

The life and work of Edward Fredric Kelaart

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Abstract

Edward Fredric Kelaart, born in Ceylon (=Sri Lanka) on 21 November 1819, served as a surgeon in the British Army in England, Gibraltar and Ceylon. He was the author of two books: *Flora Calpensis* (1846), an account of the flora of Gibraltar; and *Prodromus Faunae Zeylanicae* (1853-), an account of the vertebrate fauna of Ceylon, to which additions were made in the form of appendices and a second volume, apparently never completed. Kelaart was the author of several species-group mammal names, and to a lesser extent also of other vertebrate names. His main taxonomic contribution however was the description of 16 species of Turbellaria, 22 species of Actiniaria and 63 species of Nudibranchia. Drawings of his specimens are deposited in the Linnean Society of London; the Hancock Museum, Newcastle-on-Tyne; and The Natural History Museum, London. The drawings of Actiniaria have not been previously published and are in part reproduced here for the first time. Kelaart died at sea *en route* to England on 31 August 1860.

Introduction

E.F. Kelaart is widely regarded as the father of formal natural history study in Sri Lanka (formerly Ceylon). In the course of a relatively short life, much of it spent in Europe, Kelaart travelled widely in Sri Lanka and made extensive zoological collections. A biography of Kelaart published by his nephew E.P.H. Kelaart in 1932 dealt primarily with his life and did not fully assess his contribution to natural history. While summarizing his life here, we bring together information on the known manuscript material; tabulate the taxonomic names created by him; present a bibliography of his work; and publish some of his little-known drawings of marine invertebrates.

Abbreviations

Hancock Museum, Newcastle, HMN; Natural History Museum, London, BMNH; Linnean Society of London, LSL; Royal Asiatic Society of Bengal, RASB; Royal Asiatic Society of Great Britain and Ireland, Ceylon Branch, RASCB; Royal Botanic Gardens, Kew, RBGK; National Museum of Sri Lanka, NMSL; Wildlife Heritage Trust of Sri Lanka, WHT.

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Note on bibliography

All published works of Kelaart, whether seen by us or referred to by other authors, are listed in the Bibliography. These are cited in the text as superscripts.

Biography

(See Kelaart (1932) for a fuller account.) Edward Fredric Kelaart (sometimes spelt Eduard Frederik) (Figs. 19-20), the eldest son of William Henry Kelaart, an apothecary employed in the "Military Medical Department" (Anon., 1862), was born in Ceylon (now Sri Lanka) on 21 November 1819. Although of Dutch origin, the Kelaart family had lived in Ceylon for almost a century, Emmanuel Kelaart having arrived in Ceylon from Holland *ca.* 1726. The Kelaarts resided in Hospital Street in the Fort of Colombo. The 16 year old Edward Fredric (hereafter referred to as Kelaart) joined the Ceylon Government as a medical sub-assistant in 1835. In 1838 he enrolled at the University of Edinburgh and in 1840 became a member of the Royal College of Surgeons. He obtained his MD in 1841.

Kelaart returned to Ceylon in October 1841 as Staff Assistant Surgeon to the British Army Medical Service. He was sent back to England in 1843 and was that same year posted to Gibraltar for two years as Army Surgeon. After his return to England in 1845 he published *Flora Calpensis*³, an account of the flora of Gibraltar. On 17 February 1846 he was elected fellow of the LSL, his proposers having included Joseph Dalton Hooker (1817-1911) and Edwin Lankester (1814-1874). In June 1849 Kelaart returned to Ceylon and this was when he began, for the first time, to make systematic collections⁸⁻¹¹.

In 1852 he was promoted to the rank of Staff Surgeon and in the course of the following five years was stationed in different parts of Ceylon, where he made extensive zoological collections. Kelaart was particularly fond of the hill station of Newera-Ellia (today spelt Nuwara Eliya, elevation 6120 ft.), a resort in the central mountains of Ceylon, much favoured by the British. Kelaart delighted in the riches of its natural history and evidently spent much time there.

He was recalled to England in 1854, and on his return to Ceylon in 1856 was appointed Naturalist to the Government of Ceylon by the Governor, Sir Henry Ward (1797-1860), and commissioned to study the pearl oyster fishery of Ceylon, by then already declining, with a view to its revival. Kelaart based himself at Trincomalee during this time (he felt the Aripo fishery, on the west coast of the island, was close to exhaustion and that Tambalagam Bay near Trincomalee, on the east coast contained a richer resource). In addition to economic potential, his reports deal also with the natural history of the oyster¹². While in Trincomalee, Kelaart took, for the first time, an interest in marine invertebrates and delineated in water colour several dozen marine gastropods, anemones and turbellarians from living specimens; these were to form the basis of later descriptions by himself, Adler & Hancock (1866), Collingwood (1875) and Eliot (1907).

Kelaart died *en route* to England on 31 August 1860 (erroneously given as 31 October in Kelaart, 1932: 45), while aboard the s.s. *Ripon*, a day before the ship docked in Southampton, where he was buried.

Background

Despite having relatively little time to devote to natural history, largely owing to his having spent eleven years of his all too short adult life overseas, Kelaart was remarkably productive. In the time available to him in Ceylon, he made a collection of birds and mammals which was to prove of great taxonomic importance (though since largely lost). His taxonomic work however, contains evidence of the handicap he suffered in not having access to the scientific literature available to contemporaries such as Edward Blyth (1810-1873), and also to Indian material for comparison. The RASB at Calcutta was the leading institution in south Asian natural history at the time, and Kelaart established a close association with Blyth, curator of the Society's collection from 1842-1864. Kelaart sent several cabinets of vertebrates collected in Ceylon to Blyth, on which were based the description of dozens of new taxa. Smaller cabinets were also sent to John Edward Gray (1800-1875), Keeper of Zoology at the BMNH from 1840-1875 and a Mr. Smith in England.

Only two of Kelaart's contemporaries in Ceylon at the time were to achieve comparable eminence as natural historians. Edgar Leopold Layard (1824-1900), a Civil Servant in Ceylon, worked closely with Kelaart in the ornithological exploration of the island. Layard, who was the author of some 100 bird names published mostly in *Annals and Magazine of Natural History* in 1853-1854, sent most of his collections to Blyth. Emmerson Tennent (1804-1869), Colonial Secretary from 1845-1850, was later to publish *Natural history of Ceylon* (1861). Due probably to social discrimination faced by Ceylonese of Dutch descent (see Pethiyagoda et al., 1994), Kelaart appears never to have come into close contact with Tennent.

Kelaart's ability as a natural historian was recognised by the government only very late in his career, after the publication of his *Prodromus*. His appeals to the government to establish a museum fell largely on deaf ears, and it was 17 years after his death that the Colombo Museum was established. His own contribution to Ceylon's natural history will probably remain ambiguous. On the one hand, like his predecessor Joan Gideon Loten (1710-1789), he published relatively little original information; on the other, his collections and drawings formed the basis for enormous advances in the natural history of Sri Lanka, largely as a result of the work of Blyth.

Flora calpensis and botanical interests

This flora of Gibraltar (Calpe was one of the pillars of Hercules) is, apart from an early paper on timber trees¹, Kelaart's only botanical publication. He wrote it, evidently, because he perceived a gap in the literature—

The botanical riches of Gibraltar have not received, however, the exclusive attention of any botanical writer for, with the exception of a small list of plants made by von Martius [C.F.P., 1794-1868] and Spix [J.B. von, 1781-1826], on their way to the Brazils, I have not met with any correct account².

In *Flora calpensis* he listed 456 species of flowering plants and ferns indigenous to the rock, in addition to 44 exotic and cultivated species (no new taxa were described). He was also able to comment on the biogeography of the peninsula and its geographic affinities. Pages 205-219 comprise Edmund

Boissier's (1839-45) account of Gibraltar, translated from his *Voyage botanique dans le Midi de l'Espagne, pendant l'année, 1837*.

Kelaart's interest in botany appears to have been restricted largely to *Flora calpensis*. He took no interest in the botanical exploration of Ceylon, probably because with the establishment of the Botanic Gardens at Peradeniya, botanical exploration and research had been placed on a relatively firm footing by the 1820s. Alexander Moon's (1824) *Catalogue of indigenous and exotic plants* followed catalogues of similar or greater scope by Hermannus (1717), Burmannus (1737) and Linnaeus (1747); but a taxonomic treatment of a significant portion of the fauna of Ceylon seems a far cry even today. By the mid-1850s, the herbarium at Peradeniya was flourishing; but a museum for natural history was not to come into being until the 1880s. At the same time, George Gardner (1812-49), a pupil of William Hooker (1785-1865), had been appointed as keeper of the botanic gardens, followed in 1849 by the equally competent and active G.H.K. Thwaites (1812-82). William Ferguson (1820-87) too, was actively botanising during the mid-nineteenth century, and Kelaart would have little enjoyed picking up the crumbs left over by his botanical contemporaries in Ceylon.

Kelaart had the acquaintance of Sir William Hooker, Director of the RBGK from 1841-65, and maintained a correspondence with him from 1841 until his death. In the Director's Correspondence in the RBGK Archives are five letters addressed to Hooker by Kelaart, dated 11 August 1841 (from Hampton Court, a brief note on cinnamon); 30 September 1841 (from 72 Wimpole St., Cavendish Square, requesting plants to take back with him to Ceylon, especially Cactaceae); 9 March 1849 (from "Govt. House," forwarding a "barrel containing some of the most beautiful parasitic plants of this country," explaining that he was "obliged to have had them collected in a very great hurry," through the captain of the ship *Agnes*); 26 April 1849 (from "3 Lanes Hotel, S. Albans Place, Regent Street, stating that he would be leaving for Ceylon on 3rd or 4th May and expressing his regret of the death of Dr. [George] Gardner, Superintendent of the botanic gardens at Peradeniya, Ceylon); and 17 February 1859 (from Trincomalee, seeking to resolve an allegation that he had misidentified a species of *Acanthus* in *Flora calpensis*, conveying also his regards to William Hooker's son Joseph Dalton (1817-1911), who was later to be the Director of the RBGK and author of *Flora of British India* (1872-97).

Prodromus faunae Zeylanicae

Kelaart intended his *Prodromus* (=a forerunner, a preliminary work) to be a synthesis of all that was known of the natural history of Ceylon. His intention appears to have been that future exploration should be based upon it (as was in fact the case).

In the preface (pp. i-vii), Kelaart acknowledges the assistance given him by several colleagues including Blyth, Layard, Walter Elliot (1803-1887), Thomas Claverhill Jerdon (1811-1875) and Theodore Edward Cantor (1809-1854), in addition to a large number of donors of specimens.

The body of the book is divided into four parts and an appendix, which are preceded by an account of the natural history of Nuwara Eliya and its environs (pp. ix-xxxiii): 1, mammals; 2, birds; 3, reptiles (excepting snakes); 4,

amphibians. The 64 page appendix comprises accounts of the flora of Ceylon by George Gardner; Indian mammals likely to be found in Ceylon by Elliot; birds by Blyth; an author's note paraphrasing some clarifications made by Blyth; mammals, reptiles etc., by Blyth; two letters addressed to Layard by Kelaart; and the indices.

The dates of publication of *Prodromus* are difficult to establish with certainty. Kelaart was in Ceylon from 1852-54, and the book was printed in Colombo. The table of contents lists only items appearing from p. i to p. 37 of the appendix, and the article that begins on p. 37 of the appendix continues to p. 50. It would appear that the book as originally published (and bound) contained only these pages, pp. 51-62 of the appendix probably having been issued separately, at a slightly later date. This is also supported by the fact that of the five copies of the book examined by us, every one included all the pages up to p. 50 of the appendix, but the number of pages following differed amongst the various copies (though always remaining sequential). Unfortunately, we have been unable to locate a copy in its original cloth binding in order to resolve doubt on this matter. The index however, does not refer to any of the material in the appendix.

Taylor (1947) pointed out that as the *Catalogue of Ceylon birds* by Kelaart and Layard, which comprises pp. 55-62 of the appendix, bears the note "From the 'Journal of the Ceylon Asiatic Society' for January, 1853", the entirety of volume 1 was published in 1853. This seems likely to have been the case. On 22 November 1852 Kelaart had written to Layard—

I regret that my health has not permitted me to complete the first part of our conjunct paper on the ornithology of Ceylon. But if the Society will receive a small portion of it as an instalment of what is to come, I promise to have the rest done in time for the next No. of the journal. My work [presumably *Prodromus*] is nearly ready for delivery. Since it was completed, I have come up here for the benefit of my health.

If, as is suggested by the above, the manuscript of *Prodromus* was completed only *ca.* November 1852, it is most unlikely that it could have been published in the same year. Taylor was probably correct therefore, in suggesting that the year of publication of *Prodromus* was 1853 and not 1852 as stated on the title page. It is also likely that pages 51-62 were published after the work itself (though almost certainly in 1853).

Kelaart also published in 1853 a "flyer" advertising *Prodromus* as "just published in one Vol. 8vo cloth; price 10s. 6d.", which suggests that at the time of publication the book was not intended to be issued in more than one volume or in parts.

The date(s) of publication of volume 2 (which was often bound together with volume 1, but which is also much rarer) are even more difficult to ascertain. Taylor (*op. cit.*) was wrong however, in concluding that this was published [in its entirety] in 1854, for volume 2 contains two articles which were reprinted from volume 2 number 3 of the Journal of the RASB, which was published only in 1855. Judging by the way in which volume 2 is bound in the copies we have examined, it would appear that it too, was issued in parts, evidently between 1853 and 1855, the latter parts of it perhaps even later. Owing

to the complex pagination of both volumes, we give below a synopsis of the contents of each from the copies in the BMNH, LSL and WHT. The contents of the two volumes, when complete, are as follows—

Volume 1

- 6 pp. Half title page (1 leaf); title page (1 leaf); dedication to "Andrew Smith, Esq. M.D., F.Z.S. & c." (1 leaf);
 i-viii Preface, dated 1 August 1852 (Fort Frederick, Trincomalee) (4 leaves); Contents (1 leaf).
 ix-xxxiii (13 leaves): The natural history of Newera-Ellia (geology, meteorology and zoology).
 1-90 (1+45 leaves) Part I. Ceylon Mammalia.
 91-137 (24 leaves) Part II. Birds of Ceylon.
 139-188 (25 leaves) Part III. Ceylon reptiles.
 189-197 (5 leaves) Part IV. Ceylon Amphibia.

Appendix

- 1-14 Appendix A: Gardner, G. Some general remarks on the flora of Ceylon.
 15-21 Appendix B: Elliot, W. Description of *Bos gaurus*.
 22-35 Appendix C: Blyth, E. Notes and descriptions on some new or little known species of Ceylon birds.
 36 Notes [corrigenda and addenda by Blyth].
 37-50 Blyth, E. Mr. Blyth's report on Ceylon mammals, birds, reptiles and fishes; March 1852.
 51-53 Letter A (Kelaart to Layard, Kadugannawa [near Kandy], 22 November, 1852).
 54 Letter B (Kelaart to Layard, Colombo, 16 December 1852).
 55-62 Catalogue of Ceylon birds (reprinted from the Journal of the Ceylon Branch of the Royal Asiatic Society, vol. 2, no. 1, pp. 54-66).
 3 pp. Index of popular names.
 1 p. Index of Singhalese names.

Volume 2

- 4 pp. After the "Index" is a single leaf headed "Appendix" which is blank on the reverse, not marked with any pagination. The next leaf (also blank on the reverse and not marked with any pagination) has a paragraph of text and serves as a Preface but does not have any heading. It provides an insight into Kelaart's intentions *vis-à-vis* the continued publication of the *Prodromus*—

In order to keep the Ceylon student of natural history up to other departments of Zoology, in addition to those which the author is more particularly engaged in, it is his intention to republish in each part of the *Prodromus* now in progress of publication, the labours of naturalists in Europe as they appear in periodical publications of the day. With this object in view he has much pleasure in adding to this part characters of new species of land shells (collected in Ceylon by Mr. Edgar Layard) from the pen of the celebrated Malacologist W. H. Benson, Esq., and also descriptions of a new species of Mungoo by Dr. Gray.

[The Appendix and "Preface" constitute pp. i-iv of Volume 2].

- v-vi Gray, J.E. Notice of two Viverridae from Ceylon lately living in the gardens (reprinted from *Proc. Zool. Soc. London*, 1851 (1853); also *Ann. Mag. Nat. Hist.*, 1853, (2) 12).
- vii-xiii Benson, W.H. Characters of new land shells collected by E. L. Layard in Ceylon (reprinted from *Ann. Mag. Nat. Hist.* (1853) (2)12).
- xiv Blank, not paginated.
- xv-xvi Kelaart, E.F. Catalogue of Ceylon Mammalia (reprinted from *Proc. Zool. Soc. London*, 18: 155-159; also published in *J. RASCB*, 5: 201-206 (1853)).
- 2 pp. Title-page with the wording "*Prodromus Faunae Zeylanicae*; being contributions to the zoology of Ceylon. ...Vol. II.-Part I ... 1853." On the reverse is printed "From the *Journal of the Asiatic Society of Ceylon*, 1853."
- 2 pp. The next leaf (blank on the reverse) is headed "Notice" and contains in addition to the acknowledgement of assistance from the members of the Asiatic Society of Ceylon; Sir George Anderson; Dr. Ferguson P.M.O.; and C.J. McCarthy (Colonial Secretary), mentions that Dr. [L.K.] Schmarda from the University of Prague (examining Infusoria) and Professor Harvey of Trinity College, Dublin (examining Echinodermata and Crustacea) were in Ceylon.
- 5-10 Kelaart, E.F. Synopsis of Ceylon reptiles.
- 11-22 Kelaart, E.F. Descriptions of new or little known species of reptiles (reprinted from *J. RASCB*, (1855), 2(3)).
- 1-31 Layard, E. Ceylon ornithology: description of diurnal and nocturnal birds of prey (reprinted from *J. RASCB*, (1855), 2(3)).

Kelaart the vertebrate taxonomist

Kelaart was the author of four genus group names and some 160 species group names (16 mammals; 3 birds; 12 reptiles; 8 amphibians; 63 nudibranchs; 16 turbellarians; and 22 actinarians). The names we have been able to extract from the literature are listed in the Appendix, together with details of publication and the location of drawings, if any.

The dates of publication of Kelaart's vertebrate names however, are very confused and difficult to resolve. Much of what he wrote was published in more than one place, often with alterations, some names having been published in three different places at different times, each with the postscript "new species." This applies particularly to the names that become available from the 1852-55 period, during which volumes 1 and 2 of *Prodromus* were published. To establish accurately a relative chronology for periodicals published in widely-separated places in the middle of the 19th century may be well nigh impossible. Much of Kelaart's output was published "simultaneously" in the *Journal of the Royal Asiatic Society of Bengal* (Calcutta), the *Annals and Magazine of Natural History* (London) and the *Journal of the Royal Asiatic Society, Ceylon Branch* (Colombo). Additionally, *Prodromus* anticipated many of the new species descriptions and published partial descriptions or merely proposed names

lacking any description or indication of a description. The bibliography of Kelaart has also been complicated by the citation by some authors of page numbers of his publications in the *Journal of the Royal Asiatic Society (Ceylon Branch)* from the repaginated and emended reprint of 1883.

In a letter dated 22 November 1852 addressed to Layard and published as part of the appendix to Volume 1 of *Prodromus*, for example, Kelaart⁸:A53 wrote—

The other species, which I propose naming after our distinguished friend Mr. Blyth, is 16 inches long, circumference 1.3-10th inch. Dark yellowish brown above, with darker brown spots on the anterior third of scales. Paler beneath. Sides of nape and neck waved with angular spots of yellowish hue; yellow spots, on each side of vent. Rostrum yellow. Tail thick, slightly truncated, conical, upper part of termination covered with a small, subtriangular granular shield, lower surface smooth, covered with broad scales. Vent shields 1—2—This species too is found in the same locality, but on softer ground, near rivulets.

There can be no doubt that Kelaart intended the name to become available from this publication (made some time after the letter was written), for in his *Catalogue*¹⁵ it was probably with reference to this species that he listed *Rhinophis (?) blythi*, n.s., nobis. But as there is no indication of the description, this should be treated as a *nomen nudum*. A little further on in the same letter, Kelaart wrote—

The other little spotted creature, of an olive brown colour, is evidently the young of a species of *Acontias*, which is not described in Gray's *Catalogue*; if new, I shall have much pleasure in naming it *Acontias layardi* (Kelaart, 1853: A53).

The hitherto overlooked binomen *Acontias layardi* probably qualifies as an available name by Kelaart from this publication in terms of Art. 15 of the International Code of Zoological Nomenclature (hereafter "the Code").

Kelaart was also given to attributing already published names to himself even if he was associated only with the provenance of the specimens from which they were described, the description itself having been wholly authored by someone else. For example, in vol. 2, page 22 of *Prodromus* he writes: "Mr. Blyth has recently described three new species of frogs from my Ceylon collection. J.A.S.B., vol. 1854, RANA ROBUSTA, n.s., nobis," (i.e., "new species, [attributed] to us"). Even by the standards of his time, this use of "n.s., nobis" was inappropriate, as the species was no longer "new" and in any case was attributable only to Blyth.

Blyth too, included some of Kelaart's names and descriptions in his publications. In some cases these were acknowledged, and subsequent authors have cited them correctly as "Kelaart, in Blyth." In others, Blyth neglected to make it clear that Kelaart was the author: e.g. the bird names *Brachypteryx palliseri*, *Garrulax cinereifrons* and *Pycnonotus penicillatus*. Kelaart⁸: 122-125, A32-35 continued to claim authorship of these names long after Blyth (1852: 28; 1851: 176; 178) had published them under his own name. There would probably be, in terms of Art. 50(a) of the Code, grounds for considering Kelaart the author of these names.

A similar problem also occurs in the case of some of the names published by Collingwood (1875). Collingwood described from Kelaart's drawings (and manuscript names thereon) *Thysanozoon auropunctatum*, *Eurylepta affinis* and

Eurylepta atraviridis (Kelaart had placed the first two species in the genus *Planaria*). Both Collingwood and subsequent authors (e.g. Prudhoe, 1985) have attributed these names to Kelaart alone, although Kelaart was responsible for neither the descriptions nor the criteria of availability (Kelaart's drawings themselves were not published or explicitly indicated in the descriptions).

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. More than 75 per cent of his 44 vertebrate species are treated as junior synonyms in the present literature. But with the exception of Layard, he was in his time the only productive zoologist resident in Ceylon, working without any institutional support. In the preface to *Prodromus*, having thanked those who helped him Kelaart added—

The encouragement such men give me to prosecute the work I have begun, is a further inducement to publish some connected account of those parts of the Fauna of the Island to which I have paid most attention. Their liberality, kindness and attention were indeed a happy contrast to the coldness and indifference of others, from whom one might naturally have expected at least facilities for working.

Nudibranchia, Actiniariana and Turbellaria

Kelaart^{20,23,24,28-30} described 63 species of nudibranchs (opisthobranch gastropods) in addition to 16 turbellarian and 22 actiniarian species (see Figs. 3-18). A few of his drawings bear manuscript names which however, were never published. His interest in soft marine invertebrates seems to have been kindled in 1857, when he was commissioned by Sir Charles McCarthy, colonial secretary and later Governor of Ceylon, to study the pearl fishery of the island and make recommendations on its improvement. Kelaart was deeply interested in this subject and had even been present^{18, 18} at Aripo while yet in his teens, the ancient pearl banks near Mannar, off north-western Ceylon, in the fishing seasons of 1835 and 1836.

Although not to everyone's taste (Eliot, 1907: 637), Kelaart's descriptions of Turbellaria and Nudibranchia were more detailed than those he had written for most species of vertebrates he described as new: a sign perhaps of the maturity he had acquired as a zoologist since the days of *Prodromus*, just five years previously. The Turbellaria and Nudibranchia also brought out the artist is Kelaart, and he figured no less than 55 species (by his own reckoning) of the former group and 19 of the latter in water colour (in fact at least 85 drawings have survived: see Appendix). He was anxious to have these published, and obtained an introduction to Albany Hancock (1806-1873), the well-known British marine biologist.

"Kelaart is dead, as you suppose," Hancock wrote to Cuthbert Collingwood on 6 February 1870 (*in litt.*, LSL). "I know very little of his history, except that he was engaged to look after the pearl fisheries of Ceylon. It was through Sir Walter Trevelyan [1797-1879], a Northumberland gentleman, that he applied to me to endeavour to get his drawings published—all of which were placed at the time in my hands, and have remained in my possession ever since. I applied to several London authorities, but all of them were of the opinion that the nudibranchs [i.e. the drawings] were too incomplete to justify publication.

With this opinion I perfectly coincided, and advised Kelaart to execute a more detailed series of drawings. I never heard from him afterwards: death speedily culminating the poor fellow's career..."

On 12 May 1863 however, Joshua Adler and Hancock had read a paper to the Zoological Society of London—

...we were favoured by the late Dr. Kelaart with a large collection of drawings representing the species described by him in the Ceylon branch of the "Journal of the Royal Asiatic Society," together with many of the specimens preserved in spirit... Coloured drawings of all the species had been made, which are now before us: though fully equal to most of the figures of South Sea Nudibranchs previously given, these drawings have not been thought to be sufficiently accurate to justify the expense of publication.

Although they redescribed seven species of Kelaart's nudibranchs, Alder & Hancock reproduced only three of his drawings.

In 1869 an ailing Hancock approached Cuthbert Collingwood (1826-1908), who, Hancock knew, was interested in marine Turbellaria. Collingwood had sent Hancock a collection of his own drawings, which he intended to publish with descriptions. Hancock evidently suspected that some of these could have been identical with species already described by Kelaart, and intended to compare the drawings.

On 8 November 1869 Hancock wrote to Collingwood—

Kelaart described 17 or 18 species from Ceylon in the paper²⁴ above alluded to, but there are no figures. I have however, most of his original drawings, both of the described and undescribed species. They are not very good, but may perhaps be sufficient to determine the species. If you think of drawing up a paper on the subject, and could combine his with yours in any way, I should be very glad. I consider these drawings are in my hands for some such purpose, and it would give me much pleasure to see them utilized. In the first place, if you think it worth while, I shall have much pleasure in comparing your drawings with Kelaart's and in giving you my opinion as to how far they agree. Be kind enough to let me hear from you on the subject, and as to the safe arrival of your drawings...

Collingwood appears to have responded positively, and on 18 November 1869 Hancock wrote to him (*in litt.*, LSL)—

I have looked over your drawings and have carefully compared those of the Planarians with Kelaart's figures and descriptions. I find that I have 19 drawings of these animals by Kelaart, all of which have been described, but three, in the two collections that appear to agree.

Now, Kelaart's descriptions are quite short, and are unaccompanied by figures; his drawings are better than I thought they were, and would, if published along with yours, make a very interesting monograph on the subject — would in fact make a valuable contribution towards the history of these little known animals of the Eastern seas. If therefore you are inclined to undertake such as work, I shall have much pleasure in placing Kelaart's drawings in your hands for the purpose... When you demand them, Kelaart's drawings are at your service. I do not send them because they are on paper twice the size of yours, and I am uncertain whether or not you may require them.

It was not to be until 18 March 1875 however, that Collingwood read his paper *On thirty-one species of marine planarians, collected partly by the late Dr. Kelaart, F.L.S., at Trincomalee...* (1875). Here Collingwood wrote—

With regard to the Planarians collected by the late Dr. Kelaart, and included in this collection, it is necessary that I should say a few words concerning how they came into my possession. The late Mr. Albany Hancock, of Newcastle-on-Tyne, hearing from me in the course of correspondence, that I had collected some marine planarians, which appeared to be new, informed me that he had in his possession a number of drawings of similar animals made by Dr. Kelaart (formerly a Fellow of this Society) from specimens collected by himself in Ceylon, and principally at Trincomalee. These drawings were briefly characterized by him in a paper "On some new and little-known Ceylon Invertebrata," published in the journal of the Ceylon Branch of the Royal Asiatic Society. Part of this paper was printed in the "Annals of Natural History" for 1859 but the portion relating to the Planarians was not so published; nor, need I say, were the drawings published at all. Dr. Kelaart issued a "*Prodromus Faunae Zeylanicae*," a portion of which is in the Society's Library, and which contains the description of the Planarians here figured; but I have nowhere met in the literature of the Planarians with any reference to either of these publications, which appear to be unknown. Mr. Hancock therefore suggested that if I could publish Kelaart's species along with my own, they would, as he expressed it, "make a very interesting monograph upon the subject—would, in fact, make a valuable contribution towards the history of these little-known animals of the eastern seas." He therefore sent me the drawings, which regarding them as a testament jointly from Dr. Kelaart and Mr. Hancock, both deceased, I have accordingly submitted to a careful examination and done my best to distribute them according to the genera and species of the best classification. I may say that, with Mr. Hancock, I consider that these drawings are sufficient for identification; but they are unaccompanied by details, and the descriptions of them are brief. This is to be regretted, since the value of such drawings depends no less upon the accuracy of the verbal descriptions taken from the living animals than upon the correctness and minuteness with which they are depicted...

In his review, Collingwood omitted species that had been described by Kelaart but for which no illustrations were available. Among the collection of drawings now in the LSL is a note from Collingwood which reads—

In the accompanying parcel you will find the original drawings by Kelaart and myself of Planaria and Nudibranchiata described to be figured in the *Transactions*... some drawings and descriptions by myself of certain marine animals and which are presently unpublished. I think that perhaps the Linnean Society would be the best depository for these matters - if they will take them.

These include both Kelaart's and Collingwood's drawings, and a single drawing by Kelaart labelled *Doridopsis rubra*, probably by Hancock, reproduced in Figure 1 on Plate XXXI. in Alder & Hancock (1866). All 19 of Kelaart's drawings of "planarians" were reproduced in Collingwood (1875); the original drawings are in the library of the BMNH, a set of duplicates, probably prepared for the engraver to work from, being deposited in the LSL.

Kelaart's nudibranch drawings and specimens were later made available to Sir Charles Eliot, who used them in his *Nudibranchs of southern India and Ceylon* (1907). Eliot also draw attention to—

A few specimens collected by Kelaart are sufficiently well preserved to repay examination, but, as in the previous collection, many are useless. Kelaart's specimens are marked as such, apparently in Hancock's writing, and generic and specific names are usually but not invariably appended.

Of Kelaart's drawings, Eliot (1906) went on—

The drawings consist of figures of about 55 species of Nudibranchs made from life by Kelaart in Ceylon. Thirty five of these figures are now reproduced. The rest have been left aside because in most cases other figures of the animals which they represent have been published, but in a few cases because they add nothing to the printed description. The poorly executed figure of *Doris cerisa*, for example, adds nothing to Kelaart's statement that it is a small *Doris* of a cherry-red colour..

Kelaart is by no means an authority to be despised, though he has not found favour with many of his critics. He totally ignored anatomy, and his descriptions of external characters have not that wealth of precision and detail which might be desired. But he is exact in recording localities and seasons, and he adds many notes on the habitats of the animals, particularly on their spawn. His papers are of little service to the student of preserved specimens, but, taken together with his drawings, they will probably enable a naturalist in Ceylon to identify most of his species.

Kelaart's manuscript material

Kelaart's drawings found themselves divided into three groups, now deposited in the BMNH, SLS and HMN. Most of Kelaart's drawings appear to have been executed for use as descriptive notes (not for publication), although the quality of the actinarian drawings is arguably superior to that of the other two groups. While the 10 sheets of drawings of Actinaria (on ten leaves, two of which figure *Dioscoma ceylonica*) remained in the Hancock collection, the 19 drawings published by Collingwood (1875) were deposited in the LSL by Collingwood himself. The largest collection of Kelaart drawings are in the BMNH, having been donated to that institution in 1913 and 1925 by Kelaart's daughter Fanny. These comprise 45 sheets of watercolour drawings of "nudibranchiates" mostly signed, labelled and dated 1857 by Kelaart (and include the original drawings published by Eliot (1906)); 25 sheets of manuscript, being the draft of the 1858 paper on nudibranchs²⁴; 12 sheets of "zoophytes," some of which were included in the 1858 paper; 42 sheets of miscellaneous pencil sketches (a few coloured) of marine invertebrates, evidently copied from other sources and used as a reference; 3 drawings of the pearl oyster, 2 of them coloured; a notebook of about 100 pp., including miscellaneous notes and a draft of a paper²⁵. A representative selection of these drawings and manuscripts is reproduced as Figures 2-18.

Acknowledgements

We thank Alec Coles (HMN), Gina Douglas (LSL), Ann Datta (BMNH), Cheryl Piggot (RBGK) and Dharmasri Kandamby (NMSL) for helping to locate archival material on Kelaart and making this available to us: this paper could not have been written if not for their zeal and refreshing willingness to help. We also thank Alwynne Wheeler, Bill Rudman and Ismeth Raheem for background material on Kelaart and for commenting on an earlier draft of the manuscript.

Literature cited

- Adler, J. & A. Hancock. 1866. Notice of a collection of nudibranchiate Mollusca made in India by Walter Elliot, Esq., with descriptions of several new genera and species. *Trans. Zool. Soc. London*, 5: 113-146, pl. XXVIII-XXXI.
- Ali, S. & S.D. Ripley. 1989. A compact handbook of the birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka (2nd ed.). Oxford Univ. Press, Delhi. 737 pp., 104 pl.
- Anon. 1862. Edward F. Kelaart, M.D., F.G.S. [obituary]. *Proc. Linnean Soc. London*, 6: xli-xlii.
- Blythe, E. 1851. Report on the Mammalia and more remarkable species of birds inhabiting Ceylon. *J. Asiatic Soc. Bengal*, 20: 153-185.
- Boissier, E.P. 1839-45. *Voyage Botanique dans le midi de l'Espagne, pendant l'année, 1837*. Paris.
- Burmans, J. 1737. *Thesaurus Zeylanicus, Plantas in insula Zeylanâ nascentes; inter quos plurimae novae species, et genera inveniuntur*. Olandus & Hartogius. vi+235 pp., 110 pls.
- Collingwood, C. 1875. On thirty-one species of marine planarians, collected partly by the late Dr. Kelaart, F.L.S., at Trincomalee, and partly by Dr. Collingwood, F.L.S., in the eastern seas. *Trans. Linn. Soc. London*, (2)1: 83-98, pl. 17-18.
- Corbet, G.B. & J.E. Hill. 1992. The mammals of the Indomalayan region: a systematic review. *Nat. Hist. Mus.*, London. 488 pp.
- Dallas, W.S. 1858. On the natural history of the Cingalese pearl oyster and on the production of pearls. Derived from Dr Kelaart's "Introductory report on the natural history of the pearl oyster of Ceylon." and from "Die echten Perlen, ein Beitrag zur... Geschichte derselben," by Dr. Karl Möbius, Hamburg, 1857. *Ann. Mag. Nat. Hist.*, (3)1: 81-100.
- Elliot, C. 1906. On the nudibranchs of southern India and Ceylon, with special reference to the drawings by Kelaart and the collections belonging to Alder & Hancock preserved in the Hancock Museum at Newcastle-on-Tyne. *Proc. Zool. Soc. London*, 1906: 636-691, pl. XLII-XLVII.
- Elliot, C. 1906 (1907). On the nudibranchs of southern India and Ceylon, with special reference to the drawings by Kelaart and the collections belonging to Alder & Hancock preserved in the Hancock Museum at Newcastle-on-Tyne, No. II. *Proc. Zool. Soc. London*, 1906: 999-1008.
- Embleton, D. 1875. *Memoir of the life of Albany Hancock, F.L.S., etc.* *Trans. Nat. Hist. Soc. Northumberland*, sp. pub., 118-141.
- Hermanus, P. 1717. *Musæum Zeylandicum, sive catalogus Plantarum, in Zeylana sponte nascentium observatarum et descriptarum*. Lugduni Batavorum. ii + 71 pp.
- Kelaart, E.P.H. 1932. A biographical sketch of the late Lieut.-Col. E.F. Kelaart. Colombo. 53 pp.
- Kirtisinghe, P. 1957. *The Amphibia of Ceylon*. Publ. by the author. 112 pp., 1 pl.
- Linnaeus, C. 1747. *Flora Zeylanica, sistens plantas Indicas Zeylonæ insulæ*. Laurentii Salvii. 240+20+14+1 pp., 4 pls.
- Moon, A. 1824. *A catalogue of the indigenous and exotic plants growing in Ceylon...* Wesleyan Mission Press. 77+41+4+4+22+10 pp.
- Napier, P.H. 1985. *Catalogue of primates in the British Museum (Natural History) and elsewhere in the British Isles, III: Family Cercopithecidae, Subfamily Colobinae*.
- O'Donoghue, C.H. 1933. Kelaart's work on the Nudibranchiata of Ceylon. *Proc. Malacol. Soc. London*, 20(4): 221-226.
- Pethiyagoda, R., Raheem, I. & B.C. Russell. 1994. J.W. Bennett, his fish names and dates of publication of "Fishes of Ceylon". *J. South Asian nat. Hist.*, 1: 35-48.
- Prudhoe, S. 1985. A monograph on Polyclad Turbellaria. *British Mus. (Nat. Hist.)*, London. 259 pp.

- Russell, H.D. 1966. Kelaart's Ceylon opisthobranch species. *Nautilus*, 79(4): 120-122.
- Smith, M.A. 1943. The fauna of British India, Ceylon and Burma, including the whole of the Indo-Chinese subregion. Vol. 3: Serpentes. Taylor & Francis, London. xii+583 pp.
- Taylor, E.H. 1947. Publication dates of Kelaart's *Prodromus fauna* [sic.] *Zeylanicae*. *Herpetologica*, 4: 26.
- Tennent, J.E. 1861. Sketches of the natural history of Ceylon with narratives and anecdotes. Longman, Green, Longman, and Roberts, London. 500 pp.

Bibliography

A list of the publications of E.F. Kelaart in annual chronology (publications occurring within a given calendar year may not be sequential). The year of publication as determined by us, when different from the year printed on the publication itself, or that found in other authorities, is given in parantheses.

1. 1839. A paper on timber trees in Ceylon and the economical uses of 50 species. [Not seen; *vide* Kelaart, 1832].
2. 1840. A paper on artisan wells. [Not seen; *vide* Kelaart, 1832].
3. 1846. Flora calpensis: contributions to the botany and topography of Gibraltar and its neighbourhood: with a plan and views of the rock. John van Voorst, London. xviii+220 pp, 2 sepia engr., 1 map.
4. 1850. Catalogue of the Mammalia of Ceylon, collected and observed by Dr. E.F. Kelaart, M.D., F.L.S. *Proc. Zool. Soc. London*, 18: 155-159.
5. 1850. Catalogue of the Mammalia of Ceylon, collected and observed by Dr. E.F. Kelaart, M.D., F.L.S. *Journal Roy. Asiatic Soc. (Ceylon Br.)*, 5: 201-206.
6. 1850. Notes on the geology of Ceylon—laterite formation, fluviatile deposits of Nuera Ellia. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 5: 87-97.
7. 1850. Descriptions of new species and varieties of mammals found in Ceylon. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 5: 207-217.
8. 1852 (1853). *Prodromus faunæ Zeylanicæ*; being contributions to the zoology of Ceylon. Printed for the author, Colombo. xxxiii+197 pp., + 62 pp. Appendix, 4 pp. Index. [See also: 12].
9. 1853. Notes on the geology of Ceylon—laterite formation, fluviatile deposits of Nuera Ellia. *Edinburgh New Phil. J.*, 54: 28-36.
10. 1853. Descriptions of new or little-known species of reptiles collected in Ceylon. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 2 (2): 102-116.
11. 1853. Catalogue of Ceylon birds. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 2 (1): 54-66.
12. 1854— . *Prodromus faunæ zeylanicæ*, vol. 2 (6). i-xvi, 1-23, 1-31 pp.
13. 1854. Descriptions of new or little-known species of reptiles collected in Ceylon. *Ann. Mag. Nat. Hist.*, 13: 25-31.
14. 1854. Descriptions of new species of Ceylon reptiles. *Ann. Mag. Nat. Hist.*, 13: 407-408.
15. 1854. Catalogue of reptiles collected in Ceylon. *Ann. Mag. Nat. Hist.*, 13: 137-140.
16. 1855. Ceylon ornithology. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 2 (3): 143-171.
17. 1855. Synopsis of Ceylon reptiles.—Descriptions of new or little known species of reptiles. *J. Roy. Asiatic Soc. (Ceylon Br.)*, 2 (8): 123-128.
18. 1857. Introductory report on the natural history of the pearl oyster of Ceylon. Separate, 20 pp.
19. 1857. Introductory report on the natural history of the pearl oyster of Ceylon. *Ceylon Overland Observer*, 20 pp.
20. 1857 (1859). Descriptions of new and little-known species of Ceylonese nudibranchiate mollusks. Separate, 64 pp. [Not seen; *vide* Eliot, 1906; dated

- "Trincomalee, 1st. November 1857,"; not validly published (O'Donoghue, 1933)].
21. 1858. Introductory report on the natural history of the pearl oyster (*Meleagrina margaritifera* Lam.) of Ceylon. Edinburgh Proc. Phys. Soc. (1854-58), 1: 399-405.
 22. 1858. Introductory report on the natural history of the pearl oyster of Ceylon. Madras J. Lit. Sci., 3: 89-104.
 23. 1858 (April). Description of a new Ceylonese nudibranch. Ann. Mag. Nat. Hist., (3) 1 (4): 257-258, pl. 10B, Figs. 1 and 2.
 24. 1856 (1858 May). Descriptions of new and little-known species of Ceylonese nudibranchiate mollusks and zoophytes. J. Roy. Asiatic Soc. (Ceylon Br.), 3 (1): 84-139, 2 unnumbered pl.
 25. 1858. Report on the Tanglegam pearl oyster fishery. Separate, 6 pp.
 26. 1858. Report on the Tanglegam pearl oyster fishery. Ceylon Overland Observer, 6 pp.
 27. 1858. Report on the Tanglegam pearl oyster fishery. Madras J. Lit. Sci., 3: 105-110.
 28. 1859 (April). Descriptions of new and little-known species of Ceylonese nudibranchiate mollusks. Ann. Mag. Nat. Hist., (3) 3: 291-304.
 29. 1859 (June). Descriptions of new and little-known species of Ceylonese nudibranchiate mollusks. Ann. Mag. Nat. Hist., (3) 3: 488-496.
 30. 1859. On some additional species of nudibranchiate mollusks from Ceylon. Ann. Mag. Nat. Hist., (3) 4: 267-270.
 31. 1861. On the natural history of the pearl oyster. The Technologist, 4: 166-177.
 32. 1883. New and little-known species of Ceylonese nudibranchiate mollusks and zoophytes. J. Roy. Asiatic Soc. (Ceylon Br.), 3(1)(9): 76-124. Manuscript dated 1 November 1857, Trincomalee [reprint of 24].
 33. 1894. *Descriptions of new and little-known species of Ceylonese nudibranchiate mollusks and zoophytes*, cited in the Contents, but evidently not published in, the J. Roy. Asiatic Soc. (Ceylon Br.): vol. 3 (reprint).

Appendix 1

Taxonomic names made available by E.F. Kelaart, with notes on the location of his drawings of marine invertebrates.

Mammalia

Axis oryzus

Corsira newera-ellia

Feroculus feroculus

Feroculus

Golunda coffaeus

Golunda newera

H. fulvescens Kelaart in Blyth, 1851

Herpestes flavidens

Herpestes flavidens

Herpestes rubiginosus

Hipposideros atratus

Hipposideros aureus

Hipposideros blythii

Hipposideros lankadiva

Hipposideros templetonii

Keheivoulha (emendation of *Kerivoulha* Gray, 1842)

Mus cervicolor?, indicated as description for *M. fulvidiventris* Blyth, 1854: A36.

Mus ceylonus
Mus dubius, junior homonym of Fischer, 1829
Mus kandianus var. *kandianus*
Mus manei
Mus tetragonurus var. *rufoflavescens*.
Paradoxurus montanus
Paradoxurus zeylanicus var. *fuscus*
Presbytes albinus Kelaart in Blyth, 1851
Presbytes caphalopterus? var. *monticolus*
Pteropus seminudus
Rhinolophus cinerascens
Rhinolophus ranmanika
Rhinolophus rubidus
S. montanus
Sciuropterus layardi
Scotophilus ceylonicus
Sorex feroculus
Sorex ferruginea
Sorex kandianus
Sorex montanus
Stylocerus muntjacus attrib. "H. Smith"

Aves

Carpophaga (Palumbus) torringtonii, nomen nudum.
Merula kinnisi Kelaart in Blyth 1851: 177
Pratincola atrata Kelaart in Blyth 1851: 177

Amphibia

Limnodytes maculata
Limnodytes mutabilis
P. schmarzana
Polypedates schmarzana
Polypedates schmarzana
Polypedates stellata
Rana kandiana
Rana neweraellia, *neweraelliana*

Reptilia

Acontias layardi
Dapatnaya lankadivana
Dapatnaya trevelyanii [also *trevelyana*]
Eumeces taprobanensis
Gymnodactylus kandianus
Hemidactylus piersii
Rhinophis blythii
Uropeltis saffragamus
Uropeltis blythii [also *Rhinophis blythii*]
Uropeltis grandis
Uropeltis pardalis
Uropeltis trevelyanii [also *trevelyana*]

Nudibranchia

Bornella hancockana (drawing: BMNH, labelled *Dendronotus hancockii*)
Diphylidia formosa (drawing: HMN)
Diphylidia marmorata (drawing: BMNH)

- Doris amabilis* (drawing: Kelaart's note book, BMNH)
Doris ariponensis (drawing: BMNH labelled *Doris aripona*)
Doris atrata (drawing: BMNH labelled *Doris .rara* [illegible])
Doris atroviridis
Doris bellicosa (drawing: BMNH)
Doris caelestis [also *coelestis*] (drawing: BMNH)
Doris carbunculosa (drawing: BMNH)
Doris castanea (drawing: BMNH; another in HMN)
Doris cerisa
Doris constantia
Doris corrugata (drawing: BMNH)
Doris diardi (drawing: BMNH labelled *Doris diardii*)
Doris elizabethina (drawing: BMNH)
Doris exanthemata (drawing: BMNH)
Doris fidelis (drawing: BMNH)
Doris funebris (drawing: BMNH; another in HMN)
Doris gleniei [*glenei*] (drawing: BMNH labelled *Doris glenii*)
Doris gloriosa (drawing: BMNH)
Doris grisea (drawing: BMNH)
Doris humberti (drawing: BMNH)
Doris intacta
Doris lanuginosa
Doris leoparda (drawing: BMNH)
Doris lockyerana
Doris luteola (drawing: BMNH)
Doris maccarthyi (drawing: BMNH)
Doris marmorata (drawing: BMNH)
Doris nivea (drawing: Kelaart's note book in BMNH)
Doris osseosa (drawing: BMNH)
Doris papillosa (drawing: BMNH)
Doris picta (drawing: BMNH)
Doris preciosa [*pretiosa*] (drawing: BMNH)
Doris rubra (drawing: LSL; 2 more in BMNH, one of them in the note book; another in HMN labelled *Doriopsis rubra*)
Doris rufopunctata
Doris solea
Doris spongiosa (drawing: BMNH)
Doris striata (drawing: BMNH)
Doris tennentana (drawing: BMNH)
Doris variabilis
Doris viperina (drawing: BMNH)
Elysia caerulea [*coerulea*] (Illustr. as "*Elysia cerulea*")
Elysia grandifolia (drawing: BMNH)
Elysia punctata (drawing: BMNH; another in HMN)
Eolis [*Aeolis*] *bicolor* (drawing: BMNH)
Eolis [*Aeolis*] *effulgens* (drawing: BMNH)
Eolis [*Aeolis*] *husseyi* (drawing: BMNH)
Eolis [*Aeolis*] *nodulosa* (drawing: BMNH)
Eolis [*Aeolis*] *paulinae* (drawing: BMNH, labelled *Eolis pauliana*)
Eolis [*Aeolis*] *smedleyi* (drawing: BMNH)
Eolis [*Aeolis*] *tristis*
Eolis *skinneri*
Meliboea viridis (drawing: BMNH)

- Phyllidia zeylanica* [*zeylanicus*] (3 drawing; BMNH labelled *Diphyllidia zeylanica*; another labelled *Phyllidia zeylanica*)
Pleurobranchus purpureus (Drawing: HMN? Label contains genus only)
Pleurobranchus zeylanicus (drawing: BMNH; another in HMN)
Polycera (?) *ceylonica* [*zeylanica*] (2 drawings in BMNH)
Proconotus orientalis (drawing: BMNH)
Pterochilus viridis (drawing: BMNH; another labelled *Planaria viridis*)
Scyllaea (?) *dracaena* (24, Illustr.)
Trevelyana ceylonica (drawing: BMNH)

Actiniaria

- Actinia arachnida*
Actinia aurea (drawing: BMNH)
Actinia austinii
Actinia fluctuosa (drawing: BMNH; another in HMN)
Actinia indiana (drawing: BMNH; another in HMN labelled *Anthea indiana*)
Actinia meleagrina (a drawing: BMNH, another in HMN, labelled *Anthea meleagrina*)
Actinia passiflora (drawing: BMNH; another in HMN)
Actinia pudica (drawing: HMN)
Actinia refulgens
Actinia smaragdana [*smaragdana*] (drawing: BMNH; another in HMN)
Actinia tranchellana [*tranchelli*] (drawing: HMN)
Actinia vermicosa (drawing: HMN)
Actinia wardiana [*wardii*] (drawing: HMN; another in BMNH labelled *Actinia wardii*)
Actinodendron argentea
Actinodendron horologia (drawing: HMN)
Actinodendron viridis (drawing: BMNH)
Actinodendron zeylanicus (drawing: BMNH)
Capnea (?) *blythiana* (drawing: BMNH; another in HMN)
Dioscosoma (*Actinodiscus*) *zeylanica* (drawing: HMN; also in BMNH labelled *Dioscosoma* (*Actinodiscus*) *ceylonicus* and *Dioscosoma ceylonica*)
Dioscosoma ceylonica [*zeylanica*] (drawing: HMN)
Peacha gosseana [*gossei*] (drawing: HMN)
Zoanthura mamalifera

Turbellaria

- Acanthozoon armatum* (drawing: LSL; also BMNH, labelled *Planaria armata*)
Acanthozoon papilio (drawing: LSL; also BMNH labelled *Planaria papilionis*)
Centrostomum ocellatum (drawing: LSL; also BMNH labelled *Planaria ocellata*)
Centrostomum punctatum (drawing: LSL; also BMNH labelled *Planaria punctata*)
Eurylepta cerebralis (drawing: LSL; also BMNH labelled *Planaria cerebralis*)
Eurylepta dulcis (drawing: LSL; also BMNH labelled *Planaria dulcis*)
Eurylepta fusca (drawing: LSL; also BMNH labelled *Chlamyosoma fusca*; another labelled *Planaria fu...* [illegible])
Eurylepta purpurea (drawing: LSL; also BMNH labelled *Chlamyosoma purpurea*)
Eurylepta striata (drawing: LSL; also BMNH, labelled "*Doris striata*"?)
Eurylepta undulata (drawing: LSL; also BMNH)
Eurylepta violacea (drawings: LSL; also 2 drawings in BMNH labelled *Planaria violacea*)
Eurylepta viridis (drawing: LSL; also BMNH labelled *Planaria viridis*)
Eurylepta zeylanica (drawing: LSL; also BMNH labelled *Planaria zeylanica*)
Planocera thesia (drawing: LSL; also BMNH labelled *Planaria thesia*)
Stylochoplana elegans (drawing: LSL; also 2 drawings in BMNH labelled *Planaria elegans*)
Stylochoplana meleagrina (drawing: LSL; also BMNH labelled *Planaria meleagrina*)

Doris papillosa.

Body $\frac{3}{4}$ inch long, spotted.

Mantle, coriaceous, covered with ^{large} small papilla arising from a circular ring or base, & buff & spotted with dark brown. There is a longitudinal brown line on the back extending from base of ^{Dorsal tentacles} ~~branchia~~ to branchia. Dorsal tentacles, clavate

laminated, produced at apex, of a light green & minutely spotted with white. Oral tentacles, short, blunt, white.

Foot. Shorter than mantle whitish & spotted with rusty brown.

Ova ^{white} in narrow ribbon form, in 3 or 4 convolutions, caeculitate.

Branchia 6. Short, bipinnate. Posterior three rusty colored, anterior ones whitish.

Figure 1. Manuscript description of *Doris papillosa* in Kelaart's hand: notebook in the Library of The Natural History Museum, London.

E. F. Kelaart EFK

Figure 2. Kelaart's signature (from a letter to Sir William Hooker, RBGK Archives) and its abbreviated form, used to sign many of his drawings (Library of the BMNH).

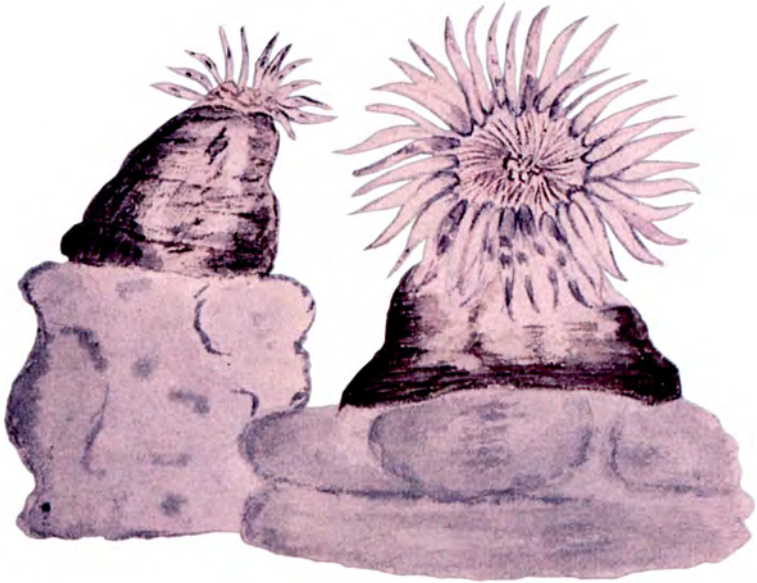


Figure 3. Drawing of *Actinia caudactiana* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

Figure 4. Drawing of *Actinia wardiana* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

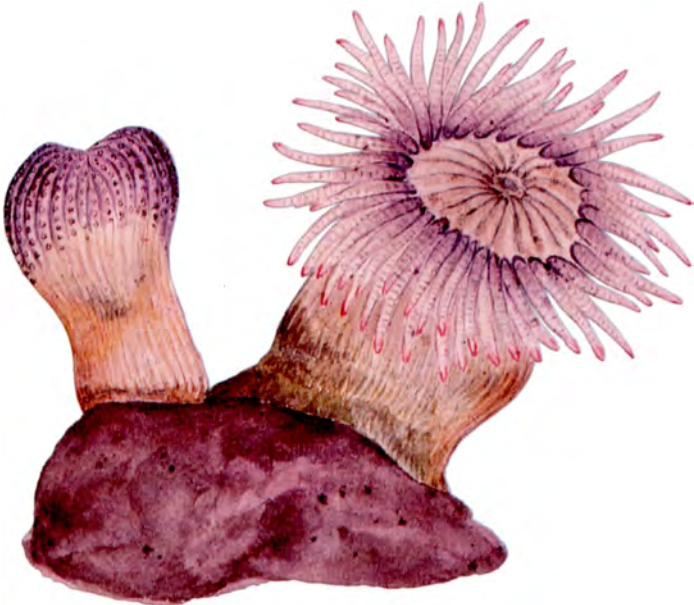




Figure 5. Drawing of *Anthea octaviana* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

Figure 6. Drawing of *Anthea meleagrina* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.



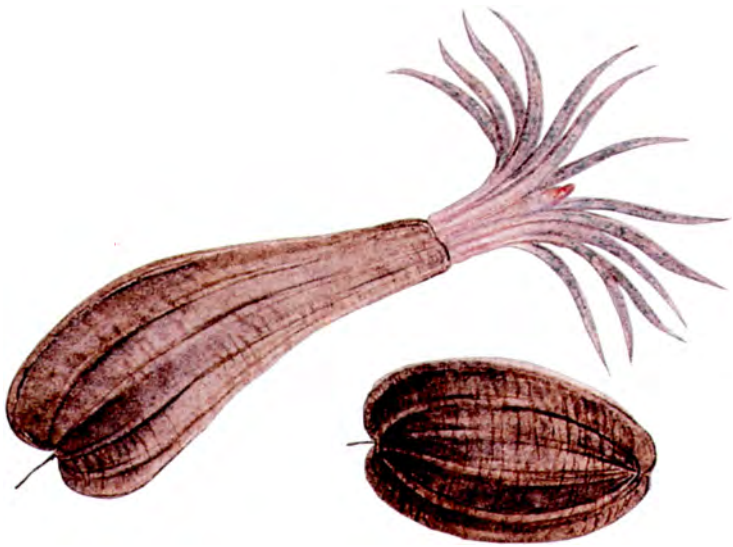


Figure 7. Drawings of *Peacha gosseana* (above) and *Anthea indiana* (below) by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

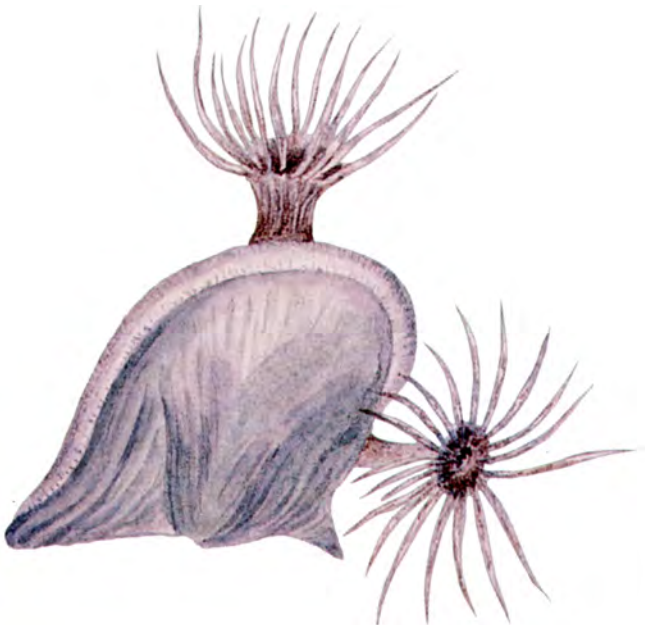




Figure 8. Drawings of *Actinia fluctuosa* (above) and *Actinia tranchellana* (below) by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

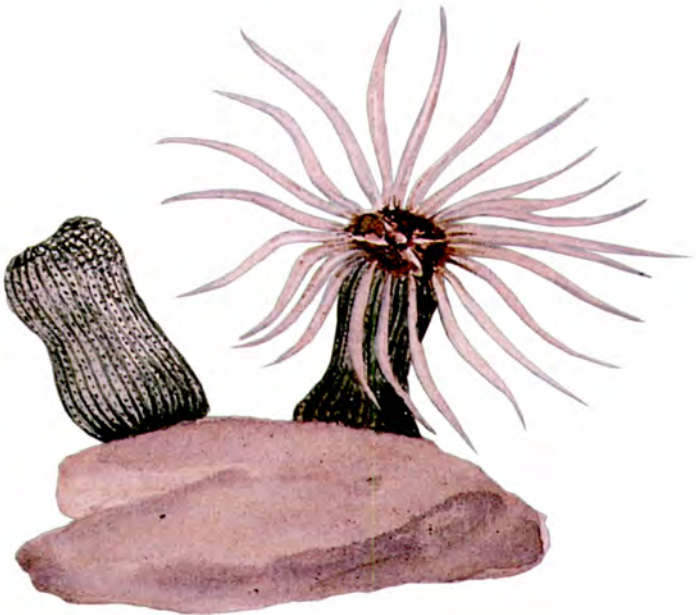
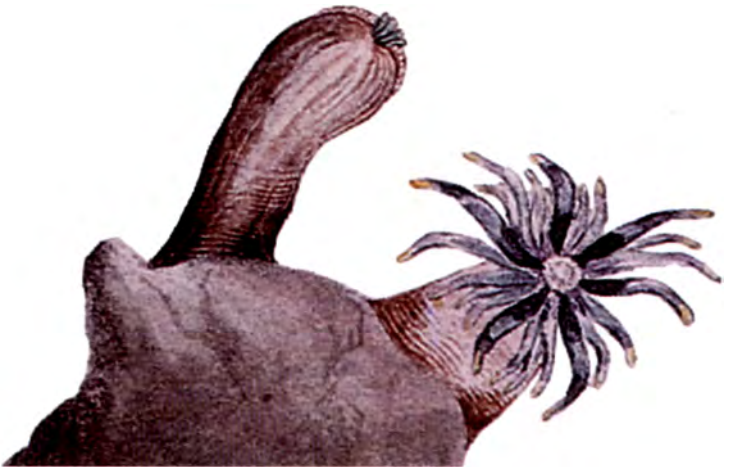




Figure 9. Drawings of *Actinodendron horologia* (above) and *Actinia passiflora* (below) by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.



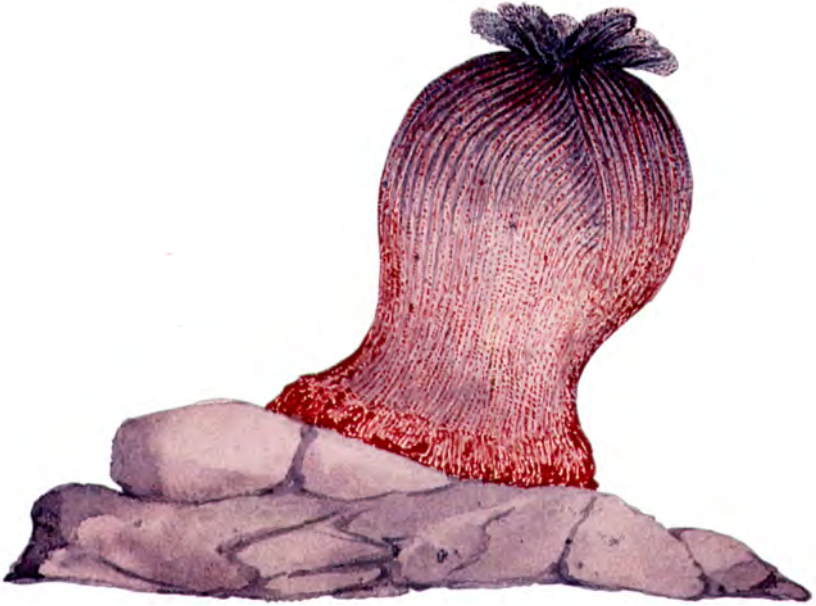


Figure 10. Drawing of *Diascosoma zeylanica* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

Figure 11. Drawing of *Diascosoma zeylanica* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

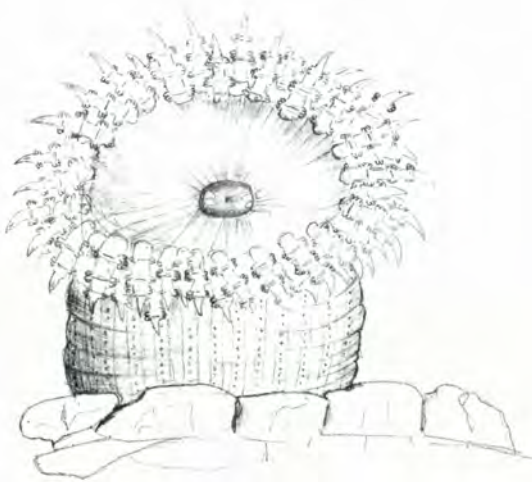




Figure 12 (Left). Drawing of *Capnea blythiana* by E.F. Kelaart, in the collection of the Hancock Museum, Newcastle upon Tyne.

Figure 13 (below). Drawing of "*Act-inodendron zeylanicus*" in the Kelaart notebook: Library of The Natural History Museum, London.

Act-inodendron zeylanicus



H. May 1857. Habitat of *Simulium* -

May alicis - (1857) -

All the best water, not to be used, except the
outer rim. ~~AK~~



Figure 14. Drawing of *Doris gloriosa* by E.F. Kelaart, in the collection of The Natural History Museum, London.



Figure 15. Drawing of *Doris spongeosa* by E.F. Kelaart, in the collection at the library of The Natural History Museum, London.

Figure 16. Drawings of *Doriopsis rubra* by E.F. Kelaart, in the collection at the library of The Natural History Museum, London.





Figure 17. Drawing of *Planaria striata* by E.F. Kelaart, in the collection of the Linnean Society of London.

Figure 18. Drawing of *Planaria auropunctata* by E.F. Kelaart, in the collection of the Linnean Society of London.



Figure 19 (opposite page). Photograph of anonymous plaster of Paris bust of E.F. Kelaart in the Library of the National Museum of Sri Lanka, Colombo.





Figure 20. Two aspects of the bust of E.F. Kelaart at the Library of the National Museum of Sri Lanka, Colombo.