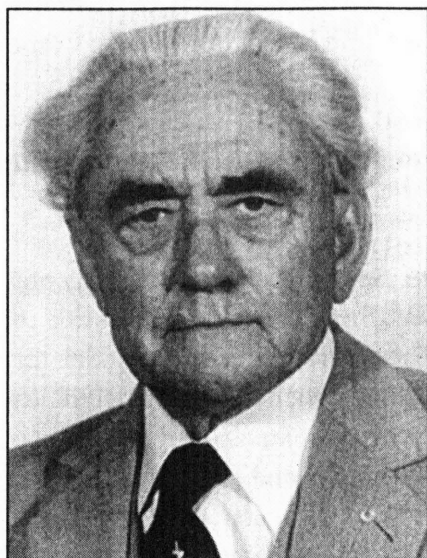


Samuel Warren Carey (1911-2002)

We have learnt with deep regret the passing away of Samuel Warren Carey, our Fellow from Australia on 20 March 2002 at a private hospital in Hobart, Tasmania. Prof. Carey was a colourful personality who charmed generations of students by his eloquence and his original ideas on the way the earth works. He had many admirers in India and was elected as a Fellow of the Geological Society of India as early as in 1968. He also contributed a paper in an early number of the Journal entitled 'Scale of Geotectonic Phenomena' (*JGSI*, v.2, pp.97-105). This is a sample of his keen interest in problems of geotectonics. He continued to keep his contacts with India mainly through his students. He attended the Annual General Meeting of the Society held at Dharwar in May 1985. We had then an opportunity of hearing him. Although past 75 years and hard of hearing he could still hold the attention of audience through his eloquence.



Samuel Warren Carey

He presented a picture of banded iron formation, its characteristic cyclic stratification in a hierarchy of scales – megacycles on a scale of hundreds of metres, macrobands on a scale of metres and mesobands on a scale of centimetres and microbands on a millimetre scale, all of which could be correlated between drill holes hundreds of km apart and hopefully eventually between continents. The commonly accepted view was that banded iron formations were the result of chemical and biochemical precipitation from sea water. Carey argued that sea water was incapable of quantitatively transporting in solution such large masses of iron and silica. Instead he presented a picture of Proterozoic landscape – a landscape which was as bare as that of Mars and lashed by gusty winds and sand storms charged with iron dust. The deposition of iron-rich sediments, was thus analogous to that of loess.

Prof. Carey in later years championed the cause of expanding earth. According to him Proterozoic earth was only half the size of the present day earth and did not have great oceans. Banded iron formations resulted from cyclic interruption of normal clastic sediments by carbonate dust storms. Rising load pressure and temperature during burial and diagenesis transformed siderite to haematite and magnetite, and chert into quartz.

He was a great supporter of the theory of continental drift. The theory centred round the grouping of the southern continents into a single supercontinent called Gondwana. India was at the center of the debate on the grouping and subsequent displacement of continents.

Carey was born near Campbelltown, New South Wales, Australia, on 1st November 1911 and had his early schooling at Campbelltown and at Canterbury High School securing high grades. He completed his college education at Sydney in 1929 with physics, chemistry and mathematics as his main subjects and geology as a fourth fill-in subject. He graduated with first class honours in geology in 1932 and took his Master's degree in 1934.

He then joined a group engaged in search for oil in Papua New Guinea (1934-1938) and explored in remote areas not visited by white men till then. He was senior geologist in Australian Petroleum Company, Papua (1938-1942), Australian Imperial Forces paratrooper, Captain, New Guinea (1942-1944). The theory of continental drift attracted his attention and he organized an international symposium on that subject in 1956 at Hobart. He became interested in geodynamic aspects, involving movement of crustal blocks on a large scale. He wrote a thesis entitled, 'Tectonic Evolution of New Guinea and Melanesia' which secured for him doctoral degree from the University of Sydney.

Great war II caused many upsets in his career. End of war made him move to Tasmania as Chief Government Geologist. In 1946 he was appointed as Professor of Geology at the University of Tasmania. The peaceful atmosphere at Tasmania brought all his latent abilities to the surface and he very soon became a great teacher, attracting students from all over the world. The small university at Tasmania became famous for students who loved to hear his lectures. He was a leader in the academic environment and a respected thorn in the side of many a Vice-Chancellor. Carey retired as Professor of Geology in 1976. Prof. Carey was the President of the Geological Society of Australia during 1977-1978. He was honoured by the award of the Gondwanaland Medal in 1963, the Clark Medal in 1969 and the Johnston Medal in 1976.

His colleagues and friends making an assessment of his work state "He was not a narrow scientist but one who saw geology as the great integrating science and used this philosophy to pull together a vast amount of knowledge into his tectonic theories. These theories were commonly controversial and not fully accepted internationally but they have stimulated large professional interest and study. Many of his ideas are now mainstream and are used by scientists who may not even realize the source of a concept they employ on a daily basis". Some geologists subscribe to "Torsional Tectonics" as a framework for earth expansion. The torsional tectonic model for earth extrapolates crustal scale boudinage to global scales. According to them, 'torsional tectonics transcends plate tectonics, combining global expressions of compression, extension and shear in a single integrated torsional framework for palaeogeographic reconstruction and ore deposits.'

He will be remembered as one who initiated ideas, stimulated students at all levels and produced an impressive community of leading scientists in geology and geophysics. Many came from leading overseas universities. All speak glowingly of the influence of Professor Carey in their scientific development. J. Swami Nath, former Director General, Geological Survey of India and a former student of Professor Carey pays his tribute to him in this issue (p.118).

The Australian Society of Exploration Geophysicists have accorded him a position as Founding Father of Geology and Geophysics in Australia. I am indebted to the Newsletter 'Preview' of the Australian Society of Exploration Geophysicists for information on the early life and work of Professor Carey.

Professor Carey's major contributions to geology and geophysics were in the fields of structure and tectonics, especially as a world expert and proponent of continental drift. A major plank in his work was the concept of major earth expansion and he carried out an exhaustive analysis of palaeomagnetic and other geophysical and geological data to provide support for his thesis.

Professor S. Warren Carey died peacefully on 20th March 2002. The Geological Society of India mourns his death and pays its tribute to this distinguished Fellow who had a soft corner for India and its geologists.

B.P. RADHAKRISHNA