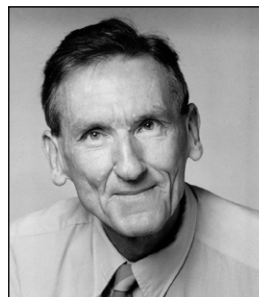


Memorial to John James Veevers 1930–2018

MALCOLM WALTER

John James Veevers was born in Sydney, Australia, on 13 October 1930 and died 12 August 2018, in Eastwood, New South Wales, Australia. After attending Newington College, he won a scholarship to Sydney University, where he majored in geology and agricultural chemistry, graduating with first class honors in 1951. While at university, he was awarded a cadetship by the Bureau of Mineral Resources (BMR, now Geoscience Australia). That led in one summer vacation to a job assisting Bureau geologists mapping the area of the forthcoming Snowy Mountains Hydro-Electric Scheme. For his honors year he mapped an area between Queanbeyan and Captains Flat.



John joined the BMR in 1952, and his first job was prospecting for coal in the Hunter Valley. That experience was repeated in the early 1960s when he mapped the western flank of the Bowen Basin in Queensland. This formed the basis for an M.Sc. from Sydney University.

Following a fire in the BMR's Canberra offices in 1953, John was sent to the Kimberleys to re-collect fossils from the Fitzroy River area. He then took leave, and with those fossils and without pay he undertook a study of Devonian brachiopods at Imperial College in London and was awarded a Ph.D. in 1956. In 1957, he led the BMR Canning Basin party to the Great Sandy Desert in Western Australia. During a helicopter survey, he discovered a meteorite impact crater that later was named after him. He and Allen Wells produced a BMR *Bulletin* on the geology of the Canning Basin, published in 1960.

During his work on the Canning Basin, John compiled a chart of what could be surmised about the offshore extension of the basin. That led to participation in Indian Ocean and Timor Sea cruises and the beginning of a strong interest in marine geology. He was awarded a Harkness Fellowship to work at the Scripps Institution of Oceanography in California where he heard Bob Dietz's announcement of the recognition of seafloor spreading. Back in Australia he spent field seasons in 1963 and 1965 in the Bonaparte Gulf Basin.

In 1968, John joined the newly formed Macquarie University as a senior lecturer. He stayed there until his retirement in 1998, having been promoted to full professor, in a personal chair, in 1991. He spent some time as a consultant to Esso Australia. In addition to his teaching he spent much of his time researching the rapidly developing theory of plate tectonics. In 1971, he visited the Lamont-Doherty Earth Observatory in New York State to learn about seafloor magnetic anomalies and to gather seismic information about drilling sites in the Indian Ocean.

In 1972, John participated in two Deep Sea Drilling Project cruises to the Indian Ocean, one as co-chief scientist. This was followed by other cruises in 1976, 1981, and 1984, all of which led to numerous publications on the geology of the oceans surrounding Australia. A grand synthesis followed in 1984, edited and partly written by John: *Phanerozoic Earth History of Australia*.

This obituary is slightly modified (and appended with a bibliography) from the original version by Malcolm Walter, published in *The Australian Geologist*, December 2018, by the Geological Society of Australia, and is posted with permission. Image credit: Macquarie University, courtesy of the Veevers family.

In collaboration with Chris Powell and others, numerous papers followed on the geology of the supercontinent Gondwanaland and on tectonic supercycles, culminating in 2000 in yet another grand synthesis: *Billion-Year Earth History of Australia and Neighbours in Gondwanaland*. This included a new interest in Proterozoic geology fostered by myself and a group of excellent research students.

Throughout his time at Macquarie University, with his colleagues John taught undergraduate courses in Australian and world stratigraphy and lithospheric environments. Each year he ran student field trips to coastal exposures of the southern Sydney Basin. For many years, he ran the departmental Friday seminar series.

In 1992, John received a Special Investigator Award from the Australian Research Council and in the same year won the S.W. Carey Medal of the Geological Society. In 1995, John's outstanding contribution to science was honoured by election to the Fellowship of the Australian Academy of Science. He thought of himself as a "general practitioner" but he researched thoroughly, read voraciously and always kept in mind the big picture. He was a pioneer of plate tectonic theory. Throughout his career John was characterized by his focus and discipline.

Although John "retired" in 1998 (and was made emeritus professor), for the following 20 years he kept regular office hours (at home) and continued his research and publishing. His final paper was published in 2018 on the Antarctic subglacial Gamburtsev Mountains and East Gondwanaland.

John was a devoted, brilliant, and very productive scientist, but he had other interests as well, particularly classical music, art, films, and rugby. He was also a devoted family man, his wife Erica accompanying him on much of his field work. Shortly after their marriage in June 1953, on John's first collecting trip to the Kimberleys, Erica joined the small party. Later, in the Bowen Basin (1960, 1961) and again in the Bonaparte Basin (1963, 1965), she joined the parties with their very young children. Later still in the 1990s, they made geological visits to all the Pangean continents, with the exception of Antarctica.

John is survived by his wife Erica and his children Tom, Kirstina, and Elisabeth, and he is fondly remembered by his seven grandchildren.

Malcolm Walters was helped by notes compiled by John Veevers and the assistance of his family and Dr Richard Flood.

SELECTED BIBLIOGRAPHY OF JOHN JAMES VEEVERS

- 1958 Helicopter in the desert: *Chemical Engineering and Mining Review*, v. 50, no. 11, p. 34–41.
- 1958 Explanatory notes to the Lennard River 4-mile geological map: Australian Bureau of Mineral Resources, Geology and Geophysics, Explanatory Notes Series 11.
- 1959 Size and shape variation in the brachiopod *Schizophoria* from the Devonian of Western Australia: *Journal of Paleontology*, v. 35, p. 888–901.
- 1960 Probable salt dome at Woolnough Hills, Canning Basin, Western Australia: Australian Bureau of Mineral Resources, Geology and Geophysics, Report 38, p. 97–112.
- 1961 The geology of the Howick area, Singleton-Muswellbrook District, New South Wales: Australian Bureau of Mineral Resources, Geology and Geophysics, Report 53.
- 1962 (with Calvert, S.E.) Minor structures of unconsolidated marine sediments revealed by X-radiography: *Sedimentology*, v. 1, p. 287–295, <https://doi.org/10.1111/j.1365-3091.1962.tb01151.x>.
- 1964 (with Roberts, J., Kaulback, J.A., and Jones, P.J.) New observations on the Palaeozoic geology of the Ord River area, Western Australia and Northern Territory: *Australian Journal of Science*, v. 26, p. 352–353.

- 1965 (with van Andel, T.H.) Submarine morphology of the Sahul Shelf, northwestern Australia: *Geological Society of America Bulletin*, v. 76, p. 695–700, [https://doi.org/10.1130/0016-7606\(1965\)76\[695:SMOTSS\]2.0.CO;2](https://doi.org/10.1130/0016-7606(1965)76[695:SMOTSS]2.0.CO;2).
- 1966 (with Jackson, J.W.) Improved field device for recording stratigraphic sections: *The American Association of Petroleum Geologists Bulletin*, v. 50, p. 2470–2472.
- 1967 (with van Andel, T.H.) Morphology and basement of the Sahul Shelf: *Marine Geology*, v. 5, p. 293–298, [https://doi.org/10.1016/0025-3227\(67\)90098-9](https://doi.org/10.1016/0025-3227(67)90098-9).
- 1968 (with Roberts, J.) Upper Devonian geology of the Bonaparte Gulf Basin. *International Symposium on the Devonian System*, Calgary, 2, 89–92.
- 1969 (with Roberts, J.) Upper Palaeozoic rocks, Bonaparte Gulf Basin of northwestern Australia. *Australian Bureau of Mineral Resources, Geology and Geophysics, Bulletin* 97.
- 1969 Associations of fossils, grain-types, and chemical constituents in the Upper Devonian and Lower Carboniferous limestones of the Bonaparte Gulf Basin, northwest Australia: *Journal of Sedimentary Petrology*, v. 39, p. 1118–1131, <https://doi.org/10.1306/74D71DA7-2B21-11D7-8648000102C1865D>.
- 1970 (with Veeh, H.H.) Sea level at –175 metres (96 fathoms) off the Great Barrier Reef 13,600 to 17,000 year ago: *Nature*, v. 226, p. 536–537, <https://doi.org/10.1038/226536b0>.
- 1971 (with Jones, J.G., and Talent, J.A.) Indo-Australian stratigraphy and the configuration and dispersal of Gondwanaland: *Nature*, v. 229, p. 383–388, <https://doi.org/10.1038/229383a0>.
- 1972 Deep Sea Drilling Project Leg 22: *Geotimes*, v. 17, no. 6, p. 15–17.
- 1973 (with Heirtzler, J.R., Bolli, H.M., Carter, A.N., Cook, P.J., Krashenninnikov, V.A., McKnight, B.K., Proto-Decima, F., Renz, G.W., Robinson, P.T., Rocker, K., and Thayer, P.A.) Age of the floor of the eastern Indian: *Ocean Science*, v. 180, p. 952–954.
- 1974 (with Heirtzler, J.R.) Tectonic and palaeogeographical synthesis of Leg 27: *Initial Reports of the Deep Sea Drilling Project Leg 27*, p. 1049–1054.
- 1975 (with Powell, C.McA., and Johnson, B.D.) Greater India's place in Gondwanaland and in Asia: *Earth and Planetary Science Letters*, v. 27, p. 383–387, [https://doi.org/10.1016/0012-821X\(75\)90056-4](https://doi.org/10.1016/0012-821X(75)90056-4).
- 1976 (with Cotterill, D.) Western margin of Australia—A Mesozoic analog of the East African rift system: *Geology*, v. 4, p. 713–717, [https://doi.org/10.1130/0091-7613\(1976\)4<713:WMOAAM>2.0.CO;2](https://doi.org/10.1130/0091-7613(1976)4<713:WMOAAM>2.0.CO;2).
- 1977 Rifted arch basins and post-breakup rim basins on passive continental margins: *Tectonophysics*, v. 41, p. T1–T5, [https://doi.org/10.1016/0040-1951\(77\)90130-5](https://doi.org/10.1016/0040-1951(77)90130-5).
- 1978 (with Cotterill, D.) Western margin of Australia: evolution of a rifted arch system: *Geological Society of America Bulletin*, v. 89, p. 337–355, [https://doi.org/10.1130/0016-7606\(1978\)89<337:WMOAEO>2.0.CO;2](https://doi.org/10.1130/0016-7606(1978)89<337:WMOAEO>2.0.CO;2).
- 1979 (with Rundle, A.S.) Channel Country fluvial sands and associated facies of central-eastern Australia: modern analogues of Mesozoic desert sands of South America: *Palaeogeography Palaeoecology Palaeoclimatology*, v. 26, p. 1–16, [https://doi.org/10.1016/0031-0182\(79\)90137-8](https://doi.org/10.1016/0031-0182(79)90137-8).
- 1980 Basins of the Australian craton and margin, *in* Bally, ed., *Dynamics of Plate Interiors*: Washington D.C., American Geophysical Union Geodynamics Series 1, p. 73–80.
- 1981 Morphotectonics of rifted continental margins in embryo (East Africa), youth (Africa-Arabia), and maturity (Australia): *The Journal of Geology*, v. 89, p. 57–82, <https://doi.org/10.1086/628564>.
- 1982 Australian-Antarctic depression from the mid-ocean ridge to the adjacent continent: *Nature*, v. 295, p. 315–317, <https://doi.org/10.1038/295315a0>.
- 1983 (with Jones, J.G.) Mesozoic origins and antecedents of Australia's Eastern Highlands: *Geological Society of Australia Journal*, v. 30, p. 305–22.

- 1984 (editor) Phanerozoic earth history of Australia: Clarendon, Oxford, 418 p.
- 1985 (with Tayton, J.W., Johnson, B.D., and Hansen, L.) Magnetic expression of the continent-ocean boundary between the western margin of Australia and the eastern Indian Ocean: *Journal of Geophysics*, v. 56, p. 106–120.
- 1986 Breakup of Australia and Antarctica estimated as mid-Cretaceous (95±5 Ma) from magnetic and seismic data at the continental margin: *Earth and Planetary Science Letters*, v. 77, p. 91–99, [https://doi.org/10.1016/0012-821X\(86\)90135-4](https://doi.org/10.1016/0012-821X(86)90135-4).
- 1987 (with Powell, C.McA.) Late Paleozoic glacial episodes in Gondwanaland reflected in transgressive-regressive depositional sequences in Euramerica: *Geological Society of America Bulletin*, v. 98, p. 475–487, [https://doi.org/10.1130/0016-7606\(1987\)98<475:LPGEIG>2.0.CO;2](https://doi.org/10.1130/0016-7606(1987)98<475:LPGEIG>2.0.CO;2).
- 1988 Gondwana facies started when Gondwanaland merged in Pangea: *Geology*, v. 16, p. 732–734, [https://doi.org/10.1130/0091-7613\(1988\)016<0732:GFSWGM>2.3.CO;2](https://doi.org/10.1130/0091-7613(1988)016<0732:GFSWGM>2.3.CO;2).
- 1989 Middle/Late Triassic (230±5 Ma) singularity in the stratigraphic and magmatic history of the Pangean heat anomaly: *Geology*, v. 17, p. 784–787, [https://doi.org/10.1130/0091-7613\(1989\)017<0784:MLTMSI>2.3.CO;2](https://doi.org/10.1130/0091-7613(1989)017<0784:MLTMSI>2.3.CO;2).
- 1990 Antarctica-Australia fit resolved by satellite mapping of oceanic fracture zones: *Australian Journal of Earth Sciences*, v. 37, p. 123–126, <https://doi.org/10.1080/08120099008727914>.
- 1991 Mid-Cretaceous tectonic climax, Late Cretaceous recovery, and Cenozoic relaxation in the Australian region: *Geological Society of Australia Special Publication 18*, p. 1–14.
- 1992 Australia—Geologic History: *Encyclopaedia Britannica*, v. 14, p. 407–411, 490.
- 1993 (with Morante, R., Andrew, A.S., and Hamilton, P.J.) Determining the Permian/Triassic boundary in Australia through C-isotope chemostratigraphy: *American Association of Petroleum Geologists 1993 Annual Convention, New Orleans, Program & Abstracts*, p. 153 [awards from AAPG/SEPM for best oral presentation].
- 1994 Pangea: Evolution of a supercontinent and its consequences for Earth's paleoclimate and sedimentary environments, *in* Klein, G.D., ed., *Pangea: Paleoclimate, Tectonics, and Sedimentation during Accretion, Zenith, and Breakup of a Supercontinent*: *Geological Society of America Special Paper 288*, p. 13–23, <https://doi.org/10.1130/SPE288-p13>.
- 1994 (with Powell, C.McA., eds.) Permian-Triassic Basins and Foldbelts along the Panthalassan Margin of Gondwanaland: *Geological Society of America Memoir 184*, 368 p., <https://doi.org/10.1130/MEM184>.
- 1995 (with Tewari, R.C.) Gondwana Master Basin of Peninsular India between Tethys and the interior of the Gondwanaland province of Pangea: *Geological Society of America Memoir 187*, 80 p., <https://doi.org/10.1130/0-8137-1187-8.1>.
- 1996 (with Retallack, G.J., and Morante, R.) Global coal gap between Permian-Triassic extinction and Middle Triassic recovery of peat-forming plants: *Geological Society of America Bulletin*, v. 108, p. 195–207, [https://doi.org/10.1130/0016-7606\(1996\)108<0195:GCGBP T>2.3.CO;2](https://doi.org/10.1130/0016-7606(1996)108<0195:GCGBP T>2.3.CO;2).
- 1997 (with Walter, M.R., and Scheibner, E.) Neoproterozoic tectonics of Australia-Antarctica and Laurentia and the 560 Ma birth of the Pacific Ocean reflect the 400 m.y. Pangean supercycle: *Journal of Geology*, v. 105, p. 225–242, <https://doi.org/10.1086/515914>.
- 1999 Tectonic controls of Gondwana and the Gondwanan facies: *Journal of African Earth Sciences* v. 28, no. 1, supplement, p. 203–204.
- 2000 Change of tectono-stratigraphic regime in the Australian plate during the 99 Ma (mid-Cretaceous) and 43 Ma (mid-Eocene) swerves of the Pacific: *Geology*, v. 28, p. 47–50, [https://doi.org/10.1130/0091-7613\(2000\)28<47:COTRIT>2.0.CO;2](https://doi.org/10.1130/0091-7613(2000)28<47:COTRIT>2.0.CO;2).
- 2000 (with Gorjan, P., and Walter, M.R.) Neoproterozoic sulfur-isotope variation in Australia

- and global implications: *Precambrian Research*, v. 100, p. 151–180, [https://doi.org/10.1016/S0301-9268\(99\)00073-X](https://doi.org/10.1016/S0301-9268(99)00073-X).
- 2000 (editor and chief contributor) *Billion-Year Earth History of Australia and Neighbours in Gondwanaland*: GEMOC Press, 400 p.
- 2001 *Atlas of Billion-Year Earth History of Australia and Neighbours in Gondwanaland*: GEMOC Press, 80 p.
- 2001 Unifying events in the history of Gondwanaland, *in* Weiss, R.H., ed., *Contributions to Geology and Palaeontology of Gondwana in Honour of Helmut Wopfner*: Geologisches Institut, Universität zu Köln, p. 471–473.
- 2003 Pan-African is Pan-Gondwanaland: Oblique convergence drives rotation during 650–500 Ma assembly: *Geology*, v. 31, p. 501–504, [https://doi.org/10.1130/0091-7613\(2003\)031<0501:PIPOCD>2.0.CO;2](https://doi.org/10.1130/0091-7613(2003)031<0501:PIPOCD>2.0.CO;2).
- 2004 Gondwanaland from 650–500 Ma assembly through 320 Ma merger in Pangea to 185–100 Ma breakup: supercontinental tectonics via stratigraphy and radiometric dating: *Earth-Science Reviews*, v. 68, p. 1–132, <https://doi.org/10.1016/j.earscirev.2004.05.002>.
- 2005 *Australia Phanerozoic*: Oxford, Elsevier, *Encyclopedia of Geology*, v. 1, p. 222–237, <https://doi.org/10.1016/B0-12-369396-9/00391-9>.
- 2005 *Gondwanaland*: Oxford, Elsevier, *Encyclopedia of Geology*, v. 3, p. 128–154, <https://doi.org/10.1016/B0-12-369396-9/00413-5>.
- 2006 Updated Gondwana (Permian–Cretaceous) earth history of Australia: *Gondwana Research*, v. 9, p. 231–260, <https://doi.org/10.1016/j.gr.2005.11.005>.
- 2007 Pan-Gondwanaland post-collisional extension marked by 650–500 Ma alkaline rocks and carbonatites and related detrital zircons: A review: *Earth-Science Reviews*, v. 83, p. 1–47, <https://doi.org/10.1016/j.earscirev.2007.03.001>.
- 2008 (with Saeed, A., and O'Brien, P.E.) Provenance of the Gamburtsev Subglacial Mountains from U-Pb and Hf analysis of detrital zircons in Cretaceous to Quaternary sediments in Prydz Bay and beneath the Amery Ice Shelf: *Sedimentary Geology*, v. 211, p. 12–32, <https://doi.org/10.1016/j.sedgeo.2008.08.003>.
- 2009 Mid-Carboniferous Centralian uplift linked by U-Pb zircon chronology to the onset of Australian glaciation and glacio-eustasy: *Australian Journal of Earth Sciences*, v. 56, p. 711–717, <https://doi.org/10.1080/08120090902937431>.
- 2011 Earth's longest fossil rift-valley system: *Nature*, v. 479, p. 304–306, <https://doi.org/10.1038/479304a>.
- 2012 Reconstructions before rifting and drifting reveal the geological connections between Antarctica and its conjugates in Gondwanaland: *Earth-Science Reviews*, v. 111, p. 249–318, <https://doi.org/10.1016/j.earscirev.2011.11.009>.
- 2013 (with Saeed, A.) Age and composition of Antarctic sub-glacial bedrock reflected by detrital zircons, erratics, and recycled microfossils in the Ellsworth Land–Antarctic Peninsula–Weddell Sea–Dronning Maud Land sector (240°E–0°–015°E): *Gondwana Research*, v. 23, p. 296–332, <https://doi.org/10.1016/j.gr.2012.05.010>.
- 2015 Beach sand of SE Australia traced by zircon ages through Ordovician turbidites and S-type granites of the Lachlan Orogen to Africa/Antarctica: A review: *Australian Journal of Earth Sciences*, v. 62, p. 385–408, <https://doi.org/10.1080/08120099.2015.1053985>.
- 2016 (with Belousova, E.A., and Saeed, A.) Zircons traced from the 700–500 Ma Transgondwanan Supermountains and the Gamburtsev Subglacial Mountains to the Ordovician Lachlan Orogen, Cretaceous Ceduna Delta, and modern Channel Country, central-southern Australia: *Sedimentary Geology*, v. 334, p. 115–141, <https://doi.org/10.1016/j.sedgeo.2016.01.014>.
- 2017 West Gondwanaland during and after the Pan-African and Brasiliano orogenies:

- Downslope vectors and detrital-zircon U–Pb and TDM ages and $\epsilon_{\text{Hf/Nd}}$ pinpoint the provenances of the Ediacaran–Paleozoic molasse: *Earth-Science Reviews*, v. 171, p. 105–140, <https://doi.org/10.1016/j.earscirev.2017.05.010>.
- 2018 Gamburtsev Subglacial Mountains: Age and composition from morainal clasts and U–Pb and Hf-isotopic analysis of detrital zircons in the Lambert Rift, and potential provenance of East Gondwanaland sediments: *Earth-Science Reviews*, v. 180, p. 206–257, <https://doi.org/10.1016/j.earscirev.2018.03.002>.