, there have been notable surges in the number of papers on fossil insects, dinosaurs, birds and South American mammals (Fig. 4) as exciting new fossil deposits have been excavated in China, Argentina and Australasia.

Alcheringa is consistently grouped in the mid-ranks of palaeontological journals according to impact factor. The journal's impact factor has generally increased in recent years (Fig. 5). Importantly, papers in the journal tend to maintain their relevance through time and have very long citation lifetimes. The prospect of attracting higher profile manuscripts is improving as innovations are progressively added to the journal. However, the Australasian Palaeontologists Executive also recognize that the journal provides an important avenue for the publication of fundamental studies by students and early career researchers. To that end, AAP recently instituted two new biennial awards: (1) the Robert Etheridge Jr Medal for lifetime contributions to Australasian palaeontology; and (2) the Mary Wade Early Career Prize for the best paper(s) published in the previous two years in a peer-reviewed *Australasian Palaeontologists* publication (*Alcheringa* and the *Australasian Palaeontological Memoirs*). The 2016 recipients of these awards were: Robert Etheridge Jr Medal—Professor Bruce Runnegar (*Alcheringa*'s first editor); and Mary Wade Early Career Prize—Dr Chris Mays, for his recent

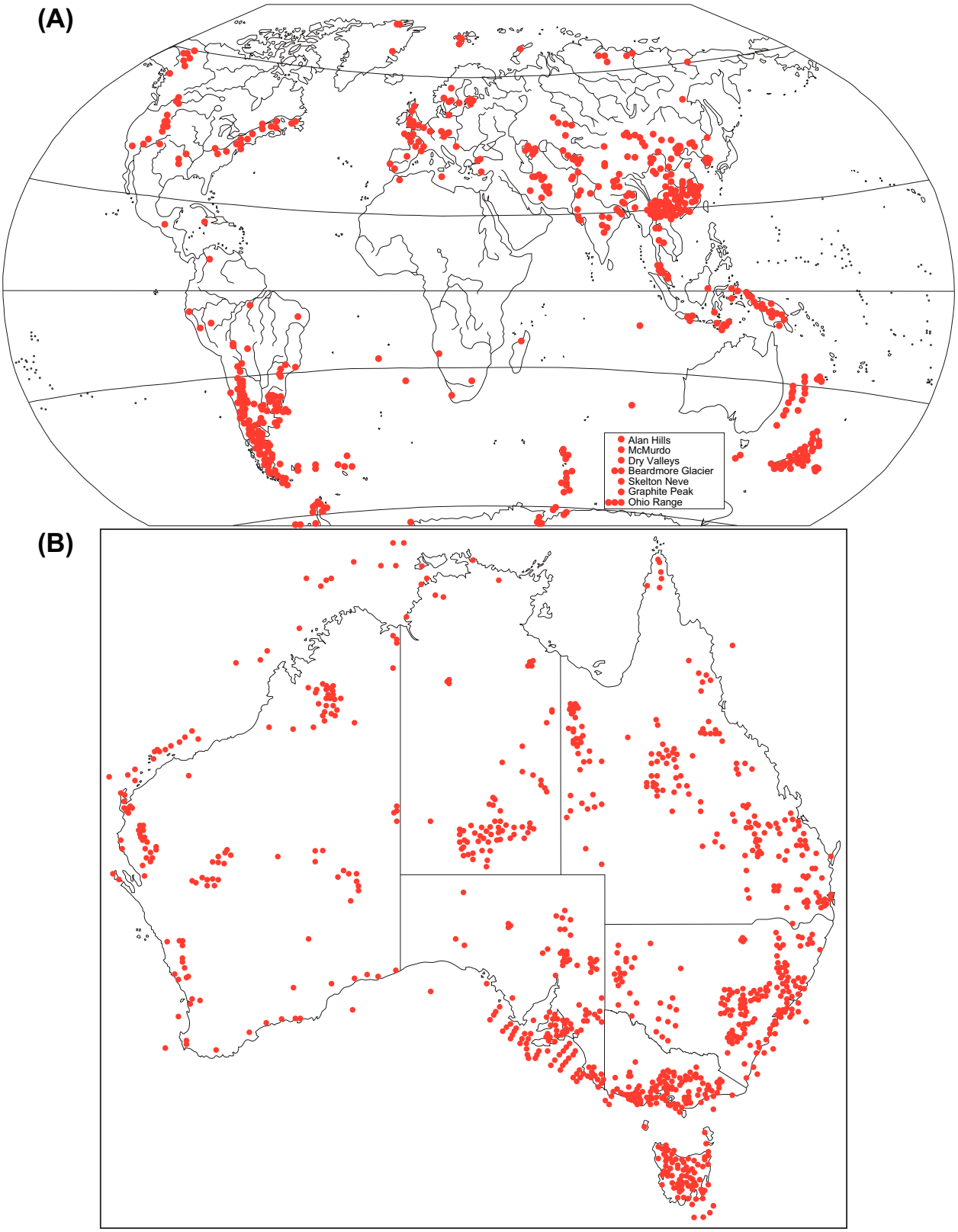

Fig. 2. Geographic distribution of palaeontological papers published in *Alcheringa* (1975–2016); A, global distribution, excluding Australia; B, distribution of studies within Australia.

monograph on the Upper Cretaceous palynoflora from the Chatham Islands, New Zealand (Mays 2015). Chris Mays also has a contribution published in this present issue of *Alcheringa*. Strong commendations for the Mary Wade Early Career Prize were also given to Julien Denayer and Patrick Smith for their respective contributions to *Alcheringa* (Denayer & Webb 2015, Smith *et al*. 2015). Students and young researchers are now

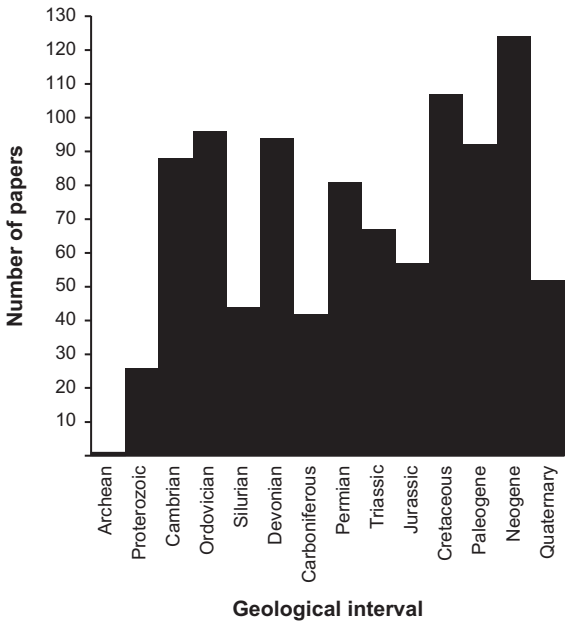

Fig. 3. Plot of the number of papers published in *Alcheringa* (1975–2016) according to principal geological time interval.

asked to tick a box regarding eligibility for the Mary Wade Early Career Prize when submitting their manuscript to *Alcheringa* online.

Innovation and the future

Alcheringa will have its 9th Chief Editor in 2017. After rapid turnover of editorial staff in the first few years, *Alcheringa* has maintained relative stability in its editorial team and this has contributed to the timely production and consistency in style of the journal (Fig. 6). Nevertheless, the journal has experienced some important changes and innovations through its lifetime. In its early years, *Alcheringa* was one of few journals that experimented with the inclusion of microfiche appendices for the dissemination of large quantities of supporting data (Retallack 1977). In 2006, *Alcheringa* published a 475-page Special Issue on the 'Proceedings of CAVEPS 2005' edited by L. Reed, S. Bourne, D. Megirian, G. Prideaux, G. Young and A. Wright. Electronic manuscript submissions began in 2007, greatly expediting the handling of the review process and the publication of papers. Online access to newly published papers began at the same time. This was followed in 2008 by online publication of all back-issue papers from *Alcheringa*, which has greatly improved the international accessibility of the journal.

Alcheringa shifted to A4 format in 2012 (volume 36). This change also saw the end of the much admired 'smiling sauropod' stenciled spine design originally created by Bruce Runnegar and Robin Wass. Readers with a keen eye will have noted that the last dinosaur's tail needed to be stretched a little to extend to the final issue of volume 35. A new spine design by Brian Choo was introduced in volume 36 incorporating roaming herds of sauropods set against conifer tree silhouettes. Colour was introduced for selected images within the print version of the journal in 2012 and, with the prospect of more colour becoming available in print in following years, the journal will have a more aesthetic appeal.

The editorial team is committed to promoting further innovations within the journal, hence we look forward to opportunities for the inclusion of online videos and digital animations in support of manuscripts. The page budget for *Alcheringa* has steadily increased over recent years to accommodate the increased flow of manuscripts. Nevertheless, the journal can not publish all manuscripts that are submitted. The editorial team will continue to carefully weigh up the value of increasing the journal's size versus maintaining the quality and relevance of its published articles.

Exceptional fossils and biotas of Gondwana

As part of *Alcheringa*'s continuing editorial initiatives, and in light of the prominent role the journal has played in promoting the palaeontology of the Southern Hemisphere, we devote the final issue of volume 40 to the theme of 'Exceptional fossils and biotas of Gondwana'. This issue includes a selection of invited papers dealing with a broad geographic and stratigraphic array of Southern Hemisphere fossils that have special historical, biostratigraphical, palaeoecogical or biogeographical significance. This theme extends to the documentation of exceptionally preserved 'whole biotas' from Gondwana.

Coutts *et al*. (this issue) present a study of diverse body fossils and behavioral imprints on a remarkable bedding plane from the North Ediacara Conservation Park in the Flinders Ranges. The assemblage includes many of the classic Ediacaran taxa together with evidence of a complex microbial mat. The authors interpret this primordial assemblage as representing a relatively mature (late-stage successional) community.

VandenBerg & Maletz (this issue) highlight the rediscovery of the holotype of *Pseudisograptus manubriatus manubriatus* (Hall 1914). Based on a reanalysis of its characters, they recognize this taxon as a senior synonym of *Pseudisograptus manubriatus harrisi* Cooper & Ni (1986). They note that the symmetrical development of the manubrium must be regarded as the rule in the isograptids—the most complex graptoloids of the late Dapingian to early Darriwilian.

Hunter *et al*. (this issue) describe the first fossil ophiuroid recovered from the Falkland Islands—from an Early Devonian fauna that was initially documented by Charles Darwin during the visit of HMS Beagle to Port Louis, East Falkland, in 1833. The new taxon is

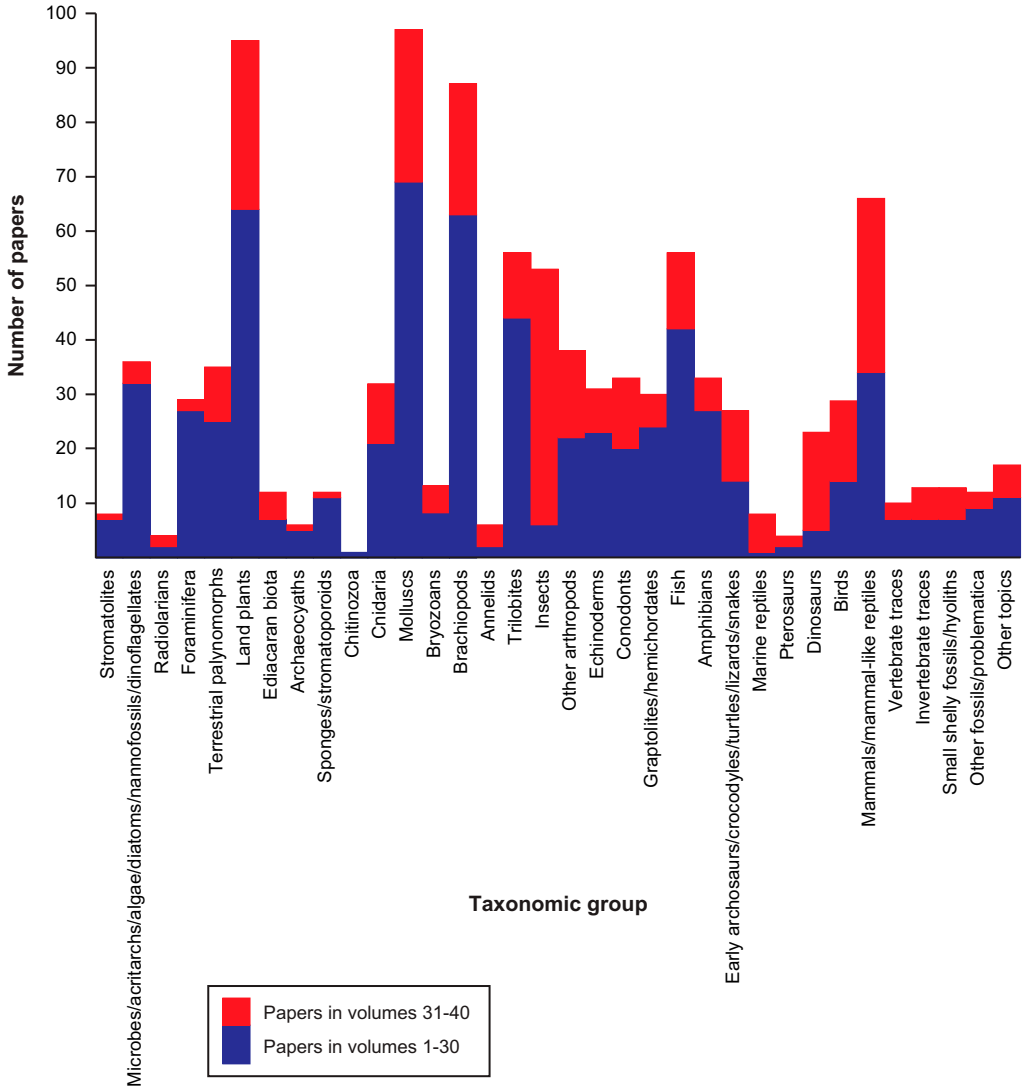

Fig. 4. Plot of the number of papers published in *Alcheringa* (1975–2016) according to the dominant taxonomic group studied.

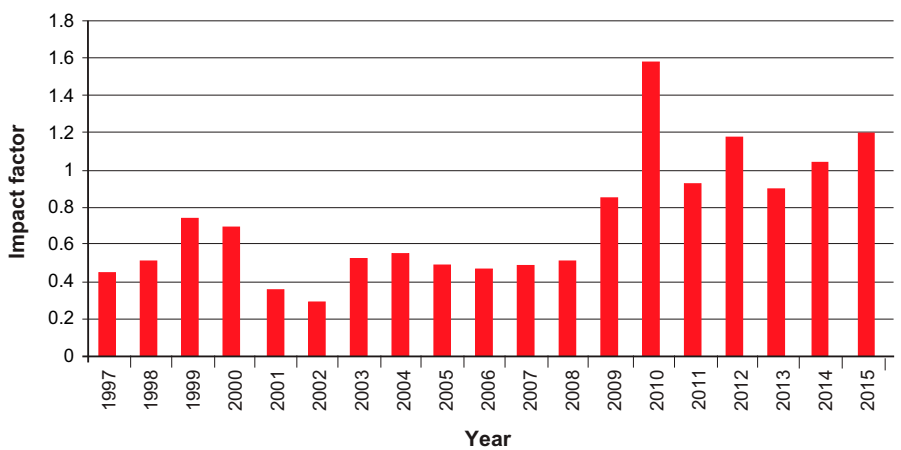

Fig. 5. Plot of the impact factor for *Alcheringa* through the years 1997–2015.

part of a wider fauna that includes fossils from the Bokkeveld Group, South Africa, and the Precordillera of Argentina, providing evidence that these terranes were contiguous in the mid-Palaeozoic.

Cleal *et al*. (this issue) document an assemblage of sub-arborescent lycophytes from the Sepukhovian (Upper Mississippian) of Kashmir. The authors note that the considerable morphological and preservational

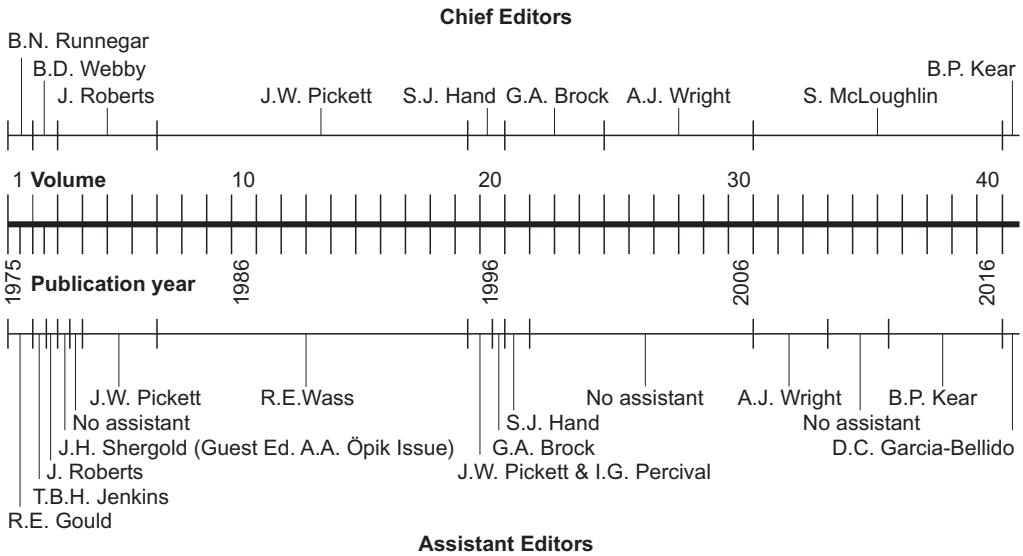

Fig. 6. Timeline of the chief editors and assistant editors for *Alcheringa* (1975–2016).

variation evident in these stem impressions has historically resulted in their assignment to many fossil-species and -genera. However, they provide clear evidence that only a single species is represented. These plants represented a key element in the vegetation on the northern fringe of Gondwana prior to the onset of the Late Palaeozoic Ice Age (Fielding *et al*. 2008), after which they were largely replaced in wetland settings by glossopterids (McLoughlin 2001).

Sagasti *et al*. (this issue) describe a new species of osmundaceous fern from the Middle–Late Jurassic La Matilde Formation (Santa Cruz, Argentina) based on permineralized rhizomes ensheathed by leaf bases and adventitious roots. The fossils have exquisite three-dimensional cellular preservation providing fine details for understanding the ontogenetic progression of the departing leaves. These plants thrived in geothermal wetland systems of the Patagonian Jurassic under conditions that probably included high temperatures, pH, salinity and elevated levels of phytotoxic metals/metalloids. This study highlights the renewed interest in permineralized osmundaceous rhizomes as key sources of information for microanatomy down to the subcellular level (Bomfleur *et al*. 2014), identification of plant–arthropod interactions (McLoughlin & Bomfleur in press), and phylogenetic reconstructions (Wang *et al*. 2014, Bomfleur *et al*. 2015).

Rich *et al*. (this issue) re-visit the oldest and most archaic monotreme *Teinolophos trusleri*, which is documented from the Flat Rocks vertebrate fossil locality in coastal Victoria. They re-describe and re-interpret the species in the light of additional material from the type locality and new information from the exquisitely preserved Early Cretaceous mammals of Liaoning Province, China. The Victorian taxon appears to have had a condition, present in some Early Cretaceous Chinese mammals, in which the postdentary bones *cum* ear ossicles retained a connection to a persisting Meckel's cartilage although not to the dentary. The authors argue that the condition of freely suspended auditory ossicles was acquired independently in monotremes and therian mammals.

Stilwell *et al*. (this issue) describe the first insect body fossils recorded from the Chatham Islands on the eastern limit of the Zealandia microcontinent. These Cenomanian–early Turonian coleopteran (beetle) fossils provide the only examples of iridescence in Mesozoic invertebrates from Zealandia. These insects lived in the highest-palaeolatitude forests yet known for the mid-Cretaceous of the Southern Hemisphere.

Wilson *et al*. (this issue) present a 2D geometric morphometric analysis of Old World leaf-nosed bats to quantify cranial shape in hipposiderids and rhinonycterids, with the aim of referring unallocated fossil species to each family within a phylogenetic framework. Their phylogenetic results suggest that the leaf-nosed bats of the famous Riversleigh deposits probably do not represent an endemic Australian radiation, since the fossil species are spread throughout the tree.

Lee *et al*. (this issue) provide a synthesis of the fossil biota and interactions preserved in the remarkable early Miocene *Konservat-Lagerstätte* at Foulden Maar, South Island, New Zealand. The fossil biota incorporates a remarkable array of terrestrial and aquatic plant and animal micro- and macrofossils. This 23-million-year-old assemblage will provide a benchmark for comparison with other mid-Cenozoic biotas throughout the Australasian region and further afield. Moreover, the high yield of material and the possibility of similar maar-hosted fossil assemblages in the local region offer great potential for future palaeontological research on the ancient Otago biotas.

Govender *et al*. (this issue) provide the first detailed analysis of the Mio-Pliocene mysticete cetacean fossils

from the famous Langebaanweg vertebrate deposit, on the southwest coast of South Africa. Three taxa are identified but are difficult to place systematically. Nevertheless, these fossils expand the previously poor record of post-Eocene cetaceans from southern Africa and help elucidate the development of baleen whale faunas in the southern oceans.

Quilty *et al*. (this issue) present the first comprehensive analysis of the Pliocene shallow-water mollusk fauna from Marine Plain—a site of special scientific significance in the Vestfold Hills of East Antarctica that is preserved under the Antarctic Treaty System as Antarctic Specially Protected Area No. 143. The fossil fauna includes six gastropod and 11 bivalve species from two beds within the Sørsdal Formation. The authors estimate water temperatures to have been *ca* 4–7.5 °C in the early Pliocene (several degrees warmer than present). This reflects a globally warm interval immediately prior to the dramatic strengthening of glacial conditions in Antarctica (McKay *et al*. 2012) and extinction/radiation of several major whales, fish and mollusk groups worldwide during the late Pliocene and Quaternary.

Finally, and since he provided the first paper published in *Alcheringa* back in 1975, Greg Retallack (this issue) presents, in this last paper of the 40th volume, a radically alternative vision of Ediacaran fossils compared with the traditional interpretations of these organisms. Using petrographic thin-sections and analogies with extant groups he infers alternative biological affiliations, architectures and behaviours for several of the iconic Ediacaran taxa. His interpretations of some Ediacaran taxa as probable lichens or microbial colonies are doubtless controversial but worth considering given that evidence of terrestrial organisms continues to extend earlier into the geological record (Wellman *et al*. 2003, Rubinstein *et al*. 2010), and that many of the groups in question (fungi, lichens, algae) have low preservational potential.

I am grateful for the outstanding efforts of the scientists who have reviewed manuscripts for the journal. Reviewers for volume 40 were: Florencio Gilberto Aceñolaza, Frederico Agnolin, Per Ahlberg, Guillermo Albanesi, Herculano Alvarenga, Michael Amler, Trond Andersen, Ken Aplin, Michelle Arnal, Stanley Awramik, Blanca Azucena Toro, Julie Bartley, Tomasz Baumiller, Gunter Bechly, Błażej Berkowski, Alan Beu, Rolf Beutel, Faysal Bibi, Daniel Blake, Benni Bomfleur, Daniel Burkhardt, Nick Butterfield, Josefina Carlorosi, Ray Carpenter, Xu Chen, Phoebe Cohen, Roger Cooper, Rob Coram, Alistair Crame, Peter Cranston, Julien Denayer, Bill DiMichele, Steve Donovan, Stephen Dornbos, Gareth Dyke, Susan Evans, Esperanza Fernández-Martínez, Marco Ferretti, Eric Fitzgerald, Rebecca Freeman, Oliver Hampe, Michael Hautmann, Fred Hotchkiss, Nigel Hughes, Nadyezhda Izokh, Peter Jell, Meng Jin, Marc Jones, Chen Jun, Eugeny Karasev, Liz Kennedy, Leonardo Kerber, Alexander Kirejtshuk, George Koufos, Wieslaw Kreminski, Kiyoko Kuwahara, James Lamsdell, Rongyu Li, Alex Liu, Veronika Luchinina, Breandan MacGabhann, Jörg Maletz, Georgi Markov, Carlos Martínez-Pérez, Chris Mays, Ken McNamara, Mike Meyer, Charles Mitchell, Edward Mockford, Rich Mooi, Bernard Mottequin, Andre Nel, Galina Nestell, Nora Noffke, Gladys Ortega, Yan Hong Pan, John Peel, Pedro Pereira, Ian Percival, Julián Petrulevičius, Susannah Porter, Jakub Prokop, Gorzelak Przemyslaw, Dong Ren, Valentina Rosina, John Rowan, Andrew Rozefelds, Nancy Simmons, Judith Skog, Andrej Spiridonov, James Sprinkle, Svend Stouge, Des Strusz, Jacek Szwedo, Pascal Tassy, Ando Tatsuro, Ben Thuy, Tatiana Tolmacheva, Tim Topper, Fons VandenBerg, Ezequiel Vera, Matthew Vrazo, Malcom Walter, Jun Wang, Torsten Wappler, John Webb, Mark Webster, Michael Westerman, Peter Wilf, Graham Young, Xunlai Yuan, Yuandong Zhang and Yong Yi Zhen. On behalf of the AAP, I thank these colleagues sincerely for their contributions toward upholding the quality of the journal.

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References

Bomfleur, B., McLoughlin, S. & Vajda, V., 2014. Fossilized nuclei and chromosomes reveal 180 million years of genomic stasis in royal ferns. *Science 343*, 1376–1377 (+ online supplementary data pages 1–16; 2 video clips). doi: 10.1126/science.1249884

Bomfleur, B., Grimm, G.W. & McLoughlin, S., 2015. *Osmunda pulchella* sp. nov. from the jurassic of Sweden—reconciling molecular and fossil evidence in the phylogeny of modern royal ferns (Osmundaceae). *BMC Evolutionary Biology 15 126*, (25 pp.) doi 10.1186/s12862-015-0400-7

Cleal, C.J., Bhat, G.M., Singh, K.J., Dar, A.M., Saxena, A. & Chandra, S., 2016. *Spondylodendron pranabii*—the dominant lycopsid of the late Mississippian vegetation of the Kashmir Himalaya. *Alcheringa 40*, 443–455.

Cooper, R.A. & Ni, Y.N., 1986. Taxonomy, phylogeny and variability of *Pseudisograptus* Beavis. *Palaeontology 29*, 313–363.

Coutts, F.J., Gehling, J.G. & García-Bellido, D.C., 2016. How diverse were early animal communities? an example from Ediacara Conservation Park, Flinders Ranges, South Australia. *Alcheringa 40*, 407–421.

DENAYER, J. & WEBB, G.E., 2015. *Cionodendron* and related lithostrotionid genera from the Mississippian of eastern Australia: systematics, stratigraphy and evolution. *Alcheringa 39*, 315–376.

FIELDING, C.R., FRANK, T.D. & ISBELL, J.L., 2008. Chapter 24: The late Paleozoic ice age—a review of current understanding and synthesis of global climate patterns. In *Resolving the Late Paleozoic Ice Age in Time and Space*. FIELDING, C.R., FRANK, T.D. & ISBELL, J.L., eds, Geological Society of America Special Paper 441, 343–354.

GOVENDER, R., BISCONTI, M. & CHINSAMY, A., 2016. A late Miocene–early Pliocene baleen whale assemblage from Langebaanweg, west coast of South Africa (Mammalia, Cetacea, Mysticeti). *Alcheringa 40*, 542–555.

HALL, T.S., 1914. Victorian graptolites, part 4. some new or little known species. *Proceedings of the Royal Society of Victoria, New Series 27*, 104–118.

HUNTER, A.W., RUSHTON, A.W.A. & STONE, P., 2016. Comments on the ophiuroid family Protasteridae and description of a new genus from the Lower Devonian of the Fox Bay Formation, Falkland Islands. *Alcheringa 40*, 429–442.

LEE, D.E., KAULFUSS, U., CONRAN, J.G., BANNISTER, J.M. & LINDQVIST, J.K., 2016. Biodiversity and palaeoecology of Foulden Maar: an early Miocene *Konservat-Lagerstätte* deposit in southern New Zealand. *Alcheringa 40*, 525–541.

MAYS, C., 2015. A Late Cretaceous (Cenomanian–Turonian) south polar palynoflora from the Chatham Islands, New Zealand. *Memoirs of the Association of Australasian Palaeontologists 47*, 1–92.

MCKAY, R., NAISH, T., CARTER, L., RIESSELMAN, C., DUNBAR, R., SJUNNESKOG, C., WINTER, D., SANGIORGI, F., WARREN, C., PAGANI, M., SCHOUTEN, S., WILLMOTT, V., LEVY, R., DECONTO, R. & POWELL, R.D., 2012. Antarctic and Southern Ocean influences on late Pliocene global cooling. *Proceedings of the National Academy of Sciences of the United States of America 109*, 6423–6428.

MCLOUGHLIN, S., 2001. The breakup history of Gondwana and its impact on pre-Cenozoic floristic provincialism. *Australian Journal of Botany 49*, 271–300.

MCLOUGHLIN, S. & BOMFLEUR, B. (2016) in press. Biotic interactions in an exceptionally well preserved osmundaceous fern rhizome from the Early Jurassic of Sweden. *Palaeogeography, Palaeoclimatology, Palaeoecology* XX, xxx–xxx. http://dx.doi.org/10.1016/j.palaeo.2016.01.044

QUILTY, P.G., DARRAGH, T.A., GALLAGHER, S.J. & HARDING, L.A., 2016. Pliocene Mollusca (Bivalvia, Gastropoda) from the Sørsdal Formation, Marine Plain, Vestfold Hills, East Antarctica: taxonomy and implications for Antarctic Pliocene palaeoenvironments. *Alcheringa 40*, 556–582.

RETALLACK, G.J., 1977. Reconstructing Triassic vegetation of eastern Australasia: a new approach for the biostratigraphy of Gondwanaland. *Alcheringa 1*, 247–278.

RETALLACK, G.J., 2016. Ediacaran fossils in thin-section. *Alcheringa 40*, 583–600.

RICH, T.H., HOPSON, J.A., GILL, P.G., TRUSLER, P., ROGERS-DAVIDSON, S., MORTON, S., CIFELLI, R.L., PICKERING, D., KOOL, L., SIU, K., BURGMANN, F.A., SENDEN, T., EVANS, A.R., WAGSTAFF, B.E., SEEGETS-VILLIERS, D., CORFE, I.J., FLANNERY, T.F., WALKER, K., MUSSER, A.M., ARCHER, M., PIAN, R. & VICKERS-RICH, P., 2016. The mandible and dentition of the Early Cretaceous monotreme *Teinolophos trusleri*. *Alcheringa 40*, 475–501.

RUBINSTEIN, C.V., GERRIENNE, P., DE LA PUENTE, G.S., ASTINI, R.A. & STEEMANS, P., 2010. Early Middle Ordovician evidence of land plants in Argentina (eastern Gondwana). *New Phytologist 188*, 365–369.

RUNNEGAR, B., 1975. The message of *Alcheringa*. *Alcheringa 1*, 1–2.

SAGASTI, A.J., GARCÍA MASSINI, J., ESCAPA, I.H., GUIDO, D.M. & CHANNING, A., 2016. *Millerocaulis zamunerae* sp. nov. (Osmundaceae) from Jurassic geothermally influenced wetland environments of Patagonia, Argentina. *Alcheringa 40*, 456–474.

SMITH, P.M., BROCK, G.A. & PATERSON, J.R., 2015. Fauna and biostratigraphy of the Cambrian (Series 2, Stage 4; Ordian) Tempe Formation (Pertaoorrta Group), Amadeus Basin, Northern Territory. *Alcheringa 39*, 40–70.

STILWELL, J.D., VITACCA, J. & MAYS, C., 2016. South polar greenhouse insects (Arthropoda: Insecta: Coleoptera) from the mid-Cretaceous Tupuangi Formation, Chatham Islands, eastern Zealandia. *Alcheringa 40*, 502–508.

VANDENBERG, A.H.M. & MALETZ, J., 2016. The holotype of *Pseudisograptus manubriatus manubriatus* (Hall, 1914)—implications for the identification of *Pseudisograptus manubriatus* subspecies. *Alcheringa 40*, 422–428.

WANG, S.-J., HILTON, J., HE, X.-Y., SEYFULLAH, L.J. & SHAO, L., 2014. The anatomically preserved *Zhongmingella* gen. nov. from the Upper Permian of China: evaluating the early evolution and phylogeny of the Osmundales. *Journal of Systematic Palaeontology 12*, 1–22.

WELLMAN, C.H., OSTERLOFF, P.L. & MOHIUDDIN, U., 2003. Fragments of the earliest land plants. *Nature 425*, 282–285.

WILSON, L.A.B., HAND, S.J., LÓPEZ-AGUIRRE, C., ARCHER, M., BLACK, K.H., BECK, R.M.D., ARMSTRONG, K.N. & WROE, S., 2016. Cranial shape variation and phylogenetic relationships of extinct and extant Old World leaf-nosed bats. *Alcheringa 40*, 509–524.