

ODONATOLOGICAL ABSTRACTS

1971

- (2962) DRAPER, K., 1971. Trout flies in New Zealand. 182 pp. Reed, Wellington-Auckland-Christchurch-Sydney-Melbourne. — (*Author's address unknown*).
This is a fishermen handbook. It includes the descriptions of several dragonfly hook dressings used by the sport anglers in New Zealand. These are "Danielson's damselfly" (hook 8-12; good reputation on lakes and the margins of slower streams), "Dragonfly quill" (hook 3), "Tonga" (hook 10-12; in the Canterbury area considered excellent when the fish are rising to *Xanthocnemis zealandica*), "Bragg's dragonfly nymph" (hook 8-10; very effective during the evening beetle rise), and "Brown dragonfly nymph" (hook 8-12; for fishing close to bottom, used to best effect in lakes).

1973

- (2963) EDA, S., 1973. [Instructions for insect photography and cataloguing of photographs]. *Gekkan Mushi* 1973 (32): 41-45. (Japanese). — (3-4-25 Sawamura, *Matsumoto, Nagano, 390, JA*).
A general narrative on the subject, with a strong personal tone. The author is a noted Japanese dragonfly photographer and odonatologist. His portrait, dated 1952, appears on p. 42. (For a contemporary portrait cf. *OA* No. 2968).
- (2964) TOMBO TO TOKYO [Dragonflies and Tokyo]. 32 pp. Tombow Pencil Co., Tokyo.

1973. (Japanese). — (*Public Relations Dept., Tombow Pencil Co., Toyoshima 6-10-12, Kita-ku, Tokyo, 114, JA*).

The booklet was published in the framework of the company's nature conservation programme. It contains 6 papers, written for the general reader, viz.: *Yayima, M.* (Dept. Insects, Tama Zool. Gardens, Tokyo): Experimental rearing of dragonflies (2-5); — *Yamaguchi, M.* (Kasuga-cho 2-13, Nerima-ku, Tokyo, 176): Dragonfly pond in the garden (6-10); — *Shinada, Y.* (address unknown): The correlation between the recession of vegetation and that of dragonflies (11-15); — *Furukawa, H. & R. Aoki* (address unknown): The insects observed in Tokyo during the summer of 1972 [Odon., Lepid., Cicadas recorded from 20 city localities] (16-19); — *Eda, S.* (3-4-25 Sawamura, Matsumoto, Nagano, 390): Dragonfly distribution in Tokyo [with distr. tables for the adjacent prefectures of Kanagawa, Saitama, Chiba, Ibaraki, Tochigi and Gumma] (20-25); — *Asahina, S.* (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160): Reminiscences of Tokyo dragonflies (26-31).

1975

- (2965) HACKETHAL, H., 1975. Zur Libellenfauna Serrahns. *In: Das Naturschutzgebiet Serrahn*, pp. 85-89. Rat Bezirk Neubrandenburg, Neubrandenburg & Serrahn. — (*Mus. Naturk. Humboldt-Univ., Invalidenstr. 43, DDR-104 Berlin, GDR*).
An annotated list of 35 spp. recorded from the nature reserve Serrahn, Mecklenburg,

German Democratic Republic. The author considers it as incomplete.

1976

- (2966) PAVLJUK, R.S. & L.G. KUZ'MOVICH, 1976. Strekozy (Insecta, Odonata) okretnostey g. Kremenca Ternopol'skoy oblasti. (Dragonflies [Insecta, Odonata] from the suburbs of Kremenets of the Ternopol region). *Vežtn. Zool.*, Kiev 1976 (3): 82-83. (Russian, with Engl. translation of the title). — (Dept. Invertebr. Zool., Lvov Univ., 4 Shcherebenkov Str., USSR-290005 Lvov).

A list and data on the (adult) abundance of 28 spp. (2440 spec.), collected during 70 field trips (1962-1967) in the area of the city of Kremenec, Ukraine, USSR, are given. The number of spp. recorded represents 40.5% of Odon. known so far from the Ukraine. — (*Abstracter's Note*: The name of the senior author is occasionally transliterated as "Pavlyuk").

1977

- (2967) BEGUM, A., M.A. BASHAR, A.K. DUTTA & L.C. BASHAK, 1977. A systematic note on the dragonflies (Odonata) of Dacca City and its suburbs. *J. Asiatic Soc. Bangladesh (Sci.)* 2 (2): 43-45. — (*Dept. Zool., Univ. Dacca, Dacca-2, Bangladesh*).

A list of 19 taxa (Gomphidae, Aeshnidae, Libellulidae), 3 of which are identified to the genus only. It is stated that 12 out of 16 libellulid spp. were not previously recorded from Bangladesh.

- (2968) EDA, S., 1977. [Shinshu dragonflies and I]. Rindo, Shinshu 1977 (12): 8-9. (Japanese). — (3-4-25 Sawamura, Matsumoto, Nagano, 390, JA).

A general narrative in a local school teachers journal. On p. 9 is a photograph of Dr. S. Asahina with the author (taken Aug. 24, 1961), and a portrait of the author appears also on the cover of the issue. — (For another portrait of Dr. Eda cf. *OA* No. 2963).

- (2969) HARDING, D., 1977. A consideration of some aspects of the feeding behaviour, along with a morphological investigation of the mouthparts and alimentary canal of *Uropetala carovei* (White) (Odonata). B. Sc. (Hons) thesis, Massey Univ., Palmerston. 51 pp. — (*Dept. Zool., Massey Univ., Private Bag, Palmerston North, NZ*).

Preliminary observations are reported on the feeding behaviour of *U. carovei* larvae, incl. activity patterns, food preferences, changes in response to bait with time, eating response, and several aspects of prey capture. The morphology of the mouthparts and alimentary canal is described.

- (2970) KUHN, O., 1977. Die Tierwelt des Solnhofener Schiefers. 5th revised ed. 140 pp. Neue Brehm-Bücherei, No. 318. Ziemsen, Wittenberg-Lutherstadt. — Price: M 9.90. — (Publishers' address: *A. Ziemsen Verlag, Wittenberg-Lutherstadt, GDR*).

The booklet is directed at the general reader. It contains a number of dragonfly figures, mostly reproduced from A. Handlirsch (1906-1908), but a photograph of 1 not identified sp. is published here for the first time. Among approx. 180 insect spp. described from the Upper Jurassic lithographic limestone of Solnhofen, about 40 are referable to Odon. The bibliographic list is brief and contains no odonatol. works. For a more detailed account on the odon. fauna of the Solnhofen rocks cf. *OA* No. 2206.

- (2971) UBUKATA, H., 1977. [Adult behaviour of *Mnais pruinosa* Selys. I. Behaviour pattern and daily activity]. — *Abstr. Pap. 24th ann. Meet. ecol. Soc. Japan*, p. 99. (Japanese). — (*Kushiro Coll., Hokkaido Univ., Shiroyama, Kushiro, 085, JA*).

Brief abstract of a paper presented at the said meeting; paper not available for abstracting. According to a personal communication from the author, its contents are covered by the author's contribution (pp. 24-29) in the publication listed in *OA* No. 1915, and by his paper, the title of which is given in *OA* No. 2572.

- (2972) UBUKATA, H., 1977. [Adult behaviour of *Mnais pruinosa* Selys. II. Structure and function of territory]. Abstr. Pap. 37th ann. Meet. ent. Soc. Japan, p. 50. (Japanese). — (*Kushiro Coll., Hokkaido Univ., Shiroyama, 085, JA*).
Cf. the text in *OA* No. 2971.
- (2973) DEGRTYAREV, A.G. & G.P. LARINOV, 1978. K. biologii obyknovnoi chaiki v Zapadnoi Yakutii. [On the biology of the Black-headed Gull in Western Yakutiya]. *Vopr. Biol.* 1978 (6): 9-13. (Russian). — (*Dept. Biol., Yakutsk Univ., Lenin Ave. 33, USSR-677007 Yakutsk*).
In 57 examined stomachs of the gull, *Larus ridibundus*, 13 *Lestes* and 11 *Coenagrion* adult specimens were found.
- (2974) MIKKOLA, K., 1978. Spring migrations of wasps and bumble bees on the southern coast of Finland (Hymenoptera: Vespidae and Apidae). *Ann. ent. fenn.* 44 (1): 10-26. — (*Dept. Ent., Mus. Zool., Univ. Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki-10*).
The spring migrations observed in 1975-1977 are described and discussed. In addition, the paper discusses the flight behaviour, phenology, and earlier notes on analogous movements in various insect orders, incl. Odon. It is stated that dragonflies, syrphids, wasps and bumble bees often migrate along the coasts. This usually means that they orientate into the wind and follow leading lines. In all these orders additional mechanisms of orientation clearly exist.
- (2975) MYLECHREST, P., 1978. Some effects of a unique hydroelectric development on the littoral benthic community and ecology of trout in a large New Zealand Lake. XI + 103 pp. M. Sc. thesis, Univ. British Columbia. — (*Wildlife Serv., Dept. Internal Affairs, P.O.B. 1146, Rotorua, NZ*).
The studies were carried out (1974-1977) in Lake Waikaremoana, North Island, New Zealand (cf. also *OA* No. 2907). Odon. are dealt with on pp. 52-56. The only 2 spp. are *Xanthocnemis zealandica* and *Procordulia grayi*. Their larvae show little difference in total numbers between summer and winter. The size frequency distributions of the larvae following the period of emergence suggest that the 2 spp. take more than 1 yr to reach the final instar, and there is no great decline in numbers following the emergence. Both spp. show an upward shift in the maximum densities of larvae during the winter months: *P. grayi* occurs in the lower draw-down zone, whereas the maximum density of *X. zealandica* occurs deeper, i.e. in the mixed zone. Oviposition in *P. grayi* takes place during Nov.-Jan. (single eggs at the surface over the littoral zone); early instars were found widely dispersed throughout the littoral zone below 2 m depth by late summer (Febr.). *X. zealandica* oviposits on the stems or leaves of emergent macrophytes; by the late summer (Jan.) the early instars were found down to 19 m depth, but the greatest numbers occurred between 5-10 m depth.
- (2976) PETERS, G., 1978. Ordnung Odonata (Libellen). In: B. Klausnitzer et al., [Eds.], *Wasserinsekten*, pp. 27-35. Kulturbund DDR, Zent. Komm. Natur & Heimat, c/o Biowissenschaften, Karl-Marx Univ., Leipzig. — (*Mus. Naturk., Humboldt Univ., Invalidenstr. 43, DDR-104 Berlin, GDR*).
A key and brief descriptions are given of the central European odon. families. The booklet (price: M 6.—) is directed at the general reader.
- (2977) UBUKATA, H., 1978. [Territorial and sexual behaviour of *Mnais pruinosa* Selys]. Abstr. Pap. ann. Meet. Hokkaido Branch ecol. Soc. Japan, p. 3. (Japanese). — (*Kushiro Coll., Hokkaido Univ., Shiroyama, Kushiro, 085, JA*).
Cf. the text in *OA* No. 2971.
- (2978) YOSHIDA, K. & H. MATSUURA, 1978. *Mnais pruinosa* Selys of the northern part of the Shiga Prefecture. *Nature and Insects* 13 (8): 15-21. (Jap.). — (*7-1 Tojonai, Karatsu, Nagasaki, 847, JA*).
M. p. pruinosa and *M. p. nawai* occur in the northern part of Saga prefecture, Japan, however, the range of the latter is smaller.

No interbreeding between the 2 taxa was noticed, while there is no difference in the emergence dates. In *M. p. pruinosa* it was noticed that ♂-f. *pruinosa* veered into ♂-f. *esakii*.

1979

- (2979) BIESIADKA, E., 1979. Ogólna charakterystyka faunistyczna środowisk wodnych Pienin. (General faunistic characterization of aquatic habitats in the Pieniny Mountains). *Frag. faun.* 24 (8): 283-293. (Polish, with Russ. and Engl. s's.). — (*Inst. Gen. Biol., Polish Acad. Sci., Swierczewskiego 19, PO-60-809 Poznań*).
The aquatic habitats of the Pieniny, Poland, are characterized on the basis of their fauna. The Odon. occur in the habitats less typical of mountainous landscape, e.g. old river beds and other valley reservoirs. For a detailed account on the odon. fauna of the region cf. *OA* No. 2227.
- (2980) CARCHINI, M., 1979. Taxonomic characters for alive larvae of Coenagriidae (Odonata). *Fragm. ent.* 15 (1): 59-66, col. figs. 1-6 excl. (With Ital. s.). — (*Ist. Zool., Univ. Roma, Viale dell'Università 32, I-00100 Roma*).
Abdomen and eye colour characters are used for differentiating larvae of *Coenagrion puella*, *C. lindeni*, *C. scitulum*, and *Ischnura elegans*. The use of these features for identification purposes makes the excessive manipulation of larvae, as required by the "classical" keys and resulting in a relatively high mortality rate, unnecessary.
- (2981) DAVLETSHINA, A.G., G.A. AVANESOVA & A.K. MANSUROV, 1979. Entomofauna yugo-zapadnogo Kyzylkuma. [The entomofauna of the southwestern Kyzylkum]. 128 pp. FAN, Tashkent. (Russian). — (*c/o Inst. Zool. & Parasitol., Uzbek Acad. Sci., Tashkent, USSR*).
Lestes dryas, *Sympecma annulata* and *Orthetrum brunneum* are the only odon. spp. listed (p. 93) from the SW Kyzylkum, Uzbek SSR, USSR.
- (2982) (Gulliver), 1979. Thematic world. *Inr. Stamp Collecting Weekly* 135 (2) [2437]: 205-207. Reference is made on p. 207 to the issue on 6 Sep. 1979 of a 60 öre definitive stamp from Sweden, featuring *Aeshna cyanea*. The stamp was depicted by G. Hakansson and engraved by Z. Jakus. P 12½ imperf.; catalogue details: T 291. No. 1012. — (*Abstracter's Note*: References to the same stamp were published in *Stamp Collecting Weekly* 135 (3) [3438]: 337; and in *Gibbons Stamp Monthly* of Nov., 1979). — (Cf. also *OA* No. 3022).
- (2983) HIROSE, K., 1979. Odonata. *Inr. M. Tsuda, Ed., Aquatic entomology*, pp. 25-70. Hukuryukan, Tokyo. (Japanese, with Engl. title). — Price of the complete volume (V+269 pp.): Y 3800.—. — (*Author deceased*).
This is considered as by far the best general work on the odon. larvae of Japan. It is organized as follows: General characterization of imago (p. 25); — Larval stage (p. 26); — Copulation, oviposition and egg (p. 29); — Larval feeding, respiration and emergence (p. 30); — Adult behaviour, life-history, phenology and distribution, based on larval habitats (p. 31): Running water spp. (lowlands and hills; Mountain streams; Humid soil in the vicinity of running water); Stagnant water spp. (Lowland marshes and shallow water bodies; Lowland ponds; Mountain ponds; Alpine bogs; Alpine ponds); — Identification of adults and larvae, and collection methods (p. 33); — Family- and subfamily key to the larvae (p. 34); — Species keys: Calopterygidae (p. 37); Coenagrionidae (pp. 37-40); Platycnemididae (pp. 40-42); Lestidae (p. 42); Chlorocyphidae (pp. 42-43); Epiophlebiidae (p. 44); Petaluridae (p. 45); Gomphidae (pp. 45-52); Cordulegasteridae (pp. 53-54); Aeshnidae (pp. 54-58); Corduliidae and Macromiidae (pp. 58-62); Libellulidae (pp. 62-69); — References (p. 69). — The keys are well illustrated and Latin nomenclature is used throughout.
- (2984) KUMAR, A., 1979. Studies on the life history of Indian dragonflies, *Pseudagrion rubriceps* Selys (Coenagrionidae: Odonata).

Rec. zool. Surv. India 75: 371-381. — (*Northern Regional Stn. Zool. Surv. India, 13 Subhas Rd., Dehra Dun-248001, U.P., India*).

Life history of *P. rubriceps* has been studied in the field (Gorakhpur, Dehra Dun, northern India) and in the laboratory. A detailed account and illustrations are given of the principal changes in external morphology throughout the larval development, and the characters helpful in distinguishing various instars are pointed out. The seasonal regulation of the sp. has also been studied in the field.

- (2985) KUUSINEN, J., 1979. Päijät-Hämeen sudenkorennoiset. [Dragonflies of Päijät-Häme]. 28 pp. Published by the amateur entomologists' club "Thecla" of the nature conservation society "Salpausselän luonnonystävät r.y.", Lahti. (Finnish). — (*Hist. Museo, Lahdenk. 4, SF-15110 Lahti-11*).

The booklet (of limited circulation) presents the pre-1979 status of the odon. distribution mapping in the surroundings of the city of Lahti, southern Finland. For each of the 41 spp. known to occur in the area a 10 x 10 km grid map is supplied showing all the known records. The aim of the publication is to facilitate further faunistic work in the previously unstudied squares. — (For the progress of the Finnish Odon. mapping scheme cf. *OA* Nos. 2495, 2496; for the revised and enlarged edition of the same work cf. *OA* No. 3033).

- (2986) [LIEFTINCK, M.A.], 1979. Libellen (Odonata). [Dragonflies (Odonata)]. In: J.A. Guldemond, R. Leys, J.G.M. Notenboom & A.W. Wesselo, [Eds.], *Biospeleologische Expeditie Algerije 1978*, p. 108. *Biospeleologische Werkgroep, Wageningen*. (Dutch, with French s. for each chapter). — (*Nwe Veenendaalseweg 224, Rhenen, NL*).

A list is given of 17 spp. identified by Dr. Lieftinck and collected at 6 localities in France, Spain and Algeria by the Dutch 1978 Biospeleological Algeria Expedition. *Trihemis annulata* has not been previously recorded from Spain. — (*Abstracter's Note*:

No reprints are available. The book (128 pp.) can be ordered by remitting Hfl. 10.— to the Postal Giro Account No. 3751305 of Speleog Nederland, Merelstr. 35 bis, Utrecht, NL).

- (2987) MAKINO, S., 1979. A historical sketch on the birth of animal cytogenetics in Japan: profiles and contributions of precursors. *La Kromosomo* 11-14: 379-389. — (*Chromosome Res. Unit, Fac. Sci., Hokkaido Univ., Sapporo, 060, JA*).

The history of cytogenetics in Japan is traced from 1899 to present. The paper contains references to the Japanese achievements in the field of odon. chromosome cytology. The pioneer of Japanese odon. cytogenetics was the late Prof. Kan Oguma (1885-1971) whose brief biography, portrait and various other photographs are also included, along with the evaluation of his manifold work. In addition, reference is made to Dr. Hisao Hirai, though his various contributions to odon. cytology (1939-1956), published partly (1939-1942) under the name "H. Kichijo", are not mentioned. A reference to the author's own odonatol. work is also omitted. He is the doyen of the Japanese animal cytologists.

- (2988) NAZEER AHAMED, S. & C.C. NARASIMHAMURTI, 1979. Two new septate gregarines, *Dendrorhynchus keilini* sp. n. and *Ancyrophora ceriagrioni* sp. n. from the midgut of the damselfly, *Ceriagrion coromandelianum* (Fabr.). *Acta protozool.* 18 (3): 441-450. (With Fr. s.). — (*Government G.H. Sch., Pasighat, Arunachal Pradesh, India*).

The 2 new gregarines were discovered in adult dragonflies, collected at various localities in Visakhapatnam, Andhra Pradesh, India. Their morphology and life-histories are described and illustrated.

- (2989) SPALDING, J.B., 1979. The aeolian ecology of White Mountain Peak, California: windblown insect fauna. *Arctic Alpine Res.* 11 (1): 83-94. — (*Dept. Biol., San Francisco St. Univ., San Francisco, Cal. 94132, USA*).

The composition of the windblown insect fauna at the summit of White Mountain Peak (alt. 4342 m), California, USA, was investigated for 44 days in July/Aug. 1974 and Aug. 1975. The summit is an extremely cold, arid, and sparsely vegetated environment, where the major source of nutrients for the resident biota is windblown insects. Odon. of the families Lestidae, Aeshnidae and Libellulidae were found infrequently, and no generic and specific names are stated.

- (2990) SUGIMURA, M., 1979. [Considerations on the oviposition in some dragonflies]. *Nature and Insects* 14 (6): 45-58. (Japanese). — (*Higashishita-cho, Nakamura, Kochi Pref., 786, JA*).

The paper is based on the author's movie, listed in *OA* No. 3050, and gives information and pen drawings of oviposition in *Trigomphus citimus tabei*, *Sinogomphus flavolimbatus*, *Chlorogomphus brunneus costalis*, *Somatochlora uchidae*, *Sympetrum parvulum*, *S. croceolum*, *S. e. eroticum*, *S. frequens*, *S. baccha matutinum* and *Tholymis tillarga*. The evidence was gathered mainly at Nakamura, Kochi Prefecture, Japan.

- (2991) TOMPKINS, L.S., V.M. LAWRENCE & C.N. SHIFFER, 1979. The Odonata of Washington County, Pennsylvania. *Proc. Penn. Acad. Sci.* 53: 47-48. — (Third author: *254 Gill Str., State College, Penn. 16801, USA*).

19 spp. are added to the list of Odon. recorded from Washington Co., Pennsylvania, USA, bringing the current list to 45 spp. The current species list is annotated with collection sites for the new additions.

1980

- (2992) (Anonymous), 1980. In *Rheinfelder Kiesgrube entdeckt: Libellen von seltener Art*. *Südkurier*, Konstanz 36 (179): 11 (issue of Aug. 5). — (Publishers: *Südkurier-Haus, Postfach 4300, D-7750 Konstanz, GFR*). The same subject as in *OA* No. 3028, but *Orthetrum albistylum* and *Crocothemis*

erythroa are mentioned only.

- (2993) (Anonymous), 1980. Life histories of New Zealand insects. Auckland War Memorial Mus. Leaflet. 1980 (3): 1-4.

On p. 1, reference is made to *Xanthocnemis zealandica* and *Uropetala carovei*, and (rather schematized) figures are produced of the larval and adult stages of the 2 spp.

- (2994) ANDREWS, M.I., 1980. Food of *Rana hexadactyla* Lesson. *J. Bombay nat. Hist. Soc.* 76 [1979] (1): 175-179. — (*Mar Thoma Coll., Tiruvalla-689103, Kerala, India*).

Insects are among the main food items of this Indian paddy field frog. Out of 319 stomachs examined, 5 contained remains of not further identified adult dragonflies, while in 1 odon. larvae were found.

- (2995) ARMSTRONG, J.S. & P.S. CORBET, 1980. Conversations about New Zealand dragonflies. *Soc. int. odonatol. rapid Comm.* 2: XIV+73 pp., 1 portrait. — (Second author: *Dept. Biol. Sci., Univ. Dundee, Dundee, DDI 4HN, UK*). — Orders to be sent to the Editors of *Odonatologica*, Dept. Anim. Cytogenet. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL. — Price: Hfl. 25.— net.

This is a transcript of a tape-recorded discussion on the subject (Taupo, New Zealand, Febr. 5-6, 1975) between the late Dr. J.S. Armstrong and Professor P.S. Corbet. Though a truly contemporary document, certain statements have been clarified by the second author in footnotes and in an Appendix. The relevant Bibliography and a checklist of the New Zealand Odon. are also appended.

- (2996) BAKER, R.L., 1980. Use of space in relation to feeding areas by zygopteran nymphs in captivity. *Can. J. Zool.* 58 (6): 1060-1065. (With Fr. s.). — (*Dept. Zool., Univ. Alberta, Edmonton, Alberta, T6G 2E9, CA*).

Spacing behaviour by larvae of *Coenagrion resolutum* was studied in the laboratory. Solitary larvae found and remained at feeding sites; when several larvae were

present some were excluded from feeding sites. Larval size had no effect on positioning of solitary insects at feeding sites, but when larvae occurred together, large individuals excluded smaller ones. Prior occupancy at a feeding site did not enhance the chances of remaining there when an intruder was added. When presented with a number of feeding sites, solitary larvae stayed at only one site as frequently as did larvae presented with only one site. Results are discussed in relation to possible effects of spacing behaviour on zygopteran life history and predator-prey dynamics. (Author). (Cf. also *OA* No. 2782).

- (2997) BAKER, R.L. & H.F. CLIFFORD, 1980. The nymphs of *Coenagrion interrogatum* and *C. resolutum* (Zygoptera: Coenagrionidae) from the boreal forest of Alberta, Canada. *Can. Ent.* 112 (5): 433-436. — (*Dept. Zool., Univ. Alberta, Edmonton, Alb., T6G 2E9, CA*).
The larval ultimate stage of *C. interrogatum* is described for the first time, and that of *C. resolutum* is redescribed. A key to the Coenagrion larvae of Alberta is presented along with the characters separating Coenagrion from Enallagma. (For a simultaneously published description of the larval stage of *C. interrogatum* cf. *OA* No. 3009).
- (2998) BARLET, J., 1980. Une pionnier belge de la morphologie des insectes, le professeur Fritz Carpentier (1890-1978). *Bull. Instr. r. Sci. nat. Belg.* 52 (5): 1-6, 1 portrait excl. — (*Lab. Morphol. Anim. Univ. Liège, Liège, Belgium*).
A short biography of F. Carpentier (born: March 17, 1890, Overijse, deceased: Sept. 17, 1978; professor of Invertebrate Morphology and Systematics, Univ. Liège, Belgium) is followed by a detailed appreciation of his work and by his bibliography. In the odonatological world F.C. was particularly well-known by his works on the protodonate morphology (1948, C.R. XIII Congr. int. Zool., Paris, pp. 553-554; — 1949, *Ann. Soc. géol. Belg.* 72: 317-326, pl. 1; — 1952, *Trans. IXth int. Congr. Ent.* 1: 161-164; — 1953, *Bull. Ann. Soc. ent. Belg.* 89: 183-184). A portrait is also provided.
- (2999) BELLE, J., 1980. A new species of Epigomphus from Guatemala (Odonata: Gomphidae). *Ent. Ber., Amst.* 40 (9): 136-138. — (*Onder de Beumkes 35, 6883 HC Velp, NL*).
E. clavatus (♂ holotype: Finca Sacté, Cobán, Guatemala) is described and illustrated, and its affinities discussed. The new sp. is characterized by a well-developed (second) pale antehumeral stripe close to the humeral sutures, as encountered also in subobtusus Sel., armatus Ris, and crepidus Kenn.
- (3000) BELLE, J., 1980. Notes on three species of Cyanogomphus Selys, 1873 (Odonata: Gomphidae). *Ent. Ber., Amst.* 40 (10): 151-155. — (*Onder de Beumkes 35, 6883 HC Velp, NL*).
The female of *C. waltheri* is described, and new records are presented of this sp., *C. uncatu*s and *C. minutu*s. Interspecific differences and geographic variation in the 3 spp. are discussed, and the type of *C. waltheri* is figured along with illustrations of *C. uncatu*s.
- (3001) BELLE, J., 1980. Survey of the dragonfly fauna of the Sarnian Islands. *Rep. Trans. Soc. Guernesiaise* 1979: 465-481, pls. 1-6 excl. — (*Onder de Beumkes 35, 6883 HC Velp, NL*).
Based on literature and thorough 1-season field work (1978) a review is given of all that is known on the odon. fauna of the Sarnian group of the Channel Islands (18 spp., viz. Alderney 7, Guernsey 16, Herm 2, Sark 1). A note on the Channel Islands' (French) vernacular names of dragonflies is also provided (Guernsey: "arroûtresse", Jersey: "mouÛtchet"). *Calopteryx virgo* (known from Guernsey only) is by far the most interesting sp. of the archipelago. Its infraspecific status is unclear and the sp. is seriously threatened with extinction. Habitat protective measures for this sp. and for *Pyrrhosoma nymphula* are urgently needed, and suggestions to this effect are outlined in detail. (Cf. also *OA*

Nos. 2203, 2491, 2715).

- (3002) BELYSHEV, B.F., 1980. Ekologicheskie faktory i geograficheskoe rasprostranenie strekoz (Insecta, Odonata) v severnoy Azii. [Ecological factors and the geographic distribution of dragonflies (Insecta, Odonata) in northern Asia]. Trudy biol. Inst. sib. Otdel. Akad. Nauk SSSR, Novosibirsk 40: 84-94. (Russian). — (*Inst. Biol., Siber. Sect. Acad. Sci. USSR, Ul. Frunse 11, USSR-630091 Novosibirsk*).
- The influence of a number of ecological factors that may condition the distribution of dragonflies is critically analysed (air temperature, humidity, winds, photoperiodism, water velocity and chemism, aquatic and other vegetation, food supply, presence of predators). The major importance is ascribed to the air temperature and the prevailing wind conditions. It is emphasised that in the odon. distribution the paleogeographic conditions play a far more significant role than the present-day ecological circumstances.
- (3003) BELYSHEV, B.F., 1980. Odonatofauna (Insecta, Odonata) boreal'nogo carstva i territorial'noe raspredelenie ee komponentov. [Odonate fauna (Insecta, Odonata) of the boreal fauna kingdom and the geographic range of its components]. In: G.S. Zolotarevko, Ed., Fauna i ekologiya rastitel'noyadnyh i hishchnyh nasekomyh Sibiri, pp. 7-24. Nauka, Novosibirsk. (Russian). — (*Inst. Biol., Siber. Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk*).
- A checklist is given of all palaearctic and nearctic spp., the sp. rank of which is being recognized by the author, and their geographic ranges are indicated in a table.
- (3004) BELYSHEV, B.F. & A.Yu. HARITONOV, 1980. Rasprostranenie po mirovoy sushe i centry razvitiya semeystva Cordulegasteridae Calv. (Insecta, Odonata). [The world distribution and the centres of origin of the family Cordulegasteridae Calv. (Insecta, Odonata)]. Trudy biol. Inst. sib. Otdel. Akad. Nauk SSSR, Novosibirsk 40: 76-80. (Russian). — (*Biol. Inst., Siber. Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk*).
- The family, as understood here, comprises the subfamilies Cordulegasterinae and Chlorogomphinae. In Cordulegasterinae, the geographic range is outlined of the genera *Allogaster*, *Anotogaster* and *Cordulegaster*, and it is hypothesised that the latter originates in the Palaeogene of southwestern Asia. Since *Chlorogomphus*, as the only genus of the Chlorogomphinae, as well as 2 out of the 3 cordulegasterine genera are all restricted to the oriental region, it is suggested that the family is of the Paleocene age, and that it originates in southeastern Asia.
- (3005) BEUTLER, H., 1980. Ein weiterer Beleg der Libelle *Aeshna affinis* v.d. Lind. aus der Mark Brandenburg von 1952. Ent. Nachr., Dresden 24 (4): 60-61. — (*Biol. Heimatmus., Frankfurter Str. 23, DDR-123 Beeskow, GDR*).
- 2 ♂ ("Mark Brandenburg, June 1952") are brought on record, and the distribution of *A. affinis* in the German Democratic Republic is briefly discussed.
- (3006) BROWN, S.C.S., 1980. *Oxygastra curtisii* (Dale, 1834) (Odonata: Corduliidae) in Bournemouth, an historical note. Ent. Rec. J. Var. 92 (4/5): 118-119. — (*158 Harewood Ave., Bournemouth, Dorset, UK*).
- The fate of the 1878 Bournemouth locality of this sp. is traced and the known specimens taken there are brought on record.
- (3007) BUENO, A.M.S. & A. FERREIRA, 1980. Estudos cromossômicos na ordem Odonata (libélulas). [Chromosome studies in the order Odonata (dragonflies)]. Ciênc. Cult. 32 (7): 746. (Portuguese). — (*Inst. Biociênc., Univ. Estadual Paulista, Campus Universitario, Rua 10 n. 2527, C.P. 178, CEP 13.500, Rio Claro, São Paulo, Brazil*).
- A brief abstract of the PhD project on the chromosome cytology of Brazilian Odon. by the first author, presented at the 32nd Annual Reunion of the Brazilian Society for

the Progress of Science. The text does not include any evidence on the spp. studied.

- (3008) CALDWELL, J.P., J.H. THORP & T.O. JERVEY, 1980. Predator-prey relationships among larval dragonflies, salamanders and frogs. *Oecologia*, Berlin 46: 285-289. — (*Savannah River Ecol. Lab., Drawer E, Aiken, S.C. 29801, USA*).
Larvae of *Anax junius* are predators of tadpoles of *Hyla gratiosa* in Carolina bays, southeastern USA. Under experimental conditions there is no relationship between tadpole size and number of tadpoles taken by a dragonfly larva of a certain size. Under natural conditions, however, the predation pressure is probably reduced by habitat separation of the tadpoles and dragonflies, by an immobility response of frogs to the attack, and, in smaller tadpoles, by a distinctive colour pattern which may function to disrupt the body outline and make the tadpoles indiscernable to predators.
- (3009) CANNINGS, S.G. & R.A. CANNINGS, 1980. The larva of *Coenagrion interrogatum* (Odonata: Coenagrionidae), with notes on the species in the Yukon. *Can. Ent. 112* (5): 437-441. — (*Dept. Zool., Univ. British Columbia, Vancouver, B.C., V6T2A9, CA*). A description of the ultimate instar larva is presented (cf. also *OA* No. 2997) along with information on larval habitat and the flight periods of the adult in the Yukon, Canada.
- (3010) CLARK E.S., 1980. Louisiana herons gleaning dragonflies. *Auk* 97: 399-400. — (*Dept. Biol. Sci., Univ. Centr. Florida, P.O.B. 25000, Orlando, Fla 32816, USA*).
Gleaning was so far recorded only in 3 spp. of American herons (*Casmerodius albus*, *Bubulcus ibis*, *Butorides striatus*). In the present paper foraging for dragonflies (sp. unknown) is described in *Hydranassa tricolor* in Florida, USA.
- (3011) COLWELL, A.E. & C.H. SCHAEFER, 1980. Diets of *Ictalurus nebulosus* and *Pomoxis nigromaculatus* altered by diflubenzuron. *Can. J. Fish aquat. Sci.* 37 (4): 632-639. (With Fr. s.). — (*Lake Co. Mosquito Abatement Distr., Lakeport, Calif. 95453, USA*).
Diflubenzuron was applied to 5 experimental ponds, yielding a mean concentration of 13 µg/L. Residues in the water declined below detectable limits (0.2 µg/L) by 14 days posttreatment. Young-of-the-year black crappie (*Pomoxis*) and brown bullhead (*Ictalurus*) accumulated diflubenzuron and then eliminated all residues by 7 days posttreatment. No fish mortalities occurred after the treatment, but for 1 month following treatment, stomach contents analyses indicated major alteration in the fish diets. The number of insects consumed per *Pomoxis* individual from the treated ponds increased by 293% during the first 2 weeks following the treatment. Among these were also odon. genera *Argia*, *Archilestes* and *Cordulia*. Growth rates and condition factors of the fish 3 months after treatment were similar to control fish.
- (3012) DE MARMELS, J., 1980. Selten, bis gänzlich verschwunden. *Tages Anzeiger Magazin*, Zürich 1980 (33): 1. (Issue of Aug. 16). — (For reprints apply to: *Dipl.-Zool. H. Schiess, Brüglenstr. 1, CH-8344 Adetswil*).
This is a critical comment on the paper listed in *OA* No. 2935, in which paper it is stated that *Calopteryx splendens* is one of the commonest dragonflies in Switzerland. At present, the sp. is known from less than 30 localities in the Swiss territory, and is one of the most endangered Swiss dragonflies. An appeal is made to the readers having any faunistic evidence on the distribution of the Calopterygidae in Switzerland to take up contact with Mr. H. Schiess (address above).
- (3013) DURHAM TRUST FOR NATURE CONSERVATION, 1980. Dragonflies in Durham. *Bull. amat. Ent. Soc.* 39 (328): 151. — (*52 Old Elvet, Durham, UK*).
An appeal is made by the Trust to supply the Durham faunistic records needed for the national mapping scheme.

- (3014) EDA, S., 1980. A riverian species, *Anisogomphus maacki* Selys, is able to live in a large Suwa-ko in Nagano Prefecture (Odonata). *New Entomol.* 29 (1): 14. — (Jap., with Engl. title). — (3-4-25 *Sawamura, Matsumoto, Nagano, 390, JA*).
A note with a photograph of an exuvia (Aug. 2, 1979).
- (3015) EDA, S., 1980. Tombo. [Dragonfly]. 56 pp. Kodansha Scientific Iconography Series, Tokyo. (Japanese). — Price: Y 790.—. — (3-4-25 *Sawamura, Matsumoto, Nagano, 390, JA*).
The booklet presents a general reading on the life of dragonflies and is directed at young readers. The author is a well-known dragonfly photographer, hence numerous high-quality photographs and a number of instructive aquarelles and schematic pictures. Photographs of some ancient Japanese representation of dragonflies and of all up-to-date issued postal stamps with a dragonfly motif are also included.
- (3016) ENCYCLOPAEDIA BRITANNICA or, a dictionary of arts and sciences, compiled upon a new plan. [etc.], Vol. II: V+1009 pp., pls. 59-104, tabs. excl. Society of Gentlemen in Scotland, Edinburgh, 1771. (1980 reprint of the first edition). — (c/o *Encyclopaedia Britannica, 425 North Michigan Ave., Chicago, Illinois 60611, USA*).
In this most illustrious encyclopedic work the Odon. were dealt with (pp. 972-973) under the key-word "Libellula". The following is the verbatim text: "Libellula, in the history of insects, a genus of fourwinged flies, called in English dragonflies; the characters of which are these: The mouth is furnished with jaws; the feelers are shorter than the breast; and the tail of the male terminates in a kind of hooked forceps. There are 21 species, chiefly distinguished by their colour". — (For the modern, 1974, treatment of the order in the same work cf. *OA* No. 869).
- (3017) FRANKE, U., 1980. Cordulegaster (Odonata) im westlichen Bodenseegebiet. *Ent. Z. Frankf. a. M.* 90 (18): 193-199. — (*Teggingerstr. 1, D-7760 Radolfzell, GFR*).
Pre- and post-1970 records of *C. bidentatus* and *C. boltoni* from the western Boden Lake area, southern German Federal Republic, are listed, mapped and analyzed from the points of view of autecology of the 2 spp. on one hand, and the geological and hydrobiological conditions of the region on the other. The abundance of the known localities of the 2 spp. is discussed (more *boltoni* than *bidentatus*) and compared to that in the nearby Jura of Basel, Switzerland, where the situation is reverse.
- (3018) [GAMBLES, R.M.], 1980. Order Odonata. In: J.T. Medler, *Insects of Nigeria*. — checklist and bibliography. *Mem. Am. ent. Inst.* 30: 24-28, bibliography excl. — (*Windings, Whitchurch Hill, Reading, RG8 7NU, UK*).
A meticulously accurate up-to-date checklist, the author of which is certainly by far the greatest authority on the Nigerian dragonflies.
- (3019) GONZÁLEZ SORIANO, E. & R. LÓPEZ P., 1980. Comportamiento sexual de Odonata. *Folia ent. mex.* 1980 (43): 20. — (*Dept. Zool., Inst. Biol., Univ. Nac. Auton. Mexico, Apartado Postal 70-153, Mexico-20, D.F., Mexico*).
This is an indicative abstract of a paper presented at the 14th Mexican National Congress of Entomology (March 25-28, 1979).
- (3020) GONZÁLEZ SORIANO, E., R. LÓPEZ P. & C. LEAL PADILLA, 1980. El territorialismo-en Odonata. *Folia ent. mex.* 1980 (43): 19. — (*Dept. Zool., Inst. Biol., Univ. Nac. Auton. Mexico, Apartado Postal 70-153, Mexico-20, D.F., Mexico*).
This is an indicative abstract of a paper presented at the 14th Mexican National Congress of Entomology (March 25-28, 1979).
- (3021) GÖTTLICH, K., [Ed.], 1980. Moor- und Torfkunde. 2nd revised ed. X+338 pp. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart. — Price: DM 58.—. — (Editor: *Univ. Hohenheim, P.O.B. 106, D-7000*

Stuttgart, GFR).

This is a handbook on (European) moorland ecology in a wide sense. In the analysis of the fauna of the genuine peat bogs and of bogs undergoing eutrophication, the odon. genus *Leucorrhinia* and the spp. *Somatochlora alpestris*, *S. arctica*, *Aeshna subarctica*, *A. juncea*, *A. caerulea*, and *Coenagrion hastulatum* are mentioned from the former type of habitat (pp. 26-27), and the genera *Aeshna*, *Orthetrum*, *Libellula*, *Sympetrum*, *Pyrrhosoma*, *Erythromma* and *Coenagrion* from the latter (p. 36).

- (3022) HANKS, A.J. & D.P. WRIGHT, Jr., 1980. Identifiable insects on stamps of the world. II. Insects other than Lepidoptera. *Handb. Am. trop. Assoc.* 98: 45-63. — (First author: *34 Seaton Drive, Aurora, Ont. L4G 2X1, CA*; — Second author: *Woosamonsa Rd., RR No. 1, Box 294-B1, Pennington, NJ 08534, USA*).

An annotated, technical catalogue of the subject. The Odon. are listed on p. 45. Only some of the stamps are illustrated, and the authors would appreciate getting in touch with anybody who would be willing to supply any corrections and additions. (Cf. also *OA* Nos. 1980, 2316, 2982). — (*Abstracter's Note*: The booklet is edited by W.F. Stanley, bears the title, "Insects and other invertebrates of the world on stamps", and it is available, at the price of US \$ 10.—, from J. Husak, American Tropical Association, 3306 North 50th Str., Milwaukee, WI 53216, USA).

- (3023) HANSEN, G., 1980. En bog om guldsmede. [A book about dragonflies]. 64 pp., 100 figs. incl. Skarv, Holte. (Danish). — Price: Dkr 69.50. — (Publishers: *Skarv Naturforlag, Kongevejen 45 B, DK-2840 Holte*). The slim volume is directed at the general reader, gives a good outline of dragonfly life, but its emphasis evidently is on the (mostly colour) photographs of Danish spp. Some of these are of very high quality. Particularly useful will be the list of discussed spp. (18), listing the taxonomic names along with the Danish vernacular names. — (*Abstracter's*

Note: According to an information from the Publishers, the book is going to be issued in English, German and French versions as well).

- (3024) HARITONOV, A.Yu. & B.F. BELYSHEV, 1980. Osobennosti geograficheskogo raspredeleniya roda *Enallagma* Charp., 1840 (Insecta, Odonata). [The peculiarities in the geographic distribution of the genus *Enallagma* Charp., 1840 (Insecta, Odonata)]. *Trudy biol. Inst. sib. Otdel. Akad. Sci. SSSR, Novosibirsk* 40: 80-84. (Russian). — (*Inst. Biol., Siber. Sect. Acad. Sci. USSR, Ul. Frunse 11, USSR-630091 Novosibirsk*).

The ranges of the 71 known members of the genus are outlined, and it is concluded that the genus has 2 centres of radiation: one in the tropics of the Old World, and the other one in the temperate zone of the New World. They were connected in the Palaeogene, and the recent peculiar distribution of taxa is discussed in terms of the Tertiary and Quaternary paleogeography.

- (3025) HOLLIS, D., [Ed.], 1980. Animal identification. A reference guide. Vol. 3. Insects. VIII+160 pp. *Brit. Mus. (Nat. Hist.)*, London & Wiley, Chichester-New York-Brisbane-Toronto.

This is a catalogue of some of the modern works in entomology. Odon. are dealt with on pp. 6-7, and the bibliography is divided into the following sections: "General" (Chopard, Corbet, Fraser, Kiauta, St. Quentin & Beier, 'Odonatologica', 'Tombo'), "Palearctic" (Aguesse, Andres, Buchholz, Cirdei & Bulimar, Ishida & Hamada, Needham, Er. Schmidt, Spuris), "Afrotropical" (Pinhey), "Oriental" (Asahina, Blackman & Pinhey, Fraser, Kiauta, Lieftinck, Needham), "Australasia" (Fraser, Lieftinck, O'Farrell & Watson), "Polynesian" (Zimmerman), "Nearctic" (Needham & Westfall, Robert, Walker, Walker & Corbet), and "Neotropical" (Belle, Donnelly, Geijskes, Gloger, Fraser, Montgomery, Racemis, Whitehouse).

- (3026) JÍLEK, R., 1980. *Epistylus cambari* (Ciliata: Peritrichida) and dragonfly nymphs, an epizoic association. *Jl N.Y. ent. Soc.* 88 (2): 113-114. — (*Dept. Zool., Ohio St. Univ., Columbus, Ohio 43210, USA*).
E. cambari was found attached to the dorsal abdominal surface of 30% of *Gomphus quadricolor* and *Pachydiplax longipennis* larvae examined (Delaware Co., Ohio, Apr. 1974). Colonies ranged from 20-30 individuals, with but one colony attached to each dragonfly.
- (3027) JÍLEK, R. & J.L. CRITES, 1980. Pathological implications of *Spinitectus carolini* (Spirurida: Nematoda) infections to survival of mayflies and dragonflies. *J. invert. Pathol.* 36: 144-146. — (*Dept. Zool., Ohio St. Univ., Columbus, Ohio 43210, USA*).
 Eggs containing 1st stage larvae of *S. carolini* are ingested by mayfly larvae, they are released then and enter the hemocoel, where they remain for 6 days, molt to 2nd stage and penetrate the abdominal muscles, soon thereafter molting to 3rd stage. At this time the mayfly host mounts a defensive reaction, culminating in the encapsulation of the nematode. The latter, however, continues to grow at the expense of the deteriorating muscle tissue. Similar results were found in (a not specified) dragonfly. It is argued that *S. carolini* may play a role in the population dynamics of odon. larvae by limiting the number of individuals that will metamorphose to adults. Incapacitation of larval insects would also serve to facilitate their availability to fish definitive hosts.
- (3028) KAGERER, R., 1980. Zwischen Müll und aufgelassenen Kiesgrube: wertvoller Lebensraum für seltene Libellen. Stadtrat Heinrich Lohmann weist auf die biologische Bedeutung des Gebiets hin — durch Strassenbau nicht gefährdet. *Badische Ztg.* 35 (180): 20 (Issue of Aug. 6). — (*Murgstr. 3, D-7889 Grenzach-Wyhlen, GFR*).
 An appeal is made for conservation of a gravel-pond, endangered by the scheduled construction of the Warmbad-Rheinfelden road, southern German Federal Republic.
- The pond is a breeding site of a number of rare odon. spp., incl. *Crocothemis erythraea* and *Orthetrum albistylum*, which are on the German "Red List". Other endangered spp. mentioned from the locality are *Ischnura pumilio*, *Calopteryx splendens* (!), *Orthetrum brunneum* and *Sympetrum pedemontanum*. (For detailed information contact Mr. H. Lohmann, Untere Dorfstr. 16, D-7888 Reinfeld, GFR). — (Cf. also *OA No.* 2992).
- (3029) KAJAK, Z., [Ed.], 1980. Directory of Polish hydrobiologists. 133 p. Polish Hydrobiol. Soc. & Ecol. Committee Polish Acad. Sci., Warszawa. — (c/o Dr. J.I. Rybak, Dept. Hydrobiol., Inst. Zool., Univ. Warsaw, Nowy Swiat 67, PO-00-046 Warszawa).
 As odonatologists are listed: Ewa Janowska (Dept. Gen. Zool., Inst. Environ. Biol., Univ. Łódź, Banacha 12/16, PO-90-237 Łódź) [biology, morphology, taxonomy, faunistics and occurrence of Odon. in various waters], and dr. Stefan Mielewczyk (Dept. Agrobiol., Polish Acad. Sci., Swierczewskiego 19, PO-60-809 Poznań [ecology, biology and taxonomy]).
- (3030) KLAUSNITZER, B., K. RICHTER & J. LEHNERT, 1980. Zur Insektenfauna der Parkanlage am Schwanenteich im Zentrum von Leipzig. *Hercynia* (N.F. 17 (2): 213-224. (With Engl. s.). — (*Sekt. Biowissenschaften, Karl-Marx Univ., Talstr. 33, DDR-701 Leipzig, GDR*).
 Out of 409 insect spp. recorded from the city of Leipzig, German Democratic Republic, 12.7% are aquatic, but *Enallagma cyathigerum* is the only odon. sp. encountered during the survey (1978).
- (3031) KÖNIGSTEDT, D., 1980. Zur Verbreitung der Keilflecklibelle (*Anaciaeschna isosceles*) in Mecklenburg (Odonata), *Faun. Abh. Dresden* 7 (19): 175-178. (With Engl. s.). — (*Erich-Weinert-Str. 9, DDR-22 Greifswald, DDR*).
 The hitherto known records of *A. isosceles* in Mecklenburg, German Democratic Republic, are listed, mapped and discussed. The

sp. is widespread and it is locally not uncommon in the region.

- (3032) KUUSINEN, J., 1980. Lounais-Hämeen sudenkorennot. [Dragonflies of the southwestern Häme]. 4 pp. Published by the amateur entomologists' club "Thecla" of the nature conservation society "Salpausselän luonnonystävä r.y.", Lahti. (Finnish). — (*Hist. Museo, Lahdenk. 4, SF-15110 Lahti-11*).
- The pamphlet provides 10 x 10 km grid distributional maps for the 39 spp. known to occur in the area, surroundings of the city of Forssa, southern Finland.
- (3033) KUUSINEN, J., 1980. Päijät-Hämeen sudenkorento-opas. A guide to the dragonflies of Päijät-Häme]. 40 pp. Published by the amateur entomologists' club "Thecla" of the nature conservation society "Salpausselän luonnonystävä r.y.", Lahti. (Finnish). — (*Hist. Museo, Lahdenk. 4, SF-15110 Lahti-11*).
- This is a revised and greatly enlarged edition (42 spp.) of the volume listed in *OA* No. 2985. The distributional maps are brought up to the status of May, 1980. In addition, brief notes are provided on the habitats and phenology of the local spp., and instructions are supplied for collecting adults, along with a key to the adults of the Finnish fauna (51 spp.).
- (3034) NARAOKA, H., 1980. The body pattern of *Enallagma deserti* in Japan. *New Entomol.* 29 (1): 22-25. (Jap., with Engl. s.). — (36-71, *Aza Motoizumi, Oaza Fukunoda, Itayanagi-cho, Kita-gun, Aomori Pref., 038-36, JA*).
- For the differences in body pattern, in the Japanese faunal limits *E. deserti* has been classified into 2 spp., viz. *circulatum* (Honshu) and *yezoensis* (Hokkaido). The author studied the body patterns in 12 populations and distinguishes 3 types: (1) *yezoensis* type (black patterns on the dorsal part only; Hokkaido, Honshu), (2) Honshu mountain type (black patterns on all parts; Hokkaido, Honshu), (3) Juniko type (black patterns remarkably diminished; Honshu). Only in 1 locality were 2 different types encountered, otherwise a single type occurs per locality. Good illustrations are also provided.
- (3035) NOTULAE ODONATOLOGICAE. Semi-annual bulletin of the International Odonatological Society, Published by the Societas Internationalis Odonatologica (S.I.O.), Utrecht. Vol. I., No. 5 (June 1, 1980). — Annual subscription Hfl. 24.— net. — (c/o Dept. Anim. Cytogen. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL).
- Pilon, J.G.* (Dépt. Sci. biol., Univ. Montreal, C.P. 6128, Montreal, Que. H3C 3J7, CA): Liste préliminaire des odonates de la région de Sainte-Thérèse, Comté de Terrebonne, Québec, Canada (85-87); — *Benken, T.* (Poststr. 2, D-4573 Löningen, GFR): Die Odonatenfauna der Umgebung von Löningen, Westniedersachsen, Bundesrepublik Deutschland (87-88); — *Cannings, R.A.* (Ent. Div., British Columbia Prov. Mus., 601 Belleville Str., Victoria, B.C., V8V 1X4, CA): New distributional records of Odonata from the Province of Newfoundland, Canada (88); — Some Odonata from the Crownst Pass region, Alberta, Canada (88-89); — *Crucitti, P.* (Ist. Zool., Univ. Roma, Città Universitaria, I-00100 Roma): Su un peculiare comportamento di *Boyeria irene* (Fonsc.) in un biotopo sardo (Anisoptera: Aeshnidae) (89-90); — *Meijer, C., H. Schiess & M. Wolf* (Züricherstr. 120, CH-8620 Wetzikon): Notes on the distribution of some rare Swiss Anisoptera (90-91); — *Mol, A.W.M.* (Guldenvliesstr. 19, 5211 AM Den Bosch, NL): Additions to the list of Odonata from the surroundings of Eindhoven, the Netherlands (91); — *Pill, C.E.J.* (Dept. Pure & Appl. Zool., Univ. Leeds, Leeds LS2 9JT, UK): Diatoms on the legs of *Libellula* larvae (91-92); — *Rudolph, R.* (Abt. Biol. Didaktik, Univ. Münster, Flieðnerstr. 21, D-4400 Münster, GFR): Records of *Somatochlora arctica* (Zett.) and *Aeshna subarctica* Walker from northwestern Germany (Anisoptera: Corduliidae, Aeshnidae)

(92); — *Chelmick, D.G.*, [Ed.], ('Bredon', High Beech Lane, Haywards Heath, Sussex, UK): Proceedings of the First Meeting of British Dragonfly Recorders (92-95).

- (3036) OKADA, H., 1980. *Ceylonolestes gracilis peregrinus* Selys (Odonata) from Aomori-pref. *New Entomol.* 29 (3): 22. (Jap., with Engl. title). — (*Ichiban-cho 1-6-23, Aomori, 039-11, Ja*).

A faunistic note, with a photograph of the adult.

- (3037) OLIGER, A.I., 1980. Fenologiya i sutochnaya aktivnost' strekoz (Odonata) v yugovostochnoy chasti Ukrainy. (Phenology and diurnal activity of dragonflies in the south-eastern part of Ukraine). *Zool. Zh.* 49 (9): 1425-1427. (With Engl. s.). — (*Altai State Reserve, p/o Yailyu, USSR*).

47 spp. from the Donetsk and Voroshilov districts of Ukraine, USSR, are listed along with a table showing the phenology of the adults. As to their diurnal flight activity, the spp. are divided into 5 groups, defined in terms of the maximal activity of the taxa concerned.

- (3028) PAJUNEN, V.I., 1980. A note on the connexion between swarming and territorial behaviour in insects. *Ann. ent. fenn.* 46 (2): 53-55. — (*Dept. Zool., Univ. Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki-10*).

It is suggested that swarming of male insects is a modification of territorial behaviour. Swarming display and aggregation of males are assumed to originate from aggressive reactions, which have been weakened by high male density. Cases in which territorial systems break down with increasing density (incl. *Calopteryx virgo*, *Leucorrhinia* and *Sympetrum parvulum*) are proposed as models of the evolution of swarming. This is an alternative theory to that interpreting the male swarming behaviour as a part of reproductive behaviour.

- (3039) PATTERSON, J.A. & R.L. CHAPPELL, 1980. Intracellular responses of Procion filled cells and whole nerve cobalt impreg-

nation in the dragonfly median ocellus. *J. comp. Physiol. (A)* 139 (1): 25-39. — (*Dept. Zool., St. Bartholomew's Hospital Med. Coll., Charterhouse Sq., London EC1M 6BQ, UK*).

The projections of the large second-order neurons have been mapped in the brain using whole nerve cobalt impregnation of adult *Anax junius* and *Aeshna tuberculifera*. — 9 unique median ocellar nerve projections were identifiable from preparation to preparation. One of them was found to bifurcate sending projections to each side of the brain. — Regions of terminal arborization could conveniently be divided into 3 groups: the ventrolateral, dorsomedial, and ventromedial dendritic complexes: the latter 2 located where contralateral input from lateral ocelli has been identified, the former in a region receiving ipsilateral lateral ocellar input. — In 3 preparations the electrophysiological response of one of these neurons was identified by intracellular recording together with Procion dye injection at a site in the synaptic plexus region of the ocellar retina. In each case the response was the typical hyperpolarizing response attributed to second-order cells in this and other ocelli. The dye revealed that we had stained the same large ocellar neuron in each preparation. This neuron projects from the synaptic plexus of one half of the median ocellus to the contralateral half of the brain to terminate in a region which also receives input from the contralateral ocellus. The neuron can be identified using the map of large ocellar neurons obtained from our cobalt preparations. — Intracellular recording coupled with Procion staining was achieved for 3 photoreceptor cells. In each case the dye revealed that the axon of the photoreceptor cell terminated in the ocellar synaptic plexus and did not project into the brain. This suggests that receptor axons may not account for the small diameter axons observed in cross sections of the ocellar nerve. (Authors).

- (3040) PINHEY, E., 1980. A review of the Metacnemis group (Odonata: Platycnemididae).

- Arnoldia, Zimbabwe 9 (2): 1-13. — (*Natn. Mus., P.O.B. 240, Bulawayo, Zimbabwe*). Mesocnemis Karsch, hitherto distinguished from Metacnemis Selys only on the position of the arculus, sometimes a variable feature, was placed by some authors in synonymy. It is shown that the 2 taxa can now be clearly separated on prophallic characters and the generic rank of Mesocnemis is confirmed. Metacnemis robusta is transferred to Mesocnemis, and the 5 known spp. are redescribed, with relevant synonymy.
- (3041) PINHEY, E., 1980. Entomology, Odonata and Lepidoptera. Falcon, Zimbabwe 7 (1): 76-78. — (*Natn. Mus., P.O.B. 240, Bulawayo, Zimbabwe*).
On p. 77, a brief account is given of the odon. collection gathered by the Dec. 1979 Exploration Society expedition to the "Klipfontein" Farm, Vaalwater, Zimbabwe. In all, 38 spp. were collected (a list is not included), and special reference is made to Pseudagrion assegaai, P. makabusiensis, Agriocnemis pinheyi, Anax speratus, Macromia bifasciata, Trithemis Hecate, and Diplacodes deminuta. Orthetrum trinacria was found feeding on the noctuid moths, Westermannia roseitincta and Eutelia polychorda.
- (3042) REBANE, M., 1980. [Records]. Odonata-dragonflies. Vasculum 65 (2): 14. — (c/o Editor, Mr. T.C. Dunn, The Poplars, Chester-le-Street, Durham, UK).
A list is given of some Durham Co., United Kingdom, records for 7 spp.
- (3043) RETTIG, K., 1980. Zum Vorkommen einiger Insektenarten in Ostfriesland. Teil III. In: K. Rettig, Beiträge zur Vogel- und Insektenwelt im nordwestlichen Ostfriesland, pp. 17-26. Emden, privately published. — (*Danziger Str. 11, D-297 Emden, GFR*).
This is a supplement to the papers listed in OA Nos. 2679, 2731, annotating 19 odon. spp. of which Aeshna viridis is of some interest. — (*Abstracter's Note*: The publication date is not stated in the paper; the latter was distributed by the author in Sept. 1980).
- (3044) RUDOLPH, R., 1980. Societas Internationalis Odonatologica (S.I.O.). Mitt. westfäl. Entomologen 4 (2): 20-21. (German). — (*Abt. Biologie Didaktik, Univ. Münster, Fliednerstr. 21, D-4400 Münster, GFR*).
A detailed account on the organisation, activities and publication programs of SIO, by the Head of the SIO National Office in the German Federal Republic.
- (3045) SCHOTT, R.J. & M.A. BRUSVEN, 1980. The ecology and electrophoretic analysis of the damselfly, Argia vivida Hagen, living in geothermal gradient. Hydrobiologia 69 (3): 261-265. — (*Dept. Ent., Univ. Idaho, Moscow, Idaho 83843, USA*).
The ecology and electrophoretic properties of A. vivida. inhabiting a geothermal gradient were studied. Monthly sampling of 5 sites revealed larval colonization along a 15-40°C thermal gradient; greatest densities occurred between 15-27°C. An electrophoretic analysis of proteins suggests that larvae were adapted to a wide range of temperatures which was evidenced by differential activity of 4 enzyme systems (glucose-6-phosphate dehydrogenase, lactate dehydrogenase, leucine aminopeptidase, and tetrazolium oxidase). Evidence suggests that the larvae acclimated to different temperatures by altering the structure of important isozymes and expressed certain genetic features characteristic of individuals naturally found at a given temperature. (Authors)
- (3046) SELYSIA. A Newsletter of Odonatology. Compiled by M.J. Westfall, Jr. & M.S. Westfall, Dept. Zool., Florida, Gainesville, Fla. Vol. 9, No. 2 (Sept. 1, 1980). — Sent free of charge to all members of the International Odonatological Society and to anybody else expressing to the Editors the desire to receive it. — (c/o Dr. M.J. Westfall, Jr., Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA).
Westfall, M.J. (address above): Sixth International Symposium of Odonatology (14-17); — [*Kiauta, B.*](Dept. Anim. Cytogenet. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL): Two new S.I.O. National

- Offices opened (17); — *Kiauta, B.*: The problems of Odonatological Abstracts (17-20); — [*Kiauta, B.*]: Societas Internationalis Odonatologica Rapid Communications (20) — *Westfall, M.J.*: Reprint edition of dragonfly manual by Needham and Westfall (20); — [*Westfall, M.J.*]: Zürcher Libellenforum (Zurich Dragonfly Forum) (20-21); — *Meier, C.* (Zürcherstr. 120, CH-8620 Wetzikon): To all dragonfly watchers who visit, or have visited, Switzerland (21); — *Chelmick, D.* ('Bredon', High Beech Lane, Haywards Heath, Sussex, UK): Odonata recording scheme (21-22); — *Anonymous*: Cretaceous dragonfly discovery in Brazil (22); — Looking ahead to 1983 Symposium of S.I.O. (22-23); — *Westfall, M.J.*: On *Gomphus septima* Westfall (23); — *Wiggins, G.B.* (Dept. Ent., Royal Ontario Mus., 100 Queen's Park, Ont. M5S 2C6, CA): Information on migration of *Anax junius* desired (23); — *Hubbard, D.M.* (Dept. Ent., Florida A & M Univ., Tallahassee, Fla 32307, USA): Entomological bibliography of Navas (23-24); — *Anonymous*: S.I.O. members complete Ph.D. degrees (24); — *Dunkle, S.W.* (c/o Prof. M.J. Westfall, Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA): [Abstract of Ph.D. thesis]: Second larval instars of Florida Anisoptera (Odonata) (24); — *Anonymous*: Changes of address (24); — Carole and Christophe Duphour-Humblet (24); — Prof. Virendra Gupta (25); — *Donnelly, T.W.* (Partridge Lane, Binghamton, NY, USA): Around the world in eighty days — Odonata collecting in India, Thailand, and Fiji (25-26); — *Anonymous*: Giant dragonfly (26); — Selysia editors leave for sabbatical (26). — Along with the issue, to the US addressees only, go 2 sheets, viz. "General information on Societas Internationalis Odonatologica (S.I.O.)", and *Crowley, P.H. & D.M. Johnson* (T.H. Morgan Sch. Biol. Sci., Univ. Kentucky, Lexington, Ky 40506, USA): Wanted: odonate species lists.
- (3047) SEVASTOPULO, D.G., 1980. Possible migration of *Deilephila nerii* L. (Lep., Spingidae). Ent. mon. Mag. 115 (1376/1379): 76. — (c/o *Reynolds & Co., P.O.B. 95026, Mombasa, Kenya*). *Oplogastra lugubris*, *Diplacodes lefebvrei* and *Palpopleura lucia*, attracted by a mercury vapour lamp (June 8, 1972), Mombasa, Kenya, are brought on record. — (*Abstracter's note*: Vol. 115 corresponds to 1979, the 4-numbers issue of this "monthly" is dated March 3, 1980, and the present note is dated Aug 7, 1972!).
- (3048) SPURIS, Z., 1980. Latvijas kukainu katalogs. Spāres (Odonata). (Catalogue of insects of Latvia. 1. Dragonflies (Odonata)). Latv. Ent. 23: 5-19. (Latvian, with Russian and Engl. s's.). — *Kuldīgas Str. 44-8, USSR-226046 Rīga-46*. This is a bibliographic catalogue of the Latvian odon. fauna. The latter consists of 53 autochthonous and 1 immigrant sp. (*Symphetrum fonscolombei*).
- (3049) STEINBORN, G., 1980. Die Libellen der Senne und ihr Lebensraum. Ber. naturw. Ver. Beilefeld (Sonderheft) 2: 133-144. — (*Lindenweg 1, D-3470 Höxter, GFR*). Data on the dragonfly fauna (42 spp.) of a heathland region in eastern Westfalia, German Federal Republic, are compiled from the literature and supplemented with a few original observations. Among these, the records of *Cordulegaster boltoni* from several lowland water bodies are of certain interest. — (*Abstracter's notes*: (1) According to a pers. comm. from R. Dickehuth, his 1975 record of *Coenagrion armatum*, referred to on p. 138, is erroneous; — (2) the specimens of *Cordulegaster boltoni*, collected by the same author and referred to on p. 140, are deposited in the Münster Nat. Hist. Museum).
- (3050) SUGIMURA, M., 1980. A life history of dragonflies in Kochi, a paradise. 2 pp. Kansai Res. Group Odonatol., Nara. — (*Higashi-shiia-cho, Nakamura, Kochi Pref., 786, JA*). The pamphlet presents explanatory notes for author's 8 mm movie, shown at the odonatol. meetings, organized in Kyoto and Osaka, Japan (Aug. 7-17, 1980) by the Inter-

national Society of Odonatology (S.I.O.), Kansai Research Group of Odonatology (= Kansai Odonatologists' Association) and by the Society of Odonatology, Tokyo. (Copies are available from Mr. K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA). (Cf. also *OA* No. 2990).

- (3051) SUZUKI, K., H. UBUKATA & M. EGUCHI, 1980. Intrasubspecific forms, habitat segregation and reproductive isolation among *Mnais*-damselflies (Odonata, Calopterygidae) at the Hokuriku and Hokkaido Districts, Japan, with a historical review on the classification of the species. *Kontyû* 48 (2): 169-192. — (*Dept. Biol., Coll. Liberal Arts & Educ., Toyama Univ., Gofuku 3190, Toyama 930, JA*).

The paper is based on S. Asahina's (1976, *Tombo* 19: 2-16) classification system of the Japanese *Mnais*, recognizing a single sp. (*pruinosa*), 3 spp. (*pruinosa*, *nawai*, *costalis*), and 7 infrasubspecific forms, defined mainly, but not entirely, in terms of wing coloration (4 in ♂, 1 in ♀, 2 in both sexes); the nomenclature of the latter is of course not adapted to the Nomenclature Code (cf. Art. 1, 10b, 45c, d, e). The Hokkaido population consists of 3 infraspp. forms of *costalis*, and that of Hokuriku of 5 forms referable to *pruinosa* and *nawai*. Populations were observed among different forms, whereas a considerable habitat segregation and a complete reproductive isolation are characteristics of the 2 spp. It is argued, therefore, that the 2 spp. should be elevated to the sp. rank, and a number of pending problems, bearing upon our understanding of the *Mnais* speciation mechanisms, is enumerated. (Cf. also *OA* No. 2917).

- (3052) TEMBHARE, D.B., 1980. An electron microscopic study of the neurosecretory pars intercerebralis-corpora cardiaca system in larvae of the dragonfly, *Aeschna cyanea* (Müller) (Odonata: Aeschnidae). *Z. mikrosk.-anat. Forsch.* 94 (1): 60-72. — (*P.-G. Dept. Zool., Nagpur Univ., Nagpur-440010, India*).

The ultrastructural morphology of the

medial neurosecretory cells of the pars intercerebralis region of the brain and that of the corpora cardiaca (CC) are described. The medial neurosecretory cells (MNC) are classified as 4 distinct cell-types — MNC1, MNC2, MNC3 and MNC4, containing neurosecretory granules (NSG) about 1900 Å, 2100 Å, 1600 Å and 1750 Å in diameter, respectively. Varying amounts of NSG have been seen in the axonal tracts, nervi corpora cardiaca and axon terminals in the CC and aortic wall. — 2 types of intrinsic neurosecretory cells (INC) can be distinguished in the corpora cardiaca — INC1 and INC2, containing electron dense granules of 3000 Å and 2000 Å in diameter, respectively. The subcellular mechanisms associated with synthesis and release of the neurosecretory material are discussed. (Author).

- (3053) UBUKATA, H., 1980. Life history and behaviour of a corduliid dragonfly, *Cordulia aenea amurensis* Selys. III. Aquatic period, with special reference to larval growth. *Kontyû* 48 (3): 414-427. — (*Dept. Sci. Educ., Kushiro Coll., Hokkaido Univ. Educ., Kushiro, 085, JA*).

The length of the aquatic period and the growth rate were studied by rearing and periodical sampling of the larvae. The eggs hatch on the 10th-17th day after oviposition made during late June-early Aug. In the pond Hôrai-numa near Sapporo, the newly-hatched larvae attain ca. 3 mm in body length (BL) before the first winter. The growth rate in the medium sized larvae (BL 4-10 mm) is 27-55 µm/day during the favorable season (water temperature 17-23°C) from late June to early Sept., while virtually no growth occurs from Oct. to May. After the fourth overwintering, the larvae enter the final instar (BL 18-21 mm). Hibernating once more, they start metamorphosis and finally emerge during early-mid June. At least 80% of the population are regarded to undergo this 5 yr. life cycle, but some individuals may have an aquatic period of 6 yrs. (Author). — (For pts I-II cf. *OA* Nos. 609, 1192).

- (3054) **UBUKATA, H.**, 1980. Process of identification to the species level in biological science teaching, with a key to the species of Aniso- and Anisozygoptera in Hokkaido. Seibutsu Kyôzai, Hokkaido 15: 8-34. (Jap., with Engl. translation of the title). — (*Dept. Sci. Educ., Kushiro Coll., Hokkaido Univ. Educ., Kushiro, 085, JA*).
The paper is directed at science teachers and students, describing the procedure of specimen identification by means of keys. The Hokkaido spp. of Anisozygoptera and Anisoptera are keyed (incl. abundant illustrations), and a species list is provided along with locality data and flying season information. (Author). — (Cf. also *OA* No. 2824).
- (3055) **VAN HALM, H.**, 1980. Libellen kijken aan de Exe. [Dragonfly watching on the Exe]. Trouwkwartet, Rotterdam 1980 (July 12): 15. (Dutch). — (*Author's address unknown*).
Daily's narrative on a dragonfly photography trip to England. *Calopteryx virgo* is reported from the Halfpenny Cottage, nr. Bampton, and *Cordulegaster boltoni* (with a photograph) from Exbridge, both Devon, England. Passing reference is made also to the Dutch populations of *C. virgo* (Leuvenum) and *C. splendens* (Geul), and to the volume listed in *OA* No. 2849.
- (3056) **VON HAGEN, H.**, 1980. Bemerkungen über *Anax imperator* Leach (Odonata). Mitt. westfal. Entomologen 4 (2): 16-17. — (*Akazienweg 23, D-5810 Witten, GFR*).
In a narrative manner a few notes on an encounter with *A. imperator* at a pond in the city of Bochum, German Federal Republic, are presented by a photographer.
- (3057) **VON HAGEN, H.**, 1980. Bemerkungen zu *Orthetrum cancellatum* L. Mitt. westfal. Entomologen 4 (3): 32-34. — (*Akazienweg 23, D-5810 Witten, GFR*).
A few notes are given on territorial behaviour and oviposition of *O. cancellatum*, as noticed at the Ruhr R. in the city of Witten, German Federal Republic.
- (3058) **WAGENER, P.S.**, 1980. Das Burlo-Vardingholter Venn: seine Pflanzen- und Tierwelt, unter besonderer Berücksichtigung der Gross-Schmetterlinge. Niederrhein. Jb. 14: 129-146. — (*Hemdener Weg 19, D-4290 Bocholt, GFR*).
The Burlo-Vardingholter moorland area is situated nr the city of Münster, German Federal Republic, at the Dutch-German border. On p. 135 a list appears of 10 odon. spp.; none of these is of particular faunistic interest.
- (3059) **WATSON, [J.A.L.] T.**, 1980. Dragonflies in Kakadu National Park. Australia Habitat 8 (4): 3-5. — (*Div. Ent., CSIRO, P.O.B. 1700, Canberra City, A.C.T. 2601, AU*).
A general narrative on the dragonflies of the Kakadu National Park, western Arnhem Land, Northern Territory, Australia. Some 70 spp. (out of close to 300 known to occur in Australia) have been found in the Alligator Rivers region, of which Kakadu forms a part, and at least another 15, found elsewhere in the Northern Territory, probably occur there. Reference is made to (undescribed) *Nososticta* sp. (photograph) and *Hemigomphus*, and to *Austrocordulia territoria* (photograph). For a list of the Alligator Rivers spp. cf. *OA* No. 2961. A biographic note on the author is also provided. — (*Abstracter's Note*: The usual author's initials are "J.A.L."; this is the only one of his numerous odon. papers in which use has been made of the initial "T").
- (3060) **WHITE, R.H. & N.A. MICHAUD**, 1980. Calcium is a component of ommochrome pigment granules in insect eyes. Comp. Biochem. Physiol. (A) 65 (2): 239-242. — (*Biol. Dept., Univ. Massachusetts, Boston, Mass. 02125, USA*).
Energy dispersive X-ray spectra were obtained from sections of larval mosquito ocelli using a scanning electron microscope equipped with a probe. Prominent sulfur and calcium peaks were characteristic of spectra from ommochrome pigment granules. EGTA dissolved granules from the sections; the contents of the granules were

extracted when EGTA was included in aldehyde fixatives, indicating that calcium is a structural component of the granules. Similar results were obtained with the compound eyes of a lepidopteran and with those of *Sympetrum rubicundulum*. However, granules in the eyes of a fleshfly and crayfish did not contain calcium. (Authors).

- (3061) WIGGINS, G.B., R.J. MACKAY & I.M. SMITH, 1980. Evolutionary and ecological strategies of animals in annual temporary pools. *Arch. Hydrobiol.* 58 (Suppl.): 97-206. — (*Dept. Ent., Roy. Ontario Mus., 100 Queen's Park, Toronto, Ont., M5S 2C6, CA*).

Animals in temporary pools are divided into 4 groups according to their strategy for tolerating or avoiding drought and their period of recruitment to the community. The small number of taxa represented in temporary pools appear to have evolved mainly from lineages in permanent waters, very few arising directly from terrestrial ancestors. Odon. are dealt with on pp. 141-145, 157-158. Special attention is being paid to the genera *Lestes* and *Sympetrum* (mostly in N. America), and a diagram is represented of adaptive features leading to occurrence of a few *Lestes* spp. in temporary pools.

- (3062) YAMAMOTO, Y., 1980. Damselflies of *Mnais* in Mie-pref. (Odonata: Calopterygidae). *New Entomol.* 29 (2): 15-22. (Jap., with Engl. s.). — (*Inafume Bldg, 1-2 Inafumedori, Chikusa-ku, Nagoya, 464, JA*).

In Mie prefecture, Japan, *M.p. pruinosa* is represented by the forms *esakii*, *strigata* and *shirozui*, and *M.p. nawai* by the forms *nawai* and *taketoi*. *M.p. pruinosa* and its form *strigata* occur all over Mie, while *shirozui* is found in the southern parts only. The form *esakii* ranges South of the Median Tectonic Line and in the Nabari river region. *M.p. nawai* inhabits the areas North of this line,

whereas *taketoi* occurs in the adjacent parts of the Gifu and Shiga prefectures. The coincidence of the Median Tectonic Line with that of the ranges of some forms seems of particular interest.

- (3063) ZHOU, Wenbao & Jinlai WEI, 1980. A new species of *Sinaeschnidia* Hong. *Entomotaxonomia* 2 (1): 77-79. (Chinese, with Engl.s.). — (*Zhejiang Mus., Zhejiang, P.R. China*). *S. huzhouensis* sp.n. from the Upper Jurassic of Huzhou, Zhejiang, Peoples' Republic of China, is described and illustrated. The type specimen is deposited in the Zhejiang Mus. The new sp. is readily distinguishable from *S. heishankowensis* Hong, 1965 (*Acta ent. sin.* 14: 171-176, 2 pls) by the following features: (1) the presence of an intervening longitudinal vein between C and Sc, the length of which, from fork to fusion, amounts to 5 cells, (2) has an obvious arc and supertriangle, (3) wings are relatively short and narrow, and (4) longitudinal triangle vein forks towards the other 2 angles. — (*Abstracter's note*: The genus is related to *Aeschniella kabanovi*, *Cordulegasteridae*. It consists of 2 spp.; the type sp. is described from the Lower Cretaceous of Inner Mongolia).

- (3064) ZIEBELL, S. & P.U. KLINGER, 1980. Zur Ökologie von *Somatochlora arctica* (Zetterstedt 1840) (Odonata). *Drosera* 1980 (1): 17-24. (With Engl. s.). — (*Habbrügger Weg 21, D-2875 Ganderkesee, GFR*).

The first records of *S. arctica* from the federal state of Hessen, German Federal Republic, are reported. A detailed ecological characterization with regard to water chemism and vegetation of the breeding sites is given. It is argued that the sp. is not exclusively typhobiontic; it may rather breed in any marshy habitat of a certain acidity and which is climatically comparable to peat bogs.