

# The origins of ornithology in nineteenth century Sri Lanka

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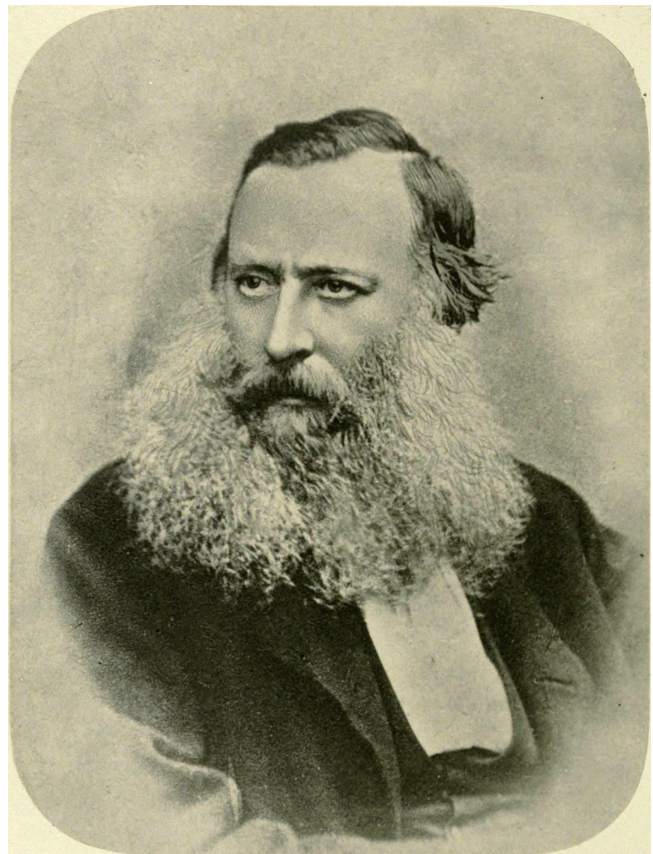
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## Abstract

This paper examines how ornithology developed in colonial Sri Lanka, to illuminate the working of nineteenth century science in its colonial context. Ornithological work in the island was instituted by Edward Blyth at the Calcutta Museum, who was seeking to expand the museum's collections of bird specimens. He also saw Sri Lanka's fauna as a scientifically important extension of that on the mainland, which needed to be studied. He recruited three men to collect for the museum who, collaborating with Blyth, determined the species composition, distribution, and status of the island's birds. Their work was capped by the efforts of a fourth ornithologist, the Australian W. Vincent Legge, whose definitive work on Sri Lankan birds, in 1880, brought this era to its close. In the process, they moved the study of birds in the island, in the space of forty years, from an exploratory phase to a full-fledged colonial science. By focusing on ornithology, I examine how colonial science developed in the island, with particular attention to the work of Edgar Layard, and the Sri Lankan-born Frederick Kelaart, and the rivalry between them. The paper discusses the nature of scientific networks, the scientists' dependence on local knowledge, the way local thinking about birds was shaped by its encounter with Western science, and the institutions—museums, journals, libraries, etc.—necessary to support such a science, to illuminate how scientific work was done in a politically peripheral, but zoologically important, Indian Ocean colony.

In 1841, a thirty-one year-old Englishman, with a passion for birds and few prospects in England, took up the offer of the Asiatic Society of Calcutta for the position of Curator of Zoology in its museum. The pay was a modest £300 pounds a year. He held the post for over twenty years, until ill health compelled his return to England in 1862. Over that period, Edward Blyth [17] would become the most influential ornithologist in India. His efforts created the largest collection of bird specimens outside Europe and North America (Kinnear 1952: 109), and, for a while, made Calcutta (=Kolkata) a center of global significance for natural history. His efforts to develop the museum collection in Calcutta, which saw its bird collection swell from 600 specimens before his arrival to over 4,400 by 1847 (Brandon-Jones 2006: 25), would catalyze the emergence of ornithology in Sri Lanka. Ornithology, no doubt, would have emerged in the island eventually, as it did in most places in Britain's empire, but thanks to Blyth's restless quest to build up the Calcutta collection, the foundations of Sri Lankan ornithology were laid early.

At a time when science was still largely the preserve of amateurs, and an avocation for men of private means, Blyth was the only professional ornithologist in India. In the early nineteenth century in Britain, science was still largely a pursuit for the wealthy (or at least the well-off) and the leisured, who had the resources and the time to devote themselves fully to the study of nature. Blyth, however, was a man of modest social background (his father was a tradesman, who died when Blyth was ten), who had no private resources and few social connections. Those without the means who sought a career in science, however, had few options available to make it a paying proposition: there were a handful of professorships available in the universities and a like number of curatorships in museums, generally poorly paid (Mearns & Mearns 1998: 85), but not much else in the way of professional employment. The study of natural history was carried on mainly by men (and a few women) working in other fields, which provided enough leisure for their avocation: they



17. Edward Blyth.<sup>1</sup> Source: Wikimedia.

were clergymen, gentlemen farmers, soldiers, sailors, physicians and military surgeons, planters, colonial officials, missionaries, and the like. In Britain's class-conscious society, to draw a salary

<sup>1</sup> Webpage URL: <https://commons.wikimedia.org/wiki/File:EdwardBlyth.jpg>.

was to be reduced in social status. Given his devotion to natural history, Blyth was fortunate in his appointment, but in his 22 years as curator of the Asiatic Society's museum, his modest salary was never increased.

Nevertheless, unlike the other major figures of early ornithology in India—Thomas Caverhill Jerdon (1811–1872), a surgeon in the East India Company's army, and Brian Houghton Hodgson (1801?–1894), a member of the Bengal Civil Service—Blyth was free to devote all his energies to the pursuit of birds and mammals. A professional ornithologist in the nineteenth century sense was a worker in a museum, and scientific work was the study of systematics and taxonomy. Only in the twentieth century did matters of ecology, ethology, and evolution come to the fore to be treated as subjects worthy of study; before that, they were treated as soft facts, unlike the hard fact of a prepared specimen in a museum drawer, to which museum scientists devoted their working lives (Johnson 2004). Specimens required collectors, and Blyth, who was given a museum in a state of disarray, was determined not merely to put it in order, but to expand its collections and reach into areas of the Indian Subcontinent hitherto unstudied. One of those areas was the Crown Colony of Ceylon.

Blyth recruited Robert Templeton, a surgeon in the Royal Artillery (and later a noted entomologist), and then Edgar Leopold Layard, who served as a magistrate in colonial Sri Lanka, as well as another army surgeon, the Sri Lankan-born Frederick Kelaart, to collect birds for him. These early ornithologists were also linked to scientific institutions in England, corresponding regularly with the Zoological Society in London, the British Museum, and with some of the important metropolitan naturalists of the day, like the Marquis of Tweeddale. William Vincent Legge, an officer in the Royal Artillery, and the pre-eminent ornithologist working in Sri Lanka in the nineteenth century, was linked, in addition to the dense network of his correspondents on the island, to scientific societies and ornithologists in India (e.g., with A. O. Hume), England (with Bowdler Sharpe), and to scientific societies in his native Australia. Ornithological material flowed not just from the colonial periphery to London, but to lesser scientific centers within the empire, such as Calcutta, and Melbourne, and to points outside British jurisdiction, mainly in Europe.

As Pethiyagoda (2007) has pointed out, much early zoological exploration in Sri Lanka was carried out by amateurs who sent specimens to experts in Europe. In an earlier age, Linnaeus and others gave binomial names to several species of Sri Lankan birds that they found in private collections and museums in Europe. However, in an extensive survey of zoologists, Sri Lankan and foreign, who made significant contributions to zoological knowledge of the island, Pethiyagoda (2007) mentions only two Europeans based outside the island (besides the British) who contributed to its ornithology in the nineteenth century: the Hungarian, Gyula Madarász (1858–1931), and the German, Gustav Hartlaub (1814–1900). Madarász collected at least 125 species in Sri Lanka in 1895–1896, and argued that the Large-billed Crow, the Little Swift, and the Oriental White-eye found in Sri Lanka were new species, which he named *Corone anthracina*, *Apus singalensis*, and *Zosterops egregia*, respectively (Madarász 1911); that classification has not endured. Hartlaub, who never visited Sri Lanka, wrote an extensive review of the work of Kelaart, and Layard, with reference also to Blyth (Hartlaub 1854), but added nothing new.

Sri Lankans were, of course, familiar with birds and knew a great deal about them before Europeans showed up on their shores. They hunted them, and like hunters everywhere knew much about the habits of the creatures they hunted; they encountered them in their fields and gardens, and birds featured in their literature and art. This knowledge is reflected in the writings of both Layard and Legge, whose research practice included the close questioning of local people on what they knew of birds. But classifying them according to the Linnaean species concept, of working out their taxonomic relationships, and of comprehensively amassing and collating knowledge of their natural history—their distribution in the island, their breeding ecology, feeding, and other habits—was the work of a handful of men (joined much later by an even smaller number of women) who were mostly of British origin. One of these men, however, was himself Sri Lankan born, although culturally oriented to his European roots; this was Edward Frederick Kelaart. Layard named what he thought was a new squirrel species<sup>2</sup> after Kelaart, who, he believed, offered “a bright example to his apathetic countrymen” in “taking up the study of the fauna of his native country” (Layard 1849: 195). Later, beginning in the middle decades of the twentieth century, Sri Lankans themselves became ornithologists in their own right and eventually developed ornithology in the island into a modern, university-based science. This paper, however, is concerned with the initial period of scientific work mentioned above and examines the processes and institutions through which knowledge of the island's avifauna was initially constituted, and the relationship between “amateurs” and professionals in developing that knowledge. The only professional in this account is Blyth, who occupied what was probably the only paid position in ornithology in British India; everyone else mentioned in this paper had day jobs that had nothing to do with birds.

The European passion for collecting curiosities took root in the mid-eighteenth century and grew with trade and conquest. Both aristocrats, and the emerging middle class sought to amass cabinets of curiosities. Europeans who ventured abroad collected natural as well as cultural objects; brought back to Europe, these could be disposed of for a profit. Stuffed birds, as well as live ones, were sought after objects for these collections and menageries. However, their provenance was often doubtful, and thus of little value to science, for these specimens, as commercial objects, passed from hand to hand with no attention paid to the details necessary for scientific study (such as the date and location of collection). William V, the Prince of Orange, for instance, had a parrot in his collection reputedly from Ceylon. A description of this bird by Arnout Vosmaer (Vosmaer 1769), a Dutch naturalist who was curator of the royal natural history collection, is illustrated by a coloured engraving depicting what is clearly an adult female *Eclectus roratus*, a species found from the Maluku Islands (Moluccas) eastward into New Guinea and the adjacent chain of Melanesian Islands. The vendor had recently returned from India and claimed to have obtained the bird in Ceylon. This particular specimen belongs to the subspecies *vosmaeri* found in the northern Malukus, and no doubt ended up in Sri Lanka via the trade routes of the Dutch East India Company, but, in the absence of modern scientific labelling, its true provenance

2 No longer recognized as such. *Sciurus kelaarti* is today *Funambulus palmarum*, the familiar Three-striped Palm Squirrel of Colombo gardens, and so named by Linnaeus in 1766.

could not have been known in Europe. This may be the earliest reference to Sri Lanka as a site of ornithological interest in European literature.

The opposite is also true, as the history of ornithology's discovery of the Sri Lanka Hanging Parrot *Loriculus beryllinus* shows [20] (the bird appears in the Layard parakeet painting). This bird, endemic to Sri Lanka, became known to science through a painting by George Edwards in his *A Natural History of Uncommon Birds*. Edwards had been lent the specimen he based his painting on by Dr. Cromwell Mortimer, the secretary of the Royal Society, who had obtained it in Holland; its provenance was "some Dutch Settlement in the East Indies" (Edwards 1743: 6). When Linnaean binomials became accepted as the basis of scientific nomenclature, this illustration became, in effect, the type specimen. Brisson (1760: 390), the first to name and describe it according to the new system, who never saw the bird or a skin, and basing his description entirely on the plate, named it *Psittacula indica*.<sup>3</sup>

Birds were also introduced to science as "specimens" through art, which sometimes provided the only record of their existence for ornithologists. An excellent example is the work commissioned in Sri Lanka by Joan Gideon Loten (1710–1789), the Governor of the Dutch East India Company's<sup>4</sup> possessions from 1752–1757, and the earliest European naturalist working in Sri Lanka we know of. He was a man of wide-ranging interests, in botany, zoology, astronomy, and mathematics. More significantly for future research, he had caused 101 paintings to be made of birds by a local artist, a man of possibly mixed Dutch and Sri Lankan ancestry named Pieter de Bevere (Ferguson 1907). Loten was not, according to his biographer, Alexander Raat, a passionate natural philosopher, but he is remembered as the "naturalist Governor of Ceylon" (Raat 2010: 17). Even so, it was the collection of drawings he had made of the fauna of Sri Lanka and Java (where he earlier served in Batavia and where he returned after his appointment in Sri Lanka ended, taking de Bevere with him), which secured Loten his reputation in the field of natural history. He retired to England, where the drawings he had commissioned were used to illustrate the work of European naturalists.<sup>5</sup> Without those drawings, it is unlikely that Loten would have achieved the recognition he did in the scientific circles of Europe. His achievement rests solidly on the labors of his Sri Lankan-born amanuensis.

For ornithology to develop beyond the collection of curiosities, it was necessary to find a way to preserve what was collected so that the collections could serve as research materials for generations of scientists. Most of what was collected before the nineteenth century has vanished into the ether, sent there by the ravages of insects and the natural processes of decay. Mearns & Mearns (1998: 43) cite two other factors, which, along with the spread of colonialism, facilitated the development of systematic collecting and thus of ornithology. The first was the discovery by a French apothecary, Jean-Baptiste Bécoeur, of a preservative—arsenical soap—that could fight off the ravages of insects that had hitherto doomed every bird skin collected to a short life as an artifact. Bécoeur took his formula, which he had perfected in 1770, to the grave, but the secret was discovered by

the Muséum National d'Histoire Naturelle in Paris, which swiftly publicized it (Farber 1997: 54). That was at the beginning of the nineteenth century, and was probably the most significant scientific breakthrough for the further development of ornithology. Another major development was the improvement in the technology of firearms, leading eventually, by mid-century, to the breechloading shot gun (Mearns & Mearns 1998: 43–44), which made it possible to bring down flying birds. The combination of colonial expansion, and technological developments in the preserving and collecting of birds made possible "the first comprehensive catalogues of the birds of the world, stimulated work on geographical distribution and geographical variation and made it feasible to produce reasonably complete monographs on particular groups of birds" (Mearns & Mearns 1998: 45).

Naturalists followed in the footsteps of imperial expansion. Collecting was an activity carried on under the umbrella of colonial power, a fact made visible by the large numbers of military officers and colonial administrators who made significant contributions to natural history. Three of the four men whose careers I discuss in this paper were soldiers or army surgeons; the fourth was a magistrate. Collecting in this second phase became more focused; rather than simply collecting opportunistically, it was guided now by the desire to accumulate and name specimens of all of the birds (or whatever the object of natural history collecting) of a particular territory, in as broad a spectrum of their plumages as possible, to work out the biogeography and determine the relationships of species to each other.

Conditions in Sri Lanka were especially conducive to collecting. The island was relatively small and compact, and, with British control extending to every part of it after 1815, the collector could in principle go wherever he wished to. But he required roads. The colony had, by the end of the nineteenth century, a good network of roads that covered much of the island except for its south-eastern quadrant, and the zoology of this region remained relatively unexplored till late into the nineteenth century. These roads gave ready access to the interior of the island, and especially into the hills, which was the region of especial interest for naturalists, because it was home to species found nowhere else in the world.

## The bird collectors

Who were the men who pioneered the study of birds in Sri Lanka? What were their social backgrounds and how did that shape the development of their avocation? How were new species discovered and our knowledge of the fauna and flora of the island expanded? The systematic investigation of the natural history of the lands outside Europe depended on colonial expansion and the infrastructure of rule it created: in Sri Lanka, roads and the other infrastructure of travel such as rest houses, facilitated access into the interior, while colonial authority and its agents facilitated (and sometimes encouraged) the work of the naturalists. But how did the collectors set about their task, what equipment did they use and how were their relations with those others they depended on—both, colonizer and colonized—for successful outcomes organized?

The establishment of ornithology in colonial Sri Lanka is most closely associated with the four men mentioned earlier, plus Blyth, who, as far as I know, never actually visited the island. Blyth worked closely with three of them—Templeton, Layard, and

3 See also the letter from Viscount Walden (1867) challenging Blyth's renaming of this species.

4 Vereenigde Oost Indische Compagnie or VOC.

5 Those who made use of de Bevere's paintings include George Edwards (1764), Thomas Pennant (1769, 1771, 1781), Johann Reinhold Forster (1781), and Peter Brown (1776). Joseph Banks's artist, Sydney Parkinson, also copied paintings from Loten's collection (Raat 2010).



Kelaart—to obtain specimens from Sri Lanka for the Asiatic Society of Bengal's museum. Templeton and Kelaart had been trained at the medical college in Edinburgh; army and navy surgeons were, at this time, in the forefront among naturalists, and Edinburgh had become an important training ground for both medicine and natural history collecting (MacGregor 2018). Layard had come out to Sri Lanka to seek his fortune, and became a magistrate. None of these men were independently wealthy and they pursued natural history (assiduously, it must be said) in their spare time.

Robert Templeton (1802–1892) was the son of John Templeton, the 'doyen of Irish Natural History' (Foster & Chesney 1997: 226). He was commissioned as an Assistant Surgeon in the Royal Artillery; Sri Lanka had not long been in Britain's possession when Templeton arrived in the island, where he was stationed from 1839 to 1851. The Kandyan highlands had been annexed barely a quarter of a century earlier, and the systematic study of the island's natural history was still in its infancy. Templeton's interest, however, was in entomology (to which he made significant contributions, both in Sri Lanka, and in his native Ireland) rather than in ornithology, and he published nothing on birds, although he supplied numerous specimens to Blyth. With war looming in the Crimea, he was recalled to England in 1852, and served in the Crimea for its duration.<sup>6</sup>

Edward Frederick Kelaart (1819–1860) was the only one of these three who was born in the island, of Dutch and German parentage. He too followed a career as a medical officer in the army (and had the distinction of being the first Sri Lankan to be trained in western medicine). He made most of his contributions to the zoology of Sri Lanka during two postings in the island of his birth, from 1841 to 1843, but mostly between 1849 and 1860. He died en route to England of what was most probably a heart attack (Anon. 1926; Pethiyagoda & Manamendra Arachchi 1997). Kelaart was interested in the whole spectrum of natural history. Like Templeton, he was not himself a bird collector, and did not shoot, relying on others to provide him with specimens. His significance to the history of natural history in Sri Lanka is that he was the first to attempt a descriptive zoology of the island. His book, *Prodromus* (meaning an introduction), is based on two years of work between 1849 and its publication in 1852. It deals with mammals, birds, reptiles, and amphibians. The third member of the quartet, Edgar Leopold Layard, is the most significant for the story I tell in this paper. He, more than either Kelaart or Templeton, set the ornithology of the island on a solid footing. Layard came out to Sri Lanka to take up coffee planting; the estate failed before he arrived, and a chance encounter with a judge saw him switch career paths to the colonial judicial service (Layard 1926).

The last of the four was an Australian artillery officer named William Vincent Legge (1841–1918; 18). Unlike the others, he was independently wealthy, being the heir to a large estate in Tasmania. As a member of a peacetime garrison, he had plenty of time to devote to birds (as well as to the Ceylon branch of the Royal Asiatic Society, whose secretary he became shortly after his arrival in the island). These were activities the army encouraged. He was the only one of the four to have no interaction with Blyth, as he arrived long after the latter had returned to England. What I will call the short nineteenth century in Sri Lanka's

ornithological history runs from the early 1840s, when Templeton began collecting for Blyth, to 1880, when the last installment (of three) of Legge's monumental *History of the birds of Ceylon* was published. This phase in turn may be sub-divided: the period when Templeton, Kelaart, and Layard worked, ending with Layard's departure from the island in 1853 and then, after an interregnum of more than a decade, Legge's arrival in late 1868, which began the second phase.



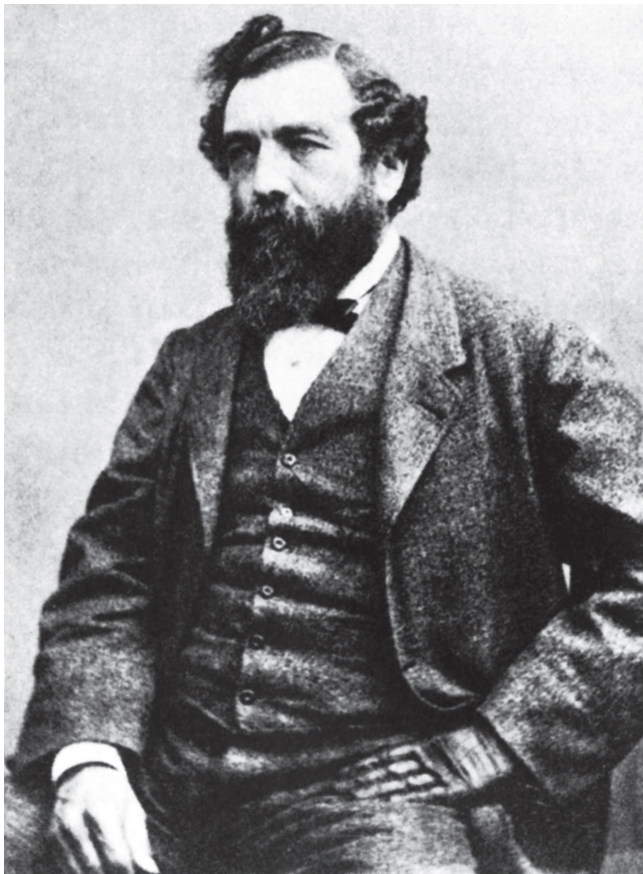
18. Colonel William Vincent Legge.<sup>7</sup> Source: Wikimedia.

This second phase is significant not for new discoveries, although there were some, but because it ended with the publication of a masterwork—Legge's *History of the birds of Ceylon*—that has endured as a reference to the present day, and which put colonial Sri Lanka on the ornithological map. It was a significant step in loosening the ties that bound workers in the colony to sources of knowledge in the metropole. There was now a reference work for future workers, devoted entirely to the island's birds, which would not only help with their identification, but which also provided a wealth of information on their natural history. Legge left Sri Lanka in 1877, to spend the next three years in England, working on his *magnum opus*. By 1880, almost all avian species breeding in Sri Lanka, as well as most of the regular migrants, had been documented (Legge describes 371 species). New additions to the avifauna, since, have been mostly migrant birds and vagrants, although a new species was discovered in 2001 (Warakagoda & Rasmussen 2004).

6 Dictionary of Irish Biography. Webpage URL: <https://www.dib.ie/biography/templeton-robert-a8497>. [Accessed on 08 October 2021.]

7 Webpage URL: [https://commons.wikimedia.org/wiki/File:W\\_V\\_Legge.jpg](https://commons.wikimedia.org/wiki/File:W_V_Legge.jpg).

Edgar Leopold Layard (1824–1900; 19) was the son of an Englishman who had been a civil servant in Sri Lanka. An early passion for natural history undermined his mother's hopes that he would follow a career in the church; with not many resources available to him, he seized the opportunity to go to Sri Lanka when a cousin invited him to join him on his coffee estate. Annie, his wife, an accomplished artist who could depict birds "with scientific accuracy" (Carey 2011: 339), accompanied him. Layard told Sharpe that the Emerald Collared Parakeet or Layard's Parakeet, *Palaeornis calthropae* [20] was named for her, whose family name was Calthrop (Carey 2011).<sup>8</sup> We know nothing of what Annie's contribution to the study of Sri Lanka's natural history might have been, but she was as fascinated by nature as Layard, with a sound knowledge of botany; her husband wrote of her as someone "who has aided me with pen and pencil, and shared the pleasures I have experienced in the study of the works of Nature" (Carey 2011: 338). Women, as Carey observes, played an important role as illustrators of natural history specimens, even though that role was "often under-acknowledged if executed on behalf of their husbands" (Carey 2011: 340). They were much less common as collectors, although Mearns & Mearns (1998) discuss some notable exceptions. However, if Annie Layard made portraits of Sri Lankan birds, they appear not to have survived.



19. Edgar Leopold Layard.<sup>9</sup> Source: Wikimedia.

<sup>8</sup> Sharpe writes in his history of the British Museum collection that Layard had told him that he intended to name the bird for his wife, whose family name was *Calthrop*; the bird should have been *P. calthropae*, but the mistake arose from a printer's error and has remained so to this day (Sharpe 1906: 410). Carey however asserts that the family name was Calthrop (Carey 2011: 336). It was Blyth however who named the bird (Blyth 1849), although, given Sharpe's assertion, Layard may have indicated to Blyth his own wishes on the matter.

<sup>9</sup> Webpage URL: [https://commons.wikimedia.org/wiki/File:Edgar\\_Leopold\\_Layard\\_1824-1900.jpg](https://commons.wikimedia.org/wiki/File:Edgar_Leopold_Layard_1824-1900.jpg).



20. Layard's Parakeet by J.G. Keulemans, in Legge's *History*. The specific name honours his first wife, Annie Calthrop. Below is the Sri Lanka Hanging Parrot or Lorikeet.

Templeton met Layard when the latter fell ill shortly after arriving in Sri Lanka and Templeton attended to him in his professional capacity as a surgeon. The two would collaborate on the study of Sri Lanka's natural history, mostly on insects and molluscs. Between them, as Foster & Chesney wrote, they collected over 930 species of butterflies and moths, and 630 species of molluscs, many new to science (1997: 351). But Layard was also recruited to collect bird specimens for Templeton, who, like Kelaart, did not shoot (Layard 1880: 285–286).

As Layard describes it, his introduction to ornithology came at the end of Templeton's stay in the island (Layard 1926):

Templeton was ordered home—he left me his insect boxes, & collecting materials, but above all he left me a letter to answer, which had a material effect on my future. This letter was from Blyth, the curator of the Calcutta museum, asking for information on and, if possible, skins of certain Ceylon birds. Now tho' passionately fond of the gun, I could not afford to use it much, so I plainly told him, when I sent him the information required. I chiefly used it to supplement the pot & could not waste powder & shot on small birds. His reply came by return mail. He was delighted to welcome a new correspondent, who evidently had been a close observer of birds, he urged me to follow the study of ornithology, & supply him with birds, He valued the birds he wanted at so much and he sent me a note for that amount, & a little over, begging me to expend the same on ammunition, to procure for him the birds he wanted, & any other species I could obtain. He sent also a list of all the known species from Ceylon, 182 in number, with a lot of small paintings of rare



or doubtful species, descriptions of others, & a vast amount of information. This was the beginning of a correspondence continued monthly for years, & of the pleasure & profit it was to me, I can give no idea.

After Templeton's departure from Sri Lanka, Layard took over as Blyth's collector in the island until he left Sri Lanka in 1853, and Blyth and he exchanged letters every month. Unfortunately, none of this correspondence seems to have survived. Layard remarks, "Dr. Templeton and myself, aided by Mr. Blyth, began to work out the ornithology of Ceylon."<sup>10</sup> Significantly perhaps, as we shall see below, Kelaart is not mentioned. Blyth would send Layard sketches of the birds (and other animals) that he wanted him to look out for (Layard 1880: 286); these included miniatures painted by the Indian artist Khuleelooddeen, who did 110 watercolours of birds for Blyth (Elphick 2017).<sup>11</sup> The work of collecting, by this time, was directed and purposeful, not simply a process of collecting whatever was available, as it was in an earlier era; the natural history of species was being described, their status, distribution, habits, nesting, and even the way their lives intersected with the human societies around them.

By the time Layard left Sri Lanka in 1853, their collective endeavors had produced a list of about 315 species of birds. Layard (1880: 281) summed up this work:

When I left I had brought up the list to 315; deduct from this the novelties added by Kelaart, and some which I think he has wrongly identified (but which are included in my list in the 'Annals and Mag. of Nat. Hist.'). 22 in number, and it leaves me the contributor of 110 species to the Ceylonese ornithology, examples of most of which fell to my own gun.

After Layard's departure, little work was done on the island's birds until Legge arrived in late 1868; the only work of note was by the marine biologist, Edmund William Hunt Holdsworth, who was in Sri Lanka from 1865–1871, and produced a catalogue of Sri Lankan birds listing 323 species—mostly based on his own collection and Layard's *Notes* (Holdsworth 1872). He did, however, contribute two new species, both endemics, to the Sri Lanka list—the Sri Lanka White-eye *Zosterops ceylonensis*, and the Sri Lanka Whistling-thrush *Myophonus blighi*.

In Blyth's (1852) catalogue, the contributions of these three men, in terms of species (and specimens), is: Kelaart, 18 specimens of 14 species; Templeton, 25 specimens of 17 species; and Layard 110 specimens of 81 species.<sup>12</sup> The actual numbers of specimens and species that travelled from Sri Lanka to Calcutta would have been higher; Blyth only reports specimens retained in the collection and notes that specimens in poor condition were replaced by better ones when he obtained them. Some specimens probably arrived in too poor a condition to keep, and other specimens may have been exchanged with other institutions or individuals, a common practice. Altogether, 94 species from Sri Lanka had found their way into the museum

collection by 1852, thanks to the efforts of these three men.<sup>13</sup> The specimens they collected for Blyth were described in the Society's journal.

Kelaart, the third of Blyth's correspondents, was the quintessential naturalist of the first half of the nineteenth century in Sri Lanka, and, unusual for his era, of colonial origin, although of European ancestry. Being born in the colony, however, would have adversely impacted his social standing. As a perusal of the early British writers, such as Robert Percival (1803), indicates, the British did not hold the Dutch who stayed behind after the island passed to the British Crown, in much esteem. His Dutch father, whose own father had settled in Sri Lanka in 1726, worked for the British army as an assistant apothecary; his mother, who died at 33, was German. Raised in the island, he was, like so many other naturalists of his time, an army physician, a career in which he spent all of his professional life, but his avocation was the study of the natural world. Deraniyagala said of him, "His achievements under difficult conditions and in the scanty leisure of a busy professional life laid the foundation for Ceylon biology" (Deraniyagala 1932). He was one of the leading zoologists in the island during the first half of the nineteenth century, although Layard was the better fieldworker. His father's own interests in natural history no doubt shaped the interests of the son. In 1835, Kelaart embarked on a medical career, and because the civil medical department of that era was included in the military establishment, he trained in an army hospital. In 1837 he left for Scotland with the 78<sup>th</sup> Highlanders, to whose surgeon he had been made an assistant, and in 1838, he enrolled at the University of Edinburgh to study medicine.

Kelaart's interests spanned the entire field of natural history, and his publications range from botany (including a treatise on the flora of Gibraltar, where he was posted as an army surgeon from 1843 to 1845), to the geology of Sri Lanka, several papers on mammals, and reptiles, and, in the last four years of his life, the pearl fishery in Sri Lanka, and marine invertebrates. Despite his foray into the botany of Gibraltar, he paid little attention to that of his native island, perhaps because it was already well studied. His contributions to ornithology were slimmer, but include, crucially, his catalogue of Sri Lankan birds, which, co-authored with Layard, appeared in three parts in 1853 in the *Journal of the Ceylon Branch of the Royal Asiatic Society*, and a section on birds in *Prodromus*.

Kelaart's interest in birds was encouraged by his father, who made collections of ornithological specimens that he sent to his son in England. Kelaart was able to compare these specimens with the collection in the British Museum and so name them, which proved invaluable after he returned to Sri Lanka where, despite the absence of a good museum collection or reference books, he set out to write *Prodromus*, his foundational work on the island's zoology. Kelaart's career also illustrates the encouragement given to natural history research by the British military establishment, which remained a factor throughout the nineteenth century. He was encouraged, when he returned to the island in 1849, to study its natural history by the Director-General of the Army's Medical Department, Sir James M'Grigor, and its superintendent in Sri Lanka, Dr. Andrew Smith, whose own fascination was with

10 Letter to secretary of the Zoological Society, dated October 19, 1869, in *Proc. Zool. Society*, 1869, p. 529.

11 They are preserved in the archives of the Natural History Museum, London, Zoology Special Collections (88 f JAR).

12 Layard was collecting for Blyth in 1846, very soon after he arrived in the island, but Templeton did not leave Sri Lanka until 1851, only a few years before Layard himself did. Templeton probably recruited Layard to help him, as he did not shoot. This is probably the provenance of the specimens in the Calcutta Museum from 1848–1849 attributed to Layard.

13 Templeton's specimens are from 1846–1848, mostly in 1846; Kelaart's specimens are not dated; and Layard's are from 1848–1849 (Blyth 1852.) Layard and Kelaart continued to send specimens to Blyth for the duration of their stay in Sri Lanka, so their contributions would be greater than these numbers suggest.

the reptilian fauna of the island (Kelaart 1852: ii). *Prodromus* is dedicated to the latter. The handicap he faced in his research, however, was probably common to many amateurs, such as he, who worked on the margins of both science and empire in this period: a lack of access to adequate library and museum collections. Pethiyagoda & Manamendra-Arachchi (1997: 225) wrote, “Kelaart’s lack of access to a reference collection, and the restricted variety of literature available to him, were at least partly to blame for the large number of vertebrate synonyms he created”.

### Layard as ornithologist

Layard’s lengthy and detailed account of a trip he made from Jaffna to Kandy (described in a four-part article entitled “Rambles in Ceylon”), mostly along the newly opened Jaffna–Kandy road, gives us insight into the process of “doing ornithology” in mid-nineteenth century Sri Lanka—the equipment used and the practices of collecting, the reliance on local knowledge, and the disputes over interpretation and publication of data. Layard’s intention on his departure from Jaffna was to drive his gig down the new road to Kandy, a feat he claimed no one had done before. Although collecting en route formed an important aspect of his journey, it was not the reason he undertook it; that apparently, was to put the new road to the test, despite warnings of failure on the part of friends and colleagues. In the event, he made it to Kandy (and back again) collecting on the way. He describes his little expedition as it set out from Jaffna (Layard 1852: 332):

Our order of march was, first myself with my long collecting gun, known to my friends by the name of “Long Tom,” which I consider worth describing to you, as a most invaluable weapon. Length of barrel 3 feet 7 inches; calibre rather less than  $\frac{3}{8}$  ths of an inch, carrying a ball 120 to the lb.; thickness of metal  $\frac{1}{8}$  th of an inch. The stock is fitted with a large trap, for holding caps, wadding, ball, needles and thread, &c. &c. The full charge for this gun is just one-fourth that of a sixteen gauge, or  $\frac{1}{4}$  of an ounce:  $\frac{1}{8}$  th is a deadly charge for smallish birds at 30 yards; and for small birds (sparrows and such like)  $\frac{1}{16}$  th is sufficient at 20 yards. With two or three buck-shot, . . . it will kill any large bird at 150 yards, and throws its own ball with great precision: I have killed deer and peafowl with it at very long distances. The oeconomy of this gun, when all the shooter’s ammunition has to be carried by coolies, will strike anyone. Following me was my Man Friday, alias Horse-keeper Muttu, with my rifle: this worthy is head gamekeeper, birdstuffer and skull-collector, and when at home head-nurse; he is indeed a black “pearl,” as his name implies. Then came Cingalese appoo with large double gun. My horse followed at random, keeping close to his groom; while coolies with baggage and the bullock bandy with the gig brought up the rear.

The bullock bandy, a cart pulled by oxen, was the standard form of wheeled transport in Sri Lanka into the twentieth century, and would have been used to carry not just camping equipment, but in Layard’s case, all of the paraphernalia of collecting: ammunition, collecting boxes, chemicals for preservation, etc. The journey took him from Jaffna to Mullaitivu on horseback and on foot, and from Mullaitivu through the jungle to the great central road, and then by gig and bullock bandy to Kandy. Along the way, he and his travelling companions slept under canvas,

in resthouses, in village homes, and, at Mihintale, in the vihara, where he lay down “surrounded by the fantastic carving of the heathen temple” (Layard 1853a: 236).

The excerpt above also draws attention to Layard’s reliance on local knowledge and skill, in the person of Muttu. Muttu is Tamil, and possibly someone Layard encountered in Jaffna when he was stationed at Point Pedro. His name recurs in Layard’s extensive writings on his work in Sri Lanka, and Layard depended on him to get his work done. Besides calling Muttu his Man Friday, which evokes a suitably colonial relationship, Layard, on one occasion, refers to him, more interestingly, as his *fidus Achatas* (Layard 1854: 263). In Virgil’s *Aeneid*, Achatas is Aeneas’ close friend and companion; Layard is giving Muttu a status well above that of mere employee, although on another occasion he doesn’t hesitate to stir Muttu up from sleep using his foot (“a shove, which sends him rolling over and over”) to ask him what the noise in the jungle is. “Pulli” [leopard], Muttu replies matter of factly, before turning round and going back to sleep again.

That Muttu was a skilled field observer in his own right is indicated by the confidence Layard placed in what he reported. Layard seems to have trusted Muttu’s field observations more than he did those of Kelaart. He is at pains to tell the reader of his *Notes* that he only included in his list those birds he himself had identified; when he includes those that Kelaart had, it is only to “give my idea of their authenticity” (1854: 261). Layard had reservations about Kelaart’s reliability in the matter of identification (which Legge also shared) and this skepticism recurs in his writing:

The Doctor and I did not always agree about our identifications. I sent all my birds to Mr. Blyth, as I did not trust my own judgment. I fear many of Dr. Kelaart’s species are wrongly named, but I do not wish to have his errors fathered on me.<sup>14</sup>

Layard, in fact, appears not to have had the best of relations with Kelaart. In an essay 26 years later, reflecting on his time in Sri Lanka, he waxed rather bitter about his, by then long dead, colleague; I’ll have more to say about this below. But to return to Muttu, Layard’s estimation of his skill as a field birder is illustrated in his confidence in the former’s recognition of a possible new hornbill. There are two species of hornbill in Sri Lanka: the Grey Hornbill *Ocyrceros gingalensis* and the Malabar Pied Hornbill *Anthracoceros coronatus* [21]. Layard thought, however, that he had seen a third species, the Oriental Pied Hornbill *Anthracoceros (Buceros) albirostris*<sup>15</sup> [22] on two occasions in the hills, and his claim to recognizing the bird derived from his having in his collection specimens of it from Blyth (today, one would refer to a field guide on seeing a strange bird; this anecdote illustrates the importance of reference collections for field ornithologists of that time). However, he did not include it in his list because to positively document a bird, one needed a specimen; sight records were not then considered sufficient. But he invoked Muttu to support his sighting. “Muttu came in full view of a new Kandatta [hornbill, in Sinhala] which he had seen in the Mookalane while I lay ill at Gillymalle [sic]. His description tallied precisely with

<sup>14</sup> Layard, Letter to the editor, *The Ibis* 1868 4 n.s. (14): 249.

<sup>15</sup> The closest this species gets to Sri Lanka in its normal range is north-eastern Odisha (India), but there is an eBird record (documented with photographs) of it in coastal Andhra Pradesh, just north of Visakhapatnam, well outside its normal range (Janardhan et al. 2020; Uppada 2020). It’s not impossible that Layard *did* see this species; he was a careful and cautious observer, and as he points out, he did have skins to reference, thanks to Blyth.



what I had myself witnessed, and my idea is that the bird was *B. albirostris*, specimens of which I received from Mr. Blyth" (Layard 1854: 261).



Mohan Kemparaju

21. Malabar Hornbill.



22. Oriental Pied Hornbill. Photo: Nejb Ahmed. Source: Wikimedia.<sup>17</sup>

Besides his reliance on Muttu, he also talked to local people, mining their knowledge of birds; his "Notes on the Ornithology of Ceylon", published in ten installments in *The Annals and Magazine of Natural History*, as well as his "Rambles in Ceylon" are full of references to what he has learned from the "natives", mostly regarding the habits and nesting of birds. Villagers were most familiar with birds they valued for one reason or another: as pets (most parakeets and the Sri Lanka myna *Gracula ptilogenys* are examples); for medicine (munias, used for "pulmonary complaints" (1854: 258) being a case in point), for food (their name is legion), and sometimes for the sheer joy of having birds about the house (the house sparrow *Passer indicus*<sup>18</sup>). Villagers ("the natives all say") knew that the Brown Fish Owl lives mainly on fish. He notes, "they [the fish owl, not the "natives", although the "natives" might have as well] certainly relish that food in confinement" (Layard 1853b: 309). He learned, probably from the "natives" ("I have been credibly informed", he writes; had it been a European, he would have cited his source by name) that the male hornbill walls the female up in the hollow of a tree to brood the eggs (Layard 1854: 261). This information he considers reliable enough to include in his description of hornbill natural history; they expand his and his readers' knowledge, even as it fits into the kind of knowledge that is appropriate to include according to his western scientific norms. In 1891 however, Frederick Lewis, who had been sent a grey hornbill's nest by a coffee planter, reported that he could not learn much about it from natives, who could only tell him that "they build in holes in trees" (Lewis 1891: 64).

The "natives" weren't always reliable informants. About the Baya Weaver *Ploceus philippinus*, Layard was told by villagers that "the male bird conveys fireflies to its nest and sticks them to the side by means of mud for the purpose of illuminating its dwellings" (1854: 257). He didn't believe them, as well he might, but he did note, in the nests he examined, the presence of a patch of mud on each side of the nest that he believed the male bird builds for itself (in addition to the separate nest *he* believed it built for the brooding hen).<sup>19</sup> He suggests that his local informants were led astray by the odd husks of seeds or "the wing-cases of a stray beetle" that were stuck to these patches. In all the other examples he cites, however, local knowledge was ethologically accurate. The usefulness or accuracy of local knowledge depends of course on the local from whom one obtains it.

As he travelled down to Kandy along what is now the A9, and then back again to Jaffna, he stopped to collect specimens. For instance, on the way from Matale to Nalanda (he is either riding a horse or driving the gig), he stopped to collect a swallow's nest "built under the arch of a drain, into which I had to creep on my hands and knees" (Layard 1853b: 308). Layard would collect

<sup>18</sup> Of the sparrow, he writes, "The natives are much attached to this bird, and to attract it to their dwellings hang on a peg in the verendah a chatty with a hole broken in the bottom..." (1854: 258).

<sup>19</sup> Layard was mistaken on this point. The male does not build a separate nest for itself; however, according to Legge, many people mistook the strong loop the male bird constructs across the unfinished bottom of the nest to be a perch on which it sits, and took these unfinished nests to be male nests. This loop merely separates the bottom of the egg chamber when finished from the entrance to the nest of the tubular and dangling entryway, which is a feature of Baya Weaver nests. Legge notes also that according to Jerdon, 'the natives of India' also believed that the patches of mud found on some nests were used by the birds to stick fireflies onto, to light the nests up at night! Jerdon thought (as did Legge) that the mud was a weight to steady the nests when built in windy areas (Legge 1880: 644).

<sup>16</sup> [https://commons.wikimedia.org/wiki/File:Malabar\\_pied\\_hornbill.jpg](https://commons.wikimedia.org/wiki/File:Malabar_pied_hornbill.jpg).

<sup>17</sup> [https://commons.wikimedia.org/wiki/File:Oriental\\_Pied\\_Hornbill\\_\(Anthracoceros\\_albirostris\\_.jpg\)](https://commons.wikimedia.org/wiki/File:Oriental_Pied_Hornbill_(Anthracoceros_albirostris_.jpg)).



several examples of a species; some of these he sent to Blyth, keeping the remainder for himself. Once Blyth had identified the species, Layard's own collection served as a reference for him. Sometimes, the specimens were only loaned, and had to be returned. Many of these minor colonial collections eventually passed to the metropolis, either through a direct donation, or sale, to an institution like the British Museum, or via a wealthy collector in Britain, who could afford to buy them up before eventually selling or donating them in turn to a major museum. Much of Layard's collection ended up at the Poole Museum, preserved through the generosity of a relative (Layard 1880: 281). In general, the specimens that flowed from the far corners of the empire to metropolitan scientists and collectors dwarfed the movement of specimens at the empire's periphery.

I said earlier that Layard had a poor opinion of Kelaart's abilities as an ornithologist. More precisely, Layard said of him (twenty years after Kelaart's death) that "in the matter of ornithology, Kelaart was a mere copyist" and qualified one of Kelaart's errors<sup>20</sup> with the adjective "stupid" — not the most professional way to express one's disagreement (Layard 1880: 285). It is certainly the case that Kelaart made several errors in identification of birds and was responsible for many vertebrate synonyms, for reasons alluded to elsewhere in this paper. Nor was that an uncommon fault, given the conditions for scientific work in the colonies, a matter to which I will return below. Layard's critical view of him, however, also seems to have been provoked by what he saw as Kelaart's renegeing on a deal the two had made: that a second volume of *Prodromus* would be published consisting of an account of the birds, which Layard would write. "To my intense astonishment", Layard wrote in his review of Legge's book, "and, I must own, annoyance, Kelaart issued his 'Prodromus' without cutting out part ii. (p. 91 *et seq.*), as agreed upon!"<sup>21</sup> He used my lists without any reference to me, as the absurd error above quoted shows; and his generalizations are as full of mistakes "as an egg's full of meat!" (Layard 1880: 286). Twenty-eight years later and from a world away in New Caledonia, where he was now the British Consul, the (presumed) slight still rankled. Kelaart does acknowledge Layard in *Prodromus*, but only to say that credit was due him for adding so many species to the island's list, observing, a little defensively, that Layard had the advantage of having Blyth identify all of them (hence, presumably fewer errors). He did not, at the time *Prodromus* was published, know Layard very well; although Kelaart had been in constant correspondence with him since returning to the island, he had only met Layard "very recently." "It is only by co-operation with such industrious Zoologists as Mr. Layard," he wrote, "that we can ever expect to work out the Fauna of Ceylon" (Kelaart 1852: vi).

Kelaart published his last paper on birds in 1855, in which he remarked that he and Layard had intended to jointly produce a book on the island's birds. Might this be the second volume of *Prodromus* that Layard referred to? However, he wrote, because of Layard's departure for Cape Town, the project had not borne fruit (Kelaart 1855; Layard had returned to England in 1853, and thereafter obtained his appointment in South Africa). Layard's contribution was to have been a description of their "habits"; Kelaart, presumably, would have attended to morphological

description. Whether Layard's reaction to being cut out of *Prodromus* was the result of his misunderstanding what Kelaart intended or whether Kelaart did in fact renege on an agreement as Layard alleges, we'll never know. But it was the catalyst for Layard to publish his "Notes on the Ornithology of Ceylon", urged to do so, he tells us, by "Strickland, Sir W. Jardine, and the brothers Gray,"<sup>22</sup> who kindly said the information I possessed was too valuable to be lost" (Layard 1880: 286). It appeared in ten parts in the *Annals and Magazine of Natural History*, a leading publication of the time. I wonder also, whether Layard, as an Englishman to the status born, resented being upstaged by a colonial. Kelaart, despite his impeccable European genes, had been born and raised in Sri Lanka, and that was enough to compromise anyone in the colonial status hierarchy—even Englishmen born and raised in the colony, the "country bottled" as they were pejoratively known (Lewis 1926: 32).

### Establishing a science

Ornithology in Sri Lanka began as the collecting of specimens for others outside the island. The work of Kelaart and Layard represents an evolution of the earlier stage of ornithological inquiry exemplified by Loten, which was the collection of curiosities in natural history; in Loten's case, as his biographer Raat puts it, for his own amusement (Raat 2010: 26). There was now a systematic effort to fill in the gaps in knowledge—of the variation within a species (which required the collection of extensive series of the species in its various plumages), of its distribution, and of its place in the order of things. To *do* ornithology in this period meant in essence to name, classify, and catalogue birds, and that task required reference materials—specimen collections, identification manuals and other reference books—which in the first half of the nineteenth century, did not exist in Sri Lanka. Even Blyth, and Jerdon had difficulty in accessing reference materials (Strickland 1845). That such materials (including major museum collections) existed mainly in the metropole, frequently led to the same species being given multiple names by ornithological workers in different parts of the world. Layard's observations, on the difficulty of identifying the Indian Swiftlet *Aerodramus unicolor*, illustrate this handicap. Having shot his first specimen in Kotte, near Colombo, he was at a loss to identify it; he writes, "Not having any means of identification I knew not how to class it, as it did not strictly accord with any of Swainson's characteristic marks of *Cypselus* or *Hirundo*" (Layard 1848: 91). Museum workers, working with descriptions and skins, had to unravel the multitude of names for the same species that resulted.

Standard works of reference were difficult to come by in Sri Lanka, owing both to their cost and to the absence of institutional libraries. Layard wrote in his autobiography, "I don't profess to be a scientific naturalist, I have Never been rich enough to purchase the books required for the study, and my life has been spent in countries where no museums existed, save those I myself established" (Layard 1926)<sup>23</sup>. Kelaart mentions that "Gray and Mitchell's" *Genera of Birds* (Gray 1844–1849), which was a standard text on the subject, was too costly for many ornithologists

20 Kelaart used "letonia" (instead of *Iotenus*, the specific name for the Long-billed or Loten's Sunbird), which Kelaart attributed, wrongly, to Layard. See Kelaart (1852: 119).

21 This is the section on birds.

22 George Gray was curator of birds at the British Museum; his brother John Gray was keeper of zoology at the same institution. The ornithologist Hugh Strickland was a friend of Blyth's, and the naturalist Sir William Jardine was the editor of the 40-volume Naturalist's Library.

23 The museums he refers to are those of the Royal Asiatic Society (Ceylon Branch) and the South African Museum, of which he was curator from 1855–1872.

to own (1855: 143). Kelaart complains about his lack of books in *Prodromus*, and even as late as the early twentieth century, Stuart Baker could write “Much information has been brought out also in ‘The Ibis,’ which is, of course, only available to members of the British Ornithologists’ Union or to those within reach of the bigger libraries” (Stuart Baker 1932: xiv). Phillips, in the 1920s and 1930s, built up a library by trading birds’ eggs, through Stuart Baker, for books.<sup>24</sup> Rare visits to England, on leave, provided opportunities for colonial ornithologists short on books and comprehensive specimen collections to devote themselves to the study of both.

Towards the close of the nineteenth century, the library of the Colombo Museum (at the time the most significant institutional home for ornithological research) possessed the following ornithological works: Cuvier’s *Règne Animale*, Gray & Hardwick’s *Illustrations of Indian Zoology*, Hume’s *Nests and eggs of Indian Birds*, Hume & Marshall’s *Game Birds of India, Burmah and Ceylon*, the second and third volumes of Jerdon’s *Birds of India*, Kelaart’s *Prodromus* and Legge’s *Birds of Ceylon*, fewer than twenty offprints of articles published in various journals, and four volumes of Allan Hume’s journal, *Stray Feathers*. It seems to have had no subscriptions to major journals of the time and it lacked the museum catalogues that were a vital source of information for ornithological research (Haly 1887). Even Legge, commenting on the challenges he faced in writing his book once back in England, wrote “A non-residence in London, within daily reach of the libraries, with their stores of ornithological literature, and the collections with which that great civilizing centre teems, has been a serious disadvantage to the author” (1880: vi). The preface is dated from Aberystwith [sic] (=Aberystwyth), Wales, where he was stationed. How much more challenging then, for the student in a distant colonial possession!

Besides access to a decent library, which was usually wanting, the serious naturalist needed also to build up a collection of specimens—both as reference and to exchange specimens with others (Mearns & Mearns 1998).<sup>25</sup> Naturalists built up their own collections, to supplement what museums had to offer or, as in the case of Sri Lanka, because, initially, there were no museums. In the era before the advent of field guides, a private collection was an essential prerequisite for the serious student of natural history. Most ornithologists added to their collections through their own efforts, but they also made use of local people to collect for them, as Layard did with Muttu. Doing so not only utilized local labour, it also took advantage of local knowledge. Although local people classified birds according to different principles of ordering, they knew where to find the birds, at what times of the year they were present, when they nested and in what, and so on. This was knowledge that a scientific collector could, and did, put to good use.

Collectors made use of the European habit of hunting for recreation; the hunter might not be interested in science or even in collecting, but, in the nineteenth and early twentieth century in Sri Lanka, he was accustomed to shooting at anything non-human that moved, and often produced specimens of interest to

a collector. The collector might obtain a specimen directly from the hunter if they were acquainted, or indirectly from a taxidermy or natural history specimen shop, of which there were several in the island at various times. Here’s an example, which Hugh Neville records in the magazine he founded and edited, *The Taprobanian*: a planter had shot an Oriental Hobby *Falco severus* (rare in Sri Lanka) with a pea rifle (a muzzle-loader firing a pea-sized ball), a “phenomenal shot” according to Nevill, and had sent it to a taxidermist to be preserved “as a memento of the exploit”. On being told by Nevill that he had killed a rare bird (a praiseworthy action then, just as it would be a blameworthy one today), he presented it instead to the Colombo Museum (Nevill 1887: 131).<sup>26</sup> Nevill himself had made an extensive collection of birds with the purpose of preparing a monograph on Sri Lanka’s ornithology; he abandoned this idea in favor of Legge, and his collection was sold to Lord Walden, a noted Scottish ornithologist of the time (and from Walden to the collections of the British Museum).

Dealers in natural history specimens were also an important source of material. Such establishments offered every sort of natural history material to collectors and museums—skins of mammals and birds, insects, rocks, and minerals; provided taxidermy services for hunters who wished to mount their trophies; and were the source of tools and equipment pertaining to natural history collecting. Specimen dealers—in Sri Lanka, they were both British and Sri Lankan—collected specimens themselves, contracted others to do so, bought animals shot by hunters, and acted as brokers. It is likely that specimens of birds procured from hunters and planters came from within a few kilometers of the taxidermy shop; they had to be skinned and preserved before they began to decompose in the tropical heat, and that was a skill that most hunters did not possess.

Birds shot by hunters or planters in colonial Sri Lanka, which found their way to a specimen dealer, sometimes journeyed on from there into the pages of science. Jerdon’s *Baza Aviceda jerdoni* was added to the Sri Lanka list in this way when Legge discovered a specimen in the shop of Whyte & Company in Kandy. It had been mistakenly identified as a Crested Goshawk *Accipiter trivirgatus*. This was a well-known taxidermy shop in the latter half of the nineteenth century, employing a number of Sri Lankans to collect specimens, but there were other such establishments too. One was that of Savairinayagam Raiyappan Lazarus, a Tamil taxidermist and dealer in animals, in Colombo. He corresponded with Ernst Hartert, who was curator of Lord Rothchild’s private bird collection at Tring, in England<sup>27</sup> (today part of the American Museum of Natural History in New York), and contributed about 40 specimens to the National Museum in Prague, Czech Republic (Mlíkovský 2010). Stuart Baker was also a patron of his shop. Lazarus’ services, listed in an advertisement in Burrows (1899), are probably representative of the services offered by other taxidermy shops: to prepare and preserve trophies, to cure skins, and tan and mount them, and to stuff

24 Phillips to Stuart Baker, various letters, in Tring Manuscript Collection, MSS. Phillips [Correspondence relating to Ceylon birds, 1919-1966], Natural History Museum, London.

25 The following ornithologists, working in Sri Lanka in the nineteenth century, possessed personal collections of birds (and there are doubtless many others not mentioned in the literature): Kelaart, Layard, Legge, the civil servants Nevill and Brodie, and the coffee planter Samuel Bligh.

26 This record has disappeared from the official documentation of Sri Lankan birds; Phillips (1976) does not mention it in his checklist, nor do Kotagama & Ratnavira (2017). The latter also erroneously record that a specimen was collected in 1944; this is a misreading of Phillips (1976), who cites Whistler (1944) as citing a specimen collected by Bligh; but Bligh’s specimen would have been collected in the nineteenth century. Legge refers to two Ceylonese specimens, but does not say where the specimens were kept; one may have been the specimen mentioned by Nevill, shot on 28 November 1886, which was deposited in the Colombo Museum.

27 Letter to Ernst Hartert from Lazarus, BMNH Archives. TR 1/1/29/390 [Not seen]



“birds and other animals . . . in best styles as ordered.”

### The emergence of scientific institutions

The development of colonial zoological knowledge requires not just the collecting, identifying, and cataloguing of specimens, but eventually, institutions to support it within the colony. They include scientific societies, educational institutions, libraries, journals, and most importantly, given their role in nineteenth century science, museums. All of these began to emerge in Sri Lanka in the mid-nineteenth century.

By the 1840s, a community of amateur scientists and scholars was beginning to form in the colony, mostly among British officials and coffee-planters resident in the island, but also including a sprinkling of the emerging Anglicized elite, which had embraced the knowledge seeking ways of their colonial masters. British residents in the island interested in its antiquities, religions, history, and natural history founded a local branch of the Royal Asiatic Society, in Colombo in 1845, and within a year established a library, began to publish a journal, and set up a modest museum. All this happened with government patronage and some funding. Only one of the founding members (there were 34) was a Sri Lankan. This was J. N. Mooyart, a Dutch Burgher. By 1848, the number had increased to nine Sri Lankans of a total membership of 60. Notably, some years later, acknowledging the intimate association between a military medical background and explorations in natural history, all army surgeons were given honorary membership in the society for the duration of their service in Sri Lanka.<sup>28</sup> Although the local branch of the Royal Asiatic Society (*hereinafter* RAS) never became a force for scientific research in natural history, two of the ornithologists discussed in this paper, Layard and Legge, served as its secretary at various times, and Templeton and Kelaart were members. It was the only available institutional home for men interested in science in that period of Sri Lanka's history.

The society's nascent library was helped by donations from the parent society in England, while the Bengal society donated a complete set of its *Journals* and *Researches*. The rest of the library at its founding, however, contained nothing on natural history but was a small collection of dictionaries, books on grammar, and a miscellany of other items.<sup>29</sup> The establishment of this library gave the handful of ornithologists in Sri Lanka access to the work being done in India, but no access, yet, to the major reference works needed to set the study of birds on a sound, independent footing. Besides the journals and magazines in Britain, to which he had been a prolific contributor, Blyth had the *Journal of the Asiatic Society of Bengal*; there was nothing similar in Sri Lanka until 1845, when the newly established local branch of the RAS began publishing its own journal.

Layard had high hopes for the journal; he hoped it would encourage the “native population”—of whom he said many had the time and opportunity—to take up the serious study of natural history (Layard 1848: 96). He would have meant the Anglicized Sri Lankans he was likely to encounter at meetings of the RAS and in other contexts, although they were relatively few; of 60 members in 1848, only nine were Sri Lankan. By 1870, that number had increased to at least 15 and possibly a couple more,

of 113 members.<sup>30</sup> For much of the nineteenth century, the journal was the only outlet in the island for publications on birds; between 1849 and 1892, 24 papers on ornithological subjects appeared in the journal, mostly by a handful of authors: Kelaart, Layard, Legge, Frederick Lewis, and Hugh Nevill. By contrast, only one paper on birds appeared in its pages in the twentieth century—a sign not only of the society's growing irrelevance to the study of natural history, as its membership increasingly focused on cultural and historical subjects, but also of the growth of other journals in the island in which to publish.

A proper public museum, that essential institution of nineteenth century scientific research, came late to the colony. There was apparently an Army Medical Officers' Museum existing in 1852, with a collection of natural history materials; references to it are scattered throughout *Prodromus*, as well as an acknowledgment of services rendered by its taxidermist, Joanis Appoo Hamy, to Kelaart (Kelaart 1852: viii). Kelaart had been the first to moot the idea of a public museum, in a letter to Layard in 1852 (Kelaart 1852b: xli); although Calcutta, Madras and Bombay each had their museum, he said, Ceylon had only an apology for one. I presume he must refer to the Army Medical Officers' Museum. The Asiatic Society did establish a small museum, which included a modest collection of natural history specimens, but it must have been a poor affair. The ornithologist Robert Swinhoe, a leading European authority on the birds of China, visited Colombo in 1863, and looked in on the Asiatic Society's museum. He wrote to the *Ibis* about what he found there (Swinhoe 1864: 420):

One small room held library, museum, and other belongings of the Society. There were a few books, a few specimens of manufacturers, a few rocks and fossils, a very few reptiles and fishes in bottles in poor condition, a few wretched mammals, and a few dozen dreadful specimens of birds. I looked through the whole of the latter, most of which were moth-eaten and tumbling to pieces. Numbers of them bore paper labels in Blyth's well-known handwriting.

The Asiatic Society was no doubt aware of the shortcomings of its museum, for it lobbied Governor Sir William Gregory, when he took up his appointment in 1872, for a new museum. Gregory, an aficionado of museums and art galleries, and familiar with them in Europe, set matters in motion (to the dismay of the Colonial Secretary, who thought he was being extravagant) (Bastiampillai 1968: 148–153). An American visitor, W. T. Hornaday, on the other hand, was impressed that what he described as “the handsomest modern structure in all the East Indies” cost only £12,000 (Hornaday 1910: 249). Gregory personally supervised construction of the building in which the museum is housed to this day. It opened to the public in January 1877. Gregory was interested mainly in antiquities and cultural artifacts, but did not ignore natural history; he commissioned Thwaites to write a book on the Lepidoptera of Ceylon (the publication of which was underwritten by the government), and later a book on botany. The museum provided space to house the RAS's collection, including its growing collection of bird specimens. A British tourist noted in 1879 that although in its infancy, the museum had amassed a good collection of the island's fauna and its products (Hinchinbrook, 1879: 6). In 1874, Legge had

28 Royal Asiatic Society (Cey. Br), 1870. Rules and Regulations of the Society. *Journal* 4 (3): vii.

29 Royal Asiatic Society (Cey. Br), 1859. Report of the Committee of Management for 1845.

“List of Books.” *Journal* 1 (1): x.

30 Royal Asiatic Society (Cey. Br), 1866. Proceedings of Meetings. *Journal*, 4: x.

catalogued 388 specimens belonging to 155 species of birds in the society's museum (Legge 1874); this collection, probably the result of Legge's own efforts in the field, became part of the new Colombo Museum's collections. He would have been no more content than Swinhoe with the dilapidated collection the latter described. The museum, and more importantly its journal, *Spolia Zeylanica*, would play a significant role in the further development of ornithology in the first half of the twentieth century.

This foundational work ended with the publication of Legge's book in 1880, which documented almost all the birds known to breed on the island and described their natural history. After Legge, no significant work was published about ornithology on the island until the 1930s, although Murray, who had never set foot in Sri Lanka, published a conventional ornithological tome, heavy on systematics and with none of the natural history (Murray 1890). The only figure of note after Legge, and before Wait, Henry, and Phillips had brought new energy to the study of the island's birds in the early twentieth century, was a coffee planter and forester named Frederick Lewis, who published several papers on the island's avifauna but otherwise left no lasting impact.

### Ornithology's impact on local attitudes to birds

What did the Sri Lankans, who were involved in these efforts, make of the activities of colonial ornithologists? How did they influence them (if they did) and how did local knowledge shape the thinking of the scientist (see, for instance, Jacobs 2016)? An indigenous ornithology developed in Sri Lanka in the mid-twentieth century and was led by a social elite that held substantial political power from the 1930s onwards. I have discussed their role elsewhere (Guneratne 2015). Local people in Sri Lanka varied in their knowledge of the natural world, and the overwhelming majority, of course, never came in contact with the small handful of British naturalists. These questions do not apply to them. But what of people like Muttu, who worked closely with one of those naturalists?

The evidence for how Muttu thought about what he was up to with Layard is non-existent, but there is one incident that might provide a glimpse. It is to be found in Layard's account of the Oriental Pied Hornbill. That Muttu could have described to Layard a bird that differed from one commonly found in Sri Lanka, but in subtle ways that would not be apparent to most people, whether Sri Lankan or British, suggests that Muttu was thinking about birds in an "ornithological" way rather than in the way others in his society might. Muttu must have acquired, from his work with Layard, an awareness of the *significance* of the subtleties of plumage difference for an ornithologist that would not have been perceived by his peers, including those like Woolf's Silindu, who had an intimate knowledge of the jungle and its inhabitants (Woolf 1981). Rural people operated according to different knowledge systems, including systems of classifying and ordering natural objects; that would have been the knowledge system most familiar to Muttu. Yet he knew that the subtle differences he observed in this hornbill were potentially significant, and he made a note of them, to report to Layard. Muttu's knowledge of the natural world and his abilities were what made him valuable to Layard, and the latter was acknowledging a debt when he named the Brown-breasted Flycatcher *Muscicapa muttui* [23], in honor of his *fidus Achates* (Kannan 1996).



23. Brown-breasted Flycatcher (top), by J.G. Keulemans, in Legge's *History*. The specific name honours Muttu, Layard's *fidus Achates*.

The other class of Sri Lankans on whom colonial science would have made an impact, was the small but privileged class of the emerging bourgeoisie, Anglicized in their way of life, and educated in English-language schools established in the island by the state and by missionary societies. They came into contact with British teachers and missionaries and others with a passion for natural history, in their churches and schools and organizations like the RAS. The Dutch burghers—like the family Kelaart came from—were the first to embrace English, seeing it as the way to progress in the new order; it quickly replaced Dutch as the language of the home (Ferdinands 1995: 52). Sinhalese, Tamils and others did not go quite that far, but newly emerging local elites, prospering through the new economic opportunities offered by colonial rule, took to both, English, and Christianity. They were small enough in number, probably no more than a few thousand in the mid-nineteenth century, but it was from their ranks that the handful of local members of the RAS were drawn. The nineteenth century threw up no Sri Lankan born ornithologists besides Kelaart, but, thanks to their membership in the RAS, and the publicity the Society received as the premier intellectual association in the colony, they would have been aware of the work that was being carried on in the island. Legge, in fact, wrote his book in part to “create a taste for natural history in the minds more particularly of the educated native community” (1880: vi). However, of a total of 53 individuals or institutions in Sri Lanka that subscribed to his book, only two were Sri Lankans. The earliest evidence for Sri Lankan engagements with birds, both as a source of recreation (birdwatching), and a focus of study in the Western sense, comes from the first half of the twentieth century. Not even Legge, who



spent nine years in the island, served as secretary of the RAS for two of them, and cultivated a range of correspondents in the island to aid his single-minded pursuit of birds,<sup>31</sup> mentions any Sri Lankans in his network (Legge 1880).

By the end of the nineteenth century, the scientific study of birds had been firmly established in Sri Lanka. The work of Kelaart and Layard, and the later work of Legge, had determined what species were present, and Legge's efforts in particular (of the three, he was the most widely travelled in the island) had mapped their distribution. The institutions necessary to support colonial zoology had also been created. The RAS, although eclectic in its orientation, did provide the early ornithologists with an institutional home, although after century's end neither it nor its journal played any further role in the development of that science. Most importantly, ornithologists had, in the Colombo Museum, a museum worthy of the name, with a small but growing collection of bird skins. The museum and its journal, *Spolia Zeylanica*, would play an important role in furthering zoological work, including the study of birds, in the decades leading up to Sri Lanka's independence in 1948. What was still lacking, however, was the participation of Sri Lankans in the enterprise of birding. Despite Layard's hopes that Kelaart would blaze a trail for his "apathetic countrymen", they would not begin to publish their observations until the twentieth century was several decades old.

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31 Unlike the other zoologists discussed in this paper, Legge showed little interest in aspects of natural history other than birds.

[Leopold\\_Layard\\_Autobiography](#). [Accessed on 26 October 2021.]

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Red-faced Malkoha *Phaenicophaeus pyrrhocephalus*.