ODONATOLOGICAL ABSTRACTS

1971

(2025) FLÍČEK, J., 1971. Beitrag zur Erkenntnis der Libellen (Odonata) des Gebirges Novohradské hory. Acta Sci. nat. Mus. Bohem. merid. České Budějovice 11 (Suppl.) 9-10. (Czech. with Germ. s.). – (*Cep-škola, p. Suchdol n. Lužnicí, CZ*).
A list is given of 12 odon. spp. collected in the Novohradské hory (alt. 800 m), Czechoslovakia, June 26-29, 1970. The more interesting taxa are Coenagrion hastulatum and Cordulegaster boltoni (= annulatus).

1973

(2026) SCHWIEBERT, E., 1973. Nymphs. A complete guide to naturals and imitations. IX + 339 pp. Winchester Press, New York. – (Publisher's address: *460 Park Ave., New York, N.Y. 10022, USA*).
The book includes one chapter each on Anisoptera and Zygoptera, with 17 coloured illustrations.

1974

(2027) JENNY, R., 1974. Handschriften aus Privatbesitz im Staatsarchiv Graubünden. Repertorium mit Regesten. Calven, Chur. 796 pp., 16 pls. – (*Staatsarchiv Graubünden, CH-7000 Chur*).
This is a catalogue of private material deposited in the archives of Canton Grisons, Switzerland. It includes numerous items of entomological and odonatological contents of various local entomologists and collectors, e.g. Johann Rudolph Amstein (=Am Stein) (1777-1862), Gotfried Ludwig Theobald (1810-1869), Dr. Eduard Killias (1829-1891), etc.

1975

(2028) BAILEY, W.J. & K.T. RICHARDS, 1975. A report on the insect fauna of the Prince Regent River Reserve, North-West Kimberley, Western Australia in August, 1974. Wildl. Res. Bull. (west. Austral.) 1975 (3): 101-112. – (*Dept. Zool., Univ. West. Austral., Nedlands, W.A. 6009, AU*).
The insect fauna listed in this report was collected during the dry northern winter period, but insect activity is normally highest in this region during the hot, wet summer months of Nov. to Apr. In all, 16 odon. spp., pertaining to 5 families, are listed, incl. 5 undescribed spp. Gynacantha sp. "n" was taken from caves where it was present during the day in large numbers, resting on the cave ceiling (Upper Prince Regent, Wyulda Creek/Roe River, and Enid Falls). – (*Abstracter's note*: For a review of bibliographic references of papers related to dragonfly records from caves cf. *OA* No. 357, for Cynacantha sp. "n" also *OA* No. 2056).

(2029) BOSE, G. & T.R. MITRA, 1975. The odonate fauna of Rajasthan. Rec. zool. Surv. India 71 (1/4): 1-11. – (*Zool. Surv. India, 8 Lindsay Str., Calcutta-700016, India*).
A list of and descriptive notes on 13 spp. from Rajasthan, India, are given, and a

"field-key" for their identification is provided.

(2030) KELSEY, L.P., 1975. The Odonata of Canada and Alaska, Edmund M. Walker and Philip S. Corbet Volume 3, Part III... Ent. News 86 (7/8): 160. – (*Dept. Ent. & Appl. Ecol., Univ. Delaware, USA*).
Book review of the volume listed in *OA* No. 1194.

(2031) MITRA, T.R., 1975. A review of Indian species of Agriocnemis Selys (Insecta: Odonata: Zygoptera: Coenagrionidae), with a note on Agriocnemis nainitalensis Sahni. Dr. B.S. Chauhan Comm. 1975: 403-409. – (*398 Dum Dum Park, Calcutta-700055, India*).
8 spp. known to occur in India are reviewed and keyed. The author was unable to examine the type of A. nainitalensis, from the original description, however, it seems apparent that this is not an Agriocnemis sp. but rather an Ischnura. – (*Abstracter's note*: The paper by A.R. Lahiri & T.R. Mitra, Remarks on some coenagrionid damselflies of Calcutta, listed in the references as being in the press in Odonatologica, did not appear in this journal).

(2032) OLIVE, J.H. & K.R. SMITH, 1975. Benthic macroinvertebrates as indexes of water quality in the Scioto River Basin, Ohio. Bull. Ohio biol. Surv. (NS) 5 (2): I-IX, 1-124. – (*Dept. Biol., Univ. Akron, Ohio, USA*).
The results are presented of an evaluation of water quality in the Scioto River System, based on the composition and structure of benthic macroinvertebrate communities. These were analyzed at 76 locations during 1967-1969. They were indicative of high quality water at 26, moderately polluted at 38, and heavily polluted at 12 locations. In the appendix tables are given of macroinvertebrates collected per square meter at various locations. Odon. are identified to the genus only.

1976

(2033) BIRÓ, Z., J. KÁTAI & G. DÉVAI, 1976. Data concerning the dragonfly (Odonata) fauna of the area surrounding Albertirsa and Ceglédbercel. Acta biol. debrecina 13: 227-236. (Hungarian, with Engl. and Germ. s's.). – (*Magyar u. 3, HU-2730 Albertirsa*).
An annotated list is given of 32 spp. collected in astatic water bodies of the districts of Albertirsa and Ceglédbercel, in the small northeastern border section of the tableland between the Danube and the Tisza, Cegled-Abony plain, Hungary. The area became one of the best processed Hungarian biotopes from an odonatol. point of view both in regard of number of spp. and the quantity of collected material.

(2034) BISKER, R.S. & B.R. INGRAM, 1976. Benthic investigation of the Weems Creek basin: July 1974 – June 1975. Rep. No. WEC/WE-SPR5-0976, Nuclear Fuels Div., Westinghouse Electric Corp. VII + 96 pp., Pittsburgh, Pa. – (*Dept. Zool., Clemson Univ., Clemson, South Carol. 29631, USA*).
The objective of the investigation was to obtain detailed information on the benthic organisms of 3 streams in the Big Generostee Creek basin, South Carolina, USA. Odon. are considered along with other invertebrate groups, and a list of the recorded spp. is appended.

(2035) CAWTHORNE, D., 1976. The Odonata of the Sheffield area. Sorby Rec. 14: 39-44. – (c/o Ed.: *D. Whiteley, City Mus., Weston Park, Sheffield, UK*).
Information on the current status and distribution of Odon. in the Sheffield area, United Kingdom, is given. The paper includes distribution maps (1970-1976 records) based on 5 km grid squares, for 10 of the 12 spp. recorded. The status of Calopteryx splendens and Cordulegaster boltoni is uncertain.

(2036) DREYER, W., 1976. Mit Libellen auf du.

Canon Journal 1976 (3): 3-4. – (*LS Tierökologie, Univ. Bayreuth, Am Birkengut, D-8580 Bayreuth, GFR*).
The author is an internationally recognized authority in dragonfly field photography. Here technical hints on the subject are given for the users of the Canon F-1 camera. (Cf. also *OA* Nos. 1852, 1854).

(2037) ETIENNE, A.S., 1976. Stereotyped pattern of locomotion controlled by duration of previous tracking by a predatory insect. Nature 260 (5550): 426-428. – (*FPSE, Univ. Geneva, CH-1211 Geneva-4*).
The material used is the larval Aeshna cyanea.

(2038) FLINT, O.S., Jr., 1976. The Odonata of Canada and Alaska, volume III, by Edmund M. Walker and Philip S. Corbet. Bull. ent. Soc. Am. 22 (3): 392-393. – (*Ent. Dept., Natn. Mus. Nat. Hist., Smithsonian Instn, Washington, D.C. 20560, USA*).
Book review of the volume listed in *OA* No. 1194.

(2039) KHAN, B.A., 1976. The copulatory complex of Megalestes major Selys (Coenagriidae: Zygoptera). Rec. zool. Surv. India 69 (1/4): 249-354. – (*Zool. Dept., Agra Coll., Agra-2, U.P., India*).
The structure of the copulatory complex is described and figured. Like the anisopterans, M. major bears 2 sets of copulatory apparatus, i.e. the primary and the secondary copulatory complexes. The former consists of a vestigial penis, a pair of supra-anal appendages and a pair of infra-anal appendages. However, unlike in the Anisoptera, there are 2 infra-anal appendages. The secondary copulatory complex is located on the ventral surface of 2nd and 3rd abd. segments. The anterior pair of hamules are well developed, while the posterior pair are very much reduced. The penis sheath is absent, but in its place there is a well developed lamina batilliformis. The penis is unsegmented and does not arise from a penis vesicle but rather from the floor of the 2nd segment. (Author). – (*Abstracter's notes*: (1) The genus Megalestes pertains to the zygopteran family Synlestidae, and not to Coenagrionidae; – (2) In *OA* Nos. 443, 514, 1092 the author's name has been erroneously alphabetized under "Ali Khan").

(2040) KORMONDY, E.J., 1976. The Odonata of Canada and Alaska. Volume 3, Part III: The Anisoptera – three families. By Edmond M. Walker and Philip S. Corbet. Quart. Rev. Biol. 51: 148. – (*2505, 43rd Ave. N.W., Olympia, Wash. 98502, USA*).
Book review of the volume listed in *OA* No. 1194. – (*Abstracter's note*: This title should be added to Dr. Kormondy's odonatological bibliography as published in Odonatologica 7 [1978], pp. 3-4).

(2041) PINHEY, E., 1976. Entomofauna from Cabora Bassa. Results of the Entomological Brigade of the IICM. II. Odonata. Garcia de Orta (Zool.) 5 (2): 15-24. (With Port. s.). – (*Natn. Mus., P.O.Box 240, Bulawayo, Rhodesia*).
A list is given of 23 spp., represented by a total of over 600 specimens, collected in Nov., 1972, and Jan., Mar. May-July, 1973. Notes on distribution and comments on their variation are added.

(2042) PRESTON, W.B., 1976. The Odonata of Canada and Alaska. By E.M. Walker and P.S. Corbet, 1975. Can. Field-Nat. 90: 510-511. – (*Manitoba Mus. Man & Nature, Winnipeg, Manitoba R3B 0N2, CA*).
Book review of the volume listed in *OA* No. 1194.

(2043) SCUDDER, G.G.E., R.A. CANNINGS & K.M. STUART, 1976. An annotated checklist of the Odonata (Insecta) of British Columbia. Syesis 9: 143-161. – (*Dept. Zool., Univ. Brit. Columb., 2075 Wesbrook Mall, Vancouver, B.C., V6T 1W5, CA*).
A complete annotated checklist of British Columbia, Canada (80 spp.) is presented.

Coenagrion interrogatum and Enallagma civile are listed for the first time, whereas 2 spp. previously recorded from the province (Leucorrhinia frigida, Libellula luctuosa) are excluded from the list. (For a handbook and field guide on the Odon. of Brit. Columbia cf. *OA* No. 2055).

(2044) TEMBHARE, D.B. & V.K. THAKARE, 1976. Neuroendocrine control of vitellogenesis in the dragonfly, Orthetrum chrysis (Selys) (Odonata: Libellulidae). Z. mikrosk.-anat. Forsch. 90 (4): 691-704. – (*P.-G. Dept. Zool., Nagpur Univ., University Campus, Nagpur-440010, India*).
Histological correlative studies on the cerebral neurosecretory cells, the corpora allata and the oocyte development strongly suggest the involvement of cerebral NSM, produced mostly by the A cells of the pars intercerebralis and the CA hormone in the vitellogenesis. Biochemical observations reveal the incorporation of haemolymph proteins and lipids in the yolk during vitellogenesis. Exogenous administration of the extract of the brain-CC and FME demonstrates, to some extent, the stimulation of protein synthesis during vitellogenesis in the haemolymph by the cerebral NSM and the CA hormone, while the lipid metabolism, mostly, is under the control of juvenile hormone. (Authors).

(2045) VERDONK, M., 1976. Libellen. [Dragonflies]. *In*: B. Vermeulen, [Ed.], Oostelijk Mergelland, pp. 47-49. Published by the Netherlands Federation of Nature Friends, place of the Publishers not stated. (Dutch). – (*Verhulstlaan 8, Bussum*).
6 spp. (2 of which unidentified) are listed for Oostelijk Mergelland, Zuid Limburg Prov., Netherlands, and the records are discussed in some detail.

(2046) WALLEY, G.S., 1976. The Odonata of Canada and Alaska Volume Three, by Edmund M. Walker, [. . .], and Philip S. Corbet. Bull. ent. Soc. Can. 8 (1): 16-17. – (c/o Editors: *Ent. Soc. Can., B.J.R. Philogène, Dept. Biol., Univ. Ottawa, Ottawa, Ont., K1N 6N5, CA*).
Extensive book review of the volume listed in *OA* No. 1194.

1977

(2047) (Anonymous), 1977. Das Libellenjahr. [Von] O.R. Strub, I. Siegenthaler. Chemie u. Biol. (Ver. schweiz. Naturwissenschaftler) 21 (4): 1 p. (sep.).
Book review of the volume listed in *OA* No. 1563.

(2048) (Anonymous), 1977. Ingram Memorial Award is established at Clemson, Wilson Daily Times (Wilson, N.C., USA) 81 (246): 3. (issue of Dec. 3).
Notice on the establishment of the award in memory of Byron Ross Ingram, Professor of Zoology at Clemson University and an outstanding odonatologist (deceased Aug. 3, 1977). A brief outline of his scientific career and a portrait are also provided.

(2049) (Anonymous), 1977. Thuns jüngste Galerie "Klubschule". Libellen in voller prächtiger Schönheit. Berner Nachr. 1977 (Nov. 25): 21.
The daily's news item was written on the occasion of the Dragonfly Photograph Exhibit by O.R. Strub and I. Siegenthaler in the Migros Gallery, Thun, Switzerland. The photograph exhibited were mostly those published in the authors' book, Das Libellenjahr, listed in *OA* No. 1563. The authors are professional photographers and film producers, and have spent 8 yrs on the photographic study of dragonflies. The initiative for this work was born while preparing the film, Lappi mach d'Ouge uf, based on a Swiss folkstale, in which the dragonfly also has a role. For other reports on the same exhibition cf. *OA* Nos. 2050 and 2051, and for references to the reports of those held in 2 other galleries cf. *OA* Nos. 1768 and 1793.

(2050) (Anonymous), 1977. Unvermuteter Reichtum. "Das Libellenjahr" in der neuen

Galerie der Klubschule in Thun. Thuner Tagbl. 1977 (Dec. 16): 3.
Daily's report on the same Dragonfly Photograph Exhibition as listed in *OA* No. 2049. It includes a photograph of one of the authors (O.R. Strub). For other references cf. the abstract mentioned.

(2051) (Anonymous), 1977. Zauber der Libellen. Die erste Ausstellung in der Galerie Klubschule. Thuner Tagbl. 1977 (Nov. 25): 8.
An extensive daily's report on the same Dragonfly Photograph Exhibition as listed in *OA* No. 2049. For other references see there.

(2052) (Anonymous, signed as "Erziehungsdirektion"), 1977. Das Libellenjahr. Amtl. Schulbl. Kant. Bern 1977 (1 Oct.): 421. – (c/o *Erziehungsdirektion, Hünsterplatz 3a, CH-3000 Bern*).
Book review of the volume by O. Strub & I. Siegenthaler, listed in *OA* No. 1563.

(2053) ASAHINA, S., 1977. Notes on Chinese Odonata. VI. Further studies on the Graham collection preserved in the U.S. National Museum of Natural History, suborder Zygoptera. Kontyû 45 (4): 479-494. – (*Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA*).
31 spp. were examined and special attention is being paid to Calicnemia eximia Sel. and C. "miniata" Needh., of which the Szechwanese specimens are described and illustrated, along with C. miniata from Nepal. "Agrion grahami" Needh. is synonymized with Calopteryx oberthueri McLach., and Vestalis "virens" Needh. with V. smaragdina velata Ris. (For references to other pts of this series cf. *OA* No. 1516). – (*Abstracter's note*: It is unfortunate that bibliographic references of 10 papers mentioned in the text are omitted in the reference list).

(2054) BUCCIARELLI, I. & R. POGGI, 1977. Al dr. Felice Capra nel suo 80° compleanno. Mem. Soc. ent. ital. 55 [1976]: 3-10 (incl. portrait on p. 3). – (*Mus. Civ. Stor. Nat., Corso Venezia 55, I-20121 Milano*).
A brief introductory note is followed by the complete bibliography of Dr. F. Capra (1915-1975, 130 titles). – (*Abstracter's note*: For a brief biographic account, for the appreciation of his odonatological work and for his odonatological bibliography, 1934-1969, cf. Odonatologica 5 [1976]: 193-196; for his most recent odonatological publication cf. *OA* No. 1954).

(2055) CANNINGS, R.A. & K.M. STUART, 1977. The dragonflies of British Columbia. Handbook No. 35, 254 pp., Brit. Columb. Prov. Mus., Victoria. – Price: Can. $ 2.– (Authors' address: *Dept. Zool., Univ. Brit. Columb., 2075 Wesbrook Mall, Vancouver, B.C., V6T 1W5, CA;* – Publisher's address: *Brit. Columb. Prov. Mus., 601 Belleville St., Victoria, B.C., V8V 1X4, CA*).
The purpose of the book is to acquaint the reader with the British Columbian Odon. It is mainly intended as a means of identification, hence the book contains keys to and descriptions of adult and larval stages of 80 spp. known to occur in the province, Canada. The book is divided into the following chapters: "Preface", "Introduction" (incl. a section on the Odon. in the Indian culture), keys to the suborders (adults and larvae) and families, systematic account (incl. keys to genera and spp., larvae and adults), "Glossary", "References" and "Index". The text of each sp. is standardized (synonymy, distinguishing characters and description, larva, range, distribution in the province, field notes), and is accompanied by illustrations of morphological features and by a distributional map. – (*Abstracter's notes*: This is by far the best organized dragonfly field book ever written, and will be extremely useful for amateurs and professionals alike, particularly so also to hydrobiologists, ecologists, students and amateur dragonfly collectors. The rather symbolic price does not seem to stand in any relation to the actual value of the volume, and its size (13 x 18 cm) will prove extremely

handy when taking the book along in the field. – For an annotated list of the odon. fauna of British Columbia cf. *OA* No. 2043).

(2056) COMMON, I.F.B. & M.S. UPTON, 1977. A report on insects collected in the Drysdale River National Park, North Kimberley, Western Australia. Wildl. Res. Bull. (west. Austral.) 1977 (6): 121-131. – (*Div. Ent., CSIRO P.O.Box 1700, Canberra City, A.C.T. 2601, AU*).
The insect collection reported here was made in August, i.e. during the driest period of the year, therefore it fails to reflect the great upsurge of insect activity which usually follows the early summer storms and the post-wet flush of plant growth characteristic of tropical Australia. 16 odon. spp. are listed, pertaining to 4 families, and falling into 2 broad groups, i.e. spp. that are widely distributed in Australia (11), and spp. with narrow northern distribution. There are no spp. with southern affinities. The occurrence of Austrocnemis splendida is of some interest, as the spp. was previously known only from the eastern seaboard of Australia. For the crepuscular Gynacantha sp. "n", associated with streams, but breeding also in still waters, spending the day in caves and mine shafts, cf. also *OA* No. 2028).

(2057) CROSBY, T.K., 1977. Robin John Tillyard – the man behind the book. N.Z. Ent. 6 (3): 305-308. – (*Ent. Div., DSIR, Auckland, NZ*).
The paper narrates some background information on Tillyard's classic book, The insects of Australia and New Zealand (Angus & Robertson, Sydney, 1926). It gives numerous biographic details on the author, quotations from his correspondence related to this volume, and quotations from the correspondence reflecting Tillyard's personality.

(2058) CRUMPTON, W.J., 1977. Notes on occurrence of Odonata in Canterbury and Westland (New Zealand). N.Z. Ent. 6 (3): 302-304. – (*Dept. Zool., Univ. Canterbury, Christchurch-1, NZ*).
The occurrence of 7 spp. is analyzed and discussed.

(2059) DEVETAK, D., A. PODOBNIK, N. NAPOTNIK, D. JURC & C. MASTNAK, 1977. A contribution to the flora, fauna and ecology of the Krka River in the surroundings of Dobrova. Nature Conserv., Ljubljana 10: 3-22. (Slovene, with Engl. s.). – (*Slave Klavore 6, YU-62000 Maribor*).
The section of the Krka River studied, between the villages of Draga and Mršečka vas, Slovenia, Yugoslavia, is classified as a potamon, characterized by high temperature amplitudes and by eutrophy. An analysis of the benthic polymerian groups (Oligochaeta, Hirudinea, Amphipoda, Acarina, 8 insect orders, incl. Odon.), inhabiting various types of river bottom, is given in Tab. 2. The percentages for Odon. are as follows: lithal 0.3%, psamopelal and lithal 2.5%, and travertine 0.3% of specimens counted. The species names are not stated.

(2060) DOLMEN, D. & P. VARGA, 1977. Abnorm hann av Aeschna juncea (L.) (Odonata). [Abnormal male of Aeschna juncea (L.) (Odonata)]. Norw. J. Ent. 24 (2): 176. (Norw. with Engl. s., no translation of the title). – (*Zool. Inst., Univ. Trondheim, Rosenborg, N-7000 Trondheim*).
An adult ♂ with 2 sets of copulatory organs is described and illustrated. The second of these is on the 4th abd. segment. – (*Abstracter's note*: In the title of the article the name of the first author is erroneously written as "Holmen").

(2061) FRASER, F.C., 1977 (*reprint*). The fauna of British India including Ceylon and Burma. Odonata. Vol. I, XIII + 423 pp., map; Vol. II, XXIII + 398 pp, 4 col. pls.; Vol. III, XI + 461 pp., map, 2 pls. Today & Tomorrow's Printers & Publishers, New Delhi. – (Author deceased; – Publishers' address: *24-B/5, Original Rd., Karol Bagh,*

Delhi-110005, India).
This is a good quality reprint of this classical monograph, published originally by Taylor & Francis, London (1933, 1934, 1936 resp.). Contents: Vol. I: Synlestidae, Lestidae, Megapodagrionidae, Platystictidae. Platycnemididae, Protoneuridae, Coenagrionidae; – Vol. II: other Zygoptera, Anisozygoptera, Gomphidae; – Vol. III: other Anisoptera. – (*Abstracter's note*: The price in Europe amounts to Hfl. 90.– per volume. Though it is considerably lower in India, it is advisable to order the books through a Western World bookseller, since they may get damaged in the mail from India, and no claims of this kind are accepted by the Publishers).

(2062) HAMMOND, C.O., 1977. The dragonflies of Great Britain and Ireland. With enlarged illustrations of all the British species in colour by the author and an illustrated key to the aquatic larval stages by the late A.E. GARDNER. 115 pp. Curwen Books, London. – Price: £ 9.75. – (Author's address: *34 Passmore Gardens, London, N11, UK*; – Publisher's address: *Curwen Press, North Street, Plaistow, London E13 9HJ, UK*).
The book contains a brief introduction to the order, incl. some information on collecting and preserving specimens, and details of external features. Coloured illustrations are provided of the adults of both sexes of all 38 spp. known to breed in Great Britain and Ireland, together with those of 3 spp. which probably no longer breed there, and 3 of the more common immigrants – a total of 44 spp. Alongside the illustrations are notes on spp. identification and distribution maps; the latter are duplicated in a larger format at the back of the book. There is also a key to the genera, a spp. check list and a table showing flight periods. A.E. Gardner's illustrated key to the larvae (previously published in 1954, 1955 in the Entomologist's Gazette, and in the Collins New Naturalist volume, Dragonflies, by Corbet, Longfield and Moore in 1960) is included in the book and it contains 44 spp. – (*Abstracter's note*: The book is also obtainable from L. Christie, 137 Gleneldon Rd., Streatham, London S.W. 16, UK).

(2063) HIROSE, M., 1977. [Interspecific copulation between a male Sympetrum risi and a female S. infuscatum]. Nature and Insects 12 (1): 22-23. (Japanese). – (*3-4-7 Daikucho, Mito, Ibaraki, 310, JA*).
A photograph with explanatory caption.

(2064) HIROSE, M., 1977. [Tandem linkage between males of Ischnura senegalensis and Cercion hieroglyphicum]. Nature and Insects 12 (1): 23. (Japanese). – (*3-4-7 Daikucho, Mito, Ibaraki, 310, JA*).
A photograph is presented of an interspecific tandem linkage (2 ♂♂), that has lasted for 20 min.

(2065) HIROSE, M., 1977. [Female Sympetrum frequens killed by a fungus]. Nature and Insects 12 (1): 25. (Japanese). – (*3-4-7 Daikucho, Mito, Ibaraki, 310, JA*).
A photograph is presented, but the fungus sp. is not identified. (Cf. also *OA* Nos. 1246, 1917).

(2066) HUMMEL, M.S. & A.C. HAMAN, 1977. Notes on the Odonata of the Cedar-Iowa river basin. Proc. Iowa Acad. Sci. 84: 110-118. – (*Dept. Biol., Univ. Northern Iowa, Cedar Falls, Iowa 50613, USA*).
Of the 82 spp. reported from the Cedar--Iowa River Basin, United States, since the turn of the century, 60 spp. were collected from 1971-1975; the remaining were recorded prior to 1920. Aeshna canadensis and A. interrupta lineata, collected in 1975, represent new records for the state of Iowa. Distribution maps of all 82 spp. are supplied.

(2067) HUTCHINSON, R., 1977. Watching dragonflies as a hobby. Teen Int. Ent. Group Mag. 11 (2): 32-34. – (*Coll. Bourget, C.P. 1000, Rigaud, J0P 1P0, Que., CA*).
A popular essay, written to stimulate the youth's interest in dragonfly observations,

and including a biographic note on the author.

(2068) [INLAND WATER GROUP, Kinki University School of Agriculture], 1977. [Aeshnoplebia anisoptera from Toyono]. Nature and Insects 12 (4): 28-29. (Japanese). – (*3-4-1 Kowakae, Higashiosaka, Osaka, 577, JA*).
A ♀ of this rare sp. was taken nr. Toyono, on June 13, 1976.

(2069) KOBAYASHI, F., 1977. [Ischnura senegalensis new for Saitama Prefecture]. Nature and Insects 12 (1): 14. (Japanese). – (*1624-20 Hirakata, Koshigaya, Saitama, 343, JA*).
A note on the first prefectural record.

(2070) KOBAYASHI, F., 1977. [New records of Ceriagrion nipponicum from Saitama Prefecture]. Nature and Insects 12 (1): 14. (Japanese). – (*1624-20 Hirakata, Koshigaya, Saitama, 343, JA*).
♂♂ are recorded from 2 new localities in the Prefecture.

(2071) KOBAYASHI, F., 1977. [Hemicordulia mindana captured at the end of September]. Nature and Insects 12 (1): 20. (Japanese). – (*1624-20 Hirakata, Koshigaya, Saitama, 343, JA*).
A teneral ♂ was taken on Sept. 23, 176.

(2072) KOYAMA, N., S. EDA, T. ANDO, S. FUJISAWA, F. ITO, M. KURATA, D. KURIBAYASHI, W. MIYATA, I. SONEHARA & T. TAKIZAWA, 1977. Dragonflies of Nagano Prefecture. Shinano Kyoikukai Shuppanbu, Nagano. II + 196 pp., 4 col. pls. (Japanese with Engl. translation of the title). – Price ¥ 1800.–. – (Publishers' address: *1098 Asahimachi, Nagano, Nagano 380, JA*).
This is another beautiful addition to the ever increasing volume of the Japanese popular dragonfly literature. The book is an account of the odon. fauna (87 spp.) of the Nagano Prefecture, with emphasis on species description (about 2 pp. per sp., incl. a photograph). The chapters are: "Preface" (by N. Koyama), "General aspects of dragonflies of Nagano Prefecture", "Short history of odonatology of the Nagano Prefecture", "A brief outline of the dragonfly classification", "Systematic account of the Nagano dragonflies" (this is the main part of the book), tabular review of the "Dragonfly distribution in Nagano Prefecture" (incl. a topographic map), and a "Bibliography" on the Nagano dragonflies (containing 257 titles). The frontispiece shows a 16th century Japanese helmet with a large dragonfly. The book is printed on a moderate quality paper, hence the quality of the photographs, though good, is not of the excellence one is used to encounter in this kind of Japanese works. The 13 colour photographs, however, are excellent. – (*Abstracter's note*: Save for the Latin names of the spp., the text is in Japanese throughout. An Engl. translation of the figure captions is available from the Editors of Odonatologica).

(2073) KUMAR, A. & M. PRASAD, 1977. Last instar larvae of two Odonata species from Western Himalayas. Entomon 2 (2): 225-230. – (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-248001, U.P., India*).
The ultimate instar larvae of Calicnemia miles Laidl. (Platycnemididae) and Anisopleura lestoides (Sel.) (Euphaeidae) are described and illustrated on the basis of material from Dehra Dun, Uttar Pradesh, India. The former lives in semiterrestrial habitats among the mosses and ferns, the latter in semipermanent hill streams. Larvae of C. miles show very close resemblance to the terrestrial Megapodagrionidae, while those of A. lestoides are characterized by the presence of paired abdominal appendages on segments 2-8. (Authors).

(2074) LEGRAND, J., 1977. Description des larves de quatre espèces de Calopterygidae du Gabon (Odonata). Annls Soc. ent. Fr. (N.S.) 13 (3): 453-467. (With Engl. s.). –

(*Lab. Ent., Mus. Natn. Hist. Nat., 45 rue de Buffon, F-75005 Paris*).
The hitherto unknown larvae of Sapho bicolor, S. gloriosa, Umma longistigma and U. mesostigma, collected in streams around Makokou, eastern Gaboon, are described and illustrated from the ultimate instar. A key, incl. the larvae of Phaon, is also provided, and the differences between the younger instars (age identified on the basis of the length of the ♀ style) are studied.

(2075) MAAS, D., 1977. Dragonflies and damselflies. Teen Int. Ent. Group Mag. 11 (2): 31. – (Author's address given as: *"RR No. 4, Ottawa, Ohio 54875, USA"*).
A general note.

(2076) MAAS, D., 1977. Raising nymphs of dragonflies. Teen Int. Ent. Group Mag. 11 (2): 32. – (Author's address given as: *"RR No. 4, Ottawa, Ohio 54875, USA"*).
Brief instructions for breeding of larval dragonflies, intended for the youth and written by a young dragonfly fan. A biographic note on the author is also appended.

(2077) MALICKY, H., 1977. Übersicht der Ökologie und Zoogeographie der Binnenwassertiere der Ägäischen Inseln. Biol. Gallo-Hellen. 6 (2): 171-238. (With Fr., Engl., Greek s's.). – (*Biol. Stat. Lunz, Oesterr. Akad. Wiss., A-3293 Lunz am See*).
A review is given of the freshwater animal ecology and zoogeography of the Aegean islands, Greece. Odon. are dealt with on pp. 189, 193-195, 219 (Tab. 2). The permanent rivulets (Skines, Kalamafka, Topolia) on the island of Crete are inhabited by Calopteryx splendens, Ischnura elegans, Boyeria irene, Anax cf. imperator and Orthetrum sp. At the Almiros Spring, Iraklion, Crete (salinity 10‰ CL only the larvae of Ischnura elegans (?) were encountered. Some spp. are listed for artificial canals, stagnant ditches and for the lake littoral.

(2078) MARLIER, G., 1977. Insectes aquatiques. Naturalistes belg. 58 (4/5): 97-110. – (*Author's address unknown*).
The wide systematic range of insects which spend all or part of their existence in aquatic environments is discussed (incl. Odon.). Although some insects are found in marine settings, most aquatic forms prefer freshwater biotopes. Respiration in aquatic insects is outlined and a review of insect anatomy is presented for purposes of identification.

(2079) MATSUI, M., 1977. [Emergence of Davidius nanus]. Collecting and Breeding 39 (7): back cover. (Japanese). – (*Horikawa-higashi-iru, Takoyakushidori, Chukyoku, Kyoto, 604, JA*).
5 photographs are given of the emergence (upright mode), the duration of which was 1 hr.

(2080) MAY, M.L., 1977. Thermoregulation and reproductive activity in tropical dragonflies of the genus Micrathyria. Ecology 58 (4): 787-798. – (*Dept. Physiol. & Biophysics, Univ. Illinois, 524 Burrill Hall, Urbana, Illinois 61801, USA*).
Observations of behaviour, including time budgets, and measurements of body temperature are reported for 4 spp. of Micrathyria in the Panama Canal Zone. Larger spp. maintained an elevated body temperature by flying continuously at low ambient temperatures. All spp. probably thermoregulated behaviourally at high temperature. From data on body temperature during continuous flight and on heat exchange rates it is possible to estimate the energetic requirements for thermoregulation. In the smaller spp., endothermy is prohibitively expensive. Temporal patterns of activity at breeding sites differed among spp. The spp. that thermoregulated well extended their activity periods early and late in the day while the smaller, poorly thermoregulating spp. were restricted to midday activity. The extended activity periods of the large spp. apparently allowed them to reduce competition for perches and interference with mating and

oviposition by other dragonflies. (Author).

(2081) MIDTTUN, B., 1977. Survival of Odonata larvae in a dried-up pond in western Norway. Norw. J. Ent. 24 (1): 84-85. – (*Zool. Lab., Univ. Bergen, Lars Hillesgt. 20 A, N-5000 Bergen*).
4 not further identified aeshnid larvae were found under a stone in a dried-up pond near Bergen, Norway. The pond had not contained any free water for at least 1 week. (Author).

(2082) MIDTTUN, B., 1977. Observations on Somatochlora arctica (Zett.) (Odonata) in western Norway. Norw. J. Ent. 24 (2): 117-119. – (*Zool. Lab., Univ. Bergen, Lars Hillesgt. 20 A, N-5000 Bergen*).
New localities, incl. breeding sites, are listed. The sp. seems to be rather common in some of the lowland areas investigated. The flying season is restricted to the last 3 weeks of June, July and Aug. Emergence mainly occurs during the 2nd or 3rd week of June. (Author).

(2083) NAGASU, F., 1977. [Ceriagrion nipponicum from Chchibu, Saitama Prefecture]. Nature and Insects 12 (1): 14. (Japanese). – (*4-9-27 Naka, Satte, Kitakatsushika, Saitama, 340-01, JA*).
The sp. was taken in July, 1976, along with 19 other spp.

(2084) NARODA, M., 1977. [Aeshna mixta captured at Iwanuma, Miyagi Prefecture]. Nature and Insects 12 (1): 15. (Japanese). – (*6-2 Torimachi, Noshiro, Akita, 016, JA*). A ♂ was taken in Sept., 1976.

(2085) ONO, Y., 1977. [Dragonflies of Miyagi Prefecture]. Collecting and Breeding 39 (8): pl. 5. (Japanese). – (*12-4 Yodomibashidori, Kawauchi, Sendai, Miyagi, 980, JA*).
Colour photographs are presented of Cercion plagiosum, Mortonagrion hirosei, Nannophya pygmaea and Rhyothemis fuliginosa.

(2086) PETRYSZAK, A., 1977. The sense organs of the mouth parts in Libellula depressa L. and L. quadrimaculata L. (Odonata). Acta biol. cracov. (Zool.) 20 (1): 87-100. – (*Inst. Appl. Zool., Acad. Agric., Al. Mieckiewicza 24/28, Krakow, Poland*).
The sense organs (usual hairs, strongly sclerotized usual hairs, thin hairs, strongly sclerotized thin hairs, minute hairs, papillae, papillar plates, cupolae, cupolae arranged in groups, pore canal organs) on the mouth parts (clypeolabrum, hypopharynx, mandibula, maxilla, labium) of the 2 spp. and their innervation are figured and described in detail.

(2087) PEZALLA, V.A.M., 1977. The behavioral ecology of a dragonfly, Libellula pulchella. Thesis, Univ. Minnesota. 169 pp. – (*Author's address unknown*). – Microfilm or xerox copy available (refer to Order No. 77-26, 148) at University Microfilms International, Dissertation Copies, P.O.B. 1764, Ann Arbor, Mich. 48106, USA. – Price depends on the country of the customer: US $ 7.50-11.50 and 15.00-23.00 resp., library binding of the latter $ 3.00 extra).
Verbatim abstract from Diss. Abstr. 38, 6 (1977): 2573-B: Observations were carried out at 4 ponds in Minnesota, USA. ♂♂ are highly aggressive and defend a particular territory from all other ♂♂. Territories are defended by pursuit and circle flights and by physical attacks. Aggressive interactions result in the spacing out of ♂♂ at the breeding site, as well as in the exclusion of some ♂♂ from the site. ♂♂ benefit from this behavior by gaining access to ♀♀. – A number of factors increase ♂ competition and thus the selective value of aggressive behavior. Habitats suitable for territories are limited and must have certain physical characteristics: water free of surface vegetation, a sunny exposure, and perch sites which offer an unobstructed view of the territory. ♂ competition is also increased by the fact that certain territories are more attractive to ♀♀. – Another factor affecting ♂ competition is population density. At high densities, the level of aggres-

sion increases and territory size decreases to a certain minimal point. At all study sites, there was a population of non-territorial ♂♂, and most aggressive interactions were between these individuals and the territorial ♂♂. Territorial ♂♂ are, however, generally dominant in all interactions within their territory and they are rarely displaced. There is though, a high turnover in territorial ♂♂ from day to day and individual ♂♂ are seldom present at the site for more than one day. ♂ agression extends to other spp. as well, particularly those which are similar in size and behavior and thus potential competitors for flight space and perch and oviposition sites. – Aggressive behavior increases a ♂ chance of mating success by reducing interference from rival ♂♂. The effectiveness of this behavior is enhanced by an efficient mechanism of sexual recognition which allow a ♂ to immediately perceive, on the basis of color, form and movement, the nature of any intruder. ♀♀ are quickly seized and the residential ♂ is normally able to copulate with any ♀♀ entering its territory. The brevity of copulation and ♂ guarding behavior both help to reduce interference during the mating sequence, and a ♂ chance of leaving progeny is further increased by ♀ avoidance of other ♂♂ following copulation. – ♂ competition is also increased by a synchronous emergence pattern which leads to synchrony in reproductive maturity, by a generally short breeding season, and by the limitations imposed on breeding time due to the effects of three environmental factors, time of day, light intensity and temperature, on activity patterns. A strong diurnal rhythm underlies L. pulchella behavior, with a peak in reproductive activity occurring at midday. This temporal pattern is, however, influenced by changes in light intensity, with a certain range being optimal for activity. The effects of these 2 factors are, in turn, influenced by fluctuations in temperature as, regardless of the time of day or light intensity, a certain range of ambient temperatures is necessary for activity. The predictability of ♀ availability in relation to all 3 factors increases the selective value of territorial behavior which allows a ♂ to be in the right place at the right time. – The importance of temperature as a controlling factor in activity has led to the evolution of thermoregulatory behavior in L. pulchella. This ability gives L. pulchella a degree of independence from thermal fluctuations. By assuming various postures which either increase or decrease its exposure to the sun, this dragonfly is able to reach and maintain body temperatures which are optimal for reproductive activities.

(2088) QUIGLEY, M., 1977. Invertebrates of streams and rivers. A key to identification. Edward Arnold, London. XII + 84 pp. – Price: £ 2.95. – (*Dept. Environ. Biol., Nene Coll., Northampton, UK*).
This is a pictorial key for use in ecology studies of beginners and students on advanced courses. Odon. are dealt with on pp. 43-47. Save for Calopterygidae ("Agriidae") the key runs to the families only.

(2089) RUELLE, R. & P.L. HUDSON, 1977. Paddlefish (Polyodon spathula): growth and food of young of the year and a suggested technique for measuring length. Trans. Am. Fish. Soc. 106 (6): 609-613. – (*U.S. Fish & Wildl. Serv., Southeast Reservoir Investigations, Clemson, South Carol. 29631, USA*).
Larval Odon. were found in the stomachs of paddlefish specimens from the Lewis and Clark Lakes, Nebraska-South Dakota border, USA, that measured between 50-212 mm. From younger fish no Odon. were recovered.

(2090) SIGIMURA, M., 1977. [The 1976 dragonfly flight periods at Nakamura, Kochi Prefecture]. Nature and Insects 12 (6): 24-29. (Japanese). – (*787 Higashi-shitamachi, Nakamura, Kochi, 787, JA*).
The data are listed for Ischnura asiatica, Trigomphus citimus tabei, Aeschnophlebia anisoptera, Anaciaeschna martini, Anax

guttatus, Sympetrum frequens and S. striolatum imitoides.

(2091) SNYDER, A.W., 1977. Acuity of compound eyes: physical limitations and design. J. comp. Physiol. (A) 116 (2): 161-182. – *(Inst. Adv. Stud., Depts. Appl. Mathem. & Neurobiol., Austr. Natn. Univ., Canberra, A.C.T. 2600, AU).*
The spatial resolving power of compound eyes is discussed as depending on light intensity, angular velocity, interommatidial angle and neural convergence. Regarding the environmental light intensity, the animal's angular velocity and its preferred acuity task, an optimum eye parameter, p, can be predicted. Calculations are given for Musca, but reference is made to Hemicordulia tau and Zyxomma sp. Where measured, the p values are consistent with the theoretical predictions. Data on Odon. are cited from the paper listed in *OA* No. 1893. (Cf. also *OA* No. 2092).

(2092) SNYDER, A.W., D.G. STAVENGA & S.B. LAUGHLIN, 1977. Spatial information capacity of compound eyes. J. comp. Physiol. (A) 116 (2): 183-207. – *(Inst. Adv. Stud., Dept. Appl. Mathem. & Neurobiol., Austr. Natn. Univ., Canberra, A.C.T. 2600, AU).*
In the paper the same problems are discussed as in that listed in *OA* No. 2091, but under a slightly modified view. Reference is made to Hemicordulia tau and Zyxomma sp.

(2093) SOMEYA, T., 1977. [Rare dragonflies of Yamane Hill, Ibaraki Prefecture]. Nature and insects 12 (1): 13-14. (Japanese). – *(2-4313-9 Ishikawacho, Mito, Ibaraki 310, JA).*
Records of Aeshna juncea, Somatochlora v. viridiaenea and S. clavata are presented.

(2094) STIMAC, J.L. & K.L.H. LEONG, 1977. Factors affecting chironomid larval abundances in three vertical aquatic weed habitats. Environm. Entomol. 6 (4): 595-600. – *(Dept. Ent., Univ. Florida, Gainesville, Fla 32611, USA).*
Multivariate analyses are used to separate chironomid larval habitats, describe relationships between midge larval populations and evaluate influences of biotic and abiotic variables on abundances in a lake system. Insect predators (Ablabesmyia sp. and Coenagrion sp.) of 5 types of chironomid larvae had only a minor to moderate influence on midge densities in all habitats examined. Availability of aquatic weed (Potamogeton sp. and Chara sp.) did not have a major influence on abundance of larval midges. Water quality had greater influence in midwater and bottom habitats than in the surface.

(2095) TAKASAKI, Y., 1977. [Hydrobasileus croceus from the Irimote Island]. Nature and Insects 12 (1): 15. (Japanese). – *(1-4 Fujimori, Meitoku, Nagoya, 465, JA).*
This is the third record of this sp. from Japan.

(2096) THAKARE, V.K., B.S. THAKARE & D.B. TEMBHARE, 1977. Neurosecretory control of osmoregulation in the adult dragonfly Orthetrum chrysis (Selys) (Odonata: Libellulidae). Zool. Beitr. (N.F.) 23 (2): 311-322. (With Germ. s.). – *(P.-G. Dept. Zool., Nagpur Univ., University Campus, Nagpur-440010, India).*
The histological effects of injections of distilled water, sodium chloride and potassium chloride on the cerebral neurosecretory system of the adult O. chrysis have been studied. Both the parameters, quantity of neurosecretory material and nuclear diameter, strongly suggest the neurosecretory control of osmoregulation by the production of an antidiuretic hormone in the adult dragonfly.

(2097) THEISCHINGER, G. & J.A.L. WATSON, 1977. Notolibellula bicolor, a new libelluline dragonfly from northern Australia (Odonata: Libellulidae). J. Aust. ent. Soc. 16: 417-420. – *(Biol. Abt. II, Oberösterreichisches Landesmus., Museumstr. 14, A-4010 Linz).*

Notolibellula bicolor gen. n., sp. n. is described from the Northern Territory and the Kimberley region of Western Australia (♂ holotype: escarpment above McArthur River Station Homestead, Northern Territory, 6.XI.1975; ♂ paratypes from various localities; ♀ allotype: El Sharana, South Alligator River, Northern Territory, 29.XII.1974; no other ♀ specimens known). The new genus appears to be most closely related to Agrionoptera Brauer.

(2098) TOMIJIMA, Y., 1977. [Gomphus postocularis new for Kumamoto Prefecture]. Nature and Insects 12 (1): 14. (Japanese). – (*748 Fukutomi, Masushiro, Kamimasu, Kumamoto, 861-22, JA*).
First prefectural record.

(2099) VERDONK, M., 1977. Libelleninventarisatie Twente, juni 1977. [Dragonfly inventarisation of Twente, June 1977]. 13 pp. Privately published. (Dutch). – (*Verhulstlaan 8, Bussum, NL*).
19 spp. are listed and the odon. fauna of various types of habitats is analyzed. For a review of the odon. fauna of the Twente region, Netherlands, cf. *OA* No. 1193.

(2100) WATSON, J.A.L., 1977. The distributions of the Australian dragonflies (Odonata): first supplement. J. Aust. ent. Soc. 16 (3): 277-279. – (*Div. Ent., CSIRO, Canberra, A.C.T. 2601, AU*).
Further data are added to the 1974 checklist of Australian Odon. (cf. *OA* No. 901), with the regions in which the spp. occur. 6 previously unrecognised spp. are recorded, increasing the known fauna to 269 spp. (99 Zygoptera, 170 Anisoptera). (Author).

(2101) WATSON, J.A.L. & M.S. MOULDS, 1977. A second species of Episynlestes Kennedy (Odonata: Chlorolestidae) from North Queensland. J. Aust. ent. Soc. 16 (3): 257-259. – (*Div. Ent., CSIRO, Canberra, A.C.T. 2601, AU*).
E. cristatus sp. n. is described and illustrated (♂ holotype, ♀ allotype: N. Queensland Paluma 2900', in copula, 6/11-I-1968; Aust. Nat. Ins. Coll., CSIRO, Canberra, Type No. 9865; – paratypes of both sexes from various localities). The new sp. is compared with E. albicauda (Till.).

(2102) YAMAGUCHI, M., 1977. [Anaciaeschna martini in Tokyo]. Nature and Insects 12 (1): 15. (Japanese). – (*2-13-8 Kasugacho, Nerima, Tokyo, 176, JA*).
The sp. was believed to be extinct in Tokyo, but in July 1976, the emergence of 2 ♂♂ was observed at an artificial pond.

(2103) YAMAGUCHI, M., 1977. [Oviposition of Somatochlora uchidai]. Nature and Insects 12 (1): 24-25. (Japanese). – (*2-13-8 Kasugacho, Nerima, Tokyo, 176, JA*).
The oviposition of this sp. is effected by flicking the water surface and by flinging eggs down from the air in rhythmical alternation.

1978

(2104) (Anonymous), 1978. Dragonflies will bug mosquitoes to fare-you-well. Post Bulletin, Rochester, Minn. USA 1977 (Mar. 16): 22. [Verbatim text of the news item]: "Bedford, N.H. – For $ 5.–, says the Junior Women's League, you can buy a bag of 25 dragonfly nymphs to get an early start on the battle against mosquitoes. Four bagsful, they add, will lend enough dragonflies to gobble a half-acre of the pesky insects' larvae. Club members distribute leaflets about their program outside the town hall and the response seemed enthusiastic . . ." (*Abstracter's note*: For other newspaper articles on this project cf. references in *OA* No. 1912.

(2105) (Anonymous), 1978. Opmerkingen over de libellentabel. [Annotations on the dragonfly identification key]. Stridula 2 (1): 11-13. (Dutch). – (c/o Editor: *Mr. C. Verlinden, Lombardenstr. 12, B-2000 Antwerpen*).
Some corrections of and additions to the

publication listed in *OA* No. 1041 are given.

(2106) BAILEY, R.G., S. CHURCHFIELD & R. PIMM, 1978. Observations on the zooplankton and littoral macroinvertebrates of Nyumba ya Mungu reservoir, Tanzania. Biol. J. Linn. Soc. 10: 93-107. – (*Dept. Zool., Chelsea Coll., Univ. London, London, SW10 0QX, UK*).
The Nyumba ya Mungu man-made reservoir is situated on the upper Pangani River, northern Tanzania (alt. 670 m), and is the largest lake of this kind in East Africa (surface 180 km^2). Only a brief reference is made to Odon., which are most abundant in the presence of macrophytes, though no spp. names are listed.

(2107) BELYSHEV, B.F. & A.Yu. HARITONOV, 1978. On causes of sharp isolation of the faunas of dragon-flies (Odonata, Insecta) on the Hindustan Peninsula and in the south-west Asia. Zool. Zh. 57 (1): 140-142. (Russian, with Engl. s.). – (*Inst. Biol., Siberian Sect. USSR Acad. Sci., Ul Frunse 11, USSR-630091 Novosibirsk*).
The odon. faunas of the southwestern Asia and the Hindustan Peninsula sharply differ from each other. The comparison of the modern odon. distribution in this area with the paleogeographic data suggests that the Indus River basin forms a boundary line between Meridional and Boreal faunistic kingdoms. The dissimilarity of the 2 faunas is accounted for by the long-term ecological isolation of the 2 areas, that were isolated by the sea up to the Neogene, and by the arid and orogenic zones afterwards. (Authors).

(2108) BILEK, A., 1978. Zur Faunistik europäischer Libellen (Odonata). Articulata 1 (7): 47-49. – (Author deceased; – For reprints apply to *Dr. K. Harz, D-8801 Endsee, GFR*).
Notes on the fauna of various localities in the German Federal Republic, prepared posthumously by Dr. K. Harz, on the basis of Bilek's manuscript notes.

(2109) BILEK, A., 1978. Ergänzungen zu "Die farberhaltende Präparation von Libellen" und "Das Aufweichen von Libellen und dickleibigen Faltern". Articulata 1 (7): 50. – (Author deceased; – For reprints apply to *Dr. K. Harz, D-8801 Endsee, GFR*).
Additions to the 2 papers mentioned in *OA* No. 2118, and prepared posthumously by Dr. K. Harz, on the basis of Bilek's manuscript notes.

(2110) DUFOUR, C., 1978. Etude faunistique des odonates de Suisse romande. 68 + II + 147 pp. Service des forêts et de la faune, Lausanne. – (*Mus. zool., Palais de Rumine, CH-1005 Lausanne*).
This is a monograph on the odon. fauna of the French-speaking (= "Romanic") Swiss territories. It also includes a catalogue of all 70 spp. known to occur in the areas studied, accompanied by the locality lists and (Swiss) grid distributional maps. Coenagrion ornatum, Onychogomphus uncatus, Epitheca bimaculata and Orthetrum albistylum have not been previously recorded from this territory (cf. J. de Beaumont, 1941, Bull. Soc. vaud. Sci. nat. 61: 441-450). An old specimen of Lestes macrostigma from canton Tessin (Ticino), deposited in the Geneva Museum, is brought on record, bringing the total number of spp. known to occur in Switzerland to 76. The zoogeographic composition of the fauna is discussed, and the zoogeographic regions of the "Romanic" Switzerland are outlined, based on the odon. distribution.

(2111) DUFOUR, C., 1978. Odonates printaniers dans le Delta du Guadalquivir. Cah. Nat. (N.S.) 32 [1976]: 41-43. – (*Mus. zool., Palais de Rumine, CH-1005 Lausanne*).
An annotated list is given of 20 odon. spp. collected in Apr., 1977 in the Guadalquivir Delta area, Spain. The fauna of various biotopes is briefly characterized, and some phenological aspects are discussed.

(2112) DUMONT, H.J., 1978. Additions à la faune des odonates de Mauritanie. Bull.

Ann. Soc. r. belge Ent. 114 (1-3): 29-34. (With Engl. s.). – (*Inst. Zool., Univ. Ghent, Ledeganckstr. 35, B-9000 Ghent*).
11 spp. collected in Jan.-Febr., 1976, in Mauretania are listed. Lestes pallidus, Ischnura saharensis, Agriocnemis zerafica and Anax imperator are new to the fauna of the country, bringing the total number of spp. known to occur in Mauretania to 18. The Tagant is the northernmost locality of A. zerafica so far known, while I. saharensis is an important relict of palearctic origin.

(2113) EL RAYAH, E.A. & F.T. EL DIN ABU SHAMA, 1978. Notes on morphology and bionomy of the dragonfly, Trithemis annulata scortecii Nielsen (Odonata: Anisoptera), as a predator on mosquito larvae. Z. ang. Ent. 85 (1): 81-86. (With Germ. s.). – (First author: *Dept. Zool., Fac. Sci., Univ. Khartum, P.O. Box 321, Khartum, Sudan*; – Second author: *Dept. Zool., Fac. Sci., Univ. Kuwait, Kuwait, Kuwait*).
Morphology and bionomy of the larval stages are described and notes are provided on emergence, copulation and oviposition. There are 11 larval instars. The larvae feed on mosquito larvae from the 5th instar onwards, but full-grown larval mosquitoes (4th stage) are attacked only by the odon. larvae of 8th and later instars.

(2114) GEIJSKES, D.C. & E.J. VAN NIEUKERKEN, 1978. Libellen (Odonata) van Meijendel en omgeving. Fauna van de wateren in Meijendel, IV. [Dragonflies (Odonata) of Meijendel and surroundings. Aquatic fauna of Meijendel, IV]. Zool. Bijdr. 23: 126-136. (Dutch, with Engl. s., no translation of the title). – (*St. Mus. Nat. Hist., Raamsteeg 2, Leyden, NL*).
The odon. fauna of Meijendel, a dune area in the province of Zuid-Holland, now prepared with several infiltration basins used by the waterworks of The Hague, was investigated during the last 10 yrs. Material collected in this area prior to present infiltration of the Rhine River water may indicate the original faunal composition. In all, 17 spp. were recorded, of which 11 also in larval stage. As compared with the odon. fauna of other dune areas in the Netherlands, particularly with that of the Frisian Islands (cf. B. Kiauta, 1968, Biol. Jaarb. Dodonaea 36: 88-114). There is a remarkable similarity in composition, though that of Meijendel is impoverished as far as the number of spp. is concerned.

(2115) GEPP, J. & M. GEPP, 1977. Entomologica austriaca, 1970-1974. Ber. ArbGem. ökol. Ent. Graz (Beih.) 3: 1-78. – (*Inst. Umweltwiss. u. Naturschutz, Oesterr. Akad. Wiss. Heinrichstr. 5, A-8010 Graz*).
This is a complete bibliography (773 titles) of entomological publications on Austria and of those published by the Austrian workers, covering the period, 1970-1974. 7 of these are of odonatol. contents.

(2116) GEPP, J. & W. STARK, 1978. Der Rielteich – das an Libellenarten reichste Kleigewässer Mitteleuropas. Steier. NaturschutzBr. 18 (1): 10-12. – (*Inst. Umweltwiss. u. Naturschutz, Oesterr. Akad. Wiss., Heinrichstr. 5, A-8010 Graz*).
The Rielteich, a pond nr. Graz, Austria, is inhabited by 40 out of 77 odon. spp. known to occur in Austria. This is the largest number of spp. ever recorded from a single pond in Central Europe. No spp. names are given save for Lestes macrostigma, Orthetrum albistylum and Crocothemis erythraea. (For a detailed account on the odon. fauna of this locality cf. *OA* No. 2014).

(2117) GRACILE. (Newsletter of Odonatology). Published by the Kansai Research Group of Odonatology, Osaka, Nos. 22 (Jan., 1978), 23 (Apr., 1978). (Japanese). – (c/o *K. Tani, 129 Jizocho, Nara, 630, JA*).
(No. 22): *Iwasaki, M.* (5-16, Tsutoayahacho, Nishinomiya, Hyogo Pref., 662, JA): On the behaviour of Mnais pruinosa observed in Kyoto (1-13); – Marking techniques for dragonfly studies (14-16).
(No. 23): *Muraki, A. & Y. Tanimura* (2-51,

Ohmiya-nishino-cho, Ashi-ku, Osaka, 535, JA): Dragonfly collecting and nature conservation (1-3); – *Sonehara, I.* (5035, Tazawa, Toyoshina-machi, Minamiazumi-gun, Nagano Pref., 399-82, JA): An appeal for support of the prohibition of the Aeshna mixta collecting at Ura-oike Pond, Ichimura, Kōmoro, Nagano Prefecture (4-6); – *Morita, Y.* (298-1, Uenoshiba-cho 1-chome, Sakai, 593, JA): On conservation of dragonflies (6-7); – *Morimitsu, S.* (4-2, Harumidai 1-chome, Sakai, 590-01, JA): On the distribution of Anisogomphus maackii along the Kishigawa River (8-10); – *Iwasaki, M. & T. Yamamoto* (5-16, Tsutoayaha-cho, Nishinomiya, Hyogo Pref., 662, JA): Oviposition behaviour of male Sympetrum frequens in tandem with a moribund female (10-11); – *Shimojima, M.* (35-7, Wakamiya 3-chome, Nakano-ku, Tokyo, 165, JA): Migration of Sympetrum frequens observed in Tokyo (11-14); – *Matsuda, I.* (A2-309, 22, Yamada-nishi 1-chome, Suita, 565, JA): Aeshnids observed at Senri Heights, Part 2 (14-15); – A male of Sympetrum e. eroticum with dark markings at the wing apices (16); – *Nagase, K.* (Sanrakuso, 548, Abiko-cho, Sumiyushi-ku, Osaka, 558, JA): Sympecma paedisca hibernating in Osaka (16); – *Kimura, T.* (Fujisaka Heights A1-204, 1081-2, Oaza Fujisaka, Hirakata, 573-01, JA): A survey trip to Ohtogawa (17-18); – The first survey for Sympetrum maculatum (18); – The second survey for Sympetrum maculatum (19); – A survey trip to Ouchibashi, Iga-ueno (20); – A survey trip for Sympetrum depressiusculum and S. cordulegaster (20-21); – Record of a survey trip to Oike and Shima-katsuura (22-23); – *Kimura, T. & K. Wakisaka*: Ictinogomphus pertinax in Suzushima Island and Mortonagrion hirosei at Miyama-cho, Mie Prefecture (23-24); – *Kimura, T.*: A survey trip for Platycnemis echigoana (24-26); – *Inoue, K.* (5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA): Certificate of thanks from the "Osaka Prefectural Mt. Kongo Nature School" (26).

(2118) HARZ, K., 1978. In Memoriam Alois Bilek, 1909-1974. Articulata 1 (7): 35-46. (German). – (*D-8801 Endsee, GFR*).
The paper gives a very detailed biography and complete entomological bibliography of the late A. Bilek, incl. a portrait and several of his unpublished drawings. – (*Abstracter's note*: In Bilek's odonatol. bibliography, as published in Odonatologica 4, 1975: 31-33, 2 of his papers were erroneously omitted, viz.: 1964, Die farberhaltende Präparation von Libellen [Ent. Z. Frankf. a. M. 74: 69-70]; – 1968, Über das Aufweichen von Libellen und dickleibigen Faltern [Ent. Z. Frankf. a. M. 78: 77-78]). – (For his 2 posthumously published papers cf. *OA* Nos. 2108, 2109).

(2119) HARZ, K., 1978. Libellen im Schwarzen Moor. Articulata 7 (1): 50. – (*D-8801 Endsee, GFR*).
Incidental notes on dragonflies of the Schwarze Moor, nr. Rhön, SO Kassel, Bavaria, German Federal Republic. This is the first record of Somatochlora arctica from this locality.

(2120) HUGGINS, D.G., 1978. Description of the nymph of Enallagma divagans Selys (Odonata: Coenagrionidae). J. Kansas ent. Soc. 51 (1): 140-143. – (*St. Biol. Surv. Kansas, 2045 Ave. A, Campus West, Lawrence, Kansas 66045, USA*).
The previously unknown larva of E. divagans is morphologically similar to those of Walker's Enallagma Group II (cf. E.B. Walker, 1953. Odonata of Canada and Alaska, vol. 1, Univ. Toronto Press). It is most similar to E. antennatum and E. traviatum, but can be distinguished from these by either the number of palpal setae (4 in divagans and traviatum, 5 in antennatum) or its distinctive caudal lamellae colour pattern. The larvae of E. divagans are predominantly stream inhabitants, but occasionally are found in lentic waters. (Author).

(2121) JURZITZA, G., 1978. Unsere Libellen: die Libellen Europas in 120 Farbfotos.

Bunte Kosmos-Taschenführer, 71 pp. (120 col. ill. incl.), Franckh, Stuttgart. – Price: DM 7.80. – (Author's address: *Bot. Inst., Univ. Karlsruhe, Kaiserstr. 12, D-7500 Karlsruhe, GFR*; – Publishers' address: *Franckh-Kosmos, Pfizerstr. 5-7, Postfach 640, D-7000 Stuttgart-1, GFR*).

A brief introduction is followed by instructions for the use of the graphic key (adult males, to the genus), depicting diagnostic characters by symbols and drawings. The stress is on the 120 colour photographs, showing adults and a few larvae of 71 spp. and which, coupled with the additional sketches, will in most cases allow a safe identification to the sp. level. The photographs are arranged under subheadings like "larval life", "emergence", "feeding", "migratory spp.", "flight technique", "Copulation", etc., and into 3 chapters related to the habitats, viz. "streams and rivers", "ponds and lakes", and "moors and bogs". Each figure is accompanied by the technical and (German) vernacular name, statement of the family affiliation and flight season, and by a concise but very informative text on various aspects of the sp. concerned. Some photographs are of particular interest, e.g. Orthetrum cancellatum devouring a Crocothemis erythraea of its own size, Epitheca bimaculata pressing out the egg cluster, etc. – *(Abstracter's note*: Prof. Jurzitza is one of the leading German odonatologists and one of the greatest masters in the field of dragonfly photography. In the present work he combined the 2 aspects, and produced a book that will not only serve as a good field guide for the amateur collectors and as an inspiration for younger dragonfly photographers; many of his photographs represent important documents on odon. behaviour, and certainly deserve detailed study by the workers in this field).

(2122) KUKALOVA-PECK, J., 1978. Origin and evolution of insect wings and their relation to metamorphosis, as documented by the fossil record. J. Morph. 156 (1): 53-126. – (*Dept. Geol., Carleton Univ., Ottawa, Ont. K1S 5B6, CA*).

In contemporary entomology the morphological characters of insects are not always treated according to their phylogenetic rank. Fossil evidence often gives clues for different interpretations. All primitive Paleozoic pterygote nymphs are now known to have had articulated, freely movable wings reinforced by tubular veins. This suggests that the wings of early Pterygota were engaged in flapping movements, that the immobilized, fixed, veinless wing pads of Recent nymphs have resulted from a later adaptation affecting only juveniles, and that the paranotal theory of wing origin is not valid. The wings of Paleozoic nymphs were curved backwards in Paleoptera and were flexed backwards at will in Neoptera, in both to reduce resistance during forward movement. Therefore, the fixed oblique-backwards position of wing pads in all modern nymphs is secondary and is not homologous in Paleoptera and Neoptera. Primitive Paleozoic nymphs had articulated and movable prothoracic wings which became in some modern insects transformed into prothoracic lobes and shields. The nine pairs of abdominal gillplates of Paleozoic mayfly nymphs have a venation pattern, position, and development comparable to that in thoracic wings, to which they are serially homologous. Vestigial equivalents of wings and legs were present in the abdomen of all primitive Paleoptera and primitive Neoptera. The ontogenetic development of Paleozoic nymphs was confluent, with many nymphal and subimaginal instars, and the metamorphic instar was missing. The metamorphic instar originated by the merging together of several instars of old nymphs; it occurred in most orders only after the Paleozoic, separately and in parallel in all modern major lineages (at least twice in Paleoptera, in Ephemeroptera and Odonata; separately in hemipteroid, blattoid, orthopteroid, and plecopteroid lineages of exopterygote Neoptera: and once only in Endopterygota). Endoptery-

gota evolved from ametabolous, not from hemimetabolous, exopterygote, Neoptera. – The full primitive wing venation consists of six symmetrical pairs of veins; in each pair, the first branch is always convex and the second always concave; therefore costa, subcosta, radius, media, cubitus, and anal are all primitively composed of two separate branches. Each pair arises from a single veinal base formed from a sclerotized blood sinus. In the most primitive wings the circulatory system was as follows: the costa did not encircle the wing, the axillary cord was missing, and the blood pulsed in and out of each of the six primary, convex--concave vein pair systems through the six basal blood sinuses. This type of circulation is found as an archaic feature in modern mayflies. Wing corrugation first appeared in preflight wings, and hence is considered primitive for early (paleopterous) Pterygota. Somewhat leveled corrugation of the central wing veins is primitive for Neoptera. Leveled corrugation in some modern Ephemeroptera, as well as accentuated corrugation in higher Neoptera, are both derived characters. The wing tracheation of Recent Ephemeroptera is not fully homologous to that of other insects and represents a more primitive, segmental stage of tracheal system. – Morphology of an ancient articular region in Palaeodictyoptera shows that the primitive pterygote wing hinge in its simplest form was straight and composed of two separate but adjoining morphological units: the tergal, formed by the tegula and axillaries; and the alar, formed by six sclerotized blood sinuses, the basivenales. The tergal sclerites were derived from the tergum as follows: the lateral part of the tergum became incised into five lobes; the prealare, suralare, median lobe, postmedian lobe and posterior notal wing process. From the tips of these lobes, five slanted tergal sclerites separated along the deep paranotal sulcus: the tegula, first axillary, second axillary, median sclerite, and third axillary. Primitively, all pteralia were arranged in two parallel series on both sides of the hinge. In Paleoptera, the series stayed more or less straight; in Neoptera, the series became V-shaped. Pteralia in Paleoptera and Neoptera have been homologized on the basis of the fossil record. – A differential diagnosis between Paleoptera and Neoptera is given. Fossil evidence indicates that the major steps in evolution, which led to the origin first of Pterygota, then of Neoptera and Endopterygota, were triggered by the origin and the diversification of flight apparatus. It is believed here that all above mentioned major events in pterygote evolution occurred first in the immature stages. (Author).

(2123) NESTLER, J.M., 1978. Niche relationships of Plathemis lydia Drury and Ladona deplanata Rambur (Odonata: Anisoptera). Bull. S. Carol. Acad. Sci. 40: 75-76. – (*Dept. Zool., Clemson Univ., Clemson, S.C., USA*).

Niche relationships between 2 sympatric genera of anisopteran larvae, Plathemis and Ladona, are inferred on the basis of head, mouthpart and tibia morphology. It appears that P. lydia will displace L. deplanata in areas of prime habitat. Life history data demonstrate that L. deplanata is a synchronous emerger. It tends to be less active in the pursuit of prey. The two factors suggest that it can exist in areas of significant fish predation, whereas P. lydia is restricted to fish-free microhabitats. Field observations support this interpretation. P. lydia is found only in very shallow areas of the study pond, while L. deplanata is found in deeper water that is visited by several spp. of predatory fish.

(2124) OVERBEEK, G., 1978. De libellen. [Dragonflies]. *In*: G. Houtman & H.D. van Bohemen, [Eds.], Waterland, pp. 142-143 (col. pls.), 153-159 (text), Thieme, Zutphen. (Dutch). – (*Beringlaan 12, Gouda, NL*).

This popular booklet deals with the natural history of "Waterland", the area between Amsterdam and Purmerend, the IJssel-

meer and Zaan, the Netherlands. The water in this region is mainly brackish and the following odon. spp. are mentioned in the text: Erythromma najas, Ischnura elegans, Aeshna grandis, A. mixta, Libellula quadrimaculata and Orthetrum cancellatum. The article will provide a useful popular reading on the ecology and behaviour of most of the spp. mentioned.

(2125) PILON, J.-G., G. BOIVIN & J.-L. FRECHETTE, 1978. Les odonates d'une région du bassin versant de la Baie James située entre la rivière La Grande et la rivière Eastmain. Ann. Soc. ent. Québec 23 (1): 3-29. (With Engl. s.). – (*Dép. Sci. biol., Univ. Montréal, C.P. 6128, Montréal, Qué. H3C 3J7, CA*).
The odon. faunas of 7 aquatic habitats of the Baie James, Quebec, Canada are analyzed, and the similarities and dissimilarities of the biotopes are pointed out on the basis of the odon. faunas recorded.

(2126) PINHEY, E., 1978. Odonata. *In*: M.J.A. Werger & A.V. Van Bruggen, [Eds.], Biogeography and ecology of Southern Africa 21: 723-731, Junk, The Hague. – (*Natn. Mus., P.O.Box 240, Bulawayo, Rhodesia*).
Examples are given of widespread spp., adaptable to various ecological biotypes, supplemented at times by migration or rapid metamorphosis. Those of discontinuous distribution may be due to isolation during interpluvial periods, or to artificial changes in ecology, but at least partially through inadequate collecting. – Local taxa are discussed in more detail for different ecological conditions. The richest zone taxonomically is that of the tropical riparian forests of South Central Africa. Those of temperate or arid regions are comparatively sparse in endemics. Relict spp. with intercontinental associations are considered, as well as the close similarity of palustrines in and around the tropical upper Zambezi system and the Okavango delta of Botswana. – Historically, reasons can be suggested for such localization, such as the break up of Pangaea, resulting in intercontinental association of relict spp.; changes in forest coverage during successive pluvials and interpluvials, causing isolation; suspected change in course of the middle and lower Zambezi River producing the marked similarities between swamp taxa of the upper Zambezi region and those of the Okawango swamps. (Author).

(2127) PINHEY, E., 1978. A new species of Pseudagrion Selys, its separation and comparisons (Odonata: Coenagrionidae). Arnoldia, Rhod. 8 (22): 1-10. – (*Natn. Mus., P.O. Box 240, Bulawayo, Rhodesia*).
Examination of typical Pseudagrion gigas Schmidt from West equatorial Africa has necessitated separation of the taxon in South and East Africa, hitherto known under the same name, as a distinct sp., which is now named P. gamblesi sp. n. (♂ holotype, ♀ allotype: Bazeley Bridge, SW of Umtali, Rhodesia, 10-XI-1965; paratypes from various localities in Rhodesia, Mozambique, Zambia, Natal). Detailed comparisons, with descriptions, are given, incl. the metallotype of gigas. A marked peculiarity of this new sp. is the variability in development of the ♀ prothoracic styles. The relationship of the closely allied P. inopinatum Balinsky is discussed. (Author).

(2128) PINHEY, E., 1978. Comparative notes on an African species of Trithemis Brauer (Odonata: Libellulidae) and its congeners. Arnoldia, Rhod. 8 (26): 1-7. – (*Natn. Mus., P.O.Box 240, Bulawayo, Rhodesia*).
The types of T. donaldsoni (Calv.) and T. erlangeri Foerst. were reexamined and some descriptive and other notes on these and on the closely related taxa, particularly T. bifida Pinhey, are furnished. It is confirmed that erlangeri is a synonym of donaldsoni. T. donaldsoni dejouxi ssp. n. is described on the basis of ♂ material from west equatorial Africa (♂ holotype: Ouham River, Bohina, Bouar, Central African Empire, 22-XII-1974; paratype ♂♂ from various localities in Centr. Afr.

Emp. and Ivory Coast).

(2129) PORTMANN, A., 1978. Libellenwelt. *In*: A. Portmann, Das Tier als soziales Wesen, pp. 9-33, 370-371 (references), pls. 1-6. Suhrkamp, Zürich. – (*Zool. Anst., Rheinsprung 9, CH-4051 Basel*).
The chapter, by a well-known Swiss zoologist and odonatologist, gives a popular account of the reproductive and territorial behaviour of dragonflies. Although the latter are generally not considered as "social" insects, it is argued that the "social" aspect of their complicated sexual and territorial behaviour certainly requires a very careful redefinition of the phenomenon, "social". – (*Abstracter's note*: The present edition is a reprint of a book that has appeared in 1953 [Rhein-Verlag, Zürich]; and also contains brief biographic notes on the author).

(2130) PRETSCHER, P., 1978. Rote Liste der Libellen (Odonata). *In*: J. Blab, [Ed.], Rote Liste der gefährdeten Tiere und Pflanzen der Bundesrepublik Deutschland, pp. 43-44. Kilda Verlag, Greven. – (*Bundesforschungsanstalt f. Naturschutz u. Landschaftsökol., Heerstr. 110, D-5300 Bonn-Bad Godesberg-1, GFR*).
This is the same list as that cited in *OA* No. 1672.

(2131) SCHEEMAEKER, F. de, 1978. Libellen tijdens kamp te Bolderberg (B. Limburg). [Dragonflies collected during the workshop at Bolderberg (Belgian Limburg)]. Stridula 2 (2): 2-4. (Dutch). – (*Pastoriestraat 5, B-8200 Brugge*).
An annotated list is given of 16 spp. collected during July 4-8, 1977, at 6 localities in the Province of Limburg, Belgium. Of particular interest is the record of Calopteryx splendens, taken at a pool nr. Hasselt. In the period 1880-1890, 54 spp. were recorded in this area, of which 20 are considered either to have disappeared now from the region or have become very rare.

(2132) SCHMIDT, E., 1978. Odonata. *In*: J. Illies, Ed., Limnofauna europaea. Eine Zusammenstellung aller die europäischen Binnengewässer bewohnenden mehrzelligen Tierarten mit Angaben über ihre Verbreitung und Ökologie – A checklist of the animals inhabiting European inland waters, with accounts of their distribution and ecology (except Protozoa), pp. 274-279. Fischer, Stuttgart-New York, Swets & Zeitlinger, Amsterdam. (German, with bilingual title). – (*Biol. Seminar. Pädagogische Hochschule, Mürwikerstr. 77, D-239 Flensburg, GFR*).
This is a completely revised edition of the 1968 book (Odon. by K.F. Buchholz), giving a tabular review of ecology and distribution of the 127 spp. known to occur in Europe. The taxa whose species status is uncertain (e.g. Platycnemis nitidula, Pyrrhosoma elisabethae, Somatochlora meridionalis) are listed under the names of the nominate species.

(2133) SHERK, T.E., 1978. Development of the compound eyes of dragonflies (Odonata). IV. Development of the adult compound eyes. J. exp. Zool. 203 (2): 183-200. – (*Dept. Biol., Yale Univ., Kline Biol. Tower, New Haven, Conn. 06520, USA*).
The changes in the directions of view of marked larval ommatidia were observed after the emergence of the adult. Those ommatidia that had been present during the first larval instar had the most posterior directions of view in the adult visual field while the newest ommatidia that had not been functional for vision in the aquatic larva contributed to the anterior and dorsal foveas of the aerial adults. The changes in interommatidial angles at emergence are discussed. Contrary to the general trend for interommatidial angles between retained larval ommatidia to decrease at emergence; the interommatidial angles in the larval fovea of aeshnid visual predators increase at emergence. The modifications in an odonate compound eye at emergence are like an exaggeration of the modifications that occur at the moult from one larval instar to the next,

except that the newest ommatidia do not have any compromises in their design for use in the aquatic vision of the larvae. This is in contrast to the ommatidia retained from the earliest larval instars which have to have the most compromises in their design so that they can be adapted for the visual requirements of every larval instar, as well as the adult. This is discussed in relation to the trend among advanced species of odonates to replace the larval ommatidia by an entirely new set of adult ommatidia. (Author). (For pts. I-III cf. *OA* No. 2024).

(2134) SMITH, K.G.V., 1978. The dragonflies of Great Britain and Ireland. By Cyril O. Hammond. Ent. mon. Mag. 113 (1352-1355) [1977]: 30. – (*Author's address unknown*).
Book review of the volume listed in *OA* No. 2062.

(2135) VERDONK, M., 1978. Libellenwerk in het kaderkamp in Nieuwkoop 28 t/m 30 mei 1977. [Dragonfly observations during the Nieuwkoop workshop, May 28-30, 1977]. Debakel (NS) 2 (1): 15-20. (Dutch). – (*Verhulstlaan 8, Bussum, NL*).
An account is given on the odon. observations carried out during the Netherlands Youth Federation of Nature Friends Workshop, held at Nieuwkoop, Zuid Holland prov., Netherlands. Special attention is paid to the colour variations in Coenagrion pulchellum and Ischnura elegans.

(2136) WILMOT, B.C. & L.P. WILMOT, 1978. A selected bibliography of literature on Odonata from Africa and adjacent islands. Annls Cape prov. Mus. (nat. Hist.) 11 (10): 195-208. – (*Albany Mus., Somerset Str., Grahamstown, Cape, South Afr. Rep.*).
This bibliography was compiled to supplement that of Pinhey (1962, Publiçoes cult. Co. Diam. Angola 59: 1-162, 165-322), which included references to African Odon. up to Dec. 1959. While the vast majority of articles included in the present paper are subsequent to this date, there are listed also some earlier, non-systematic references omitted by Pinhey. The geographical coverage of articles is indicated by a code letter, while the relative importance of an article is indicated by the number of asterisks placed after the geographical code of the particular reference.