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David L. Harrison 1st October 1926 – 19th March 2015

BY: F. P. D "WOODY" COTTERILL

This is a tribute to Dr David L. Harrison who passed away peacefully last month. I have drawn together some of my own fond recollections of a great scientist and dear friend. A fitting [obituary](#) was published in The Daily Telegraph 9th April 2015 written by Director of the Harrison Institute, Dr. Paul Bates.

The winter rime crunched under the well-worn soles

of my elephant skin boots, as I left Sevenoaks rail station on the short stroll along the pavement to the Harrison Institute at Bowerwood House. Each visit was always one to eagerly plan for – indeed a highlight to meet old friends and examine superb museum specimens. On this, my most recent visit to Sevenoaks on a chilly winter's morning, I encountered David well wrapped up against the elements in rubber boots and polar-rated waterproofs; he bent intently over a sieve, screening Eocene gravels for microfossils. Not for the first time, I marvelled at such tenacity and dedication in his passion – for exploring the natural world – in a scientist now firmly into his eighties. Over the preceding two decades, again and again, his discoveries of tiny tooth of dormouse, bat or shrew would be proudly displayed and prepared and published on for prosperity.

David Harrison was fortunate to live in an era when the passionate zoological collector was free to pack among his collecting gear for the tropics at least a .410 double shotgun with a selection of Eley shells differing in shot size. Indeed, a bigger bore is often favoured as it makes sound sense for longer shots at specimens. In my tours in rural Zimbabwe, I carried a similar piece but relied on a Belgian "poacher's model" fully folding .410 that fitted snugly and discreetly (nearly) into one's backpack but could be deployed swiftly to target. On trips into areas where weapons were perceived to be less of a threat, we collectors on museum expeditions invariably reached for a 12 bore with No 11 shot. This bigger round gives one all the more reach, especially with one twelfth of an ounce of lead No 11 shot out of a 3" shell. Nevertheless, one had to be careful where and when one squeezed the trigger. In our discussions of the natural history of molossid bats – high up among several shared favourites – David recalled taking high flying molossid bats with his shotgun. In convergent evolution, albeit nocturnal, these bats are the swifts and swallows in niches chiropteran. They fly fast and high. No mean feat with a scattergun, especially when they twist and turn in the light of the torch at speed! And this was in the decades before Maglites and the superb LED power-torches of today. The moral here is that the standards of biological exploration set by the ilk of David Harrison set clear criteria for quality and excellence in reporting. It is embodied in the adage that "What's Hit is History; What's Missed in Mystery", whether one is sampling with bucket, net or shotgun. There is no substitute for this strategy, especially in the Anthropocene, as biodiversity vanishes forever across transformed landscapes. David's standards certainly guided my own deeper explorations into the roles of specimens in maintaining the foundations of scientific knowledge. And they have come to catalyse a couple of recent publications seeking to refine the epistemology of natural history as the core life science.

David influenced many scientists' careers in profound

respects. After many years of reading his works, I was privileged to have first met him in June 1990. There are several of us who recall the trips to Sevenoaks with a deep nostalgia. I fondly recall his vivid anecdotes of past characters in biology – names like Frank Ansell, Phillip Clancey, Reay Smithers, and Richard Meinertzhagen featured prominently. There was the one timeless story he recounted of his (David's) near-death skirmish with histoplasmosis. He contracted a severe dose in Oman after crawling after bats into a cave, where the fungus was conspicuous on the guano. The penalty was some time collapsed, lapsing in and out of consciousness in a RAF hospital in the Gulf. I will never forget listening to his survival story over a fine lunch at Bowerwood House. We sat down to set places. The menu was fresh peas and superb Kent trout that had risen to David's flies cast on a local chalk stream. His gory story proceeded. The story triumphed in the unforgettable statement "Well for a couple of days they really thought I was a goner, as I was in a rather bad way! I was passing in and out of consciousness...The end sure looked imminent, when I coughed up a big lump of greenish gangrenous lung the size of an old English penny!" At this, one of our lunch companions pushed back her chair, and shouted "Harrison! this is the utter pits, and over lunch, really!" Toward ends that might be imagined, she then left the dining room. In all its impacts, this finale was the catalyst of great merriment and enjoyed by all present, including those once they had recovered from the vivid recount!

Learning of my Zimbabwe provenance and focus, on our very first conversation David asked "Now, did you know my great, dear friend Reay Smithers?" My answer in the affirmative launched the beginning of enjoyable sharing of common ground and subjects. Somehow, amidst all the conversing, one fitted in the actual work on the collection. On warm summer days, fine tea would be served outside in the sunshine, before we all trooped back to the internal treasures housed in the HZM.

Among David's first papers was a publication in 1959 devoted entirely to the bats of south-central Africa. "Report on the bats (Chiroptera) in the collection of the National Museum of Southern Rhodesia, Bulawayo" this reported several notable new discoveries; not least new species for the territory and the author engaged and tackled taxonomic problems in a forthright style. Many of these specimens had been collected by the Rhodesia Schools Exploration Society; alongside important material from Sentinel Ranch, Limpopo they included the first specimens of *Nycteris grandis* from the Chewore-Zambezi confluence. Years later, Dolph Sasseen and Steve Edwards (then National Parks at Mana Pools and Selous Scouts) would collect the first prey remains showing this species to be carnivorous. And the dedicated research by Brock Fenton and his colleagues really put *N. grandis* on the global map of mammalogy in so many respects. I have been privy to some of the Smithers-Harrison correspondence from this time, which revealed many more important discoveries and taxonomic clarifications. Much of this was published in *Arnoldia* – the official journal of the Bulawayo Museum. There are many more of us privileged to work on the challenges of African bat diversity; and our researches continue to rely – daily – on these foundations.

David was a model of the tenacity that can be demanded of the committed museum worker to get to grips with the taxonomic affinities of the really rare specimen that cannot be matched to anything yet known. Some tough cases can consume years of endeavour. One such specimen challenged the young Harrison when he was still a school boy. He ultimately identified it as the first record for Zambia of a little enigmatic fruit bat, *Pterotes anchietai*. At the time when the young Harrison started working

this specimen out whilst still at secondary school, the main, if not only, source to hand was the Catalogue of Megachiroptera in the British Museum - certainly no lightweight read. He had won his treasured copy of this technical tome as a school book prize; its selection raised some consternation for the headmaster..."Now why on earth did you choose this book, Boy?!" "And what is it you say you are going to work on, again, Boy?" On the occasion of one of my visits to the HZM to examine this specimen, David lead me across the creaking floors of Bowerwood House to open a tight-fitting specimen cabinet, where he produced said *Plerotes* skin and skull with a flourish. He then proceeded to recap the story of how he had identified it so many years before, aided and abetted by the limited material and literature of the day. His imitation of his headmaster was superb, especially for the likes of us who survived such a schooling; all resplendent in nervous tick and grimace that punctuated every sentence! The emphasis on each "Boy" carried a strident 'Boy's Own' ring to it. David's rendition was worthy of the finest performance by Michael Palin in a Rippling Yarn - it truly was a skit fitting for 'Tomkinson's School Days'!

David ended his reminiscences of this *Plerotes* specimen, with "Well, but in the end, I got Him! Took me a while, though." It is worth remembering that this paper [1960 "Notes on some central and east African bats". *Durban Museum Novitates* 6:65-74] that included his reporting of the *Plerotes*, was among the first of the many important contributions authored by D. L. Harrison, and it still stands out among many on a mammal species that we still know very little about in the early 21st century. In this case, the author drew the reader's attention to the anatomy of its palate, and hypothesized a pollinator niche. These Harrison contributions also stand out in benchmark publications on some of the most rarely encountered African bats, such as the large molossid, *Tadarida ventralis*. Well travelled taxonomists will be familiar with the focal legacy of these contributions in several collections; one turns over a specimen in a cabinet drawer to read the reassuring affirmation. It has the handwritten abbreviation "id DLH" on its label.

I will never forget the day - as a newish Masters student - when the latest issue of Bulletin of the British Museum Natural History (Zoology Series) appeared on the 'New Arrivals' racks upstairs in the main library of the University of Zimbabwe. This being Hill, J. E. & D. L. Harrison (1987) "The baculum in the Vespertilioninae (Chiroptera: Vespertilionidae) with a systematic review, a synopsis of *Pipistrellus* and *Eptesicus*, and the descriptions of a new genus and subgenus". *Bull. Brit. Mus. Nat. Hist. Ser. Zool.* 52:225-305. Following my plea, my sister kindly sent an original out to me, and it continues to be sought out.

One of its remarkable features, revealed on closer scrutiny by the reader, is the effort to represent and compare the focal character - namely said bone in penis - of as many type specimens of as many taxa as possible. It was a brave effort that straddled the world's diversity of a highly speciose mammalian Family dominated by hard to identify bats. Its substance represents no small commitment to fine dissection and scientific illustration. I have since come to appreciate it as setting the threshold that has since opened up significant research - more and more with molecular evidence - on the vesper bats and, today, many more researchers continue to grapple with the vast diversity of these little vesper bats. But sometimes I do ask how many, if any, have even heard of this pioneering monograph? And even if cited, who has really read it with all the care it deserves?

David was especially proud of his scientific illustrations, to which he devoted many hours of work at the microscope. In the case of Chiropteran genitalia, they included some lovingly selected taxa depicting the full morphology. This 1987 classic highlighted the more bizarrely wonderful anatomy of the penises of species of vesper bats. And he would open the particular page of this scholarly publication with a flourish and a mischievous chuckle; and then proceed to argue with graphic rendition as to why such an adaptation might have evolved! Said rendition did not mince away from the thrust and parry of expert description, matching anatomical character to 'more-making' performance. On a more refined scientific note, in its synthesis of detailed anatomical characters, this remarkable analysis changed my

own approach to bat taxonomy from the ground up, and it lead to grappling more extensively with species concepts, especially of how to compare SMRS (Specific Mate-Recognition Systems) of cryptic species using empirical evidence. It would lead on to taxonomic revisions of *Rhinolophus*, including the description of *Rhinolophus sakejensis*, in which the baculum is reliably diagnostic, and most recently in the discovery of four new species of horseshoe bats - described in PLoS ONE in 2012. Here Peter Taylor carried out the meticulous dissections and morphometric analysis.

Of all David's discoveries of species and genera new to science, it is the tiny enigmatic free-tailed bat - *Tadarida* (*Chaerephon*) *gallagheri* - from the equatorial Congo that stands apart. Indeed, it quite possibly ranks highest among his most remarkable contributions to not just mammalogy but zoology as a whole. To say the least, the capture of this specimen by the Zaire River Expedition was serendipitous. To paraphrase the gist of the story from David himself: it is beyond any doubt that on the 14th November 1974, the collector Major Gallagher earned the patronym for this taxon. A noted zoologist in his own right, he erected a mistnet one night near "le grand fleuve" - being the Lualaba River at ~3 degrees South, 30 km of Kindu. He captured a decent series of bats through the night. These were bottled. Most proved to be *Mops condylurus* - one of the commonest free-tailed bats met with across tropical Africa. Many of these pickled specimens were not in the best condition as the formalin had become too diluted after pickling. But the eager Dr Harrison probed with his tongs among the specimens in the bottom of the cavernous consol jar; then under layers of partially decomposing bodies emerged a creature quite unlike anything ever before seen by a mammalogist in any museum before. Its anatomy is bizarre. The morphology of the extended ears, especially in the interaural folds, and no less the inflation of the nasal bones sets it firmly apart.

In the opening pages of a contribution to the Molossidae chapter of the book '*Bats of Southern and Central Africa: A Biogeographic and Taxonomic Synthesis*' I devoted some effort to single out this discovery. In fact, in very first conversation, among the first questions I was asked, was "whether I may have caught any more of this species". And David then went on to discuss its nasal morphology..."Well, I think that the calls of the normal molossid run to the tune of "ping-ping", this little chap goes "PingonnnnnNNNN-PingonnnnnNNNN"" Surely, no description could so aptly communicate one's passion for his subject! It was also a highlight in our book to single out and pay tribute to some of the notable collectors and taxonomists. And we made sure Dr David was on the catwalk, posing with one of his remarkable discoveries (see photo below)!



David L. Harrison comparing the first known southern African specimen (HZM 1.4244) of *Tadarida lobata* against a series of the equally rare *T. ventralis*. At the time of its discovery to science (in 1970) this was one of the only three specimens of *T. lobata* known. The diagnostic interscapular patch of white fur is clearly visible on the study skin.

David was of the school well trained in old world manners. He was by all accounts no mean hand with fly rod and shotgun. Truly a scholar and a gentleman, who set so many standards for so many of us. He was the last of a cohort of naturalists who witnessed the twilight of the Empire, and the aftermath, yet their commitment not only remained undiminished but seemed to grow. They all shared this zest to maximize on opportunities to explore the natural world. With respect to Africa, alongside David Harrison, Frank Ansell, John Edwards Hill, Ken Stager, and Reay Smithers stand out in the ranks of mammalogy. One shared determinant underpinning their scholarship began and ended with attention to detail. Each specimen was studied and prepared with the devotion worthy of a bespoke craftsman. Their pursuit of the truth was to say the least, a zealous one. How different from today, where too often one reads what passes for a publishable academic product in the primary literature. More and more, one can only conclude that too much published new data in organismal biology reveals the authors to hold little if any concept of the voucher specimen. Less and less of the professional researchers publishing on organisms – pertinently

cryptic species – appear to have even worked with, let alone contributed to a museum or herbarium collection; such that they cannot identify what organism(s) they have genotyped. To quote one of David Harrison's quips he emphasized rather often: "My Late Father used to say that What's Hit is History and What's Missed is Mystery!" More than ever before, we must never lose sight of how the collections meeting Dr Harrison's standards were preserved with great attention to detail, and that these specimens will endure for centuries. There are few finer legacies to leave a civilization, provided its society appreciates and preserves such priceless historical treasures.

David Harrison enjoyed the fullest of lives enriched by endless commendable achievements. His legacy persists. Its values will continue to grow in his scholarship, collections and mentorship. The collated tributes on his institute's website testify to the many he helped and mentored, and encouraged in so many ways: <http://www.harrison-institute.org/David%20Lakin%20Harrison%201926-2015%20Tributes.pdf>