

# Charles Kimberlin (Bob) Brain (1931–2023)

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## African naturalist and trailblazer in the taphonomy of human origins

**H**uman evolutionary studies lost a monumental figure on 6 June 2023, when Charles Kimberlin (Bob) Brain died at his home in Irene, South Africa. Bob's interest in the natural world was expansive. He worked comfortably on topics in both the biosphere and the fossil record, applying what he learned about cause-and-effect in today's world to interpret the past. In doing so, by the 1960s he had become a major figure in the development of palaeoanthropological taphonomy, a discipline that is concerned with the post-mortem alteration of bones and how these changes affect our understanding of human evolution.

Famously, Bob demonstrated that fossil assemblages from several Plio-Pleistocene cave sites in South Africa more closely resemble the bony residues of carnivore meals than they do those generated by the hunting activities of modern humans. Moreover, Bob recognized that some hominid fossils show damage identical to that on the bones of modern animals that were eaten by carnivores. Those results – summarized in the now-classic text *The Hunters or the Hunted? An Introduction to African Cave Taphonomy* (1981) – contradicted the prevailing scientific and pop-culture perception that prehistoric ancestors of humans were rapacious 'killer apes', as dramatized in the book *African Genesis* (1961) by playwright Robert Ardrey and in Stanley Kubrick's film *2001: A Space Odyssey*. When Bob presented Raymond Dart (the architect of the 'killer ape' hypothesis) with his natural explanations for damage to ancient bones, Dart was initially stunned but then embraced the idea, nominating Bob for a scientific prize. True to his own experience, Bob always said that science advances through challenges to the accepted wisdom. He, himself, never hesitated to change his mind when new information surfaced or a new interpretation better suited the evidence.

*The Hunters or the Hunted?* stands today as testament to the efficacy of the comparative method and to the power of clear thought, careful reasoning and exacting research. Bob's work on the Swartkrans karst cave



site in South Africa is similarly internationally renowned – for example, *Swartkrans: A Cave's Chronicle of Early Man* (1993). But this is only a partial appreciation of the man who, at every turn, mentioned how much fun it was to conduct science. Bob found joy in his every scientific undertaking, from challenging grand paradigms to practical tasks, such as developing methods to catch lizards for study by 'means of a rubber band.' (C. K. Brain. *Transvaal Mus. Bull.* 3; 1959). Bob's ability to produce important contributions spanned geology, ethology, ethnography, ecology, taxonomy, palaeontology and archaeology. It was rooted in his holistic embrace of the natural world and in his sprawling imagination. The unique charisma by which he expressed these attributes is revealed in his speculation, during a James Arthur Lecture on the Evolution of the Human Brain presented at the American Museum of Natural History in 2000, that some of the giant squids are "very

large and it is quite conceivable that the neural hardware needed for a fully technologically competent squid could be accommodated in one of these animals if selective pressures developed to drive the process. It would be fun to see such creatures 'conquering the land' in their water-filled 'squidmobiles.'" All of Bob's papers and talks were delivered in the same calm, matter-of-fact style, punctuated with wit and anecdote. They transported his audience to the remote past. Indeed, it was Bob's personality, as much as his science, that engaged so many others to take up the study of dank caverns, mouldering bones and old artefacts. Bob rewarded acolytes with collegiality that exceeded all expectation, opening his site, his laboratory and even his home to friends and fellow scientists.

Home and family were pillars of Bob's life. His wife Laura (née Kraan) and their children, Rosemary, Virginia, Tim and Conrad, were Bob's regular research collaborators on

sundry projects over the years. Such an arrangement was second nature to a man who had been immersed in natural history since his very earliest days. Bob was born on 7 May 1931 in Salisbury, Rhodesia (now Harare, Zimbabwe) to a botanist mother and entomologist father. He matriculated in 1947 and then completed a BSc in zoology and geology (1951) and a PhD in geology (1957) at the University of Cape Town. Between 1954 and 1995, Bob held diverse positions at various museums in southern Africa, including the directorship of the Transvaal Museum (South Africa) from 1968–1991. He co-founded the Namib Desert (Namibia) Research Station in 1959, which continues today as a premier institution for the study of desert ecology. Among Bob's many professional society presidencies were those of the South African Biological Society and the Palaeontological Society of Southern Africa. He held various honorary DSc degrees, received a multitude of awards for his scientific work and was recognized in 1984 as an A-rated scientist by South Africa's National Research Foundation.

Bob's long tenure at the Transvaal Museum kept him close to South Africa's 'Cradle of Humankind' fossil caves. It was his palaeontological research there, combined with his pioneering work on modern bones, that falsified the 'killer ape' hypothesis. Bob's work was a fundamental step that led to the more

nuanced view that, although aggression is indeed an important feature of being human, it is just one of many characteristics that led our lineage to become the dominant vertebrate lifeform today. Oddly, Bob's own instinct about humanity was in some ways closer to the older, pessimistic view that he overturned. His late career took him back to Namibia where he surveyed Neoproterozoic limestones for fossils of the earliest animals. In some ways, Bob held animals in rather low regard; he found it "quite disgusting, really" (in T.R.P.'s *Rough and Tumble: Aggression, Hunting, and Human Evolution* (2013)) that their survival depended on the regular ingestion of other organisms. For although he was a towering intellect and a venerated scientist, Bob was also a man with the gentlest of souls. He not only had an unquenchable curiosity about the natural world, but he also sought communion with it. This is surely why he loved Swartkrans – a site with a special aura that provides a link with past life that helps us to understand humanity as just one part of nature.

Bob, then well into his eighties, once visited the family of one of us (T.R.P.) in the USA. As was his habit, he took many walks and one day he returned cradling a large bouquet of seed-head dandelions. When teased about collecting weeds, he would not hear of it. Without a shred of pretence, he explained the intricate beauty of each and every connected

structure – its scape and bracts, pappus and achenes – that gives a dandelion its elegant functionality. The world is a poorer place for having lost such an advocate of nature in all its manifold expressions.

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#### Competing interests

The authors declare no competing interests.

#### Additional information

All four authors had a long association with Bob Brain and are members of the Swartkrans Palaeoanthropology Research Project, which has been affiliated with the University of the Witwatersrand since 2005.