Lieutenant-Colonel Henry Haversham Godwin-Austen (1834–1923): a pioneering surveyor, naturalist, geologist and malacologist of British India

Neelavar Ananthram Aravind

India, a land of rich biodiversity encompassing vast terrestrial and aquatic ecosystems, is known for its abundant flora and fauna spread across four globally recognized biodiversity hotspots. Among the myriad forms of life that thrive in the country's diverse landscape, molluscs hold a unique place. As the second largest phylum after arthropods, molluscs in India exhibit astonishing diversity, with over 3500 species in marine, 1250 in terrestrial and 210 in freshwater habitats. Amidst the malacologists and naturalists who have delved into the exploration and documentation of India's molluscan fauna, Lieutenant-Colonel Henry Haversham Godwin-Austen stands out as one of the most distinguished of his era. This December marks a century since his death.

Godwin-Austen, born on 6 July 1834, was an accomplished English topographer, surveyor, naturalist, geologist and malacologist (Figure 1 *a*). He began a military career in central Burma in 1853, where he first encountered the wonders of tropical biodiversity and had opportunities to pursue his interests in natural science and develop his landscape-recording skills[1]. In 1856, Godwin-Austen embarked on a new chapter in his service when he joined the Trigonometrical Survey of India as a surveyor. Initially, his work was in the enthralling landscapes of Kashmir, a region renowned for its natural beauty and biodiversity. From the Northwest Frontier Province, he was transferred to the Northeast Frontier Province, where he spent most of his career meticulously mapping and developing geographical records.

His scientific endeavours were doubtless influenced by his father R. A. C. Godwin-Austen, a geologist who had left an enduring reputation owing to his exceptional insights. This family legacy and influence enabled Godwin-Austen to join the Indian Survey Department in 1857 (ref. 1). Shortly after, he embarked on a survey of the northern Kashmir region, during which he discovered the Baltoro, Hispar and Biafra glaciers, the greatest group of valley glaciers in the world. These glaciers were later mapped by Martin Conway, who named the tributary glacier from K2 to the Baltoro as the Godwin-Austen Glacier. The glaciers were described by Godwin-Austen[2]. His surveys in the northwestern region extended to Ladakh and into Tibet. Godwin-Austen fixed the position and heights of many of the giant peaks of the Karakoram, including K2, the second-highest peak in the world. His surveys extended beyond the western Himalaya of Shimla, Sialkot and Peshawar. In late 1863 Godwin-Austen left the Western Himalayan region for good and he was posted to North East India. From Darjeeling, he was sent to Bhutan in 1864, and for the following five years, he surveyed current-day Meghalaya and Assam. He was posted to the frontier regions of the far northeast in 1872, in what are now eastern Arunachal Pradesh, Nagaland, Manipur and Mizoram in India, and Chin, Sagaing and Kachin States in Myanmar. His final field season (1874–75) was conducted in western Arunachal Pradesh. His classification of the Himalayas and his study of its geographical structure are considered among the most significant contributions to Himalayan geology.

Figure 1. (***a***) Portrait of Godwin-Austen and (***b***, ***c***) paintings of (***b***) *Pyctorhis altirostris* and (***c***) cyclostomatid land snails drawn by him (source: Wikipedia and Biodiversity Heritage Library).

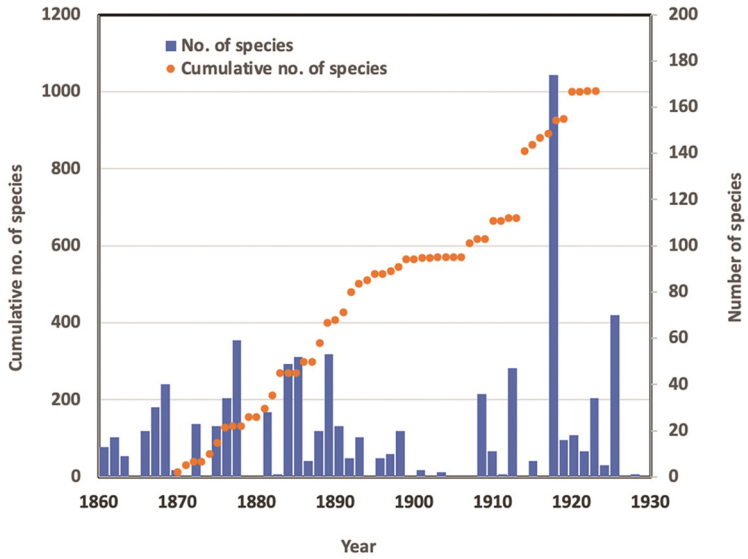

Figure 2. Species discovery pattern of molluscs by Godwin-Austen (source: MolluscaBase, 2023).

Contributions as a malacologist

Godwin-Austen's lasting legacy in the world of malacology is a testament to his dedication and significant contributions to the field. As a malacologist, he left an indelible mark through his extensive taxonomic work, which spanned over five decades[3]. He made significant taxonomic contributions, describing 1 family, 5 sub-families and a remarkable 48 genera. Among these, 35 genera are still recognized today. His taxonomic contributions extended to a notable 1001 new species, with over 900 species being accepted in contemporary malacology (Figure 2). Most of these descriptions were of South Asian species, but he also described species from other regions. His scholarly work extended to the authorship of 5 books and over 200 research articles. His publications reflected his comprehensive approach to taxonomy. It was often the case that snails were known only from their shells, but when snail bodies were available, he preserved them and studied their external and internal anatomy, including the arrangement of radula. He made a significant contribution to pioneering studies in the comparative anatomy of the reproductive organs of pulmonate land snails, including detailed anatomical drawings. This was exemplified in his three volumes on the land and freshwater molluscs[4,5]. Godwin-Austen's contributions were not confined to written descriptions alone. He believed that an integrated approach to taxonomy, such as combining morphological descriptions with anatomical details, was vital for accurate species delimitation. He kept detailed locality records with notes on habitat and, after his return to England, he spent many years organizing his collections, a lasting legacy that is housed at the Natural History Museum, London, UK. What set Godwin-Austen's taxonomic descriptions apart was his keen eye for spotting even minor variations in shell characteristics. This meticulous attention to detail greatly enriched the precision and accuracy of his taxonomic work.

Honours and commemorations

The impact of Godwin-Austen's work is reflected in the numerous honours and commemorations bestowed upon him. The second highest mountain in the world, the K2, was named Mt Godwin-Austen in his honour. This recognition underscores his pivotal role as its first surveyor. Another geographic feature named in his honour is the Godwin-Austen Glacier, paying homage to his contributions to geography and surveying. Several mollusc genera bear names honouring his contributions to malacology. Notable examples include two genera of land molluscs, *Austenia* G. Nevill, 1878, and *Godwinia* Sykes, 1900. For his contribution to natural history and malacology, 28 species of molluscs and 2 species of lizards (*Pachydactylus austeni* and *Pseudocalotes austeniana*) have been named after him. He was the president of the Malacological Society between 1897 and 1899, and of the Conchological Society from 1908 to 1909. He was elected Fellow of the Royal Society in 1880 and received the Founders' Medal from the Royal Geographical Society in 1910.

Legacy and impact

Godwin-Austen's legacy stands the test of time as one of the most significant malacologists from the British Indian era. His meticulous descriptions, exceptional illustrations and holistic approach to taxonomy continue to inspire present-day malacologists, particularly early-career students of malacology. His contributions spanned not only taxonomic realms, but also encompassed the broader fields of geology, geography and natural history. Apart from his malacological contributions, he also published research papers on birds of NE India (Figure 1 *b*). He described two species of birds, namely the white-throated tree timalia and the spotted-breasted creeping thrush from NE India. He was also known to give profuse credit to the collector of the molluscan specimens. Godwin-Austen was also a good artist, and often, he included himself in the drawings of the landscape he was surveying. His detailed and intricate sketches of molluscs are considered to be remarkable examples of natural history artwork (Figure 1 *c*).

Godwin-Austen's work is a timeless reference for studying molluscs in South Asia and beyond. His dedication to cataloguing the diverse molluscan fauna of British India has left an invaluable scientific treasure trove for researchers, conservationists and naturalists to explore and build upon. His insistence on the importance of anatomical and radula data alongside morphological descriptions remains a guiding principle in contemporary malacology. He was actively involved in describing species until the year before he passed away. The Natural History Museum in London has several handwritten and unpublished manuscripts on several genera waiting for publication. One among them was *Allopeas*, while recently, Clausiliidae were described based on his collections and unpublished manuscript[6].

With his demise on 2 December 1923, India has lost the greatest Himalayan geographer and a leading authority on Indian Mollusca. In summary, the life and work of Henry Haversham Godwin-Austen encapsulate the overwhelming impact that a passionate and dedicated scientist can have on our understanding of Himalayan geology and Indian malacology. His contributions continue to echo through the corridors of science and serve as an enduring source of inspiration for generations of malacologists, geologists and naturalists.

1. Moorehead, C., *The K2 Man (and his Molluscs): The Extraordinary Life of Haversham Godwin-Austen*, The In Pinn (an imprint of Neil Wilson Publishing), UK, 2013, p. 279.
2. Godwin-Austen, H. H., *J. Royal Geogr. Soc. London*, 1864, **34**, 19–56.
3. Preece, R. C. *et al.*, *Trop. Nat. Hist.*, *Suppl.*, 2022, **6**, 1–434.
4. Godwin-Austen, H. H., *Land and Freshwater Mollusca of India, including South Arabia, Baluchistan, Afghanistan, Kashmir, Nepal, Burma, Pegu, Tenasserim, Malaya Peninsula, Ceylon and other Islands of the Indian Ocean; Supplementary to Masers Theobald and Hanley's Conchologica indica*, Taylor and Francis, London, UK, 1882–1920, three volumes, pp. VI + 257 + 442 + 65, 165 plates.
5. Blanford, W. T. and Godwin-Austen, H. H., *Mollusca. Testacellidae and Zonitidae*, Taylor Francis, London, UK, 1908, p. 311.
6. Szekeres, M., Grego, J., Páll-Gergely, B. and Ablett, D., *J. Conchol.*, 2021, **44**, 155–187.

The author is in the S M Sehgal Foundation Centre for Biodiversity and Conservation, Ashoka Trust for Research in Ecology and the Environment, Royal Enclave, Srirampura, Jakkur, Bengaluru 560 064, India and Yenepoya Research Centre, Yenepoya (Deemed to be University), Mangaluru 575 018, India.
e-mail: aravind@atree.org