

William Elford Leach and his myriapod studies

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Abstract

W.E. Leach (1790-1836) made significant contributions to British zoology and these included not only the creation of a separate Class Myriapoda, distinct from crustaceans and other arthropods but also the description of a number of new myriapod genera and species. There has been some confusion about the actual dates of certain publications and an attempt is made to clarify these. The Brewster's Encyclopædia article is spread between 1813 and 1814 whilst the paper in the Linnean Society *Transactions* was actually published in 1816. Some brief biographical details are also given.

Introduction: W.E. Leach

The name of Leach is associated with a number of common centipedes and millipedes found in Britain and Ireland as a result of several publications during the second decade of the nineteenth century but there has been some slight confusion over precise dates of these so that it seems appropriate to review them and to include a few short biographical notes. W.E. ("Elford") Leach also worked extensively on crustaceans (in the modern sense) and possibly a similar review of our isopods might be useful sometime. Apart from the naming of numerous animal species and the splitting off of the myriapods as a separate group from the crustaceans, arachnids and insects, Leach played a major role in the move from the artificial classification of Linnaeus which had persisted in Britain to the concept of a natural classification and made significant contributions to the progress of British zoology.

William Elford Leach was born in Plymouth in 1790, the youngest of four children of George Leach, an attorney. He attended Plympton Grammar School and later a boarding school at Chudleigh. In 1803 he entered a five-year medical apprenticeship at the Devon and Exeter Hospital in Exeter later moving to London in 1808 at the age of 17 and subsequently to Edinburgh, qualifying in medicine at St. Bartholomew's Hospital (London) and the Universities of Edinburgh and St. Andrews. It was not his intention to practise medicine and he subsequently returned to his zoological interests, becoming assistant librarian in the Zoology Department of the British Museum in 1813 and subsequently assistant keeper in the Natural History Department where he had set himself to sort out the collections.

Always interested in a wide range of natural history, as a teenager he had collected a centipede from gardens around Exeter which he did not recognise from his reading. Realising that it was new to science, he gave it the name *Scolopendra hortensis* (hortensis = from a garden), before sending it to Edward Donovan, well-known author of a monthly magazine on British insects. Donovan published an account, with an illustration, giving it Leach's suggested name (Donovan, 1810) and although Leach himself was often cited in the past as the authority for the name, Jeekel (1999) showed that Donovan was, in fact, the correct authority. Donovan's paper may have been the first time Leach was actually mentioned in connection with myriapods, "collected from gardens in Exeter by Mr Leach".

Leach went on to read his first paper to the Linnean Society (on *Melöe*, oil beetles) in 1809 shortly after his election to the Society at the age of 18 and it was published in their *Transactions* in 1813. Before taking up his post at the museum he had already edited and published *Fauna Orcadensis* based on a

manuscript of Rev. George Low and a monograph on beetles and had “in press” papers on fish and insects and encyclopædia articles including his review of crustaceans, myriapods and arachnids

As well as becoming a leading expert on Crustacea, he published on a wide variety of animals both vertebrate and invertebrate. His *Malacostraca Podophthalam Britannia* had reached part 17 in 1820. The contributions to *Zoological Miscellany* were numerous, there were reports on specimens collected on expeditions, contributions towards encyclopædias, work on a synopsis of British Mollusca and articles on such diverse subjects as insects, barnacles, fish, frogs and bats. Publications listed for the period from 1813 to 1821 (when he was working in the Museum) occupy more than nine pages of the bibliography in Harrison & Smith’s (2009) Ray Society account of his life and family, *Rifle Green by Nature* from which much of the biographical material in the present account is taken. He was elected FRS in 1815.



Scolopendra hortensis (From Donovan, 1810)

A number of the locations of species given in his works reflect his connections with both the Westcountry (Devonshire, Danmonia, Dartmoor) and Scotland (Edinburgh, Caledonia) as well as London.

Interestingly in a paper read in 1809 to the Wernerian Society of Edinburgh, Stewart (1811) had listed the myriapods *Scolopendra forficata*, *Julus terrestris*, *Julus sabulosus* and *Julus oniscoides* (*Glomeris marginata*) in a list of insects found in the neighbourhood of Edinburgh. Leach, by then at university in that city, joined the Wernerian Society in 1811, reading a paper to them in April on the Eproboscidea (Diptera).

Today, we would probably have described Elford Leach as a “workaholic” with all his published work in addition to his curatorial duties and service on the Council of the Linnean Society, etc. He had planned to visit the Orkney Islands for three months in 1819 but this was deferred and by the summer of 1820 he had not been in Devon for 18 months. At his request, the Museum Trustees granted him two months leave during the summer closure but he worked on regardless. In September he had a breakdown, was in a state of mental collapse and needed professional help. In due course, in 1822, the Trustees granted retirement with an annuity and other contributions. He spent time partly in London and partly in Devon and elsewhere in care or with friends but in October 1824, with his sister Jenny, he was in London on his way abroad and by December they were settled in Nice, a location renowned for the health of its climate.

Whether Leach travelled to Nice for recuperation or to collect specimens, the first certainly seemed to have happened and so did the latter; it seems that he was out collecting insects virtually every day for the first six months as well as working on various manuscripts. During excursions with fellow naturalist Antonio Risso they were collecting a wide range of animals (including millipedes). A paper describing some new barnacles was sent to the *Zoological Journal* of London, naming two species after his colleague whilst Risso, correspondingly named new animal species after Leach. Risso, himself, had listed centipedes and millipedes in his account of the natural history of Nice and the Alpes Maritimes (Risso, 1826; see Appendix 2) and presumably much of this derives from his work in collaboration with Leach.

Jenny and Elford left Nice in July, travelling up into the mountains and through Italy and France, returning to Devon in January 1826 having made entomological collections throughout the journey. They returned to Italy later that year spending time in Rome and Genoa and elsewhere, Leach having donated his personal collection of insects and other material to the British Museum. The Leachs, having arrived in Rome, now remained in Italy it seems but spent some time in Malta in 1832. In July 1836 they settled in San Sebastiano Curone in Piedmont, having moved there to try to escape the cholera epidemic in Genoa but, before the end of August, Elford Leach had died of that disease at the age of 45 and his ashes were interred there.

**GUGLIELMO ELFORD LEACH ESIMIO D^{re} E FIS^{co}
D'ISTORIA NATURALE PROF^{re} EGREGGIO
ACCADEMICO ED AGGREGATO A DIVERSA SOCIETA'
LETTERARIE E SCIENTIFICHE..."**

William Elford Leach eminent doctor and naturalist, Professor of Natural History, distinguished academic and associate of diverse literary and scientific societies...

From the memorial stone, commissioned by his sister Jenny (from Harrison & Smith, 2009).

Leach's publications relating to myriapods

There are four publications, dating from the 1810s, where Leach lists genera and species and describes new ones in relation to centipedes and millipedes. In *Brewster's Edinburgh Encyclopædia* of 1813/5, in the *Linnean Society Transactions* published in 1816, in an *Encyclopædia Britannica Supplement*, also of 1816 and in the third volume of his *Zoological Miscellany* (1817). A report of his presentation of the Linnean Society paper was published by de Blainville in *Bulletin des Sciences* (Blainville, 1816).

It should be borne in mind that at time there may have been quite a long interval between the presentation of a paper at a meeting and its final publication in printed format. Also, that original species descriptions of this period tend to be rather brief (and in Latin). For a species description to be recognised, there must be published written description; being described verbally at a meeting does not constitute a formal description.

The Edinburgh Encyclopædia account

In 1813-15, Leach, by now at the British Museum, contributed a section on "Crustaceology" to *Brewster's Edinburgh Encyclopædia* (Leach, 1813/5). In his opinion, the myriapods should have been correctly referable to the Class Crustacea rather than to the Class Arachnides where they had been placed by Lamarck and Latreille. Along with the two crustacean orders Entomostraca and Malacostraca, he proposed a third, Myriapoda, comprising two tribes, Tetracera (Families Asellides & Oniscides, which we now think of as isopod crustaceans; Table 1) and Millepedia (Families Julides & Scolopendrides, i.e. millipedes & centipedes).

The publication date of this article is 1813 (pp.383-384), 1814 (pp.385-437, 765-766) and a plate, CCXXXI, in a later volume (1815) (Harrison & Smith, 2009) i.e. the first two pages date from 1813 but the myriapods (pp. 376-386) are described in the 1814 part so the author and date for these species names, such as that for *Lithobius variegatus*, the date should be 1814 (i.e. *Lithobius variegatus* Leach, 1814) and not 1813 as, for example, used in the recent centipede atlas (Barber, 2022).

The plate shows various arthropods including both a millipede and a centipede but the bound copy accessible in the Biodiversity Heritage Library does not appear to have a legend so that it is difficult to determine which species are depicted.

Table 1. Classification of the Crustacea (in part) based on Leach, 1813/15

Class CRUSTACEA

Order I ENTOMOSTRACA

TRIBES: Thecata, Ostracoda, Gymnota

Order II MALACOSTRACA

TRIBES: Brachyura, Macrouri, Gasterouri

Order III MYRIAPODA

Tribe I: TETRACERA

Family ASELLIDES

Genera: *Asellus*, *Idotea*, *Anthoura*, *Ctmotea*, *Sphaeroma*, *Nesea*, *Campecopea*

Family ONISCIDES

Genera: *Ligia*, *Philoscia*, *Oniscus*, *Porcellio*, *Armadillo*

Tribe 2: MILLEPEDA

Family JULIDES

Genera: *Glomeris*, *Julus*, *Polydesmus*, *Pollyxenus*, *Craspedosoma*

Family SCOLOPENDRIDES

Genera: *Scutigera* (*Scutegera*), *Scolopendra*, *Cryptops*, *Lithobius*, *Geophilus*

Diplopoda

For millipedes, we have genera *Glomeris*, *Julus* (Linnaeus' original genus), *Craspedosoma*, *Polydesmus* and *Pollyxenus* (*Polyxenus*). *Polyxenus lagurus* had been placed by Linnaeus in the genus *Scolopendra* with the centipedes; the generic name derives from Latreille, 1802 as does *Glomeris*. Jeekel (1970) gives details of the official acceptance of the spelling *Polyxenus* (with a single l) according to the decision of the ICZN with *Pollyxenus* being regarded as an "incorrect" original name

Previously recognised species were *Glomeris Marginata*, *G. Pustulata* (southern France & Germany) and *G. Ovalis* (– of Linnaeus and others "Inhabits the ocean"). *Julus Terrestris* (Europe), *J. Sabulosus*, *J. Maximus* (America), *J. Fuscus* (India) and *J. Indus* (India), *Polydesmus Complanatus* and *Pollyxenus Lagurus* (Europe).

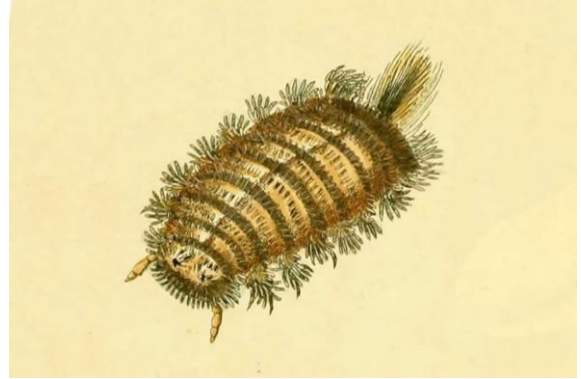
Newly described taxa were *Julus Niger* (by far the most common species in the neighbourhood of Edinburgh), *Craspedosoma Polydesmoides* (Devonshire, often occurring under stones) and *Craspedosoma Raulinsii* (or *Rawlinsii*) (under stones near Edinburgh, where it appears to be pretty common). In relation to *C. Polydesmoides* Leach notes regarding this species '*Julus Polydesmoides*, Montagu's MSS' but there appears to be no record of the manuscript therefore Leach 1814 is presumed to be first published description of this species. The name *C. Raulinsii* commemorates Richard Rawlins, an entomologist, who had collected millipedes in and around Edinburgh with Leach and who had died shortly after moving to Devon in 1812.

"We have now most sincerely to lament the premature death of this gentleman, who, had he survived, would have proved one of the greatest ornaments in the department of Zoology including the animals without vertebrae that has ever appeared in this country. His industry and acquirements were truly astonishing, and his zealous ardour remained to his last moments" (Leach, 1814).

“This genus (*Craspedosoma*) was proposed by my much lamented friend Richard Rawlins Esq. who discovered the first species” (Leach, 1816a). There has been a recent discussion about the correct spelling of this species name. In the 1813-1815 account it is clearly *Craspedosoma Raulinsii* spelled with a “u” but everywhere else Leach uses a “w” and in Rawlins’ actual name it is a “w”. This issue has been discussed by Read & Enghoff (2023) in another article in this bulletin, where it is concluded that the name *C. raulinsii* is correct and should be used.

Amongst the author’s comments were that *Pollyxenus lagurus* was not yet observed in Britain and that *Polydesmus complanatus* was very frequent about Edinburgh and London.

He also noted that in regard to *Julus* that there were several species or varieties which inhabit this country but the marks by which they are distinguished are not sufficiently well known to enable us to give an account of them; it would be highly beneficial to breed from the young state and mark the changes produced (colour, new feet, etc.).



Pollyxenus lagurus (From Leach, 1817)

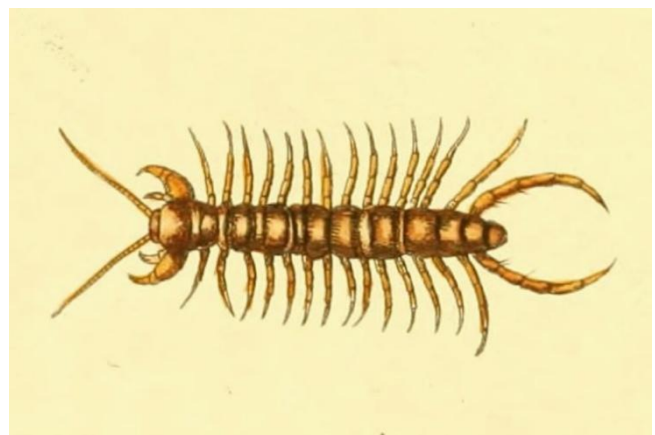
Julus terrestris is not known from Britain or Ireland and it appears that Leach’s specimens are referable to *Julus scandinavicus* Latzel, 1884. Linnaeus had described a black coloured snake millipede from Scandinavia in 1758 as *Julus terrestris*. It is almost certain that the species he described was not that which we now know as *Julus scandinavicus* because at that time the species was not widely distributed across Scandinavia, although it has become much more widespread since. Leach, and other people, used the name *Julus terrestris* to refer to a variety of black Julid species (both the true *terrestris* and others) and it was not until 1884 that Latzel clarified the situation along with describing *Julus scandinavicus* as a replacement name for some of the specimens that Leach and others had been referring to as *Julus terrestris* (thanks to Henrik Enghoff for providing clarity on this).

P. complanatus and the similar *Polydesmus angustus* Latzel, 1884 had not been distinguished at this time and it seems almost certain that it was the latter that was being observed in Britain where *P. complanatus* is unknown.

Chilopoda

For centipedes, previously all included in the genus *Scolopendra*, Leach introduced new genera whose names we recognise today, *Cryptops*, *Geophilus* and *Lithobius*. *Scutigera* had been named by Lamarck in 1801. Leach confined the genus *Scolopendra* to the so called “giant centipedes” such as *Scolopendra morsitans*.

Amongst previously the described centipede genera and species that were included in his account was *Scutigera Coleoprata* (which he spells as *Scutegera* and lists *Cermatia* as a synonym). His statement that every joint has two pairs of feet (compared with one pair in others) seems strange at first until one realises that the trunk of *Scutigera* has only seven tergites and so appears from above as having that number of segments. Other previously described species were *Lithobius Forficatus* and *Geophilus Electricus*, both described in the genus



Lithobius forficatus (From Leach, 1817)

Scolopendra by Linnaeus (1758) together with the *Cryptops hortensis* of Donovan. Chilobase 2.0 (Bonato *et al.*, 2016) cites Leach, 1815 (i.e. 1816a of the present account) as the origin of the generic name *Cryptops* but it was used in this 1814 publication.

New species, reported for the first time, were *Lithobius Variegatus* (Devonshire) and *Lithobius Lævilabrum* (common in Scotland – now recognized as synonymous with *L. forficatus*). As an “Observation” he adds “Besides the species of this family which have been here described, are many more inhabiting this country but their natural history is so imperfectly understood....” The account also included descriptions of four species of *Scolopendra*, *S. spinipes*, *S. inermis*, and *S. inequalis* and *S. morsitans*, all from countries other than Britain, of which only the last, described by Linnaeus in 1758, seems to be recognised by Chilobase and a search for *S. inermis* only attributes it to Newport, 1845 without any synonymy. We have been unable to trace any information about the other species listed.

The Linnean Society paper

A paper read to the Linnean Society in three sessions during April, May and June 1814 was subsequently published in their *Transactions* (Leach, 1816a). To quote the author, “The object of this paper is chiefly to call the attention of Entomologists to examine into the propriety of constituting a new class to comprehend the Syngnatha and Chilognatha of Fabricus, which Latreille and Lamarck have arranged with the Arachnides.” i.e. bringing together the Syngnatha (centipedes) and Chilognatha (millipedes) to form a fourth class, Myriapoda, now excluding woodlice and their allies.

For its historical interest his table of the four classes is reproduced here: Note that members of the Myriapoda are characterised by having tracheal respiration and more than eight legs.

<i>Dr. LEACH'S Arrangement of the Crustacea, &c.</i>		307
	A. <i>Branchiis pro respiratione.</i>	
Classis I.	- - - - -	CRUSTACEA.
	B. <i>Tracheis pro respiratione.</i>	
Classis II.	Pedibus ultra 8. Capite distincto; antennis 2.	MYRIAPODA.
Classis III.	Pedibus 6 aut 8. Capite thoraceque coalitis; antennis 0.	ARACHNIDES.
Classis IV.	Pedibus 6. Capite distincto; antennis 2.	INSECTA.

Figure 1: Extract from Leach (1816a)

The paper is more detailed in its treatment of centipedes and millipedes than the account in *Brewster's* and woodlice are no longer included in Myriapoda. The precise publication date of this paper has been unclear with 1814 as in *Faune de France Chilopodes*, (Brolemann, 1930) and *Centipedes of the British Isles* (Eason, 1964), 1815 (as in a number of accounts including the millipede *Synopsis*, Blower, 1985, the millipede atlas, Lee, 2006, and the new centipede atlas, Barber, 2022) and 1816 all being quoted. Reference to Harrison & Smith (2008), indicates that the paper was read on 19th April, 3rd May and 1st June 1814 but published on 24th January 1816 a date confirmed by consultation with the Linnean Society (Raphael, 1970; Will Beharrel *pers. comm.*). Although the part concerned with the Myriapoda was dated 1815, it was not actually published until 1816.

The Myriapoda comprises two orders, Chilognatha (millipedes) and Syngnatha (centipedes), the former including three families plus a reference to *Polyxenus* and the latter, three families with the lithobiomorphs and scolopendromorphs together.

Table 2 Classification of the Myriapoda (based on Leach, 1816a)

Class II MYRIAPODA

Ordo CHILOGNATHA

Family I Glomerides

Genus: *Glomeris* Latr.

Family II Julides

Genera: *Julus*, *Craspedosoma*

Family III Polydesmides

Genus: *Polydesmus* Latr,

Obs. *Pollyxenus* Dom.Latr. mihi invisum

Ordo SYNGNATHA

Family I Cermatides

Genus: *Cermatia* Illig.

Family II Scolopendrides

Genera: *Lithobius*, *Scolopendra*, *Cryptops*

Family III Geophilides

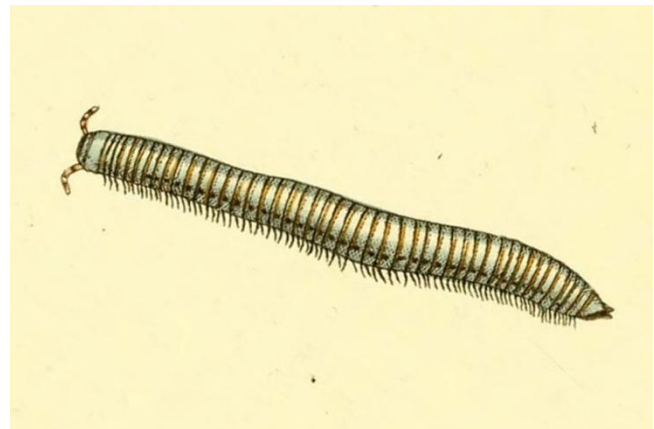
Genus *Geophilus*

Diplopoda

Previously described millipedes referred to (with Leach's original descriptions, exactly as given in the publication, in brackets following the name) are *Glomeris pustulatus* (Lusitania frequens), *G. marginata* (in Europâ sub lapidibus), *Julus sabulosus* (in Europæ sabulosis inter muscos et sub lapidibus passim), *Julus niger* (propre Edinburgum sub lapidibus passim; in Arran Insulâ), *Julus terrestris* (Europæ sabulosus, sylvis), *Craspedosoma Rawlinsii* (inter muscos et sub lapidib propre Edinburgum vulgatissima), *Craspedosoma polydesmoides* (in Danmonia propre Plymouth, sub lapidibus passim) and *Polydesmus complanatus*.

New species listed are *Julus Londinensis* (in sylvis Londinium propre inter muscos haud infrequens) [*Cylindroiulus londinensis*], *Julus punctatus* (sub cortice arborum et inter muscos passim) [*Cylindroiulus punctatus*] and *Julus pusillus* (propre Edinburgum sub lapidibus; in Battersea Fields, Londinium propre, inter graminum radices) [*Brachyiulus pusillus*].

The author also includes *Julus pulchellus* which seems to be the species described by Fabricus as *Blaniulus guttulatus*. Leach describes it as "corpore pallidissime flavascente-albido, lateribus utrinque linea punctorum cocciniorum, segment ultimo inermi" which certainly sounds like *Blaniulus guttulatus* with its pale body and row of red spots and this is the view of Millibase (Sierwald & Spelda, 2023). However, its description as "common in the mountainous districts of Great Britain, under moss: it is sometimes found also in gardens at the roots of plants" is, perhaps, surprising.



Julus Londinensis (From Leach, 1817)

Chilopoda:

Family I Cermatides and the genus *Cermatia* (*Scutigera*) are referred to but no species is named. For the second Family (II) Scolopendrides, British species listed include *Lithobius forficatus* (Angliâ, Hiberniâ rarior), *Lithobius variegatus* (Danmoniâ australi sub lapidus passim), *Lithobius Lævilabrum* (Caledonia et Insulis adjacētibus) and *Cryptops hortensis* (in hortis in co. Devon, haud infrequens). Along with Linnaeus' *Scolopendra morsitans*, four new species of *Scolopendra* were included, *S. gigas*, *S. alternans*, *S. subspinipes* and *S. trigonopoda*. *S. trigonopoda* does not seem to be currently recognised by a search using this name in Chilobase, but it does, however, cite *Ethmostigmus trigonopodus* (Leach, 1817). The same source lists *S. gigas* as *S. gigantea* Linnaeus, 1758.

Family III Geophilides included *Geophilus subterraneus* [*Stigmatogaster subterranea*] (no location given), *Geophilus longicornis* [*Geophilus flavus*] (prope Edinburgum et Londinium sub lapidus) and new species listed were *Geophilus acuminatus* (Roborough Down nr Plymouth, Battersea Fields) and *Geophilus carpophagus* (in fructibus Danmoniâ passim).

Following his description of *Geophilus acuminatus*, Leach comments that “To this division of the genus *Geophilus*, *Scolopendra electrica* of authors with two other indigenous and some exotic species belong; but as I have not had opportunities of examining the living animals, I shall at present forbear from giving any account of them”.

The Encyclopædia Britannica Supplement account

Also dated from 1816 was an account of myriapods included within the subject Annulosa in the *Supplement to Encyclopædia Britannica* (Leach, 1816b). This seems to be more or less completely derivative, referring back to the *Transactions* account with little new material and a limited list of species although family names are now given as Glomeridea, Julidea, Polydesmidea, Cermatidea, Scolopendridea and Geophilidea. Under *Cermatia* (attributed to Illiger and to Leach and synonymised with *Scutigera*), it includes the species *Coleoprata* (in the Family Cermatidea).

The Zoological Miscellany

Since 1789, George Shaw had been publishing a monthly journal, *Naturalist's Miscellany*. He had also published an account of a new centipede *Scolopendra subterranea* [*Stigmatogaster subterranea*] in the Linnean Society *Transactions* (Shaw, 1794) and written an article *Scolopendra* Centipede which appeared in his *General Zoology* (Shaw, 1806a) referring to *Scolopendra morsitans*, *Scolopendra Plumieri* (not recognised in Chilobase), *Scolopendra forficata* [*Lithobius forficatus*], *Scolopendra electrica* [*Geophilus electricus*] and *Scolopendra subterranea*. In the same volume (Shaw, 1806b) under *Julus* he refers to *Julus sabulosus*, *Julus Indus* (Great Indian *Julus*) and *Julus lagurus* (Hare-Tailed *Julus*).

After Shaw's death in 1813, his publishers were keen to continue with the *Naturalist's Miscellany* and Leach came to an arrangement with them to continue this work which he did, the name having been changed to *Zoological Miscellany*, commencing in 1815. In the third and last volume (Leach, 1817) was included the Class Myriapoda. The price of the three volumes together was advertised as £4.15s and coloured figures were by R.P.Nodder.

There were no family names given in this account of the Class Myriapoda, only Orders (Chilognatha and Syngnatha), genera (*Glomeris*, *Julus*, *Craspedosoma*, *Polydesmus*, *Pollyxenus*, *Cermatia*, *Lithobius*, *Scolopendra*, *Cryptops*, *Geophilus*) and species and the article was bears the title *The Characters of the Genera of the Class Myriapoda, with Descriptions of some species*.

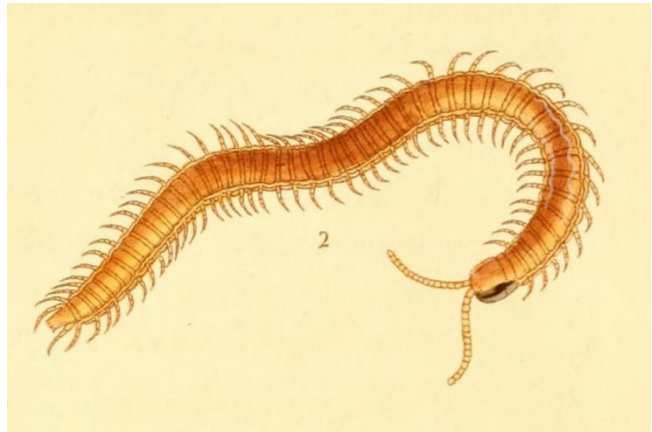
Diplopoda

Millipedes were listed as *Glomeris marginata*, *Julus sabulosus*, *Julus Londinensis*, *Julus niger*, *Julus terrestris* (see previous comment regarding this species), *Julus punctatus*, *Julus pulchellus*, *Julus pusillus*, *Craspedosoma Rawlinsii*, *Craspedosoma polydesmoides*, *Polydesmus complanatus* (see previous comment regarding this species) and *Pollyxenus lagurus* with no new species added.

Chilopoda

Previously described centipedes listed were *Lithobius forficatus*, *L. variegatus* (Habitat in Anglia occidentali; præsertim in Danmonia), *Cryptops hortensis*, *Geophilus carpophagus*, *Geophilus subterraneus*, *Geophilus acuminatus* and *Geophilus longicornis*. *Lithobius vulgaris* was the name given to his previously described *Lithobius lævilabrum*, itself a synonym of *Lithobius forficatus*.

To these were added our first named halophilic centipede, *Geophilus maritimus* [*Strigamia maritima*] (in Britannia inter scopulos ad littoral maris vulgatissime) and *Cryptops Savignii* (Habitat in Musei Britannici horto). The latter is now considered to be a synonym of the subsequently described *Cryptops anomalans* (see: Lewis, 2014a). Leach also referred to *Cermatia livida* from Madeira, now considered a synonym of *Scutigera coleoptrata*. Five species of *Scolopendra* were included, the same as in the *Transactions* paper (Leach, 1816a).



Geophilus maritimus (Detail from Leach, 1817)

A late report on millipedes (Plymouth Institution)

To quote Harrison & Smith, “Devon’s distance from London was such that its intellectual society formed independently and in 1810 (Henry) Woollcombe and a small group of like-minded individuals planned the formation of a modern *Athenæum*, a new scientific and philosophical society for this rapidly expanding community...” The Plymouth Institution held its inaugural meeting in October 1812 and Elford Leach was one of the founder members. In due course a proposed *Transactions* was to be published and Leach seems to have been submitting articles for the planned first volume for some years, certainly since he was at the British Museum but there seemed to be serious delays before the first volume of the *Transactions of the Plymouth Institution* which finally appeared in 1830.

Amongst the articles was a note by William Elford Leach MD, FRS, etc, an honorary member of the society; “Description of some new species of the class Myriapoda” (Leach, 1830). These were five species of *Julus* and *Euopes rissonianus* all from southern Europe all of which, apart from one, had probably already been named in Risso (1826) by the time the Plymouth article was published. Species accepted as valid are *Julus annulatus* (*Julus annulatus* Risso, 1826), *Julus modestus* (*Julus modestus* Risso, 1826) and *Julus piceus*, now known as *Leptoziulus piceus* (Risso, 1826). *Julus aimatopus* may be a misprint for *Julus aimatopodus* Risso, 1826 (a synonym of *Ommatoziulus sabulosus*) which MilliBase flags up as a less strict, matching extant record. *Julus trilineatus* is not referred to in Risso’s account and when checked in MilliBase with either Leach or Risso as an authority does not seem to be recognised, only the *J. trilineatus* of C.L.Koch, 1847.

The situation regarding *Euopes rissonianus* is more complex than suggested in Harrison & Smith’s (2008) comment that Risso had missed one of Leach’s species, *Euopes rissonianus*. In fact, Risso had included *Callipus rissonius* (Leach) (“Sous les pierres du Lazaret et de Baus-Rous”), in his list having coined the new generic name *Callipus* and *Callipus rissonius* is given as a junior synonym of *Callipus*

foetidissimus by MilliBase. Brolemann (1935) and Demange (1981) give as the authority for the genus *Callipus* “Leach apud Risso, 1826” and list *C. foetidissimus* as (Savi, 1819), Savi having been the original describer of *Iulus foetidissimus*.

Leach’s (1830) name, with the spelling *rissonianus* rather than *rissonius* (“not uncommon in gardens, groves, and woods in the south of France, and in Italy”) is accepted by MilliBase as *Euopus rissonianus* Leach, 1830 with *Euopus* Leach, 1830 being listed as a synonym of *Callipus*. Only one species of *Callipus*, *C. foetidissimus* is listed in Brolemann (with several varieties) and by Demange from mainland France and it seems not at all improbable that Leach’s and Risso’s species were the same.

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Appendix 1: List of myriapod genera & species described by W. E. Leach 1814-1817 (with current names)

1813-15 (1814) Edinburgh Encyclopædia

Diplopoda:

Genera:	<i>Craspedosoma</i> Leach 1814
Species:	
<i>Julus Niger</i>	<i>Tachypodoiulus niger</i> (Leach, 1814)
<i>Craspedosoma Raulinsii</i>	<i>Craspedosoma raulinsii</i> Leach, 1814
<i>Craspedosoma Polydesmoides</i>	<i>Nanogona polydesmoides</i> (Leach, 1814)

Chilopoda:

Genera	<i>Cryptops</i> Leach 1814
	<i>Geophilus</i> Leach 1814
	<i>Lithobius</i> Leach 1814
Species:	
<i>Lithobius Variegatus</i>	<i>Lithobius variegatus</i> Leach, 1814

1816 Transactions of the Linnean Society

Diplopoda:

Species:	
<i>Julus Londinensis</i>	<i>Cylindroiulus londinensis</i> (Leach, 1816)
<i>Julus punctatus</i>	<i>Cylindroiulus punctatus</i> (Leach, 1816)
<i>Julus pusillus</i>	<i>Brachyiulus pusillus</i> (Leach, 1816)

Chilopoda:

Species:	
<i>Geophilus acuminatus</i>	<i>Strigamia acuminata</i> (Leach, 1816)
<i>Geophilus carpophagus</i>	<i>Geophilus carpophagus</i> Leach, 1816 ss
<i>Scolopendra Gigas</i>	<i>Scolopendra gigantea</i> Linnaeus, 1758
<i>Scolopendra alternans</i>	<i>Scolopendra alternans</i> Leach, 1816
<i>Scolopendra subspinipes</i>	<i>Scolopendra subspinipes</i> Leach, 1816
<i>Scolopendra trigonopodus</i>	<i>Ethmostigmus trigonopodus</i> (Leach, 1816)

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Diplopoda:

No new genera or species

Chilopoda:

Species:	
<i>Geophilus maritimus</i>	<i>Strigamia maritima</i> (Leach, 1817)
<i>Cryptops Savignii</i>	= <i>Cryptops anomalans</i> Newport, 1844

Appendix 2: Higher taxa (orders & families)

Diplopoda

Higher order millipede taxa attributed to Leach in the recent classification (Enghoff *et al.*, 2015) with corrected dates as proposed here.

Leach's name & date	As listed in Enghoff <i>et al.</i> (2015)	Proposed here
1816a Family Glomerides	Order Glomerida Leach, 1814	Order Glomerida Leach, 1816
1816b Family Glomeridea	Family Glomeridae Leach, 1816	Family Glomeridae Leach, 1816
1816a Family Polydesmides	Order Polydesmida Leach, 1816	Order Polydesmida Leach, 1816
1816b Family Polydesmidea	Family Polydesmidae Leach, 1816	Family Polydesmidae Leach, 1816
1814 Family Julides		
1816a Family Julides	Family Julidae Leach, 1814	Family Julidae Leach, 1814
1816b Family Julidea		

Chilopoda

Leach, (1814) had included *Scutigera* (spelled *Scutegera*) in the Family Scolopendrides. In the *Transactions Linn.Soc.* paper (Leach 1816a) he has a Family Cermatides including *Cermatia* (= *Scutigera*) and similarly in the Encyclopædia Britannica account, Leach, 1816b) in Cermatidea. Note that *Lithobius* was included in the family Scolopendrides / Scolopendridea at this time. Centipedes are today included in five orders, Geophilomorpha, Scolopendromorpha, Lithobiomorpha, Scutigermomorpha and Craterostigmomorpha, the first four generally attributed to Pocock, 1895. There is some degree of variation in the delineation of families and sub-families by different authors.

Family level centipede taxa attributed to Leach in a recent taxonomic account (Bonato *et al.* (2011) are listed below but it appears that the attribution of Leach's name to Scutigerae / Scutigerae is incorrect (Many other sources apparently give Gervais, 1837). The attribution of Leach, 1814 to Scolopendridae / Scolopendrinae / Scolopendrini is correct. That to Geophilidae is also Leach but the correct date for this is now recognised as 1816, the date of the relevant publication (Lucio Bonato, *pers.comm.*).

Leach's name & date	As listed in Bonato <i>et al.</i> (2011)	Proposed here
1816a Family Cermatides	Family Scutigerae Leach, 1814	Not attributed to Leach
1816b Family Cermatidea	Sub-family Scutigerae Leach, 1814	
1814 Family Scolopendrides	Family Scolopendridae Leach, 1814	Family Scolopendridae Leach, 1814
1816a Family Scolopendrides	Sub-family Scolopendrinae Leach, 1814	Sub-family Scolopendrinae Leach, 1814
1816b Family Scolopendridea	Tribe Scolopendrini Leach, 1814	Tribe Scolopendrini Leach, 1814
1816a Family Geophilides	Family Geophilidae Leach, 1815	Family Geophilidae Leach, 1816
1816b Family Geophilidea		

Appendix 3: Myriapods listed by A. Risso (1826) from the Alpes Maritimes

(Current names derived from MilliBase (Sierwald & Spelda, 2023) or Chilobase (Bonato *et al.*, 2016); the spellings Chilognates and Jullus are those given in Risso's original account)

Les Chilognates (Chilognathes)

Glomeris (Lat.), (Glomeris)	<i>G. marginata</i> (G. marginé)	(<i>Glomeris marginata</i>)
	<i>G. castaneus</i> (N.) (G. châtain)	(<i>Onychoglomeris castanea</i>)
	<i>G. guttatus</i> (N.) (G. tacheté)	(presume <i>G. guttata</i> Rosso, 1826)
Jullus (<i>Julus</i>) (Lin.), (Jules)	<i>J. sabulosus</i> (Lin.) (J. des sables)	(<i>Ommatoiulus sabulosus</i>)
	<i>J. aimatopodus</i> (N.) (J. incarnat)	(<i>Ommatoiulus sabulosus</i>)
	Demange (1981) refers to this as <i>O. sabulosus aimatopodus</i>]	
	<i>J. annulatus</i> (N.) (J. annelé)	(<i>Julus annulatus</i>)
	<i>J. modestus</i> (N.) (J. modeste)	(<i>Julus modestus</i>)
	<i>J. piceus</i> (N.) (J. noirâtre)	(<i>Leptoiulus piceus</i>)
Callipus (N.) (Callipe)	<i>C. rissonius</i> (Leach) (C. de Risso)	(<i>Callipus foetidissimus</i>)
Craspedosoma (Leach) (Craspedosome)	<i>C. polydesmoïdes</i> (Polydesmoïde)	(<i>Nanogona polydesmoides</i>)
Polydesmus (Lat.) (Polydesme)	<i>P. complanatus</i> (P. lisse)	(<i>Polydesmus complanatus</i>)
	[<i>Polydesmus complanatus</i> is not listed in Demange (1981) but <i>P. angustus</i> is]	
Polyxenus (Lat.) (Polyxéne)	<i>P. lagurus</i> (P. en pinceau)	(<i>Polyxenus lagurus</i>)

Les Syngnathes

Cermatia (Ill.) (Scutigère)	<i>C. variegata</i> (N.) (S. variée)	(<i>Scutigera coleoptrata</i>)
Lithobius (Lam.) (Lithobie)	<i>L. forficatus</i> (L. fourche)	(<i>Lithobius forficatus</i>)
	<i>L. longicornis</i> (N.) (L. à longues cornes)	(<i>Eupolybothrus longicornis</i>)
Geophilus (Leach) (Géophile)	<i>G. longissimus</i> (G. très long)	(<i>Himantarium gabrielis</i>)