

*Arachnological Symposium***A resounding success: The John Murphy and Mike Roberts Memorial Symposium – Great Names in British and World Arachnology, 3 December 2021**

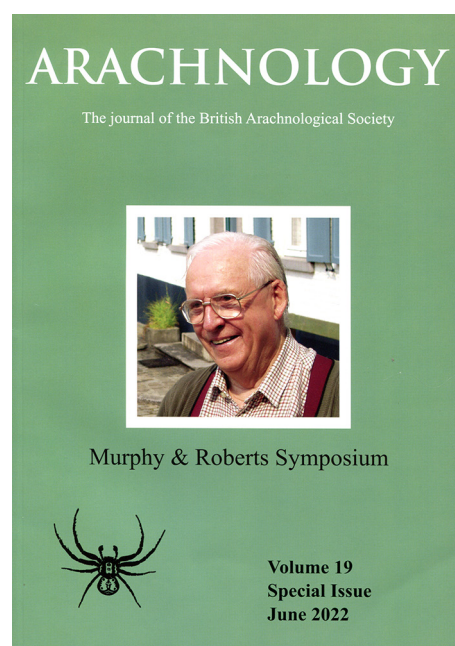
Following deaths of two notable British arachnologists, Michael Roberts (in October 2020) and John Murphy (in January 2021), the British Arachnological Society (BAS) decided to organise a one-day zoom symposium to commemorate their lives and contributions to arachnology. The symposium took place on 3 December 2021 and was attended by 149 participants (excluding speakers and all technical staff), with representatives from 39 countries. The programme of the symposium included 15 talks from speakers from eight countries, illustrating the breadth of research interests that exist in the international arachnological community. The talks were split in three sessions: the first was chaired by Jan Beccaloni, the second by Dmitri Logunov and the third by Danniella Sherwood. The aim of the present article is to provide a reasonably detailed synopsis (for a shorter summary, see Sherwood & Logunov 2022) of the symposium for fellow arachnologists and the broader audience. All the lectures given at the symposium are available on the BAS YouTube channel (via <https://www.youtube.com/c/BritishArachnologicalSociety/playlists>). A special edition of the journal 'Arachnology' (a dedicated Festschrift), with eight papers based on symposium presentations and 16 additional from other authors was published in June 2022 (<https://britishspiders.org.uk/arachnology-19-special>).

An account of the symposium

The official programme of the symposium started with the welcome address from the President of the BAS – Lawrence Bee (Witney, UK), who welcomed the audience and introduced participants to the idea of organizing this symposium; he also shared some of his personal memories on meeting and communicating with Michael Roberts (1945–2020), the famous British arachnologist and natural history illustrator, whom he knew personally.

The first talk was given by Zoë Simmons (Oxford, UK), devoted to one of the founding fathers of the British arachnology, Octavius Pickard-Cambridge (1828–1917), his life and worldwide web. The talk was based on the extensive Pickard-Cambridge archive deposited in the Oxford University Museum of Natural History (OUMNH), UK. His archives at Oxford contain numerous correspondence in various European languages with such famous arachnologists as John Blackwall (1790–1881), Eugène Simon (1848–1924), Tamerlan Thorell (1830–1901), Ludwig Koch (1825–1908), and Władysław Kulczyński (1854–1919), representing a priceless resource for historians of science and arachnology.

The next talk by Dmitri Logunov (Manchester, UK) was dedicated to John Alan Murphy (1922–2021) and his contributions to arachnology. It was an attempt to summarize and analyse the scientific legacy of this distinguished British arachnologist based on his publications and archival materials available at the Manchester Museum, UK. The talk presented a brief biography of John, an overview of his major publications and some data on the large worldwide spider collection assembled by John and his wife Frances Murphy (1926–1995) over almost 45 years.



In recent years, important changes have been taking place in international and British arachnological communities, with a notable increase of the role of women in both running particular arachnological societies and undertaking academic research. Therefore, it is hardly surprising that two following talks of the symposium were about this. 'The role of women in arachnology' by Anna Holmquist and Rosemary Gillespie (Berkeley, USA) and 'Few and far between: a history of women in British arachnology 1800–2000' by Danniella Sherwood (London, UK).

In her brilliant talk, Rosemary Gillespie presented a wide historic survey of many notable female arachnologists and their academic achievements: e.g., Harriet Exline (1909–1968), Valerie Davies (1920–2013), Lynn Forster (1925–2009), Maria Elena Galiano (1928–2000), Susan Reichert (b. 1945), Yael Lubin (b. 1945), Ansie Dippenaar-Schoeman (b. 1948), and many others. She also discussed past and current biases against women working as university academics, leading to their underrepresentation in senior academic positions, editorial boards, senior authorship in high-impact journals, etc. Unfortunately, this also holds true for arachnology: e.g., of the 814 current members of the International Society of Arachnology women constitute 15% (122) only. However, a more simplistic explanation of such disparity that it could be just a reflection of different interest in spiders between the sexes rather than anything else was not assumed or considered.

In the following talk, Danniella Sherwood presented a history of the female arachnologists in Britain during the 19th and 20th centuries. Particular focus was given to Eliza Fanny Staveley (1831–1903) deservedly called a Victorian trailblazer, and especially to Frances Mary Murphy (1926–1995), a notable British arachnologist, the author of books and numerous papers (49 in total) on spiders, and a natural history photographer. Publication trends, role of women in

the national recording scheme and membership of the BAS and its Council were thoroughly discussed.

The morning session was concluded by a talk by Francesco Ballarin (Verona, Italy and Tokyo, Japan), who presented an overview of the Nesticidae of Japan, where this spider group has one of its biodiversity hotspots, with 59 described species of which 95% are endemics. Based on author's preliminary results, at least two, but more likely three, waves of colonisation of Nesticidae to Japan from the Asian mainland took place.

The second session of the symposium was opened by an excellent, nicely illustrated lecture by Martín Ramírez (Buenos Aires, Argentina) on spider phylogeny and the evolution of spinning organs. Martín started with a brief overview of some pioneering works on spinnerets by Jacqueline Kooor (histology of silk glands) and Hans M. Peters (the first use of SEM and origin of threads); he also paid tribute to the data on spinneret morphology by John Murphy and Michael Roberts published in their 'Spider families of the world and their spinnerets' (Murphy & Roberts 2015), made by means of light microscopy. Martín arranged his talk around three main topics: (1) evolution of spinning organs in spiders, including palaeontological data, (2) the use of spigot and silk data for revealing spider phylogeny, and (3) some interesting or new characters. Indeed, in our brief overview it is impossible to present all information provided by Martín, therefore, we would like to refer the reader to his talk which is available online.

The next speakers of the session were Yuri M. Marusik (Magadan, Russia) and Zoë Simmons (Oxford, UK) who presented results of a collaborative study on some confusion with the type localities of spiders described from the material collected during the Second Yarkand Mission (1873–1874) by Ferdinand Stoliczka (1838–1874). Stoliczka died on the journey home, which was one of the reasons for the confusion with collecting localities. Yuri re-examined all the type specimens, while Zoë undertook some background work on the corresponding archive. They found out that out of 109 new species described by O. Pickard-Cambridge from these materials, only 20 have correct information regarding their type localities as it is presented in the World Spider Catalog (2022) and some regional publications (e.g., on the Indian Himalayas). Various reasons for the many mistakes were discussed.

The talk on Yarkand was followed by an illustrated taxonomic presentation by Galina N. Azarkina (Novosibirsk, Russia) devoted to the genus *Aelurillus* Simon, 1885 (Salticidae) of the Afrotropical Region. Galina gave an overview of all 10 true *Aelurillus* species known from south of Sahara (of 73 known worldwide), of which one was found to be new; it was collected by John and Frances Murphy in Kenya.

The following two talks were about the family Gnaphosidae. Guilherme Azevedo (San Diego, USA) presented part of his PhD thesis entitled 'Systematics and evolution of ground spiders: from morphology to molecules'. The world gnaphosid fauna consists of 2575 species in 164 genera (as of December 2021). Guilherme started with a history of the study of Gnaphosidae. An emphasis was given to important works by Norman Platnick (1951–2020), and a particular tribute to the book by John Murphy on 'Gnaphosid genera of the world' (Murphy 2007), which, according to Guilherme, significantly sped up the description of new gnaphosid genera after its

publication (on average, 2.2 genera per year). Then, he discussed the monophyly of Gnaphosidae and phylogenetic relationships between its genera. In this analysis, the gnaphosids turned out to be polyphyletic, with some groups (e.g., Micariinae) being in need of transferring from Gnaphosidae sensu stricto. In order to better understand Gnaphosidae, a more robust phylogeny of the entire Dionycha is required. The author was obviously in favour of a combined molecular biological and morphological approach (and better taxon and gene samplings) for resolving the phylogeny of Gnaphosidae (and Dionycha in general). To sum up, lineages in the existing gnaphosid phylogenies are weakly supported and poorly resolved, morphology is not informative enough, while the diversity of spigots in Gnaphosidae is not fully understood and is in need of more research.

The last talk of the second session, by Vladimir I. Ovtsharenko (New York, USA), was about John Murphy's book on the gnaphosid genera (Murphy 2007), and the Gnaphosidae of Australia. He shared some anecdotes about John Murphy, whom he knew personally and collaborated with on a number of gnaphosid projects. Of the most unexpected facts was the notion that there are some 20 undescribed genera from 2–3 generic groups of Gnaphosidae in the Australian fauna. Vladimir spent over a decade studying the Australian gnaphosids but results of his taxonomic work remain largely unpublished as of yet. If his information is correct, then any efforts of the previous speaker, Guilherme Azevedo, to construct a robust phylogeny for Gnaphosidae may be rather difficult to achieve until these new Australian genera are properly diagnosed and described.

The third afternoon session started with a brilliant, thought-provoking, talk by Jason Dunlop (Berlin, Germany), entitled as 'Spider origins: a palaeontological perspective'. Jason presented the latest synopsis of where spiders came from. There are 16 different orders of arachnids, of which four are extinct. The oldest spider is known from about 315 mya, in the Carboniferous period. Step by step, Jason introduced the audience to several extinct arachnid groups (in his words, "walked us through the tree") in search of a likely origin and taxonomic position of modern spiders within the class Arachnida. In the Devonian–Carboniferous periods, there were several lineages of arachnids one of which led to modern spiders. A very surprising, fact from Jason was that originally spinnerets were at the end of abdomen, and they moved forward in the modern Mesothelae (although in immature Mesothelae spinnerets are also terminal).

In the following talk, Lawrence Bee (Witney, UK) presented results of a collaborative study with Helen Smith and Geoff Oxford on the evolution of field guides to British spiders. These authors recently published an illustrated field guide to Britain's spiders in 2017, which quickly went on to have a Second Edition published in 2020; hence they discussed the topic based on their first-hand experience of creating comprehensive modern field guide to British spiders. According to Lawrence, the future of field guides lies in moving to electronic formats: e.g., electronic versions of physical field guides, ID apps, image recognition software and expert opinions via identification forums like iNaturalist or the like.

The next speaker was Jan Beccaloni (London, UK) who introduced the audience in the development and changes of the arachnid collection at the Natural History Museum

(NHM, London) through time. Jan arranged her presentation as an update from what she published on the topic in 2012. Her talk was organised around three main areas: collection development, accessibility, and other major projects. Collection development, ‘long term development’ and ‘collection salvage’ plans, both of which (as we the authors can also attest as curators ourselves) are difficult to prepare and specially to achieve with just one full-time member of staff. Digitisation of the collections (including barcoding) and producing type catalogues (e.g., of the Opiliones and Mygalomorphae by DS) are other important projects undertaken by the NHM. Jan also mentioned that practically all the original artworks of Michael J. Roberts are now deposited in the NHM archive, purchased with the support of the National Art Collection Fund in 2020. Important news for everyone who uses the NHM spider collections: by 2026 the NHM is going to build and open a new centre for collections, research and digitisation at the time planned for Harwell Campus, Oxfordshire but now to be at the Thames Valley Science Park, Reading, and the entire Chelicerata collection will be moved there.

The next speaker was Charles Haddad (Bloemfontein, South Africa), who presented results of a joint taxonomic revision with Ruan Booysen (Bloemfontein, South Africa) of the gnaphosid genera *Leptodrassex* Murphy, 2007 (four species) and *Leptopilos* Levy, 2009 (three species) in South Africa; both genera were hitherto considered Mediterranean. In South Africa, a total of 188 gnaphosid species are known. Charles also paid a particular tribute to the book by John Murphy (Murphy 2007), because it illustrated many

African gnaphosids for the first time, thereby allowing their identification, including the two genera revised. Interestingly enough, the authors also discovered what could be a new type of piriform(?) spigots on the anterior lateral spinnerets of one of the *Leptodrassex* species. Charles also presented interesting data on copulatory plugs in *Leptodrassex* species, with almost 100% of the studied females having them.

The last (but not least) talk of the symposium was given by Adalberto Santos (Belo Horizonte, Brazil), who presented a thought-provoking discussion on the challenges and prospects in documenting Neotropical spider diversity, exemplified by Brazil. On the map shown by Adalberto, there was a visible bias of spider records towards SE part of the country where the Atlantic rain forests (the best studied biome of Brazil) occur. Hence, the question arose: are these records enough to use spiders as a biogeographic model? Adalberto also gave an example of the recent PBI project on Oonopidae led by the late Norm Platnick (1951–2020), which has resulted in the increase of known species from 444 in 2007 to 1888 in 2021. However, the distribution data on Oonopidae still remain quite scarce and unsatisfactory. In Adalberto’s opinion, the currently known biodiversity hotspots in the Neotropics reflect just the better studied regions, in other words, representing sampling hotspots rather than real biodiversity hotspots. Another problem is the so-called sampling bias, when sampling is done mostly/only along accessible routes, not evenly covering the territory. Hence, Adalberto challenged the audience with a question: do we know anything about the geographic distribution of Neotropical spider species? It

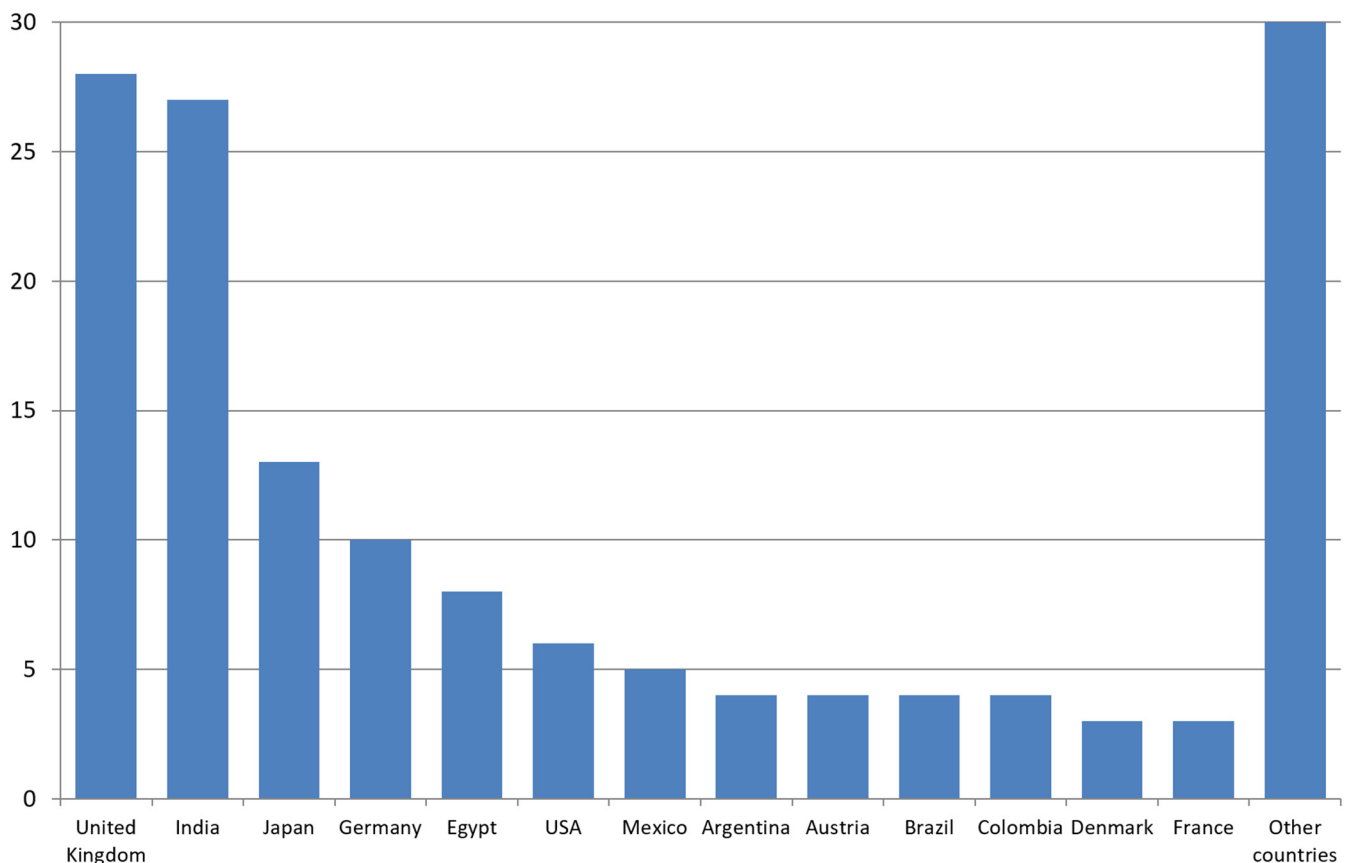


Fig. 1: Number of registrants from each country who registered (total number = 149). ‘Other countries’ include those with one or two participants: viz., Algeria (1), Australia (1), Belgium (2), Canada (1), Croatia (1), Ecuador (1), Finland (1), Guatemala (1), Iran (1), Iraq (1), Kenya (1), Malaysia (2), Netherlands (2), New Zealand (1), Panama (1), Paraguay (1), Philippines (2), Russia (2), Singapore (1), Slovakia (1), South Africa (1), Spain (1), Switzerland (1), Thailand (1) and Vietnam (1)

is not surprising, therefore, that the talk resulted in lots of questions and a discussion that lasted for over 10 minutes.

Finally, Danniella Sherwood concluded the symposium with closing remarks by thanking all the speakers for their contributions and all attendees for their active participation who made the event real success and so memorable. Danniella also thanked the rest of the organizing committee for effectiveness and their roles in organizing and running the symposium.

Statistics

The number of participants in each session varied, probably both due to personal interests and to time zones. However, all sessions had at least 60 participants (excluding speakers, and all technical staff); some participants joined for all three sessions, but some attended only one or two sessions. Of the total number of attendees 57% were men and 43% were women showing there was a gender bias. This was also represented in the total number of speakers: 10 men and 5 women. The United Kingdom represented the greatest number of registrants, as to be expected as this event was held by the BAS, but registrations from India were almost equal (Fig. 1). All other countries had registrants ranging from totals of 1 to 10. Yet, 35% of registrants were academics, 15% amateurs and 50% students. The latter statistic is encouraging as we can see that student engagement accounted for precisely half of all registrants.

Note on Michael Roberts (1945–2020)

Finally, the memorial Festschrift contains a large paper by Logunov devoted to John Murphy and his contribution to arachnology, but there is no special paper on Michael Roberts. Roberts is particularly notable for his outstanding illustrative skills and numerous books on British and European spiders, but his personal contribution as an acting taxonomist to studying spiders, particularly of the families Araneidae and Theridiidae, are less known. Given that the only obituary on Roberts contains no list of the spider species described by him, we thought that it would be a good idea to provide such list herein.

Based on World Spider Catalog (2022), Michael Roberts authored (solely or as a co-author) 38 species and one subspecies in six families as follows (eight names marked with asterisks are junior synonyms): **Araneidae**: **Caerostris hnativkae* Roberts, 1983, **Cyclosa quavarsea* Roberts, 1983, **Gasteracantha sanguinolenta emeriti* Roberts, 1983, *Larinia dasia* (Roberts, 1983), **Neoscona dripaca* Roberts, 1983, **N. larbada* Roberts, 1983, *N. quincasea* Roberts, 1983, **N. seca* Roberts, 1983, *Prasonica anarillea* Roberts, 1983, *Prasonicella marsa*

Roberts, 1983. **Gnaphosidae**: *Drassodex drescoi* Hervé, Roberts & Murphy, 2009, *D. granja* Hervé, Roberts & Murphy, 2009, *D. simoni* Hervé, Roberts & Murphy, 2009. **Lycosidae**: *Pterartoria cederbergensis* Russell-Smith & Roberts, 2017, *P. confusa* Russell-Smith & Roberts, 2017. **Tetragnathidae**: **Tetragnatha grenda* Roberts, 1983, *T. maralba* Roberts, 1983. **Theridiidae**: **Anelosimus locketi* Roberts, 1983, *Argyrodes chinus* Roberts, 1983, *Bardala labarda* (Roberts, 1983), *Dipoena hasra* Roberts, 1983, *D. pristeia* Roberts, 1983, *Euryopis helcra* Roberts, 1983, *Moneta coercervea* (Roberts, 1978), *Nanume naneum* (Roberts, 1983), *Phycosoma jamesi* (Roberts, 1979), *P. martinae* (Roberts, 1983), *P. menustya* (Roberts, 1983), *P. spundana* (Roberts, 1978), *Rhomphaea barycephala* (Roberts, 1983), **Seycellesa purifum* (Roberts, 1978), *Spinembolia clabnum* (Roberts, 1978), *Stoda libudum* (Roberts, 1978), *Theridion cloxum* Roberts, 1983, *T. mehlum* Roberts, 1983, *T. nagorum* Roberts, 1983, *T. palanum* Roberts, 1983, **T. scorinum* Roberts, 1983. **Theridiosomatidae**: *Andasta benoiti* (Roberts, 1978).

Acknowledgements

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