

Mites (Acari) in the Manchester Museum: Curators and a committee

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ABSTRACT

The Manchester Museum has a series of collections of mites and ticks as a consequence of donations and the activities of members of the Museum at different times. Brief details of the collectors are given, and the extent of coverage of the groups concerned is described. Full records can be provided on application to the Entomology Department.

Keywords: Arachnida, Acari, museum collections, biography, Manchester

INTRODUCTION

The Department of Entomology in the Manchester Museum holds the third largest arthropod collection in Britain (Logunov 2010, 2012; Logunov & Merriman 2012). Apart from insects the department also has substantial collections of Myriapoda (Proudlove & Logunov 2011), Crustacea and Arachnida; the last of these groups consisting of some 18 orders, of which the most species-rich are the Araneae (spiders) and the Acari (ticks and mites). The Museum collection contains more than 3,500 species of spiders, making it the third largest arachno-depository in the country (Arzuza Buelvas 2018).

The Acari is a section in the Manchester Museum that is often relatively overlooked. Acari are nevertheless an important part of the fauna of most ecotopes and in a medical context contains a significant proportion of vectors of disease and allergy-inducing species. So far, some 60,000 species of Acari have been described from the undoubtedly much larger total (Halliday, O'Connor & Baker 2000; Zhang *et al.* 2019). They occupy all manner of habitats and habits of life, for example, as herbivores, detritivores, predators and parasites. In the last of these roles they are significant vectors of disease. Accounts of the higher classification of the group can be found in: Lindquist, Krantz & Walter (2009); Schatz *et al.* (2011); Beaulieu *et al.* (2011); Walter *et al.* (2011), and Zhang *et al.* (2011). An overview of the biodiversity of mites is given in Gwiazdowicz (2021). The medical and economic importance of the Ixodida (ticks) has attracted many taxonomic studies and lists of valid names are collated in Guglielmone *et al.* (2010); Guglielmone *et al.* (2014) and Guglielmone & Nava (2014). The Manchester Museum's holding is relatively modest in scope and diversity (currently, 453 species) but deserves to be better known.

Until the appointment of Harry Britten as an Assistant Keeper of Entomology in 1919 (see below), no special efforts had been undertaken to acquire or collect ticks and mites for the museum's collection. The first ever tick specimen, of an unknown species, acquired by the Manchester Museum was donated by Mr Gavins in January

1891, as evidenced by the entry in Minutes of the Museum Committee (25th January 1891: 131). The present whereabouts and data label of this tick remain unknown. Twenty years later, in 1911, Robert Standen (1854–1925, Assistant Keeper of Zoology at that time; see obituary by Jackson (1926)) acquired an extensive collection of 300 microscopic slides of Acari, Anoplura and Mallophaga, assembled by the late Dr G.W. Chaster and donated by his daughter (Report 1910–11: 13, 35). Yet, an exact number of tick and mite slides was not mentioned. The present collection of Acari consists of some 2900 slide preparations that are stored in a rather unusual way, which seems to be restricted to the Manchester Museum. Microscope slides are kept in a standard Hill unit and drawers (Fig. 1). Each slide is stored in an individual paper envelope protecting the slide from dust and containing hand-written information about the provenance of the sample, its identification and museum accession number; this information replicates that scratched on the slide itself. This preserving method was initiated by H. Britten (Reports 1964–65), followed by Alan Brindle (1915–2001), the Keeper of Entomology from 1962–1982, and is still in use for keeping the historic collection of entomological slide mounts (Logunov 2012). In the period of 2015–19, the entire acarine collection of the Manchester Museum was re-curated and documented by the first author (GP), working in the capacity of Honorary Academic Curator.

Although the taxonomic rank of the former order Acari has been elevated to the subclass Acari, which is further divided into two superorders – Parasitiformes and Acariformes, and six orders (Dhooria 2016), for practical reasons in the present paper the terms ‘Acari’ and ‘acarine’ simply refer to the entire collection of ticks and mites deposited in the Manchester Museum: without specifying precise higher taxonomic ranks of each group considered.

This paper presents a brief history and analysis of the Museum’s acarine collection for the first time. The main parts of the Manchester Museum’s holding will be considered under the following headings: (1) The Harry Britten Collection, (2) Edmund Seyd, a Keeper of Zoology, (3) the Entomology Research Committee and (4) other material, including types and voucher specimens from Siberia, the Russian Far East and Costa Rica. The Acari are listed under 4-digit code numbers preceded by the letters F or G, corresponding to two Museum Registers that contain records of the new acquisitions of insects (F) and other arthropods (G).

For simplicity, in the following text the published Museum’s Annual Reports are cited as ‘Report’ followed by the corresponding years.

COLLECTORS AND COLLECTIONS

1. THE HARRY BRITTEN COLLECTION

(G7578:1–4236 Slide Mounts, G7634:1–75 Pinned Specimens)

Harold Britten (9 September 1870–31 January 1954) (Fig. 2), always known as Harry, was Assistant Keeper of Entomology in the Manchester Museum from 1919 until his retirement in 1937 (Anon. 1954; Anon. 2018; Hincks 1954; Neave 1955; Parker 2003). He was brought up first in Scotland and later in Cumbria. There he was successively a kennel boy, railway signaller and then, and more importantly in the present context, game keeper on an estate. He became interested in insects and other arthropods at an early age, excellent eyesight enabling him to collect and



Photo: © The Manchester Museum

Fig. 1. — Hill unit with microscope slide collection of mites assembled by Harry Britten.



Photo: © The Manchester Museum

Fig. 2. — Harry Britten, the Assistant Keeper of Entomology of the Manchester Museum (1919–1937), during a field trip, mid-1937.

mount often minute specimens from a number of insect groups. This interest and skill led to his being employed at the Hope Department of Entomology, Oxford from 1913 to 1918. From there he moved briefly to the Manchester instrument makers Flatters and Garnett until, in 1919, he was appointed as Assistant Keeper of Entomology at the Manchester Museum (Minutes of the Museum Committee, 11th March 1919: 359), following the resignation of his predecessor John R. Hardy (1844–1921); see obituary by Standen (1921). After his retirement in 1937 until his death, Britten continued to collect and consult, and was very generous in his gifts of specimens to others. He published relatively little, and was gently chided (Neave 1955) for not committing more of his experiences to print. Many of his contributions were short notes on occurrence and location of material but others included photographic illustrations for a book on pests of stored products (Hayhurst 1940). He was elected to the Royal Entomological Society in 1909 and his abilities were recognised when he was made a Special Life Fellow in 1948. He was also a Fellow of the Linnean Society. Among other societies he was Fellow and sometime President of the Manchester Microscopical Society and the Manchester Entomological Society. In 1951 his preserved material came to the Museum, together with notebooks, record cards and publications. The University awarded him an honorary MSc degree in 1952. His son, also Harry (1894–1976), continued the collecting tradition and presented material to the Museum.

The acarine section of the Britten collection consists principally of mites (many families), with a much smaller number of ticks (Ixodida, families Argasidae and Ixodidae), which are mounted on microscope slides (Fig. 3). This collection reflects the early interests of Britten in arachnids, when he actively collected them and even published a paper on the arachnids of Cumberland (Britten 1912; see also Parker 2003). In 1954–55, his acarine collection was meticulously re-arranged by E. Seyd (see below), according to the latest systematic catalogue (Turk 1953a, b; see Report 1953–54, 1954–55). That arrangement still stands as was, but the nomenclature of the taxa has been updated. The Britten acarine collection was also databased in 1982, as part of the Manchester Museum project aimed at cataloguing all its collections. The project was undertaken by the Museum Computer Catalogue Unit that was led by Charles A.W. Pettitt (1937–2009), Assistant Keeper of Zoology at that time (Report 1981–82; see also Alberti 2009: 135–136). In 2016, the collection was re-accessioned (G7578: 1-4236), each slide was provided with an individual accession number and all records in the Museum's database were edited and updated as required. One accession number is applied to each slide but one slide may contain more than one specimen. There is a total of 4579 items in this collection in the Museum database. Of this total 4216 items (slides) have a Museum accession number applied, while 363 (7.9% of the total) have no accession numbers since these items (probably also slides) were not found during the recent analysis. The total number of species is 405. The 2835 slides cover 133 families, 252 genera, 380 identified species and 45 unidentified species. Ninety-three species have ten or more slides and two species have over 50 slides, namely *Coelognathus (Tyroglyphus) dimidiatus* (84) and *Histiostoma feroniarum* (54). The list of slides by family is given in Table 1.

In addition to this extensive slide mounted collection there are also 75 specimens of mites and ticks mounted on card in the fashion of pinned insects (Fig. 4). These are listed as G7634.1-75, 16 of these being identified to species (Table 2).



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Fig. 3. — Examples of Britten's slide preparations: *Veigaia nemorensis* (C.L. Koch, 1839) (Veigaiaidae; top) and *Zercon perforatulus* Berlese, 1904 (Zerconidae; bottom). Scale bar: 1mm.



Photo: © The Manchester Museum

Fig. 4. — Examples of Britten's mounted and pinned Acari: the ixodid tick *Hyalomma aegyptium* Linnaeus, 1758 (left; G7634.75) and the oribatid mite *Damaeus geniculatus* (Linnaeus, 1758) (right; G7634.67). Scale bars: 2mm.

TABLE 1. — SUMMARY STATISTICS FOR THE BRITTEN COLLECTION OF ACARI, SLIDES (G7578)

Family	Genera	Species identified	Species unidentified	Slides
Acaridae	8	9	0	166
Alloptidae	1	4	1	27
Amblyommidae	3	3	2	22
Analgidae	6	17	2	178
Anystidae	1	1	0	27
Argasidae	2	2	0	20
Arrenuridae	1	4	1	41
Ascidae	3	2	1	6
Atopomelidae	1	1	0	1
Autognetidae	1	0	1	1
Avenzoariidae	2	3	1	30
Bdellidae	4	6	1	44
Belbidae	1	1	0	1
Belbodamaeidae	1	1	0	1
Brachychthoniidae	1	1	0	1
Calyptostomatidae	1	0	1	10
Camisiidae	3	7	0	16
Carabodidae	2	2	0	8
Carpoglyphidae	1	1	0	5
Celaenopsidae	1	1	0	16
Cepheidae	1	2	0	12
Ceratozetidae	4	5	0	18
Chaetodactylidae	1	1	0	2
Chamobatidae	1	2	0	5
Cheyletidae	4	4	0	45
Cymbaeremaeidae	1	1	0	1
Cytoditidae	1	1	0	3
Damaeidae	3	4	0	8
Demodecidae	1	1	1	12
Dermanyssidae	1	1	1	5
Dermationidae	1	1	0	3
Dinychidae	1	0	1	3
Entonyssidae	1	1	1	4
Epidermoptidae	2	2	0	3
Eremaeidae	2	2	0	3
Ereynetidae	1	1	0	17
Eriophyidae	4	7	1	19
Erythraeidae	4	6	2	43
Eupodidae	1	1	0	4
Eustathiidae	2	2	0	10
Euzetidae	1	1	0	9
Eviphididae	1	1	0	9
Falculiferidae	1	1	1	19
Freyanidae	1	1	1	20
Gabuciniidae	1	3	0	29
Galumnidae	1	2	0	2
Glycyphagidae	7	12	3	164
Gustaviidae	1	1	0	1
Halarachnidae	1	2	0	3
Hermannelliidae	1	1	0	1
Hermannidae	1	4	0	8
Hirstionyssidae	1	3	0	13
Histiostomatidae	2	3	0	67
Humerobatidae	1	1	0	1
Hydrachnidae	1	2	0	4
Hydryphantidae	1	1	0	4
Hydrozetidae	1	1	0	1
Hydryphantidae	2	2	0	3
Hygrobatidae	1	1	0	6
Hypochthoniidae	1	1	0	1
Ixodidae	3	11	1	87
Johnstonianidae	1	1	0	5
Knemidokoptidae	1	1	0	4
Kramerellidae	1	1	0	19
Laelapidae	9	19	2	135
Listrophoridae	4	4	2	23
Macrochelidae	3	8	1	60

TABLE 1. — *cont.*

Family	Genera	Species identified	Species unidentified	Slides
Macronyssidae	6	11	0	46
Malaconothridae	1	1	0	1
Metrioppiidae	1	1	0	7
Micreremidae	1	1	0	1
Microtrombidiidae	4	5	0	15
Myobiidae	10	16	0	189
Nanhermanniidae	1	1	0	1
Neoliodidae	1	1	0	1
Notaspidiidae	1	2	1	12
Nothridae	1	2	0	9
Ologamasidae	1	0	1	2
Opilioacaridae	2	2	0	8
Oppiidae	1	3	0	4
Oribatellidae	1	1	0	1
Oribatulidae	3	3	0	4
Oxidae	1	1	0	2
Pachylaelapidae	1	1	0	1
Parasitidae	8	22	3	272
Peloppiidae	1	1	0	1
Phthiracaridae	2	2	0	5
Phytoseiidae	1	1	0	1
Piersigiidae	1	1	0	1
Pionidae	2	1	1	2
Podapolipidae	1	1	0	11
Poecilochiridae	1	1	0	1
Polyaspididae	1	1	0	6
Proctophyllodidae	5	12	1	127
Psoroptidae	2	3	0	13
Psoroptoididae	1	5	0	65
Pterolichidae	4	9	1	36
Pteronyssidae	2	3	0	6
Ptiloxenidae	1	1	0	17
Pyemotidae	1	1	0	1
Pyroglyphidae	1	1	0	8
Rhodacaridae	1	1	0	38
Sarcoptidae	2	3	0	45
Scutacaridae	1	2	1	8
Scutoverticidae	1	1	0	0
Sejidae	1	1	0	1
Siteroptidae	1	2	1	7
Smarididae	1	2	0	8
Sperchontidae	1	1	0	8
Spinturnicidae	2	4	0	21
Steganacaridae	2	2	0	11
Stigmaeidae	1	1	0	1
Syringobiidae	1	1	0	11
Syringophilidae	2	2	0	10
Tanaupodidae	1	1	1	2
Tarsonemidae	3	2	1	19
Tectocephidae	1	1	0	2
Tetranychidae	3	4	0	39
Thyrisomidae	1	1	0	2
Trachyuropodidae	1	1	0	4
Trombiculidae	3	1	2	23
Trombidiidae	3	6	1	37
Trouessartiidae	1	4	0	30
Tydeidae	1	1	0	11
Tyroglyphidae	1	1	0	20
Unionicolidae	1	1	1	16
Urodinychidae	2	2	0	7
Uropodidae	3	3	0	3
Veigaiidae	2	4	0	9
Winterschmidtidae	1	1	0	0
Xenillidae	1	1	0	1
Xolalgidae	2	3	0	21
Zerconidae	1	1	0	4
133 Families	252	380	45	2835

TABLE 2. — SUMMARY STATISTICS FOR THE BRITTEN COLLECTION OF ACARI, PINNED MATERIAL (G7634.1–75)

ANYSTIDAE		HERMANNIIDAE	
<i>Anystis baccharum</i> (Linnaeus, 1758)	1	<i>Hermannia scabra</i> (C. L. Koch, 1879)	4
ARGASIDAE		IXODIDAE	
<i>Argas vespertilionis</i> (Latreille, 1796)	3	<i>Hyalomma aegyptium</i> Linnaeus, 1758	1
CAMISIIDAE		LIEBSTADIIDAE	
<i>Heminothrus</i> sp.	1	<i>Liebstadia similis</i> (Michael, 1888)	1
CEPHEIDAE		PARASITIDAE	
<i>Cepheus cepheiformis</i> (Nicolet, 1855)	2	<i>Pergamasus crassipes</i> Berlese, 1906	1
<i>Cepheus</i> sp.	1	PHTHIRACARIDAE	
METRIOPPIIDAE		<i>Phthiracarus dasyypus</i> (Dugès, 1834)	2
<i>Ceratoppia bipilis</i> (Hermann, 1904)	4	SPINTURNICIDAE	
DAMAEIDAE		<i>Spinturnix vespertilionis</i> (Linnaeus, 1758)	2
<i>Damaeus (Paradamaeus) clavipes</i> (Hermann, 1804)	5	<i>Spinturnix</i> sp.	1
<i>Damaeus geniculatus</i> (Linnaeus, 1758)	3	Unidentified	40
EUZETIDAE			
<i>Euzetes globulus</i> (Nicolet, 1855)	3		

2. THE SEYD SPIRIT COLLECTION OF BRITISH ORIBATIDA (G7498:1–225)

Edmund Leonard Seyd (1909–2010) (Fig. 5) was Senior Lecturer and Keeper of Zoology (Assistant Keeper until 1957) at The Manchester Museum from 1954 to 1975. After his retirement, he served as Honorary Keeper of Acarology at the Museum for several years (at least until 1985; Report 1984–85), helping with mite enquiries and undertaking research on Oribatida (Report 1975–76, 1980–81). He is remembered for his enthusiasm for oribatids, or moss mites, and for the steady, though slow revision of the displays in the Zoology galleries. In that connection he authored a book on a well-known exhibit, the skeleton of ‘*the world’s oldest horse*’ (Seyd 1973). He also contributed to a general survey of the Manchester region and of the Museum’s holdings (Owen *et al.* 1962). Little information about his early life or background can be found in the Museum’s files, but examination of available records provides the following picture.

Edmund’s father Richard Seyd was born in Germany (Prussia) in 1871. The family moved to England, where he became a Banking and Credit Agent. His mother Melita, née Krohn, was also of German descent. She was born in Madeira where her parents had a general trading business; they later moved to England. Edmund was probably educated at Bedales School in Sussex where his two elder siblings, Frederick, or Fred (1904–1992) and Elfrida (1906–1930) were pupils. He was a student at Oxford from 1928–32, from where he received an MA and BSc working with the well-known biologist Gavin de Beer (the Oxford BSc degree is equivalent to MSc elsewhere). He then taught in secondary schools in London except for a year (1938) at Dartington Hall School, in Devon. Shortly after that, while living in London, he became a mortuary assistant connected to the wartime Air Raid Precautions (ARP) and was subsequently a motorcycle dispatch rider in the army. He married Lesley Campbell in 1944. A son, Richard, was born in 1947. Edmund was a Scientific Assistant at the British Museum (Natural History), 1950–52, then for two years Assistant Curator at Maidstone Museum. The move to Manchester and appointment as Assistant Keeper of Zoology at the Manchester Museum in January

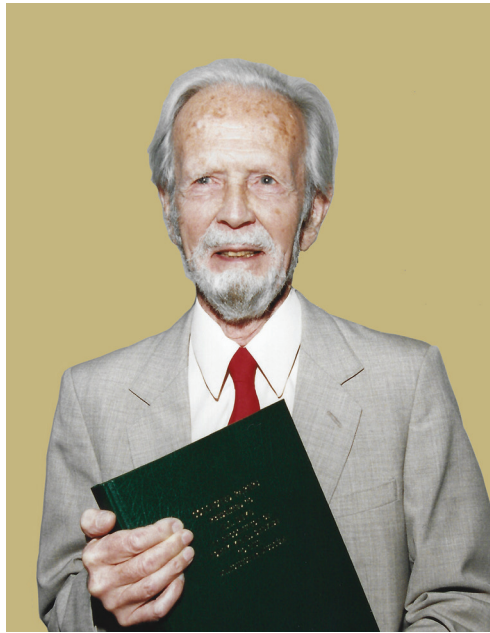


Photo: © The Manchester Museum

Fig. 5. — Edmund Seyd, Senior Lecturer and Keeper of Zoology at the Manchester Museum (1954–1975). Photo taken 1995.



Photo: © The Manchester Museum

Fig. 6. — Two jars of the recurated spirit collection of moss mites (Oribatida) assembled by Edmund Seyd.

TABLE 3. — SUMMARY STATISTICS FOR THE SEYD SPIRIT COLLECTION OF BRITISH ORIBATIDA (G7498.1–255)

ACHIPTERIIDAE		HUMEROBATIDAE	
<i>Campachipteria snowdonensis</i> (Colloff & Seyd, 1987)	1 (paratype)	<i>Humerobates rostromellatus</i> Grandjean, 1946	1
<i>Parachipteria magna</i> (Sellnick, 1928)	6	HYDROZETIDAE	
<i>Parachipteria punctata</i> (Nicolet, 1855)	1	<i>Hydrozetes lacustris</i> (Michael, 1882)	2
AMERONOTHRIDAE		HYPOCHTHONIIDAE	
<i>Ameronothrus maculatus</i> (Michael, 1882)	2	<i>Hypochthonius rufulus</i> Koch, 1835	2
CAMISIIDAE		LIACARIDAE	
<i>Camisia biverrucata</i> (Koch, 1839)	1	<i>Xenillus tegeocranus</i> (Herman, 1804)	2
<i>Camisia horrida</i> (Hermann, 1804)	9	<i>Adoristes ovatus</i> (Koch, 1839)	2
<i>Camisia invenusta</i> (Michael, 1888)	11	LIMNOZETIDAE	
<i>Camisia segnis</i> (Hermann, 1804)	3	<i>Limnozetes ciliatus</i> (Schränk, 1803)	3
<i>Camisia spinifer</i> (Koch, 1835)	4	MALACONTHRIDAE	
<i>Heminothrus peltifer</i> (Koch, 1839)	9	<i>Trimalaconothrus novus</i> (Sellnick, 1921)	1
<i>Heminothrus punctatus</i> (L. Koch, 1879)	6	MYCOBATIDAE	
CARABODIDAE		<i>Mycobates sarekensis</i> (Trägårdh, 1910)	30
<i>Carabodes labyrinthicus</i> (Michael, 1879)	3	NANHERMANNIIDAE	
<i>Carabodes marginatus</i> (Michael, 1884)	9	<i>Nanhermannia dorsalis</i> (Banks, 1896)	3
<i>Carabodes willmanni</i> Bernini, 1975	7	<i>Nanhermannia nana</i> (Nicolet, 1855)	4
<i>Odontocephus elongatus</i> (Michael, 1879)	1	NOTHRIDAE	
CEPHEIDAE		<i>Nothrus palustris</i> Koch, 1839	1
<i>Cepheus dentatus</i> (Michael, 1888)	1	<i>Nothrus silvestris</i> Nicolet, 1855	2
<i>Ommatocephus ocellatus</i> (Michael, 1882)	2	OPPIIDAE	
CERATOPPIIDAE		<i>Dissorhina ornata</i> (Oudemans, 1900)	2
<i>Trichoppia piriformis</i> (Warburton, 1912)	1	<i>Moritzoppia oreia</i> Colloff & Seyd 1991	5
CERATOZETIDAE		ORIBATULIDAE	
<i>Trichoribates monticola</i> (Trägårdh, 1902)	2	<i>Oribatula exilis</i> (Nicolet, 1855)	9
<i>Trichoribates trimaculatus</i> (C. L. Koch, 1835)	2	<i>Oribatula tibialis</i> (Nicolet, 1855)	4
<i>Edwardzetes edwardsi</i> (Nicolet, 1855)	8	<i>Phauloppia lucorum</i> (Koch, 1841)	5
<i>Melanozetes mollicomus</i> (Koch, 1839)	8	PELOPPIDAE	
CHAMOBATIDAE		<i>Ceratoppia bipilis</i> (Hermann, 1804)	8
<i>Chamobates schuetzi</i> (Oudemans, 1902)	11	PHENOPELOPIDAE	
DAMAEIDAE		<i>Eupelops acromios</i> (Hermann, 1804)	1
<i>Damaeus clavipes</i> (Hermann, 1804)	3	<i>Peloptulus montanus</i> Hull, 1914	1
<i>Damaeus onustus</i> Koch, 1841	1	PHTHIRACARIDAE	
<i>Porobelba spinosa</i> (Sellnick, 1920)	2	<i>Steganacarus magnus</i> (Nicolet, 1855)	2
ENIOCHTHONIIDAE		<i>Phthiracarus piger</i> (Scopoli, 1763)	1
<i>Hypochthoniella minutissima</i> (Berlese, 1904)	1	QUADROPPIDAE	
EREMAEIDAE		<i>Quadroppia quadricarinata</i> (Michael, 1885)	1
<i>Eueremaeus oblongus</i> (Koch, 1835)	5	SCHELORIBATIDAE	
EUPHTHIRACARIDAE		<i>Liebstadia similis</i> (Michael, 1888)	2
<i>Acrotritia duplicata</i> (Grandjean, 1953)	1	SCUTOVERTICIDAE	
EUZETIDAE		<i>Scutovertex sculptus</i> Michael, 1879	4
<i>Euzetes globulus</i> (Nicolet, 1855)	1	SUCTOBELBIDAE	
<i>Euzetes seminulum</i> (Muller, 1776)	1	<i>Suctobelba trigona</i> (Michael, 1888)	2
GALUMNIDAE		TECTOCEPHEIDAE	
<i>Acrogalumna longipluma</i> (Berlese, 1904)	1	<i>Tectocephus velatus</i> (Michael, 1880)	8
<i>Galumna lanceata</i> (Oudemans, 1900)	1	THYRISOMIDAE	
HERMANNIELLIDAE		<i>Banksinoma lanceolata</i> (Michael, 1885)	11
<i>Hermaniella picea</i> (Koch, 1839)	1	64 species, 253 specimens total	
HERMANNIIDAE			
<i>Hermannia gibba</i> (Koch, 1839)	2		
<i>Hermannia reticulata</i> Thörell, 1871	6		

1954 (Report 1953–54) was followed by divorce in 1957 and marriage to Sheila Jones in 1963. Edmund was a member of the Museums Association and was elected Fellow of the Linnean Society in 1958. After retiring from Manchester, he continued to publish scientific papers and also letters to journals such as the *New Scientist*, from an Oxford address.

There was a radical streak in the family. In 1913 his mother Melita was Secretary of a Women's Suffrage Society branch in Surrey. Edmund, writing as Ted Seyd, was published in *Marxism Today*. His brother Fred, taught modern languages, first at Bedales and then at Dartington, where he and his wife were actively involved in local Communist Party affairs. Fred's daughter, Nicola, described as a grassroots activist and friend of Cuba in her *Morning Star* and *Guardian* obituaries (2015), continued the tradition. The several connections to Dartington led to Edmund and Sheila's final move to Totnes. Edmund died there on 18 April 2010, aged 101.

Edmund produced a significant body of work on British oribatid mites (Table 3). In contrast to Britten, he published not only on the systematics of the species but also on their ecological context (Seyd 1958–2009; Seyd & Colloff 1991). Two species new to science were described, *Parachipteria snowdonensis* Colloff & Seyd, 1987 and *Moritzoppia oreia* Colloff & Seyd, 1991 (Colloff & Seyd 1987, 1991), and one species has been named for him, *Lanceoppia seydi* Hammer, 1968 (Oppidae) from Keri Keri in New Zealand (Hammer 1968). He was particularly interested in the mite fauna of montane areas and its association with different lichens and mosses (Seyd & Seaward 1984; Seyd, Luxton & Colloff 1996). Much of his collecting was in Wales, on Snowdonia and other peaks, but also extended more widely in Britain and Ireland. This led to consideration of mites as indicators of possible Quaternary land connections (Seyd 1992a).

The Seyd collection comprises 253 spirit-preserved specimens of 64 species in 27 genera (Table 3) (Fig. 6). There is only one type specimen, a paratype of *Parachipteria snowdonensis* Colloff & Seyd, 1987 (G7498.139) (now placed in *Campachipteria* (Luxton 1996; Subías 2004)). The holotype and one paratype are in the Natural History Museum London (BMNH 1986.10.7.1 holotype, BMNH 1986.10.7.2 paratype) and there are three paratypes in the collection (Colloff & Seyd 1987, 1991).

3. THE ENTOMOLOGY RESEARCH COMMITTEE COLLECTION OF IXODIDA (G7574:1–134)

The African Entomological Research Committee (AERC, also known as the Entomology Research Committee) was formed in June 1909 ‘... with the object of promoting the study of the insects which play so prominent a part in the spread of disease among men, animals and plants in Africa.’ (Anon. 1911a). It was part of a movement on the part of the Colonial Office to understand the many African zoonotic diseases and their vectors with the aim of controlling them. Establishment of research institutions across the UK was a related initiative of the time. A centre for Economic Entomology was set up in 1909 within the Manchester University Zoology Department under the leadership of A.D. Imms. It existed until after the end of the First World War, when for administrative reasons the work was relocated elsewhere (Kraft 2004) and Imms moved to Rothamsted Experimental Station.

The resources provided for all of these enterprises were modest. The AERC reported that ‘Two skilled entomologists are being employed under the direction of



Photo: © The Manchester Museum

Fig. 7. — Specimen of *Dermacentor rhinoceros* Denny, 1843, with corresponding data labels from the tick collection of the Entomology Research Committee. Scale bar: 1mm.

TABLE 4. — THE ENTOMOLOGY RESEARCH COMMITTEE COLLECTION OF IXODIDAE AND ARGASIDAE FROM AFRICA (G7574.1–134)

Species	Tubes	Specimens
IXODIDAE		
<i>Amblyomma cohaerens</i> Dönitz, 1909	1	20
<i>Amblyomma exornatum</i> Kock, 1844	2	6
<i>Amblyomma gemma</i> Dönitz, 1909	1	3
<i>Amblyomma marmoreum</i> Koch, 1844	4	4
<i>Amblyomma rhinocerotis</i> De Geer, 1778	2	5
<i>Amblyomma splendidum</i> Giebel, 1877	2	13
<i>Amblyomma tholloni</i> Neumann, 1899	1	5
<i>Amblyomma variegatum</i> Fabricius, 1794	14	49
<i>Dermacentor rhinoceros</i> Denny, 1843	2	17
<i>Haemaphysalis leachi</i> (Audouin, 1826)	5	10
<i>Hyalomma aegyptium</i> Linnaeus, 1758	9	109
<i>Ixodes hexagonus</i> Leach, 1815	1	57
<i>Ixodes kochi</i> Dönitz, 1905	6	67
<i>Ixodes ricinus</i> (Linnaeus, 1758)	2	2
<i>Rhipicephalus appendiculatus</i> Neumann, 1901	14	156
<i>Rhipicephalus capensis</i> Koch, 1844	6	49
<i>Rhipicephalus (Boophilus) decoloratus</i> Koch, 1844	7	39
<i>Rhipicephalus evertsi</i> Neumann, 1897	2	57
<i>Rhipicephalus longus</i> Neumann, 1907	2	5
<i>Rhipicephalus microplus</i> (Canestrini, 1888)	4	163
<i>Rhipicephalus pulchellus</i> Gerstäcker, 1873	1	48
<i>Rhipicephalus sanguineus</i> Latreille, 1806	10	116
<i>Rhipicephalus simus</i> Koch, 1844	22	107
<i>Rhipicephalus supertritus</i> Neumann, 1907	1	17
Total species 24	121	1124
ARGASIDAE		
<i>Ornithodoros moubata</i> (Murray, 1877)	7	141
<i>Ornithodoros savignyi</i> (Audouin, 1827)	1	2
Total species 2	8	143
Total IXODIDA	129	1267

the Committee in East and West Africa respectively, for the purpose of interesting and instructing the local officials in the work, and also of carrying out special investigations.' (Anon. 1911a). These two gentlemen would have had their work cut out! Nearly all of the spirit collection of ticks in the Museum collection (117 tubes out of 133 in total) was obtained from the AERC under a scheme whereby 'The collection of insects, after being properly identified and recorded, are being distributed to the schools of tropical medicine, universities, museums, or other institutions where they are likely to be of value for the purposes of teaching or scientific study.' (Anon. 1911a). Ticks being vectors of a wide range of human and other animal diseases, it was clearly important to establish their taxonomy and habits. It is likely that at least five other tubes also come from this source, and probably all of the remaining 16. All of the material received from the AERC was identified by George Henry Falkiner Nuttall and Cecil Warburton of the Molteno Institute, Cambridge (Nuttall 1922), and each contains a label with various information (Fig. 7). There are catalogue numbers present on many, but not all of the labels. These do not seem to relate to the famous hand-written three volume Nuttall tick catalogue (Keirans 1984) as none of the numbers on the labels match the numbers recorded by Nuttall. No other catalogue has been identified; it is possible, however, to tentatively relate some of the Museum specimens to collectors who are listed in the first four volumes of the *Bulletin of Entomological Research* (Anon. 1910a, b, c; Anon. 1911b, c, d, e; Anon. 1912a, b, c, d). There are eight lots of Argasidae, consisting of 143 specimens in two species, and 122 lots of Ixodidae, consisting of 1124 specimens in 24 species. Surprisingly enough we failed to find a record about the acquisition of this tick collection in the Museum's Annual Reports, although there is a record on the collection of African blood-sucking flies (*Glossina* and *Tabanus*) from the Entomological Research Committee in London (Report 1910–11). The Manchester Ixodida material is shown in Table 4.

4. OTHER MATERIAL

This section covers modest tick and mite materials acquired by the Manchester Museum in the last decade, predominantly through fieldwork or academic contacts of the current Curator of Arthropods, Dr Dmitri Logunov (Table 5). Most of these include small mite collections from different Siberian and Far Eastern regions of Russia, particularly of litter- and soil-dwelling mites from the order Mesostigmata of the superorder Parasitiformes, a taxon that they share with the ticks. They are listed in Table 5. The majority of these mites have been identified or described by Dr Irina I. Marchenko, based at the Institute of Systematics and Ecology of Animals, the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (Gwiazdowicz & Marchenko 2012; Gwiazdowicz, Marchenko & Teodorowicz 2014; Marchenko 2013a, b, 2015, 2016); donated to the Manchester Museum in 2013 and 2015 (Fig. 8). The Siberian Oribatida (G7627.1–13), mostly from northern Kazakhstan, account for thirteen species (36 specimens) collected and identified by Dr Vyacheslav S. Andrievsky, based at the Institute of Soil Sciences, the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia; donated to the Manchester Museum in 2019.

In 2007, a sample of seven specimens of the varroa mite, *Varroa destructor* Anderson & Trueman, 2000 (Mesostigmata: Varroidae; see Anderson & Trueman 2000), was donated by Ms F. Elshukpi to the Museum with various other

TABLE 5. — MITES FROM SIBERIA AND THE RUSSIAN FAR EAST

Accession numbers of some specimens are identical because several slides contain 2-3 species mounted together.

ASCIDAE

G7555.15–16. *Iphidozercon altaicus* Gwiazdowicz & Marchenko, 2012: voucher specimens (1♂2♀♀) from Transbaikalia.

G7555.20–25. *Maxinia arctomontana* Lindquist & Makarova, 2012: voucher specimens (11♀♀) from the Altai.

ARCTACARIDAE

G7555.17–19. *Arctacarus dzhungaricus* Bregetova., 1977: voucher specimens (3♀♀) from the Altai.

MELICCHARIDAE

G7555.1–3. *Orthadenella coulsoni* Gwiazdowicz, Marchenko & Teodorowicz, 2014: voucher specimens (1♂6♀♀) from the Altai.

OLOGAMASIDAE

G7543.1–9, G7555.1–2 *Gamasiphis angardis* Marchenko, 2013: paratypes (4♂♂17♀♀) and voucher specimens (2♂♂27♀♀) from Siberia and the Russian Far East.

G7546.1–6 *Gamasiphis ochotensis* Marchenko, 2013: paratypes (14♂♂25♀♀4j) from Sakhalin and the Kurile Islands.

PACHYLAELAPIDAE

G7555.4–12. *Pachyseius anisimovi* Marchenko, 2015: paratypes (9♀♀3j) from the Altai.

G7555.13–14. *Pachyseius orientalis* Nikolsky, 1982: voucher specimens (2♀♀) from West Siberia.

G7555.5–7. *Pachylaelaps kievati* Davydova, 1971: voucher specimens (1♂6♀♀) from the Altai.

PARHOLASPIDIDAE

G7586.1–10. *Neparholaspis dubatolovi* Marchenko, 2016: paratypes (2♂♂3♀♀) and voucher specimens (2♂♂3♀♀) from the Russian Far East (Fig. 8).

TRACHYTIDAE

G7555.5. *Trachytes jiliensis* Ma, 2001: voucher specimen (1♀) from the Altai.

URODINYCHIDAE

G7555.5. *Urodiaspis rectangulovata* (Berlese, 1916): voucher specimen (1♀) from the Altai.

ORIBATIDA

G7627.1–13 Thirteen slides of 36 specimens of from West Siberia, mostly from northern Kazakhstan.

parasites/commensals of the honeybee from Libya (F3311.5). Two samples (5♀♀) of the bee mite, *Scutacarus acarorum* (Goeze, 1780) (Prostigmata: Scutacaridae) from central Europe were donated to the Manchester Museum by Ms Julia Jagersbacher-Baumann of the Karl-Franzens University in Graz (Austria) in 2010 (G7495.1–5).

Finally, a new species of velvet mite *Araneothrombium dimalogunovi* Makol, Felska & Krol, 2017 (F3441:152–154) of the family Microtrombidiidae was described based on the larvae collected by the Curator of Arthropods in 2015 (Fig. 9), representing the first record of the superfamily Trombidoidea in Costa Rica (Makol, Felska & Krol 2017). The Manchester Museum holds the holotype and two paratypes of this species.

CONCLUSION

When appointed in 1919, Harry Britten became Assistant Keeper in Entomology. The title suggests that he assisted ornithologist and natural history writer T.A. Coward who held an interim position as Acting Keeper of the Museum until such time, following the war, that a permanent appointment could be made. In 1922, Dr George H. Carpenter (1865–1939) from the Royal College of Science (Dublin) was appointed as Keeper of the Museum (Report 1922–23). Subsequently, Britten's title was changed to Keeper of Entomology, which it remained until 2003, when the then



Photo: © The Manchester Museum

Fig. 8. — Paratypes and voucher specimens of *Neparholaspis dubatolovi* Marchenko, 2016, from the Russian Far East.



Photo: © Live photo – Amanda Bamford; slides – The Manchester Museum

Fig. 9. — Live larvae of *Araneothrombidium dimalogunovi* Makol, Felska & Krol, 2017 (Microtrombidiidae) on an orb-web spider (*Leucauge* sp., Araneidae), Costa Rica, and microscope slides of the type specimens thereof from the collection of the Manchester Museum.

incumbent (Dr Dmitri V. Logunov) was made Curator of Arthropods (Alberti 2009; Logunov 2012). The title now correctly describes a position charged with overview of the greater part of the animal kingdom. We draw attention here to the extensive curated material representing the species-rich and diverse section of the arachnids, the Acari (mites and ticks). Complete listings for all the material referred to are available online via the Museum's website: <http://harbour.man.ac.uk/mmcustom/EntQuery.php>.

At the present time there is emphasis, quite rightly, on the public function of museums and on what they tell us about ourselves and our motives in a historical and social context. It is important to remember that, however arcane they may be, the collections themselves are the essential raw material on which this function is based. Yet, natural history collections, including those of mites and ticks, continue to make innumerable contributions to science and society in such areas as monitoring environmental change, public health and safety (*e.g.*, Suarez & Tsutsui 2004; Schindel & Cook 2018), enabling the study of evolution through time (Holmes *et al.* 2016), and teaching biology at all levels (Powers *et al.* 2014). The fundamental value of natural history collections is related to our understanding of the Earth's diversity, representing an irreplaceable resource for taxonomic and biodiversity research (Winker 2004). Such research aims to answer four fundamental questions: (1) *what* is the organism under study, (2) *where* is it found in nature, (3) *why* is it found there and (4) *when* was it found there, which is helpful in tracking migrations and environmental changes, among other aspects. Without collections most taxonomic research cannot be conducted. As Richard Fortey (2008: 31) nicely put it, '*The curated specimens are the ground truth for the scientific names of animals, plants and minerals*'.

In Shelley's poem *Ozymandias* (1818) a returning traveller describes some ancient stones he has seen and in so doing allows us to reflect on human aspirations and destiny. The message of the poem depends entirely on the existence and condition of the stones.

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