OBITUARY SAMUEL WARREN CAREY, AO, 1911–2002

by Patrick G. Quilty and Maxwell R. Banks

QUILTY, P.G. & BANKS, M.R. 2003 (19:xii): Obituary, Samuel Warren Carey, AO, 1911–2002. Papers and Proceedings of the Royal Society of Tasmania 137: 95–98. https://doi.org/10.26749/rstpp.137.95 ISSN 0080–4703. School of Earth Sciences, University of Tasmania, Private Bag 79, Hobart, Tasmania, 7001, Australia.



Emeritus Professor S. Warren Carey, AO

The Royal Society of Tasmania lost one of its members of long standing on 20 March 2002 when Emeritus Professor Samuel Warren Carey died in Hobart at the age of 90.

He was born near Campbelltown, New South Wales, and attended Campbelltown Primary School before secondary education at Canterbury High School. He obtained an Exhibition to the University of Sydney, and a Teachers' Training College Scholarship, commencing in 1929. He enrolled in Geology I as a fourth subject on the advice of one of his teachers, and this determined the direction of his career. He came under the influence of Prof. Sir T.W. Edgeworth David who had recently retired, and he encountered for the first time the concept of continental drift as a mechanism for explaining important aspects of Southern Hemisphere geology. He graduated with First Class Honours in 1932 and proceeded to a Masters degree, in 1934, both degrees based on field studies of the area around Werris Creek, near Tamworth in New South Wales. The rocks are about 300 million years old (Carboniferous) and not currently very active tectonically. Employment with Oil Search in Papua New Guinea introduced him to active modern tectonics where volcanic eruptions and great earthquakes were part of life. His New Guinea experiences led to a D.Sc. degree from the University of Sydney in 1939. Life in the New Guinea environment influenced greatly his view of the Earth as a dynamic planet and later helped him explain geological features he saw elsewhere, for example — in excavations for buildings and roads at the University of Tasmania and along the foreshore at Taroona.

During World War II, Carey was a commando in Z Force in which he had an exciting and typically unorthodox military career (written up in several books). As the war effort was winding down, he took the opportunity to come to Tasmania as Government Geologist. He accepted an appointment as Foundation Professor of Geology at the University of Tasmania, a post he held from 1946 until his retirement at the end of 1976.

He had an important influence on Tasmanian geology through his publications as Government Geologist, and his consultancy to the Hydro-Electric Commission. He invited leading geologists, such as R. Fairbridge, E.D. Gill, R. Prider, C. Teichert and A. Voisey, to be involved in unravelling the geological history of this state.

He attracted to Tasmania many of the world's leading geologists by convening of a series of topical symposia on issues such as continental drift, dolerite, syntaphral tectonics and diagenesis, and glacial marine sedimentation. These also led to invitations to him to address many leading conferences in Australia and overseas.

Some see Carey as one of the greatest geologists of all time, one who could grasp the 'big picture' to a degree matched by very few. He is well-remembered as a 'larger than life' figure for his vision and the originality of his views. His ability to absorb, remember and integrate vast quantities of data was one of his greatest characteristics and a feature that was daunting to his colleagues. He was arguably the internationally most-renowned academic ever to grace the halls of the University of Tasmania. In these days of computer modelling and desk-based geology, some suggest that it is unlikely that we will see his equal again.

He will go down in history as one who had a major influence on global science through his enthusiastic

advocacy of the unorthodox concept of continental drift and his role in having it accepted — it is now part of orthodoxy. Observations made during his continental drift studies convinced him that the Earth has expanded. This view has not received general acceptance but does have a vocal group of strong adherents.

Perhaps his greatest legacy is the attitude that he instilled in his many students. Typically, students will forget most of their university lecturers, but they will not forget Carey. He was inspirational. About 60% of those students who did Geology I (as terminology then had it) went on to Geology II, an unusually high figure. He was an extrovert who challenged students to question any view that was seen as orthodox or stated to be true because the exponent was an 'expert'. "We are blinded by what we think we know; disbelieve if you can."

He had several opportunities to leave Tasmania and move to larger, 'more prestigious' institutions but he stayed in the smaller university where he believed strongly that he could develop novel ideas more readily, without the institutional orthodoxy that characterises many large departments.

Carey was not only an academic; he was a parachutist, a strong supporter of Legacy and active in the affairs of ex-service organisations. He founded the Caverneering Club of Tasmania. In 'retirement' he was as active as ever and produced books examining the universe and cosmos, and the place of humanity and the earth in the broader scheme of things.

The list of his awards is long. He was an honorary life member and medal recipient of some of the world's leading geological institutions. After a fiery relationship with the Australian Academy of Science, he finally accepted Fellowship. He was appointed an Officer of the Order of Australia (AO) shortly after retirement. He is the subject of several portraits and sculptures.

Carey had very close associations with the Royal Society of Tasmania over several decades. He was Senior Vice President in 1950–51, served three terms as a member of Council, and was a member of the Standing Committee of Council for some years. He published several papers in the *Papers and Proceedings* of the Society (marked with an asterisk in the bibliography), including the important work on the orocline concept in tectonics. He was himself a regular speaker at Society meetings for a quarter of a century, both in Hobart and to the Northern Branch, and was instrumental in introducing a number of interstate and overseas speakers. As a recipient of the Society's R.M. Johnston Medal, he addressed the Society on 'A Philosophy of the Earth and Universe'; the address was subsequently published in the Society's journal in 1978.

He is remembered by many former students and staff for the influence on their careers and, more broadly, on their mental attitudes. Members of the Royal Society of Tasmania and other community organisations will recall his contribution to their understanding of the island on which we live and, more widely, of the broader features and history of the earth.

He is survived by his wife, Austral (Robson), four children (Tegwen Alice, Robyn, David and Harley), seven grandchildren and two great-grandchildren.

For a fuller account of his life and significance, see Quilty & Banks (2003).

REFERENCE

QUILTY, P.G. & BANKS. M.R., 2003: Samuel Warren Carey 1911–2002. Historical Records of Australian Science 14: 313–335.

BIBLIOGRAPHY

- CAREY, S.W., 1933: Water divining. Sydney University Science Journal xii: 17, 18.
- CAREY, S.W., 1934: The geological structure of the Werrie Basin.

 Proceedings of the Linnean Society of New South Wales 49:
 351–374.
- CAREY, S.W., 1934: Notes on the implications of the irregular strike lines of the Mooki Thrust System. *Proceedings of the Linnean Society of New South Wales* 49: 375–379.
- CAREY, S.W., 1935: Note on the Permian sequence in the Werrie Basin. *Proceedings of the Linnean Society of New South Wales* 50: 447–486.
- CAREY, S.W., 1937: The Carboniferous sequence in the Werrie Basin. *Proceedings of the Linnean Society of New South Wales* 52: 341–376.
- CAREY, S.W. & BROWNE, W.R., 1938: Review of the Carboniferous stratigraphy, tectonics and palaeogeography of New South Wales and Queensland. Journal and Proceedings of the Royal Society of New South Wales 71: 591–614.
- CAREY, S.W., 1938: The morphology of New Guinea. *The Australian Geographer* 3(5): 3–30.
- CAREY, S.W. & OSBORNE, G.D., 1938: Preliminary note on the nature of the stresses involved in the Late Palaeozoic diastrophism in New South Wales. *Journal and Proceedings of* the Royal Society of New South Wales 72: 199–208.
- CAREY, S.W., 1945: Notes on Cretaceous strata in the Purari Valley, Papua. *Proceedings of the Royal Society of Victoria* 56: 123–130.
- CAREY, S.W., 1947: Report of the Government Geologist. Report of the Director of Mines Tasmania (1945): 21–29.
- CAREY, S.W., 1947: Occurrence of tillite on King Island. Report of the 25th Congress of the Australian and New Zealand Association for the Advancement of Science, 1945: 349.
- Carey, S.W., 1947: Geology of the Launceston District. Records of the Queen Victoria Museum 11: 31–46.
- HILLS, C.L. & CAREY, S.W., 1949: Geology and mineral industry. ANZAAS Handbook for Tasmania: 21–44.
- *CAREY, S.W. & SCOTT, B., 1952: Revised interpretation of the geology of the Smithton district of Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 86: 63–70.
- CAREY, S.W., 1953: Geological structure of Tasmania in relation to mineralization. In Edwards, A.B. (Ed.): Geology of Australian Ore Deposits: Fifth Empire Mining Congress 1: 1108–1128.
- *CAREY, S.W. & SCOTT, B., 1954: Native copper at Smithton a correction. Papers and Proceedings of the Royal Society of Tasmania 88: 271, 272.
- Carey, S.W., 1954: The rheid concept in tectonics. *Journal of the Geological Society of Australia* 1: 67–117.
- *CAREY, S.W., 1954: Correlation of the post-Triassic history of Tasmania with secular variation of temperature and viscosity of the sub-crust. *Papers and Proceedings of the Royal Society of Tasmania* 88: 189–191.
- CAREY, S.W., 1954: The geoflex concept and the origin of the Indian Ocean. Report of the Second Pan Indian Ocean Science Association Congress (Perth), Sect. C (1): 1.
- *CAREY, S.W. & BANKS, M.R., 1954: Lower Palaeozoic unconformities in Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 88: 245–269.
- CAREY, S.W., 1954: Fluid geotectonics. News Bulletin of the Geological Society of Australia 2(2): 1–3.

- Carey, S.W., 1955: Wegener's South American-African assembly, fit or misfit? *Geological Magazine* 92: 196–200.
- *CAREY, S.W., 1955: The orocline concept in geotectonics. Papers and Proceedings of the Royal Society of Tasmania 89: 255–288.
- CAREY, S.W., 1955: A new record of glacial grooving near Queenstown, Tasmania. *Australian Journal of Science* 17: 176.
- CAREY, S.W., 1958: The tectonic approach to continental drift. In Carey, S.W. (Ed.): Continental Drift: a symposium. University of Tasmania, Hobart: 177–355.
- Carey, S.W., 1958: The isostrat, a new technique for the analysis of the structure of the Tasmanian Dolerite. *In Carey, S.W.* (Ed.): *Dolerite: a Symposium, University of Tasmania, Hobart:* 130–164.
- Carey, S.W., 1958: Relation of basic intrusions to thickness of sediments. *In Carey*, S.W. (Ed.): *Dolerite: a Symposium*, University of Tasmania, Hobart: 165–169.
- CAREY, S.W., 1958: Note on the columnar jointing in Tasmanian dolerite. In Carey, S.W. (Ed.): Dolerite: a Symposium, University of Tasmania, Hobart: 229, 230.
- Carey, S.W., 1959: North-south asymmetry of the Earth's figure. Science 130: 978, 979.
- CAREY, S.W., 1959: The tectonic approach to the origin of the Indian Ocean. Proceedings of the Third Pan Indian Ocean Science Association Congress (Madagascar): 171–228.
- CAREY, S.W., 1960: The strength of the Earth's crust. *Transactions of the New York Academy of Science* ser. 11, 22: 303–312.
- CAREY, S.W. & AHMAD, N., 1961: Glacial marine sediments their environment and nomenclature. In Raasch, G.E. (Ed.): Geology of the Arctic, Proceedings of the First International Symposium on Arctic Geology University of Toronto Press, Toronto: 865–894.
- CAREY, S.W., 1961: Palaeomagnetic evidence relevant to a change in the Earth's radius. *Nature* 190: 36.
- CAREY, S.W., 1962: Folding. 3rd Honorary Anniversary Address. Journal of the Alberta Society of Petroleum Geologists 10(3): 95–144.
- CAREY, S.W., 1962: Plegamiento. Extracto de Notas y Communicaciones del Instituto Geologico y Minero de España 74: 75–142.
- CAREY, S.W., 1962: Scale of geotectonic phenomena. Journal of the Geological Society of India 3: 97–105.
- CAREY, S.W., 1962: Escala de los Fenomenos Geotectonicos. Extracto de Notas y Communicaciones del Instituto Geologico y Minero de España 72: 277–288.
- CAREY, S.W., 1963: The asymmetry of the Earth. Presidential address, ANZAAS Sec. C. Australian Journal of Science 25: 369–383, 479–488.
- CAREY, S.W., 1963: Syntaphral tectonics. In Carey S.W. (Ed.): Syntaphral Tectonics and Diagenesis a Symposium. University of Tasmania, Hobart: B1–7.
- CAREY, S.W., 1967: 2000 A.D. Prognosis. Medical Journal of Australia 1: 1235–1242.
- CAREY, S.W., 1967: Orthodoxy, heresy and discovery. Stanley Memorial Lecture. Annual Report and Proceedings of the Papua and New Guinea Science Society 18: 45–59.
- CAREY, S.W., 1969: Tectonic framework of the Sydney Basin. *In* Engel, B.A. (Convenor): *Advances in the Study of the Sydney Basin*. Abstracts of the Fourth Newcastle Symposium. University of Newcastle, Newcastle: 53–59.
- CAREY, S.W., 1970: Australia, New Guinea and Melanesia in the current revolution in concepts of the evolution of the Earth. Presidential address, 42nd ANZAAS Congress, Port Moresby. Search 1: 178–189.
- CAREY, S.W., 1972: The face of the Earth. Australian Natural History 17: 254–257.
- CAREY, S.W., 1973: Major features of the Pacific and the "New Global Tectonics". *In Coleman, P.J.* (Ed.): *The Eastern*

- Pacific: Island Arcs, Marginal Seas, Geochemistry. University of W.A. Press, Perth: 103, 104.
- CAREY, S.W., 1973: Review of "A global approach to geology: the background of a mineral exploration strategy based on significant form in the patterning of the Earth's crust" by B.B. Brock. *Tectonophysics* 18: 391–393.
- CAREY, S.W., 1973: Non Uniformitarianism. 4th Bertrand Russell Memorial Lecture, Flinders University, Flinders Science Journal 1(1973): 2–17.
- Carey, S.W., 1975: The expanding earth an essay review. *Earth Science Reviews* 11: 105–143.
- Carey, S.W., 1975: Tectonic evolution of south-east Asia. Fourth Indonesian Petroleum Congress Preprint 1: 1–31.
- CAREY, S.W., 1975: Palaeomagnetism and earth expansion. *Chayanica Geologica* 1: 152–195.
- CAREY, S.W., 1975: Earth expansion: the face of the earth; the necessity of expansion; the subduction myth. *In Messel*, H. & Butler, S.T. (Eds): *Our Earth*. Shakespeare Head Press, Sydney: 105–167.
- CAREY, S.W.,1975: Review of "Gravity and tectonics" (the van Bemmelen Volume). De Jong, K.A. & Scholten, R. (Eds): *Tectonophysics* 27: 297, 298.
- CAREY, S.W., 1975: The subduction myth. South East Asia Petroleum Association Proceedings 11: 41-69.
- CAREY, S.W., 1976: *The Expanding Earth*. Elsevier, Amsterdam: 488 pp.
- *CAREY, S.W., 1978: A philosophy of the earth and universe. Papers and Proceedings of the Royal Society of Tasmania 112: 5–19.
- CAREY, S.W., 1980: Causes of sea-level oscillations. *Proceedings of the Royal Society of Victoria* 92: 13–17.
- CAREY, S.W., 1981: The Expanding Earth a Symposium. Earth Resources Foundation, Sydney: 423 pp.
- Carey, S.W., 1981: Evolution of beliefs on the nature and origin of the earth. Convener's introduction, *In* Carey, S.W. (Ed.): *The Expanding Earth a Symposium*. Earth Resources Foundation, Sydney: 3–7.
- CAREY, S.W., 1981: Tethys and her forebears. *In Carey*, S.W. (Ed.): *The Expanding Earth a Symposium*. Earth Resources Foundation, Sydney: 169–187.
- CAREY, S.W., 1981: Earth expansion and the null universe. *In* Carey, S.W. (Ed.): *The Expanding Earth a Symposium*. Earth Resources Foundation, Sydney: 367–396.
- Carey, S.W., 1981: The necessity for Earth expansion Convener's review. *In Carey, S.W.* (Ed.): *The Expanding Earth a Symposium.* Earth Resources Foundation, Sydney: 375–393.
- CAREY, S.W., 1982: Genesis of the Himalayan system from Turkey to Burma. *Miscellaneous Publications of the Geological Survey of India* 1: 401–416.
- Carey, S.W., 1986: Genesis of Proterozoic banded-iron formation. Journal of the Geological Society of India 18: 223–226.
- Carey, S.W., 1986: Diagenetic krikogenesis. *In* Wezel, F.C. (Ed.): *The Origin of Arcs.* Elsevier, Amsterdam: 1–40.
- CAREY, S.W., 1986: *La terra in espansione*, G. Scaleri (trans.): Laterza, Roma-Bari: 346 pp.
- CAREY, S.W., 1986: Geotectonic setting of Australasia. In Glenie, R.C. (Ed.): Second South-Eastern Australian Oil Exploration Symposium. Petroleum Exploration Society of Australia, Melbourne: 3–25.
- CAREY, S.W., 1987: Tethys and her forebears, *In* McKenzie, K.G. (Ed.): *Shallow Tethys 2*. Balkema, Rotterdam: 3–30.
- Carey, S.W., 1988: Theories of the Earth and Universe: a History of Dogma in the Earth Sciences. Stanford, Stanford University Press, Stanford: 413 pp.
- CAREY, S.W., 1990: Knight Errant of Science. *In* Branagan, D.F. (Ed.): *Sir Edgeworth David Memorial Oration*. Australasian Mineral Heritage Trust and others, Brown, Prior and Anderson, Burwood: 1–54.

- CAREY, S.W., 1990: Fifty years of oil search. In Carman, G.J. & Carman, Z. (Eds): Petroleum Exploration in Papua New Guinea. PNG Chamber of Mines and Petroleum, Port Moresby: 17–26.
- CAREY, S.W., (as Keri, U.) 1991: V poiskakh zakonomernstei razvitiia zemli i vselennoi: istoriia dogm v naukakh o zemle. Borisova, B.A., Kutuzovoi, N.I. & Antilova, M.P. (Transl.). Mir, Moscow: 447 pp.
- CAREY, S.W., 1996: Earth, Universe, Cosmos. University of Tasmania Press, Hobart: 258 pp.

(accepted 24 November 2003)