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LIV.—*The Arachnida from the Regions of Lakes Nyasa and Tanganyika contained in the Collection of the British Museum.* By R. I. POCKOCK.

[Plate XIII.]

THE few species of Arachnida from Lake Tanganyika recorded in this paper were collected by Mr. Alexander Carson and Mr. W. H. Nutt. For the more extensive series from Nyasaland the Museum is indebted principally to Mr. A. Whyte, acting under the direction of Sir H. H. Johnston. A few from this neighbourhood were also obtained by Mr. R. Crawshay, by Dr. Percy Rendall, and by the members of the Universities' Mission to Central Africa. The specimens which Sir Harry Johnston used his influence to procure were received in two instalments: the first comprised the species collected on Mount Zomba, at the southern extremity of Lake Nyasa; the second, those from the Nyika plateau and neighbouring localities at the northern end of Lake Nyasa and between it and the southern end of Lake Tanganyika. Unfortunately, there are no exact localities for most of the examples received from the Universities' Mission.

Order SCORPIONES.

Family Scorpionidæ.

Scorpio viatoris, Poc.

Scorpio viatoris, Pocock, Ann. & Mag. Nat. Hist. (6) vi. p. 100, pl. i. fig. 1.

Loc. Zomba, 3000–9000 feet; Fort Hill, Nyasaland, 4000 feet; Nyika plateau, 6000–7000 feet; between Kondowe and Karonga, N. Nyasa (*A. Whyte*); Fwambo, Lake Tanganyika (*A. Carson*).

Opisthophthalmus glabrifrons, Pet.

Opisthophthalmus glabrifrons, Pet. Mon. Ak. Wiss. Berl. 1861, p. 514.

Loc. Lake Nyasa (*Universities' Mission*, *Capt. Maclear*, *Mr. Bellingham*).

Opisthacanthus rugulosus, Poc.

Opisthacanthus rugulosus, Pocock, Ann. & Mag. Nat. Hist. (6) xvii. p. 314.

Loc. Ishiromo, Nyasaland (*H. H. Johnston*).

Opisthacanthus rugiceps, Poc.

Opisthacanthus rugiceps, Pocock, Ann. & Mag. Nat. Hist. (6) xix. p. 117.

Loc. Lake Nyasa, east coast (not Kota Kota, as originally stated).

Family Buthidæ.

Babycurus pictus, Poc.

Babycurus pictus, Pocock, Ann. & Mag. Nat. Hist. (6) xvii. p. 426.

Loc. Niomkolo, Lake Tanganyika (*A. Carson*).

Buthus Eminii, Poc.

Buthus Eminii, Pocock, Ann. & Mag. Nat. Hist. (6) vi. p. 99, pl. i. fig. 2.

Loc. Fwambo, Lake Tanganyika (*A. Carson*).

Archisometrus burdoi (Sim.).

Isometrus burdoi, Sim. Bull. Soc. Ent. Belg. 1882, p. lviii.

Loc. Lake Nyasa (*Universities' Mission*); Zomba, 3000–9000 feet (*H. H. Johnston*).

Uroplectes flavoviridis, Pet.

Uroplectes flavoviridis, Pet. Mon. Ak. Wiss. Berlin, 1861, p. 516
(=*chlorodermus*, Poc.).

Loc. Lake Nyasa (*Universities' Mission*).

Described from Tete. Also occurs in Mashonaland.

Uroplectes xanthogrammus, Poc.

Uroplectes xanthogrammus, Pocock, Ann. & Mag. Nat. Hist. (6) xix.
p. 118.

Loc. Lake Nyasa (*Universities' Mission*).

I have been informed by Mr. Webb, who brought home the examples of this scorpion, that the published locality, Kota Kota, is erroneous, and that they came in reality from the east shore of the lake.

Order PEDIPALPI.

Genus DAMON, C. Koch.

Damon diadema (Simon).

Phrynus diadema, Simon, Bull. Soc. Zool. France, 1876, p. 13.

Nanodamon diadema, Pocock, Ann. & Mag. Nat. Hist. (6) xiv. p. 293.

Loc. Lake Nyasa (*Universities' Mission*).

Order SOLIFUGÆ.

Genus CEROMA, Karsch.

Ceroma Johnstonii, Pocock.

Ceroma Johnstonii, Pocock, Ann. & Mag. Nat. Hist. (6) xx. p. 253,
fig. 1.

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).

Genus SOLPUGA, Licht.

Solpuga paludicola, Poc.

Solpuga paludicola, Poc. Ann. & Mag. Nat. Hist. (6) xvi. p. 84, pl. iv.
fig. 4 (1895).

Loc. Nyasaland (*Universities' Mission*).

Solpuga Darlingii, Poc.

Solpuga Darlingii, Poc. Ann. & Mag. Nat. Hist. (6) xx. p. 259, fig. 5
(1897).

Loc. Fort Johnston, S. Nyasaland (*P. Rendall*).

Solpuga nigrescens, Poc.*Solpuga nigrescens*, Poc. Ann. & Mag. Nat. Hist. (6) xvi. p. 88.*Loc.* Fort Johnston, S. Nyasaland (*P. Rendall*).

Also known from the "Lower Zambesi" and Lake Victoria Nyanza.

Order ARANEÆ.

Suborder MYGALOMORPHÆ.

Family Theraphosidæ.

Genus PTERINOCHILUS, Poc.

Pterinochilus vorax, Poc.*Pterinochilus vorax*, Pocock, Proc. Zool. Soc. 1897, p. 752, pl. xliii. fig. 3.*Loc.* Fwambo, Lake Tanganyika (*A. Carson*); Kondowe, Nyasaland (*R. Crawshay*); Zomba, S. Nyasaland (*Dr. P. Rendall*).

Genus ANOPLOSCELUS, Poc.

Anoploscelus celeripes, Poc.*Anoploscelus celeripes*, Poc. Proc. Zool. Soc. 1897, p. 760, pl. xli. fig. 3.*Loc.* Komboli, Lake Tanganyika (*W. H. Nutt*).

Family Migidæ.

Genus MOGGRIDGEA, Cambr.

Moggridgea Whytei, Pocock.*Moggridgea Whytei*, Pocock, Proc. Zool. Soc. 1897, p. 733, pl. xlii. figs. 1-1 b.*Loc.* Nyika plateau, 6000-7000 feet (*A. Whyte*).

Family Ctenizidæ.

Genus HELIGMOMERUS, Simon.

Heligmomerus Carsonii, Pocock.*Heligmomerus Carsonii*, Pocock, Proc. Zool. Soc. 1897, p. 730.*Loc.* Niomkolo, Lake Tanganyika (*A. Carson*).

Genus ACANTHODON, Guérin.

Acanthodon lacustris, Pocock.

Acanthodon lacustris, Pocock, Proc. Zool. Soc. 1897, p. 731, pl. xli. fig. 7.

Loc. Kinyamkolo, Lake Tanganyika (*W. H. Nutt*).

Suborder ARACHNOMORPHÆ.

Family Eresidæ.

Genus ERESUS, Walck.

Eresus inornatus, sp. n. (Pl. XIII. fig. 1.)

Colour. Carapace and limbs a uniform blackish brown; abdomen ashy grey; hairy covering greyish black.

Carapace as long as patella, tibia, and protarsus of fourth leg and the four distal segments of first leg; width of head less than patella and tibia of fourth leg, about equal to patella and tibia and protarsus and tarsus of first.

Vulva with narrower septum between the fovea than in *fumosus*.

Measurements in millimetres.—Total length 17; length of carapace 7; width of head 4.5; length of first leg 13.5, of fourth 13.

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).

Allied to *E. fumosus*, C. Koch, from Cape Colony, but differing in its smaller size, narrower septum of vulva, head lower just in front of fovea, and shorter first leg as compared with width of carapace.

Family Argiopidæ.

Genus NEPHILA, Leach.

Nephila cruentata (Fabr.).

Aranea cruentata, Fabr. Ent. Syst. ii. p. 427 (1793) (= *genualis*, Gerst.).

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*); Lake Nyasa (*Universities' Mission*).

Nephila pilipes (Lucas).

Epeira pilipes, Lucas, Thomson's Arch. Ent. ii. p. 416.

Loc. Zomba, 3000–9000 feet, S. Nyasaland; Kondowe to Karonga and Masuku, N. Nyasaland (*A. Whyte*).

Nephila senegalensis (Walckenaer).

Epeira senegalensis, Walckenaer, Ins. Apt. ii. p. 94 (1837), ♀.

Epeira Aubryi, Lucas, in Thomson's Arch. Ent. ii. p. 36; Brito Capello, Jorn. Math. Sci. Lisboa, 1866, p. 7, pl. ii. fig. 3 (*Nephila*), ♀.

Epeira armillipes, Doumerc, Ann. Soc. Ent. Fr. 1864, p. 231, pl. v. fig. 1, ♀.

Nephila Grayii, Blackwall, Ann. & Mag. Nat. Hist. (3) xvi. p. 96 (1865).

Nephila senegalensis, Simon, Ann. Soc. Ent. France, 1885, p. 371, ♂.

This species appears to be spread throughout the whole of Africa from Senegal and Somaliland southwards to the borders of Cape Colony, and is represented over this area by several more or less well-marked "forms," which, pending the discovery of the male sex in each case, I propose to regard as subspecies or local races.

The following subspecies are represented in the Museum collection from the region of the great African lakes:—

Subspecies *Keyserlingii*, Blackwall.

Nephila Keyserlingii, Blackwall, Ann. & Mag. Nat. Hist. (3) xvi. p. 343 (1865).

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*); Lake Nyasa (*Universities' Mission*).

Blackwall's species was based upon specimens procured in the valley of the Shiré. The examples in the Museum collection agree exactly with the description published by that author.

Subspecies *hymenæa*, Gerstäcker.

Nephila hymenæa, Gerstäcker, Von der Decken's Reisen in Ost-Afrika, iii. pt. 2, p. 497, pl. xviii. fig. 11.

Loc. Kondowe, near Karonga, N. Nyasaland, 2000 feet (*A. Whyte*).

Very closely allied to *Keyserlingii*, and perhaps identical with it; but the representatives of *hymenæa* that I have seen may be distinguished from the others by the black patch on the sternum being divided by a narrow longitudinal yellow stripe, exactly as Gerstäcker describes.

Subspecies *bragantina*, Brit. Capello.

Nephila bragantina, Brit. Capello, Mem. Ac. Sci. Lisboa, (3) iv. pt. 1; Descrição de Algumas Arachnideos, &c. p. 11, pl. ii. fig. 4 (1867).

Loc. Kinyamkolo, Lake Tanganyika (*W. H. Nutt*).
Described from Braganza, in Angola.

Subspecies *nyikæ*, nov.

Colour. Carapace black, with silvery pubescence; maxillæ black; labium black, with median longitudinal yellow line; sternum yellow, narrowly black at the sides; palpi with femur, patella, and tibia yellow, lightly and imperfectly ringed with black, tarsus black; legs brownish black, with a yellow ring round the distal end of the femora and tibiæ, these yellow bands scarcely or not traceable on third leg: abdomen varying in colour; the upperside usually furnished with four (five) broad transverse yellow stripes, as in *N. bragantina*; the anterior of these is the broadest and extends inferiorly almost as far as the epigastric fold, the others expand at their extremities and sometimes become united, though more often remaining distinct; sometimes these bands break up into a series of median and lateral yellow blotches; the lower side of the abdomen is dark, with a yellow \times -shaped mark in the middle of the area between the spinners and the epigastric fold; behind the fold there is a transverse yellow stripe, from the ends of which a narrow yellow stripe sometimes extends backwards.

Tibiæ of legs, except of third pair, tufted, the tuft scanty on the apical yellow band.

Measurements in millimetres.—Total length up to 28; length of carapace 9, of first leg 49, of second leg 40, of third leg 20, of fourth leg 35 (all measured from base of femur).

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).

Resembling the subspecies *N. senegalensis bragantina*, Brito Capello, but recognizable by having the palpi mostly yellow instead of mostly black, and by the presence of a yellow ring round the end of the femora of the legs.

Of the typical form of this species the British Museum possesses examples from the Cape Verde Islands (*F. Cambridge*) and from Jifa Uri, inland of Zeyla, Somaliland (*R. M. Hawker*).

The only other subspecies represented in the British Museum collection is the more southern form occurring in Natal, the Transvaal, and Mashonaland, which I described as *transvaalica*, and which is probably identical with *annulata*, Thorell, but not with *hymenæa* as M. Simon asserts.

Genus ARGIOPE, Aud.

Argiope flavipalpis (Lucas).

Epeira flavipalpis, Lucas, in Thomson's Arch. Ent. ii. p. 423 (= *Pechueli*, Karsch).

Loc. Kondowe, near Karonga, 2000 feet, N. Nyasa (*A. Whyte*).

Abundant on the West Coast of Africa, whence it was originally recorded by Lucas. According to Bösenberg and Lenz, it has recently been received from Mhonda, Unguru, in E. Africa.

Argiope nigrovittata, Thor.

Argiope nigrovittata, Thor. Öfv. Vet.-Akad. Förh. 1859, p. 300 (= *caudata*, Blekw., *suavissima*, Gerst.).

Loc. Fort Johnston, Nyasaland (*P. Rendall*); Kinyamkoio, Lake Tanganyika (*W. H. Nutt*).

Genus CYRTOPHORA, Simon.

Cyrtophora citricola (Forsk.).

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).

Genus ARANEUS, Clerck.

(= *Epeira* of authors.)

Araneus rufipalpis (Lucas).

Epeira rufipalpis, Thomson's Arch. Ent. ii. p. 422 (= *semiannulatus*, Karsch and others).

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).
Abundant throughout tropical Africa.

Araneus streptoceros, sp. n. (Pl. XIII. figs. 2, 2 a.)

In colour and structural features so closely resembling *A. cyrtoscapus*, Poc. (Ann. & Mag. Nat. Hist. (7) ii. p. 206, pl. viii. figs. 2–2 b), from the province of Natal, that no detailed description is necessary.

Differing from *A. cyrtoscapus* in the form of the generative organs in the male and female. In the female the vulva is formed upon the same plan as in *A. cyrtoscapus*, but the hairy basal portion of the scape (fig. 2 a) is much longer in *A. streptoceros*, and the sclerite marked *b* intervenes to a much greater extent between the sclerite in front of it and the membranous distal extremity of the scape. (For vulva of *A. cyrtoscapus* see Ann. & Mag. Nat. Hist. (7) ii. pl. viii. fig. 2.)

In the male the piece of the palpal organ marked *a* (fig. 2) is straighter and without the strong curvature seen in *A. cyrtoscapus*, while the horny sheath which protects its fine point (*c*, fig. 2) has its edges much more folded over; the sclerite marked *b* has also a different form from that of *A. cyrtoscapus*. (For palpal organ of *A. cyrtoscapus* see Ann. & Mag. Nat. Hist. (7) ii. pl. viii. fig. 2 b.)

Measurements in millimetres.—♀. Total length 17; length of carapace 8·5, of abdomen 11·5; width of abdomen 10; length of first leg 27, of fourth 25, of tibia of first 6·5, of patella and tibia of fourth 9·5.

♂. Total length 11; length of carapace 6·5, of second leg 20, of fourth 18.

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*).

Like *A. cyrtoscapus*, this species is certainly related to *A. suedicola*, Simon, *A. striatus* and *similis*, Bösenberg and Lenz, and probably to *A. mossambicanus* of Pavesi (recently wrongly quoted by me as *mossambicensis*). But since no figures of the generative organs of *mossambicanus* and *suedicola* have been published, and since those of *striatus* and *similis* are too small to convey any accurate idea of the structures they represent, I find it impossible to compare the two species that I have established with the others here named.

Genus GASTERACANTHA, Sund.

Gasteracantha ornata, Thorell.

Gasteracantha ornata, Thorell, Öfv. Vet.-Akad. Förhandl. xvi. p. 302 (1860); id. Eugénies Resa, Arachn. p. 16 (1868).

Loc. Between Ukala Bay and Ruarwee, Kondowe, near Karonga, 2000 feet; Nyika plateau, 6000–7000 feet (*A. Whyte*).

Also occurs in Mashonaland and the Transvaal.

Gasteracantha formosa, Vinson.

Gasteracantha formosa, Vinson, Aranéides des Iles Réunion, Madagascar, &c. p. 244, pl. ix. fig. 7.

Subspecies *milvoides*, Butler.

Gasteracantha milvoides, Butler, Tr. Ent. Soc. 1873, p. 159, pl. iv. fig. 2.

Loc. Zomba, 3000–9000 feet (*H. H. Johnston and Dr. Percy Rendall*).

The posterior lateral spines in this subspecies average a much greater length than in the typical Madagascar form.

Gasteracantha resupinata, Gerstäcker.

Gasteracantha resupinata, Gerstäcker, Von der Decken's Reisen in Ost-Afrika, iii. pt. 2, p. 490, pl. xviii. fig. 8.

Loc. Between Kondowe and Karonga, 2000 feet (*A. Whyte*). The specimens referred to this species do not agree exactly

with the typical form, the posterior lateral spines being on an average thinner and with less of a posterior curvature. This character, however, is not, I think, sufficiently definable to admit of being regarded as the basis for a subspecific form.

Gasteracantha macrura, sp. n. ((Pl. XIII. fig. 3.)

Somewhat intermediate in structural characters between *G. milvoides* and the species which I identify as *G. ensifera*, Thorell, but readily distinguishable from both.

Abdomen with anterior border lightly convex, the anterior lateral spines considerably the smallest of the six, directed externally, their length a little less than the width of the head and greater than the interval that separates these spines from the posterior laterals; posterior laterals very long, straight, thick, thickly hairy, nearly as long as the width of the abdomen, and nearly three times as long as the width of the head, a little more than three times as long as the anterior lateral spine, and a little more than twice as long as the posterior spines; posterior spines long, much longer than width of head.

Measurements in millimetres.—Width of head 3; length of patella and tibia of first leg 3·5, of fourth leg 3·3; length of abdomen along the middle line 5·5, width between spines 11, width from tip to tip of anterior lateral spines 14·5, of posterior lateral spines 28; length, including posterior spine, 9; length of anterior lateral spine 2·3, of posterior lateral spine almost 9, of posterior spine 4.

Loc. Nyasaland (*Universities' Mission*).

Resembling *G. milvoides* and differing from *ensifera* in the great length of the posterior lateral spine, and differing from *milvoides* and somewhat resembling *ensifera* in the length of the posterior spine.

Family Pisauridæ.

Genus EUPROSTHENOPS, Poc.

Euprosthenops australis, Simon.

Euprosthenops australis, Simon, Ann. Soc. Ent. Belg. xlii. p. 12 (1898).

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*); Lake Nyasa (*Universities' Mission*); Lake Tanganyika (*A. Carson*).

The Nyasaland examples of this genus that I have examined agree with M. Simon's description of *E. australis* and differ from his description and from Capello's figure of

the West-African form, *E. bayonianna*. The British Museum also has the same form from Mashonaland and, as I have recently recorded, from the Transvaal and Natal. It appears highly probable therefore that the specimens from Inhambane, in Gasaland, identified by Pavesi * and Karsch † as *Podopththalma bayonianna*, Br. Capello, will prove to be identical with those that Simon described as *E. australis*.

Family Lycosidæ.

Genus OCYALE, Aud.

Ocyale atalanta, Aud.

Ocyale atalanta, Audouin, in Savigny's Description de l'Égypte, p. 149, pl. iv. fig. 10 (1825-27) (see Simon, Ann. Soc. Ent. France, 1885, pp. 357-359).

Loc. Zomba, 3000-9000 feet, and between Ukala Bay and Ruarwee (*A. Whyte*).

Family Oxyopidæ.

Genus PEUCETIA, Thor.

Peucetia pulchra (Blckw.).

Pasithea pulchra, Blackwall, Ann. & Mag. Nat. Hist. (3) xvi. p. 338 (1865).

Loc. Zomba, 3000-9000 feet (*A. Whyte*).

Recorded originally from the country drained by the Shiré River, and extending at least as far to the south as Natal.

Peucetia foliifera (Butler).

? *Peucetia striata*, Karsch, Zeits. ges. Naturw. li. p. 317, pl. viii. fig. 6 (1878).

Pasithea foliifera, Butler, Ann. & Mag. Nat. Hist. (5) iv. p. 41, pl. i. fig. 1 (1879).

Loc. Nyika plateau, 6000 feet (*A. Whyte*).

This species was originally recorded from Johanna, an island of the Comoro group. Its occurrence in East Africa is therefore of great interest. It closely resembles *P. striata*, Karsch, from Zanzibar ‡, but the prolongations of the vulva,

* Ann. Mus. Genova, xvi. p. 553 (1881).

† Mon. Ak. Wiss. Berlin, 1878, p. 326.

‡ Not from West Africa, as Simon asserts (Ann. Mus. Genov. xviii. p. 218, 1882).

although long, are thick, and could only be described and figured as bristle-like as the result of very defective vision*.

Family Zodariidæ.

Genus STORENA, Walck.

Storena nyikæ, sp. n. (Pl. XIII. fig. 4.)

Colour. Carapace, sternum, and mandibles deep reddish black; legs ferruginous; palpi ferruginous, with the tarsus infusate; abdomen greyish black above, paler below, with a median dorsal series of indistinct yellowish spots, paired on the anterior half of the abdomen, united in the middle line in the posterior half.

Carapace high, its length equal to that of patella and tibia of fourth leg; clypeus vertical, high, its height from the anterior lateral eye equal to the length of the mandible and a little greater than the length of the ocular area. Eyes of anterior line strongly procurved, the inferior edges of the medians slightly higher than the superior edges of the laterals; anterior medians the largest of the eyes, about half a diameter apart, about their own diameter from the anterior laterals and a little more than that from the posterior medians; ocular quadrangle oblong, longer than wide, the posterior medians about a diameter apart, anterior medians and posterior laterals forming a slightly recurved line, anterior and posterior laterals about a radius apart.

Legs slender, 4, 1, 2, and 3; spiny. *Palpi* with patella and tibia short, the latter with a stout down-bent external tooth; tarsus long and high, twice as long as patella and tibia taken together.

Abdomen broadest in its posterior half.

Measurements in millimetres.—Total length 7; length of carapace 4, of first leg 10, of second and third 9.5, of fourth 11.

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*).

Seems to differ from *S. senegalensis*, Simon (Ann. Soc. Ent. France, 1885, p. 373), based upon an immature female from Senegal, at least in the pattern of the abdomen and in having the eyes of the anterior line unequally spaced.

* Simon's statement (Hist. Nat. Araignées, 1898, p. 376) that *foliifera* is without doubt identical with *P. Lucasii*, Vinson, from Madagascar, has no justification in fact.

Family Ctenidæ.

Genus CTENUS, Walck.

Ctenus Johnstoni, F. Cambridge.

Ctenus Johnstoni, F. Cambridge, Proc. Zool. Soc. 1898, p. 21, pl. iii. fig. 7.

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*).

Ctenus Carsoni, F. Cambridge.

Ctenus Carsoni, F. Cambridge, Proc. Zool. Soc. 1898, p. 24, pl. iii. figs. 4 *a-b*, 5 *a-c*.

Loc. Kavala Island, Lake Tanganyika (*A. Carson*).

Family Heteropodidæ.

Genus SELENOPS, Latr.

Selenops radiatus, Latr.

Selenops radiatus, Latr. Nouv. Dict. xxx. p. 579 (1819) (= *S. omalasma*, Duf.; *ægyptiacus*, Aud.; *annulipes* and *peregrinator*, Walck., &c.: teste Simon).

Loc. Nyika plateau, 6000–7000 feet (*A. Whyte*); Kinyamkolo, Lake Tanganyika (*W. H. Nutt*).

Genus PALYSTES, L. Koch.

Palystes Johnstoni, Poc.

Palystes Johnstoni, Poc. Ann. & Mag. Nat. Hist. (6) xvii. p. 57, pl. viii. fig. 1.

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*).

Palystes Elliotti, Poc.

Palystes Elliotti, Poc. Ann. & Mag. Nat. Hist. (6) xvii. p. 58, pl. viii. fig. 2.

Loc. Between Kondowe and Karonga, 2000 feet; Nyika plateau, 6000–7000 feet; Masuku Mountain, 6000–7000 feet (*A. Whyte*); also Lake Nyasa (*Universities' Mission*).

This species was based upon specimens reported to be from Uganda. Since, however, the species is evidently abundant in Nyasaland, it is possible that there was an error in the original locality, especially as Mr. Scott Elliot passed through Nyasaland on his return journey from Mount Ruwenzori.

Genus SPARASSUS, Walck.

Sparassus croceiceps, sp. n. (Pl. XIII. fig. 5.)

Colour. Carapace and legs a bright ochre-yellow, covered with yellow hairs; scopulæ dark grey; mandible ferruginous; abdomen testaceous, its upperside studded with ill-defined fuscous patches of hair, some of which form a distinct double series in the middle line.

Carapace high, strongly convex, longer than broad, its length equal to protarsus of second, patella and tibia of third leg and to palpus, its width equal to protarsus of first leg. *Eyes* of anterior line slightly recurved, subequal, subequally spaced, the medians a little nearer each other than either is to its lateral, about a diameter apart; eyes of posterior line about straight, the laterals a little larger and a little further from the medians than the latter are from each other; ocular quadrangle narrowed in front, a little longer than wide. Clypeus a little less than the diameter of anterior median eye.

Mandibles robust, scantily hairy, armed with four posterior and two anterior teeth.

Legs 2, 1, 4, 3; when extended, second surpassing first by its tarsus and third by tarsus and three fourths of protarsus; fourth exceeding third by nearly its tarsus; femora armed with 3, 2, 3 spines above (fourth with 3, 2, 1); patellæ unspined; tibiæ with 2, 2 spines below (the apical pair absent), 2 in front, 2 behind; protarsi armed like the tibiæ, that of the fourth with 2 extra apical spines in front; protarsus of first and second scopulate to base, of third and fourth less scopulate basally.

Abdomen about one fourth longer than wide.

Vulva consisting of a pair of horny black plates meeting in a suture and circumscribing in front a deep narrowly oval or lanceolate pit.

Measurements in millimetres.—Total length 18; length of carapace 7, width 6; length of first leg 23, of second 25, of third 18.5, of fourth 21.

Loc. Zomba, 3000–9000 feet (*H. H. Johnston*).

This species may be allied to *S. abnormis*, Blackwall, from the Shiré (*Ann. & Mag. Nat. Hist.* (3) xviii. p. 457), and to *S. (Heteropoda) africanus*, Karsch (*Mon. Ak. Wiss. Berlin*, 1878, p. 325, pl. ii. fig. 6), from Querimba, both of which are based upon immature female examples. Karsch, however, gives the length of the second leg in *africanus* as 26 and of the fourth 18 millim.; the difference between the two is therefore very much greater than in *S. croceiceps*. Apart from other characters, *S. abnormis* differs from the form here described in having the carapace as wide as long.

Sparassus Fornasinii, Pavesi (Ann. Mus. Genova, xvi. 1881, p. 548), from Inhambane, is also quite a distinct species, having the tibiae of the legs banded below, the first leg longer than the second, &c. This species is almost certainly referable to the genus *Palystes*.

SAROTESIUS, gen. nov.

Carapace as wide as long, low, only lightly convex, resembling that of *Isopoda*; width of head about two thirds length of carapace. *Eyes* of anterior line straight, subequal, distance between medians a little less than their diameter and about half the distance between median and lateral on each side; eyes of posterior line straight, the laterals considerably larger, subsessile; the medians about three diameters apart, about twice as far from the laterals as from each other; median ocular quadrangle scarcely wider behind than it is long; slightly narrowed in front; posterior medians smaller than anterior medians; clypeus low, about half the diameter of anterior median eye.

Legs 2, 1, 4, 3, third and fourth much shorter than first and second; patella and tibia of fourth a little shorter than tibia of second.

Mandible with 3—3 teeth below, those of the posterior series larger and subequal.

Labium wider than long, anterior edge transversely truncate.

Maxillae short, convex, their lateral edge without emargination in front of the palpus.

In the arrangement of its eyes this genus resembles the West-African form *Remmius* of Simon, except that the laterals are less prominent. In *Remmius*, however, the cephalic region is very broad and very high, whereas in *Sarotesius* this area is not at all elevated in front of the thoracic fovea. From *Isopoda*, which has a carapace of the same form, this new genus differs in the disposition of the eyes, those of *Isopoda* being much more closely spaced.

Sarotesius melanognathus, sp. n. (Pl. XIII. figs. 6, 6 a.)

Carapace castaneous, covered with yellow hairs, its length about equal to that of tibia or protarsus of fourth leg, shorter than palp by rather more than half the tarsus, equal to about half the tibia and patella of second leg.

Mandibles black, scantily clothed with greyish hairs, moderately prominent at the base.

Maxillæ and *labium* piceous.

Palpus ferruginous, with tarsus blacker; tibia a little longer than the patella and armed externally with a strong down-curved spur; the tarsus less than twice as long as the tibia and rather more than twice as long as broad. (For palpal organ see fig. 6 *a*.)

Legs long, ferruginous, covered with yellow hairs; when extended the second exceeds the first by the tarsus and one fifth of the protarsus, the fourth exceeding the third by its tarsus, and the second exceeding the third by its tarsus, protarsus, and a fifth part of the tibia; patella and tibia of first equal to tarsus and protarsus of second; patella, tibia, and protarsus of third about equal to patella and tibia of second; femora usually armed with 3, 1, 3 spines above, no superior distal spine; patella with 1 posterior spine; tibiæ with 2, 2, 2 spines below, 2 in front, and 2 behind; protarsi with 2, 2 spines in basal half below, 2 in front and 2 behind, and 1 or 2 (inconstant in occurrence) above; scopulæ broad, thickish, greyish black, extending, though scantily, to base of protarsus.

Abdomen ovally elongate, about one third longer than wide, covered with golden-yellow hairs, intermixed with darker spots above.

Measurements in millimetres.—Total length 20; length and width of carapace 9; width of head 5; length of first leg 42, of second 47, of third 31, of fourth 34.

Loc. Ishiromo (*H. H. Johnston*).

Family Thomisidæ.

Genus PHRYNARACHNE, Thorell.

Phrynarachne rugosa (Latreille).

Phrynarachne rugosa, Latreille, *Nouv. Dict. d'Hist. Nat.* xxxiv. p. 62
(= *Thomisus foka*, Vinson).

Loc. Deep Bay, Lake Nyasa (*R. Crawshay*).

The specimen procured by Mr. Crawshay seems to be identical with Madagascar examples referred by me to *P. foka*, Vinson.

Genus THOMISUS, Walck.

Thomisus granulatus, Karsch.

Thomisus granulatus, Karsch, *Zeits. ges. Naturw.* 1880, p. 382.

Loc. Nyasaland (*Universities' Mission*).

Recorded from Niassa by Karsch.

Thomisus anthobius, Pocock.

Thomisus anthobius, Pocock, Ann. & Mag. Nat. Hist. (7) ii. p. 225, pl. viii. fig. 18.

Loc. Nyika plateau, 6000–7000 feet.

Recorded from Estcourt, Natal, 4000 feet (*A. Whyte*).

Genus PLATYTHOMISUS, Thorell.

Platythomisus pantherinus, sp. n. (Pl. XIII. fig. 7.)

Colour. Carapace orange-yellow, ornamented with six black patches, one on each side of the face involving the four eyes and extending to the edge of the clypeus, one smaller on each side on the margin opposite the base of the first leg, and one on each side of the dorsal middle line about the same distance from each other as from the lateral edge of the carapace; mandibles orange-yellow, with a black ring round the base of the fang; legs of first and second pairs with femora and patellæ lemon-yellow, tibiæ, protarsi, and tarsi jet-black, except the base of the tibia, which is yellow, with a faint yellow spot on outer side of the apex; legs of third and fourth pairs with tarsi and protarsi and a narrow strip at the apex of the tibia black, the rest lemon-yellow; abdomen lemon-yellow, with the spinning-mamilla black, and seven small black spots on the sigilla of the dorsal surface, the anterior spot unpaired, those of the third and posterior pair small, of the second pair the largest.

Carapace shining, coriaceous, cephalic region sloped downwards; clypeus not vertical, with prominent inferior edge; posterior line of eyes wider than anterior, but a little less strongly recurved, so that the space between the two laterals on each side is less than that between the two medians; posterior medians further from each other than either is from the lateral; eyes of anterior line about equally spaced; quadrangle of median eyes at least twice as wide as long; clypeus slightly narrower than length of ocular quadrangle; length of carapace less than patella and tibia of first leg and a little less than its protarsus and tarsus.

Mandibles with fringe of hair below.

Protarsi of legs scarcely spined; tarsal and protarsal scopulæ thick on posterior legs and at apex of tarsus on anterior legs.

Measurements in millimetres.—Total length 20; length of carapace 9.5, width 8.5.

Loc. Nyasaland (*R. Crawshay*).

Ann. & Mag. N. Hist. Ser. 7. Vol. ii.

Allied to *P. sex-maculatus*, Simon, from Somaliland (in Donaldson Smith's 'Through Unknown African Countries,' p. 388), but at once recognizable by having the carapace spotted and not bordered with black; from *P. heraldicus*, Karsch (Zeitsch. ges. Naturw. 1878, p. 315), recorded from Zanzibar and Tanganyika, it differs in the coloration of the abdomen. In the last-mentioned feature it also differs from the Malaysian form *P. octo-maculatus*, C. Koch (Die Arachn. xii. p. 55).

NOTE.

I take this opportunity of characterizing representatives of two apparently new species of spiders obtained by Emin Pasha at Karagesi:—

Cyrtarachne lactea, sp. n. (Pl. XIII. fig. 8.)

Colour. Carapace and legs uniform ochre-yellow; abdomen cream-white, with a black tubercle on each side at its lateral angles, which are of a somewhat greenish-grey tint.

Carapace low, lightly convex from side to side, flattish along the top; ocular quadrangle much wider in front, anterior median eyes much the largest; eyes of anterior line recurved; clypeus about as high as anterior median eye.

Legs not spiny, hairy; the first and second pairs, and to a less extent the third and fourth, tubercular; patella and tibia of first about as long as carapace and longer than those of fourth.

Abdomen more than twice as wide as long, its anterior border transverse, sinuate, its posterior forming a very obtuse angle, lateral portions elevated, obtusely rounded, and furnished with about a dozen low, rounded, hyaline tubercles, the inner of which on each side is of a black colour; the area between the lateral prominences transversely hollowed; integument of abdomen striate and punctulate; sigilla small, three in an anterior transverse line, and behind them two longitudinal series of three each, the median sigilla of the three the largest.

Measurements in millimetres.—Length of carapace 4, width 3.6; length of abdomen 5, width 12; length of first leg 10, of second 9.

Differs from the rest of the species of *Cyrtarachne* in the form of its abdomen, its lower carapace, &c.

Araneus pachanus, sp. n. (Pl. XIII. fig. 9.)

Colour. Carapace ferruginous, darker towards the margin; mandibles ochre-yellow, blackish distally; palpi and legs mostly ferruginous, and clothed, like the carapace, with whitish hairs; patellæ lightly fuscous distally, tibiæ and protarsi with two indistinct fuscous bands, one distal, one median; tarsi distally fuscous, yellow at the base; femora of posterior leg infuscate; abdomen yellowish brown above and below, the lower side nearly uniformly coloured, ornamented only with a pair of indistinct yellow spots a short distance in front of the spinners; upperside with an indistinct pattern, consisting in front of a longitudinal black patch shaped like an arrow-head, with the point directed forwards; this is followed by a pair of irregular black longitudinal bands, which converge and meet posteriorly, leaving a paler lanceolate area between them, and give off externally faint dark stripes which extend on to the sides of the abdomen. *Hairs* on trunk and limbs mostly yellowish white, those on upperside of abdomen black at base. Spines on limbs white, with black base and apex.

Carapace flattish longitudinally between the fovea and the eyes, considerably longer than first tibia and longer than protarsus and tarsus of fourth, a little shorter than patella and tibia of fourth, and about equal to femur of first and fourth; ocular quadrangle much wider in front than behind, posterior medians less than a diameter apart, anterior medians larger and about a diameter and a half apart; eyes of anterior line about straight, not recurved, distance between medians about half the distance between median and lateral on each side; clypeus a little wider than anterior median eye.

Fang-groove of mandible armed with 4 teeth in front, 3 behind.

Legs moderately long, first more than three times as long as carapace; spiny.

Abdomen heart-shaped, widely rounded in front, ovally elongate behind, without shoulder-points.

Vulva with long scape; scape as wide at its distal end as the basal portion, which posteriorly projects beneath it, leaving only a narrow notch between.

Measurements in millimetres.—Total length 26; length of carapace 6.5, width 5; length of abdomen 10; length of first leg 22.5, of fourth 19.

Emin Pasha procured one specimen of this species at Karagesi, and Mr. Scott Elliot a second on Mount Ruwen-

zori. The latter, on account of the better state of its preservation, has been selected as the type.

In the form of its vulva this species approaches both *A. rufipalpis* (*semiannulatus*) and *A. haploscapus*, and in other features most nearly resembles the latter, but certainly differs in the actual form of the vulva &c.

EXPLANATION OF PLATE XIII.

- Fig. 1. *Eresus inornatus*, sp. n. Vulva.
 Fig. 2. *Araneus streptoceros*, sp. n. Vulva.
 Fig. 2a. Ditto. Palpal organ.
 Fig. 3. *Gasteracantha macrura*, sp. n.
 Fig. 4. *Storena nyikæ*, sp. n. Palpal organ, outer view.
 Fig. 5. *Sparassus croceiceps*, sp. n. Vulva.
 Fig. 6. *Sarotesius melanognathus*, gen. et sp. n. Palpal organ from below.
 Fig. 6a. Ditto. Tibial spur of palp.
 Fig. 7. *Platythomisus pantherinus*, sp. n.
 Fig. 8. *Cyrtarachne lactea*, sp. n.
 Fig. 9. *Araneus pachanus*, sp. n. Vulva.
 Fig. 10. *Araneus coccinella*, Poc. [This species, based upon a specimen from Natal, was described by me in the Ann. & Mag. Nat. Hist. for September last (p. 211). I take this opportunity of publishing a full figure of this interesting spider.]

LV.—*New and little-known Hymenoptera taken by Prof. C. H. T. Townsend and Mr. C. M. Barber in New Mexico in 1898.* By T. D. A. COCKERELL, Professor of Entomology, New Mexico Agricultural College.

Andrena Barberi, sp. n.

♀.—Length about 13 millim.

Rather stoutly built, black. Head rather broad, facial quadrangle about square, vertex granulate, front below ocelli strongly longitudinally striate; clypeus minutely tessellate and strongly punctured, the median line free from punctures but not smooth; mandibles wholly dark, *process of labrum broad and deeply emarginate*; *antennæ wholly black*, first joint of flagellum as long as the three following together; face, especially at sides, cheeks, and occiput with fairly abundant greyish-white conspicuously plumose hair, on the vertex more or less blackish. Thorax with greyish-white pubescence, *except on the mesothorax and scutellum, where it is sooty*; mesothorax dull, minutely tessellate, and with rather large shallow punctures; enclosure of metathorax triangular,



Pocock, R. I. 1898. "The Arachnida from the regions of Lakes Nyassa and Tanganyika contained in the collection of the British Museum." *The Annals and magazine of natural history; zoology, botany, and geology* 2, 429–448.

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