OVERBERG GEOSCIENTISTS GROUP (OGG)

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Obituary: Professor Stephen (Steve) Edward Haggerty

April 11, 1938 – January 2, 2026

Introduction

Steve Edward Haggerty was born on April 11, 1938, in Primrose, Germiston in the eastern suburbs of Johannesburg (East Rand), South Africa. Germiston was generally regarded as a less-posh middle-class suburb of the City of Johannesburg. He was often teased about his East Rand origins. At the time of his death Steve held the position of Distinguished Research Professor, Florida International University (FIU), in Miami (USA) where he had been since 2002.

The locality of Steve's South African birthplace, in the famous Witwatersrand Gold Basin, some 50 kms downwind from the Bushveld Complex and the Premier Diamond Mine, helped him overcome an initial strong desire to study nuclear physics. His first job out of school in 1957 (age 19) was as a Bench Chemist at the Umfolozi Sugar Mill, located in Mtubatuba in KwaZulu-Natal Province, on the east coast of South Africa. His monthly pay-packet was £5 (5 Pounds).

From the point that he completed his senior schooling in the East-Rand, Steve was set on going abroad to further his career. In 1957 he completed a Diploma in sugar manufacturing at *City & Guilds*, in London, then returned home to do a Technical Mining course at the Johannesburg Technikon in 1958. He received the Mine Assay Prize for good work, whereupon he emigrated to Canada, spending a year under canvas around James Bay. He gained important experience working for the Leith Gold Mining Company in 1960, then took up a position as a technician in the Department of Physics and Geophysics at Imperial College, London. And his lifetime career in geology was firmly on track.

Steve graduated from the Royal School of Mines in Economic Geology in 1964, followed by a Diploma in Mineral Exploration. He received his PhD from the University of London in 1968 for his work on the mineralogy of rock magnetism.

A three-year (1968–1972) Post-doctoral Carnegie Fellowship followed at the Geophysical Laboratory in Washington, D.C., and from 1972 Steve built an illustrious career in the Geology Department at the University of Massachusetts.

University of Massachusetts (1972–2001)

Steve's major interests were initially in reflected-light microscopy, magnetic mineralogy, and oxidation-reduction systems relevant to magmatic ore deposits and igneous petrogenesis. His research revolved around the Fe-Ti-O systematics of key lunar and mantle minerals, initially becoming an expert on the early lunar samples and meteorites and later progressing to diamonds and the evolution of the earth's upper mantle.

He was a Principal Investigator for 10 years in the U.S. Apollo manned and Soviet Union unmanned lunar sample return programs, and served on the Lunar Sample Analysis Planning Team. His research interests and projects progressed to Earth-bound and mantle-dedicated studies of kimberlites, carbonatites, and associated alkali rocks and their xenoliths. Beyond field projects in west and southern Africa, he also worked in Brazil, Australia, Syria, Siberia, China and Liberia.

As Steve's career progressed and lunar science work slowed, Steve reacquainted himself with his country of birth, and threw himself into diamond and mantle studies. He built important long-term relationships with the De Beers Geology Group, Geoscientists at the University of Cape Town Geochemistry Department, other South African Geoscience Institutions and like-minded industry and university geologists and mineralogists around the globe.

In 2000, Steve was awarded a Fullbright Scholarship (September 2000-February 2001) and, as a world-leading specialist on diamonds, he went to Hyderabad (south-central India), to conduct research in the original home of natural diamond deposits, with a history stretching back some 2000 years. He spent his Fulbright year studying Indian diamond-bearing rocks and diamonds, a project with important implications for India's economy. Some of the world's most famous diamonds have come from India. In the early years of kimberlite and lamproite research there was uncertainty as to the origin of these exceptional Indian stones, including the famous Hope Diamond. The majority of Indian diamonds were recovered from alluvial deposits in the Krishna River and adjacent drainages, and their origin was perplexing to Steve.

Subsequent field studies, mapping, sampling and petrological work on the many sparsely diamondiferous Proterozoic lamproites of Andrah Pradesh in south-eastern India, and adjacent areas, have linked the origin of these large and special Golconda diamonds, to the 1200 million year (Ma) kimberlites and lamproites, fulfilling Steve's early comments about the importance of "*using the appropriate levels of sophistication in our exploration*"

In January 2001, following his *Fullbright Scholarship* and work on the Diamond deposits of Africa and India, Steve participated in a White House conference on *Blood Diamonds*. At this Conference, he provided scientific basis for the identification and recognition of sources of these diamonds, as essential for the implementation of the Clean Diamonds Act then before Congress. "*As a geologist*" Steve commented, "*it's an opportunity for me to play a deep role in our society. We now have the chance to play a part in terminating the source of funding for these rebels. It's something I feel very deeply about*".

In November 2002, the Kimberley Process Certification Scheme (KPCS) was signed in Switzerland, following closely on the footsteps of the Clean Diamond Act of 2001.

Florida International University (FIU), Miami (2002 – 2026)

In 2001, Steve moved to take-up a professorship position at FIU, and pursue his passion for diamonds and mantle rocks. This second-part of his career is well known to his original scientific colleagues, and younger generations of academic and industry Kimberlite/Lamproite explorationists, geologists, petrologists and mineralogists who had the good fortune to interact with this ''larger than life'' character. His approach focussed on using diamonds as a proverbial window to Earth's deep interior. Diamonds are pure carbon and natural antiques

(going back to about 3.2 billion years) that form at depths greater than 200 km in selectively old, cold and stable continental cratons.

Brought to the surface volcanically in explosive kimberlite and lamproite pipes, diamonds represent an enormously valuable repository of information, including the formation of the early primordial Earth, sources of carbon, processes of fractionation, magmatic evolutionary events, and the formation and volcanological processes that triggered these source rocks. Likewise, the fascinating source or host rocks provided a stunning collection of diamonds, diamond inclusions, and great variety of mantle xenoliths (nodules), including peridotites, eclogites, megacrysts and metasomatized nodules, unique samples of Earth's deep interior.

Significantly, the Kimberley diamond mines, mined from the early 1870's, where Steve focussed his early mantle xenolith studies, were home to a remarkable collection of wonderfully preserved xenoliths. This was due to procedures used in early years of mining and diamond extraction (processing). At that time (late-1800's to early-1900's) there were no large jaw-crushers and aggressive rock-comminution equipment, as in subsequent more modern diamond processing and liberation plant circuits.

Hence, the early diamond mines of Kimberley, Cullinan and Jagersfontein provided unmatched windows into the Earths deep-mantle. This point was often highlighted by Steve on his South African sampling visits, and recognised by many of his famous colleagues and students of John Gurney, Peter Nixon and others. Numerous local and international research studies followed, documented in PhD's, MSc's and scientific publications, helping to unlock the structure, fabric and composition of the lower crust, lithosphere and deep mantle.

The progressive development of more effective modern mine crushing and comminution circuits, which largely destroyed the fabric, textures and compositional integrity of mantle xenoliths, followed. This included kimberlites mined in Russia, Australia and Canada, where fewer representative, whole xenolith samples were forthcoming. Thereby, providing less comprehensive and detailed insight into mantle compositions and processes, compared to the information gathered from xenolith assemblages recovered from the residue dumps of the earliest Kimberley, Cullinan and Jagersfontein mines.

Steve's research work became more wide-ranging over time, including revisiting some of his earlier pursuits. This included Brazil, India, South Africa, and West African localities, research on the Cosmos (pre-solar diamonds greater than 4.5 billion years old), and investigation of the enigmatic origin of black and porous carbonado-diamond.

West Africa was a long-term favourite of Steve's. Initially Sierra Leone and subsequently Liberia, where he worked with long-standing friend Roger Youssef on little known and poorly documented diamondiferous kimberlites and lamproites. Their work in Liberia also led to the identification of a specific plant, the thorny *Pandanus candelabrum*, that thrives off the potassium-, phosphorous-, and magnesium-rich soils that sit above lamproite pipes. This discovery, highlighted the importance of recognising non-traditional 'pathfinding' plant species to assist in the identification of lamproite and kimberlite source rocks in the heavily forested areas of West Africa. Steve's broader geological skills were considerable, and given his passion for Liberia he assisted and advised from time to time on gold projects and geophysical exploration methods.

The mineral Haggertyite is named after Steve. Haggertyite is a rare barium, iron, magnesium, titanate mineral (Ba(Fe6Ti5Mg)O19) first described in 1996 from the Crater of Diamonds State Park near Murfreesboro (Pike County, Arkansas, USA). The microscopic metallic mineral crystallizes in the hexagonal system and forms tiny hexagonal plates associated with richterite and serpentinized olivine of mafic xenoliths in the lamproite host rock. An iron(II) rich member of the magnetoplumbite group, it is a light grey opaque mineral with Mohs hardness of 5.

Lecturing and Student Mentoring

Apart from being a voracious and passionate researcher, Steve was a committed and enthusiastic teacher and lecturer. His teaching style centred on making it clear to students from the outset that the origin of life on Earth is poorly understood and that once humans become extinct, we will never reappear. Steve particularly emphasized the importance of continually striving to know more about the Earth we walk upon, live on and love.

In recent years Steve interacted regularly with young academics and students at the Department of Geosciences from the University of Cape Town (UCT). An environment and institution at which he spent many days and nights, interacting with well-known academics including Tony Erlank, John Gurney, Arch Reid and others, and research students, through the 1980's to 2000's.

Steve was particularly interested in facilitating access to sample material from West African kimberlites and lamproites for research work by academic staff and research students worldwide, but more specifically the young team looking to rebuild mantle and kimberlite studies at UCT. Several abstracts and papers on the Liberian and Sierra Leone kimberlites and lamproites were presented and published following the Geological Society of South Africa (GSSA) Geocongress in Stellenbosch in January 2023, the 12thIKC in Yellowknife (Canada) in June 2024, and in 2025, with Steve as a co-author.

Contributions from colleagues and friends

Professors Steve Shirey and Lewis Ashwal - In 1971, Steve Haggerty was a young University of Massachusetts professor, fresh from his Geophysical Laboratory post-doctoral fellowship where he had worked with the renowned Carnegie staff members, Don Lindsley and Joe Boyd. We took Steve's first Economic Geology course in the fall of 1972. One of Steve's goals in this course was to raise awareness and understanding of oxides and sulfides, opaque in reflected light, to the level of appreciation given to the optical mineralogy of silicates and carbonates. It was a case of *Mission accomplished*, given Steve's teaching skills and passion for the subject.

In that class, we got to examine polished thin sections (PTS) in detail from Steve's PhD dissertation research. These PTS included the textures revealing the now famous oxyexsolution process in the magnetite-ulvöspinel and ilmenite-titanohematite series that were responsible for the magnetic anomalies on the ocean floor, the key essential component that proved the then, brand new theory of Plate Tectonics, articulated by Fred Vine, Drummond Matthews, and Lawrence Morley Vine, 9 years earlier (1963).

These were the days when Apollo samples were arriving from the Moon and Steve was charged by NASA to use the oxides to figure out the oxidation state of Lunar basalts. The

oxidation state turned out to be incredibly low which remains a fundamental difference between the Moon and the Earth. We weren't allowed to look at these samples - but we heard All about them. He discovered a new lunar Fe-Ti oxide mineral that he named "armalcolite" for the 3 Apollo astronauts Armstrong, Aldrin and Collins. They were exciting times. Steve was beyond masterful in his job to the point of being so intense that he was even a bit scary to the new students. Economic Geology lectures began at 8am and you dare not be late. Steve walked into the department from the town of Amherst to arrive in the lab at 4am. By the time we arrived in class he had been at research and lecture prep for 4 hours! It is a pleasure and a wonder to have watched Steve maintain that passion until the end.

Not long ago, Lew had occasion to introduce Steve at a talk he was giving at Wits. He did so as follows: The name Steve Haggerty brings one word to mind - *AWE*. Some of this had to do with what he would get up to at the Lunar & Planetary Science Conferences in the 70s and 80s (picture Steve on top of a bar table with no shirt on, shouting the Zulu War Dance at loud volume). But of course, it goes beyond that - his scientific expertise included basalts, kimberlites, komatiites, diamonds, meteorites, moon rocks, and anything to do with Fe-Ti oxides. At a recent conference, Steve sang a little ditty to glorify his colleague John Gurney, and Lew added a verse (to the tune of *Oh My Darling*):

Oh my haggertyite, oh my armalcolite*
Oh my zirconium-rich ferropseudobrookite
Oh my olivine, altered to serpentine
Serpentine and magnetite…..

[*$Ba(Fe^{2+}_6Ti_5Mg)O_{19}$, - first described in 1998 by Grey et al., *American Mineralogist*]

Margie Hawthorne (Wife of the late diamond industry legend, Barry Hawthorne) - I was so sad to hear of Steve's passing. It was an honour, a privilege and a whole lot of fun knowing him, the boy from Germiston who made good. We met 53 years ago at the first International Kimberlite Conference (IKC) held at the University of Cape Town (UCT) in 1973. Then again in 1975 at the first De Beers Kimberlite and Diamond Conference in Cambridge. Those conferences were such fun, as those who attended will surely remember. The scientific excellence, the field trips, the parties and above all, the friends made. A Kimberlite "family" was born and Steve was truly one of its leading lights, especially with his rendering of "Lucille", that was sung at the banquet, on the bus, the plane and at the airport.

Barry and I were guests at his home in Amherst, where one evening we were entertained by the parents and newly born family of raccoons. So many crazy moments and fond memories of a truly remarkable "Kimberlite" legend. You picked a "sad" time to leave us …RIP Steve

***Dr Linda Tompkin*s** – My recollection of Steve was that he explored our planetary system from the lunar surface, to the bowels of the Earth's upper mantle, through the lens of the "*noble oxides*" like no other mineralogist ever had, and likely ever will. It was in my first minerology class with Steve at U Mass in September, 1978, which I will never forget. His 45-minute lecture on planetary science cemented my decision to pursue a geology degree, and further propelled my early passion for diamonds and kimberlites. I quickly learned the importance of oxide minerals. Steve always referred to the Reviews in Mineralogy on Oxide Minerals as "*the Bible*", and as his student I was expected to have with me at all times my

personal signed copy and, of course, know every detail on the chapters by Stephen E Haggerty.

Steve believed that every geologist should have a favourite element, and titanium was his favourite. With his love of Africa, highlights of my student days were exploration expeditions to Guinea and field sampling at Koidu in Sierra Leone in 1981, and a subsequent visit to his beloved Jagersfontein kimberlite in South Africa. Steve always brought tape cassettes of songs by Willie Nelson, which he would play constantly, and sing along to, while travelling in Africa.

As a larger-than-life figure, Steve had a significant influence on my professional geology career. Evidence of Steves life-long dedication to diamonds, kimberlites, and the oxides is that his diligent lab work combined with his passion for boots on the ground exploration, never faded even in his later years. A truly remarkable career on planet Earth. May you be at peace my Friend.

Dr Paul Toft – Paul, a contemporary of Linda Tompkins, was another student that benefited considerably from the positive influence and passion of Steve's teaching and expectations of his students. Likewise, Steve's assistance with placements, and longer-term engagement with research projects and publications as his protégée developed their academic and industry careers, benefited many of his protégé. In Paul's case, he has benefited from work on xenoliths from west African kimberlites, authored and coauthored a large number of research publications with Steve and others, on the crustal and cratonic structure, depth of magnetisation, and petrophysical characterization of the lower crust and Moho of the West African Craton.

At the time of compiling this obituary for Steve, Paul was hospitalized, but requested that we note his great respect and thanks for the impact Steve had on his education and career, and pass on his condolences to Tanya, Steve's wife.

Dr Paddy Lawless - My earliest personal dealings with Steve centred around a number of amusing encounters at 2ndIKC in 1977 in the USA. The first involved an episode with an armadillo, a scaley nocturnal creature, on the first Field Trip to the Crater of Diamonds National Park at Murfreesboro (Arkansas). The armadillo took exception to being disturbed by a Haggerty-led party of diamond seeking geologists. Steve's and my side-stepping antics, given the feisty nature of the Armadillo, were most amusing for the other excursion participants.

The second was finding what was thought to be the first terrestrial occurrence of armalcolite in a *polymict-peridotite* shortly before the conference. Doubly-polished thin-sections were sent to Steve, who unfortunately confirmed it was not armalcolite but an unusual juxtaposition of wedges of separate minerals which the electron microprobe beam had encountered.

The third event, concerned a misleading, inadvertent typo error in the first line of the long-abstract of our presentation (Lawless, Gurney, Haggerty, 1977). Steve was a stickler for detail and wanted the record set straight without any possibility of misrepresentation. A great character, engaging, 'raconteur', superb scientist, and good friend. RIP Steve.

Dr Lynton Jaques – As a long-term Australian colleague, I fondly recall first meeting Steve at the 3rdIKC meeting in Clermont-Ferrand (France) in 1982. We worked together on the mineralogy and petrology of the Argyle pipe, drawing on his vast knowledge of oxide minerals to sort out some unusual titanate minerals of the hollandite group that we had found. He was a keynote speaker on kimberlites at the IAVCEI meeting we hosted in Canberra in 1993.

He was chuffed when I found *haggertyite* in the groundmass of several of the West Kimberley lamproites - the second locality where it has been found, thus confirming that the initial discovery "wasn't a singularity" to use his words. He certainly was a larger-than-life figure, full of enthusiasm and fun to be around. He will be missed.

R Mark Leckie – I was a colleague of Steve's at U Mass from 1985, a micropaleontologist and paleoceanographer, not a mineralogist. When I started at UMass in September 1985, I was put on our department personnel committee with Steve, comprising 5 faculty, 3 geologists and 2 geographers. One of the tasks of the personnel committee was to evaluate and rank all the faculty based on teaching, research, and service contributions based on the annual faculty reports we all submitted.

I was so stressed out by our discussions of expectations and rankings that I developed heart palpitations! Seriously. I was 29 years old at the time!! I got over it, but what an impression Prof. Haggerty made on this green Assistant Professor. I'm not sure I ever shared that story with him.

Dr Craig Smith - My overriding experiences of Steve were that he lived for the science, the science was done at full speed, with never a thought of slowing down. Those of us fortunate enough to interact with him in lecture rooms, at conferences or on field trips were always impressed by the energy he injected into the proceedings. Steve was both unstoppable and unflappable. This could have been fatal in his West African research having been jailed on trumped up charges during a bout of local political unrest, but he was back in the field when the political situation stabilized somewhat.

I attended a number of field excursions with him, as well as workshops and conferences. In the case of an adventure to China, he out-sang and possibly outdrank the hosts. In Namibia, he drove JJG's (John Gurney's) El Camino vehicle at speed through a dip in the road, blowing out a couple of tyres. Travelling with Steve was an adventure. Whether in his personal or professional capacity, Steve pushed boundaries, sometimes to excess. He was unique, he was an influencer and he will be missed.

Dr John Bristow – As a De Beers geologist based in Kimberley from 1983 to 1989, my lasting recollection of Steve was his frequent trips to Kimberley and spending many, many hours on the old Kimberley Mine Dumps looking for exotic mantle nodules in the blazing mid-summer months of the Northern Cape. A driver would drop Steve off at a chosen Dump in the early morning with a large bottle of Coke, then collect him late afternoon. For whatever reason, he would not wear a hat and hence would initially be 'pink' from the sun-burn. By the end of his visits, he was typically a darker shade of brown.

Then he would document the special xenoliths in the De Beers Geology Department sample register, enthusiastically package them and go back to the University of Cape Town (UCT)

Geochemistry Department, where he spent hours cutting and making initial descriptions of his latest nodule collection.

Dr Russell Sweeney – Busy with a PhD in Geochemistry at UCT at the time, Russell would regularly encounter Steve in the UCT Sample Prep facility and recalls the whoops of joy every time Steve sliced a sample and encountered some new and exotic texture or mineral assemblages in his precious xenolith samples. Like a Kid in a Candy-shop for the first time.

Dr Pat Bartlett - As the De Beers Chief Geologist from 1983 to 2003 for Cullinan (Premier) diamond mine, discovered in 1902 in South Africa, source of the famous 3 106 Cullinan Type-IIa diamond, I have fond and enlightening recollections of Steve and other mantle and diamond experts visiting Cullinan. Steve, Joe Boyd and Peter Nixon used to visit Cullinan regularly for a few days when in South Africa, as the mine maintained an 80 000 tonne emergency ore dump, washed clean by the rain. On appointment as the mine geologist in 1983, I requested the mining-team to please collect any of the easily recognisable nodules they found in the underground workings. One morning I found a 100 kg nodule outside my office door and it was still there later when Steve, Joe and Peter arrived on the mine. They enquired whether they could have the lherzolite for display and research purposes. As far as I am aware the Cullinan nodule was shipped back for display in the Carnegie Institute and may still be there. Steve and his colleagues would spend many hours/days picking over the dump to collect the entire range of nodules that Cullinan produced.

My recollections are of the focus and passion of these remarkable geoscientists in respect of mantle rocks and structure, the effort and hours expended on the emergency-dump and the treasure trove of nodules it yielded. I learnt a great deal about the Proterozoic (1200Ma) Cullinan kimberlite and its xenolith characteristics. A lot of wine was consumed over many stimulating discussions and debates about this particular locality and its exceptional diamonds and mantle xenoliths. And good fun was had by All!

Bill McKechnie - While Steve's name and reputation would always come up in any conversation that involved anything to do with mantle studies and their application to diamond exploration, my first meeting with him was in the early 1990's when he visited De Beers Geology Department in Kimberley and I helped secure permission to visit and sample some of the Kimberley and Jagersontein mine dumps. Our next meetings were at the 1995, 1998 and 2003 International Kimberlite Conferences in Novosobirsk, Cape Town and Yellowkife respectively. I have fond memories of the fun times we had during the mine field visits in Yakutia and the long summer nights there, lubricated with copius amounts of vodka, supplied by our generous hosts. His larger than life character and passion and commitment to mantle and diamond science always shone through. Rest in peace Steve.

Dr Andy Moore – Steve enjoyed stimulating discussion, and a number of us were fortunate to be included in his mails flagging newly published papers, often in prestigious journals, which he felt warranted "discussion". As the recipients included notable dissidents like Paddy Lawless, this self-appointed panel of "censors" did not always show due reverence to publications which appeared to have been selected as potential high-profile contributions to unravelling the planet's geological secrets. One of my very memorable discussions with Steve was on the relevance of the sheared peridotites. The textures of these rocks had originally been ascribed to shearing at the base of the lithosphere. This elegant explanation remains widely accepted, but at the 2ndIKC in Santa Fe (New Mexico, USA), in October, 1977, Jean-

Claude Mercier proposed that the shearing rather formed in the wall rocks surrounding the kimberlite conduit, just prior to kimberlite eruption.

Although these contrasting models have radically different implications for understanding mantle architecture, they do not seem to have been vigorously debated. More recently, Steve attended the January, 2023 Geological Society of South Africa (GSSA) Geocongress in Stellenbosch, and subsequent southern Cape Geological Excursion. At a Workshop on LIPS and Mantle-processes held in Hermanus (southern Cape), Steve expressed the opinion that Mercier was correct – a non-conformist view which I believe will in time be vindicated.

Roger Youssef – As a long term partner in Liberia in a sometimes fractious relationship, the pioneering Liberian kimberlite exploration program and discovery of the *Camp Alpha* kimberlites, has provided fond memories of my lengthy association with Steve. Early stage access and field work at *Camp Alpha* was immensely challenging, given lack of infrastructure and river crossings. Steve and the hard-working and immensely loyal Camp Alpha Liberian Work Team perservered regardless, egged on by Steve's passion for Africa and conviction of the diamond potential of these primary diamond sources. Steve was unstoppable in the field, while my role focussed on the challenging long-term engagement and persistence with the Political heirachy and Mines Department in the Liberian capital, Monrovia.

The entire Camp Alpha Family, and many other rural folk who engaged or knew Steve mourn his passing, and extend their heartfelt respect and condolences to Tatiana, May, and the entire family. He was a giant in his field, and an even greater presence to those who had the privilege of knowing him.

Dr Mark Hutchison **-** Steve fought my corner since the moment we met – even before. On chairing one of the first sessions at the 6thIKC in Novosibirsk in 1995, he specifically referenced my research work, before we had actually met. For me, as an early PhD student, this was a really big deal – Steve was very much a giant in the community already. His ebullience on the content of my final thesis was marked. He was the first to offer me a post-doc position. Later, when my supervisors were involved in a mineral being named after themselves, which I and another student had discovered, Steve was once again in my corner - completely outraged. I can close my eyes and picture him expounding in his lilting South-African accent, full of kind fury. He always had my back - more than anybody else in my professional career.

Plant-based exploration, super-kimberlites and extra-terrestrial diamonds – Steve loved and excelled at lateral thinking. Generating radical ideas, and promoting them with conviction and enthusiasm were character traits which sometimes irritated people, but these endeared me very much to Steve – always stirring the pot with scientific argument. As many others experienced, he was never shy to speak his mind, telling me that my first manuscript could have been a lot better-written. It worked both ways. I pulled him up with suggested improvements, once even returning a paper for 'Major revisions' – I told him. He never seemed to hold it against me. I benefitted enormously from both praise and conflict with Steve.

Steve was far more than just his academic record. Celebrating my birthday together with him at the 6thIKC in Siberia gave me an early and thorough grounding in what fun could be had in the realm of Steve Haggerty – occasions that were repeated at every Kimberlite Conference since, and elsewhere. His toasts were legendary. So, there was far more than that long list of

academic discussions over the years. We discussed the Ebola epidemic in west Africa – which he thankfully avoided. Malaria took some of his friends, and he called the risks 'frightening', but he was ever the adventurer. We corresponded about the origins of the 'Haggerty' name, generating screeds of maps together on its geographic evolution.

Steve's family life was so important to him. Without fail, at any personal meeting Steve would always bring Tatiana, or Tanya as most of us westerners knew her into conversation, making a point of extending her best wishes, including her when she wasn't present. I was always impressed by his unusual thoughtfulness. Steve first met or 'encountered' Tatiana, who is from the Ukraine, at a barbeque on the Makha River in the Aichal district of Siberia (Russia). The barbeque took place in 1990 during an International Diamond Excursion to Russia, including Moscow, Novosibirsk and the Siberian diamond fields. The event included many well know international and Russian kimberlite, diamond and mantle experts and mining experts.

The memories and comments of many of his colleagues who participated in the 1990 Russian adventure, are that Steve was blown away by the young Lady. Steve's powers of persuasion ensured that Tanya was to become his partner, wife and supporter of some 35 years.

When I saw him last, at the 2024 12thIKC in Yellowknife, he was looking older, but still with that ebullient smile, which he carried with him every time I met him over the last 30 years. Steve provided stories, companionship, research samples, he was always there to answer a question on oxides, on sulphides, on diamonds, contributing in small ways to decades and decades of work. It always made me happy to know that Steve was there. I will miss him.

Family contributions

Steve is survived by his wife Tatiana, son Mark from his first marriage, sister May and loving nieces and nephews, their spouses and children. May and niece Cheryllyn, live and care for the Guesthouse and portion of the old mine area at the famous Jagersfontein open-pit mine, first mined in 1871, in the western Free State (South Africa). This was another of Steve's favourite places that he purchased, maintained and visited whenever possible.

Tatiana (Tanya) Haggerty - A cool crisp morning in January 2026, (the day of my birthday) I put Steve's sweater on to keep warm and took a walk, but Steve was not here anymore, and the realization is too difficult to take it all in. Steve was my London, my India, my Africa, my ocean, my encyclopaedia and decision maker all in one. Steve was a meditator of Transcendental Meditation for 60 years. He had an elegance to his approach to art and could distinguish between the difference and goodness in every piece, with this he supported my passion of art and helped me open an art gallery.

Other than Steve's geological work, art became part of our life in India, exploring and meeting fascinating local artists and from there we chose art to take back to the USA for an art exhibition. Slowly I moved into meditation and Buddhism and Steve had fully supported me with enthusiasm and care, eventually becoming a meditation teacher.

A cat shelter "yes" for approximately 18 years and Steve helped every morning with the cleaning and feeding of the cats before going to swim, as this was his favourite way to start and end his day. Aura, our youngest kitty would walk Steve to the door when leaving for the

lab in the morning and was waiting for him when he returned each day. We did not always like the same things, we read different books, expressed ourselves in different areas of life, there is no way I could do what Steve did, but we always supported each other.

I remember our first morning on the beach in Muizenberg near Cape Town. Seeing the southern-ocean for the first time, mesmerizing, waves crashing and Table Mountain watching, a thought came to mind, it was eternity, these waves were here before us and they will be here after us. As Osho put it: never born, never die, just visiting this planet. Maybe we are all just visitors here - No one can say for sure. We can believe what we want to believe, as James Gurney, son of John Gurney put it, hopefully Steve and John can find each other wherever they are roaming.

I would like to express my deepest gratitude to my dear husband Steve for our journey together. I will miss him so much! Also, my deepest gratitude to all the people who were part of the journey with Steve and me. Those who appreciated Steve, his work, laughter, curiosity, character, and passion for whatever he did.

Mark Haggerty - Steve's Son by his first wife, Mark, a businessman, musician and band-member in his youth, was for most part a silent part of his Father's life until more recent years, building a successful business career in the USA and now resident in Baltimore with his wife. After an initially difficult and distant relationship with his father, while Steve built his career, they reconnected in the early-2000's. They started to get to know one another, put the past behind them and move forward.

We rebuilt a meaningful and real father and son relationship. I am very honoured reading recent articles and comments related to Steve's passing, acknowledging his personality, his passions, and his contributions to science, complicated love of his birthplace and his profound ability to push himself to achieve the next level. The obituary words from colleagues go deep and I am very much thankful for that. As well as I know my father, he would be honoured.

May Theron (nee Haggerty) – Steve, as we affectionately called him, was ambitious from a young lad. He played first team rugby, was drum major of the school band, a prefect and a queen scout, belonged to the SPCA (Society for the Prevention of Cruelty to Animals) and would never kill a spider. He left South Africa in February 1959, at the tender age of 19, sailing on the Carnarvon Castle to London, to pursue his dream of becoming a geologist – he nurtured a pocket full of rocks and marbles from the age of 3. The first thing he did was throw his vests, warm woollies and cap overboard (all things worn in the 1950's) carefully packed by our Mom for the cold English winter. I bet he regretted it later as the winter arrived.

Steve was a loving, giving person, always generous with his time and knowledge, he inspired my children, grandchildren and later great grandchildren, telling them all that hard work and determination is the key to a successful life and career. He reached for the stars, was dedicated and hardworking and became all that he set out to achieve in a long and successful lifetime. He grew up to be a man both fair and true.

Steve was proud of his Irish background, which explains his love of music, dance, and a good party. The name Haggerty is an Irish Gaelic surname Ó hÉigceartaigh (or Ó hEigeartaigh), linked to a sept (Clan) from Counties Donegal and Derry, involved in agricultural and stone

masonry. Most of all, they were noted for their *stalwart character, progressiveness and intelligence*.

Memories we shared as kids still and always will provide me with happiness and joy, I was his proud and adoring Sister, called him my Big Brother, my Diamond in the Sky. We were shattered the day Steve left us All for good, without saying goodbye - the saddest time of all. A golden heart stopped beating, hardworking hands at rest, God broke our hearts to prove he only takes the best. You will never be forgotten.

Nieces Cheryllyn, Tracey-May and Tessa Theron - Life is like a book, some chapters sad, some happy and some exciting. You turned every page and wrote the best book imaginable. Every lesson you taught us planted seeds of knowledge that will keep growing for a lifetime. Your impact was immeasurable to those whose lives you touched, shaping and moulding young minds, igniting passions with patience and care. A listening ear a helping hand and an inspiration with incredible force. I hope you find peace and happiness wherever you go. You will be greatly missed but never forgotten as your name is written in our history books.

Nephew Jason Theron - Uncle Steve was a treasured soul and mentor to me from a very young age. His knowledge in his field of work fascinated and intrigued me, setting my path as a driller. Always looking, inspecting and comparing notes of the rocks we discussed over a SA braai and a cold beer, that I found in the different countries I had the privilege to work in. You will always have my greatest respect, will miss you, and your light continues to guide me as we say goodbye. We honour the beauty of your existence.

Nephew Pieter Theron **-** Uncle Steve, you taught me well, the difference between hard and soft kimberlite, garnets and pyroxene, mica and much more. Cherished lessons while exploring Jagersfontein together under the South African sun. Remember the small diamonds you picked up, examined, kissed goodbye, before tossing them over your shoulder. I should have walked behind you and caught them. The honour of walking beside you was always the highlight of my day. It broke my heart to lose you but you didn't go alone, part of us went with you when God called you home.

Tessa and Pierre, PJ, Stephen & Joshua van der Merwe (The Limpopo Diamond boys) - Through the eyes of a little girl you were an idol, a superhero that spoke words of wisdom and adventure. Through the eyes of a grown woman, I saw no difference yet gained more than I could ever imagine, you will remain an extraordinary role model to me. My children and husband were as gifted as I was to experience, embrace and capture your stories around the family table and on the Jagersfontein Stoep. What a privilege it is to say that you are our Uncle Steve.

Cousins Jackie, Hayden, Chad and Alex Johnston - Uncle Steve, because of you, I always strived to do my best and better myself by becoming the schoolteacher you inspired me to be. As children we sat in awe as you told us your fascinating stories of: your travels, field trips and adventures around the world. You will always be remembered for your love, kindness and devotion to the family. It's time to say goodbye but one day we will meet again.

Epilogue

To recap, Steve's characteristics and hallmarks were his passion for geology and mineralogy, propensity for hard work, commitment to projects (24/7 if needs be), attention to detail and, at times, stubbornness. The latter, in reality, a key element for any successful scientist. His formulae got the job done, thereby making immense contributions to Lunar geology, mantle petrology and processes, diamonds, kimberlites and lamproites.

He was equally, a passionate advocate for the global academic, research and teaching community in all the fields of lunar, crustal and mantle studies noted above, always willing to share views on these topics, forcibly so if he considered it necessary.

He was a giant amongst many other exceptional world-class experts in the field of mantle petrology, mineralogy, xenoliths, metasomatism, diamond genesis and the origin of kimberlites/lamproites. These included the likes of Joe Boyd, Peter Nixon, John Gurney, Tony Erlank, Henry Meyer, Ben Harte, Peter Wyllie, Hugh Allsopp, Louis Nicolaysen, Louis Ahrens, Nick Sobolev, Nick Pokhilenko, Chris Smith, George Walker, Keith Cox and many others.

His legacies and contributions in the fields of endeavour he pursued, will be difficult to emulate or supersede in today's world of science and technology.

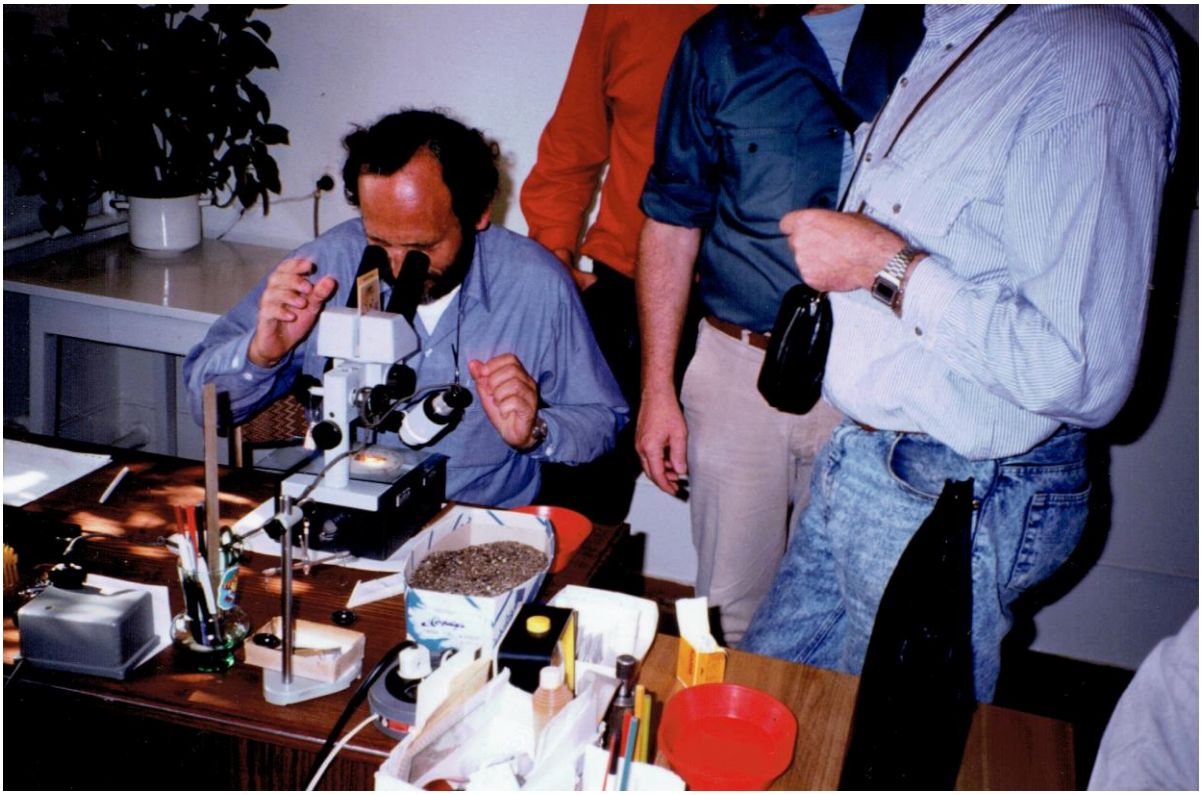
Steve will be remembered not only for his immense professional achievements, but for his kindness, generosity, and unwavering support for Family, friends, colleagues, field assistants and employees.

Rest in peace, Steve. Your legacy in the field of geology and mineralogy, and the impact you had on All those who knew you will endure.

John Bristow, Colleagues, Family and Friends of Steve
30 January, 2026
(jwbdia@gmail.com)

Professor Steve Haggerty during an his interview with Martin Creamer of Mining Weekly (Johannesburg, RSA - January 2018)

Steve in the field in Liberia, standing next to the thorny Pandanus candelabrum plant that thrives in the potassium-, phosphorous-, magnesium-rich soil that sits above kimberlite pipes (West Africa)



Steve Haggerty in ecstasy examining diamonds in the Mirny Mine Diamond Laboratory (Siberia, USSR, 1990)

Aichal mine hosts and caterers at the Makha River picnic & barbeque, a highlight in respect of hospitality and friendship for Steve and all who attended the cross-country excursion and picnic (Aichal diamond mine area, Siberia, USSR, 1990)

John Gurney and Steve - 6th International Kimberlite Conference (Novosibirsk, Russia - 11 August, 1995)

Steve and Mark Hutchinson - 6th IKC (Novosibirsk - 11 August, 1995).

Amongst the Stars - Herb Helmstaedt, Tanya and Steve, and Peter Wyllie (7th IKC - Cape Town – 1998?)

Mick Mulvey, Steve and Field Assistant - Gold exploration camp (Liberia, 2008)

Base Station discussion, Mick Mulvey, Steve and Field Assistant
- Gold exploration camp (Liberia, 2008)

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Steve at De Kelders on the eastern-edge of Walker Bay, southern-Cape coast during an OGG/GSSA Geocongress Excursion, visiting anthropological sites of interest (RSA, January, 2023)

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Rita Schulze, Howard and Cindy Coopersmith, Audrey and Herb (Hewart) Helmstaedt, Dan Schulze and Steve (12th IKC, Yellowknife, Canada – 2024)

Roger Mitchell, Herb Helmstaedt, Jeff Harris, Barbara Scott Smith, Steve and Volker Lorenz (12th IKC, Yellowknife, Canada – 2024)

Roger Youssef with kimberlite samples recovered at Camp Alpha, a favourite project of Steve's in Liberia (West Africa)

Roger Youssef and Steve Haggerty preparing for a meeting with the Liberian Mines Ministry (Monrovia - early-2025).

ANNEXURES:

Professor Stephen Haggerty Publications (FIU Compilation):
https://case.fiu.edu/about/directory/people/_assets/files/haggerty-publications-by-subject.pdf

Research Gate – Stephen E Haggerty Publications (203)
https://www.researchgate.net/profile/Stephen-Haggerty-2

Memberships*:* American Association for the Advancement of Science, American Geophysical Union, Mineralogical Society of America, Geological Society of America

SOURCES OF INFORMATION:

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- University of Massachusetts Amherst, College of Natural Sciences (*Department of Earh, Geographic and Climatic Sciences Website*)
- Fullbight Scholar Program (September 2000 – February, 2001). – Professor Stephen Haggerty (Department of Geosciences, University of Massachutsetts-Amherst, Amherst, MA)
- 1st INTERNATIONAL KIMBERLITE CONFERENCE CAPE TOWN, SOUTH AFRICA 1973.

https://12ikc.ca/wp-content/uploads/2025/04/1-IKC.pdf
- Bristow, J. W. (2013). Exciting diamond find in Liberia. *Mining Weekly, 20 August, 2013*
- The Jeweller Blog. (2015). Rare African Plant Signals Diamonds in the Soil Below. (Liberian kimberlites). *May 20, 2015*
- Martin Creamer, Mining Weekly *(26th January, 2018 and 5th January, 2026)*
- 12thInternational Kimberlite Conference Website.

- Alec Hawkes (2022) - The diamond mines of Siberia – 1995 6thIKC Conference (Video*, 22mins)*
https://www.google.com/url?sa=i&url=https%3A%2F%2Fm.youtube.com%2Fwatch%3Fv%3DrF0YWabKY4Q&psig=AOvVaw3-Z4XKy9SPlztWORg2iQVG&ust=1706365540774000&source=images&cd=vfe&opi=89978449&ved=0CBUQjhxqFwoTCNipj5ah-4MDFQAAAAAdAAAAABAI

- John Bristow (2024). Experiences of a Geologist in Russia – (*YouTube, 80mins*)
https://www.youtube.com/watch?v=nwrF5zKcdSM

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- Heartfelt thanks are due to Tanya, Mark and May and the extended Haggerty family for sharing their memories and images of Steve at this emotional time.