

The parachute of Colonel Vladimir Komarov failed to open on re-entry from space on 25 April 1967, and he died as the first man during a space flight. While still mourning the death of the Apollo 1 crew, [see Title 147] the further death of cosmonaut Komarov only three months later convinced me that deaths were inevitable in the progress of science, and I immediately wrote an article for the *Daily Telegraph* entitled "Space Martyrs". They never published it, but when I was editing *Interdisciplinary Science Reviews*, I published it as an Editorial in 1986 as a tribute to the Challenger crew whose Shuttle exploded soon after the start. [See I S R Vol 11, No 4, p. 321, 1986]

I made only one point in my article: Many had given their life to gain new knowledge, but their deaths had never discouraged other scientists from following them, to gain new knowledge and to make exploration safer. I gave many examples and started with intrepid balloonists, as for example Tissandier, Croce-Spinelli and Sivel. In 1875 they rose in their balloon *Zenith* to 8.5 km to test oxygen breathing equipment. Tissandier alone survived, later to become Editor of *La Nature*.

Among the pioneers of flight Otto Lilienthal, whose experimental glider crashed in 1896, will always be remembered. Many other early aviators paid with their lives, among them the Swedish balloonist A.S. Andrée, who tried in 1897 to reach the North Pole from Spitsbergen. Also in the Arctic, William Berens died in the Arctic Ocean in 1597, Henry Hudson in 1611 and Sir John Franklin in 1847, but their deaths did not deter others who followed them. And so it was in the Antarctic, where the deaths of Captain Scott and his party in 1911 only encouraged a later generation with better techniques, like Admiral Byrd with his aircraft.

Among the land explorers was Dr Leichhardt in 1848, who tried to find the over-land route across Australia, but never came back. The slow radiation death of Marie Curie in 1934 must also be a reminder that the unknown is never completely safe and that safety, even in the laboratory, must never be taken for granted. Medical researchers who tried new experiments on their own bodies learnt this lesson too late, when they exceeded the limits of safety. One of the early frogmen who paid the ultimate penalty in 1962, was Peter Small, who tried a mixed-gas atmosphere at 350 m depth off the coast of California, but never reached the surface again.

I finished with a quotation from Alfred, Lord Tennyson [1809-1892]:

"All experience is an arch wherethro'  
Gleams that untravell'd world, whose margin fades  
For ever and for ever when I move."