

Venation. Forewings of 1. *Lestes sponsa*; 2. *L. amicus*; 3. *L. auripennis*; 4. *L. plagiatus*; 5. *L. ictericus*; 6. *L. pallidus*; 7. *L. ochraceus*; 8. *Sympecma fusca*.

Wing structures (Text fig. 1-8)

Wings usually narrowed apically but apex short, broadly rounded in *L. dryas* and *macrostigma*, *I. ictericus* and some *X. ochraceus*.

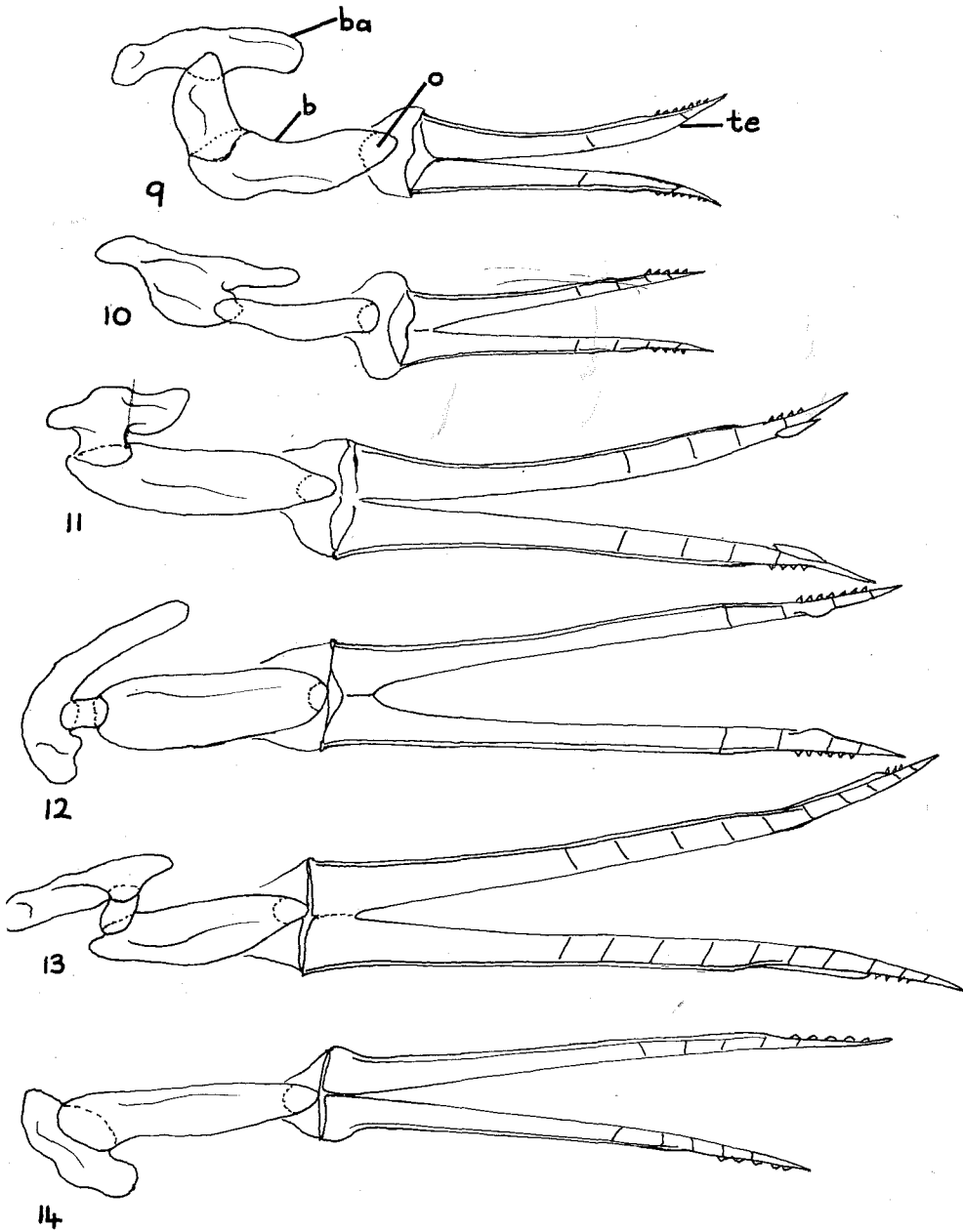
TABLE 1. Measurements

Subgenus and species	Shape of mesepisternum			Wing characters (normal variation)		
	Abd. ♂ mm	Mesepisternum Length Width	Ratio L/W (approx.)	Length of Pt mm	No. of Px fore-wing	Start of interc. veins, R4-MA fw
<i>Lestes sponsa</i>	30	4,1 × 1,3	3	1,25-1,5	11-12	Px 2-3½
<i>L. virens</i>	26	3,6 × 1,2	3	1,25	9-12	Px 3-5
<i>L. dryas</i>	26	4,1 × 1,3	3	1,35-1,5	11-13	Px 1½-3
<i>L. barbarus</i>	33	4,8 × 1,3	4	1,25-1,5	10-14	Px 2-4
<i>L. macrostigma</i>	33	3,8 × 1,4	3	2,0-2,5	13-14	Px 3-5
<i>L. virgatus</i>	40	5,4 × 1,3	4	1,5-2	12-14	Px 2½-5
<i>L. amicus</i>	37	5,4 × 1,3	4	2,3-3	12-13	Px 4-7
<i>Chalcolestes viridis</i>	32	3,7 × 1,2	3	1,75	11-13	Px 4-5
<i>Pseudochalcolestes silvaticus</i>	31	4,5 × 1,4	3	1,5-1,75	11-12	Px 3-5
<i>Ps. auripennis</i>	33	4,7 × 1,4	3	2,3-2,5	13-15	Px 4-5
<i>Paralestes tridens</i>	28	4,2 × 1,0	4	1,0	9-11	Px 4-5
<i>P. dissimulans</i>	34	4,7 × 1,3	4	1,25	9-11	Px 2½-5
<i>P. plagiatus</i>	35	4,8 × 1,3	4	1,5-2,0	11-13	Px 3-5
<i>P. pinheyi</i>	32	4 × 1,1	4	1,25-1,5	12-14	Px 4-6
<i>P. uncifer</i>	38	5,2 × 1,2	4	1,0-1,25	11-13	Px 4-6
<i>Malgassolestes simulator</i> ..	31	4,7 × 1,1	4	1,0-1,25	10-12	Px 4-5
<i>M. prunescens</i>	—	(not measured)		1,2	11-12	Px 6
<i>Icterolestes ictericus</i>	31	4,8 × 0,9	5	1,25-1,3	11-13	Px 3-5
<i>Xerolestes pallidus</i>	31	4,6 × 0,9	5	1,25-2,0	9-11	Px 2-3
<i>X. ochraceus</i> (& spp.) ..	33	5,0 × 1,1	4,5	1,75-2,0	11-13	Px 2-3½

Pterostigma (Table 1). Short (1.5 mm or less), thick, rectangular in *L. barbarus*, *dryas*, *virens*, all *Paralestes* except *plagiatus*, *Malgassolestes* and *Icterolestes*. It is broad, rectangular and long (over 1.5 mm) in *L. macrostigma*, *Ch. viridis* and *Ps. silvaticus*; narrow in *L. sponsa*, *P. plagiatus* and *Xerolestes*; convex and broad in *L. virgatus*, *amicus* and *Ps. auripennis*.

Serrations on costal edge above pterostigma show some variation in number of teeth and size, for instance, more robust in *virgatus* and in *Xerolestes*. No correlation has been found to be significant.

Postnodal cross-veins (Table 1). Px in forewings are most numerous (12-15) in *L. barbarus*, *macrostigma*, *virgatus*, *pinheyi*, *amicus* and *Ps. auripennis*. Px are fewest (9-11) in *P. tridens*,



Bursae of females. 9. *pallidus* (Khwaai); 10. *pinheyi* (Maun); 11. *barbarus* (Morocco); 12. *plagiatus* (Khami); 13. *virgatus* (Ndola); 14. *dissimulans* (Wankie).
 b = bursa copulatrix, ba = bursal arms, o = ostium (gonopore), te = ventral terebra (of segment 8) seen dorsally.

3. Synthorax brown or grey-brown with antehumeral marking and some sutural markings.
No sternal black markings 4
— Synthorax green with some black markings; or mainly black at least laterally. Sternites
at least partly black 5
4. Brown. Mesepisternum with a long black antehumeral stripe and humeral line
f. *pallidus*
— Brown. With long black antehumeral stripe as well as humeral and lateral stripes
f. *radiatus*
— Grey-brown. With interrupted antehumeral stripe and sutural lines f. *cineraceus*
5. Green. With black sutural markings, as well as fasciae on metepimeron and on sternites
f. *stigmatus*
— Thorax sometimes partly green but heavily blackened, the sides and sternites mainly
black f. *wahlbergi*

TAXONOMY OF SPECIES

LESTIDAE

Subf. LESTINAE

LESTES Leach

LESTES (LESTES) SPONSA (Hansemann) Text fig. 1, 15-20, pp. 341, 366

Agrion sponsa Hansemann, 1823: 159

Lestes sponsa Selys, 1840: 140; Selys, 1862: 301 (17 sep.); Kirby, 1890: 160; Schmidt, 1928: 247 (fig. only); May, 1933: 33, 92 (adult and larva); Cowley, 1935: 56; Cowley, 1940: 174; Longfield, 1949: 177, pls.; Conci & Nielsen, 1956: 66, 69, figs.; Robert, 1958: 85, figs.; Loibl, 1958: 55-80; Corbet, 1962: 12, 24, 37, 120 etc.; Pinhey, 1966b: 284; Belyshev, 1973: 504, fig. 211

Lestes sponsus Martin, 1910: 102

Agrion forcipula Charpentier, 1825: 6 (syn. Kirby, 1890)

Lestes nymphæ Stephens (Kirby MS) 1829: 26 (nom. nov.); Stephens, 1836: 77 (syn. Kirby, 1890)

Type described from Germany.

This species is the generally accepted type species of *Lestes* Leach.

The word *sponsa*, in Latin, means a bride, *sponsus*, a promise or a bridegroom. The usual form of the name, *sponsa*, will be retained here.

Characters: Sectors of arculus well forward, like *viridis* and all Ethiopian species. A metallic green species, with strong dorsal crest on segment 10. Inferior anal appendage very long, its distal portion with arm inturned. Vulvar scale with distal angular extension.

General description. Mature ♂ pruinose white laterally and ventrally. Small.

Mature ♂ (Germany). Labrum and face green or blue-green. Postclypeus and head above black or metallic green. Orbits below black.

Synthorax metallic green to first lateral suture, and below this at dorsal end. Black stripe at dorsal carina, black stripe enclosing an ochreous line at humeral suture. Sternite strongly white pruinose, faintly showing a thick black U-shaped mark. Femora 2-3 mainly black, with narrow ochreous stripes.

Wings hyaline or slightly fumose. Venation dark brown to black. Pterostigma shortish, broad or narrow, the posterior edge straight; above about two cells; black, with pale anterior or anterior and distal edge. Forewing with 11-12 Px. Ac at or slightly before separation of anal vein. Space R₄-MA with long intercalaries starting proximally, at Px 2 to Px 3, and short distal ones.

Abdomen broadly metallic green on most segments; segment 1 all pruinose (juveniles with squarish distal spot); 9-10 black; segment 10 with pronounced dorsal crest and with denticles on distal margin.

Anal appendages mainly black. Superior appendage gradually forcipate, with numerous outer denticles. Sub-basal tooth sharply acute, well connected with flange. Flange serrated and straight, abruptly inturned before the end. Inferior appendage extending about three-quarters as far as superior in side-view; conical at base, with long straight but inturned distal arm. Head of prophallus with broad, rounded distal hood, surmounted anteriorly by a long narrow lip. Terminal shelf simple.

Abd. 29-30 mm; hw. 20-21 mm; pt. 1,25-1,5 mm. (Selys, 1862, gives abd. ♂ 25-30, ♀ 25-29; hw. 18-21 mm). Pruinose ♂ (Japan) essentially similar. Pterostigma paler, browner. Thoracic dorsal carina and humeral suture all black.

Mature ♀ (Japan). Labrum greenish yellow, postclypeus and head above dark metallic green or bronze.

Prothoracic hind lobe narrow. Mesostigmal lamina narrow, black, with straight black posterior ridge. Synthorax metallic green, as in ♂. Sternite with trace of a lateral brown bar and small medial spot at distal end.

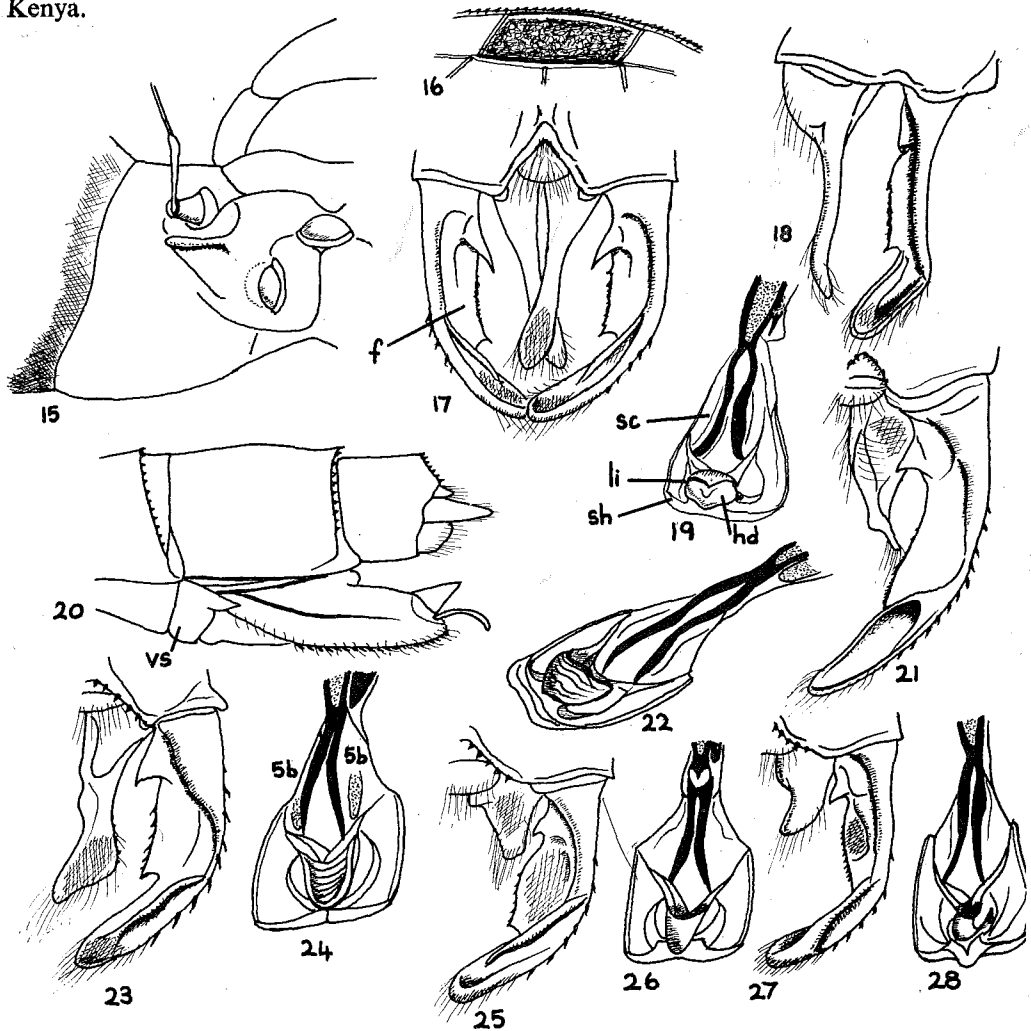
Pterostigma brown. Forewing with 13-14 Px.

Abdomen with metallic band on all segments, but only on distal end of segment 1 and restricted on 10. Segment 10 with slight crest, Cerci thick, mainly black. Ovipositor sheath black on lower half; scarcely curved ventrally, slightly more so on denticulate distal half.

Vulvar scale produced to an acute apical point at upper distal angle.

Abdomen 29-30 mm; hindwing 22,5 mm.

Distribution. Widespread in Europe; North and NW Asia. Martin (1910) gives Algeria: common at lake margins. A Kenya record must be discounted (see Pinhey 1966b: 284): 3 ♂ in *RSM*, Edinburgh are labelled: "Laikipia, Brit. East Africa, 6/1905, F. J. Jackson". These specimens were from the G. T. Bethune-Baker Collection. This is a most unlikely record and, as I remarked in 1966, the specimens were probably collected when Sir Frederick Jackson (former Governor of Uganda) was on leave in Europe. *Laikinia* is in northern Kenya.



Subgenus *Lestes* (15-28). *L. sponsa*: 15. Left side of head of ♂ showing ridge behind antennal cavity; 16. pterostigma of right forewing; 17-18. anal appendages dorsally and from left; 19. prophallus; 20. terminal segments and ovipositor sheath and vulvar scale at its base (all Germany except prophallus from Japan). *L. barbarus* (Morocco): 21. right anal appendages from above; 22. prophallus. *L. dryas* (California): 23. anal appendages dorsally, 24. prophallus. *L. macrostigma* (Turkey): 25, 26. the same. *L. virens* (Germany): 27, 28. the same.
f = flange, hd = hood, li = ligula, sc = scoop, sh = shelf.

Material examined.

NMB: W. Germany: Karlsruhe Weingarten, July 1964.
Japan: Hokkaido, Aug. 1935.

An Algerian record of Martin's has been reported to me (*USSRL*):
Algeria (Martin Colln).

LESTES (LESTES) BARBARUS (Fabricius) Text fig. 11, 21, 22, pp. 347, 366

Agrion barbara Fabricius, 1798: 286; van der Linden, 1825: 36

Lestes barbara Hagen, 1849: 147 (type species); Hagen & Selys, 1850: 161; Selys, 1862: 318 (34 sep.); Hagen, 1863: 194; McLachlan, 1889: 348; Martin, 1910: 82; Fraser, 1933: 49 fig. 20

Lestes barbarus Selys, 1887: 67 (Egypt); Roster, 1888: 164 pl. 3 (early stages); Kirby, 1890: 162; Martin, 1910: 84, 87; Morton, 1924: 30; May, 1933: 31, 89 (adult and larva); Cowley, 1940: 174; Schmidt, 1951: 122 (quoting Hagen, 1849, *Lestes barbarus* as type species of *Lestes*); Conci & Nielsen, 1956: 65, 66 figs.; Aguesse & Pruja, 1958: 103 (Morocco); Robert, 1958: 82; Loibl, 1958: 55-80; Corbet, 1962: 178; Lieftinck, 1966: 10 (Morocco)

Agrion nympha Hansemann, 1823: 161 (syn. Kirby, 1890)

Lestes barbata Belyshev, 1973: 509 fig. 213 (? laps. cal.)

Type from Barbary in North Africa.

Martin (1910) says (p. 82) "Enfin, à juger d'après un exemplaire rapporté de l'Afrique tropicale par M. Ch. Alluaud, *Lestes barbara*, l'espèce européenne, habite également l'Afrique chaude". On p. 87, in placing *Lestes barbarus* near *obscurus* and *niger* he gave the specific distribution as central and southern Europe, Asia Minor and from there to India; throughout Mediterranean Africa; and states that Alluaud collected the only known record for tropical Africa. He said it was identical to the European form. It would seem probable that Alluaud's *barbara* was either a misidentification, or the locality was incorrect.

Characters. Non pruinose. Pterostigma bicolorous. Wing apices broadly rounded, as in *dryas* and *ictericus*. Sectors of arculus well forward as in *sponsa*, *viridis*, and all Ethiopian species. Orbits below and sternites unmarked with black. Anal appendages yellow with black apex; inferior appendage over half as long as superior, with flat extension ending in an out-turned point. Vulvar scale simple.

General description. Non-pruinose.

Almost mature male (Morocco). Labrum greenish yellow. Postclypeus bronze-black, yellow at lateral margins. Head above bronze or metallic green, but antennal bases yellow. Orbits below yellow.

Prothorax brownish yellow with bronze maculae; hind lobe broadish with short bronze basal band. Synthorax bright metallic green to first lateral suture and below this at dorsal end. Dorsal carina yellow; a yellow stripe above humeral suture. Second lateral suture unmarked. Sternites all yellow.

Femora 2-3 yellow with black outer and anterior stripes.

Wings hyaline. Venation yellowish brown to brown. Pterostigma short and thick, brown or pale brown, yellow-brown on distal third; its anterior and posterior veins black, posterior one straight. Forewing with 10-14 Px. Ac at separation of anal vein. Space R_4 -MA with intercalaries starting at Px 2-4 and consisting of two long veins and several short distal ones.

Abdomen with metallic green to bronze dorsal band on all segments, but only on distal half of segment 1 and narrowed on 10. Segment 10 without crest, the distal invagination broad, shallow, edged with black denticles.

Anal appendages yellow, black at apices, or superiors black on distal half. Superior appendage gradually forcipate, the end portion rather strongly grooved, with pronounced outer denticles. Sub-basal tooth almost a right angle, well separated from flange. Flange straight, slightly kinked at distal end; edged with minute denticles. Inferior appendage extending over half as far as superior in side-view; broadly conical at base, depressed, with small inner fold; a flat distal extension narrowed to a fine point, the narrow apical portion out-turned and having a tuft of brown hair at the tip. Prophallic head with large, broadly rounded ligula with small sharp apical point. Terminal ridge notched.

Abd. 33-34 mm; hw. 23-24 mm; pt. 1,25-1,5 mm.

♀ (Morocco). Essentially similar. Prothoracic hind lobe broad. Mesostigmal lamina very narrow, yellow, with thick, straight, yellow posterior ridge. Forewing with 12-13 Px. Cerci yellowish. Ovipositor sheath brown, or brown with yellow base; mainly straight ventrally, denticulate for most of its length, more so on distal half. Vulvar scale simple.

Abd. 32-34 mm; hw. 24-25 mm.

(Selys (1862) gives abd. ♂ 26-34, ♀ 29-32 mm; hw. ♂ 21-24, ♀ 22-25 mm)

Distribution. Temperate and Southern Europe; Asia Minor, Iran, Turkestan, N.W. India; Egypt (Selys), Tangiers, Algeria (Martin), Morocco.

Material examined.

NMB: Morocco, El Jadida, March 1963 (J. A. Whellan)

Elsewhere:

USSRL: Algeria (Martin Colln).

Mature specimens, unlike *Lestes*, rest with wings closed. McLachlan (1902) quotes Selys (1888) as declaring *S. fusca* to be the only Odonate species he knew with certainty to undergo hibernation.

Distribution. East, central and southern Europe; North Africa and western Asia. Selys said mediterranean Africa, McLachlan recorded Tangiers, Martin Algeria and Lieftinck Morocco. Andrés included Egypt and Palestine; Cowley, from the Mediterranean islands.

Material examined.

NMB.

Italy: Paludi dell' Adige, Volano, Trentino, Apr. 1949.

France: La Foix, E. Pyrénées, Apr. 1937 (W. Fassnid).

REFERENCES

- AGUESSE, P. 1969. VI Odonates (2). In: Le Parc National du Niokolo-Koba (Sénégal). Fasc. 3. *Mém. Inst. fond. Afr. noire* nr. 84: 85-95, 2 text figs.
- AGUESSE, P. & PRUJA, J. P. 1957. Eléments pour une faune des Odonates du Maroc. *Bull. Soc. Sci. nat. phys. Maroc* nr. 37: 149-160, 4 text figs.
- 1958. Odonates récoltés par M. Ch. Rungs au Maroc, au Sahara, en Mauritanie et au Sénégal. *C. r. Seanc. mens. Soc. Sci. nat. phys. Maroc* 24 (nr 5): 103-106.
- ANDRÉS, A. 1928. The Dragonflies of Egypt. *Mém. Soc. ent. Egypte* 3 (1): 1-43, 5 pls, 3 text figs.
- ARTOBOLSKII, G. 1929. (In Russian). Les Odonates de la Crimée. *Bull. Soc. Nat. Crimée, Simferopol.* 11: 139-150, 1 text fig.
- BALINSKY, B. I. 1967. On some intrinsic and environmental factors controlling the distribution of dragonflies (Odonata), with description and a new name for a little known species. *J. ent. Soc. sth. Afr.* 29: 3-22, 5 text figs.
- BELYSHEV, B. F. 1973 (In Russian). *The Dragonflies of Siberia*. Edit. V. V. Schevchenko. Nauka (Siberian branch); Novosibirsk. 1 (2): 333-620, text figs. 110-270.
- BRINCK, P. 1955. Odonata. In: *South African Animal Life; Results of the Lund Univ. Exped., 1950-51.* 2: 191-233.
- BRULLÉ, G. A. 1832. Odonata. In: *Expédition scientifique de Morée* 3 (1) Zool. 2. Des Animaux articulés. Levrault; Paris, pp. 99, 101-106, pl. 32.
- BURMEISTER, H. C. C. 1838-39. *Handbuch der Entomologie*. Berlin. Neuroptera (Odonata), 2 (2): 805-862, 1016-1017, pl. 6.
- CALVERT, P. P. 1901. Odonata (Neuroptera). In: F. D. Godman's *Biologia Centrali Americana*. London. pts. 161-169: 17-72.
- 1902. On the systematic position of *Thaumatoneura inopinata*, McLachlan (Order Odonata), with some remarks on the classification of the suborder Zygoptera. *Entomologists' mon. Mag.* (2) (13) 38: 29-32.
- CAMMAERTS, R. 1966. La nymphe de *Lestes plagiatus* (Burm. 1839). *Revue Zool. Bot. afr.* 74 (3-4): 317-323, 8 text figs.
- CAMPION, H. 1913. IV. Odonata of the Seychelles. In: Results of the Percy Sladen Trust Expedition to the Indian Ocean in 1905 under the leadership of Mr. J. Stanley Gardener. *Trans. Linn. Soc. Lond., Zool.* (2) 15: 435-446.
- CAREL, S. 1974. Contribution to the knowledge of Somalian Odonata. *Monit. zool. Ital., Suppl.* V no. 13: 147-181, 7 text figs.

- DE CHARPENTIER, T. 1825. *Horae Entomologicae*. Wratislawiae. XII + 50 p., 1 pl.
- 1840. In: Selys-Longchamps, M. E. *Libellulinae Europaeae descriptae ac depictae*. Leopold Voss; Lipsiae [Leipzig]. 180 p., 48 pls.
- CONCI, C. & NIELSEN, C. 1956. I. Odonata. In: *Fauna d'Italia*. Calderini; Bologna. X + 298 p., 1 pl., 156 text figs.
- CONSIGLIO, C. 1978. Odonata collected in Ethiopia. 1. Introduction and the Zygoptera. *Accad. naz. Lincei* (243): 27-51
- CORBET, P. S. 1962. *A Biology of Dragonflies*. H. F. & G. Witherby; London. 247 p., 115 text figs.
- COWLEY, J. 1935. The generic names of the British Odonata with a check list of the species. Part 3. In: *The Generic names of British Insects*. Sub-committee, Generic Nomencl., Roy. ent. Soc.; London. pp. 43-62.
- 1940. A list of the Odonata of the islands of the western Mediterranean area. *Proc. R. ent. Soc. Lond.* (B) 9 (10): 172-178.
- CROSSKEY, R. W. & G. B. WHITE. 1977. The Afrotropical Region. A recommended term in zoogeography. *J. nat. Hist.* 11: 541-544.
- DRURY, D. 1773. *Illustrations of Natural History, wherein are exhibited two hundred and forty forms of Exotic Insects*. Drury; London. 4 to. vol. 2. VII + 90 p., 50 pls.
- DRURY, D. & WESTWOOD, J. O. 1837. *Illustrations of Exotic Entomology*. Henry G. Bohn; London. 4to. vol. 2. VI + 100 p., 50 pls.
- DUMONT, H. J. 1977. Odonata from Mali, West Africa (Insecta). *Revue Zool. afr.* 91 (3): 573-586, 5 text figs.
- EVERSMANN, E. VON 1836. Libellulinae, Wolgam fluvium inter et montes Uralenses observatae, et Libellularum species novae, quas inter Wolgam fluvium et montes Uralenses observavit Dr Eduard Eversmann. *Bull. Soc. Imp. Moscou* 9: 233, 235-248, 2 pls.
- FABRICIUS, J. C. 1775. *Systema Entomologiae*. Flensburgi et Kiloniae; Lipsiae. 8 VO. xxx + 832 pp.
- 1798-99. Odonata. In: *Supplementum Entomologiae*. Systematica Proft & Storch; Hafniae [Copenhagen]. Odonata pp. 283-287.
- FÖRSTER, F. 1906. Libellen der Forschungsreise durch Südschoa, Galla und Somaliländer, von Carlo, Freiherr von Erlanger. *Jb. nassau Ver. Naturk.* 59: 294-344, Pl. A.
- FRASER, F. C. 1933. Odonata vol. 1. In: *Fauna of British India*. Taylor & Francis; London. XIII + 423 p., 180 text figs.
- 1949. (Schmidt MS). Odonata of Madagascar. Append. I. *Mém. Inst. scient. Madagascar* (A) 3 (1): 21-40.
- 1950. Odonata. In: L. Chopard & L. Villiers, Contribution à l'étude de l'Air. *Mém. Inst. franc. Afr. noire* 10: 108-114, 2 text figs.
- 1951a (Febr.) Outline of a new classification for the Legion *Lestes* Selys (Order Odonata). *Ent. News* 62 (2): 61-69, 4 text figs.
- 1951b. Report on a collection of Odonata and Neuroptera from Senegal. *Bull. Inst. franc. Afr. noire* 13: 1093-1098 [Odonata, pp. 1093-1095].
- 1955a. Odonata. In: Mission F. G. de Witte, *Parc National Upemba* Fasc. 38 (1): 3-32, 6 text figs.
- 1955b. Additions à la faune des Odonates de Madagascar. *Naturaliste Malgache* 7 (1): 39-44, 7 text figs.
- 1961. *Lestes disarmata* sp. n. In: PINHEY, E. C. G. 1961a: 11, 12, text fig. 1 (q.v.).
- FUDAKOWSKI, J. 1936 Mission J. de Lépiney au Soudan Français (1933-1934). *Bull. Soc. Sci. nat. Maroc* 15: 261.
- GAMBLES, R. M. 1960. Seasonal distribution and longevity in Nigerian dragonflies. *Jl. W. Afr. Sci. Ass.* 6 (1): 18-26.
- 1976. The problem of the *Lestes pallidus* group (Zygoptera: Lestidae). (Read at Lancaster Symp. 1975). *Odonatologica* 5 (1): 15-25, 14 text figs.
- GERSTAECKER, C. E. A. 1869. Beitrag zur Insektenfauna von Zanzibar: Orthoptera und Neuroptera. *Arch. Naturgesch.* (1) 35: 201-223.
- 1873. Odonata. In: Baron Carl Claus von der Decken's *Reisen in Ostafrika*. Leipzig & Heidelberg. 3 (2): 221-223 (50-54 sep.).
- GRÜNBERG, K. 1903. Zur Kenntniss der Odonatenfauna des Ostafrikanischen Seengebiets. Ergebnisse der Njassa-See und Kinga-Gebirges Expedition der Hermann und Elise gebieten Heckmann-Wentzel Stiftung. *Zool. Jb. Syst.* 18 (6): 695-726, 6 text figs.
- HAGEN, H. A. 1849. Uebersicht der neueren Literatur betreffend die Neuropteren Linn. *Stettin. ent. Ztg.* 10 (5): 141-156.
- 1862. In: SELYS-LONGCHAMPS (q.v.).
- 1863. Die Odonaten und Neuropteren-fauna Syriens und Klein-Asiens. *Wien. ent. Monatschr.* 7: 193-199.

- HAGEN, H. A. & SELYS-LONGCHAMPS, M. E. 1850. Revue des Odonates ou Libellules d'Europe. *Mém. Soc. r. Sci. Liège* 6: XXII + 408 p. (& sep.), 11 pls.
- HANSEMANN, J. W. A. 1823. Anfang einer Auseinandersetzung der deutschen Arten der Gattung *Agrion*. *Dr Wiedemann's zool. Magazin* 2 (1): 148-161.
- HEYMER, A. 1972. *Verhaltensstudien an Prachtlibellen. Beiträge zur Ethologie und Evolution der Calopterygidae* Selys, 1850 (Odon. Zyg.). *Fortschreiten Verhaltensformen*. 11, Parey, Berlin. 100 p.
- KARSCH, F. A. F. 1899. Neue Odonaten aus Ost- und Südafrika mit Einschluss des Seengebietes. *Ent. Nachr.* 25: 369-382.
- KENNEDY, C. H. 1920. Forty two hitherto unrecognised genera and subgenera of Zygoptera. *Ohio J. Sci.* 21 (2): 83-88.
- KIMMINS, D. E. 1966. A list of the Odonata types described by F. C. Fraser, now in the British Museum (Nat. Hist.). *Bull. Br. Mus. (Nat. Hist.) Ent.* 18 (6): 173-227.
- 1970. A list of the type specimens of Odonata in the British Museum (Nat. Hist.), Part III. *Bull. Br. Mus. (Nat. Hist.) Ent.* 24 (6): 171-205.
- KIRBY, W. F. 1890. *A Synonymic Catalogue of the Neuroptera-Odonata or Dragonflies. With an Appendix on Fossil species*. Gurney & Jackson; London. 202 p.
- 1898. On a collection of dragonflies from the Transvaal and Nyasaland. *Ann. Mag. nat. Hist.* (7) 2: 229-75.
- LEACH, W. E. 1815. Entomology. In: David Brewster's *Edinburgh Encyclopedia* 9 (1): 57-172 (Neuroptera Libellulides pp. 136, 137).
- LEGRAND, J. 1976. à propos de *Lestes simulans* Martin, 1910: larve et imago (Zygoptera: Lestidae). *Odonatologica* 5 (4): 375-381, 2 text figs.
- LIEFTINCK, M. A. 1954. Handlist of Malaysian Odonata. A catalogue of the Dragonflies of the Malay Peninsula, Sumatra, Java and Borneo, including the adjacent small islands. *Treubia* 22 Suppl. VIII + 202 p.
- 1960. Considerations on the genus *Lestes* Leach with notes on the classification and descriptions of new Indo-Australian species and larval forms (Odonata, Lestidae). *Nova Guinea, Zool.* 10 (8): 127-171, pls. 2-5, 51 text figs.
- 1965. Notes on Odonata of Madagascar, with special reference to the Zygoptera and with comparative notes on other faunal regions. *Verhandl. Naturf. Ges. Basel* 76 (2): 229-256, 12 text figs.
- 1966. A survey of the dragonfly fauna of Morocco (Odonata). *Bull. Inst. r. Sci. nat. Belg.* 42 (35): 1-63, 32 text figs.
- LINDEN, P. L. VAN DER 1820-1823. *Agriones bononiensis* descriptae. *Opusc. scient., Bologna* 4 (2): 101-106, 1 pl.
- 1825. *Monographiae Libellularum Europaeorum Specimen*. 8VO. Bruxelles. 42 p.
- LINDLEY, R. P. 1974. The dragonflies of Korhogo, Ivory Coast. *Bull. Inst. fond. Afr. noire* (A) 36 (3): 682-698, tabs., 2 text figs.
- LOIBL, E. 1958. Zur Ethologie und Biologie der deutschen Lestiden (Odonata). *Z. Tierpsychol.*, Berlin. 15: 54-81, 7 tabs., 20 text figs.
- LONGFIELD, C. 1949. *Dragonflies of the British Isles*. 2nd edn. Frederick Warne; London. 256 p., 58 pls., text figs.
- MARSHALL, A. G. & GAMBLES, R. M. 1977. Odonata from the Guinea Savanna zone in Ghana. *J. Zool., Lond.* 183: 177-187, 3 text figs.
- MARTIN, R. 1906. Insectes: Odonates nouveaux. In: Collections de M. Maurice de Rothschild, recueillies dans l'Afrique Orientale Anglaise, Août 1905. *Bull. Mus. Hist. nat., Paris* 12: 508-514.
- 1910. Contribution à l'étude des Névroptères de l'Afrique. I. Lestes d'Afrique. II. Les Odonates du département du Constantine. *Annls Soc. ent. Fr.* 79: 82-95; 95-104.
- 1912. Les Libellules du Cercle de Sikasso. *Feuille jeun. Nat.* (499) 42: 92-99.
- 1922. Résultats scientifiques. 1. Animalia articulata. Odonata. In: M. Rothschild's *Voyage en Ethiopie et en Afrique orientale anglaise* (1904-05). Paris. Part 1: 248-262, pl. 26.
- MAY, E. 1933. Pt. 27. Libellen (Odonata). In: *Die Tierwelt Deutschlands und der angrenzenden Meeresteile nach ihren Merkmalen und nach ihrer Lebensweise*. Edit. Fr. Dahl, publ. Gustav Fischer; Jena. 124 p., 134 text figs.
- MCLACHLAN, R. 1895. Some new species of Odonata of the "Légion" *Lestes* with notes. *Ann. Mag. nat. Hist.* (6) 16: 19-28.
- 1889. Neuroptera collected by Mr. J. J. Walker, R.N., on both sides of the Straits of Gibraltar. *Entomologists' mon. Mag.* (1) 25: 344-349.
- 1902. Does *Sympetrum scoticum* hibernate? *Entomologist's mon. Mag.* (2) (13) 38: 265.

- MORTON, K. J. 1924. The dragonflies of Palestine, based primarily on collecting made by Dr. P. A. Buxton, with notes on the species of adjacent regions. *Trans. ent. Soc. Lond.* 1924: 25-44, 3 text figs.
- NAVÁS, L. 1924. Odonatos nuevos o interesantes. *Mem. R. Acad. Cienc. Artes Barcelona* (3) 18 (13): 312-324 (1-12 sep.), 13 text figs.
- NIELSEN, C. 1935. Spedizione zoologica del Marchese Saverio Patrizi nel Basso Giuba e nell'Oltregiuba (1934). *Annali Mus. civ. Storia nat. Giacomo Doria* 58 (14): 66-78, 6 text figs.
- 1954. Notule odonatologiche II. Notize sul gen. *Lestes* Leach. *Boll. Ist. Ent. Univ. Bologna* 20: 65-80, 4 text figs. [biology and larvae].
- O'FARRELL, A. O. 1970. Chap. 13. Odonata (Dragonflies and damselflies). In: I. M. Mackerras (Edit.), *The Insects of Australia*. C.S.I.R.O., Canberra. Melbourne Univ. Press. pp. 241-261, 23 text figs.
- PINHEY, E. C. G. 1951. The Dragonflies of Southern Africa. *Mem. Transv. Mus.* 5, XVI + 335 p., 30 pls., 711 text figs.
- 1958. East African Odonata. In: *Ergebnisse Deutsch-zool. Ostafrika Exped., 1951-52. Stuttg. Beitr. Naturk.* 10: 1-5.
- 1961a. (July). *A Survey of the Dragonflies (Odonata) of Eastern Africa*. Trustees, British Museum (Nat. Hist.); London. 214 p., 11 pls., 3 text figs.
- 1961b. (July). Dragonflies (Odonata) of Central Africa. *Occas. Pap. Rhodes-Livingstone Mus.* 14: 1-97, 5 pls., 43 text figs.
- 1962a. (April). Some records of Odonata collected in tropical Africa. *J. ent. Soc. sth. Afr.* 25 (1): 20-50, 22 text figs.
- 1962b. A descriptive Catalogue of the Odonata of the African Continent (up to Dec. 1959). Part I. *Publicões cult. Co. Diam. Angola* 59: 1-153, 5 pls.
- 1962c. (December). New or little known dragonflies (Odonata) of Central and Southern Africa. *Occas. Pap. Natl. Mus. S. Rhod. (B) Nat. Sci.* 26: 892-911, 8 text figs.
- 1964a. (January). Further records of African dragonflies (Odonata). *J. ent. Soc. sth. Afr.* 26 (2): 324-336, 12 text figs.
- 1964b. (October). Dragonflies (Odonata) of the Angola-Congo borders of Rhodesia. *Publicões cult. Co. Diam. Angola* 63: 95-130, 4 pls., 16 text figs.
- 1966a. (7 June). New distributional records for African Odonata and notes on a few larvae. *Arnoldia Rhod.* 2 (26): 1-5, text figs. a-e.
- 1966b. (30 June). Notes on African Odonata, particularly type material. *Revue Zool. Bot. afr.* 73 (3-4): 283-308, 7 text figs.
- 1966c. (15 October). Odonata. In: *Explor. Parc natn. Garamba Miss. H. de Saeger fasc.* 45: 1-114, 14 text figs.
- 1966d. (26 October). Check-list of dragonflies (Odonata) from Malawi, with description of a new *Teinobasis* Kirby. *Arnoldia Rhod.* 2 (33): 1-24, 2 text figs.
- 1967a. (August). (With introduction by R. A. A. Blackman) Odonata of the Seychelles and other Indian Ocean Island groups, based primarily on the Bristol University Expedition of 1964-1965. *Arnoldia Rhod.* 3 (12): 1-38, tabs., 13 text figs. [Blackman, pp. 3-5].
- 1967b. (15 October). Odonata Zygoptera. In: J-J. Symoen's *Explor. Hydrobiol. Bassin Lac Bangweolo-Luapula* 14 (3): 1-43, 1 map, 11 text figs.
- 1967c. (30 October). Odonata of Ngamiland (1967). *Arnoldia Rhod.* 3 (15): 1-17, tabs., 4 text figs.
- 1972a. (Jan-Feb.). Part 15. Odonata. In: *Contribution à l'étude biologique du Sénégal septentrional. Bull. Inst. fond. Afr. noire (A)* 34 (1): 26-34.
- 1972b. (July). The genus *Aciagrion* Selys (Odonata). *Occas. Pap. Natl. Mus. Rhod. (B) Nat. Sci.* 5 (1): 1-59, 11 text figs.
- 1976. Dragonflies (Odonata) of Botswana, with ecological notes. *Occas. Pap. Natl. Mus. Rhod. (B) Nat. Sci.* 5 (10): 524-601, 3 pls., 4 text figs.
- 1978. Odonata. In: M. J. A. Werger & A. C. van Bruggen (Edit.) *Biogeography and Ecology of Southern Africa*. W. Junk, The Hague. 21: 723-731.
- RAMBUR, J. P. 1842. Odonates. In: *Histoire Naturelle des Insectes. Névroptères*. Roret's Suite à Buffon; Paris. 17, 291 p., 8 pls.
- RIS, F. 1908. Odonata. In: L. Schultze, zoologische und anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Südafrika in den Jahren 1903-1905. Vol. 1 (2). *Jena, Denkschr. med. nat. Ges.* 13: 303-346, 17 text figs.
- 1910. Odonata. In: *Die Fauna Südwest-Australiens. hrsg. von W. Michaelson und R. Hartmeyer*. G. Fischer; Jena, 2 (24): 415-450, text figs.

- 1912. XVII. Odonata. *In: Ergebnisse der mit Subvention aus der Erbschaft Treitl unternommenen zoologischen Forschungsreise Dr. Franz Werner's nach dem ägyptischen Sudan und Nord-Uganda. Sber. Akad. Wiss., Wien* **121** (1): 149-170 (1-22 sep.), 10 text figs.
- 1921. The Odonata or Dragonflies of South Africa. *Ann. S. Afr. Mus.* **18**: 245-445, pls. 5-12, 77 text figs.
- ROBERT, P.-A. 1958. *Les Libellules (Odonates)*. Delachaux et Niestlé; Neuchâtel & Paris. 364 p., 48 pls., 64 text figs.
- ROSTER, D. A. 1888. Contributo allo studio delle forme larvali degli Odonati. Cenno iconografico delle larve-ninfe dei Caudobranchiati. *Bull. Soc. ent. Ital.* **20**: 159-170, 4 pls.
- SCHMIDT, E. 1928. Bemerkungen über Lestiden. *Ent. Mitt.*, Berlin **17** (4): 244-251, 6 text figs.
- 1938. Odonaten aus Syrien und Palästina. *Sber. Akad. Wiss., Wien* **147** (1): 135-150, 5 text figs.
- 1951 (July-Sept.). The Odonata of Madagascar: Zygoptera. *Mém. Inst. scient. Madagascar (A)* **6** (1): 116-283, 89 text figs.
- SCHOUTEDEN, H. 1934. Odonates. *In: Catalogue raisonnés de la faune entomologique du Congo Belge. Anns Mus. r. Congo belge Sér. Zool. III. 4VO 3* (fasc. 1): 1-84, 1 pl., 83 text figs.
- SELYS-LONGCHAMPS, M. E. 1840. *Monographie des Libellulidées d'Europe*. Selys; Paris & Bruxelles. 8VO. 220 p., 4 pls.
- 1850. (vide HAGEN & SELYS).
- 1862. (with HAGEN, H. A.). Synopsis des Agrionines, seconde légion: *Lestes*. *Bull. Acad. r. Belg., Cl. Sci.* (2) **13**: 288-338 (1-54 sep.).
- 1887. Odonates de l'Asie mineure et révision de ceux des autres parties de la faune dite européenne. *Anns Soc. ent. Belg.* **31**: 1-85.
- 1888. Sur l'hivernation de deux espèces d'Odonates. *C. r. Soc. ent Belg.* **32**: 27.
- SJÖSTEDT, B. Y. 1917a. (May). Odonaten aus Madagaskar eingesammelt von Dr. W. Kaudern, 1911-12. *Ark. Zool.* **11** (13): 1-12, pl. 1.
- 1917b. (Sept.). Odonaten aus Abessinien, Ost- und Westafrika. *Ark. Zool.* **11** (14): 1-27, 5 pls.
- STEPHENS, J. F. 1829. *Nomenclature of British Insects*. 8VO. London.
- 1836. *Illustrations of British Entomology; Mandibulata*. vol. **6**. London.
- TILLYARD, R. J. 1913. On some new and rare Australian Agrionidae (Odonata). *Proc. linn. Soc. N.S. Wales* **37**: 404-479.
- 1914. On some problems concerning the development of the wing-venation of Odonata. *Proc. linn. Soc. N.S. Wales* **39**: 163-216, pls. 11-13.
- 1917. *The Biology of Dragonflies*. Cambridge Univ. Press. XII + 396 pp, 4 pls, 188 text figs.