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Revision of the genera *Lychas* and *Hemilychas*, with descriptions of six new species (Scorpiones: Buthidae)

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Abstract. The genus *Lychas* C. L. Koch, 1845 is revised, with diagnostic characters and geographic distributions given for all of its species. Lectotypes and/or paralectotypes are designated for *Lychas asper obscurus* Kraepelin, 1913, *L. braueri* (Kraepelin, 1896), *L. baldasseroni* Caporiacco, 1947, *L. marmoreus kimberleyanus* Kraepelin, 1916, *L. marmoreus splendens* Kraepelin, 1916, *L. mjobergi* Kraepelin, 1916, *L. obsti* Kraepelin, 1913, *L. perfidus* (Keyserling, 1885), *L. shelfordi* (Borelli, 1904), *L. shoplandi* (Oates, 1888), *L. spinatus* Kraepelin, 1916, *L. tricarinatus* (Simon, 1884), *L. tweediei* Kopstein, 1937, and *L. variatus papuanus* (Thorell, 1888). *L. asper obscurus* Kraepelin, 1913, is synonymized with the nominotypical *L. asper asper* (Pocock, 1891); *L. burdoi regulosus* Birula, 1916, and *L. burdoi rhodesianus* Lawrence, 1938, are synonymized with the nominotypical *L. burdoi burdoi* (Simon, 1882); *L. tweediei* Kopstein, 1937, is synonymized with *L. hosei* (Pocock, 1891); *L. mentaweius* Roewer, 1943, *L. baldasseroni* Caporiacco, 1947, and *L. nucifer* Basu, 1964, are synonymized with *L. mucronatus* (Fabricius, 1798); *L. decoratus* Basu, 1964, is synonymized with *L. nigristernis* (Pocock, 1899); and *L. nigrimanus* Kraepelin, 1898, is synonymized with *L. scutilus* C. L. Koch, 1845. In contrast, *L. mjobergi* Kraepelin, 1916, is considered valid. *L. buchari* sp. n. (Australia), *L. farkasi* sp. n. (Nepal), *L. heurtaultae* sp. n. (Nepal), *L. hillyardi* sp. n. (India), *L. lourencoi* sp. n. (Indonesia), and *L. rackae* sp. n. (India) are described and a key for species of the genus *Lychas* is provided. First record of *L. laevifrons* (Pocock, 1897) for Nepal, *L. shelfordi* (Borelli, 1904) for Indonesia are established. The genus *Hemilychas* Hirst, 1911, with the type species *Hemilychas alexandrinus* Hirst, 1911, is re-defined and differentiated from *Lychas* by the fifth metasomal segment which is without keels and punctate (as in *Orthochirus* Karsch, 1892) rather than granulate or smooth.

Taxonomy, description, revision, new species, new combination, checklist, key, Scorpiones, Buthidae, *Lychas*, *Hemilychas* stat. n., Afrotropical region, Oriental region, Australia

INTRODUCTION

The genus *Lychas* includes 35 species occurring from Afrotropical region through Seychelles and Mauritius Islands, Indo-Malayan region, and southern part of the Palearctic region (China, Nepal) to Australia (Table 2). The wide distribution is probably accountable for the lack of a comprehensive revision. Type specimens are in a number of institutions, e. g. the holotype of *L. burdoi* in the Muséum national d'Histoire naturelle in Paris, the holotype of *L. burdoi rhodesianus* in the Transvaal Museum in Pretoria, and the holotype of *L. burdoi regulosus* allegedly in the Zoological Institute of the Russian Academy of Sciences in St. Petersburg (where it could not have been located, however). Other type specimens are at museums in Germany, England, Australia, and India, making a revisionary work difficult and time-consuming. Fortunately, most of the institutions contacted kindly made available to me type specimens as well as their unidentified material of *Lychas*, which has allowed me to include all of FKCP, HNHM, MZUF, NMPC, SMFD, ZMHB, and ZMUH *Lychas* and most of the NHMB and MNHM holdings. Unfortunately, I have not been able to examine either types or any other specimens of seven *Lychas* species, including "*Lychas* sp.?" from Sri Lanka noted by Vachon (1982: 85).

MATERIAL AND METHODS

The institutional abbreviations listed below and used throughout are mostly after Arett et al. (1993), only FKCP and MBCZ are my own.

BMNH: British Museum (Natural History), London, England
FKCP: František Kovařík Collection, Prague, Czech Republic
HNHM: Hungarian Natural History Museum, Budapest, Hungary
MBCZ: Matt E. Braunwalder Collection, Zurich, Switzerland
MCSN: Museo Civico de Storia Naturale „Giacomo Doria", Genova, Italy
MNHN: Muséum national d'Histoire naturelle, Paris, France
MRSN: Museo Regionale di Scienze Naturali, Torino, Italy
MZUF: Museo Zoologico de „La Specola", Firenze, Italy
NHMB: Naturhistorisches Museum Basel, Switzerland
NMPC: National Museum (Natural History), Praha, Czech Republic
NZSI: National Zoological Survey of India, Calcutta, India
UZMD: Universitets Zoologiske Museet, Copenhagen, Denmark
SMFD: Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main, Germany
TMSA: Transvaal Museum, Pretoria, Republic of South Africa
ZMHB: Museum für Naturkunde der Humboldt-Universität zu Berlin, Germany
ZMUH: Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Germany

Other abbreviations are as follows:

M: male
F: female
A: specimens preserved in alcohol
E: specimens mounted dry
im: immature
TL: type locality
HT: holotype
AT: allotype
PT: paratype
LT: lectotype
PLT: paralectotype
ST: syntype

Type localities are given exactly as in the original descriptions. Type locality is followed by the repository of the holotype or lectotype.

Under material, the country is followed by all information given on the locality label.

Unfortunately, some locality labels are difficult to read, e. g. the original labels of *L. burdoi* at ZMHB dating from 1890–1920, which may have caused a few inaccuracies in their transcription. Certain label data have proven altogether undecipherable.

All specimen numbers including those of Prof. Max Vachon (e. g. VA 2467) are given for the sake of completeness, although Dr Lourenço has informed me that no notations pertaining to Vachon's numbers appear to have been preserved.

This study was conducted in 1995–1997. Each examined specimen bears a label in Ariel or Times New Roman font produced on a laser printer. The label contains the generic and species name; author and year of the original description; whether the specimen is the holotype, lectotype, or paralectotype; whether I have designated (dsg.), determined (det.), or only revised (rev.) the specimen; and my name plus the year of the examination.

Lychas C. L. Koch, 1845
(Figs 1–116, 122, 123, Tables 1–3)

Pilumnus C. L. Koch, 1837: 38 (praeocc. by *Pilumnus* Leach, 1815: Crustacea) = *Repucha* Francke, 1985: 12, nom. nov. (syn. by Francke 1985: 12).
Scorpio (*Androctonus*): Gervais, 1843: 129.
Scorpio (*Androctones*) [sic]: Gervais, 1844: 207 (in part).
Lychas C. L. Koch, 1845b: 3 (in part); 1850: 92 (in part); Pocock, 1899: 834; 1900: 35; Purcell, 1902: 173 (in part); Kraepelin, 1905: 335; 1908: 87; 1911: 60; 1913: 132, 172; 1916: 22 (in part); Birula, 1917a: 105 (in part); 1917b: 164;

Kopstein, 1921: 121; Glauert, 1925: 94 (in part); Werner, 1934: 271; Roewer, 1943: 210; Takashima, 1945: 73 (in part); Vachon, 1953: 10; Probst, 1973: 322; Vachon, 1974: 906; Lamoral & Reynders, 1975: 510 (in part); L. E. Koch, 1977: 123 (in part); Newlands & Martindale, 1980: 69; L. E. Koch, 1981: 875 (in part); Vachon, 1982: 84; Tikader & Bastawade, 1983: 40; Vachon, 1985: 99; 1986: 845 (in part); Sissom, 1990: 102 (in part); Locket, 1993: 593 (in part), Kovařík, 1995: 189 (in part).
Lychus [sic]: Kraepelin, 1907: 193.
Lichas [sic]: Fage, 1933: 26; 1936: 179.
Lachas [sic]: Fage, 1944: 71.
Lycas [sic]: Hadley, 1974 (Francke 1985: 9).
Lyches [sic]: Minocci, 1974: 2.
Tityus: C. L. Koch, 1845a: 14 (in part).
Tithyus: C. L. Koch, 1850: 90 (in part).
Isometrus: Thorell, 1876: 129 (in part); Pocock, 1891: 433.
Archisometrus Kraepelin, 1891: 217 (in part); Werner, 1934: 271; Pocock, 1893: 306; Kraepelin, 1895: 84; Pocock, 1897: 110 (in part); Lönnberg, 1897: 195; Kraepelin, 1898: 3; 1899: 41; 1905: 196 (syn. by Pocock 1900: 35).
Archiosometrus [sic]: Stahnke, 1972: 128.
Lychas (*Distotrichus*) Tikader & Bastawade 1983: 41 (syn. by Vachon, 1986: 848).
Lychas (*Alterotrichus*) Tikader & Bastawade 1983: 52 (syn. by Kovařík, 1995: 188).
Lychas (*Endotrichus*) Tikader & Bastawade 1983: 71 (syn. by Kovařík, 1995: 188).

TYPE SPECIES. *Lychas scutilus* C. L. Koch, 1845.

DIAGNOSTIC CHARACTERS. A combination of characters differentiates this genus from all other genera of the family Buthidae. The basic trichobothrial pattern is beta (Figs 96–102 and Sissom 1990: 70, fig. 3.3), the third and fourth legs have well developed tibial spurs, pectines bear fulcra (Sissom 1990: 92, fig. 3.17d), movable fingers of pedipalps have six cutting edges (rows of granules) (Figs 2–20), in lateral view the entire dorsal surface of the carapace is horizontal, the cheliceral fixed finger has a single ventral denticle, and the telson has a distinct subaculear tooth that is less pronounced only in *L. mjobergi*. The fifth metasomal segment has keels and is smooth or granulate, not punctate (Fig. 1).

The genus is further characterized by one (most species) or three (*L. braueri*, *L. farkasi* sp. n. and some *L. laevifrons* and *L. tricarinatus*) dorsal mesosomal keels, total length of 21.8 through 86.5 mm, 8 through 26 pectinal teeth (Table 3), and eight or 10 keels on the first and second metasomal segments. The third mesosomal segment may bear as few as six and as many as 10 keels.

The color pattern is usually spotted. The base color is often yellow, with dark spots of varying size, but some species may lack spotting.

COMMENTS. L. E. Koch (1977: 123) considered *Lychas* C. L. Koch, 1845, to be a synonym of *Isometrus* Hemprich & Ehrenberg, 1828 (figured in 1828 and described in 1829). According to L. E. Koch (1977), the genus *Lychas* was described by C. L. Koch only in 1850.

It is true that C. L. Koch (1845) listed *Lychas maculatus* (= *Isometrus maculatus*) first, *Lychas americanus* (= *Isometrus maculatus*) second, and *Lychas scutilus* only third, although the latter was selected as the type species of the genus *Lychas* C. L. Koch, 1845, in accord with the rules of zoological nomenclature as then defined (Pocock, 1899: 834), and has been used as such since then (Pocock, 1900: 35; Vachon, 1985: 99; Vachon, 1986: 837). The taxonomic position of the genus *Lychas* has been discussed in detail by Vachon (1985).

The genus *Lychas* includes 35 species. Its vast distribution and attempts to better understand relationships among the species have led to division into several subgenera. Hirst (1911) erected the Australian subgenus *Hemilychas* with type species *Lychas* (*Hemilychas*) *alexandrinus* Hirst, 1911. L. E. Koch (1977) compared Hirst's characters with other species of the genus and concluded that they do not justify subgeneric status. However, examination of the holotype of *Ly-*

chas (*Hemilychas*) *alexandrinus* convinces me that it belongs in a separate genus *Hemilychas* (see below).

Tikader & Bastawade (1983) divided *Lychas* into the subgenera *Distotrichus*, *Alterotrichus*, and *Endotrichus*. In discord with the international rules of zoological nomenclature, none of their subgenera has been named *Lychas*. The subgenera are differentiated on distribution of the trichobothria dt, db, et, and est (Figs 56–66, Tikader & Bastawade 1983: 41; Vachon 1986: 847, figs 22–24). This distinction was doubted by Vachon (1986), because the distribution of these trichobothria varies even intraspecifically (Kovařík, 1995: 188).

Lychas albimanus Henderson, 1919
(Tables 2–3)

Lychas albimanus Henderson, 1919: 379; Takashima, 1945: 84; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (*Endotrichus*) *albimanus*: Tikader & Bastawade, 1983: 91.

TYPE LOCALITY. India, Cochin State, Teak Forests; NZSI.
DIAGNOSTIC CHARACTERS. Total length 36 mm (Tikader & Bastawade 1983: 92) through 41mm (Henderson 1919: 380). Sixth cutting edge on movable finger of pedipalps without external and internal granules (Tikader & Bastawade 1983: 93, fig. 244). First and second metasomal segments with 10 keels (second segment has two keels weakly developed), third and fourth segments with eight keels (Tikader & Bastawade 1983: 94). For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Tikader & Bastawade 1983: 95, figs 250–255. Pectinal teeth number 21 (Henderson 1919: 380; Tikader & Bastawade 1983: 94). Fingers of tibia of pedipalps are black and manus of tibia is white or yellowish (Henderson 1919: pl. 21, fig. 1; Tikader & Bastawade 1983: 93, figs 242–243).
COMMENTS. The species is based on three specimens obtained by F. H. Gravely and B. Sundara Raj in September 1914 (Henderson 1919: 379). The description does not permit to ascertain whether the type series includes only females or both sexes.

Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.
DISTRIBUTION. India (Henderson 1919: 379).

Lychas asper (Pocock, 1891)
(Figs 2, 22, 54, 56–57, 112–115, Tables 1–3)

Isometrus asper Pocock, 1891: 445.
Archisometrus asper: Kraepelin, 1895: 86; 1899: 49.
Lychas asper: Pocock, 1899: 834; Hirst, 1911: 4; Kraepelin, 1913: 173; Lampe, 1918: 194; Loveridge, 1925: 307; Geeraerts, 1953: 1065; Belfield, 1956: 45; Lamoral & Reynders, 1975: 510; Farzanpay & Vachon, 1979: 140; Kovařík, 1995: 189.
Lychas asper obscurus Kraepelin, 1913: 174 (TL: Tanganjika, Kawende); Birula, 1915: 30; 1916: 51; Werner, 1916: 87; Lampe, 1918: 194; Borelli, 1925: 16; Moriggi, 1941: 91; Probst, 1973: 323; Lamoral & Reynders, 1975: 510; Moritz & Fischer, 1980: 320; Kovařík, 1995: 189. **Syn. n.**
Archisometrus asper obscurus: Caporiacco, 1937: 360; 1941: 35; El-Hennawy, 1992: 127.

TYPE LOCALITY. Congo; BMNH.

TYPE MATERIAL. **Tanzania**: Centr. Africa, Kawende, 3FA (lectotype, paralectotypes No. 3 and 4 of *L. asper obscurus*), leg. P. Reinhardt, ZMHB No. 7591; D. O. Africa, 1MA (im) (paralectotype No. 1 of *L. asper obscurus*), leg. Glanning, ZMHB No. 8147; Tanzania-see, 1MA (im) (paralectotype No. 2 of *L. asper obscurus*), leg. Böhm, ZMHB No. 10426; D. O. Afrika, Mkalama, X.1912, 1FA (paralectotype No. 5 of *L. asper obscurus*), leg. Obst. No. 471, ZMUH; D. O. Afrika, Mkalama, X.1912, 1MA (paralectotype No. 6 of *L. asper obscurus*), 1FA (paralectotype No. 7 of *L. asper obscurus*), leg. Obst,

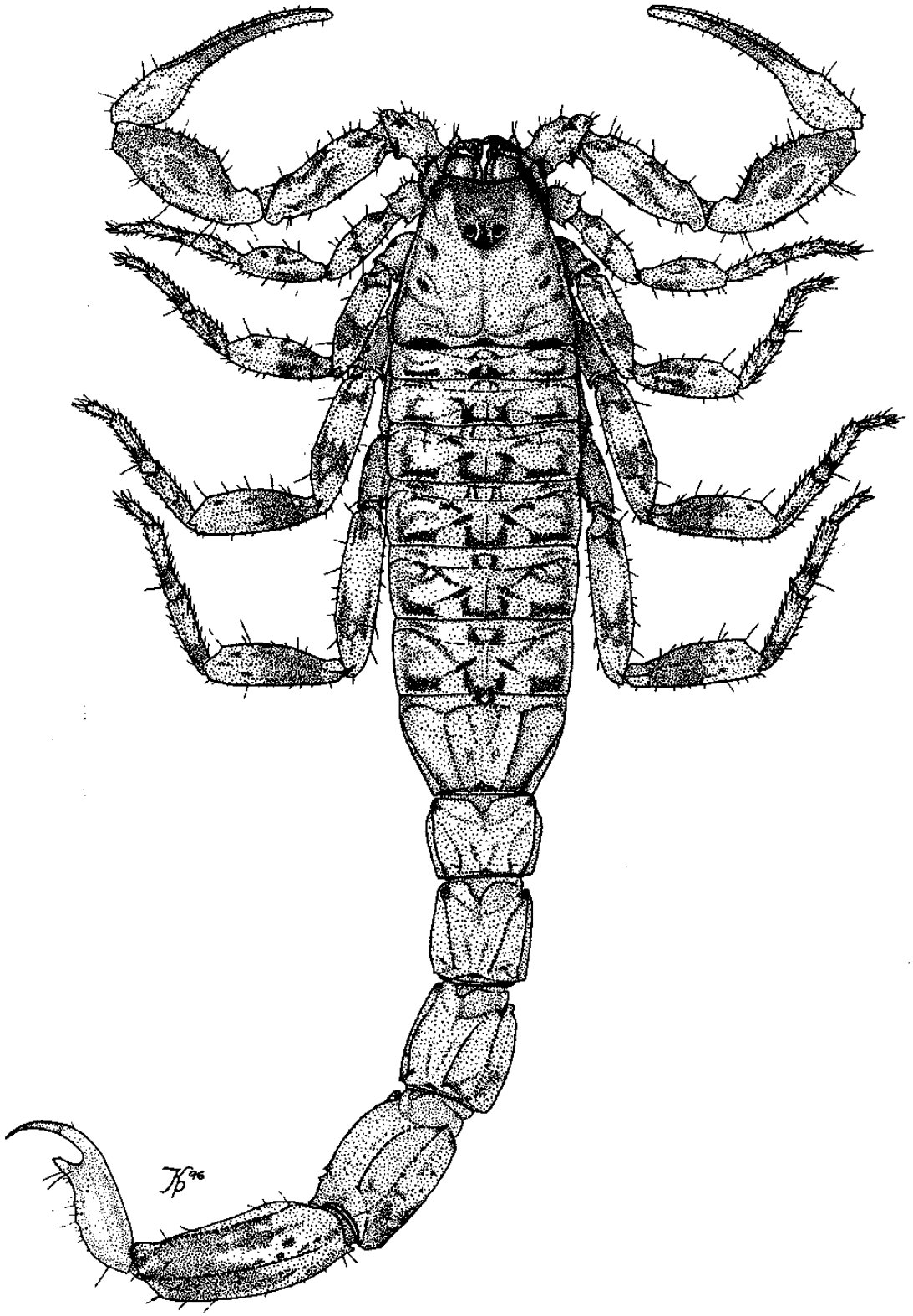


Fig. 1–*Lychas burdoi* (Simon), female from FKCP (Tanzania). Dorsal aspect.

Table 1. Measurements (in millimeters) of *Lychas* and *Hemilychas* species. Line denoted "pectinal teeth" contains numbers of both left and right teeth separated by a colon

	total	carapace		metasoma												pedipalp							pec-
				total	I		II		III		IV		V		tel.	femur		patella		tibia	ma.	fin.	tinal
	length	length	width	length	length	width	length	width	length	width	length	width	length	width	length	length	width	length	width	length	width	length	teeth
Lychas asper																							
M, MNHN	53.4	4.6	4.7	31.8	3.5	2.4	4.3	2.1	4.9	2.0	5.3	1.9	7.5	1.9	5.2	4.3	1.3	5.1	1.6	7.7	1.7	4.4	18:17
M, FKCP	32.8	3.3	3.1	20.3	2.4	1.8	2.7	1.7	2.9	1.6	3.5	1.5	4.7	1.4	3.7	3.0	0.8	3.3	1.2	5.2	1.0	3.3	19:19
F, LT *L. a. obscurus*	30.4	3.4	3.2	17.0	2.0	1.7	2.2	1.5	2.4	1.5	3.1	1.4	4.0	1.4	3.2	3.0	0.9	3.0	1.3	4.9	0.9	3.0	16:16
F, BMNH	29.6	3.1	3.1	16.5	1.8	1.6	2.0	1.4	2.3	1.4	3.0	1.4	4.1	1.4	3.3	2.5	0.7	3.2	1.1	4.8	0.8	3.3	14:14
L. braueri																							
M, ZMHB	25.0	2.9	2.6	15.0	1.6	1.5	1.8	1.4	1.9	1.4	2.5	1.4	3.9	1.4	3.0	2.2	0.7	3.3	0.8	3.9	0.7	2.8	17:17
F, LT, ZMUH	33.7	3.9	3.7	19.8	2.1	2.1	2.5	1.9	2.6	1.9	3.2	1.9	5.0	1.8	4.3	3.3	0.9	4.2	1.3	5.8	1.0	4.1	17:17
L. buchari **sp. n.**																							
M, HT, MNHN	42.4	5.1	5.0	27.4	3.2	2.7	3.6	2.5	3.8	2.5	4.7	2.4	5.8	2.4	6.1	3.4	1.2	4.3	1.6	6.5	1.7	4.4	26:26
L. burdoi																							
M, ZMHB	31.4	3.7	4.0	19.1	2.2	2.4	2.3	2.2	2.5	2.1	3.3	2.0	4.5	1.9	4.0	2.9	0.9	3.5	1.4	5.3	1.0	3.3	16:16
F, HT, MNHN	32.5	3.9	3.8	17.5	2.1	2.1	2.2	2.0	2.4	1.8	3.3	1.6	4.3	1.6	3.4	3.1	0.9	3.7	1.4	5.7	0.9	4.1	16:15
F, HT *L.b.rhodesianus*	36.3	3.6	3.8	18.9	2.1	2.4	2.3	2.1	2.5	2.1	3.3	2.0	4.5	2.0	3.9	3.2	1.0	3.9	1.4	5.5	1.0	4.0	14:15
L. farkasi **sp. n.**																							
M, HT, MNHN	41.4	4.5	4.6	25.6	3.2	2.6	3.9	2.6	4.1	2.6	4.7	2.7	5.3	2.8	4.3	4.0	1.1	4.1	1.6	6.4	1.8	3.5	25:25
L. flavimanus																							
M im, HT, MCSN	33.0	3.4	3.1	19.3	2.1	1.9	2.6	1.7	2.9	1.7	3.4	1.7	4.8	1.7	3.6	3.2	1.0	3.8	1.0	5.5	1.1	3.7	19:19
F, ZMUH	39.4	4.1	3.9	20.9	2.3	2.3	2.7	2.1	2.9	2.1	3.6	2.1	5.0	2.1	4.2	3.7	1.1	4.6	1.4	6.4	1.2	4.2	16:16
L. hendersoni																							
F, HT, BMNH	34.0	3.7	3.8	18.5	2.1	2.2	2.5	2.0	2.6	2.0	3.2	2.0	4.2	2.0	3.3	3.0	0.9	3.7	1.2	5.2	1.0	3.6	17:18
L. heurtaultae **sp. n.**																							
M, HT, MNHN	37.1	3.3	3.4	20.6	2.2	2.0	2.7	1.9	3.0	1.8	3.8	1.8	4.7	1.7	3.9	2.9	0.9	3.9	1.2	5.3	1.4	3.3	24:23
F, AT, FKCP	41.4	4.0	4.1	20.9	2.4	2.4	2.9	2.3	3.2	2.3	3.7	2.1	4.7	2.0	3.7	3.1	1.0	4.3	1.4	5.6	1.5	3.4	21:21
L. hillyardi **sp. n.**																							
M, HT, NMPC	28.1	2.8	2.7	15.8	1.9	1.7	2.2	1.5	2.3	1.4	2.8	1.4	3.4	1.4	3.2	3.0	0.8	3.4	1.2	5.0	0.9	3.6	17:16
L. hosei																							
F, HT, BMNH	61.9	6.9	6.2	35.2	4.1	3.2	5.2	3.1	5.2	3.0	5.9	2.8	7.7	2.7	7.1	6.9	1.6	7.6	2.3	12.0	2.0	7.8	21:20
F, LT *L. tweediei*	69.2	7.3	7.1	40.5	4.5	3.0	6.0	2.9	6.0	2.8	6.6	2.7	9.3	2.9	8.0	7.9	1.9	8.4	2.6	13.2	2.2	9.0	18:18
F, ZMHB	66.8	6.2	6.6	35.9	4.1	3.0	5.0	2.8	5.6	2.8	6.1	2.7	7.8	2.8	6.9	6.3	1.7	7.3	2.4	11.2	2.0	7.6	18:19
L. infuscatus																							
F, ZMUH	36.5	4.2	4.4	20.9	2.0	2.4	2.3	2.3	2.5	2.2	3.0	2.1	4.7	2.0	4.2	3.5	1.1	4.3	1.6	6.0	1.2	4.1	11:11
F, FKCP	32.8	3.6	3.8	17.7	1.8	2.1	2.0	2.0	2.3	1.8	3.0	1.8	4.3	1.8	3.9	3.1	1.0	3.9	1.4	5.3	1.2	3.7	10:10
L. krali																							
M, FKCP	42.2	4.2	4.0	27.7	3.4	2.1	3.9	1.9	4.3	1.8	4.7	1.7	6.0	1.8	4.9	4.0	1.1	4.5	1.6	7.3	1.8	4.4	17:18
F, HT, FKCP	37.1	4.7	5.0	23.2	2.7	2.3	3.3	2.0	3.7	1.9	4.3	1.8	5.3	1.7	4.2	4.3	1.2	4.9	1.7	7.5	1.3	5.4	16:15
F, PT no. 5, FKCP	36.4	5.3	4.5	21.9	2.5	2.3	3.0	2.0	3.4	1.9	4.2	1.9	5.0	1.8	3.8	3.8	1.1	4.2	1.6	6.5	1.2	4.2	16:16
L. laevifrons																							
F, ZMUH	58.2	5.4	5.4	30.9	3.5	3.3	4.2	3.1	4.5	3.0	5.4	2.9	6.9	2.6	5.9	4.8	1.4	5.9	1.9	7.5	1.8	5.2	23:23
F, MNHN	53.2	5.1	5.3	28.2	3.3	3.0	3.8	2.8	4.1	2.7	5.2	2.6	6.3	2.5	5.2	4.0	1.3	5.4	1.7	7.3	1.6	4.6	23:24
L. lourencoi **sp. n.**																							
F, HT, MNHN	27.9	3.3	3.4	16.7	1.9	1.6	2.2	1.4	2.4	1.3	2.9	1.2	3.8	1.2	3.2	3.0	0.8	3.7	1.2	5.2	0.9	3.8	11:12
L. marmoreus																							
M, FKCP	34.0	3.2	3.1	21.0	2.1	1.5	2.7	1.4	2.9	1.4	4.0	1.4	5.3	1.4	4.1	2.8	1.0	3.4	1.3	5.4	1.2	3.5	16:16
F, FKCP	31.7	3.3	3.4	17.5	1.6	1.6	2.1	1.5	2.6	1.4	3.2	1.3	4.2	1.3	3.7	2.8	0.9	3.1	1.3	4.9	1.0	3.3	12:12
F, HT *L. m. obscurus*	32.0	3.5	3.5	19.0	2.1	1.8	2.5	1.6	2.7	1.5	3.3	1.4	4.5	1.4	3.8	3.0	0.9	3.4	1.2	5.0	1.0	3.3	15:15
L. mjobergi																							
F, LT, ZMUH	32.4	3.9	4.1	19.1	2.2	2.3	2.7	2.1	2.7	2.1	3.1	2.0	3.8	2.0	4.1	2.5	1.0	3.2	1.4	4.9	1.3	3.2	21:21
L. mucronatus																							
M, FKCP	50.0	5.8	5.9	31.7	3.6	3.4	4.3	3.2	4.7	3.1	5.8	3.0	7.1	3.0	6.0	5.6	1.3	6.3	1.9	10.4	2.6	7.1	22:23
F, ST *l. chinensis*	54.0	6.1	6.3	30.5	3.6	3.4	4.0	3.0	4.4	2.8	5.4	2.9	6.5	2.9	6.1	5.4	1.6	6.2	2.1	9.6	1.9	6.2	23:23
F, HT *L. mentaweius*	57.0	5.8	5.9	31.0	3.5	3.3	4.1	3.1	4.3	2.9	5.2	2.9	7.0	2.5	6.0	5.4	1.4	6.4	2.0	9.4	1.9	6.5	20:20
L. nigristernis																							
M, FKCP	40.4	3.9	3.9	27.0	3.2	2.0	3.8	1.8	4.0	1.7	4.9	1.7	6.1	1.6	4.1	4.2	0.9	4.8	1.2	7.1	1.2	4.8	16:16
F, HT, BMNH	38.0	4.2	4.2	22.0	2.5	2.2	3.0	2.0	3.3	2.0	3.8	1.8	5.0	1.7	4.1	3.2	1.1	4.4	1.5	5.8	1.1	4.0	15:16
F, FKCP	45.2	4.7	4.8	26.7	3.0	2.6	3.5	2.2	4.8	2.1	5.0	2.1	5.6	2.0	4.7	4.6	1.1	5.4	1.4	7.7	1.4	5.6	14:15
L. obsti																							
M, FKCP	41.9	3.8	3.6	28.2	3.6	1.9	4.0	1.7	4.5	1.5	5.5	1.5	6.0	1.6	4.6	3.6	1.0	3.9	1.3	5.7	1.2	3.5	18:17
F, LT, ZMUH	36.4	3.7	3.7	19.9	2.3	1.9	2.8	1.8	3.1	1.7	3.6	1.6	4.5	1.4	3.6	3.0	0.9	3.5	1.3	4.9	1.1	3.0	17:18
L. perfidus																							
M im, ZMUH	25.5	2.9	2.8	15.0	1.5	1.7	1.7	1.6	1.9	1.5	2.4	1.4	3.7	1.4	3.7	2.2	0.7	2.9	1.0	4.5	1.2	2.6	12:12
F, LT, BMNH	30.0	3.5	3.5	17.0	1.6	2.0	2.0	1.9	2.1	1.8	2.6	1.8	4.1	1.8	4.1	2.8	0.9	3.5	1.3	5.4	1.4	2.9	11:10
F, ZMUH	40.6	4.1	4.6	22.5	2.3	2.6	2.5	2.3	2.8	2.2	3.4	2.1	5.0	2.1	5.1	3.7	1.0	4.2	1.5	6.5	1.3	4.5	10:11
L. rackae **sp. n.**																							
M, HT, ZMUH	36.7	3.7	3.7	22.4	2.5	2.1	3.0	1.8	3.1	1.8	4.0	1.8	5.0	1.8	4.0	3.5	1.0	4.2	1.5	6.4	1.6	3.8	17:16

	total	carapace		metasoma													pedipalp							pec-
				total	I		II		III		IV		V		tel.		femur		patella		tibia	ma.	fin.	tinal
	length	length	width	length	length	width	length	width	length	width	length	width	length	width	length	length	length	width	length	width	length	width	length	teeth
L. rugosus																								
M, HT, BMNH	21.8	2.5	2.6	12.1	1.4	1.2	1.6	1.1	1.7	1.1	2.0	1.0	2.8	1.0	2.4		2.2	0.7	2.5	0.9	3.7	0.8	2.3	12:12
L. scaber																								
M, BMNH	38.1	3.7	3.8	25.5	2.8	2.0	3.3	1.6	4.1	1.5	4.8	1.4	5.5	1.5	4.5		3.6	1.1	4.6	1.6	7.2	1.4	5.2	19:20
F, BMNH	–	4.7	4.7	–	3.1	2.4	–	–	–	–	–	–	–	–	–		4.5	1.2	5.2	1.7	8.3	1.4	5.9	19:18
L. shelfordi																								
M, LT, MRSN	41.0	4.7	4.8	26.0	2.7	2.7	3.2	2.4	3.6	2.3	4.3	2.2	6.4	2.2	5.6		4.5	1.3	5.7	1.6	7.5	1.4	5.6	12:12
F, PLT, MRSN	44.2	4.7	4.8	25.8	2.8	2.5	3.2	2.3	3.5	2.2	4.2	2.0	6.1	2.0	5.6		4.3	1.1	5.5	1.7	7.6	1.4	5.5	12:12
L. scutilus																								
M, FKCP	86.5	6.5	5.6	62.0	7.5	2.3	9.4	2.1	10.2	1.9	10.8	1.8	12.6	1.7	9.2		8.0	1.4	8.6	2.1	12.5	1.9	8.2	18:17
F, ST *l. weberi*	56.0	5.7	5.6	34.6	4.0	2.4	5.0	2.3	5.2	2.1	7.1	1.9	7.3	1.8	6.0		5.3	1.5	6.9	2.2	9.5	1.6	7.0	17:16
L. shoplandi																								
F, LT, BMNH	50.7	5.6	5.6	30.0	3.5	3.3	4.5	3.1	4.7	3.1	5.5	3.0	6.1	2.7	5.7		4.1	1.5	5.0	1.8	7.1	1.7	4.3	23:23
L. tricarinatus																								
M, FKCP	46.4	4.2	4.0	28.9	3.8	2.3	4.3	2.3	4.7	2.3	5.5	2.3	6.4	2.3	4.2		4.1	1.0	5.0	1.4	6.9	1.5	3.9	22:23
F, LT, MNHN	44.3	4.2	4.1	26.6	3.5	2.8	3.5	2.7	4.2	2.7	4.7	2.6	5.6	2.5	4.2		4.1	1.0	4.3	1.4	6.7	1.3	3.5	25:25
F, SMFD	54.7	5.1	4.8	27.7	3.6	3.1	4.1	3.0	4.3	2.8	5.2	2.9	6.0	2.6	4.5		4.1	1.1	5.0	1.6	7.1	1.5	4.1	22:22
L. variatus																								
M, ZMHB	38.8	4.0	4.1	23.5	2.8	2.5	3.2	2.3	3.4	2.2	4.1	2.1	5.2	2.0	4.6		3.8	1.3	4.5	1.6	7.0	1.7	4.4	21:22
F, LT *L.spinatus*	46.4	4.9	4.9	24.7	2.7	2.9	3.2	2.4	3.5	2.3	4.2	2.3	5.6	2.4	5.5		3.8	1.3	4.9	1.7	7.3	1.5	4.8	19:19
H. alexandrinus																								
M, HT, BMNH	31.5	3.5	3.7	18.4	2.5	2.2	2.6	2.3	2.6	2.3	3.1	2.3	3.8	2.5	3.8		2.6	0.9	3.2	1.3	5.2	1.2	3.7	20:21

ZMUH. **Zambia**: N. W. Rhodesia, Brooken Hill, 20.IV.1911, 2FA (paralectotypes Nos 8–9 of *L. asper obscurus*), leg. P. Timmen, ZMUH.

OTHER MATERIAL. **Angola**: 6M3F1juv.A, MNHN Nos RS 1029, 3826, 4980, 8057; W. Afr., Ambrizelti, 6.III.1890, 1FA, leg. Cpt. Hupfer, ZMUH; W. Afr., Landana, 22.VII.1892, 3M2F1juv.A, leg. H. Brauns, ZMUH; W. Afr., Ambriz, 1893, 1FA, Mus. Leyden, ZMUH. ? **Angola**, West Africa, Mus. Berlin, 1M2FA, ZMUH; West Africa, 1925, 1FA, FKCP. **Congo Republic**: 2FA, coll. J. Pinnock, BMNH No. BM 1899.4.18.2–3; 1MA, FKCP; Congo (or Sierra Leone or Senegal), 6M28FA, coll. Simon, MNHN No. RS 1473. **Mozambique**: Tete, IV.1947, 8FA, SMFD No. 10085–6; Tete, V.1980, 1M3FA, leg. P. Dvořák, FKCP. ?: West Africa, 1MA, ZMHB No. 7571, 4M19F1juv.A, leg. Falkenstein, ZMHB No. 7513; ? West Africa, 3FA, ZMHB No. 7464, 1FA, ZMHB No. 7175; 1M1FA, FKCP; Heymans, 1M3FA, MNHN No. RS 5039; West Africa, Landana, 22.VII.1929, 1M1F1juv.A, leg. H. Brauns, ZMUH.

DIAGNOSTIC CHARACTERS. Total length 25–53.4 mm. In contrast to female, male has longer metasoma (but not as long as in *L. obsti*, see Table 1) and fingers of pedipalps slightly twisted proximally. Sixth cutting edges on movable and fixed fingers of pedipalps with two external granules each (Fig. 2), and in some instances also with one internal granule. First and second metasomal segments with 10 keels, third a fourth segments with eight keels. Ventral surface of seventh mesosomal segment with two or four keels that may be inconspicuous. For position and distribution of trichobothria on tibia of pedipalps see Figs 56 and 57. Pectinal teeth number 12–19.

In the specimens from Mozambique the legs are dorsally spotted and ventrally yellowish brown. The mesosomal segments are dark with six yellowish spots on the posterior margin. The metasoma is spotted, progressively darker posteriorly, and the fifth segment is entirely black; the telson is yellowish brown, however. The femur of the pedipalps is yellow with black spots, the patella is black with a minimum of light spots, and the manus is even lighter-colored than the fingers of the pedipalps. Manus may be rarely darker than fingers.

COMMENTS. This species is based on two specimens, a female from Angola and a male from the Congo (Pocock 1891: 447). According to Pocock the female is 30 mm long and the male is 36 mm long, and there are 14 pectinal teeth.

I examined two females from the Congo, both identified by Pocock in 1895, and they agree with Pocock's (1891: 445–447) description. One of them still has pectinal teeth preserved, and

they number 14 and 15. A century of preservation in alcohol has resulted in loss of the original color, but spotting on legs is still discernible.

I examined the type series of *L. asper obscurus* and designated a lectotype and paralectotypes Nos 1–9. All males are immature but nevertheless show sexual dimorphism in the length of the metasoma. Pectinal teeth of types number 17–18 in the males and 15–17 in the females from Tanzania and 15 in the females from Zambia.

I arrived at the opinion that *L. asper obscurus* and *L. asper asper* are synonyms only after examining a number of specimens and particularly the paralectotypes Nos. 7–9 of *L. asper obscurus* from Tanzania and Zambia. The shape of telson and of subaculear tubercle (see Figs 112–115) proved variable, and the existence of two subspecies is refuted also by geographic distribution. For instance, in the MNHN material from Angola are specimens that show features of both subspecies.

Since I at first throught that the subspecies are valid, the initially examined specimens are incorrectly labeled as subspecifically distinct.

DISTRIBUTION. Angola, the Congo Republic (Pocock 1891: 447), Congo Democratic Republic (former Zaire) (Geeraerts, 1953: 1065), Tanzania (Kraepelin 1913: 176), Mozambique (Hirst 1911: 4), Somalia (Borelli 1925: 16), and Zambia (Kraepelin 1913: 176).

Lychas biharensis Tikader & Bastawade, 1983
(Tables 2–3)

Lychas (*Endotrichus*) *biharensis* Tikader & Bastawade, 1983: 96.
Lychas biharensis: Kovařík, 1995: 189.

TYPE LOCALITY. India, Bihar, Dist. Manbhum, Chaurasi; NZSI.

DIAGNOSTIC CHARACTERS. Total length 46.25 mm (Tikader & Bastawade 1983: 98). Sixth cutting edge on movable finger of pedipalps without external and internal granules (Tikader & Bastawade 1983: figs 260 and 270). First through third metasomal segments with 10 keels (third segment has two lateral keels sparsely but clearly granular), fourth segment with eight keels (Tikader & Bastawade 1983: 101). Second through sixth mesosomal segments with one dorsal carina. For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Tikader & Bastawade 1983: 99, figs 266–270. Pectinal teeth number 24 (Tikader & Bastawade 1983: 100).

COMMENTS. The species is based on two females obtained by T. B. Sinha on 26 September 1948 (Tikader & Bastawade 1983: 101). Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.

DISTRIBUTION. India (Tikader & Bastawade 1983: 101).

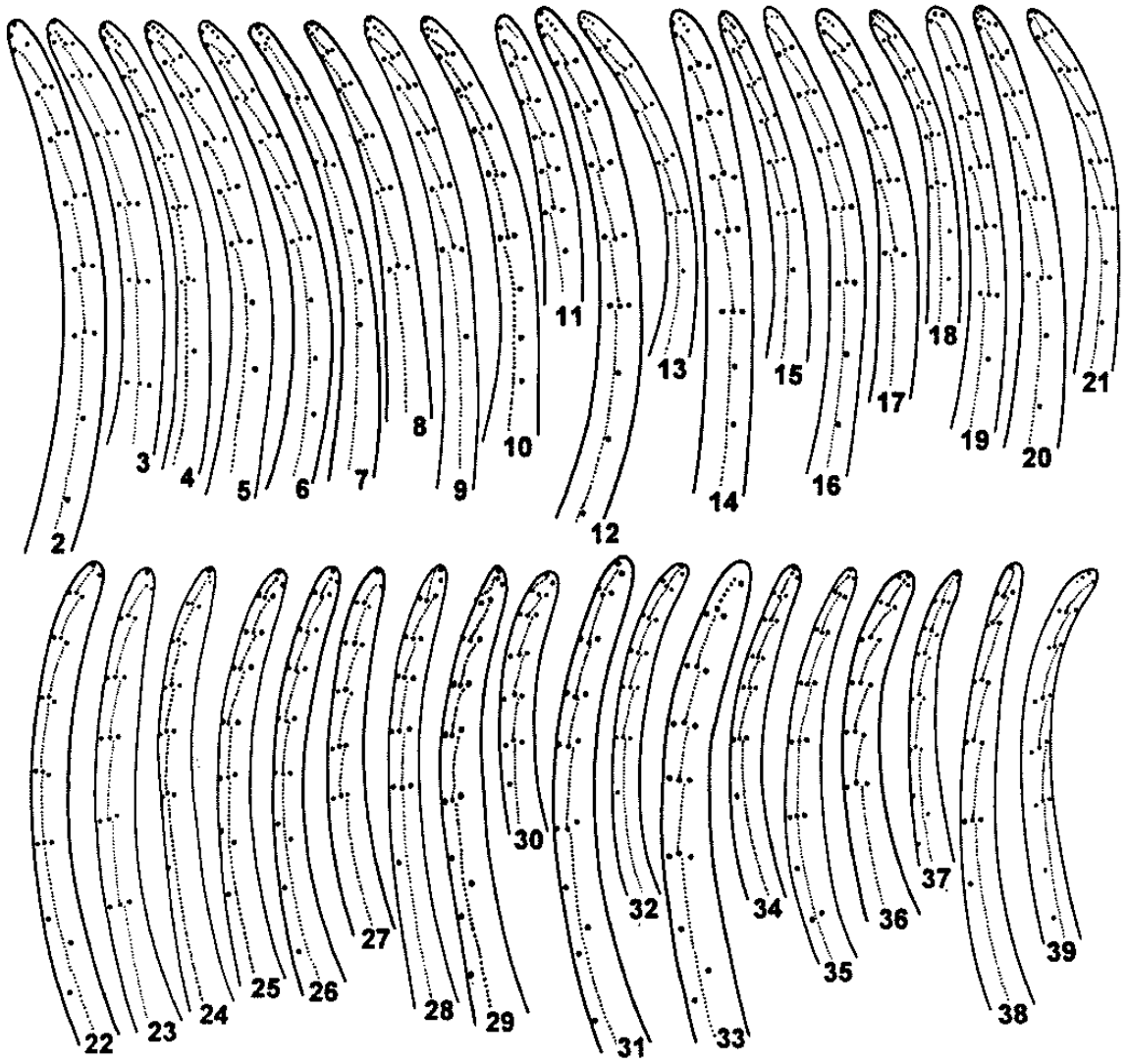
Lychas braueri (Kraepelin, 1896)
(Figs 1, 42, 58, 95, 97, Tables 1–3)

Archisometrus braueri Kraepelin, 1896: 123; 1899: 46; Hirst, 1913: 32.
Lychas braueri: Lamoral & Reynders, 1975: 510; Vachon, 1986: 839; Kovařík, 1995: 189; Lourenço, 1996: 38.

TYPE LOCALITY. Insel Praslin (Seychellen); ZMUH.

TYPE MATERIAL. **Republic of Seychelles**: Praslin Island, 5.VII.1896, 1FA (lectotype), 1M(im)A (paralectotype No. 1), 8juvsA before first ecdysis (paralectotypes Nos 2–9), 1juv.A after first ecdysis (paralectotype No. 10), 1juv.A after second ecdysis (paralectotype No. 11), leg. A. Brauer, ZMUH.

OTHER MATERIAL. **Republic of Seychelles**: Praslin Island, 5.VII.1896, 2F7juvsA, leg. A. Brauer, ZMHB No. 10427–8; Mahé Island, 6.III.1899, 1M1FA, Deutsche Tiefsee-Expedition 1898/99, rev. M. Vachon 1979 (No. Va 2471), ZMHB No. 30800.



Figs 2–39. Figs 2–20 and 39 – movable finger of pedipalps. Figs 21–38 – fixed finger of pedipalps. Figs 2, 22 – *Lychas asper* (Pocock), female from BMNH. Fig. 3 – *L. burdoi* (Simon), female from FKCP. Figs 4, 24 – *L. hillyardi* sp. n., male HT. Figs 5, 25 – *L. krali* Kovařík, female HT. Figs 6, 26 – *L. krali* Kovařík, female PT No. 9. Fig. 7 – *L. krali* Kovařík, female PT No. 6, defect. Figs 8, 27 – *L. laevifrons* (Pocock), female from MNHN. Figs 9, 28 – *L. nigristernis*, female from FKCP, Figs 10, 29 – *L. mucronatus* (Fabricius), female HT of *L. mentaweius* Roewer. Figs 11, 30 – *L. mjobergi* Kraepelin, female LT. Figs 12, 31 – *L. mucronatus* (Fabricius), female from FKCP. Figs 13, 32 – *L. nigristernis* (Pocock), female from FKCP. Figs 14, 33 – *L. obsti* Kraepelin, female PLT No. 1. Figs 15, 34 – *L. rackae* sp. n., male HT. Figs 16, 35 – *L. scaber* (Pocock), female from BMNH. Figs 17, 36 – *L. shoplandi* (Oates), female LT. Figs 18, 37 – *L. lourencoi* sp. n., female HT. Figs 19, 38 – *L. variatus* (Thorell), juv. LT of *L. marmoreus kimberleyanus* Kraepelin. Fig. 20 – *L. variatus* (Thorell), female PLT No. 1 of *L. spinatus* Kraepelin. Figs 21, 39 – *L. variatus* (Thorell), female LT of *L. spinatus* Kraepelin. Fig. 23 – *L. burdoi* (Simon), female HT.

DIAGNOSTIC CHARACTERS. Total length 25–36 mm. Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Fig. 42). Dorsal surface of mesosoma with three conspicuous keels.

First and second metasomal segments with 10 keels, third and fourth segments with eight keels. Ventral surface of seventh mesosomal segment with four conspicuous keels. For position and distribution of trichobothria on pedipalps see Figs 58, 95, and 97. Position of trichobothrium db is variable, in one female (Mahé Island, ZMHB) between trichobothria et and est. Pectinal teeth number 14–18. Further characters include same length of metasoma in both sexes, blotched coloration, and smooth, glossy fifth metasomal segment and telson. Telson markedly prolonged (Kraepelin 1896: fig. 15). For habitus see Lourenço, 1996: fig. 160.

COMMENTS. *L. braueri* differs markedly from other species of *Lychas* in having three keels on the mesosoma, but all other characters place it quite unequivocally in this genus. I am convinced that the species does not reguire a subgenus of its own because its similarity in habitus with *L. burdoi* is close, although the latter has only one keel on the dorsal surface of the mesosoma.

DISTRIBUTION. Republic of Seychelles: Praslin Island (Kraepelin 1896: 124), Mahé Island (Hirst, 1913: 32).

Lychas buchari sp. n.

(Fig. 108, Tables 1–3)

TYPE LOCALITY. Australia; MNHN.

TYPE MATERIAL. **Australia**: Australia (locality not known), 1FA (holotype), collector not known, MNHN No. RS 4416.

ETYMOLOGY. Named after the Czech arachnologist Jan Buchar of the Charles University, Prague, who has done much for arachnology in the Czech Republic.

DESCRIPTION. The total length of the male holotype is 42.4 mm. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. Pectinal teeth number 26. For the position and distribution of trichobothria on the tibia of pedipalps see Fig. 108.

The base color is uniformly yellow to yellowish brown.

The carapace is without keels but bears large granules.

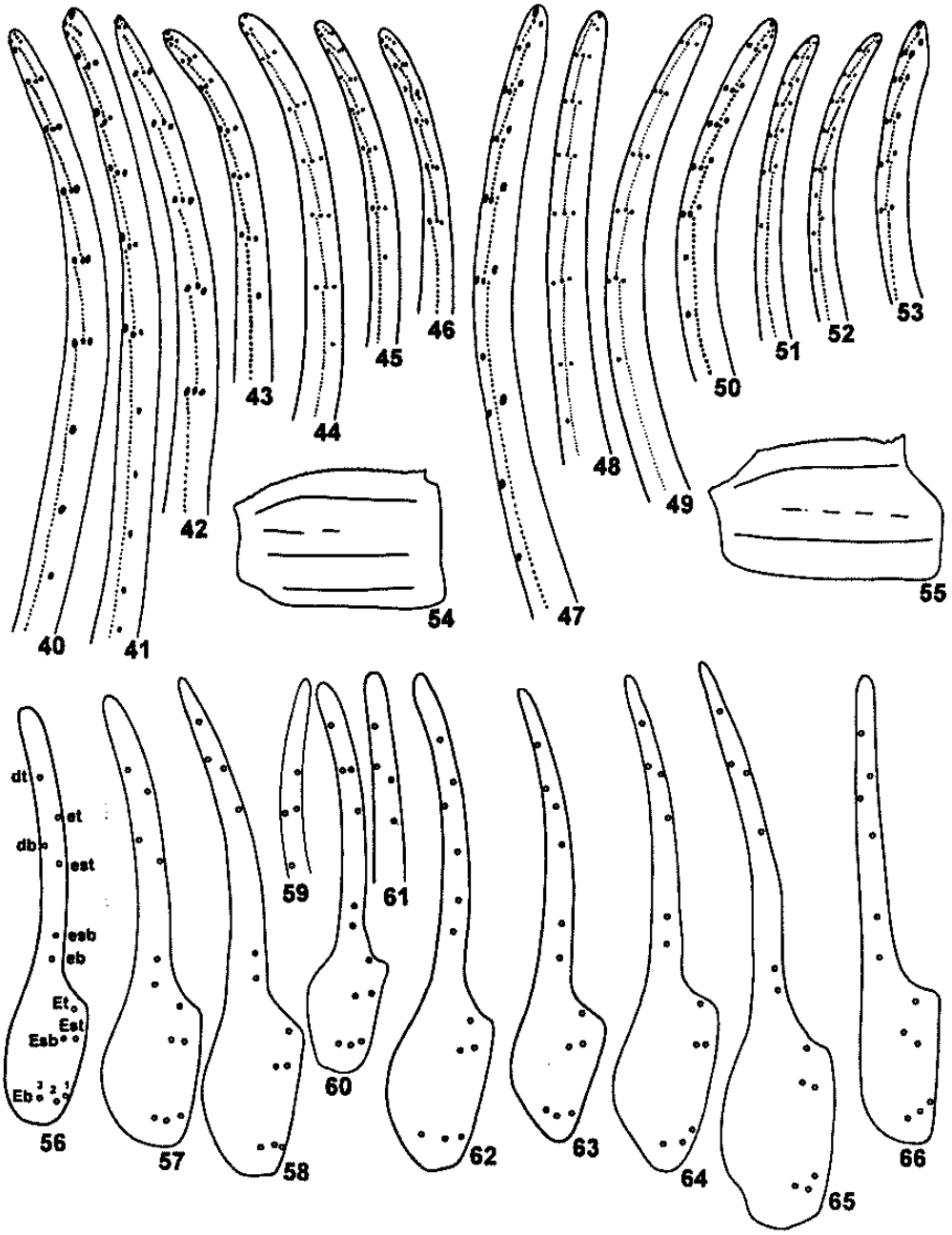
The femur, patella, manus, and fingers of pedipalps are dorsally and laterally uniformly yellow to yellowish brown. The manus of pedipalps has a lobe (Fig. 108). The fingers of pedipalps are not proximally twisted. The sixth cutting edges on the movable and fixed fingers of pedipalps each bear one external granule (Figs 9 and 28).

The mesosoma has an elevated median keel and large granules. The ventral surface of the seventh segment bears four conspicuous keels.

The legs have the same color pattern as the pedipalps.

The metasoma is dominantly yellowish brown, with the anterior parts of the second through fourth segments brown and the anterior three-quarters of the fifth segment black and its posterior quarter yellowish brown. The telson is yellowish brown with a black spot around the subaculear tooth. The first and second segments bear 10 keels; the third and fourth segments bear eight keels, with several granules on the third segment indicating two more keels. All keels on metasomal segments are composed of granules of approximately equal size. The subaculear tooth is terminally rounded, without granules.

AFFINITIES. The described features distinguish *L. buchari* sp. n. from all other species of the genus *Lychas*. They are recounted in the key below.



Figs 40–66. Figs 40–46 – movable finger of pedipalps. Figs 47–53 – fixed finger of pedipalps. Figs 54–55 – third segment of metasoma. Figs 56–66 – tibia of pedipalps. Figs 40, 64 – *Lychas hosei* (Pocock), female HT. Figs 41, 47 – *L. scutilus* C. L. Koch, male from FKCP. Figs 42, 58 – *L. braueri* (Kraepelin), female LT. Figs 43, 50 – *L. infuscatus* (Pocock), female from MNHN. Fig. 44 – *L. marmoreus* (C. L. Koch), female LT of *L. marmoreus splendens* Kraepelin. Figs 45, 51 – *L. shelfordi* (Borelli), female from FKCP. Figs 46, 53 – *L. tricarinatus* (Simon), female from SMFD. Fig. 48 – *L. perfidus* (Keyserling), female LT. Fig. 49 – *L. marmoreus* (C. L. Koch), female from BMNH. Figs 52, 62 – *L. flavimanus* (Thorell), male from FKCP. Figs 54, 57 – *L. asper* (Pocock), female LT of *L. asper obscurus* Kraepelin. Fig. 55 – *L. obsti* Kraepelin, female from FKCP. Fig. 56 – *L. asper* (Pocock), female from BMNH. Fig. 59 – *L. burdoi* (Simon), female HT. Fig. 60 – *L. burdoi* (Simon), female from FKCP. Fig. 61 – *L. burdoi* (Simon), female HT of *L. burdoi rhodesianus* Lawrence. Fig. 63 – *L. hillyardi* sp. n., male HT. Fig. 65 – *L. hosei* (Pocock), female LT of *L. tweediei* Kopstein. Fig. 66 – *L. krali* Kovařík, female HT.

L. buchari sp. n. is closest to *L. mucronatus*, from which it differs in having only one external granule at the sixth cutting edge on the movable finger of pedipalps. It differs from all other species of the genus *Lychas* in having the highest number of pectinal teeth (Table 3) and a lobe on the manus of pedipalps which is similar to that in some species of the genus *Uroplectes* Peters, 1861.

Table 2. Geographical distribution of *Lychas* species

	Angola	Australia	Cambodia	China	Congo Rep. CDR (Zaire)	India	Indonesia	Kenya	Laos	Malawi	Malaysia	Mauritius	Melanesia	Mozambique	Myanmar	Nepal	New Guinea	Philippines	R. S. A.	Seychelles	Somalia	Tanzania	Thailand	Vietnam	Zambia	Zimbabwe
L. albimanus	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. asper	+	–	–	–	+	+	–	–	–	–	–	–	–	+	–	–	–	–	–	–	+	+	–	–	+	–
L. biharensis	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. braueri	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–
L. buchari **sp. n.**	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. burdoi	–	–	–	–	+	–	–	+	–	+	–	–	–	+	–	–	–	–	+	–	–	+	–	–	+	+
L. farkasi **sp. n.**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–
L. feae	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–
L. flavimanus	–	–	–	–	–	–	+	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. gravelyi	–	–	–	–	–	?	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–
L. hendersoni	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. heurtaultae **sp. n.**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–
L. hillyardi **sp. n.**	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. hosei	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. infuscatus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–
L. kamshetensis	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. kharpadi	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. krali	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–
L. laevifrons	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–
L. lourencoi **sp. n.**	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. marmoreus	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–
L. mjobergi	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. mucronatus	–	–	+	+	–	–	+	+	–	+	–	+	–	–	–	+	–	–	+	–	–	–	–	+	+	–
L. nigristernis	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–
L. obsti	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	+	+	–	–	–	–
L. perfidus	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–
L. rackae **sp. n.**	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. rugosus	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. scaber	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. scutilus	–	–	–	–	–	–	–	+	–	–	–	+	–	–	–	+	–	–	–	–	–	–	–	+	–	–
L. serratus	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–
L. shelfordi	–	–	–	–	–	–	–	+	–	–	–	+	–	–	–	–	–	–	+	–	–	–	–	–	–	–
L. shoplandi	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–
L. tricarinatus	–	–	–	–	–	+	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. variatus	–	+	–	–	–	–	–	–	–	–	–	–	+	–	–	–	+	–	–	–	–	–	–	–	–	–

Lychas burdoi (Simon, 1882)
(Figs 3, 23, 59–61, Tables 1–3)

Isometrus burdoi Simon, 1882: 58; Karsch, 1885: 134; Pocock, 1891: 443.
Archisometrus burdoi: Kraepelin, 1891: 222; 1898: 3; Pocock, 1898: 309; 1898: 430; 1898: 500; Kraepelin, 1899: 48; 1901: 267; Strand, 1916: 55.
Lychas burdoi: Purcell, 1902: 173; Hirst, 1911: 4; Kraepelin, 1913: 174; Birula, 1915: 21; 1916: 57; Loveridge, 1925: 307; Werner, 1934: 271; Roewer, 1943: 210; 1952: 28; Geeraerts, 1953: 1065; Lawrence, 1964: 35; Probst, 1972: 6; 1973: 322; Lamoral & Reynders, 1975: 511; Newlands & Martindale, 1980: 69; Lourenço, 1983: 192; Vachon, 1986: 839; Kovařík, 1992: 183; Fitzpatrick, 1994: 23; Kovařík, 1995: 189.
Lychas burdai [sic]: Lönnberg, 1912: 2.
Lychas burdoi burdoi: Birula, 1915: 23.
? = *Lychas burdoi rugulosus* Birula, 1915: 23 nomen nudum.
? = *Lychas burdoi regulosus* Birula, 1916: 60 (TL: Britisch Ost-Afrika, Flusse Guaso-Nyiri); Lamoral & Reynders, 1975: 511; Kovařík, 1995: 189. **Syn. n.**
Lychas burdoi rhodesianus Lawrence, 1938: 290 (TL: South Rhodesia, Chirinda Forest, Silinda Mountain); 1955: 230; Lamoral & Reynders, 1975: 511; Kovařík, 1995: 189. **Syn. n.**

TYPE LOCALITY. Zanzibar; MNHN.

TYPE MATERIAL. **Tanzania**: Afr. Orient., Zanzibar, 1FA (holotype of *Lychas burdoi burdoi*), MNHN No. RS 1480. **Zimbabwe**: Chirinda Forest, Silinda Mountain, 1FA (holotype of *Lychas burdoi rhodesianus*), TMSA No. 8022.
OTHER MATERIAL. **Congo Democratic Republic**: D. O. Africa, Uvira, 1FA, leg. Grauer, ZMHB No. 10453; Uvira-Kivu, Dubois J. Th. (Irsac), 17.X.1957, 1FA, MNHN; Luiswishi, Kipushi, Upper Shaba, 1090 m above sea level, 10.X.1988, 1FA, leg. E. K. Kisimbo, MBCZ No. 496; Ehuirm, 1MA, MNHN No. RS 5040. **Malawi**: Br. Centr. Afr., Blantyre, 25.IX.1904, 2M3FA, leg. K. Fricke, ZMUH. **Mozambique**: 1927, 1FA, leg. Dr. David, NHMB No. 112a; Zambeze, De Chemba env., 1929, 1M1FA, leg. P. Lesne, MNHN No. RS 1484; 2FA, MNHN Nos RS 1458 and 1487. **Tanzania**: Zanzibar, 1M1FA, MNHN No. RS 1478; Kilimanjaro, 3FA, leg. Hoenel, MNHN No. RS 1481; O. Afrika, Tanga, 1FA, SMFD No. RII/6690; Korogwe a/Rufer, 22.IX.1888, 1FA, leg. Stuhlmann, ZMUH; Plantage Lewa, Usambara, 26.IX.1888, 2FA, leg. Stuhlmann, ZMUH; Bagamojo, II.1890, 1M2FA, ZMUH; Dar es Salam, 28.XII.1895, 1M2F1juv.A, leg. Möller, ZMUH; Nyassa, Muya, 1.–9.VI.1898, 1FA, leg. Fülleborn, ZMHB No. 7863; Nyassasee, 1F4juvsA (juvs before first ecdysis), ZMHB No. 8067; Zanguebar, Uruguru, III.1900, 1FA, leg. Leroy, Muséum Paris, ZMUH; D. O. Africa, Pori bei Maliwe Logish Kilva, 7.VI.1908, 1FA, leg. Fraum, ZMHB No. 10478; D. O. Africa, Pori bai, Kuimaburu, 12.VI.1908, 3M3F14juvsA (juvs before first ecdysis), ZMHB No. 10450; D. O. Africa, Morogoro, 7.VII.1909, 1MA, 18.IX.1909, 1M1FA, leg. Reuss, ZMHB Nos 10440 and 10434; D. O. Africa, Mikindani, 1910, 1M2F1juv.A, X.1910, 1FA, leg. Grote, ZMHB Nos 10429 and 10454; D. O. Africa, Moschi near Massai, XII.1911, 1FA, ZMHB No. 10439; Dar es Salam, 25.III.1911, 1M1FA, leg. Eichelbaum, ZMUH; D. O. Africa, Dar as Salam, 5.–6.I.1912, 1M5FA, ZMHB No. 10431; D. O. Africa, Dar as Salam, near Tuguberge, 1M5FA, leg. Heinrist, ZMHB No. 10430; D. O. Africa, Dar as Salam, 2FA, ZMHB No. 10458; D. O. Africa, Golugolo, 1.–9.XI.1912, 1FA, ZMHB No. 10438; D. O. Africa, Kilimandscharo, 3000–2500 m, II.1912, 1juv.A, leg. Schröder, ZMHB No. 10481; Kilimandscharo, 1912, 1FA, ZMHB; D. O. Africa, Mikindani, X.1916, 1M1FA, leg. Grote, ZMHB No. 10479; Kilimanjaro, Mrongu, Kuturland, 1500 m, 1929, 1FA, leg. O. Raum, ZMUH; D. O. Africa, Mlalo, 2M3FA (one male is immature), leg. Pastor K. Röhl, ZMHB No. 10432; D. O. Africa, Songea, 1M3FA, leg. Philipps, ZMHB No. 10452; D. O. Africa, Mpanda, St. glanning, 1FA, ZMHB No. 10470; Bagamoyo, 7.V.1957, 4FA, leg. Schweinitz, ZMHB No. 7557; Zanzibar, 1M2FA, leg. Fischer, ZMHB No. 4100; Mujiji, Hosemamn, 1FA, ZMHB No. 10472; Kasoje camp, 16.–29.VII.1959, 1M3FA, coll. I. A. C., 2nd O. U. Tanganyika Exp., MNHN; Pasagulu camp, 5.VIII.1959, 1MA, coll. R. H., 2nd O. U. Tanganyika Exp., MNHN No. 202; Kasage, 1FA, MNHN No. CO 51; Kasage, 22.VIII.1959, 1FA, MNHN No. CO 52; 1M1FE, det. 1990, NMPC; 2FE, det.1987, FKCP; Utete-Rufiji, Kindwiivi, 10.–14.XII.1993, 2M1FE, leg. M. Snížek, FKCP. **? Tanzania**: O. Afrika, 1FA, leg. Knippes, SMFD; 28.III.1897, 2M1FA, ZMHB No. 10451; D. Ostafrika, 10.VI.1898, 1FA, leg. Stierling, ZMUH; D. O. Africa, Langenburg, 17.IV.1898, 3FA, No. 10477, V.–X.1898, 2MA, No. 7865, V.–X.1898, 1juv.A, No. 10446, V.–X.1898, 1juv.A, No. 10496, 21.X.1898, 1M3FA, No. 7862, 23.XII.1898, 1M3FA, No. 10459, 1898, 1FA, No. 10475, III.–IV.1899, 1FA, No. 10474, 25.VIII.1899, 1MA, No. 10443, XII.1899, 1FA, No. 10480, 1899, 1FA, No. 7864, 1899, 1MA, No. 10447, 1899, 1FA, No. 10448, leg. Fülleborn, ZMHB; D. O. Africa, 12.VI.1898, 3M1FA, leg. Froncen, ZMHB No. 10457; D. O. Africa, Sangara, 4.III.1907, 1FA, leg. Förster, ZMHB No. 10437; D. O. Africa, Lidenge, 8.VII.1908, 1FA, leg. Framen, ZMHB No. 10473; D. O. Africa, Tendaguru, VI.1912, 1juv.A, leg. Reck, ZMHB No. 10442; D. O. Africa, Kapions am Malamou Bez Kilma, 1juv.A, ZMHB No. 10497; D. O. Africa, Bezirksnebeustelle Kibata, 1FA, leg. Gouvermement, ZMHB No. 10436; D. O. Africa, Mahenge-Bezirk, 2M4FA, ZMHB No. 10433; D. O. Africa, 4M5F1juv.A, leg. Regner, ZMHB No. 10449; D. O. Africa, 1FA, leg. Beangel, ZMHB No. 10444; D. O. Africa, 1FA, leg. Dempwolff, ZMHB No. 10441; D. O. Africa, Vossalor, 1FA, ZMHB No. 10455; O. Afrika, 1MA, leg. Tiesler,

ZMHB No. 10495; O. Afrika, 1FA, leg. Götze, ZMHB No. 10476; Neu Uelgolano, 1899, 2FA, ZMHB No. 10456; Langubs, 1899, 1FA, leg. Fülleborn, ZMHB No. 10445; Station Morobe, 1F15juvsA (before first ecdysis), ZMHB No. 10435; Volkeno, 1FA, ZMHB No. 7634; 1FA, ZMHB No. 10460; 1juv.A, ZMHB No. 10471; Afrika, 2FA, ZMHB No. 7009; Ost Africa, Tundunu, 2.X.1926, 1MA, leg. Brandes, ZMHB No. 2610/27. **Zambia**: N. W. Rhodesia, Broken Hill, 20.IV.1911, 1FA, leg. P. Timm, ZMUH.?: 1MA, MNHN No. RS 1485.

DIAGNOSTIC CHARACTERS. Total length 25–40 mm, males usually smaller than females. Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Figs 3 and 23). First metasomal segment has 10 keels, second segment may have eight but also 10 keels, and third and fourth segments have eight keels. Lower surface of seventh segment without keels. For position and distribution of trichobothria on tibia of pedipalps see Figs 59–61. Position of trichobothrium db is variable (Figs 59–61). Habitus is shown in Fig. 1. Pectinal teeth number 13–18.

COMMENTS. The holotype of *L. burdoi burdoi* lacks the entire right pedipalp. Simon (1882) did not clearly mark the type, and the possibility that his description is based on another specimen thus cannot be excluded. Simon (1882: 58–59) gave a total length of 25 mm and 16–18 pectinal teeth. The holotype examined by me has a total length of 32.5 mm and 15–16 pectinal teeth (Table 1).

The long preservation in alcohol obliterated the color of the holotype. In live specimens the legs and the femur of pedipalps are spotted, the patella is mostly dark, and the manus is light in comparison with the reddish-brown fingers, telson, and much of the fifth segment of the metasoma.

Upon examination of the holotype of *L. burdoi rhodesianus* (total length 35.7 mm) I conclude that it does not differ from the nominotypical subspecies *L. burdoi burdoi*. It is a female which Lawrence (1938) mistook for a male.

The holotype of *L. burdoi regulosus* is said to be deposited at the Zoological Institute of Russian Academy of Sciences, St. Petersburg, but cannot be located and may have been permanently lost. Since Birula's description (1916) does not contain truly diagnostic characters and the available literature does not mention any other specimens, I believe this subspecies to be most likely invalid.

DISTRIBUTION. Congo Democratic Republic (former Zaire) (Roewer 1952: 28), Kenya (Pocock 1891: 445), Malawi (Pocock 1898: 430), Mozambique (Birula 1916: 51), Republic of South Africa (Lawrence 1964: 35), Tanzania (Simon 1882: 58), Zambia (Hirst 1911: 4), and Zimbabwe (Lawrence 1938: 290).

Lychas farkasi sp. n.
(Fig. 122, Tables 1–3)

TYPE LOCALITY. Nepal, Kotzoli; MNHN.

TYPE MATERIAL. **Nepal**: Kotzoli, 25.XII.1966, 1MA (holotype), leg. M. Hubert, MNHN No. RS 8225.

ETYMOLOGY. Named after Balázs Farkas of the Hungarian Natural History Museum, Budapest, Hungary.

DESCRIPTION. The total length is 41.4 mm in the male holotype. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. Pectinal teeth number 25. For the position and distribution of trichobothria on the tibia of pedipalps see Fig. 122.

The base color is uniformly yellow to yellowish brown (long preservation in alcohol).

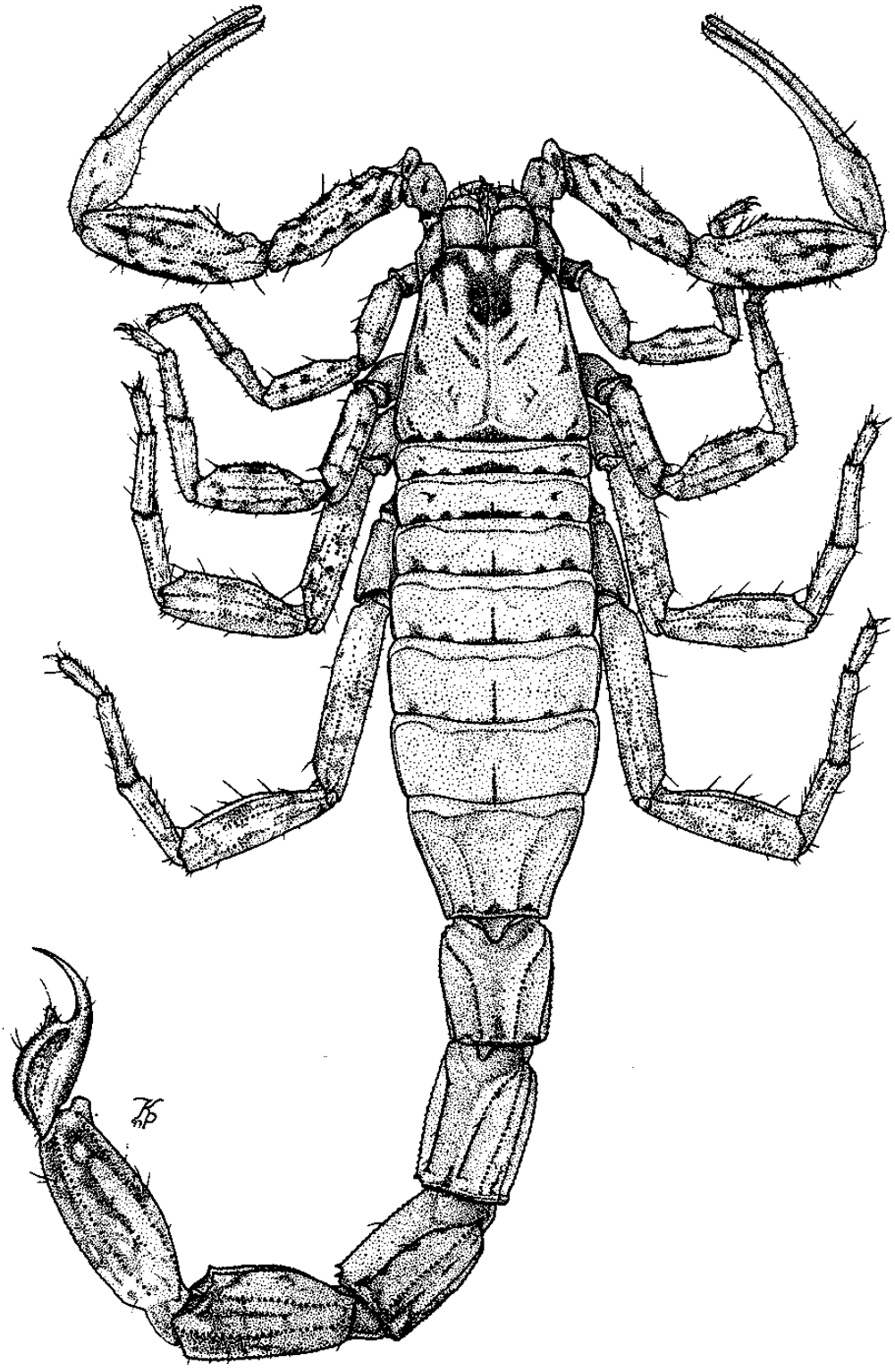


Fig. 67 – *Lychas hillyardi* sp. n., male HT. Dorsal aspect.

The carapace and manus of pedipalps are without keels but with numerous large granules. The sixth cutting edges on the movable fingers of pedipalps lack external and internal granules (Fig. 17). Fingers of pedipalps are proximally some what twisted (Fig. 122).

The mesosoma bears three median keels and large granules. The lower surface of the seventh segment bears four keels and large granules.

Tibial spurs on the third and fourth legs are markedly long.

The metasoma bears large granules. The first through third metasomal segments bear 10 keels, and the fourth segment bears eight keels. The subaculear tooth is pronounced, with granules.

AFFINITIES. The described features distinguish *L. farkasi* sp. n. from all other species of the genus *Lychas*. They are recounted in the key below.

L. farkasi sp. n. differs from *L. feae* (Myanmar, not included in the key) in the color of the manus of pedipalps, carapace, terga, and legs, which are black in *L. feae* (Pocock 1900: 42).

L. farkasi sp. n. is close to *L. tricarinatus*, from which it differs in having the manus of pedipalps granulated.

Lychas feae (Thorell, 1889)
(Tables 2–3)

Isometrus feae Thorell, 1889: 569.
Isometrus feoe [sic]: Pocock, 1893: 296.
Archisometrus feae: Kraepelin, 1895: 85; 1899: 51.
Lychas feae: Pocock, 1900: 42; Kraepelin, 1913: 133; Takashima, 1945: 83; L. E. Koch, 1977: 124; Vachon, 1982: 86; 1986: 839; Kovařík, 1995: 189.

TYPE LOCALITY. Shwegoo; MCSN.

DIAGNOSTIC CHARACTERS. Total length 26 mm in holotype (female, possibly immature) (Thorell 1889: 570). Sixth cutting edge on movable finger of pedipalps without external and internal granules (Kraepelin 1913: 133). First through third metasomal segments with 10 keels, but two keels on third segment weakly developed (Thorell 1889: 569 and 571). Pectinal teeth number 17–20 (Thorell 1889: 570), but Kraepelin counted 20–23 (Kraepelin 1913: 133). Fingers of tibia of pedipalps are light-colored and manus of tibia is dark (Thorell 1889: 573).

COMMENTS. The species is based on a female (possibly immature) obtained by Mr. Fea (Thorell 1889: 573). Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.

Examination of the holotypes is needed, because it is possible that *L. feae* is a synonym of *L. shoplandi* (Oates, 1888). Kraepelin (1913:133) differentiated these two species by the number of keels on mesosomal segments, with *L. shoplandi* having three keels and *L. feae* having only one keel. I examined the type specimens of *L. shoplandi* from Myanmar and designated a lectotype. *L. shoplandi* has mesosomal segments with only one dorsal keel.

Unfortunately, the MCSN holotype of *L. feae* has not yet been found. Because of insufficient published data, I am unable to include this species in the key below.

DISTRIBUTION. Myanmar (Thorell 1889: 573).

Lychas flavimanus (Thorell, 1888)
(Figs 52, 62, Tables 1–3)

Isometrus flavimanus Thorell, 1888: 409; Pocock, 1894: 87.
Archisometrus flavimanus: Kraepelin, 1891: 222; 1895: 85; 1899: 45 (in part).

Lychas flavimanus: Kopstein, 1921: 122; 1923: 186; Banks, 1928: 505; Giltay, 1931: 18; Kopstein, 1937: 176; Takashima, 1945: 78; L. E. Koch, 1977: 124; Vachon & Lourenço, 1985: 9; Vachon, 1986: 839; Kovařík, 1995: 189.

TYPE LOCALITY. Sumatra, Aer Mancior; MCSN.

TYPE MATERIAL. **Indonesia**: Sumatra, Ajer Mant eior, 1878, 1MA (holotype), leg. O. Beccari, MCSN.
OTHER MATERIAL. **Indonesia**: Sumatra, Padang, 5.XII.1899, 1FA, ZMUH; Sumatra, V.1980, 1MA (im), FKCP.

DIAGNOSTIC CHARACTERS. Total length 33 mm in an immature male holotype and 42 mm in an adult female (Pocock 1894: 87). Sixth cutting edge on movable finger of pedipalps with three external granules (Fig. 40 and Pocock 1894: pl. 6, fig. 2a). Fixed finger with three external granules and one internal granule (Fig. 52). First metasomal segment with 10 keels, second through fourth segments with eight keels. For position and distribution of trichobothria on tibia (Fig. 62), patella, and femur of pedipalps see Vachon 1986: 846, figs 15–21. Pectinal teeth number 15–19.

Mesosoma, femur, and patella of pedipalps and legs are dark brown. Tibia and tarsomeres of legs, telson, and manus of pedipalps are pale yellow. Fingers of pedipalps are dark brown to black. Segments of metasoma are anteriorly brown and posteriorly dark brown. Legs may be variegated. For habitus of male see Pocock, 1897: pl. 6, fig. 2.

COMMENTS. The species is based on an examined immature male with 19 pectinal teeth. Pocock (1894: 87) included three specimens (two adult females and one juvenile) from Sinkarah, Sumatra, with 15–17 pectinal teeth. Kraepelin (1899: 45) concluded that this species has 15–21 pectinal teeth, but at the same time incorrectly placed *L. hosei* in its synonymy.

DISTRIBUTION. Indonesia: Sumatra (Thorell 1888: 412), Borneo (Kopstein 1921: 122), and Malaysia: Sarawak (Banks 1928: 505).

Lychas gravelyi Henderson, 1913
(Tables 2–3)

Lychas gravelyi Henderson, 1913: 129; Takashima, 1945: 84; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (Distotrichus) gravelyi: Tikader & Bastawade, 1983: 48; Bastawade, 1986: 637.
Lychas rugosus: Kraepelin, 1913: 133 (in part).

TYPE LOCALITY. Tenasserim, Moulmein; NZSI.

DIAGNOSTIC CHARACTERS. Total length of female holotype 34 mm (Henderson 1913: 130). Sixth cutting edge on movable finger of pedipalps with one external granule (Tikader & Bastawade 1983: 49, fig. 119). First and second metasomal segments with 10 keels, third and fourth segments with eight keels (Henderson 1913: 129; Kraepelin 1913: 133). For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Tikader & Bastawade 1983: 51, figs 125–129. Pectinal teeth number 12–13 (Henderson 1913: 130; Tikader & Bastawade 1983: 50). Color pattern spotted. Patella and femur of pedipalps predominantly dark, with but a few light spots. Fingers of tibia of pedipalps dark and manus of tibia light (Henderson 1913: 130, fig. 3). Tibial spurs short (Henderson 1913: 129).

COMMENTS. The species is based on a single female obtained by F. H. Gravely (Henderson 1913: 129). Kraepelin (1913: 133) believed *L. gravelyi* to be a synonym of *L. rugosus*. Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.

DISTRIBUTION. Myanmar (Henderson, 1913: 129). Tikader & Bastawade (1983: 53) thought that this species might occur also in India.

Lychas hendersoni (Pocock, 1897)

(Fig. 116, Tables 1–3)

Archisometrus hendersoni Pocock, 1897: 111; Kraepelin, 1899: 51.
Lychas hendersoni: Pocock, 1900: 40; Kraepelin, 1913: 133; Henderson, 1919: 380; Takashima, 1945: 84; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (Alterotrichus) hendersoni: Tikader & Bastawade, 1983: 66; Bastawade, 1986: 637.

TYPE LOCALITY. India, Yercaud in the Sheveroy Hills; BMNH.

TYPE MATERIAL. **India**: Yercaud in the Sheveroy Hills, 1894, 1FA (holotype), leg. J. R. Henderson, BMNH No. 1894.10.24.38–41.

DIAGNOSTIC CHARACTERS. Total length of female holotype 34 mm (Pocock 1897: 112). Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Figs 8, 27, and Tikader & Bastawade 1983: 67, 70, figs 174 and 184). First through third metasomal segments with 10 keels. For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Fig. 116 and Tikader & Bastawade 1983: 70, figs 179–184. Pectinal teeth number 17–18. Color uniform. Pedipalps entirely yellow to yellowish brown (Pocock 1897: 111; Tikader & Bastawade 1983: 67, figs 170 and 174). For habitus see Tikader & Bastawade 1983: 67, fig. 170.
COMMENTS. The species is based on a single female obtained by J. R. Henderson (Pocock 1897: 112). According to Pocock the color is variegated, but due to long preservation in alcohol it is now reddish brown.
DISTRIBUTION. India (Pocock 1897: 112).

Lychas heurtaultae sp. n.

(Fig. 123, Tables 1–3)

TYPE LOCALITY. Nepal, Kabre Kirantichap, Charanga-Khola, Zarangje-Khola; MNHN.

TYPE MATERIAL. **Nepal**: Kabre Kirantichap, Charanga-Khola, Zarangje-Khola, 1000 – 1160 m, 19.VI.1956, 1MA (holotype) 1FA (allotype), leg. H. Janetscher, Nos RS 8226 and 8229. Holotype in MNHN, allotype in NMPC.

ETYMOLOGY. Named after the French arachnologist Jacqueline Heurtault, curator at the Muséum national d'Histoire naturelle, Paris, France.
DESCRIPTION. The total length is 37.1 mm in the male holotype and 41.4 mm in the female allotype. The habitus is shown in Fig. 123. The male differs from female in having longer and narrower metasomal segments. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. Pectinal teeth number 23–24 in the male and 21 in the female. For the position and distribution of trichobothria on the tibia of pedipalps see Fig. 85.

The base color is dark brown, with yellow spots.

The chelicera is reticulated.

The carapace is without keels but with large granules. The triangle between median eyes and anterior margin of carapace is glossy and smooth (female) or tuberculate, without granules which cover other areas of carapace (male).

The patella and tibia of pedipalps are dark brown, dorsally and laterally with sparse yellow spots. The ventral surface of the patella of pedipalps is yellow, without spots. The fingers are yellow or yellowish brown. The femur of pedipalps is black in the male and yellow with sparse minute dark brown spots in the female. The sixth cutting edges on the movable fingers of pedipalps lack external and internal granules (Fig. 17).

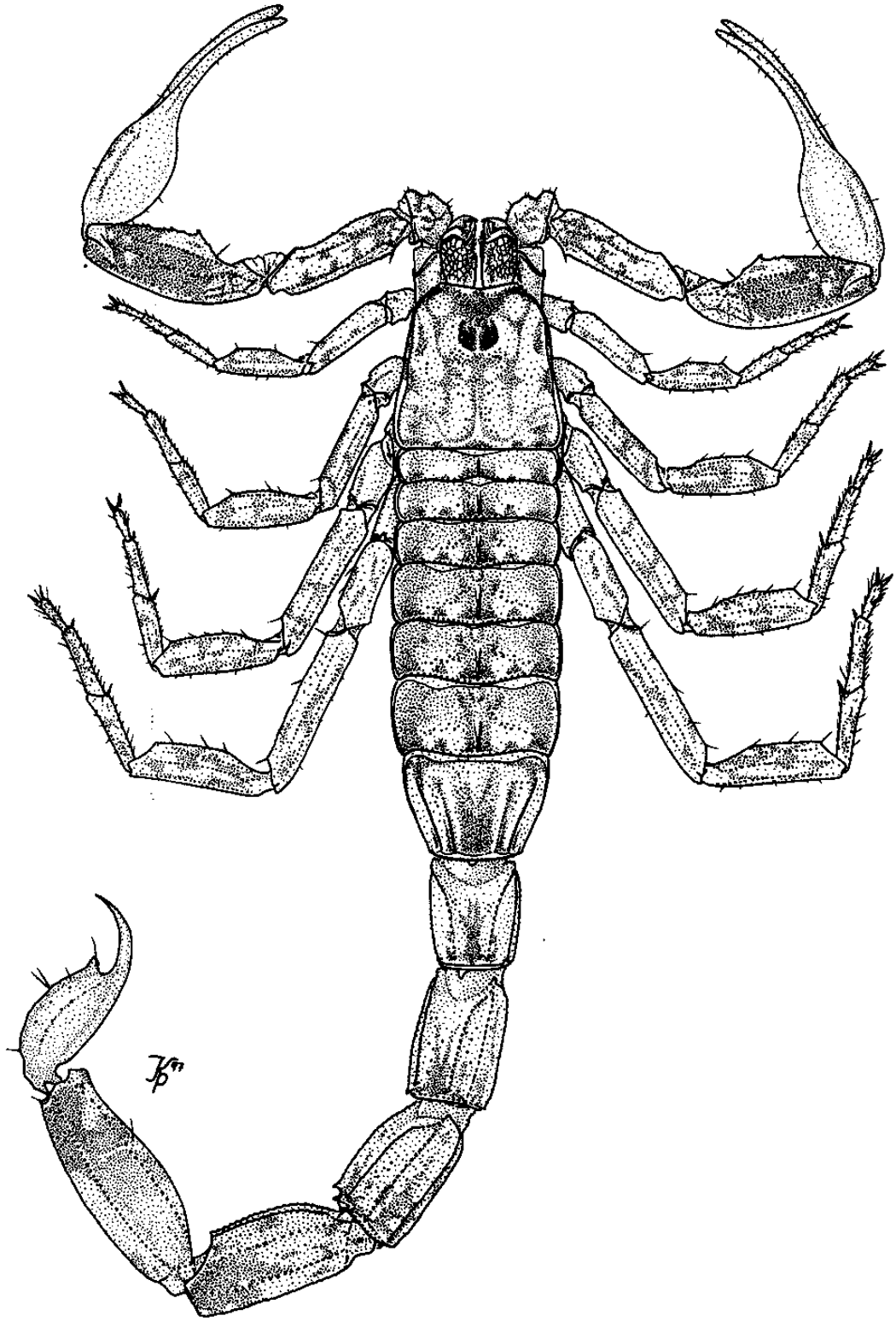


Fig. 68 – *Lychas rackae* sp. n., male HT. Dorsal aspect.

The mesosoma is dark brown with sparse yellow spots, and bears one pronounced median keel and large granules. The lower surface of the seventh segment bears four keels.

The legs have the same color pattern as the patella of pedipalps. Tibial spurs on the third and fourth legs are markedly long.

The metasoma is dark brown, with sparse yellowish brown spots. There are 10 keels on the first and second segments and eight keels on the third and fourth segments. The subaculear tooth is pronounced, pointed, with one row composed of two granules in the upper midline.

AFFINITIES. The described features distinguish *L. heurtaultae* sp. n. from all other species of the genus *Lychas*. They are recounted in the key below.

L. heurtaultae sp. n. differs from *L. feae* (Myanmar, not included in the key) in having eight keels on the third metasomal segment. *L. feae* has 10 keels on the third metasomal segment (Thorell 1889: 569).

L. heurtaultae sp. n. is close to *L. laevifrons* and *L. shoplandi*, but the former has yellow manus and patella of pedipalps, and the latter has 10 keels on the third metasomal segment.

Lychas hillyardi sp. n.
(Figs 4, 24, 63, 67, Tables 1–3)

TYPE LOCALITY. India, Kashmir, Kistwar; FKCP.

TYPE MATERIAL. **India**: Kashmir, Kistwar, 24.VII.1992, 1ME (holotype), FKCP.

ETYMOLOGY. Named after Paul D. Hillyard, curator at the British Museum (Natural History), London, in appreciation of his kind help.

DESCRIPTION. The total length of the male holotype is 28.1 mm. The habitus is shown in Fig. 67. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. There are 16–17 pectinal teeth in the holotype. For the position and distribution of trichobothria on the tibia of the pedipalps see Fig. 63.

The base color is yellow, with brown spots.

The chelicera is reticulated in the front only.

The carapace is without keels but with large granules. It is more intensely yellow, with small and sparse black spots. There is a black spot around the median eyes.

The femur, patella, and manus of the pedipalps are dorsally and laterally yellow with brown spots. The ventral surfaces of femur, patella, and tibia of pedipalps are yellow without spots. The fingers are yellow. The sixth cutting edges on the movable and fixed fingers of pedipalps bear one external granule each (Figs 4 and 24).

The mesosoma bears one median keel and is yellow, with a row of five or six black spots on the posterior margins of the tergites. The lower surface of the seventh segment bears two keels and is smooth, without any granules.

The legs have the same color and patterns as the femur, patella, and tibia of pedipalps.

The metasoma is also spotted. The first through third segments bear but a few black spots, on the fourth segment black spotting increases toward the posterior margin, and on the fifth segment (except for the anterior margin) and on the entire telson black color dominates. The first segment bears 10 keels, the second through fourth segments bear eight keels. The dorsal keels on the metasoma terminate in a conspicuous tooth that is especially pronounced on the second and third segments. The subaculear tooth is pronounced and pointed, with one row composed of two granules in the upper midline.

AFFINITIES. The described features distinguish *L. hillyardi* sp. n. from all other species of the genus. They are recounted in the key below.

L. hillyardi sp. n. differs from *L. feae* (Myanmar, not included in the key) in the color of the manus of pedipalps, carapace, terga, and legs, which are black in *L. feae* (Pocock 1900: 42).

Lychas hosei (Pocock, 1891)

(Figs 40, 64, 65, 92, Tables 1–3)

Isometrus hosei Pocock, 1891: 436; 1894: 87.
Archisometrus hosei: Kraepelin, 1895: 85.
Lychas hosei: Vachon & Lourenço, 1985: 9; Vachon, 1986: 839; Kovařík, 1994: 197; 1995: 189.
Archisometrus flavimanus: Kraepelin, 1899: 45 (in part).
Lychas tweediei Kopstein, 1937: 175 (TL: Malay Peninsula, Pahang near Bentong, Bukit Chintamani); Takashima, 1945: 79; Vachon, 1986: 839; L. E. Koch, 1977: 124; Kovařík, 1995: 190. **Syn. n.**

TYPE LOCALITY. Baram in Borneo; BMNH.

TYPE MATERIAL. **Malaysia**: Sarawak, Baram, 1FA (holotype), leg. Ch. Hose, BMNH No. 1891.3.30.20; Pahang, Caya in Chintamani Hill near Bentong, VIII. 1935, 1FA (lectotype of *Lychas tweediei*), BMNH.
OTHER MATERIAL. **Malaysia**: Malacca, I.–III.1909, 1FA, leg. Jachan (labeled: "*Lychas nigrimanus*"), rev. M. Vachon 1981–82 No. VA 2618, ZMHB No. 11350; Sarawak, Niah Greath Cave, 22.V.1978, 1F3juvsA, leg. P. Chapman, MNHN No. RS 8491; Sarawak, Water polo Cave, Gunang Api, 18.12.1980, 1FA, leg. P. Chapman, MNHN No. RS 8175; 2FA, FKCP.

DIAGNOSTIC CHARACTERS. Total length 62–69 mm (known only for females). Sixth cutting edges on movable and fixed fingers of pedipalps with three external granules and one or no internal granule each (Figs 31 and 40). First metasomal segment bears 10 keels, second through fourth segments bear eight keels. For position and distribution of trichobothria on tibia and patella of pedipalps see Figs 64, 65, and 92. Subaculear tooth is pointed, with two conspicuous medial granules. Color is uniform black, only tibia of pedipalps and telson are yellow and tibia and tarsomeres of legs are yellowish brown. This color pattern is apparent in immature specimens as well. Pectinal teeth number 18–24. For habitus see Pocock 1891: pl. 2, fig. 2.

COMMENTS. The species is based on a single specimen (Pocock 1891: 437). Kraepelin (1899) regarded *L. hosei* as a synonym of *L. flavimanus*, but Vachon & Lourenço (1985: 10) studied both holotypes and declared *L. hosei* a separate species. Pocock (1894: 87) distinguished *L. hosei* from *L. flavimanus* also on the four ventral keels of the seventh mesosomal segment, which according to him are conspicuous in *L. hosei* and nearly obsolete in *L. flavimanus*; however, examined specimens of both species show this character to be variable. I consider the position of trichobothrium db (Figs 62 and 64) and number of pectinal teeth (Table 3) the best characters for differentiating between these two species.

I have examined and designated the lectotype of *L. tweediei* (Fig. 65), and am certain that it is a synonym of *L. hosei*. Kopstein (1937: 176) distinguished *L. tweediei* on color only from *L. flavimanus*, presumably because data published by Kraepelin convinced him that *L. hosei* is not a valid species.

DISTRIBUTION. Malaysia: Sarawak (Pocock 1891: 437), Malay Peninsula (Kopstein 1937: 175).

Table 3. Number of pectinal teeth in *Lychas* species.
Explanatory notes: M – male, F – female, J – juvenile (includes only juves whose sex cannot be determined), x – number of pectinal teeth given by other authors, not from specimens examined in this study. Each pecten is consedered a unit. Where both pectens are complete, they are counted twice. In contrast, pectens which are obviously abnormal or incomplete are not included. Ommitted is *L. serratus* from Mauritius, in which the number of pectinal teeth is not known

		number teeth in pecten																			number of
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	specimens
L. albimanus		–	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–
L. asper	M	–	–	–	–	–	1	10	18	11	7	6	–	–	–	–	–	–	–	–	28
	F	–	–	–	–	2	18	74	38	15	17	1	2	–	–	–	–	–	–	–	86
	J	–	–	–	–	–	1	2	2	1	–	–	–	–	–	–	–	–	–	–	3
L. biharensis		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–
L. braueri	M	–	–	–	–	–	–	–	–	2	2	–	–	–	–	–	–	–	–	–	2
	F	–	–	–	–	–	–	2	1	2	3	–	–	–	–	–	–	–	–	–	4
	J	–	–	–	–	–	–	2	7	9	7	1	–	–	–	–	–	–	–	–	13
L. bucheri sp. n.	M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	1
L. burdoi	M	–	–	–	–	–	–	2	23	39	28	1	–	–	–	–	–	–	–	–	47
	F	–	–	–	–	–	1	32	77	89	25	2	–	–	–	–	–	–	–	–	118
	J	–	–	–	–	–	–	–	3	8	2	–	–	–	–	–	–	–	–	–	7
L. farkasi sp. n.	M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	1
L. fesae		–	–	–	–	–	–	–	–	–	x	x	x	x	?	?	?	–	–	–	–
L. flavimanus	M	–	–	–	–	–	–	–	1	1	x	–	2	–	–	–	–	–	–	–	2
	F	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	1
L. gravelyi		–	–	–	–	x	x	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L. hendersoni	F	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	1
L. heurtaultae sp. n.	M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	1
	F	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1
L. hillyardi sp. n.	M	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	1
L. hosei	M	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	1	–	–	2
	F	–	–	–	–	–	–	–	–	–	–	2	3	4	2	2	3	–	–	–	8
L. infuscatus	F	1	1	4	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5
L. kamshetensis		–	–	–	–	–	–	–	–	–	–	–	–	x	–	–	–	–	–	–	–
L. kharpadi		–	–	–	–	–	–	–	–	–	x	x	–	–	–	–	–	–	–	–	–
L. krali	M	–	–	–	–	–	–	–	1	–	1	1	2	–	–	–	–	–	–	–	3
	F	–	–	–	–	–	–	–	3	10	13	6	2	–	–	–	–	–	–	–	17
L. laevifrons	F	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7	20	8	1	–	18
L. lourencoi sp. n.	F	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
L. marmoreus	M	–	–	–	–	–	–	x	10	17	6	2	x	x	x	x	–	–	–	–	18
	F	–	–	–	–	5	15	17	15	5	x	x	–	–	–	–	–	–	–	–	30
	J	–	–	–	–	–	1	2	2	3	–	–	–	–	–	–	–	–	–	–	4
L. mjobergi	F	–	–	–	–	–	–	–	–	–	–	–	–	–	2	x	–	–	–	–	1
L. mucronatus	M	–	–	–	–	–	–	–	–	–	–	3	6	30	75	95	23	13	–	2	133
	F	–	–	–	–	–	–	–	–	3	3	15	82	187	178	74	14	3	1	–	295
	J	–	–	–	–	–	–	–	–	–	–	2	15	21	31	20	6	2	–	–	52
L. nigristernis	M	–	–	–	–	–	–	–	1	4	–	–	–	–	–	–	–	–	–	–	3
	F	–	–	–	–	–	–	2	11	13	9	–	–	–	–	–	–	–	–	–	18
	J	–	–	–	–	–	–	1	1	3	4	1	–	–	–	–	–	–	–	–	5
L. obsti	M	–	–	–	–	–	–	–	–	–	2	6	–	–	–	–	–	–	–	–	4
	F	–	–	–	–	–	–	–	–	3	6	5	7	2	–	–	–	–	–	–	12
	J	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	1
L. perfidus	M	–	–	–	1	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
	F	–	–	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
L. reckae sp. n.	M	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	1
L. rugosus	M	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
L. scaber	M	–	–	–	–	–	–	–	–	–	–	1	2	1	–	–	–	–	–	–	2
	F	–	–	–	–	–	–	–	–	–	x	1	1	–	–	–	–	–	–	–	1
L. scutilus	M	–	–	–	–	–	–	–	–	2	5	21	16	4	–	–	–	–	–	–	24
	F	–	–	–	–	–	–	–	6	20	28	10	3	–	–	–	–	–	–	–	36
	J	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	2
L. shelfordi	M	–	–	–	2	9	3	4	–	–	–	–	–	–	–	–	–	–	–	–	9
	F	–	–	1	4	14	5	–	–	–	–	–	–	–	–	–	–	–	–	–	12
	J	–	–	–	3	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
L. shoplandi	F	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	x	x	–	1
	J	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	3				4
L. tricarinatus	M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	1
	F	–	–	–	–	–	–	–	–	–	–	–	–	4	6	9	11	9	4	1	22
L. variatus	M	–	–	–	–	x	1	3	2	1	1	2	x	x	1	1	x	x	–	–	6
	F	–	–	2	6	8	6	7	1	3	4	2	5	1	x	x	x	x	–	–	23
	J	–	–	–	1	2	5	2	1	3	–	–	–	–	–	–	–	–	–	–	7

Lychas infuscatus (Pocock, 1891)
(Figs 43, 50, 69, 103, Tables 1–3)

Isometrus infuscatus Pocock, 1891: 438.
Archisometrus infuscatus: Kraepelin, 1895: 85; 1899: 47; 1901: 268.
Lychas infuscatus: Takashima, 1945: 80; L. E. Koch, 1977: 124; Vachon, 1986: 839; Kovařík, 1995: 189.
? *Archisometrus* cf. *asper*: Kraepelin, 1901: 268.

TYPE LOCALITY. Philippine Islands; BMNH

MATERIAL. **Philippines**: Manila, 2FA, MNHN No. RS 1443 and 1490; Manila env., III.1979, 2FA, leg. P. Dorsak, FKCP; 1FA, ZMUH No. EK 3954.

DIAGNOSTIC CHARACTERS. Total length 32.8–36.5 mm. Sixth cutting edge on movable fingers of pedipalps with one external granule (Fig. 43) and on fixed fingers with two external granules and one or no internal granule (Fig. 50). First and second metasomal segments bear 10 keels, third through fourth segments bear eight keels. Ventral surface of seventh segment with four keels. For position and distribution of trichobothria on tibia of pedipalps see Fig. 69. Subaculear tooth with two conspicuous medial granules. Pectinal teeth number 8–12. Legs, metasoma, and pedipalps uniformly spotted.
COMMENTS. The species is based on a single female preserved dry in the collection of Mr. Ciming (BMNH) (Pocock 1891: 439). *L. infuscatus* is very similar to *L. perfidus*, the chief difference being the size of the subaculear tooth (see Figs 103 and 104). The two species also differ in the position of trichobothrium db on the fixed fingers of pedipalps (Figs 69 and 78) and in geographic distribution. However, the position of trichobothrium db could be variable, similarly to other species (e. g. *L. mucronatus*, *L. variatus*).
DISTRIBUTION. Philippines (Pocock 1891: 439).

Lychas kamshetensis Tikader & Bastawade, 1983
(Tables 2–3)

Lychas (*Endotrichus*) *kamshetensis* Tikader & Bastawade, 1983: 102.
Lychas kamshetensis: Kovařík, 1995: 189.

TYPE LOCALITY. India, Maharashtra, Poona, Kamshet; NZSI.
DIAGNOSTIC CHARACTERS. Total length of female holotype 27.75 mm (Tikader & Bastawade 1983: 104). Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Tikader & Bastawade 1983: 103, 105, figs 275 and 285). First through third metasomal segments with 10 keels, but two lateral keels on second and third segments only sparsely crenulated (Tikader & Bastawade 1983: 106). For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Tikader & Bastawade 1983: 105, figs 281–285. Pectinal teeth number 20 (Tikader & Bastawade 1983: 106). Fingers of tibia of pedipalps darker than manus of tibia (Tikader & Bastawade 1983: 103, fig. 274). For habitus see Tikader & Bastawade 1983: 103, fig. 271.
COMMENTS. The species is based on a female obtained by B. S. Lamba on 15 July 1966 (Tikader & Bastawade 1983: 107).

Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.
DISTRIBUTION. India (Tikader & Bastawade 1983: 107).

Lychas kharpadi Bastawade, 1986
(Tables 2–3)

Lychas (*Alterotrichus*) *kharpadi* Bastawade, 1986: 634.
Lychas kharpadi: Kovařík, 1995: 189.

TYPE LOCALITY. India, Maharashtra, Nasik district, Taluk Peinth, Harsul, Near Kharpadi village; NZSI.

DIAGNOSTIC CHARACTERS. Total length of male holotype 38.75 mm and of female allotype 45.25 mm (Bastawade 1986: 634). Sixth cutting edge on movable fingers of pedipalps with two external granules (Bastawade 1986: 635, 637, fig. 2). First and second metasomal segments with eight keels, third and fourth segments with six keels; all keels crenulated and lateral keels developed only on anterior half of third metasomal segment (Bastawade 1986: 637). For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Bastawade 1986: 636, figs 9 and 13. Pectinal teeth number 17 in male and 18 in female (types). For habitus of male see Bastawade 1986: 635, fig. 19.

COMMENTS. The species is based on two specimens (holotype male and allotype female) obtained by D. B. Bastawade on 4 February 1983 (Bastawade 1986: 637).

Bastawade's (1986: 637) observation that this species has only six keels on the third metasomal segment is very surprising. This character differentiates *L. kharpadi* from all other species of *Lychas*.

Unfortunately, I have not been able to examine the types or any other specimens of this species, and the diagnostic characters are therefore based solely on the authors cited.

DISTRIBUTION. India (Bastawade 1986: 634).

Lychas krali Kovařík, 1995
(Figs 5–7, 25, 26, 66, Tables 1–3)

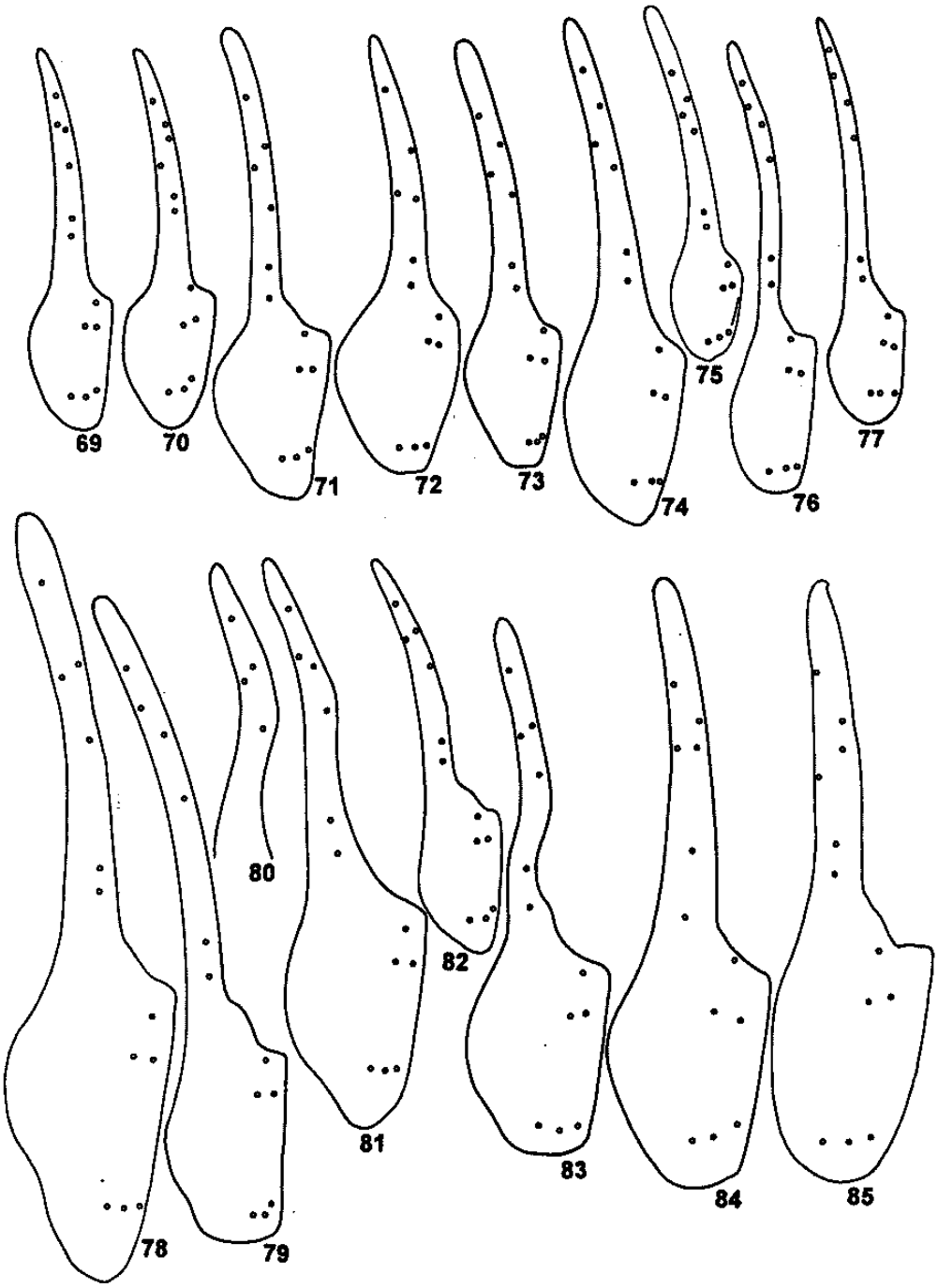
Lychas krali Kovařík, 1995: 190; 1997: 38.

TYPE LOCALITY. Thailand, Umphang River, 16°07 N, 99°00 E; FKCP.

TYPE MATERIAL. **Thailand**: Umphang River, 16°07 N, 99°00 E, 1000 m above sea level, 28.IV.–4.V.1991, 2FE (holotype and paratype No. 6), 5FA (paratypes Nos 1–5), leg. D. Král & V. Kubáň, holotype and paratypes Nos 1–2, 5–6 FKCP, paratype No. 3 MNHN, paratype No. 4 NMPC; Lansang, 16°48 N, 98°57 E, 500 m above sea level, 18.–24.IV.1991, 1FA (paratype No. 7), 2FE (paratypes Nos 8–9), leg. D. Král & V. Kubáň, paratype No. 7, ZMUH, paratypes Nos 8–9, FKCP; Chiang Dao Mts., 19°25 N, 98°52 E, 17.–24.V.1991, 1FA (paratype No. 10), 1FE (paratype No. 11), leg. D. Král & V. Kubáň, paratype No. 10, BMNH, paratype No. 11, FKCP; 56 km NW of Chiang Mai, 19°05 N, 99°25 E, 7.–14.VI.1995, 1FA (paratype No. 12), leg. M. Snížek, FKCP.
OTHER MATERIAL. **Thailand**: NW, Phieng Dao Prov., Ban San Pakia, 1.V.1996, 2M1FA, leg. S. Bílý, FKCP; Pai Soppong, 28.V.–5.VI.1997, 1M3FA, leg. M. Snížek, FKCP.

DIAGNOSTIC CHARACTERS.Total length of males 42.2–44.5 mm, of females 30.4–39.8 mm. Male differs from female in having fingers of pedipalps proximally twisted, but not as markedly as in *L. mucronatus*, and in wider manus of pedipalps and longer metasoma. Sixth cutting edge on movable fingers of pedipalps usually with two or three external granules and one or no internal granule (Figs 5–6 and 25–26).

First and second metasomal segments bear 10 keels, third and fourth segments bear eight keels; third metasomal segment sometimes with two additional inconspicuous keels. Ventral surface of seventh mesosomal segment bears four keels, but in some specimens only two are well developed and in others all keels are barely discernible. For position and distribution of tri-



Figs 69–85 – tibia of pedipalps. Fig. 69 – *Lychas infuscatus* (Pocock), female from MNHN. Fig. 70 – *L. laevifrons* (Pocock), female from MNHN. Fig. 71 – *L. marmoreus* (C. L. Koch), male from FKCP. Fig. 72 – *L. mjobergi* Kraepelin, female LT. Fig. 73 – *L. obsti* Kraepelin, female LT. Fig. 74 – *L. rugosus* (Pocock), male HT. Fig. 75 – *L. scaber* Pocock, female HT. Fig. 76 – *L. scutilus* C. L. Koch, female from FKCP. Fig. 77 – *L. shelfordi* (Borelli), male LT. Fig. 78 – *L. perfidus* (Keyserling), female LT. Fig. 79 – *L. nigristernis*, female from FKCP. Fig. 80 – *L. mucronatus* (Fabricius), male from FKCP. Fig. 81 – *L. mucronatus* (Fabricius), male from FKCP. Fig. 82 – *L. mucronatus* (Fabricius), female HT of *L. mentaweius* Roewer. Fig. 83 – *L. rackae* sp. n., male HT. Fig. 84 – *L. shoplandi* (Oates), female LT. Fig. 85 – *L. tricarinatus* (Simon), female from SMFD.

chobothria on pedipalps see Fig. 66. Base color is yellow, with well marked black reticulation. Pectinal teeth number 15–19. For habitus see Kovařík 1995: 192, fig. 6 (drawing) and Kovařík 1997: 38 (photo).
COMMENTS. Although this is the most recently described species of *Lychas*, it apparently is not as rare as originally anticipated (see Other material).

The holotype was originally thought to be a male (Kovařík 1995: 190), but later examination of seven other specimens has shown that all 13 specimens of the type series are females.

Contrary to the original account (Kovařík 1995: 190), the paratypes Nos 3, 7, and 10 are now deposited at MNHN, ZMUH, and BMNH, respectively.
DISTRIBUTION. Thailand (Kovařík 1995: 190).

Lychas laevifrons (Pocock, 1897)
(Figs 8, 27, 70, Tables 1–3)

Isometrus shoplandi: Pocock, 1891: 434 (in part).
Archisometrus laevifrons Pocock, 1897: 113.
Archisometrus shoplandi laevifrons: Kraepelin, 1899: 50.
Lychas laevifrons: Pocock, 1900: 41; Kraepelin, 1913: 133; Takashima, 1945: 83; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (*Endotrichus*) *laevifrons*: Tikader & Bastawade, 1983: 79; Tikader, 1987: 32.

TYPE LOCALITY. India, Calcutta; BMNH.

MATERIAL. **India**: Chiriga Shang, X.1912, 3FA, "Mus Calcutta", ZMUH; Calcutta ?, X.1912, 4FA, "Mus Calcutta", ZMUH; Anantigheri, Calcutta, X.1912, 1FA, Mus. Calcutta, ZMUH; Madhya Pradesh, Chota Nagpur, Pass between Chaibassa and Chakardharpur, 2.–4.III.1913, 2FA, leg. F. H. Gravely, MNHN No. RS 1690/17; Distr. Bengalen, Pun, Barkul, VII.1913, 2FA, "Mus Calcutta", ZMUH; Chota Nagpur, VII.1913, 2FA, "Mus Calcutta", ZMUH; Manghu, 1juv.A, MNHN No. RS 1471. **Nepal**: Butwal. Tensing, 1.I.1957, 1FA, leg. Hubert, MNHN No. RS 8228; Mission Oust-Nepal, Paltune, 1973, 2FA, MNHN No. RS 6619.

DIAGNOSTIC CHARACTERS. Total length 31 mm (Pocock 1897: 113) to 58.2 mm. Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Figs 8 and 27). First through third metasomal segments with 10 keels, but two lateral keels on third segment weakly developed. Second through sixth mesosomal segments with three or one dorsal carinae. For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Fig. 70 and Tikader & Bastawade 1983: 83, figs 212–216. Pectinal teeth number 22–25. Fingers and manus of tibia of pedipalps of the same color, light and spotted (Tikader & Bastawade 1983: 81, fig. 205). Legs variegated black and yellow (Pocock 1897: 113). Tibial spurs markedly long. For habitus see Tikader & Bastawade 1983: 81, fig. 202.
COMMENTS. Pocock (1891: 434) at first throught that the type specimen belongs to *L. shoplandi*, and only in 1897 used that specimen to describe *L. laevifrons*.
DISTRIBUTION. India (Pocock 1897: 113), Nepal (first report).

Lychas lourencoi sp. n.
(Figs 18, 37, 89, 106, Tables 1–3)

TYPE LOCALITY. Indonesia, Java; MNHN.

TYPE MATERIAL. **Indonesia**: Java, 1FA (holotype), MNHN No. RS 1489.

ETYMOLOGY. Named after the French arachnologist Wilson R. Lourenço of the Muséum national d'Histoire naturelle, Paris, France.

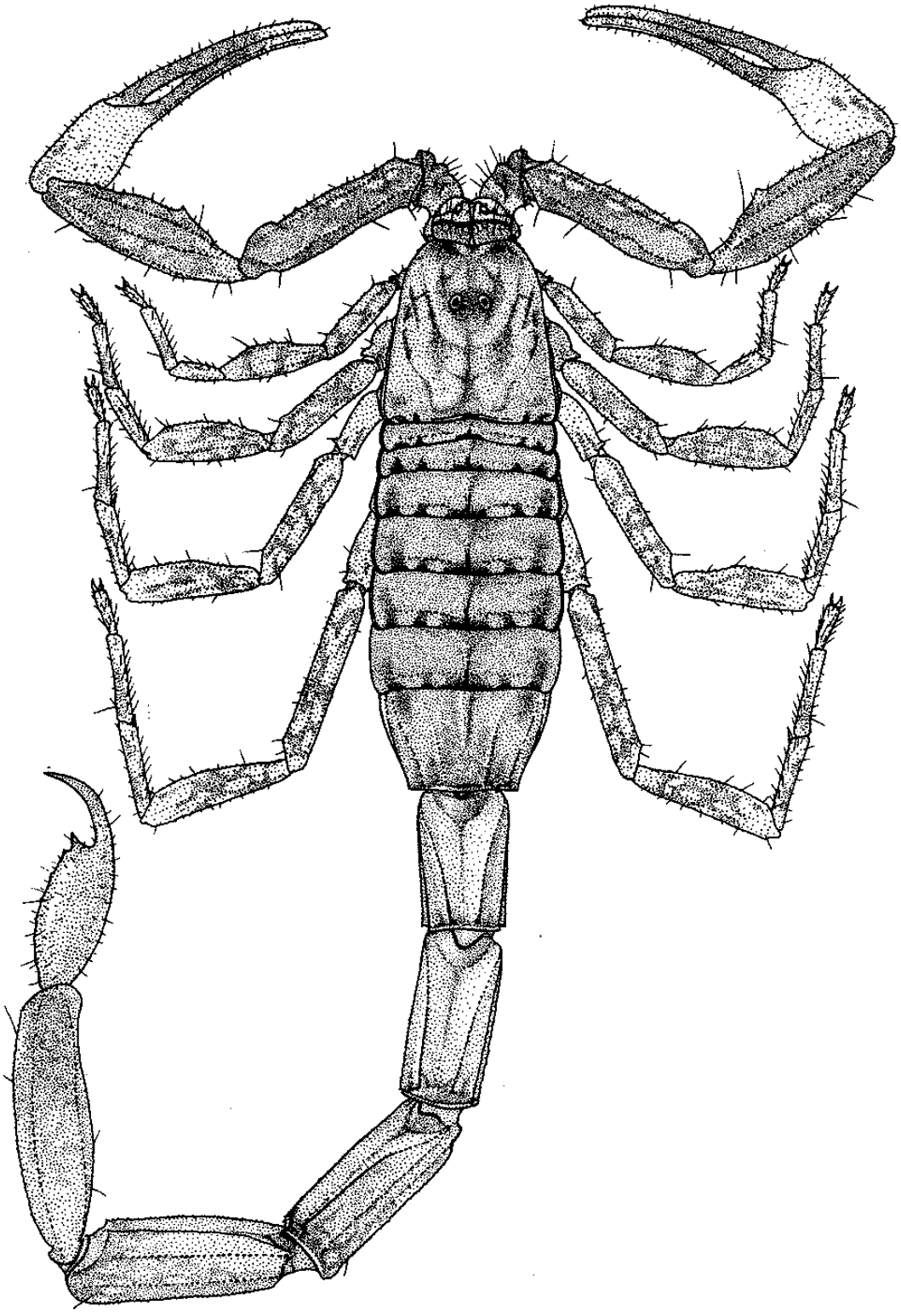


Fig. 86 – *Lychas nigristernis* (Pocock), male from FKCP. Dorsal aspect.

DESCRIPTION. The total length of the female holotype is 27.9 mm. The habitus is shown in Fig. 106. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. Pectinal teeth number 11–12 in the female holotype. For the position and distribution of trichobothria on the tibia of pedipalps see Fig. 89.

The base color is uniformly yellow, with well marked brown reticulation.

The chelicera is reticulated. The fingers of chelicera bear brown spots.

The carapace is without keels but bears large granules.

The femur, patella, manus, and fingers of pedipalps are dorsally and laterally uniformly yellow with brown spots. The ventral surface of femur and tibia of pedipalps is yellow. The sixth cutting edge on the movable fingers of pedipalps with two external granules, on the fixed fingers with one internal granule and two external granules (Figs 18 and 37).

The mesosoma has an elevated median keel and large granules. The posterior margins of the first through sixth segments each bear six nearly circular pale – yellow spots which are symmetrically distributed. The ventral surface of the seventh segment bears four keels and a number of conspicuous granules.

The legs have the same color pattern as the pedipalps.

The metasoma is spotted, more so in the posterior half. The first and second segments bear 10 keels, the third and fourth segments bear eight keels. The subaculear tooth is pronounced, pointed, with one row composed of two granules in the upper midline.

AFFINITIES. The described features distinguish *L. lourencoi* sp. n. from all other species of the genus *Lychas*. They are recounted in the key below.

L. lourencoi sp. n. is closest to *L. krali*, from which it differs in the number of pectinal teeth.

L. lourencoi sp. n. differs from *L. feae* (Myanmar, not included in the key) in the color of the manus of pedipalps, carapace, terga, and legs, which are black in *L. feae* (Pocock 1900: 42).

Lychas marmoreus (C. L. Koch, 1844)

(Figs 44, 49, 71, 109, Tables 1–3)

Tityus marmoreus C. L. Koch, 1844: fig. 868; 1845a: 36.
Tithyus marmoreus: C. L. Koch, 1850: 91.
Archisometrus marmoreus: Kraepelin, 1891: 226 (in part); 1895: 85; Lönnberg, 1897: 183; Kraepelin, 1899: 49 (in part); Brignoli, 1985: 415.
? *Archisometrus* cf. *marmoreus*: Kraepelin, 1901: 268.
Lychas marmoreus: Kraepelin, 1908: 87 (in part); 1916: 26 (in part); Birula, 1917a: 105; Kopstein, 1921: 124; 1923: 186; Glauert, 1925: 95 (in part); Werner, 1936: 181; Takashima, 1945: 80; Glauert, 1963: 183; Sreenivasa-Reddy, 1968: 760; L. E. Koch, 1977: 124; 1981: 877; Locket, 1990: 79; Polis, 1990: 263; Locket, 1993: 593; Kovařík, 1995: 189.
Lychas marmoreus marmoreus: Glauert, 1925: 97; Giltay, 1931: 18; Glauert, 1963: 183; Cekalovic, 1982: 190.
Lychas marmoreus typicus: Kraepelin, 1916: 27; Takashima, 1945: 80.
Isometrus bituberculatus Pocock, 1891: 243 (TL: Baudin island) (syn. by L. E. Koch, 1977: 124).
Archisometrus bituberculatus: Kraepelin, 1895: 85; 1899: 48; Borelli, 1904: 4.
Lychas bituberculatus: Birula, 1917a: 104–5; Glauert, 1925: 109; Takashima, 1945: 80; Glauert, 1963: 183.
Lychas marmoreus obscurus Kraepelin, 1916: 27 (TL: Melbourne); Glauert, 1925: 97; Takashima, 1945: 80 (syn. by L. E. Koch, 1977: 125).
Lychas marmoreus nigrescens Kraepelin, 1916: 27 (TL: Sidney); Glauert, 1925: 97; Takashima, 1945: 80 (syn. by L. E. Koch, 1977: 125).
Lychas marmoreus splendens Kraepelin, 1916: 29 (TL: Ausbeute); Glauert, 1925: 98; 1925: 85; Takashima, 1945: 81; Glauert, 1963: 183 (syn. by L. E. Koch, 1977: 125).
Lychas jonesae Glauert, 1925: 110 (TL: Bulong near Kalgoorlie, Hampton Hill station, Western Australia); 1963: 183; L. E. Koch, 1980: 296; Locket, 1993: 593 (syn. by L. E. Koch, 1977: 125).
Lychas janesae: Takashima, 1945: 84.

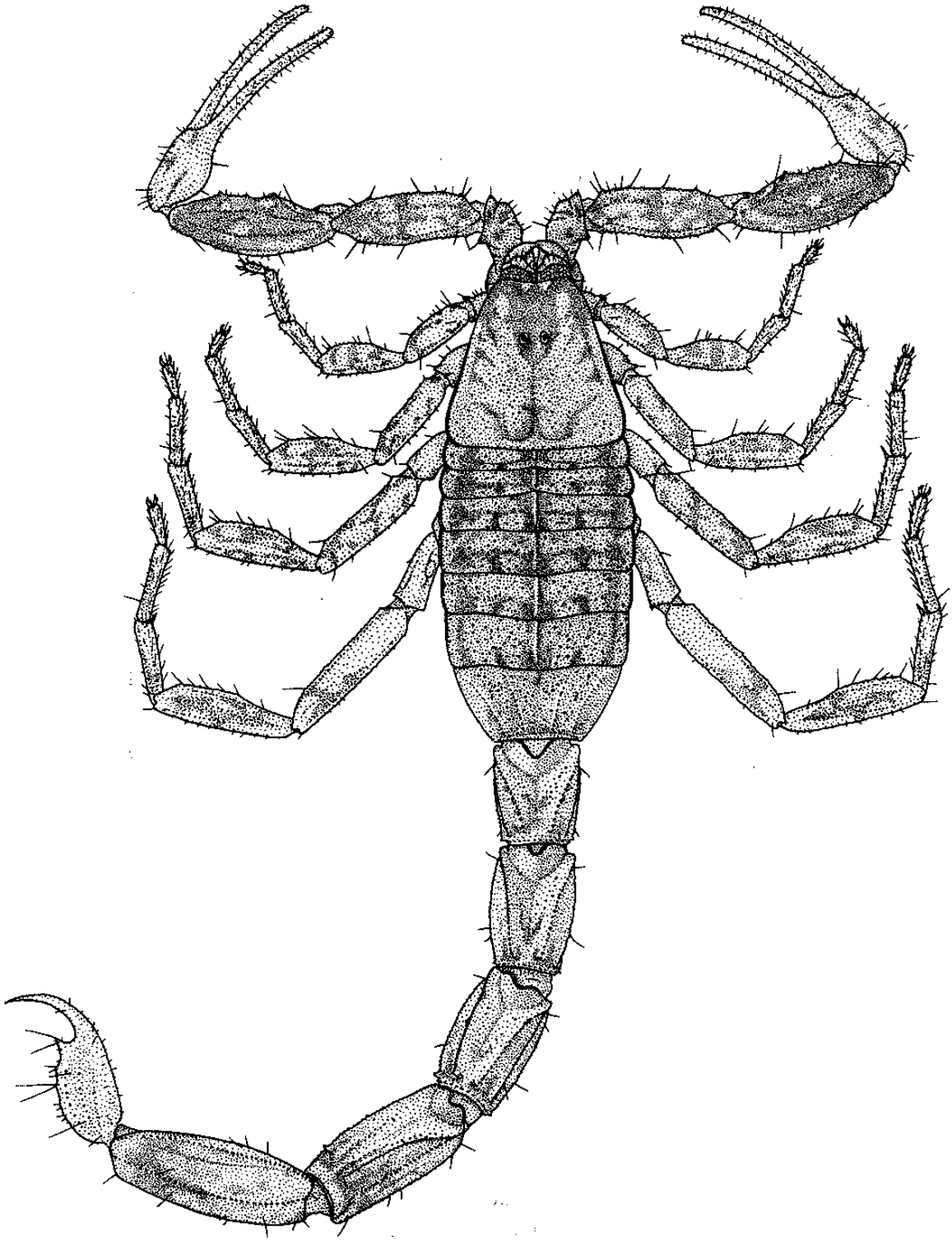


Fig. 87 – *Lychas nigristernis* (Pocock), female from FKCP. Dorsal aspect.

TYPE LOCALITY. Unknown (C. L. Koch 1845: 38); the whereabouts of the type are also unknown.

TYPE MATERIAL. **Australia**: Moora, 8.VIII.1905 (Hamburg S. W. Austral. Esp.), 1F6juvsA (lectotype and paralectotypes Nos 1–6 of *Lychas marmoreus splendens*), leg. Michaelsen, ZMUH No. 462; Melbourne, 26.III.1897, 1FA (holotype of *Lychas marmoreus nigrescens*), ZMUH; Sydney, N. S. W., 15.XII.1909, 1FA (holotype of *Lychas marmoreus obscurus*), leg. Cpt. Schmidt, ZMUH.

OTHER MATERIAL. **Australia**: 1MA, det. Simon, MNHN No. RS 1482; Schradez, 2FA (defect), ZMUH; West Australia, Chapman River, 10 miles NE of Sevaldton, 1FA, leg. E. H. Saunders, BMNH, No. 1895.6.20.2, rev. L. E. Koch; 1895, 1FA, SMFD; North, Subiaco, 26.VI.1905, 1FA, Hamburg S. W. Austral. Exp. 1905, ZMHB No. 10533; Boorabin, 3.VII.1905, 1MA, ZMHB No. 10500; Northampton, 15.VII.1905, 1juv.A, Hamburg S. W. Austral. Exp. 1905, ZMHB No. 10532; Boyanup, 1.–3.VIII.1905, 3juvsA, Hamburg S. W. Austral. Exp. 1905, ZMHB No. 10535; Subiaco, 4.-5.IX.1905, 6F3juvsA, leg. Michaelsen, ZMUH; Boyanup, VI. 1908, 2M(im)2FA, leg. Michaelsen, ZMUH; VII.1909, 1FA, ZMHB No. 10532; 23.VI.1911, 1FA, leg. O. Frank, SMFD; Sydney, 4FA, leg. Helms, ZMUH No. 4/1941; Perth, VIII.1912, 1M(im)1FA, leg. Mjöberg, ZMUH; Adelaide, 1952–1953, 1MA, leg. Hendenstrom, 16.III.1957, 1FA, leg. Falten, SMFD; 1 mi S Kumarl, 25.X.1954, 1FA, leg. J. H. Callaby, MNHN No. 4418; Belmont, 1955, 1FA, MNHN No. 4417; Perth, City Beach, 29.V.1958, 1FA, leg. J. A. Philipp, SMFD; Buthurst, II.1959, 1ME, leg. M. Bužga, FKCP; Toronto, 1960, 2M2FE, FKCP; Perth National Park, "Blach Boy", 9.VIII.1968, 1juv.A, leg. J. Balogh, HNHM No. Perth.C.2.; Perth, 1968–1972, 1MA (im), leg. J. Balogh, HNHM No. PER–R.1; Adelaide, 1968–1972, 1M1FA (im), leg. J. Balogh, HNHM No. ADL.R.1.; South Australia, Naimo, 13.VII.1986, 3FA, leg. J. Ferrel, MBCZ No. 661.

DIAGNOSTIC CHARACTERS. Total length ca 35 mm in males and ca 30 mm in females. Males have much longer metasoma (Table 1) and wider vesicle than females. Sixth cutting edges on movable and fixed fingers of pedipalps usually with one external granule and no internal granules (Figs 44 and 49). First through third metasomal segments with 10 keels, but second and third segments may have only eight keels. Termination of subaculear tooth rounded (Fig. 109). For position and distribution of trichobothria on pedipalps see Fig. 71. Position of trichobothrium db is variable, in some specimens (e. g. in FKCP) between trichobothria et and est (Fig. 71) and in others (e. g. female in SMFD) between dt and et.

Entire animal is spotted, but manus is much lighter than fingers of pedipalps. Fingers are dark, but with light tips in some specimens. Pectinal teeth number 14–22 in males and 12–18 in females.

COMMENTS. In accord with the ICZN (1985), the date of original publication of *Tityus marmoreus* is March 1844, which consisted of an illustration of the species (see Brignoli 1985: 415). The text was published in 1845, which is cited by a number of authors (e. g. L. E. Koch 1977: 124) as the year of original description.

Revising the species, L. E. Koch (1977: 127) examined 116 males and 278 females, of which however less than 3% were adults. He gave a total length of 33 mm with the metasoma amounting to 21 mm for an adult male, and the number of pectinal teeth as 14–22 in the males and 12–18 in the females. The FKCP specimens have 16–17 pectinal teeth in males and 12–14 in females. The SMFD specimens have 13–16 pectinal teeth in females and 18 in males. The ZMUH females have 12–15 pectinal teeth.

In addition, I have examined the following type material:

1) The type series of *Lychas marmoreus splendens*, hereby designating a lectotype and paralectotypes Nos 1–6. The lectotype is an immature male 22.5 mm long (of which 14 mm is the metasoma), with 16 teeth in each pecten. The paralectotypes are one female (No. 1) 26 mm long, four immature males (Nos 2–5) 16.2–20.3 mm long, and one immature female (No. 6) 23.5 mm long. Pectinal teeth number 15–16 in the males and 12–13 in the females. All seven specimens of the type series have 10 keels on the first through third metasomal segments.

2) The holotype of *Lychas marmoreus nigrescens*. It is a female 31 mm long, with 15 teeth in each pecten. The first through third metasomal segments bear 10 keels.

3) The holotype of *Lychas marmoreus obscurus*. It is a female 32 mm long, with 15 teeth in each pecten. The first through third metasomal segments bear 10 keels, of which two keels on the third segment are composed of larger granules placed father apart. There is one external granule near the sixth cutting edge on the movable fingers of pedipalps.
DISTRIBUTION. Australia (Pocock 1891: 243), New Guinea (Kraepelin 1899: 49). For distribution of *L. marmoreus* in Australia see L. E. Koch 1977: 311, map 2.

Lychas mjobergi Kraepelin, 1916
(Figs 11, 30, 72, 99, 105, Tables 1–3)

Lychas mjöbergi Kraepelin, 1916: 24; Takashima, 1945: 84.
Lychas mjobergi: Glauert, 1925: 108; 1963: 183.
Lychas alexandrinus (in part): L. E. Koch, 1977: 139; 1981: 877; Vachon, 1986: 845; Locket, 1990: 79; Locket, 1993: 593; Kovařík, 1995: 189.

TYPE LOCALITY. Australia, Kimberley Distrikt; ZMUH.

TYPE MATERIAL. **Australia**: NW, Kimberley District, 11.I.1911, 1FA (lectotype), leg. Mjöberg, ZMUH.

DIAGNOSTIC CHARACTERS. Total length of female lectotype 32.4 mm. Sixth cutting edges on movable and fixed fingers of pedipalps each with one external granule and no internal granules (Figs 11 and 30). First through third metasomal segments with 10 keels, fourth segment with eight keels. For position and distribution of trichobothria on tibia and femur of pedipalps see Figs 72 and 99. Pectinal teeth number 21–22. Primary characters are very small subaculear tubercle (Fig. 105) and short, robust tibia of pedipalps.
COMMENTS. Kraepelin's (1916) description is based on two females, of which I was able to examine one herein designated the lectotype; it has 21 pectinal teeth. Kraepelin (1916: 25) counted 22 pectinal teeth, which may be the number in the other female deposited in the Naturhistoriska Riksmuseet, Stockholm (Glauert 1925: 109).

It is not clear whether other specimens of this species exist. This is because L. E. Koch incorrectly synonymized *L. mjobergi* with *L. alexandrinus* (= *Hemilychas alexandrinus*, see below), and it would thus be advisable to examine all the specimens that L. E. Koch regarded as *L. alexandrinus*.
DISTRIBUTION. Australia (Kraepelin 1916: 25).

Lychas mucronatus (Fabricius, 1798)
(Figs 10, 12, 29, 31, 80–82, 93, 98, Tables 1–3)

Scorpio mucronatus Fabricius, 1793: 152 (nomen nudum); 1798: 294; Herbst, 1800: 85; Latreille, 1804: 129; Kraepelin, 1891: 228; Zimsen, 1964: 638.
Tityus mucronatus: C. L. Koch, 1843: fig. 858; 1845a: 14.
Tithyus mucronatus: C. L. Koch, 1850: 91.
Isometrus mucronatus: Simon, 1884: 45; Thorell, 1888: 337; 1889: 566; Pocock, 1893: 296.
Archisometrus mucronatus: Thorell, 1893: 368; Pocock, 1894: 359; Thorell, 1894: 14; Pavesi, 1898: 1; Kraepelin, 1899: 46; 1901: 268; Wu, 1936: 117; Bücherl, 1959: 257.
Lychas mucronatus: Pocock, 1900: 36; Kraepelin, 1905: 352; 1908: 186, 193; Henderson, 1913: 128; Kraepelin, 1913: 132; Birula, 1917a: 105; 1917b: 179; Lampe, 1918: 194; Kopstein, 1921: 123; 1923: 184; 1926: 111; Giltay, 1931: 18; Werner, 1932: 575; Fage, 1933: 25; Werner, 1934: 271; Giltay, 1935: 1; Kopstein, 1935: 210; Roewer, 1943: 213; Takashima, 1945: 79; Caporiacco, 1947: 247; Dammerman, 1948: 494; Glauert, 1954: 5; Sachet, 1958: 6; Minnocci, 1974: 30; L. E. Koch, 1977: 124; Vachon, 1986: 843; Vachon & Abe, 1988: 26; Kovařík, 1995: 194.
Lichas mucronatus [sic]: Fage, 1936: 181.
Lachas mucronatus [sic]: Fage, 1944: 71.

Lychas (*Alterotrichus*) *mucronatus*: Tikader & Bastawade, 1983: 53; Bastawade, 1986: 636.
Scorpio armillatus Gervais, 1841: 284 (TL: Manille); Gervais, 1844: 48; Kraepelin, 1895: 85 (syn. by Kraepelin, 1899: 46).
Scorpio (*Androctonus*) *armillatus*: Gervais, 1843: 129; ? Gervais, 1844: 215.
Isometrus armillatus: Simon, 1877: 94; Simon, 1884: 46; Thorell, 1888: 337.
Scorpio (*Androctonus*) *curvidigitatus* Gervais, 1843: 129 (TL: unknown); 1844: 214 (syn. by Thorell, 1893: 368).
Scorpio curvidigitatus: Gervais, 1844: 48.
Androctonus curvidigitus: Karsch, 1879b: 119.
Archisometrus curvidigitus: Kraepelin, 1891: 223; 1895: 84; Lönnberg, 1897: 183.
Tityus varius C. L. Koch, 1844: fig. 864; 1845a: 29 (TL: Java); 1850: 90 (syn. by Thorell, 1889: 566).
Isometrus varius: Simon, 1884: 38; 1887: 112; Oates, 1888: 248.
Isometrus chinensis Karsch, 1879a: 116 (TL: China); Ausserer, 1880: 467; Simon, 1884: 46; Moritz & Fischer, 1980: 312 (syn. by Kraepelin, 1891: 223).
Lychas chinensis: Kishida, 1933 (Takashima, 1945: 79).
Isometrus atomarius Simon, 1884: 39 (TL: Birmanie); Oates, 1888: 247 (syn. by Kraepelin, 1891: 223).
Lychas atomarius: Vachon, 1986: 839.
Lychas mentaweius Roewer, 1943: 212 (TL: Sipora, Mentawei-Inseln); Vachon, 1986: 841; Kovařík, 1995: 189. **Syn. n.**
Lychas baldasseronii Caporiacco, 1947: 248 (TL: Birmania, Bhamo); Bartolozzi, Vanni & Mascherini, 1987: 294. **Syn. n.**
? *Lychas nucifer* Basu, 1964: 100 (TL: India, Behar, Hazaribagh); Minnocci, 1974: 30; Kovařík, 1995: 189. **Syn. n.**
Lychas sp.: Kovařík, 1992: 183.

TYPE LOCALITY. India orientali; UZMD.

TYPE MATERIAL. **China**: 2FA (syntypes of *Isometrus chinensis*), leg. Nissen, ZMHB No. 3041, labeled: *Archisometrus curvidigitus* (Gerv). **Indonesia**: Montawein-Inseln, Sipora, 1FA (holotype of *Lychas mentaweius*), SMFD No. 8870/212, rev. M. Vachon 1981 No. VA 2467. **Myanmar**: Bhamo, 1M3FA (lectotype and paralectotypes Nos 1–3 of *L. baldasseronii*), MZUF.
OTHER MATERIAL. **Cambodia**: Siem keap, 1MA, MNHN No. RS 1524; Kampong, 1935, 1FA, leg. Dawydoff, MNHN No. RS 1527; Angkor, 1935, 1FA, leg. Dawydoff, MNHN No. RS 1535. **China**:Hongkong, Realgymnas, 1890, 2FA, leg. Weiler, ZMUH; Insel Hainan, IV.1909, 3FA, leg. Schocde, ZMHB No. 11348; Hongkong, V.–VI.1911, 6FA, leg. R. Mell, ZMHB No. 554/1918; Ladung, 9.VIII.1995, 1FA, ZMUH. **India**: 1M7F1juv.A, MNHN No. RS. 1495; Dawna Hills, 23.–24.XI.1911, 1M1FA, leg. F. H. Gravely, MNHN No. RS 1275/17; Nord Kanara Karwa, 1955–57, 1FA, Deutsche Indien Expedition, ZMUH No. 324. **Indonesia**: Java, 2juvsA (after third ecdysis), ZMHB No. 8145, 3M1FA, ZMHB No. 7334, 2FA, ZMHB No. 7463; Archipal, 1890, 1FA, ZMUH; Batavia, 1890, 1M1FA, ZMUH; Timor, 1893, 1M1FA, ZMUH; Java, Batavia, 27.IX.1897, 3M2FA, leg. Wülfing, ZMUH; Java, 27.VII.1909, 1FA, leg. Schwinghauer, ZMUH; Boeton, 1909, 1FA, Sunda Exped. des Frankf., leg. J. Elbert, SMFD; Isambawa, Ampang, 2.I.1910, 1MA, Sunda Exped. des Frankf., leg. J. Elbert, rev. M. Vachon 1981 No. VA 2659, SMFD; Java, Buitenzorg, Botanischer Garden, 1925, 1juv.A, leg. H. Winkler, ZMUH; Badjawa, Central-Flores, 1MA, 17.VI.1927, ZMHB No. 10499; Mavia, Sunda Exp., 2.–4.VI.1927, 1FA, leg. Renfch, ZMHB No. 11345; West Taures, Rang Mese, Sunda Exp., 20.–21.VI.1927, 1FA, leg. Renfch, ZMHB No. 11344; Lombok, Ekas, 1FA, ZMHB No. 11430; Swela, Lombok, Sunda Exp., 22.–29.III.1927, 5F1juv.A, leg. Renfch, ZMHB No. 11429; Semankat, Sunda Exp., 10.V.1927, 1M1FA, leg. Renfch, ZMHB No. 11342; Fernes, Sunda Exp., 10.–15.V.1927, 1FA, leg. Renfch, ZMHB No. 11343; Flores, 1FA, leg. Martens, ZMHB No. 7589; Batae Doelang, Suumbava, Sunda Exp., 10.–15.V.1927, 14M8FA, leg. Renfch, ZMHB No. 11346; Angloi (Bava), 350–500 m, 28.IX.1931, 2MA, MNHN No. RS 1509; Komodo, Petits ile do la Sante, 1956, 1FA, leg. Pfeffer, MNHN No. RS 8591; Timor, Lamarknen, 1000 m, 1970, 1MA, leg. B. Friedberg, MNHN No. RS 6449; Java or Sumatra, 1F1juv.A (juv. after third ecdysis), MNHN No. RS 1497; Java , 2FA, MNHN Nos RS 1489 and 3598; Java, Batavia, 1M1FA, MNHN Nos RS 1505 and 3472; Timor, Damaknen, alt. 1000 m, 1FA (im), leg. Friedborg, MNHN No. RS 6448. **? Indonesia**: ? Java, 24M33FA, ZMHB No. 7399. **Laos**: Prov. Common, Village de Na Kay Khia, 1933, 1FA, MNHN No. RS. 4540; Luang Prabang, 1M5F3juv.A, IX.1933, leg. Dawydoff, MNHN RS 1519 and 1529; Taket, 1933, 1F3juvsA (2juvs before first ecdysis), leg. Dawydoff, MNHN No. RS 1532; Vienitine, X.1933, 1FA, leg. Dawydoff, MNHN No. RS 1525; Sawannaket, 4M2FA, leg. Dawydoff, MNHN; Haut Laos, X.1934, 2FA, MNHN RS 1531; Vientiane, I.1935, 1M9juvsA (juvs before first ecdysis), leg. Dawidoff, MNHN RS 1536; Haut Laos, Phang-Sali, 1938–9, 1M1FA, leg. Dawidoff, MNHN RS 1522; Haut Laos, Paclay, Sayaburi, I.1939, 2juvsA, leg. Dawidoff, MNHN RS 1539; Dong Doh, 20.III.1990, 1 juv.A (after third ecdysis), leg. Kondorosy, HNHM; Boli Kham Xai prov., 18°16 N 103°11 E, 70 km NEE of Vientiane, 27.-30.IV.1997, 1M3F7juvsA (juvs before first ecdysis), leg. V. Kubáň, FKCP. **Malaysia**: Singapore, 1juv.A (after third ecdysis), ZMHB No. 7236; Bali Island, 1ME, collector unknown, det. 1990, NMPC; Bali Island, II.1996, 2MA, leg. L. Hadaš, FKCP. **Myanmar**: Ober Birma, Thomaran Gillis, 1juv.A (after fourth ecdysis), ZMHB No. 8144; Viaggio in Birmania, Palon (Pego), 1885-89, 1M7FA, leg. L. Fea, ZMUH. **Philippines**: Manila, 1980, 1FA, ZMUH. **Thailand**: Bangkok, 1FA, leg. Martens, ZMHB No. 8142; Siam, 1MA, leg. Martens, ZMHB

No. 8142, 1FA, ZMHB No. 11349; Siam, 1879–95, 4M5FA, det Kraepelin 1900 as *Archisometrus mucronatus*, MNHN No. RS. 1452; Siam Micro, 1FA, MNHN No. RS 1488; Peninsule de Molucen, 1FA, leg. Balayus, MNHN No. Rs 7025; Bangkok, 7.XI.1891, 1FA, ZMUH; Siam, MUok-lek, 25.V.1904, 1M3FA, leg. Fruhstorter, ZMUH; Isthme of Kra, 22.VI.1986, 1MA, leg. P. Leclere, ZMUH; Chiang Mai, 15.VII.1987, 2FE, leg. C. M. Brandstetter, FKCP; Lat Yao, 25 km W Nakhon-Sawanr, ca 80 m, VIII.1987, 1FA, leg. Thielen, SMFD; Kanchanaburi, near river Kwai, 5.IV.1991, 1M1F 1juv.E 3FA, leg. J. Farkač, FKCP; Lansang , 500m above sea level, 18.–24.IV.1991, 2FE, leg. D. Král & V. Kubáň, FKCP; Palong near Fang, 750m above sea level, 19°55 N, 99°06 E, 27.V.1991, 1M1FE 1FA, leg. D. Král & V. Kubáň, FKCP; Samut, 12.II.1993, 1MA, collector unknown, FKCP; Sai Buri, 23.–27.IV.1993, 2FE 1F2juvsA, leg. J. Strnad, FKCP; Mae Hong Son env., Ban Huai Po, 1700m above sea level, 24.–30.VI.1993, 1ME, leg. J. Schneider, FKCP; Mae Hong Son, Nupa-Ah, 30.VI.1993, 4FE 5FA, leg. J. Schneider, FKCP; Kaeng Krachan (Phetchaburi), Kaeng Krachan National Park, Reservoir, 6. II. 1994, 1MA, leg. S. & L. Mahunka, HNHM; 56 km NW Chiang Mai, 19°05 N, 99°25 E, 7.–14.II.1995, 6F22juvsA (juvs before first ecdysis), leg. M. Snížek, FKCP; Chiang Dao env., 21.V.–4.VI.1995, 1M2FA, leg. M. Snížek, FKCP; Erewan, III.1997, 1MA, leg. V. Šejna, FKCP; Chiang Dao, 19.–21.V.1997, 2FA, leg. M. Snížek, FKCP. **Vietnam**: Saigon, 2M3F1juv.A, MNHN Nos RS 1493, 1502, and 1506; Indochine, Monei-Sai, 1MA, leg. Dawydoff, MNHN No. RS 1521; Indochine, Hvé. Annam, 2FA, leg. Dawydoff, MNHN No. RS1526; Snoi Dam, IX.1912, 1M1FA, MNHN No. RS. 1504; Dong-Trang (Song-Cay), XI.1929, 1FA, MNHN No. RS 1510; Indochina, Tourane, Annam, Lien-Cheu, 18.IX.1931, 1MA, MNHN No. RS 1514; S. Annam, Nhatrang, Cauda, I.1930, 1MA, VI.1931, 1FA, XII. 1931, 1juv.A, MNHN No. RS 1513, 1516, and 1517; Indochina, Tourane, Annam, 2FA, leg. Dawidoff, MNHN No. RS 1523; S. Annam, Cauda (Nahatrang), III.1933, 3FA, leg. Dawydoff, MNHN No. RS 1530; Annam, Kontoum, 1933, 2FA, leg. Dawydoff, MNHN No. RS 1533; Indochina, Cauda, 1933, 1MA, leg. Dawidoff, MNHN No. RS 1518; Indochina, Konan Tchan, 1937, 3M7FA, leg. Dawidoff, MNHN No. RS. 1470; Indochina, S. Annam, Nhatrang, 1938–9, 1M1FA, leg. Dawidoff, MNHN No. RS 1520; Annam, Quinhon, X.1934, 1MA, MNHN No. RS 1537; Haut-Tonkin, Lao-Kay, XII.1933, 1FA, leg. Dawidoff, MNHN No. RS 1534; Saigon, I.1935, 1MA, leg. Dawidoff, MNHN No. RS 1538; Saigon, 1989, 1M1FE, leg. Jansa, FKCP; near Binh-Chan, 23.IV.1989, 1FE, leg. S. Bečvář, FKCP; Hanoi, X.–XI.1991, 3M3FE 9M18F2juvsA, leg. R. Hanzal, FKCP; 80 km NNE Saigon, Dong Nai prov., valley Ma Da, Tri An dam, VII.1995, 2FA, 7.VI.1996, 1juv.A (after third ecdysis), leg. K. Petrželka, FKCP; Saigon, 4.X.1995, 1juv.A (after fourth ecdysis), leg. K. Petrželka, FKCP. ? **Vietnam**: Darlac, Ben-Methuot, 600 m, VI.1930, 3F7juvsA (juvs before and one after first ecdysis), MNHN No. RS 1508; Darlac, Plateau de Medrac, 30.VI.1930, 1FA, MNHN No. RS 1515; Darlac, Ben-Methuot, 1931, 3FA, I. 1931, 2FA, MNHN No. RS 1507 and 1511; Indochine, X.1934, 1MA, leg. Dawydoff, MNHN No. RS 1528. ?: Brie Along, X.1934, 4FA, MNHN No. RS 1474; Cochinchina, 1FA, MNHN No. RS 1503; 1M1FA, MNHN No. RS 1457; Amboina, 1893, 1M2FA, ZMUH; Soemba, 1893, 1M1FA, ZMUH; Tavoy, X.1912, 2M3FA, Mus. Calcutta, ZMUH; Hainan Garzoni, 2F1juv.A (juv. after first ecdysis), MNHN; 1FA, MNHN No. RS 1453; 2M9FA, ZMHB No. 3067; 1M3FA, ZMHB No. 2597; Savataca, 1M5FA, leg. Martens, ZMHB No. 7644; 1FA, ZMHB No. 2598; 1MA, ZMHB No. 8143; Franz Wintesinber, Sragan, 1FA, ZMHB No. 11347; Kangean, 2FA, ZMUH.

Specimens born and reared in captivity (females from **Vietnam**: Hanoi, X.–XI.1991, leg. R. Hanzal): 3juvsE after the first ecdysis, 3juvsE 12juvsA after the second ecdysis, 3juvsE 6juvsA after third ecdysis, 3juvsE 19juvsA after the fourth ecdysis, 6FE 4M8FA after the fifth ecdysis (birth 30.III. and 4.IV.1992, first ecdysis 4. and 8.IV.1992, second ecdysis 5.–18.V.1992, third ecdysis 28.V.–16.VI.1992, fourth ecdysis 23.VI.–23.VII.1992, fifth ecdysis 22.VII.–15.IX.1992, one female scorpion-born 16.VI.1993, breeding F. Kovařík), FKCP.

DIAGNOSTIC CHARACTERS. Total length 40–65 mm in both males and females. Male differs from female in having fingers of pedipalps proximally twisted (Figs 80–81) so that their edges cannot meet. Sixth cutting edges on movable and fixed fingers of pedipalps usually with three external granules each (Figs 10, 12, 29, and 31), very rarely with two or four granules. First and second metasomal segments with 10 keels, third and fourth segments with eight keels. Four lateral keels may be inconspicuous and sometimes smooth. Ventral surface of seventh mesosomal segment with two keels that are not always discernible. For position and distribution of trichobothria on pedipalps see Figs 80–82, 93, and 98. Position of trichobothrium db is variable (Kovařík 1995: 188).

Color pattern blotched, manus of pedipalps light, fingers dark, pronounced dark triangle in anterior part of carapace. For habitus see Vachon 1986: 843, fig. 9. Pectinal teeth number 16–26.

COMMENTS. Tikader & Bastawade (1983: 60) stated that they had examined type specimens deposited in BMNH, No. 1889.3.29.9–11, which is a case of mistaken identity. As types must be

unequivocally regarded specimens in the Fabricius collection, which is at UZMD (see Zimsen 1964).

L. mucronatus was characterized by Roewer as having 10 keels on the second metasomal segment, two keels on the underside of the seventh mesosomal segment, total length of 50–58 mm, and 21 pectinal teeth. Pocock gave a total length of 58 mm for the female and 53 mm for the male, and also about 21 pectinal teeth.

My examination of a number of specimens revealed the keels on the underside of the seventh mesosomal segment to be often indistinct, indicated only be several widely spaced granules.The largest specimens is my collection come from Thailand (Chiang Dao) and are about 55 mm (female) and 62 mm (male) long. Females from Nupa Ah are about 57 mm long. Other specimens from Thailand range from 45 to 50 mm in length, only one female from Lansang is 40 mm long. Specimens from Vietnam (Hanoi) are 43–55 mm (female) and 43–53 mm (male) long. Females from Vietnam (MNHN) are up to 63 mm long.

I examined the syntypes of *Isometrus chinensis*. For dimensions of one of the females see Table 1. The second differs only in having 21 pectinal teeth.

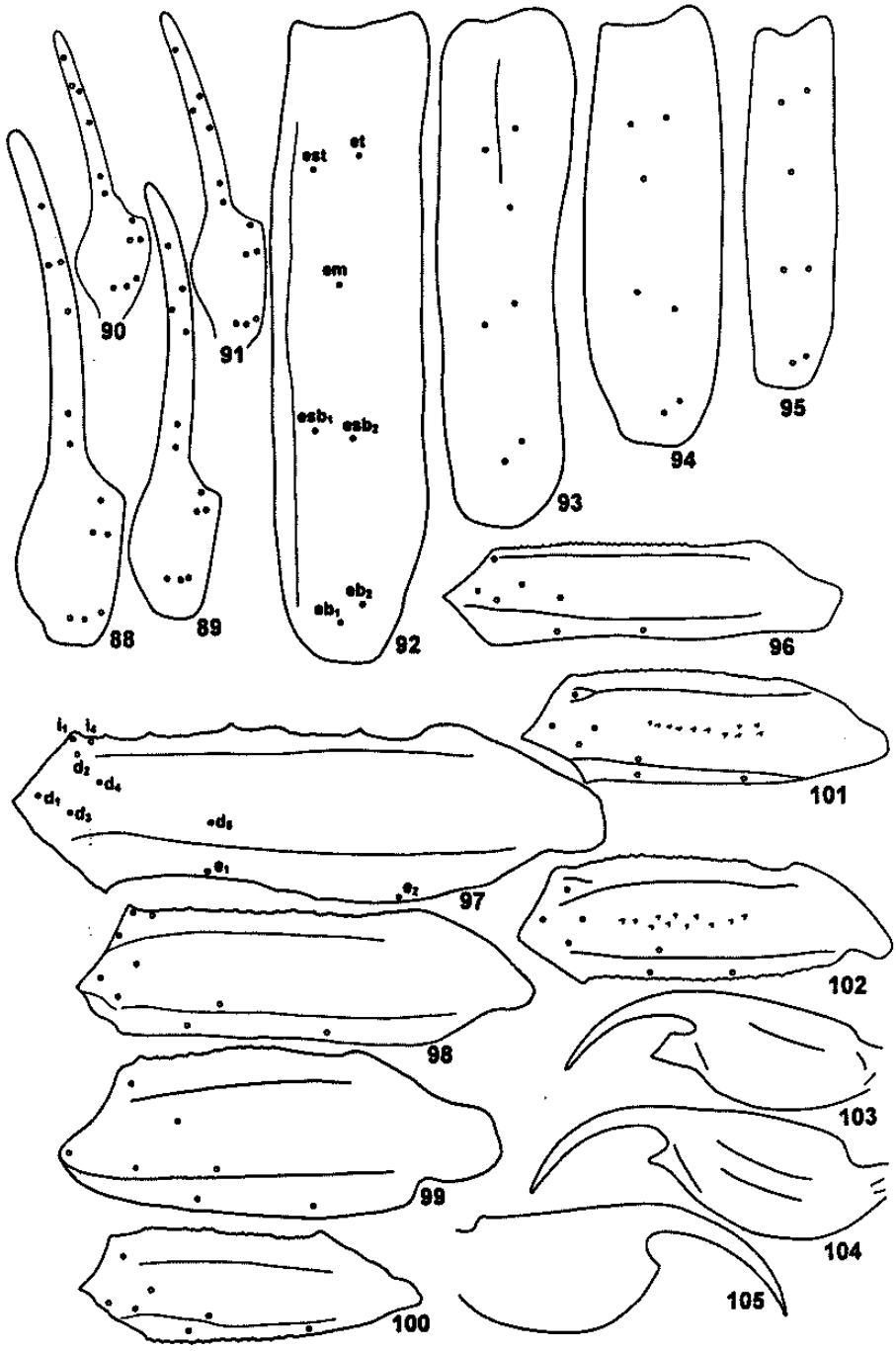
I examined the holotype of *L. mentaweius*, a female 57 mm long. The sixth cutting edge on the movable fingers of pedipalps has three external granules, and on the fixed fingers three external granules and one internal granule (Figs 10 and 29). The first and second metasomal segments bear 10 keels, and the third and fourth segments bear eight keels. The ventral surface of the seventh segment bears two conspicuous keels and two short, inconspicuous keels. For position and distribution of trichobothria on the tibia, patella, and femur of pedipalps see Figs 82, 93, and 98. Roewer (1943: 212) counted 23 pectinal teeth, but my examination shows 20 teeth in each pecten. I am certain that *L. mentaweius* is a synonym of *L. mucronatus*. Roewer mistakenly thought that *L. mentaweius* has nine cutting edge on the movable fingers of pedipalps (Roewer 1943: 213, Tafel 1, fig. 2c; Vachon 1986: 840–841).

I examined the type series of *Lychas baldasseronii*, hereby designating a lectotype and paralectotypes Nos 1–3, and am certain that it is a synonym of *L. mucronatus*. The lectotype is a male 55 mm long (of which 31 mm is the metasoma), with 20 and 21 pectinal teeth. The paralectotypes are three females 46.9–50.5 mm long, with 20–21 pectinal teeth.

L. nucifer is based on one female from Hazaribagh, Behar prov., India (Basu 1964: 101). Other authors do not mention additional specimens, and Tikader & Bastawade (1983) do not list this species for India. Bastawade (in litt., 3 April 1996) informed me that types do not exist, as "Unfortunately Dr. Basu has not preserved the types". I believe *L. nucifer* to be a synonym of *L. mucronatus*, with which it agrees in all the characters given by Basu (1964), and even in characters which he used to differentiate between the two species ("22 teeth in pecten, second metasomal segment longer than wide"). The description by Basu (1964) does not include any characters that would allow to differentiate *L. nucifer* from *L. mucronatus*.

DISTRIBUTION. Cambodia (Pocock 1894: 87), China (Karsch 1879a: 116), India (Fabricius 1798: 294), Indonesia (C. L. Koch 1845a: 16; Pocock 1894: 87; Lampe 1918: 194), Laos (Fage 1933: 26), Malaysia (Pocock 1900: 37), Myanmar (Simon 1884: 38), Philippines (Gervais 1841: 284), Thailand (Kopstein 1921: 123), and Vietnam (? Gervais 1841: 284, ? Pocock 1894: 87; Fage 1936: 181; Kovařík 1995: 194).

This species has been mistakenly recorded from Madagascar (Gervais 1844: 215), Japan, and New Zealand (Pocock 1894: 87).



Figs 88–105. Figs 88–91 – tibia of pedipalps. Figs 92–95 – patella of pedipalps. Figs 96–102 – femur of pedipalps. Figs 103–105 – telson. Fig. 88 – *Lychas nigristernis* (Pocock), female from FKCP. Fig. 89 – *L. lourencoi* sp. n., female HT. Fig. 90, 101 – *L. variatus* (Thorell), female LT of *L. spinatus* Kraepelin. Figs 91, 102 – *L. variatus* (Thorell), juv. LT of *L. marmoreus kimberleyanus* Kraepelin. Fig. 92 – *L. hosei* (Pocock), female HT. Figs 93, 98 – *L. mucronatus* (Fabricius), female HT of *L. mentaweius* Roewer. Fig. 94 – *L. shoplandi* (Oates), female LT. Figs 95, 97 – *L. braueri* (Kraepelin), female LT. Fig. 97 – *L. scaber* Pocock, female from BMNH. Figs 99, 105 – *L. mjobergi* Kraepelin, female LT. Fig. 100 – *L. tricarinatus* (Simon), female from SMFD. Fig. 103 – *L. infuscatus* (Pocock), female from ZMUH. Fig. 104 – *L. perfidus* (Keyserling), female LT.

Lychas nigristernis (Pocock, 1899)
(Figs 9, 13, 28, 32, 79, 86–88, Tables 1–3)

Archisometrus nigristernis Pocock, 1899: 265.
Lychas nigristernis: Pocock, 1900: 38; Kraepelin, 1913: 133; Takashima, 1945: 84; Mani, 1959: 11; Minnocci, 1974: 30; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (Distotrichus) nigristernis: Tikader & Bastawade, 1983: 42.
? *Lychas decorata* Basu, 1964: 102 (TL: India, Behar, Hazaribagh); Minnocci, 1974: 30; Kovařík, 1995: 189. **Syn. n.**

TYPE LOCALITY. India, western Himalayas, Dehra Dun; BMNH.

TYPE MATERIAL. **India**: Dehra Dun, 1FA (holotype), leg. F. Gleadow, BMNH No. BM 1897.9.17.84.
OTHER MATERIAL. **India**: W. Himalaya, Dehra Dun, VII.1913, 1FA, ZMUH; bor., Uttar Pradesh bor., Thalari (Talwari), 10 km N of Debal, VII.1994, 2FE, leg. M. Snížek, FKCP; Uttar Pradesh bor., Karnaprayag env., 19–21.VII.1994, 1ME, leg. M. Snížek, FKCP. **Nepal**: 1M7F2juvsA, MNHN No. RS 6620, 8232–4, 8238–9 and 8242–3; Sitebeni, 500–600 m, 26.VII.1956, 1FA, leg. M. Hubert, MNHN No. RS 8227; Gurundi, 6.I.1967, 2FA, leg. M. Hubert, MNHN No. RS 8230 and RS 8240; Narayangarh, 150–250 m, 25.VII.1967, 1FA, leg. M. Hubert, MNHN No. RS 8241; Avant Dana, 300–1500 m, 26.VII.1967, 1juv.A, leg. M. Hubert, MNHN No. RS 8237; Gorkha District, Samri Bazar, 1350–1650 m, 20.VI.1993, 1M1F2juvsE, leg. J. Probst, FKCP. ?, 2FA, MNHN.

DIAGNOSTIC CHARACTERS. Total length 32–50 mm. Male differs from female in longer and narrower metasomal segments (Figs 86 and 87), and occasionally in having fingers of pedipalps proximally twisted, but not as markedly as in *L. mucronatus*. Sixth cutting edges on movable and fixed fingers of pedipalps each with one external granule and no internal granules (Figs 13 and 32). First metasomal segment with 10 keels, second through fourth segments with eight keels. Second metasomal segment bears two additional lateral keels marked by several granules. For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Fig. 88 and Tikader & Bastawade 1983: 45, figs 110–114. Position of trichobothrium db is variable (Figs 79 and 88). Pectinal teeth number 14–18. Femur of pedipalps spotted, patella entirely black, manus of tibia yellow, and fingers of tibia yellowish brown or dark brown. For habitus see Figs 86 and 87.
COMMENTS. The species is based on a single female, which I have examined. Its original color has been lost due to the long preservation in alcohol, and it is now entirely black.

Most of the specimens examined have trichobothrium db between trichobothria dt and et. One female from Nepal (MNHN) and one female from India (FKCP) have this trichobothrium betwen trichobothria et and est.

Two males from FKCP have fingers of pedipalps slightly twisted, whereas no twisting is present in a male from MNHN. However, all males have metasomal segments longer and narrower than females.

L. decoratus is based on two males from Hazaribagh, Behar prov., India (Basu 1964: 103). Other authors do not mention additional specimens, and Tikader & Bastawade (1983) do not list this species for India. Bastawade (in litt., 3 April 1996) informed me that types do not exist, as "Unfortunately Dr. Basu has not preserved the types". I believe *L. decoratus* to be a synonym of *L. nigristernis* because of its identical coloration, total length, number of pectinal teeth, and geographic distribution. The description by Basu (1964) does not include any characters that would allow to differentiate *L. decoratus* from *L. nigristernis*.
DISTRIBUTION. India (Pocock 1899: 266).

Lychas obsti Kraepelin, 1913
(Figs 14, 33, 55, 73, Tables 1–3)

Lychas obsti Kraepelin, 1913: 175; Birula, 1915: 23; 1915: 120; 1916: 56; Borelli, 1919: 366; Roewer, 1943: 210; Caporiacco, 1949: 314; Probst, 1973: 322; Lamoral & Reynders, 1975: 511; Moritz & Fischer, 1980: 320; El-Hennawy, 1992: 127; Kovařík, 1995: 189.
Archisometrus obsti: Caporiacco, 1937: 360; Moriggi, 1941: 91.

TYPE LOCALITY. Deutsch-Ostafrika Kilimatinde; ZMUH.

TYPE MATERIAL. **Kenya**: O. Africa, 1FA (paralectotype No. 1), leg. Kolb, ZMHB No. 8148. **Somalia**: Lande der Rahanwin, X.1912, 1MA (paralectotype No. 2) 1F(im)A (paralectotype No. 3). **Tanzania**: D. O. Africa, Kilimatinde, 3.II.1912, 1FA (lectotype), leg. Dr. Obst, ZMUH.
OTHER MATERIAL. **Kenya**: Sagala Hills, XII.1993, 1FE, leg. Werner, FKCP; Voi, 8.–18.XI.1996, 1F1juv.A, 22.XI.–2.XII.1996, 2F1juv.A, 27.III.–4.IV.1997, 1ME 1M(im)2FA, leg. M. Snížek, FKCP. **Tanzania**: Tanga, 1FA, SMFD No. 6691/98; Mombo or., 9.–11.I.1996, 1M1FA, leg. M. Snížek, FKCP.

DIAGNOSTIC CHARACTERS. Total length of females 30–37 mm, males up to 42 mm due to longer metasoma. In contrast to female, male has fingers of pedipalps slightly twisted proximally. Sixth cutting edges on movable and fixed fingers of pedipalps each with two (or exceptionally one) external granules and sometimes also one internal granule (Figs 14 and 33). First and second metasomal segments with 10 keels, third and fourth segments with eight keels; third metasomal segment sometimes with two additional inconspicuous keels. Ventral surface of seventh mesosomal segment with two or four keels. For position and distribution of trichobothria on tibia of pedipalps see Fig. 73. Pectinal teeth number 16–20.
COMMENTS. I examined all specimens from the type series, one from Tanzania, one from Kenya, and two from Somalia, and designated them a lectotype and a paralectotypes Nos 1–3, respectively. This designates also the type locality.

Roewer (1943: 210) identified an SMFD specimen as a male, but the marked sexual dimorphism leaves no doubt that it is a female.
DISTRIBUTION. Kenya, Somalia, Tanzania (Kraepelin 1913: 175).

Lychas perfidus (Keyserling, 1885)
(Figs 48, 78, 104, Tables 1–3)

Isometrus perfidus Keyserling, 1885: 15.
Archisometrus perfidus: Kraepelin, 1899: 47.
Lychas perfidus: Birula, 1917a: 105; Takashima, 1945: 80; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Archisometrus marmoreus (in part): Kraepelin, 1891: 226.

TYPE LOCALITY. Insel Viti Levu; BMNH.

TYPE MATERIAL. **Melanesia, Fiji**: Viti Levu Island, 1FA (lectotype), labeled: Keys., coll. Hamburg Mus., BMNH No. BM 1898.3.5.10.
OTHER MATERIAL. **Melanesia, Fiji**: Viti Levu Island, 20.II.1894, 2M1FA (males are immature), leg. Cpt. M. G. Pöhl, ZMUH.

DIAGNOSTIC CHARACTERS. Total length 30–40.6 mm. Sixth cutting edge on movable fingers of pedipalps with one external granule (Fig. 44), on fixed fingers with two external granules (Fig. 48). First and second metasomal segments with 10 keels, third and fourth segments with eight keels. Ventral surface of seventh mesosomal segment with four well developed keels. For habitus see Keyserling 1885, tab. II, fig. 2. For position and distribution of trichobothria on tibia of pedipalps see Fig. 78. Trichobothrium db is situated between trichobothria et and est. Legs, metasoma, and pedipalps are spotted. Pectinal teeth number 10–11 in females and 12 in the immature male. Subaculear tooth is very narrow (Fig. 104).

COMMENTS. This species is based on three specimens from Viti Levu Island, of which I examined and designated one as the lectotype.
DISTRIBUTION. Melanesia: Fiji, Viti Levu Island (Keyserling 1885: 16).

Lychas rackae sp. n.
(Figs 15, 34, 68, 83, Tables 1–3)

TYPE LOCALITY. India, Himalaya, Molta; ZMUH.

TYPE MATERIAL. **India**: Molta (Himalaya), 3000 m, 19.VI.1956, 1MA (holotype), Deutsche Indien Expedition 1955–1957, Nr. 441, ZMUH No. ZMH 10.

ETYMOLOGY. Named after the German acarologist Mrs. Gisela Rack, who worked for 40 years as a curator at the Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Germany.
DESCRIPTION. The total length is 36.7 mm in the male holotype. The male has the fingers of pedipalps proximally twisted so that their edges cannot meet (Fig. 83). Although the female is unknown, I assume the same length of metasoma in both sexes. The habitus is shown in Fig. 68. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. Pectinal teeth number 16–17 in the male. For the position and distribution of trichobothria on the tibia of pedipalps see Fig. 83.

The base color is yellow, with brown spots.

The chelicera is reticulated and its fingers bear black spots.

The carapace is without keels but with large granules. It is yellow, with small and sparse black spots. There is a black spot around the median eyes and a black triangle between the median eyes and the anterior margin of the carapace.

The femur and tibia of pedipalps are yellow, dorsally and laterally with sparse brown spots. The ventral surface of the femur and tibia of pedipalps is yellow without spots. The fingers are yellow or yellowish brown. The patella of pedipalps is black both dorsally and ventrally, rarely with sparse minute yellow spots on the dorsal surface. The sixth cutting edges on the movable and fixed fingers of pedipalps bear one external granule each (Figs 15 and 34).

The mesosoma is spotted and bears one pronounced median keel and large granules (Fig. 68). The lower surface of the seventh segment bears four keels and a number of inconspicuous granules.

The legs have the same color pattern as the patella of pedipalps.

The metasoma is also spotted. The first through third segments bear but a few black spots, whereas the fourth and fifth segments have more of them, namely in the posterior half. There are 10 keels on the first segment and eight keels on the second through fourth segments. The second segment bears several granules indicating lateral keels. The dorsal keels terminate in a posterior tooth which is larger than that on each preceding segment. The subaculear tooth is pronounced, pointed, with one row composed of two granules in the upper midline.
AFFINITIES. The described features distinguish *L. rackae* sp. n. from all other species of the genus *Lychas*. They are recounted in the key below.

L. rackae sp. n. differs from *L. feae* (Myanmar, not included in the key) in the color of the manus of pedipalps, carapace, terga, and legs, which are black in *L. feae* (Pocock 1900: 42).

L. rackae sp. n. is close to *L. nigristernis*, from which it differs in sexual dimorfismus. The male does not have a longer metasoma but, as in *L. mucronatus*, has the fingers of pedipalps proximally twisted so that their edges cannot meet. *L. mucronatus* has 10 keels on the second segment of the metasoma, whereas *L. rackae* sp. n. has only eight.

Lychas rugosus (Pocock, 1897)
(Fig. 74, Tables 1–3)

Archisometrus rugosus Pocock, 1897: 111; Kraepelin, 1899: 48.
Lychas rugosus: Pocock, 1900: 39; Henderson, 1913: 130; Kraepelin, 1913: 133 (in part); Takashima, 1945: 80; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (*Alterotrichus*) *rugosus*: Tikader & Bastawade, 1983: 60; Bastawade, 1986: 636.

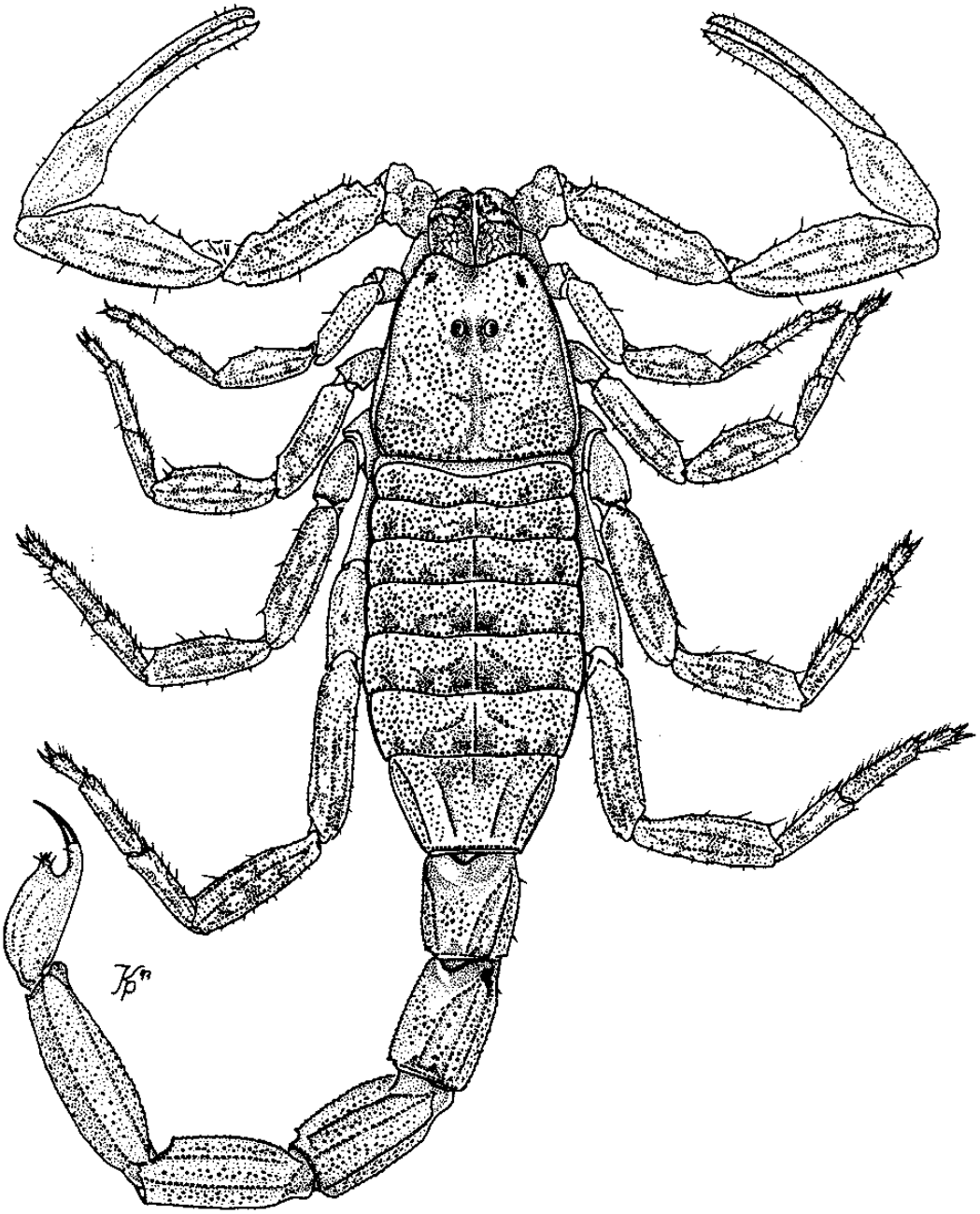


Fig. 106 – *Lychas lourencoi* sp. n., female HT. Dorsal aspect.

TYPE LOCALITY. India, Central Prov., Raipur; BMNH.

TYPE MATERIAL. **India**: Raipur, 1MA (holotype), BMNH No. BM 1893.12.20.1.

DIAGNOSTIC CHARACTERS. Total length of male holotype 21.8 mm. Male has fingers of pedipalps slightly twisted proximally. Sixth cutting edge on movable finger of pedipalps without external and internal granules (Fig. 8). Dorsal as well as ventral surface of entire mesosoma covered by large granules. Ventral surface of seventh mesosomal segment with four conspicuous keels. For position and distribution of trichobothria on tibia, patella, and femur of pedipalps see Fig. 74 and Tikader & Bastawade 1983: 63, figs 165–169. First through third metasomal segments with 10 keels. Pectinal teeth number 12. Pecten in male holotype large, 0.8 mm wide and 1.9 mm long. Patella and femur of pedipalps predominantly dark, with few light spots. Fingers of tibia of pedipalps dark, manus light (Tikader & Bastawade 1983: 61, figs 154–157). For habitus see Tikader & Bastawade 1983: 61, fig. 154.
COMMENTS. Pocock based this species on a single male received from H. M. Phipson (Pocock 1897: 111). *L. rugosus* is the smallest species of the genus *Lychas*.
DISTRIBUTION. India (Pocock 1897: 111).

Lychas scaber (Pocock, 1893)
(Figs 16, 35, 75, 97, Tables 1–3)

Isometrus (*Archisometrus*) *scaber* Pocock, 1893: 300.
Archisometrus scaber: Kraepelin, 1895: 86; 1899: 51.
Lychas scaber: Pocock, 1900: 38; Kraepelin, 1908: 190; 1913: 133; Roewer, 1943: 213; Takashima, 1945: 83; Caporiacco, 1947: 248; L. E. Koch, 1977: 124; Kovařík, 1995: 189.
Lychas (*Endotrichus*) *scaber*: Tikader & Bastawade, 1983: 85.

TYPE LOCALITY. Madras; ? BMNH.

MATERIAL. **India**: Andhra Pradesh, Secumderabad, 1M1FA, leg. A. Ricardo, BMNH No. 1893.3.16.7–8; Madras, 1MA, MNHN No. RS 4501.

DIAGNOSTIC CHARACTERS. Total length ca 40 mm. Male differs from female by longer metasoma. Sixth cutting edges on movable and fixed fingers of pedipalps each with two external granules (Figs 16 and 35). First and second metasomal segments bear 10 keels, third and fourth segments bear eight keels. Ventral surface of seventh mesosomal segment bears two pronounced keels and two additional, inconspicuous keels indicated by sparse granules. For position and distribution of trichobothria on tibia and femur of pedipalps see Figs 75 and 97. Femur of pedipalps dorsally with sparse but pronounced granules, more so in central part. Sparse, but much larger granules scattered on dorsal surface of carapace and mesosoma. Patella of pedipalps dorsally with two well marked keels. Pectinal teeth number 17–20.
COMMENTS. Pocock (1893) mentioned only one female (the holotype) from Madras (Tamil Nadu prov.). This is a complete specimen 36 mm long. Tikader & Bastawade (1983: 91) regarded as type specimens one male and one female, BMNH No. 1893.3.16.7–8. They stated that the female lacks part of the metasoma. I have examined both specimens. The female lacks the third through fifth metasomal segments and the telson, and the male is heavily damaged. An enclosed label gives the locality of both specimens as "India: Secumderabad".

Considering the information provided in Pocock's (1893: 301) description, the male cannot be a type specimen, and the locality data and incompleteness of the female make it unlikely that this could be the holotype. According to Pocock the holotype has 17 and 18 pectinal teeth, whereas the examined female has 18 and 19.

The positions of trichobothria est, et and db, dt on the tibia of pedipalps do not correspond in either specimen examined to figs 234–239 of Tikader & Bastawade, although the authors (p. 91) state that the illustrations are of those specimens. Based on position of said trichobothria, Tikader & Bastawade placed this species in the subgenus *Endotrichus* instead of *Alterotrichus*. However, both subgenera have been synonymized (Kovařík 1995: 188).
DISTRIBUTION. India (Pocock 1893: 301).

Lychas scutilus C. L. Koch, 1845
(Figs 41, 47, 76, Tables 1–3)

Lychas scutilus C. L. Koch, 1845b: 3, fig. 962; 1850: 92; Pocock, 1900: 37; Kraepelin, 1905: 196; Henderson, 1913: 129; Roewer, 1943: 210; Takashima, 1945: 78; Caporiacco, 1947: 248; L. E. Koch, 1977: 124; Vachon, 1985: 99; ? Khatoon, 1986: 645; Vachon, 1986: 841; Kovařík, 1995: 195.
Isometrus scutilus: Thorell, 1888: 337; Pocock, 1891: 435; 1893: 296.
Isometrus (Lychas) scutilus: Thorell, 1889: 525.
Lychas scutatus C. L. Koch, 1845b: 163 (content); Kraepelin, 1908: 186; 1913: 132; Kopstein, 1921: 121; 1923: 186; 1926: 111; Giltay, 1931: 18; Sachet, 1958: 6; Lamoral & Reynders, 1975: 511 (syn. by Pocock, 1900: 37).
Archisometrus scutatus: Thorell, 1893: 367; Kraepelin, 1895: 85; 1899: 44; 1901: 268; Vachon, 1986: 841.
Isometrus weberi Karsch, 1882: 184 (TL: Salanga) (syn. by Pocock, 1891: 435).
Archisometrus weberi: Kraepelin, 1891: 221; Vachon, 1986: 841.
Isometrus mesor Simon, 1884: 47 (TL: Java) (syn. by Pocock, 1891: 435).
Isometrus messor: Thorell, 1888: 337.
Lychas messor: Oates, 1888: 248; Vachon, 1986: 839.
Isometrus phipsoni Oates, 1888: 248 (TL: Tenasserim) (syn. by Pocock, 1891: 435).
Lychas phipsoni: Vachon, 1986: 839.
Archisometrus nigrimanus Kraepelin, 1898: 43 (TL: Sumatra); Kraepelin, 1899: 45. **Syn. n.**
Lychas nigrimanus: Kopstein, 1921: 122; 1923: 186; Giltay, 1931: 18; Takashima, 1945: 79; L. E. Koch, 1977: 124; Vachon, 1986: 839; Kovařík, 1995: 189.

TYPE LOCALITY. Ostindien, Insel Bintang; BMNH.

TYPE MATERIAL. **Indonesia**: Sumatra, 21.III.1897, 1FA (holotype of *Archisometrus nigrimanus*), ZMUH; Malakka, Salanga, 2FA (syntypes of *Isometrus weberi*), leg. Weber, ZMHB No. 4093.
OTHER MATERIAL. **Indonesia**: Sumatra, Deli, 1879, 1M1FA, leg. Schönherr, Mus. Frankfurt, ZMUH; Java, 1888, 1FA, det. M. Vachon 1975 No. VA–1310 as *Lychas scutatus*, NHMB No. 2a; Sumatra, 1M1FA det. M. Vachon 1975 as *Isometrus* (*Isometrus*) sp. ?, NHMB; Keeling Island, 1890, 1FA, leg. Kienberg, det. M. Vachon 1984 No. VA 2645, ZMUH; Billiton Island., 1892, 1MA, Mus. Leyden, det. M. Vachon 1984 No. VA 2641, ZMUH; Krapoh, 1893, 2M (one is imature) 1FA, Mus. Leyden, det. M. Vachon 1984 No. VA 2643, ZMUH; W. Sumatra, Bindjey Estahe, W. Burchhard, 28.IV.1894, 1M1FA, ZMUH; Sumatra, Serdang, X.1894, 1M2FA, leg. O. Puttfarken, det. M. Vachon 1984 No. VA 2639, ZMUH; 28.VIII.1902, 2FA, leg. Dr. Heinroth (labeled: *Lychas nigrimanus*), ZMHB No. 11341; Sumatra, Deli, 1FA, leg. Meissner (labeled: *Lychas nigrimanus*), ZMHB No. 11427; Sumatra, Deli, 1FA, SMFD No. 6689/96; Sumatra, 1MA (labeled: *Lychas weberi*), rev. M. Vachon 1981–82 No. VA 2652, ZMHB No 7529; Sumatra, 1MA, leg. Virchov (labeled: *Lychas scutatus*), rev. M. Vachon 1981–82 No. VA 2654, ZMHB No 7347; Ost-Sumatra, 1M1FA, ZMHB No. 894/09; Sumatra, 1FA, Mus. Berlin, det. M. Vachon 1984 No. VA 2654, ZMUH; Sumatra, Deli, Bandar Kivala, 2M1FA, leg. O. Puufarken, ZMUH. **Malaysia**: Malacca, I.–III.1909, 1M1FA, leg. Jachan (labeled: *Lychas flavimanus* – male, and *Lychas nigrimanus* – female), rev. M. Vachon 1981–82, Nos VA 2618–9, ZMHB No. 11350; Singapore, 1FA (labeled: *Lychas scutatus*), rev. M. Vachon 1981–82 No. VA 2653, ZMHB No 7235; Malacca, Burton, 1MA, MNHN No. RS 1460; Singapore, 1M1FA, leg. Wang, MNHN Nos RS 4163 and 4167; Johore Baru Palm Garden, V.1967, 1juv.A, leg. Wang, MNHN No. RS 4558; Pangkor Island, 5.II.1995, 2FA, leg. S. Bečvář, FKCP; Kedah, Langkawi Island, 15.–17.VI.1995, 2M8F1juvA, leg. S. & E. Bečvář, FKCP. **Myanmar**: Birma, Malewoon, 1885–1889, 1FA, leg. L. Fea, det. M. Vachon 1984 No. VA 2642, ZMUH. **Thailand**: NW Penins. Siam, Kapa, 1937, 1MA (labeled: *Archisometrus nigrimanus bernatziki* Schkl, typus), rev. M. Vachon 1975 No. VA–1311, leg. H. Bernatzik, NHMB No. 93.I.; Betong, IV.1993, 4F4ME 2FA, leg. J. Horák & J. Strnad, FKCP; Ko Lanta Island, 30 km Trang, 5.V.1996, 1MA, leg. J. Vondráček, FKCP; Khao Sok, II.1997, 2FA, leg. O. Bužga, FKCP. ?: East Asia Expedition, 1MA (labeled: *Lychas weberi*), ZMHB No 7537; East Asia, 1MA (labeled: *Lychas scutatus*), rev. M. Vachon 1981–82 No. VA 2651, ZMHB No 7387. ?, labelled "Zanzibar", 1FA, No. 2881, det. Kraepelin 1891, det. M. Vachon 1984 No. VA 2640, ZMUH.

DIAGNOSTIC CHARACTERS.Total length 60–86.5 mm in males and 40–65 mm in females. Male differs from female by much longer, very thin metasoma and long telson (Table l). Sixth cutting edges on movable and fixed fingers of pedipalps each with three to five external granules and one or no internal granule (Figs 40, 41, and 47). Ventral surface of seventh metasomal segment bears four pronounced keels. First segment of metasoma has 10 keels, second through fourth segments have eight keels. For position and distribution of trichobothria on tibia of pedipalps see Fig. 76.

Base color is yellow to reddish brown. Tibia, in part patella of pedipalps, telson, fifth and occasionally also fourth metasomal segments are dark brown. Mesosoma is spotted. Pectinal teeth number 15–20.

COMMENTS. *L. scutilus* was designated the type species of the genus *Lychas* (Pocock 1899: 834; Kovařík 1995: 188).

I examined the syntypes of *Isometrus weberi* (Table 1) and the holotype of *Archisometrus nigrimanus*. Although it has never been published that *Archisometrus nigrimanus* is a synonym of *L. scutilus*, the specimen labels show that this fact was known already to Kraepelin and Vachon. One holotype label says "= *Lychas scutatus* C. L. Koch, 1845, Kraepelin det.", and a second label states "= *Lychas scutilus* C. L. Koch, 1845, Vachon det. 1984". Vachon also enclosed his code number VA–2644.

The holotype of *Archisometrus nigrimanus* is 50.4 mm long and has 15 and 17 pectinal teeth.

DISTRIBUTION. Indonesia (C. L. Koch 1845b: 5), Malaysia (Pocock 1900: 38), Myanmar (Oates 1888: 248), Thailand (Kraepelin 1891: 222).

The species was mistakenly recorded from Zanzibar (see "Other material" and Kraepelin 1891: 222) and the Congo (Kraepelin 1899: 45). Its record from Pakistan, Daman-e-koh, Islamabad (Khatoon 1986: 645), is due to known distribution also to be regarded as incorrect.

Lychas serratus (Pocock, 1891)

(Table 2)

Isometrus serratus Pocock, 1891: 441.
Archisometrus serratus: Kraepelin, 1895: 85; 1899: 45.
Lychas serratus: Kovařík, 1995: 190.

TYPE LOCALITY. Mauritius, Round Island; BMNH.

DIAGNOSTIC CHARACTERS. Length of male holotype without vesicle 54 mm. Male has fingers of pedipalps proximally twisted so that their edges cannot meet (Pocock 1891, pl. 11, fig. 4a). Female unknown, but it is assumed that male has longer metasoma. First metasomal segment bears 10 keels, second through fourth segments bear eight keels (Pocock 1891: 442). Number of pectinal teeth unknown (Pocock 1891: 442). For habitus of holotype see Pocock, pl. 11, fig. 4.

COMMENTS. The species is based on a dry-mounted incomplete male lacking pectines and vesicle (Pocock 1891: 442). Unfortunately, I have not been able to examine the holotype or any other specimens of this species, and the diagnostic characters are therefore based solely on Pocock's description. However, Pocock gives neither the number of granules on the sixth cutting edge of the movable fingers of pedipalps, nor the position and distribution of trichobothria on the pedipalps. I am therefore unable to include this species in the key below, although I am convinced that it is a valid species. No specimens apart from the holotype are known.

DISTRIBUTION. Mauritius (Round Island) (Pocock 1891: 443).

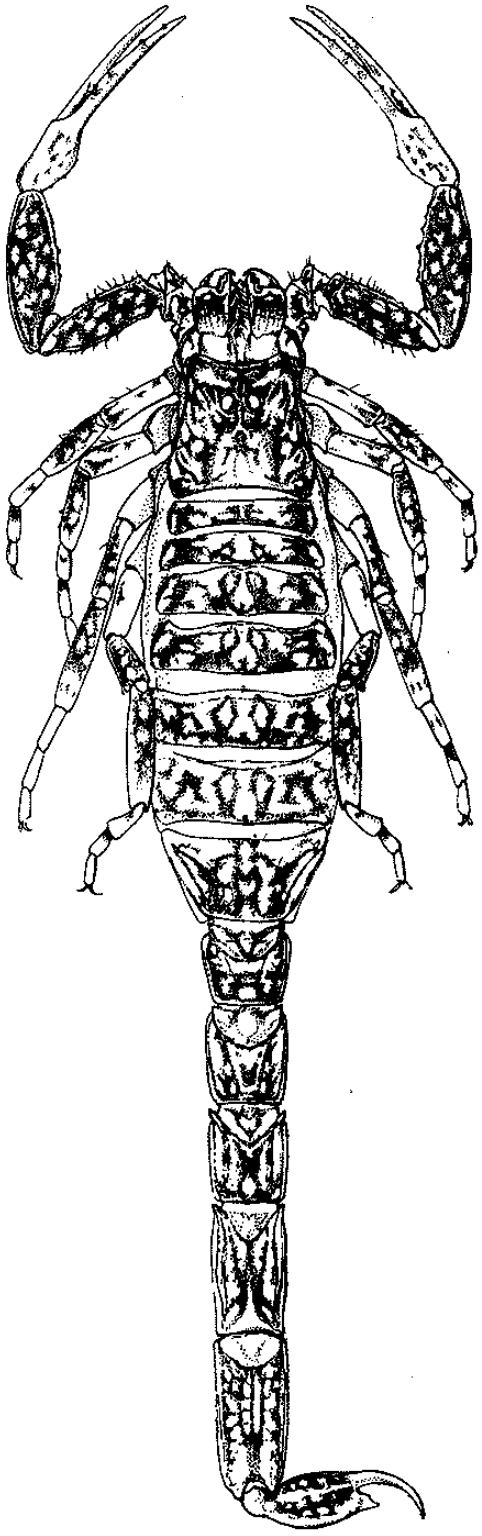


Fig. 107 – *Lychas variatus* (Thorell), female from FKCP. Dorsal aspect.

Lychas shelfordi (Borelli, 1904)
(Figs 45, 51, 77, Tables 1–3)

Archisometrus shelfordi Borelli, 1904: 1.
Lychas shelfordi: Kopstein, 1921: 125; 1923: 186; Giltay, 1931: 18; Takashima, 1945: 83; L. E. Koch, 1977: 124; Vachon & Lourenço, 1985: 9; Vachon, 1986: 839; Kovařík, 1994: 197; 1995: 190.

TYPE LOCALITY. Sarawak, Kuching; MRSN.

TYPE MATERIAL. **Malaysia**: Sarawak, Kuching, 1MA (lectotype) 1FA (paralectotype No. 1), leg. R. Shelford, MRSN No. Sc. 313.
OTHER MATERIAL. **Indonesia**: Sulawesi, 30km W of Kendari, 11.–14.II.1994, 1FE, leg. Štrba & Jeniš, FKCP. **Malaysia**: Sarawak, Kuching dist., Mt. Penrissen ,1000 m above sea level, 24.–26.III.1994, 1FE, leg. J. Horák, FKCP. **Philippines**: Luzon, Los Baños, 23.IV.1914, 1M2FA (and one ecdysis), leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Luzon, Banakao, 2000 m, 25.IV.1914, 1M1FA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Insel Basilan, 8.XII.1914, 1FA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Insel Samav, Sabbalogan, IV.1915, 1MA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; N. Mindanao, Surigao, V.1915, 1M2F2juvsA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; N. Mindanao, Kolambugan, 1MA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Sabaan, 23.I.1916, 1FA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Suboa, 31.I.1916, 1juv.A, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; N Luzon, Prov. Kalinga, Balbalan, 4000 m, VIII.1918, 1MA, leg. S. Böttcher & V. Heyne, ZMHB No. 137D/24; Palawan Island, Quezon env., V.1980, 1M2FA, FKCP; Busuanga Island, V. 1980, 1MA, FKCP.

DIAGNOSTIC CHARACTERS. Total length 30–44.5 mm. Male differs from female in having longer metasoma. Sixth cutting edge on movable finger of pedipalps with one external granule, and on fixed finger with one (Figs 45 and 51) or two external granules.

First metasomal segment bears 10 keels, second through fourth segments bear eight keels. Very rarely (only two examined specimens from Philippines) 10 keels on second metasomal segment. Ventral surface of seventh metasomal segment without keels but with large, mutually isolated granules. For position and distribution of trichobothria on pedipalps see Fig. 77. Pectinal teeth number 11–14.

Color pattern spotted (including telson and legs). Femur and patella of pedipalps largely dark brown. Tibia shiny and yellow, with sparse, minute dark spots.
COMMENTS. The species is based on one male and two females. I examined one male and one female and designated them a lectotype and a paralectotype No. 1, respectively. Both specimens were studied by Vachon, who did not designate a lectotype, however.
DISTRIBUTION. Indonesia: Sulawesi (first report), Malaysia: Sarawak (Borelli 1904: 3), and Philippine Islands (Giltay 1931: 18–19).

Lychas shoplandi (Oates, 1888)
(Figs 17, 36, 84, 94, Tables 1–3)

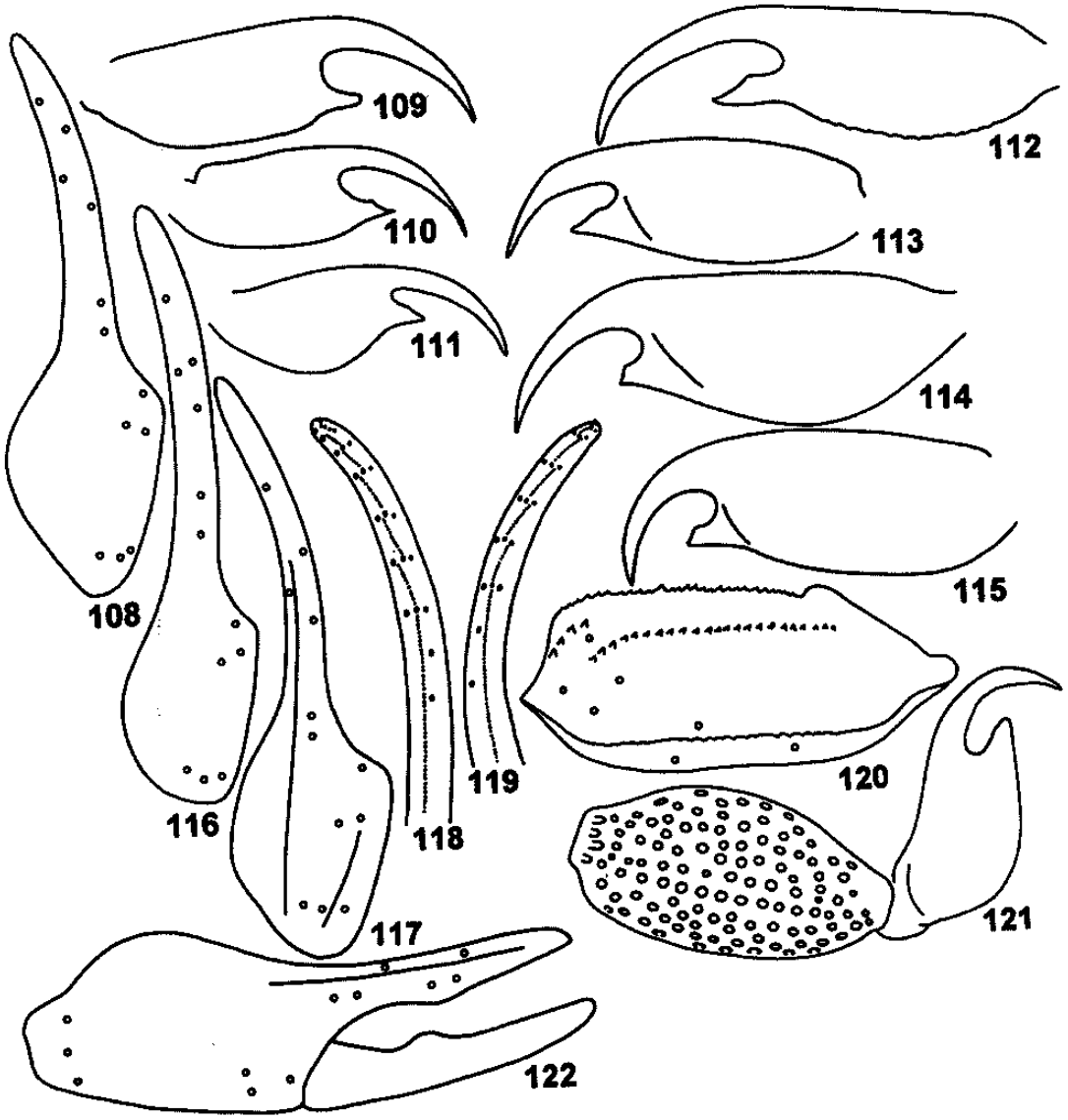
Isometrus shoplandi Oates, 1888: 246; Thorell, 1889: 562; Pocock, 1891: 434 (in part); 1893: 303.
Archisometrus shoplandi: Kraepelin, 1891: 225; 1895: 86; 1899: 50.
Lychas shoplandi: Pocock, 1900: 41; ? Kraepelin, 1913: 133; Takashima, 1945: 83; L. E. Koch, 1977: 124; Vachon, 1982: 86; 1986: 839; Kovařík, 1995: 190.

TYPE LOCALITY. Burma, Palone, a village about 50 miles N of Rangoon; BMNH.

TYPE MATERIAL. **Myanmar**: Palone, a village about 50 miles N of Rangoon, 1FA (lectotype) 1juv.A (paralectotype No. 1), BMNH No. 1897.5.10.1–2.
OTHER MATERIAL. **Myanmar**: Palon, 20.X.1896, 3juvsA, leg. L. Fea, ZMUH.

DIAGNOSTIC CHARACTERS. Total length 50–58 mm. Sixth cutting edges on movable and fixed fingers of pedipalps without external and internal granules (Figs 17 and 36). First through third

metasomal segments bear 10 keels and fourth segment bears eight keels, but two keels on third segment are less conspicuous. Ventral surface of seventh segment bears four conspicuous keels. Fingers are much lighter-colored than manus of pedipalps. For position and distribution of trichobothria on tibia and patella of pedipalps see Figs 84 and 94. Pectinal teeth number 21–25.



Figs 108–122. Fig. 108 – *Lychas buchari* sp. n., male HT, tibia of pedipalps. Figs 109–116 – telson. Fig. 109 – *L. marmoreus* (C. L. Koch), female LT of *L. marmoreus splendens* Kraepelin. Figs 110–111 – *L. variatus* (Thorell). Fig. 110 – LT of *L. marmoreus kimberleyanus* Kraepelin. Fig. 111 – female LT of *L. spinatus* Kraepelin. Figs 112–115 – *L. asper* (Pocock). Fig. 112 – female from BMNH. Fig. 113 – male from MNHN. Fig. 114 – female LT of *L. asper obscurus* Kraepelin. Fig. 115 – male from MNHN. Fig. 116 – *L. hendersoni* (Pocock), female HT, tibia of pedipalps. Figs 117–121 – *Hemilychas alexandrinus* Hirst, male HT. Fig. 117 – tibia of pedipalps. Fig. 118 – movable finger of pedipalps. Fig. 119 – fixed finger of pedipalps. Fig. 120 – femur of pedipalps. Fig. 121 – telson and fifth metasomal segment. Fig. 122 – *Lychas farkasi* sp. n., male HT, chela of pedipalps.

COMMENTS. Since Oates did not establish a holotype, I designate a lectotype (Table 1) and a paralectotype No. 1. Oates noted that the male is not known, and no later author mentioned a male. Thorell recorded another female from "Prome" (Myanmar). Oates counted 22 pectinal teeth (paralectotype No. 1). Thorell (1889: 562–566) gave a total length of ca 52 mm and 22–25 pectinal teeth. Pocock (1900: 41) gave a total length of 58 mm. Examined juveniles from ZMUH measure 27–30 mm.

Kraepelin (1913: 133) stated that mesosomal segments bear three keels, but I have found only one dorsal keel on the second through sixth mesosomal segments of all examined specimens, including the types. Kraepelin used this character to distinguish *L. shoplandi* from *L. feae*, which is also listed from Myanmar.

DISTRIBUTION. Myanmar (Oates 1888: 247).

Lychas tricarinatus (Simon, 1884)

(Figs 46, 53, 85, 100, Tables 1–3)

Isometrus tricarinatus Simon, 1884: 47; Oates, 1888: 247; Pocock, 1891: 433; 1893: 303.
Archisometrus tricarinatus: Kraepelin, 1891: 227; 1895: 86; 1899: 50; 1901: 268.
Lychas tricarinatus: Pocock, 1900: 40; Kraepelin, 1908: 190; 1913: 133; Henderson, 1919: 380; Werner, 1916: 86; Lampe, 1918: 195; Werner, 1934: 271; Roewer, 1943: 210; Takashima, 1945: 83; Basu, 1964: 103; Sreenivasa-Reddy, 1968: 760; Mathew, 1970: 123; Lamoral & Reynders, 1975: 512; Polis & Sissom, 1990: 174; Kovařík, 1995: 190.
Lychas (*Endotrichus*) *tricarinatus*: Tikader & Bastawade, 1983: 73.

TYPE LOCALITY. Pondichéry; MNHN.

TYPE MATERIAL. **India**: Pondichery, 1FA (lectotype), MNHN No. RS 1477, 5374.
OTHER MATERIAL. **India**: Dekan, Anamalei, 1FA, SMFD No. 1085/16; Dharwar, Hubbli, 1FA, leg. Ziegler, NHMB No. 3a; Madras, Vellon, 1890, 1FA, ZMUH; Ostindien, 20.VIII.1900, 1FA, "Mus Paris", ZMUH; Sa San, Kathiawar, 3FA, "Mus Calcutta", ZMUH; X.1912, 1FA, Mus. Calcutta, ZMUH; Inde or., 1FA, MNHN No. RS 1450, 1F(im)A, coll. Simon, MNHN No. RS 1492; Andhra Pradesh, Tirumalai Hills, Tirupati, 1FA, MNHN No. RS 4500, 3FA, MNHN No. RS 7154, 1juv.A, MNHN No. RS 7155; Chokardharpur, Nagpur, 1FA, "Mus Calcutta", ZMUH; 1FE1MA, FKCP. ?: 5F1juv.A, MNHN Nos 1467 and 7153.

DIAGNOSTIC CHARACTERS. Total length 44–54.7 mm. Male differs from female in longer and narrower metasomal segments (Tab. 1). Sixth cutting edge on movable fingers of pedipalps without external and internal granules (Figs 46 and 53). Second through sixth mesosomal segments usually with three carinae, but in some specimens with only one carina. First and second metasomal segments bear 10 keels, of which two keels are composed of well defined but mutually more distant granules. Third and fourth metasomal segments bear eight keels, but third segment may have 10 keels. For position and distribution of trichobothria on tibia and femur of pedipalps see Figs 85 and 100. Trichobothrium esb1 on patella of pedipalps is situated between trichobothria esb2 and eb (Fig. 93). Tibial spurs are markedly long.

Base color is yellow, with dark brown spots. Fingers and manus of tibia of pedipalps are of identical color, light and spotted. Pectinal teeth number 20–26.

COMMENTS. The type material in Simon's collection is not unequivocally labeled. Tikader & Bastawade (1983: 78) stated that they had examined three females, BMNH No. 1894.10.24. Simon (1884: 47) described a female from Pondichery with a total length of 38 mm and 25 pectinal teeth, which according to him is deposited in the Simon collection and thus at MNHN. Although the examined female, MNHN No. RS 1477, is 44.3 mm long, it agrees with Simon's description in the number of pectinal teeth and the locality, for which reason I hereby designate is the lectotype.

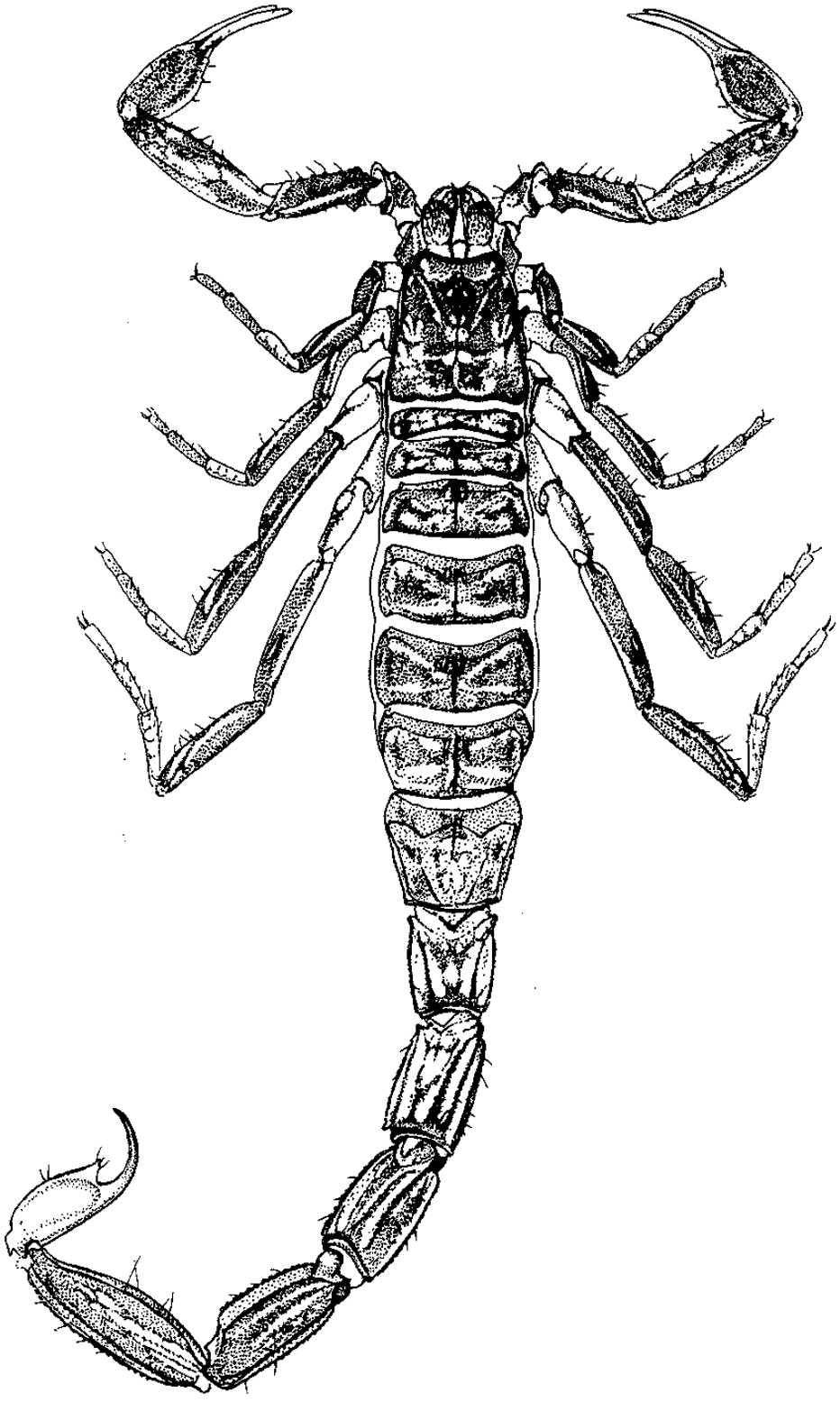


Fig. 123 – *Lychas heurtaultae* sp. n., male HT. Dorsal aspect.

DISTRIBUTION. India (Simon 1884: 47). This species was mistakenly recorded from West Africa, Slave Coast (Kraepelin 1891: 227–228).

Lychas variatus (Thorell, 1876)

(Figs 19–21, 38, 39, 90, 91, 101, 102, 107, 110–111, Tables 1–3)

Isometrus variatus Thorell, 1876: 136; Keyserling, 1885: 9; Thorell, 1888: 407.
Archisometrus variatus: Kraepelin, 1899: 49; 1901: 268.
Lychas variatus: L. E. Koch, 1977: 132; 1981: 877; Locket, 1990: 79; ? Sissom, 1990: 92; Locket, 1993: 597; Kovařík, 1995: 190.
Archisometrus marmoreus: Kraepelin, 1891: 226 (in part); 1899: 49 (in part).
Lychas marmoreus: Kraepelin, 1908: 87 (in part); 1916: 26 (in part); Glauert, 1925: 95 (in part).
Lychas marmoreus variatus: Kraepelin, 1916: 28; Glauert, 1925: 98; Takashima, 1945: 81; Glauert, 1963: 183.
Isometrus thorellii Keyserling, 1885: 12 (TL: Sydney); Thorell, 1888: 407 (syn. by L. E. Koch, 1977: 132).
Isometrus variatus var. *papuanus* Thorell, 1888: 407 (TL: Sydney) (syn. by L. E. Koch, 1977: 132).
Lychas papuanus: Kraepelin, 1916: 29; Kopstein, 1921: 124; 1923: 184; Glauert, 1925: 99; Giltay, 1931: 18.
Lychas marmoreus papuanus: Takashima, 1948: 74; 1950: 19.
Isometrus armatus Pocock, 1891: 439 (TL: Australia, Port Essington) (syn. by L. E. Koch, 1977: 132).
Archisometrus armatus: Kraepelin, 1895: 85; 1899: 47.
Lychas armatus: Glauert, 1925: 100; Takashima, 1945: 79; Glauert, 1954: 5.
Lychas marmoreus kimberleyanus Kraepelin, 1916: 29 (TL: Australia, Kimberley Distrikt); Glauert, 1925: 98; Takashima, 1945: 81; Glauert, 1963: 183 (syn. by L. E. Koch, 1977: 133).
Lychas spinatus Kraepelin, 1916: 32 (TL: Australia: Queensland); Glauert, 1925: 102; Takashima, 1945: 84 (syn. by L. E. Koch, 1977: 133).
Lychas spinatus spinatus: Glauert, 1925: 103.
Lychas spinatus var. *besti* Glauert, 1925: 103 (TL: Australia: Mallee District of Victoria); Takashima, 1945: 84 (syn. by L. E. Koch, 1977: 133).
Lychas spinatus var. *pallidus* Glauert, 1925: 105 (TL: Australia: New South Wales); Takashima, 1945: 84 (syn. by L. E. Koch, 1977: 133).
Lychas lappa Glauert, 1954: 4 (TL: Australia: North Queensland, Lappa junction); L. E. Koch, 1980: 296 (syn. by L. E. Koch, 1977: 133).

TYPE LOCALITY. Nova Hollandia; MCSN.

TYPE MATERIAL. **Australia**: Queensland, IX.1911, 2FA (lectotype and paralectotype of *Lychas spinatus*), ZMUH No. 479; Kimberley District, 1912, 2juvsA (lectotype and paralectotype No. 1 of *Lychas marmoreus kimberleyanus*), leg. Mjöberg, ZMUH No. 456. **New Guinea**: Yule island, 1875, 2FA (lectotype and paralectotype No. 1 of *Isometrus variatus papuanus*), leg. L. M. D'Albertis, MCSN.
OTHER MATERIAL. **Australia**: Queensland, 1FA, MNHN No. RS 7337; Rockhampton, 1FA, MNHN, No. RS 1464; Queensland, Blackal Range, VIII.1912, 2FA, leg. Mjöberg, ZMUH; Broome, VIII.1912, 1FA, leg. Mjöberg, ZMUH; S. Queensland, Mt. Tambowine, VII.1914, 1FA, leg. Mjöberg, ZMUH; S. Queensland, Herberton, VII.1914, 1FA, leg. Mjöberg, ZMUH; S. Queensland, Christmaserek, VII.1914, 1M1FA, leg. Mjöberg, ZMUH; Queensland, 1FA (det. P. Hillyard as *Lychas armatus* and L. E. Koch as *Lychas variatus*), BMNH No. BM 1924.9.1.1; Queensland, Varia, 1968, 2juvsA, leg. J. Balogh, Hung. Soil. Zool. Exp., HNHM No. QLD.C.1; 1969, 1MA, leg. J. Balogh, HNHM No. AA-S.3; Queensland, near Canberra (?), 1972, 1juv.A, leg. H. Strümpel, ZMUH No. A67/79; Queensland, 1980, 1juv.A, FKCP; South, Adelaide, 1MA, leg. Schemburgh, labeled: *Lychas armatus*, ZMHB No. 7593; Thursday, 1FA, MNHN No. RS 1461. **Melanesia**: Solomon Islands, New Georgia Island, Rubiana, 1MA, coll. A. Willey, BMNH. **New Guinea**: 5.XII.1899, 1FA, Mus. Genue, ZMUH; Kaiserim, 2.–5.XI.1912, 1FA, No. 353/1913, VII.1912, 1FA, No. 1431/1912, 28.VIII.1912, 1MA (im), No. 1431/1912, 24.VII.1912, 1FA, No. 1431/1912, 1FA, No. 1016/1912, leg. Bürgers, ZMHB; NNW, X.1912, 1M1FA, leg. P. N. Kampen, ZMUH; Siwi, 1980, 1FE, FKCP; Cyclop, 1980, 1FE, FKCP; 1980, 1FA, FKCP.

DIAGNOSTIC CHARACTERS. Total length 36–50.5 mm. Sixth cutting edges on movable and fixed fingers of pedipalps each with one (Figs 19 and 38), two (Figs 20, 21, and 39) or three external granules. Male has fingers of pedipalps proximally twisted. First metasomal segment with 10 keels, second and third segments with 10 or eight keels. Dorsal keels on second through fourth metasomal segments terminate in a tooth, which is particularly conspicuous on the third meta-

somal segment of adult males. Subaculear tooth large, wide, and pointed (Figs 110–111). For position and distribution of trichobothria on tibia and femur of pedipalps see Figs 90–91 and 101–102. Position of trichobothrium db varies (Figs 90 and 91). Nearly entire animal is spotted, fingers and manus of pedipalps are of uniform color or fingers are lighter than manus of tibia (Fig. 108 and pl. 2, fig. 3 in Pocock 1891). Fingers may be rarely darker than manus. Pectinal teeth number 12–24 in males and 10–24 in females. The habitus is shown in Fig. 107.

COMMENTS. Thorell (1876) based the species on one specimen 39 mm long and with 17 pectinal teeth, from "Nova Hollandia".

This species is very similar to *L. marmoreus* with which it is often confused (e. g. Kraepelin 1916: 29, Glauert 1925: 95). *L. variatus* was revised by L. E. Koch (1977: 135), who examined 71 males and 187 females. He counted 12–24 pectinal teeth in the males and 10–24 in the females.

L. variatus is very variable in the number of pectinal teeth as well as in other characters commonly used to distinguish species of the genus *Lychas*, such as the position of trichobothria on the tibia of pedipalps (Figs 90 and 91), the presence of 10 but sometimes only eight keels on the second and third metasomal segments, and the number of external granules near the sixth granular row on the movable and fixed fingers of pedipalps. This variability has led to descriptions of many subspecies. I agree with L. E. Koch, who considers all the subspecies invalid.

In addition, I have examined the following type material:

1) The types of *L. spinatus* (Table 1), hereby designated the lectotype and paralectotype with total lengths of 46.4 and 46.6 mm, respectively. Pectinal teeth number 19 in the lectotype and 19 and 20 in the paralectotype.

2) The types of *Lychas marmoreus kimberleyanus* (Figs 19, 38, 91, 102, and 110), hereby designated a lectotype and a paralectotype No. 1. They are immature specimens. According to the original label, Kraepelin at first correctly identified them as *L. variatus*, but later called them *L. thorelli* and subsequently *L. m. kimberleyanus*. The lectotype is 20 mm long and has 16 pectinal teeth. The paralectotype No. 1 is 13.5 mm long and has 13 and 14 pectinal teeth.

3) The types of *Lychas variatus papuanus*, hereby designated a lectotype and a paralectotype No. 1, with total lengths of 50.5 and 33.5 mm, respectively. Pectinal teeth number 15 and 16 in the lectotype and 14 in the paralectotype No. 1.

DISTRIBUTION. Australia (Thorell 1876: 138), Melanesia: Solomon Islands, Bougainville Island (L. E. Koch 1977: 138), and New Guinea (Kopstein 1921: 124). For distribution of *L. variatus* in Australia and New Guinea see L. E. Koch 1977: 312, map 3.

Key to *Lychas* species occurring in the Oriental region, Australia, incl. Melanesia (except *L. feae*)

1. Sixth cutting edge on movable fingers of pedipalps with external granules (Fig.10). 2
– Sixth cutting edge on movable fingers of pedipalps without external granules (Fig. 8). 21
2. Second segment of metasoma with 10 keels (some specimens from Australia and New Guinea may have two keels only vestigial or rarely absent). 3
– Second segment of metasoma with eight keels (absent in Australia ani New Guinea). 14
3. Sixth cutting edge on movable fingers of pedipalps with one external granule. Some specimens from Australia and New Guinea may have two (Figs 20–21) or very rarely three (*L. variatus*) external granules, in which case their third metasomal segment usually bears 10 keels). 4
– Sixth cutting edge on movable fingers of pedipalps with two to four external granules (Fig. 10). Third metasomal segment with eight keels (absent in Australia and New Guinea). 11
4. Dorsolateral keels of metasomal segments composed of granules of equal size. Keels do not terminate in a conspicuous tooth. Third metasomal segment with eight keels. Absent in Australia and New Guinea. 5

– Dorsolateral keels of second and third metasomal segments terminate in a tooth (very conspicuous in adult males) which may be blunt. Third metasomal segment with 10 keels (some specimens may have two keels on the second and third metasomal segments only vestigial or rarely absent). Occurs in Australia and New Guinea. 6
5. Tibial spurs on third and fourth legs long. 8
– Tibial spurs on third and fourth legs short. ..... *L. gravelyi* Henderson
6. Subaculear tooth small (Fig. 105). ..... *L. mjobergi* Kraepelin
– Subaculear tooth conspicuous (Figs 109–111). 7
7. Subaculear tooth wide, tall, and usually pointed (Figs 110–111), with granules always present. Female has metasoma as long as male. Metasoma not very slender, third metasomal segment length to width ratio lower than 1.6. Fingers and manus of pedipalps spotted and of the same color, or fingers lighter than manus (Fig. 108 and pl. 2, fig. 3 in Pocock 1891). ..... *L. variatus* (Thorell)
– Subaculear tooth not as wide and terminally rounded (Fig. 109), with or without granules. Male has longer metasoma than female. Metasoma very slender, third metasomal segment length to width ratio higher than 1.7. Manus of pedipalps light-colored and spotted, fingers dark (fig. 868 in C. L. Koch, 1844). ..... *L. marmoreus* (C. L. Koch)
8. First metasomal segment longer than wide. 10
– First metasomal segment wider than long 9
9. Subaculear tooth wide (Fig. 103), with granules. Trichobothrium db situated between trichobothria dt and et (Fig. 69). ..... *L. infuscatus* (Pocock)
– Subaculear tooth narrow (Fig. 104), without granules. Trichobothrium db situated between trichobothria et and est (Fig. 78). ..... *L. perfidus* (Keyserling)
10. Pectinal teeth number 11–14. ..... *L. shelfordi* (Borelli)
– Pectinal teeth number 26. ..... *L. buchari* **sp. n.**
11. Legs uniformly colored. ..... *L. scaber* Pocock
– Legs spotted (Fig. 106). 12
12. Pectinal teeth number 11–12. ..... *L. lourencoi* **sp. n.**
– Pectinal teeth number 15–26. 13
13. Manus of pedipalps of the same color as patella and femur of pedipalps. Total length 30.4–44.5 mm. Pectinal teeth number 10–19. Metasoma much longer in male than in female. ..... *L. krali* Kovařík
– Manus of pedipalps bright yellow (with sparse, minute black spots), patella predominantly dark. Total length 40–65 mm. Pectinal teeth number 16–26 (most frequently 19–22). Metasoma of approximately the same length in both sexes. ..... *L. mucronatus* (Fabricius)
14. Third metasomal segment with eight keels. 15
– Third metasomal segment with six keels. ..... *L. kharpadi* Bastawade
15. Sixth cutting edge on movable fingers of pedipalps with one external granule (Fig. 9). 16
– Sixth cutting edge on movable fingers of pedipalps with three to five external granules (Figs 40 and 41). 18
16. Pectinal teeth number 11–13, rarely 14 (only males). Occurs in Indonesia, Malaysia, and Philippines. ..... *L. shelfordi* (Borelli)
– Pectinal teeth number 15–18, rarely 14 (only females). Occurs in India and Nepal. 17
17. Patella dark, occasionally with a few light spots, darker than femur and tibia of pedipalps. 20
– Patella light-colored, with a few dark spots, of the same color as femur and tibia of pedipalps. ..... *L. hillyardi* **sp. n.**
18. Femur and patella dark, manus of pedipalps yellow. 19
– Femur and adjoining half of patella yellowish brown, rest of patella and manus dark. Fingers reddish brown, lighter than manus. ..... *L. scutilus* C. L. Koch
19. Trichobothrium db situated between trichobothria dt and et (Fig. 64). Pectinal teeth number 18–24. Legs not spotted. ..... *L. hosei* (Pocock)
– Trichobothrium db situated between trichobothria et and est (Fig. 62). Pectinal teeth number 15–19. Legs may be spotted. ..... *L. flavimanus* (Thorell)
20. Manus narrow. Tibia length to manus width ratio higher than 4.7. ..... *L. nigristernis* (Pocock)
– Manus wide. Tibia length to manus width ratio lower than 4.2. ..... *L. rackae* **sp. n.**
21. Pectinal teeth number 12–18. 22
– Pectinal teeth number 20–26. 23
22. Pectinal teeth number 12. Fingers dark, manus of tibia of pedipalps light. ..... *L. rugosus* (Pocock)
– Pectinal teeth number 17–18. Fingers and manus of tibia of pedipalps of the same color. ..... *L. hendersoni* (Pocock)
23. Fingers lighter-colored than manus of tibia of pedipalps. 24
– Fingers of the same color as, or darker than, manus of tibia of pedipalps. 25
24. Third metasomal segment with 10 keels ..... *L. shoplandi* (Oates)
– Third metasomal segment with eight keels. ..... *L. heurtaultae* **sp. n.**
25. Pectines six times longer than wide, pectinal teeth number 24. ..... *L. biharensis* Tikader & Bastawade

– Pectines less than five times longer than wide, pectinal teeth number 20–25. 26
26. Pectinal teeth number 20. Total length under 30 mm. ..... *L. kamshetensis* Tikader & Bastawade
– Pectinal teeth number 21–25. Total length over 30 mm. 27
27. Fingers and manus of tibia of pedipalps of the same color, light and spotted. 28
– Manus of pedipalps light, fingers dark. ..... *L. albimanus* Henderson
28. Triangle between median eyes and anterior margin of carapace glossy and smooth or tuberculate, without granules which cover other areas of carapace. ..... *L. laevifrons* (Pocock)
– Entire carapace evenly granulated. 29
29. Manus of pedipalps granulated. ..... *L. farkasi* **sp. n.**
– Manus of pedipalps smooth without granules. ..... *L. tricarinatus* (Simon)

Key to *Lychas* occurring in Africa and the Seychelles

1. Sixth row of granules (cutting edge) on movable finger with external granules (Fig. 2). Male has metasoma longer than female. 2
– Sixth row of granules on movable finger without external granules (Fig. 3). Female has metasoma as long as male. 3
2. Terminal tubercle of each dorsal keel on second and third metasomal segments markedly enlarged (Fig. 55). Manus of pedipalps dark. ..... *L. obsti* Kraepelin
– Terminal tubercle of each dorsal keel scarcely larger than others (Fig. 54). Manus of pedipalps light, with dark spots. ..... *L. asper* (Pocock)
3. Dorsal surface of mesosoma with three keels. Seventh segment of mesosoma with four pronounced ventral keels. Fifth segment of metasoma smooth and glossy. ..... *L. braueri* (Kraepelin)
– Dorsal surface of mesosoma with one keel. Seventh segment of mesosoma ventrally smooth and without keels. Fifth segment of metasoma not glossy. ..... *L. burdoi* (Simon)

Checklist of the genus *Lychas* C. L. Koch, 1845

Lychas albimanus Henderson, 1919
Lychas asper (Pocock, 1891)
= *Lychas asper obscurus* Kraepelin, 1913 **syn. n.**
Lychas biharensis Tikader & Bastawade, 1983
Lychas braueri (Kraepelin, 1896)
Lychas buchari **sp. n.**
Lychas burdoi (Simon, 1882)
= ? *Lychas burdoi regulosus* Birula, 1916 **syn. n.**
= *Lychas burdoi rhodesianus* Lawrence, 1938 **syn. n.**
Lychas farkasi **sp. n.**
? *Lychas feae* (Thorell, 1889)
Lychas flavimanus (Thorell, 1888)
Lychas gravelyi Henderson, 1913
Lychas hendersoni (Pocock, 1897)
Lychas heurtaultae **sp. n.**
Lychas hillyardi **sp. n.**
Lychas hosei (Pocock, 1891)
= *Lychas tweediei* Kopstein, 1937 **syn. n.**
Lychas infuscatus (Pocock, 1891)
Lychas kamshetensis Tikader & Bastawade, 1983
Lychas kharpadi Bastawade, 1986
Lychas krali Kovařík, 1995
Lychas laevifrons (Pocock, 1897)
Lychas lourencoi **sp. n.**
Lychas marmoreus (C. L. Koch, 1844)
= *Isometrus bituberculatus* Pocock, 1891
= *Lychas marmoreus obscurus* Kraepelin, 1916
= *Lychas marmoreus nigrescens* Kraepelin, 1916
= *Lychas marmoreus splendens* Kraepelin, 1916
= *Lychas jonesae* Glauert, 1925

Lychas mjobergi Kraepelin, 1916
Lychas mucronatus (Fabricius, 1798)
= *Scorpio armillatus* Gervais, 1841
= *Scorpio* (*Androctonus*) *curvidigitatus* Gervais, 1843
= *Tityus varius* C. L. Koch, 1844
= *Isometrus chinensis* Karsch, 1879
= *Isometrus atomarius* Simon, 1884
= *Lychas mentaweius* Roewer, 1943 **syn. n.**
= *Lychas baldasseronii* Caporiacco, 1947 **syn. n.**
= ? *Lychas nucifer* Basu, 1964 **syn. n.**
Lychas nigristernis (Pocock, 1899)
= ? *Lychas decorata* Basu, 1964 **syn. n.**
Lychas obsti Kraepelin, 1913
Lychas perfidus (Keyserling, 1885)
Lychas rackae **sp. n.**
Lychas rugosus (Pocock, 1897)
Lychas scaber (Pocock, 1893)
Lychas scutilus C. L. Koch, 1845
= *Lychas scutatus* C. L. Koch, 1845
= *Isometrus weberi* Karsch, 1882
= *Isometrus mesor* Simon, 1884
= *Isometrus phipsoni* Oates, 1888
= *Archisometrus nigrimanus* Kraepelin, 1898 **syn. n.**
Lychas serratus (Pocock, 1891)
Lychas shelfordi (Borelli, 1904)
Lychas shoplandi (Oates, 1888)
Lychas tricarinatus (Simon, 1884)
Lychas variatus (Thorell, 1876)
= *Isometrus thorelli* Keyserling, 1885
= *Isometrus variatus papuanus* Thorell, 1888
= *Isometrus armatus* Pocock, 1891
= *Lychas marmoreus kimberleyanus* Kraepelin, 1916
= *Lychas spinatus* Kraepelin, 1916
= *Lychas spinatus besti* Glauert, 1925
= *Lychas spinatus pallidus* Glauert, 1925
= *Lychas lappa* Glauert, 1954

Checklist of species incorrectly placed in the genera *Lychas* C. L. Koch, 1845, and *Archisometrus* Kraepelin, 1891

Lychas maculatus: C. L. Koch, 1845b: 1, fig. 960 = *Isometrus maculatus* (De Geer, 1778: 346) (see Hemprich & Ehrenberg, 1828: pl. 1, fig. 3; Hemprich & Ehrenberg, 1829: 351).
Lychas americanus: C. L. Koch, 1845b: 2, fig. 961 = *Isometrus maculatus* (De Geer, 1778: 346) (syn. by Keyserling, 1885: 6).
Lychas paraensis C. L. Koch, 1845: 6, fig. 963 = *Isometrus maculatus* (De Geer, 1778: 346) (syn. by Thorell, 1888: 406).
Lychas melanodactylus L. Koch, 1867: 239 = *Isometrus melanodactylus* (see Kraepelin, 1891: 248).
Lychas mabillianus Rochebrune, 1884: 28 = ? *Isometrus maculatus* (De Geer, 1778: 346) (syn. by Simon, 1886: 86; Kraepelin, 1899: 96; Lamoral & Reynders, 1975: 511).
Lychas pegleri Purcell, 1902: 173 = *Pseudolychas pegleri* (see Kraepelin, 1911: 59).
Lychas (*Hemilychas*) *alexandrinus* Hirst, 1911: 464 = *Hemilychas alexandrinus* see below.
Lychas ochraceus Hirst, 1911: 466 = *Pseudolychas ochraceus* (see Hewitt, 1918: 115).
Lychas emiliae Werner, 1916: 87 = *Uroplectes emiliae* (see Vachon, 1984: 369).
Lychas minshullae Fitzpatrick, 1994: 23 = *Afroisometrus minshullae* (see Kovařík 1997: 35).
Scorpio (*Lychas*) *gabonensis* Lucas, 1858: 430 = *Isometrus maculatus* (De Geer, 1778: 346). (syn. by Peters, 1862: 515).
Scorpio (*Lychas*) *guineensis* Lucas, 1858: 432 = *Isometrus maculatus* (De Geer, 1778: 346) (syn. by Peters, 1862: 515).
Archisometrus crassimanus Pocock, 1897: 110 = *Hemibuthus crassimanus* (see Pocock, 1900: 34).
Archisometrus basilicus: Kraepelin, 1891: 220 = *Isometrus basilicus* Karsch, 1879a: 113.

DISCUSSION

The first more thorough key of the genus *Archisometrus* (= *Lychas*) was published by Kraepelin (1899: 41–44). It included 20 taxa, of which 16 are still valid *Lychas* species. Kraepelin's key is relatively complex and unnecessarily long, because it omits characters dividing the genus into species groups.

Later Kraepelin (1913: 132–133) published a key containing 10 species from India to Myanmar, in which he used as a primary character the number of granules at the sixth cutting edge on the fingers of pedipalps.

Tikader & Bastawade (1983) published a key comprising 11 species of the genus *Lychas* occurring in India. In an attempt to find characters dividing the species into groups, they used as a primary character the position of trichobothrium db on the tibia of pedipalps relative to the position of trichobothria et and est (Tikader & Bastawade 1983: 41), and divided Indian *Lychas* into three groups defined as subgenera *Distotrichus*, *Alterotrichus*, and *Endotrichus*. The choice of this character was unfortunate, because the position of trichobothrium db exhibits a great deal of intraspecific variation (Vachon 1986: 847, Kovařík 1995: 191, figs 1 and 2), particularly in *L. marmoreus*, *L. mucronatus*, and *L. variatus*. Positions of trichobothria in *Lychas* are therefore useful only as a secondary character aiding in species identification, and not in distinguishing species groups.

The primary characters used in this revision are the number of external granules at the sixth cutting edge (row of granules) on the movable fingers of pedipalps (e. g. Figs 2–20), and the presence of eight or 10 keels on the first, second, and third metasomal segments (*L. kharpadi* has only six keels on the third segment).

The number of external granules at the sixth cutting edge on the movable fingers of pedipalps has so far been used only sporadically for recognizing species (e. g. Kraepelin, 1913: 132–3, Bastawade 1986: 637). My idea to use it for a basic division stems from Kraepelin's (1913) and Vachon's (1986) studies of *Lychas*. This character shows relatively little variation. Some species of *Lychas* do not have any external granules at the sixth cutting edge, and other species have one to five external granules. However, the number of granules is not always the same within a species, e. g. *L. scutilus* has three to five, *L. krali* two or three, and *L. variatus* one to three.

The disadvantage of this character has been the necessity to examine a majority of the species, because the number of external granules is rarely found recorded in the literature. However, Tikader & Bastawade (1983) list it for all the species occurring in India.

The number of external granules is not known for *L. feae* from Myanmar and *L. serratus* from Mauritius. I have not been able to examine these species, for which reason they are not included in the key. Although Kraepelin (1913: 133) noted that *L. feae* does not possess any external granules, it is not clear whether he had a specimen of *L. feae* at his disposal, because to my knowledge this species is not represented in the ZMHB and ZMUH collections.

The number of keels on the second metasomal segment was used already by Thorell (1888: 409), Pocock (1891: 439), Kraepelin (1899: 42) and others, and it is therefore known for all the species. This character appears to be quite stable, I have found it to vary only in *L. burdoi*, *L. marmoreus*, *L. obsti*, *L. shelfordi*, and *L. variatus*.

For further differentiation, in most instances among but a few species, I tried to find easily discernible characters. For this reason the often used number of keels on the ventral surface of the seventh mesosomal segment (e. g. Roewer 1943: 213) does not appear in the key, as these keels are variably developed and often hard to see.

Despite marked size differences among species (21.8–86.5 mm), total length is used only as a secondary character in the key, in order to permit determination of immature specimens as well.

The same applies to sexual dimorphism manifested in twisted or bent fingers of pedipalps (e. g. *L. mucronatus* and *L. krali*), the length of the metasoma (e. g. *L. scutilus, L. shelfordi*), or combination of both (e. g. *L. asper, L. nigristernis*, and *L. obsti*). It is interesting that of three examined males of *L. nigristernis* two have the fingers of pedipalps slightly twisted, whereas one does not. However, all males have metasomal segments longer and narrower than females. Some species do not exhibit sexual dimorphism in any of the above characters (e. g. *L. burdoi* and *L. perfidus*).

I have used coloration, chiefly comparing color of the fingers and manus of tibia of pedipalps. It is a convenient and reliable character, although it cannot be applied to some of the old, incorrectly preserved specimens in which the original colors have been lost. Coloration of the tibia of pedipalps nevertheless provides simple means of distinguishing e. g. the Australian species *L. marmoreus* and *L. variatus*, which are highly variable in the number of external granules at the sixth cutting edge on the movable fingers of pedipalps, the number of keels on the first to third metasomal segments, and the numbers of pectinal teeth (in *L. variatus* 12–24 in the males and 10–24 in the females). The complexity of identification of these species is evident from L. E. Koch's (1977: 298) key and from the large number of synonyms and unjustified subspecies. It was precisely the high variability of *L. variatus* and *L. marmoreus* in combination with variability of the African species that led me to divide species of *Lychas* geographically into two keys, because in my opinion two relatively simple keys are preferable to a highly complex single key comprising all the species and necessitating the use of characters such as sexual dimorphism.

Another diagnostic character is the number of pectinal teeth, which in *Lychas* ranges from eight (*L. infuscatus*) to 26 (e. g. *L. buchari* sp. n.). The sparse use of this character in the keys shows that the other characters discussed above divide the genus into groups of more closely related species that share features such as numbers of pectinal teeth.

So far, I have not been able to find any characters that would unequivocally indicate the existence of subgenera within the genus *Lychas*. Early in this study I thought that *L. laevifrons* and *L. tricarinatus* from India might be united in a subgenus because they share three dorsal keels on the mesosoma (whereas other species have only one keel), but this character is present also in *L. braueri* from the Seychelles, which is otherwise very different. These three species are not united by any other characters and certainly do not form a subgenus. Moreover this character is variable in *L. laevifrons* and *L. tricarinatus*.

At present the genus can only be divided into loosely and equivocally defined groups of species, of which most closely related to each other appear to be *L. flavimanus, L. hosei*, and *L. scutilus* (*L. scutilus* species-group), or *L. albimanus, L. biharensis, L. farkasi* sp. n., *L. hendersoni, L. heurtaultae* sp. n., *L. kamshetensis, L. laevifrons, L. shoplandi,* and *L. tricarinatus* (*L. tricarinatus* species-group).

Hemilychas **Hirst, 1911 stat. n.**

(Figs 117–121, Table 1)

Lychas (*Hemilychas*) Hirst, 1911: 464; Birula, 1917a: 105; Glauert, 1925: 111.
Lychas (in part): Kraepelin, 1916: 22; Glauert, 1925: 94; Takashima, 1945: 84; L. E. Koch, 1977: 139; 1981: 877; Vachon, 1986: 845; Sissom, 1990: 102; Locket, 1993: 593; Kovařík, 1995: 189.
Lychas: Locket, 1990: 79.

TYPE SPECIES. *Lychas* (*Hemilychas*) *alexandrinus* Hirst, 1911.

DESCRIPTION. The basic trichobothrial pattern is beta (Fig. 120 and Sissom 1990: 70, fig. 3.3), the third and fourth legs have well developed tibial spurs, pectines bear fulcra (Sissom 1990: 92, fig.

3.17d), the movable and fixed fingers of pedipalps have six cutting edges (rows of granules) each (Figs 118–119), the entire dorsal surface of the carapace is horizontal in lateral view, the cheliceral fixed finger has a single ventral denticle, and the telson bears a distinct subaculear tooth.

This complex of characters is present in both *Lychas* and *Hemilychas*, but the genus *Hemilychas* is also characterized by one keel on the dorsal surface of the mesosoma, 20–21 pectinal teeth, the position of trichobothria on the tibia and femur of pedipalps (Figs 117 and 120), and most importantly by the shape and texture of the metasomal segments.

The first through third metasomal segments bear 10 keels, the fourth segment bears eight non-granulated blunt keels, and the fifth segment is smooth but punctate (Fig. 121), similarly to the genus *Orthochirus* Karsch, 1891. The fourth segment is punctate and granulate, and the first through third segments are granulate.

The subaculear tooth is pronounced, smooth, with a rounded tip (Fig. 121).

AFFINITIES. Inclusion in the generic key of the family Buthidae in Sissom (1990: 97) is as follows:

Telson with distinct subaculear tubercle (tooth), ranging in size from small to very large. 1
1. Fifth metasomal segment without keels and punctate (Fig. 121). ..... *Hemilychas* Hirst **stat. n.**
– Fifth metasomal segment with keels and smooth or granulated (Fig. 1). ..... *Lychas* C. L. Koch

DISTRIBUTION. Australia (Hirst 1911: 466).

Hemilychas alexandrinus Hirst, 1911
(Figs 117–121, Table 1)

Lychas (*Hemilychas*) *alexandrinus* Hirst, 1911: 464; Birula, 1917a: 105; Glauert, 1925: 111; Main, 1956: 159.
Lychas alexandrinus: Kraepelin, 1916: 23; Takashima, 1945: 84; L. E. Koch, 1977: 139 (in part); 1981: 877 (in part); Vachon, 1986: 845 (in part); Locket, 1990: 79; ? Locket, 1993: 593; Kovařík, 1995: 189 (in part).
? *Lychas truncatus* Glauert, 1925: 85; 1925: 106; Takashima, 1945: 85 (syn. by L. E. Koch, 1977: 139).
? *Lychas annulatus* Glauert, 1925: 107; Takashima, 1945: 85 (syn. by L. E. Koch, 1977: 139).

TYPE LOCALITY. Australia, Alexandria, Northern Territory; BMNH.

TYPE MATERIAL. **Australia**: Alexandria, Northern Territory, 1MA (holotype), BMNH No. BM 1907.2.2.1.

DIAGNOSTIC CHARACTERS. As for genus.

COMMENTS. L. E. Koch (1977: 139) regarded *Hemilychas alexandrinus* and *Lychas mjobergi* as one species. Upon examination of the type specimens of both species I am convinced that they represent two distinct species and genera.

However, I am not certain about the taxonomic position of *L. truncatus* and *L. annulatus* described by Glauert in 1925. As I have not been able to examine the types of these species, I follow L. E. Koch (1977: 139), who placed them in synonymy of *H. alexandrinus*.

DISTRIBUTION. Australia (Hirst 1911: 466).

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