

ODONATOLOGICAL ABSTRACTS

1972

- (2137) [CORBET, P.S.], 1972. Damselflies. *In*: Encyclopedia of the animal world, Vol. 6, p. 528. Elsevier International Projects, London. — (*Dept. Zool., Univ. Canterbury, Christchurch-1 NZ*).
A brief encyclopedia entry on the Zygoptera. For the main article on the Order cf. *OA* No. 2138.
- (2138) C[ORBET], P.S., 1972. Dragonflies. *In*: Encyclopedia of the animal world, Vol. 7, pp. 592-596. Elsevier International Projects, London — (*Dept. Zool., Univ. Canterbury, Christchurch-1 NZ*).
An encyclopedia article, dealing with distribution, classification, morphology and breeding. For a separate entry on the Zygoptera cf. *OA* No. 2137. (For other encyclopedia articles cf. *OA* Nos. 869, 1754, 2141).
- (2139) INGRAM, B.R., 1972. The effects of temperature and daylight on nymphal development in two species of damselflies (Odonata: Zygoptera). *Am. Zool.* 12 (4): 715. — (*Author deceased*).
Abstract of the paper listed in *OA* No. 1316.
- (2140) RESTIFO, R.A., 1972. The comparative morphology of the penis in the libellulid genera *Celithemis*, *Leucorrhinia*, and *Libellula* (Odonata). M.Sc. Thesis, Ohio St. Univ. V+53 pp. (72 figs. incl.). — (*Vector-borne Disease Unit, Ohio Dept. Health, P.O.B. 2568, Columbus, Ohio 43216, USA*).
- The purposes of the study are (1) to examine the penes of the North American spp. of the above mentioned genera. (2) to determine whether the penes can provide taxonomic characters, and (3) to propose the relationships between the spp. within each genus. At least 4 specimens of 9 *Celithemis*, 7 *Leucorrhinia* and 17 *Libellula* spp. were examined. The genitalia of *Celithemis* show little variation and the structure of the penis does not vary enough to draw any conclusions about the relationships between the spp., those of *Leucorrhinia* show some specific variation and, based on penis structure, there appear to be 3 groups into which the North American spp. fall, while those of *Libellula*, except for the penis, are fairly uniform in shape and do not serve to differentiate the spp. Based on penis structure, however, there appear to be 5 groups into which the North American spp. of this genus fall.
- (2141) WESTFALL, M.J., Jr., 1972. Dragonfly. *Encyclopedia americana* 9: 327-328, 8 figs. excl. — (*Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA*).
- This is an encyclopedia-style general review of the Order. The subjects dealt with are: structure of the adult, mating, flight, larval stage, metamorphosis, food and enemies, and the history and distribution. (For other encyclopedia articles cf. *OA* Nos. 869, 1754, 2138). — (*Abstracter's*

note: The illustrations and the text of captions were provided by the Publishers and have not been seen by the author prior to their appearance).

1974

- (2142) KAPOOR, V.C., 1974. Directory of the zoological taxonomists of India. Kalyani, Delhi – Ludhiana. VIII + 74 pp. – Price: Rs. 6.75. – (Author's address: *Dept. Zool., Coll. Basic Sci. & Human., Punjab Agric. Univ., Ludhiana, India*; – Exclusively distributed by: Lyall Book Depot, Ludhiana – Bhopal – Chandigarh – Delhi, India).

The addresses of the following 4 odonatologists are stated: Dr. H.N. Bajjal (Dept. Zool., Agra Coll., Agra, U.P.), Mrs. G. Chhotani (Zool. Surv. India, 34 Chittaranjan Ave., Calcutta-12), A.R. Lahiri (Eastern Reg. Stn, Zool. Surv. India, Fruit Garden, Risha Colony, Shillong-793003, Meghalaya), and Dr. D.N. Sahani (Coll. Agric., Himachal Pradesh Univ., Palampur, Kangra, H.P.).

1975

- (2143) ANDERSON, M., 1975. Dragons of the air. *Ranger Rick* 1975 (March): 1-5, 1 fig. excl. – (*Author's address unknown*).
A general account on dragonflies in a popular magazine, illustrated with a number of fine colour photographs.
- (2144) BANTA, J., 1975. Marlin man's insect study brings acclaim. *Waco Tribune-Herald*, Waco, Texas 64 (58): 1-2A (issue of Dec. 10, 1975). – (*Editorial Office, Waco Tribune-Herald, Waco, Texas, USA*).
Local daily's article on the dragonfly photography of Curtis [Eugene] Williams of Marlin, Texas, with special reference to his work on *Neurocordulia xanthosoma* (cf. *OA* Nos. 1567, 1731). A few statements on dragonflies in general and on *N. xanthosoma* in particular, by Leonora K. Gloyd (Mus. Zool., Univ. Michigan, Ann Arbor) are also given. A photograph of

the dragonfly and another of the 2 odonatologists are added. (For other articles on C.E. Williams cf. *OA* Nos. 2145, 2147, 2159, 2164). – (*Abstracter's note:* Mr. Williams is one of the most prominent odonatologists in Texas, USA. He was born on Sept. 5, 1917 in Talco, Texas, was a postman in Marlin from 1942 through 1972, and is at present a Deputy Sheriff in the same city. From 1970 onwards he is engaged in odonatological research and in dragonfly photography. He has to his credit a number of odonatol. research papers, and has photographed more than 100 odon. spp. of his native state. Many of his field photographs are unique and of utmost importance from the point of view of the study of odon. behaviour. Through the mediation of the Natural Science Photos Ltd., Waxford, United Kingdom, and through other channels, many of them have appeared in various natural history books and journals. At the moment he is working on the preparation of a dragonfly album of Texas).

- (2145) BANTA, J., 1975. Marlin man's insect study brings acclaim. Rare type of dragonfly rediscovered at Lake Waco by ex-postman. *Waco Tribune-Herald*, Waco, Texas, issue of Dec. 11, 1975, p. 6A. – (*Editorial Office, Waco Tribune-Herald, Waco, Texas, USA*).
A reprint of the article listed in *OA* No. 2144.
- (2146) EL AMIN EL RAYAH, [M.], 1975. Dragonfly nymphs as active predators of mosquito larvae. *Mosquito News* 35 (2): 229-230. – (*Dept. Zool., Fac. Sci., Univ. Khartoum, P.O.B. 321, Khartoum, Sudan*).
The significance of larval dragonflies as active predators of mosquito larvae was investigated using the dragonfly *Trithemis annulata scortecii* and (mostly) the mosquito *Anopheles pharoensis*. The field work was carried out in the irrigation channels of the villages of Tayiba, Gezira Prov., Sudan. The results are summarized in a table. They suggest that the Odon. play a significant role in the natural con-

trol of the mosquito population. (Cf. also *OA* No. 2170).

1976

- (2147) (Anonymous), 1976. Self-taught dragonfly student earns renown. *Waco Tribune-Herald*, Waco, Texas, issue of Nov. 14, 1976, p. 10 C.
Local daily's article on odonatological work of Curtis [Eugene] Williams of Marlin, Texas, USA, with special reference to his studies on *Neurocordulia xanthosoma* (cf. *OA* Nos. 1567, 1731) and (without name) *Belonia croceipennis* (cf. *Odonatologica* 6: 283-287; 1977). A portrait of the odonatologist is added. (For other articles and for a biographic note cf. *OA* No. 2144, 2145).
- (2148) AGAPOVA, I.N. & P.V. KOLYCHEVA, 1976. Vidovoi sostav strekoz Voronezhskoi oblasti. (Soobschenie 1). [Species composition of the dragonfly fauna of the Voronezh Province. (1st communication)]. In: *Sovremennye problemy zoologii i sovershenstvovanie metodiki ee prepodavaniya v vuze i shkole*, pp. 41-42. Pedagog. Inst., Perm. (Russian). — (*Dept. Zool., Voronezh Pedagog. Inst., 86 Lenin Str., USSR-394611*).
This is an abstract of a paper presented at the All-Union Scientific Conference of the Zoologists of the Pedagogical Institutes. 37 spp. were collected, but only 11 of these are mentioned in the text. According to Belyshev's terminology (cf. *OA* No. 653) the odon. fauna of the Voronezh province, USSR, is composed of 4 circum-boreal, 12 transeuroasiatic, 16 European and 4 (conditionally) mediterranean spp.
- (2149) ANDRIÈS, J.C., 1976. Dégénérescence et rejet des cellules mésentériques des larves d'insectes. *Bull. Soc. zool. Fr.* 101 (5): 1-7. — (*Lab. Biol. anim., Univ. Sci. & Techn., B.P. 36, F-59650 Villeneuve d'Ascq*).
Degeneration and rejection of mesenteric cells in insect larvae were studied. On the basis of histochemical and EM observations in the larval *Aeshna cyanea*, the characteristics seem applicable to insects in general. (1) Degeneration affects either epithelial cells or those of an embryonic nature. Details of the degeneration process vary in different cellular types and in different spp. (2) Acid phosphatase apparently plays an important role in cellular rejection by facilitating the dissociation from neighbouring cells. (3) Phagocytosis of mesenteric cells by other than intestinal epithelium cells does not take place, but it is very likely that rejected epithelial cells are digested by newly formed epithelial cells. (4) Degeneration and rejection of larval epithelium are directly or indirectly hormone-controlled.
- (2150) BELYSHEV, B.F. & N.B. BELYSHEV, 1976. Troficheskie svyazi lichinok strekoz roda *Aeschna* (Odonata) s mollyuskami. [Trophic relations of the dragonfly larvae of the genus *Aeschna* (Odonata) with the molluscs]. *Trudy biol. Inst. sib. Otdel. Acad. Nauk SSSR* 21: 177-179. (Russian). — (*Inst. Biol., Siberian Sect. USSR Acad. Sci., 11 Frunze Str., USSR-630091 Novosibirsk*).
Under laboratory conditions the following sequence of the food preference was established in larval *Aeshna crenata* and *A. juncea*: coenagrionid larvae — *Physa fontinalis* — libellulid larvae — young *Limnaea stagnalis* — adults of the same snail.
- (2151) CRUCITTI, P. & G. DI CELLO, 1976. Odonati della provincia di Arezzo (Odonata). *Boll. Assoc. romana Ent.* 31 (1/4): 5-14. (With Engl. s.). — (*Soc. romana Sci. Natur., via Fratelli Maristi 43, I-00137 Roma*).
An annotated list is given of 10 Zygoptera and 15 Anisoptera from the Arezzo Province; 3 of these are new to the fauna of Tuscany (Toscana), Italy.
- (2152) FRIEDRICH, E., M. NIEHUIS & S. OHLIGER, 1976. Beitrag zur Libellenfauna

der Südpfalz und angrenzender Gebiete (Insecta: Odonata). Mitt. Pollichia 64: 153-163. (With Engl. and Fr. s's.). — (*Anden Hofwiesen, D-6741 Ilbesheim, GFR*). An annotated list is given of 50 odon. spp. known to occur in the Southern Palatinate (Südpfalz), German Federal Republic. New for the Palatinate are *Crocothemis erythraea* and *Epitheca bimaculata*. Since the publications of H. Itzerott (1961, Mitt. Pollichia 8: 169-180; — 1965, Mitt. Pollichia 12: 164-168) considerable changes have taken place in the distribution and frequency of occurrence of some spp. Additional records are provided for numerous spp., incl. *Anax parthenope* and *Coenagrion lindeni*.

- (2153) FRITZ, D.G. & F. PUNZO, 1976. Upper lethal temperatures and effects of acclimation in naiads of the dragonfly, *Plathemylia* (Odonata: Libellulidae). Trans. Ill. St. Acad. Sci. 69 (3): 292-301. — (*Dept. Biol., Blackburn Coll., Carlinville, Illinois 62626, USA*).

The upper lethal temperatures of the larval *P. lydia* were measured. Larvae acclimated to temperatures of 5°, 20° ± 4° and 36° ± 2°C were determined to have an LT₅₀ of 41.7°C and 43.2°C, respectively. Mortality differences at 42°C and 43°C among acclimated groups were significant at 1% and 0.1% levels.

- (2154) IVASHKIN, V.M. & L.A. HROMOVA, 1976. Kukulianaty i gnatostomataty zhivotnyh i cheloveka i vyzhvaemye imi zabolvaniya. [Animal and human cucullianates and gnathostomatates, and the diseases provoked by them]. Osnovy nematodologii, T.27 [Fundamentals of nematology, Vol. 27], 436 pp. Nauka, Moscow. (Russian). — (*Lab. Helminthology, USSR Acad. Sci., 33 Lenin Ave., USSR-117071 Moscow*).

On p. 384 the life cycle of *Spiroxis contortus* is described. The intermediate hosts of this gnathostomatid nematode are copepods, one of the various reservoir hosts are the larval libellulids (probably

Sympetrum), while tortoises are the definitive hosts.

- (2155) MITCHELL, S.A., 1976. The marginal fish fauna of Lake Kariba. Kariba Stud. 8: 109-162. — (*Lake Kariba Fish. Res. Inst., Dept. Natn. Parks & Wild Life Manag., Salisbury, Rhodesia*).

Odon., largely anisopterans, occur extensively under *Salvinia* of the Kariba Lake, Rhodesia, and form one of the more important food items (preference index 6.6) of fish, being found in stomachs of 17 out of 19 fish spp. examined. They are very important items in the diets of *Heterobranchus longifilis* (Clariidae) (46.4%), *Mormyrops deliciosus* (Mormyridae) (37.8%) and *Eutropius depressirostris* (Schilbeidae) (29.5%), and occurred in substantial proportion or in fairly important numbers in the stomachs of 8 other fish spp. Tabular reviews of the stomach contents, the degree of utilization of the major food types and the percentage of prey spp. predominating in the diet are given for each fish sp., and reference is made to the unpublished PhD thesis by A.P. Bouwmaker (1973. An hydrobiological study of the Mwenda River and its mouth, Lake Kariba. Univ. Witwatersrand), where it is stated that the larval Odon., with anisopterans predominating, form an important food in the Mwenda area as well, particularly of fish taken from hydrophyte beds. In the present work, the only odon. sp. listed is *Ictinogomphus ferox*, the other taxa mentioned are *Ceriagrion*, *Pseudagrion*, *Orthetrum*, *Trithemis* and the Gomphidae. (Spelling errors: *Ictinogomphus*, *Trithemus*).

- (2156) MITRA, T.R., 1976. On a collection of Odonata (Insecta) from Waltair. Newsl. zool. Surv. India 2 (6): 265-267. — (*398 Dum Dum Park, Calcutta-700055, India*). An annotated list is given of 9 spp. from Waltair, Andhra Pradesh, India. *Agriocnemis pygmaea*, *Ischnura aurora*, *Pseudagrion microcephalum*, *Brachythemis contaminata*, and *Diplacodes trivialis* are

reported as new for the state.

- (2157) RICKETT, J., 1976. An update of Arkansas Odonata (Anisoptera). Proc. Arkansas Acad. Sci. 30: 73-74. — (*Biol. Dept., Univ. Arkansas at Little Rock, Little Rock, Arkansas 72204, USA*).
75 anisopteran spp. have been reported in Arkansas, USA. The present paper provides 43 spp., records of the other 32 are drawn from the literature and personal communications. *Gomphus ozarkensis*, described from western Arkansas in 1975 (cf. *OA* No. 1196) on the basis of minimal data emphasizes the need for extensive work in this area. Opportunities to collect and identify additional spp. are discussed. (Author). (Cf. also *OA* No. 2174).
- (2158) SAINI, R.S., 1976. Ultrastructural observations on the rectal gills of Zygoptera larvae. Z. mikrosk.-anat. Forsch. 90 (6): 1056-1062. — (*Dept. Zool., Univ. Saugar, Saugar, Madhya Pradesh, India*).
The outer and inner epicuticles of the larval Zygoptera are pierced by pores of about 200-250Å thickness. The pores are distributed at a distance of about 500-600 Å apart. Their endings are noticed up to the lower portion of exocuticle. The endocuticle is a big area in which the respiratory epithelium has flat apical and basal sides, the plasma membrane is not folded. Glycogen granules are distributed in the cytoplasm and a few mitochondria are noticed. The tracheal branches and the cytoplasm of the respiratory epithelium come in contact with the epicuticle. The distribution of tracheoles, with surplus of tracheoles in a surface outside the hypodermis and close to the sub-cuticular area is found. The gills of Zygoptera appear to be merely respiratory organs having respiratory epithelium and the ions and water are resorbed from the modified rectal epithelium.
- (2159) TOLBERT, F.X., 1976. The postman and the dragonflies. Dallas Morning News, Dallas, Texas, issue of Feb. 1, 1976, p. 3G. — (*Editorial Office, Dallas Morning News, Dallas, Texas, USA*).
Local daily's article on odonatological work and dragonfly photography of Curtis [Eugene] Williams of Marlin, Texas, USA, with a photograph of the odonatologist. A few statements by Leonora K. Gloyd (Mus. Zool., Univ. Michigan, Ann Arbor) are also given. (For other articles and for a biographic note cf. *OA* No. 2144).
- (2160) YOUSUF, M. & M. YUNUS, 1976. Genera of subfamily Lindeniinae (Gomphidae, Anisoptera: Odonata) with descriptions of two new species from Pakistan. Pakist. J. scient. industr. Res. 19 (1): 18-21. — (*Dept. Ent., Univ. Agric., Faisalabad, Pakistan*).
The distribution and amended characters of the genera *Ictinogomphus* Cowl. and *Gomphidia* Sel. are dealt with. From single ♂ are described and figured as new: *I. aloquopterus* sp. n. (Rawal Lake, Rawalpindi; Aug. 11, 1966) and *I. pugnovitatus* sp. n. (Balloki Head, Sheikhpura; July 23, 1966). The types are deposited in Ent. Mus., Univ. Agric., Layllpur, Pakistan. The modified characters and a new record of *G. t-nigrum* Sel. are also provided.
- (2161) ZAHRADNIK, J., 1976. Der Kosmos Insektenführer. Ein Bestimmungsbuch mit 780 Farbbildern. Kosmos, Stuttgart. 319 pp., 122 black-and-white and 780 col. figs. incl. — Price: DM 29.50. — (Author's address unknown; — Publishers' address: *Franckh-Kosmos, Postfach 640, Pfizerstr. 5-7, D-7000 Stuttgart-1, GFR*).
This is a German version of the original Czech publication (the bibliographic data of the latter unknown). The scope and aim are similar to those of the volume listed in *OA* No. 738. A general introduction to the class is followed by brief chapters on the orders (Odon. pp. 26-28), a key to the latter, a chapter on collecting and specimen preserving techniques, etc. In the systematic part of the book 19 odon. spp. are described and illustrated (pp. 92-99). — (*Abstracter's note*: The book is intend-

ed for the general reader and will not satisfy those interested in a particular order. It is a pity that the name *Aeshna* is erroneously spelled and that the authors of spp. names are omitted).

1977

- (2162) BIESIADKA, E. & K. KASPRZAK, 1977. An investigation on the macrofauna of the River Warta within the city of Poznań. *Acta Hydrobiol.* 19 (2): 109-122, 1 fol. tab. excl. (With Pol. s.). – (*Inst. Ecol., Polish Acad. Sci., Swierczewskiego 19, PO-60-809 Poznań*).
The results are presented of the 1974-1975 investigation of the macrofauna of a heavily polluted sector of the Warta River, in the city of Poznań, Poland. The Odon. recorded are: *Erythromma najas*, *Ischnura elegans*, *Calopteryx splendens* and *Gomphus flavipes*.
- (2163) BLEST, A.D. & P.S. DAVIE, 1977. A new fixative solution to precede the reduced silver impregnation of arthropod central nervous system. *Stain Technol.* 52 (5): 273-275. – (*Dept. Zool., Univ. Canterbury, Christchurch-1, NZ*).
Arthropod central nervous tissue is fixed for 1 hr at 20°C in 9% pure formic acid in 1:1 *n*-butanol/*n*-propanol prepared immediately before use (FBP), then washed for 15-30 min in 90% ethanol, and embedded in paraffin wax. Impregnation is by modified Ungewitter techniques in which the silver bath is preceded by mercury/cobalt mordanting, or by modified Holmes' methods following similar mordanting procedures. The methods yield high resolution of axons with minimal background staining, while the staining of neuronal somata is suppressed. They succeed with brains of crustacea and Odonata and other difficult materials. Tissues fixed in FBP are hard and require care in sectioning. (Authors).
- (2164) BROWN, T., 1977. Falls County jailer also takes nature photographs. *Temple Daily Telegram*, Temple, Texas, issue of Feb. 24, 1977, 1 p. – (*Author's address unknown*).
Local daily's article on dragonfly photography of Curtis [Eugene] Williams of Marlin, Texas, USA, with special reference to his slide programs given at the University of Florida, Texas A & M University, Texas State Technical Institute, the Dallas and Central Texas Audubon Societies, the Waco Association of Professional Photographers and in the British Museum (Nat. Hist.), London. A portrait of the odonatologist is also provided. (For other articles and for a biographic note cf. *OA* No. 2144).
- (2165) CAPRA, F., 1977. Invertebrati. In: P.G. Bovo, B. Maffeo & P.L. Perino, *Aspetti naturalistici della Valle Oropa*, pp. 106-110. *Pro Natura Biellese*, Biella. – (*Via Montani 16-5, Quarto dei Mille, I-16148 Genova*).
On p. 109, *Sympecma fusca*, *Aeshna juncea* (on the Pian della Ceva) and *Sympetrum depressiusculum* are listed for the (alpine) Oropa Valley, Biellese, northern Italy.
- (2166) CENTINA, P. del, T. TURCHETTI & S. CARFI, 1977. Preliminary notes on attacking the cuticle of insects with metabolites produced by micro-organisms. *Boll. Zool.* 44: 143-144, 1 pl. excl. (With Ital. s.). – (*Ist. Zool., Univ. Firenze, Via Romana 17, I-50125 Firenze*).
A method is described for using the metabolites produced by *Streptomyces* sp., *Bacillus cereus* and *Tricothecium roseum* for enzymatic attack on the chitin. The method has been developed in connection with the study of the wing phanera in *Platycnemis pennipes*, *Lestes virens vestalis*, *Sympetrum fonscolombei* and *S. sanguineum*.
- (2167) CRUCITTI, P., 1977. Seconda stazione di *Lestes dryas* Kirby nell'Italia meridionale (Odonata). *Boll. Soc. ent. ital.* 109 (4/6): 89-91. (With Engl. s.). – (*Soc. romana*

Sci. Natur., via Fratelli Maristi 43, I-00137 Roma).

On July 27, 1976, a few specimens of *L. dryas* were taken at Piano del Conte, Forenza, nr. Potenza. This is the second record of this sp. from southern Italy. The biotope is briefly described, and 6 other odon. spp. taken at the same locality are listed.

- (2168) d'HONDT, J.-L., 1977. Contribution au peuplement entomologique du Val-de-l'Isle-en-Causse (Dordogne). V. Lépidoptères Rhopalocères (suite). Paléoptères. Bull. Soc. ent. Nord France 1977 (206): 1-5. — (*Lab. Biol. Invert. Marins, Mus. Natn. Hist. Nat.*, 55 rue de Buffon, F-75005 Paris).

The paper contains an annotated list of 14 odon. spp., collected in 1977 in the Val-de-l'Isle-en-Causse, Dépt. Dordogne, southern France.

- (2169) DIRIG, R., 1977 (?). Labelling and storing an insect collection. 4-H Members' Guide M-6-7, N.Y. St. Coll. Agric. & Life Sci., III+21 pp. — (Publishers' address: *Mailing Room, Bldg 7, Research Park, Cornell Univ., Ithaca, N.Y. 14853, USA*).

The chapters of the pamphlet are: "Making an insect collection", "How to label insect specimens" ("Why are labels needed", "Locality information", "Maps", "Date of collection", "Name of collector", "Additional information to include on labels", "Organizing and writing insect label data"), "How to store insect specimens", "What to do with your insect collection", and "Suggestions for teachers and leaders". — (*Abstracter's notes*: (1) No publication date appears on the cover. — (2) The pamphlet dealt with pinned (mainly lepidopteran) material, but most of the suggestions are generally applicable to any insect collection and will be certainly useful to young dragonfly collectors).

- (2170) EL AMIN EL RAYAH, [M.] & F.T. ABU SHAMA, 1977. The predatory capacity of nymphs of the dragonflies: *Trithemis*

annulata scortecii Nielsen (Odonata: Anisoptera) and *Ischnura senegalensis* Rambur (Odonata: Zygoptera). Rev. Zool. afr. 91 (2): 381-384. — (*Dept. Zool., Fac. Sci., Univ. Khartoum, P.O.B. 321, Khartoum, Sudan*).

The number of mosquito larvae (*Culex pipiens*, *Anopheles gambiae*) consumed by larval Odon. depends on the size of both the predator and the prey. Young odon. larvae were unable to feed on mosquitoes (in *T. a. scortecii* the critical size is 0.8 cm), but the 2nd-4th stage larval mosquitoes were taken in large numbers by the 2 odon. spp. Within 24 hrs an ultimate stage larva of *T. a. scortecii* consumes 87-93 large mosquito larvae, and that of *I. senegalensis* 20-23 specimens. Potentially, the 2 spp. would eat 858 small mosquito larvae within the same period. (Cf. also *OA* No. 2146).

- (2171) GARMS, H., 1977. Fauna Europae. Bestimmungsexicon. Westermann, Braunschweig. 552 pp. — (*Author's address unknown*).

On pp. 349-352 a synopsis is given of dragonflies and 12 spp. are mentioned. The nomenclature used is that of the 1968 edition of the *Limnofauna europaea*. The quality of the (col.) illustrations (11 spp.) is inadequate and brief statements on life history and behaviour of each sp. are here and there erroneous. The distribution maps of each sp. are certainly useful.

- (2172) GILBERT, P. 1977. A compendium of the biographical literature on deceased entomologists. Brit. Mus. (Nat. Hist.), London. XIV + 455 pp. — Price: £ 25.—. (Author's address: *Ent. Library, Dept. Library Services, Brit. Mus. (Nat. Hist.), Cromwell Rd., London SW7 5BD, UK*; — Publishers' address: *Publication sales, Brit. Mus. (Nat. Hist.), Cromwell Rd., London SW7 5BD, UK*).

The catalogue contains 17.000 bibliographic references to obituaries and other biographic works on some 7500 entomologists, that have appeared up to 1976.

Special indications are given of the references containing bibliographies and published portraits. — (*Abstracter's notes:* In addition to the well-known works of Hagen (1862), Horn & Schenkling (1920-1929), Derksen & Scheidings (1963-1975) and, above all, that of Mathilde Carpenter (1945), the present volume represents an extremely useful and indispensable tool for the historians of entomology, who will be certainly more than thankful to Pamela Gilbert for the excellent execution of this task, which should be a task of a multilingual team rather than of a single worker, even if having at her disposal the unrivalled library holdings of the British Museum. — It goes without saying that in a monumental work of this scope a certain amount of errors and omissions will be found by a careful reader. A few points should be mentioned here. The printing errors are unavoidable, but in a bibliographic reference work these should be kept to an absolute minimum. It is unpleasant that some workers of the same family name have been mixed up, and there are some of them who will be surprised to find their name listed among the deceased entomologists, complete, with the year of death included. It is a well-known fact that local periodicals, published by strictly local institutions, often contain very exhaustive biographic works and photographic or other material on the prominent workers originating in their place. As stated in the introductory note, only a few of such, particularly non-biological periodicals could be considered. This is extremely unfortunate, since it has caused the omission of some of the best biographic works on a number of important entomologists, incl. such odonatol. important workers as I.A. Scopoli, R.L. Meyer-Dür etc. It is probably due to technical processing that some of the authors have been left out, though their bibliographies and biographies have appeared in well-known periodicals, e.g. Erich Schmidt).

(2173) GLOYD, L.K., 1977. Appendix. In: J.W.

Leonard, A revisionary study of the genus *Acanthagrion* (Odonata: Zygoptera). Misc. Publs. Mus. Zool. Univ. Mich. 153: 146-151. — (*Mus. Zool., Univ. Mich., Mus. Bldg, Ann Arbor, Mich. 48109, USA*).

These are up-to-date annotations on the *Acanthagrion* monograph, listed in *OA* No. 2180. The paper includes notes on the designation of types and on the descriptions of larval stages, while a list of spp. described since 1937, a review of the North-South distribution of spp. (per country), and an up-to-date bibliographic list are also provided. The most important part of the paper is devoted to considerations on synonymy. *A. leonora* Gloger, 1967 is synonymized with *obsoletum* (Förster, 1914), Leonard's *ascendens* Calv. with *luteum* Racenis, 1958, *deceptum* Leonard, 1977 with *peruanum* Schmidt, 1942, and *risi* Leonard, 1977, with *vidua* Sel., 1876.

(2174) HARP, G.L. & J.D. RICKETT, 1977. The dragonflies (Anisoptera) of Arkansas. Proc. Arkansas Acad. Sci. 31: 50-54. — (*Div. Biol. Sci., Arkansas St. Univ., State University, Arkansas 72467, USA*).

Previous publications have recorded 69 anisopteran spp. for Arkansas, USA. 3 of these are deleted, but state records for 21 new spp. are reported herein, bringing the list to 87 spp. Based on lists from adjacent states, an additional 9 spp. are listed as probably occurring in Arkansas. County records are given for both larvae and adults of each sp., as well as first and last capture dates for adults. Specific location and capture data are given for new state records when such data are available. The most spp. (39) have been reported from Washington County. 29 counties list from 1-5 spp., and 6 counties list no records. (Authors). (Cf. also *OA* No. 2157).

(2175) HUTCHINSON, R., 1977. L'*Epitheca princeps* Hagen, une libellule princière. *Fabriques* 3 (8): 141-143. — (*Coll. Bourget, C.P. 1000, Rigaud, Que. J0P 1P0, CA*).

Observations on the flight, territorial behaviour and oviposition of *E. princeps* in Quebec, Canada, are presented.

- (2176) JONES, J.C., 1977. The circulatory system of insects. Thomas, Springfield, Ill. XVI + 255 pp. — (*Dept. Ent., Coll. Agric., Univ. Maryland, College Park, Maryland, USA*).
The first 6 chapters of the monograph deal with the anatomy of the circulatory pumps and with circulation of the hemolymph, the last 5 are concerned with pericardial cells, fat bodies and hemocytes. Data on heart rates, hemolymph volumes and total hemocyte counts are presented in tabular form in the appendix. Among the odon. spp. considered are *Lestes unguiculatus* and *Plathemis lydia* (hemocyte counts from O.E. Tauber & J.F. Yeager, 1935. *Anns ent. Soc. Am.* 28: 229-240). *Aeshna cyanea* and *Anax imperator* (Hemolymph volume from J. Moens, 1975. *Odonatologica* 4: 219-224), and *Anax junius* (heart rates from N.S.R. Maloeuf, 1935. *Anns ent. Soc. Am.* 28: 332-337).
- (2177) KAFATOS, F.C., J.C. REIGER, G.D. MAZUR, M.R. NADEL, H.M. BLAU, W. H. PETRI, A.R. WYMAN, R.E. GELINAS, P.B. MOORE, M. PAUL, A. EFSTRATIADIS, J.N. VOURNAKIS, M.R. GOLDSMITH, J.R. HUNSLEY, B. BAKER, J. NARDI & M. KOEHLER, 1977. The egg-shell of insects: differentiation-specific proteins and the control of their synthesis and accumulation during development. *In*: W. Beermann, [Ed.], *Biochemical differentiation in insect glands*, pp. 45-145. Springer, Berlin-Heidelberg-New York. — (*Cell. & Develop. Biol., Biol. Labies, Harvard Univ., Cambridge, Mass. 02138, USA*).
The review was completed in 1974 and updated to Dec. 1976. Only a brief reference is made to Odon., based on the publication listed in *OA* No. 877.
- (2178) KUMAR, A. & M. PRASAD, 1977. Odonata of ponds, tanks and paddy fields at and around the Dehra Dun Valley (W. Himalaya). *Newsl. zool. Surv. India* 3 (5): 270-273. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
A list is given of 36 spp. breeding in perennial ponds, temporary monsoon ponds, paddy fields, and in the cemented garden tanks of the Dehra Dun Valley and the adjacent areas, Uttar Pradesh, India. The approximate months during which the adults are on wings are also stated.
- (2179) LAIRD, M., [Ed.], 1977. Tsetse. The future for biological methods in integrated control. *Int. Develop. Res. Cent., Ottawa*. 220 pp. — (Author's address: *Memorial Univ. Newfoundland, CA*; — Publishers' address: *P.O.B. 8500, Ottawa K1G 3H9, CA*, — Head Office: *60 Queen Str., Ottawa CA*).
Notes on Odon. are given on pp. 46, 53, 54. Dragonflies attack tsetse or at least appear to do so. G.D.H. Carpenter (1913, Second report on the bionomics of *Glossina palpalis fuscipes* of Uganda. *Rep. Sleep. Sick. Comm. Roy. Soc.* 14, 1: 1-37) identified *Cacergates* sp. as an enemy of *G. palpalis*. W.A. Lamborn (1915, Second report of *Glossina* investigations in Nyasaland. *Bull. Ent. Res.* 6: 249-265) frequently observed *Orthetrum chrysostigma* catching *G. morsitans* on men's backs. H. Campion (1921, Some dragonflies and their prey. 2. With remarks on the identity of the species of *Orthetrum* involved. *Ann. Mag. nat. Hist.*, VIII, 9: 240-245) recorded both *O. chrysostigma* and *O. brachiale* as preying upon *G. morsitans*. Observations on dragonflies capturing tsetse from men were also recorded by H.A.W. Southon (1959, Studies in predation on *Glossina*. *EATRO ann. Rep. Trypanosomiasis Res. Organ., E.A. High. Commission, Nairobi*).
- (2180) LEONARD, J.W., 1977. A revisionary study of the genus *Acanthagrion* (Odonata: Zygoptera). *Misc. Publs Mus. Zool. Univ. Mich.* 153: VII + 173 pp. —

(Author deceased. Copies can be ordered, at the price of US \$ 7.45, from the Secretary, *Mus. Zool., Univ. Michigan, Ann Arbor, Mich. 48104, USA*).

The monograph is based on the PhD work of the late Dr. Leonard, most of which was carried out during 1931-1934, and was edited and annotated (in an Appendix) by Mrs. L.K. Gloyd (cf. *OA* No. 2173). The following spp. are described and figured as new: *A. rubrifrons* (♂ holotype, ♀ allotype: Belém, Brazil), *longispinum* (♂ holotype, ♀ allotype: Villa Murтинho, Brazil), *jessei* (♂ holotype, ♀ allotype: Porto Velho, Brazil), *abunae* (♂ holotype, ♀ allotype: Abunã, Brazil), *inexpectum* (♂ holotype: Rio Mazamba, Panama Canal Zone), *hermosae* (♂ holotype: Pampa Hermosa, Peru), *phallicornis* (♂ holotype, ♀ allotype: Porto Velho, Brazil), *williamsoni* (♂ holotype: Mariquita, Colombia), *risi* (♂ holotype, ♀ allotype: Tachira, Venezuela), *trilobatum* (♂ holotype, ♀ allotype: Rio Frio, Colombia), *viridescens* (♂ holotype, ♀ allotype: Porto Velho, Brazil), *deceptum* (♂ holotype, ♀ allotype: Campamiento, Colonia del Perené, Peru), *peruvianum* (♂ holotype, ♀ allotype, as the preceding), and *minutum* (♂ holotype: Nigua, Venezuela). In all 8 intrageneric spp. groups are recognized, and a ninth group is tentatively suggested. Although the members of the various groups show progressive modifications, no instances of intergradations have been encountered. Distributional data are insufficient to permit, in most cases, the recognition of centres of origin or dispersal. The immature stages are unknown, but collectors' observations indicate that the various spp. of *Acanthagrion* occur about quiet or sluggish water. The marked degree of intrageneric resemblance indicates a recent origin of the genus, placing *Acanthagrion* near the top of the *Acanthagrion-Enallagma* series (Cf. also *OA* No. 2173).

- (2181) MACAN, T.T., 1977. The fauna in the vegetation of a Moorland fishpond as revealed by different methods of collect-

ing. *Hydrobiologia* 55 (1): 3-16. — (Stevney, Outgate, Ambleside, Cumbria LA22 0NH, UK).

The fauna (Hirudinea, Crustacea, Ephemeroptera, Odon., Plecoptera, Coleoptera, Trichoptera, Heteroptera) was sampled regularly by sweeping with a net, by means of a quantitative sampler and in mats of artificial *Littorella*. The 3 methods were found to be complementary. Only the 2nd yielded reliable quantitative data, but it was the most time-consuming. The artificial-vegetation method was the quickest and comparable samples could be taken regularly without harm to the environment. A few spp. were not attracted to the artificial vegetation. The net revealed that some spp. were more abundant in certain spp. of plant than in others. The artificial vegetation was particularly suitable for sampling in deep water. Moreover, it captured the smallest specimens which could pass through the sweep-net because the mats could be brought up inside a net of finer mesh. (Cf. also *OA* Nos. 1450, 1544, 1999).

- (2182) MILL, P.J., 1977. [Respiration in the invertebrates]. Shinko Tokyo. 240 pp. (Japanese). — (Author's address: *Dept. Pure & Appl. Zool., Univ. Leeds, Leeds, LS2 9JT, UK*; — Publishers' address: *Shinko Trading Co., 2-6 Roppongi 2-chome, Minato-ku, Tokyo, JA*).
- Japanese edition of the volume listed in *OA* No. 265, translated by T. Ochiai, Dept. Biol., Niigata Univ., Niigata, 950-21, JA).
- (2183) MILL, P.J., 1977. Ventilation motor mechanisms in the dragonfly and other insects. In: G. Hoyle, [Ed.], *Identified neurons and behavior of arthropods*, pp. 187-208, 539-588 (cumulative references), Plenum, New York. — (*Dept. Pure & Appl. Zool., Univ. Leeds, Leeds, LS2 9JT, UK*).
- A review paper outlining the present state of knowledge of the mechanism and control of ventilation in insects. It is written from a comparative viewpoint and concen-

trates particularly on the larvae and adults of aeshnids. (Author).

- (2184) PRASAD, M., 1977. On the collection of Odonata (Insecta) from U.P. Tarai (Districts Nainital and Lakhimpur Kheri). *Newsl. zool. Surv. India* 3 (3): 112-114. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
23 spp. from the Uttar Pradesh Tarai, India, are listed along with the collection data.
- (2185) PRASAD, M. & A. KUMAR, 1977. Extension of distribution of some dragonflies (Odonata) in Western Himalaya (U.P.). *Newsl. zool. Surv. India* 3 (4): 170-174. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
New distributional data and additional descriptive notes are provided for 11 spp. *Ischnura rufostigma*, *Ceylonolestes davenporti*, *Hemianax ephippiger*, *Aeshna ornithocephala*, *Orthetrum anceps* and *Sympetrum hypomelas* have not been previously recorded from Western Himalaya, Uttar Pradesh, India.
- (2186) PRASAD, M. & A. KUMAR, 1977. Report on the collection of dragonflies (Odonata: Insecta) from Punjab, India. Part-I. *Newsl. zool. Surv. India* 3 (5): 309-312. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
An annotated list is given of 36 spp. collected during 1962-1971 in Punjab. Among these 9 are new records for the state. It seems apparent that the Punjab odon. fauna shows considerable affinities to that of the hilly tracts of Himachal Pradesh. (For Pt. II cf. *OA* No. 2188).
- (2187) PRASAD, M. & A. KUMAR, 1977. On the occurrence of *Gynacantha khasiaca* MacLachlan (Odonata: Aeshnidae) from Kumaon Hills (Western Himalaya). *Newsl. zool. Surv. India* 3 (6): 340. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P. India*).
A ♂ taken on Oct. 28, 1976, at Jagura River near Banbasa, Nainital, Uttar Pradesh, India, is brought on record. The sp. has been previously known only from Assam, West Bengal and Burma. A few descriptive notes are also provided.
- (2188) PRASAD, M. & A. KUMAR, 1977. Report on the collection of dragonflies (Odonata: Insecta) from Punjab, India. Part-II. *Newsl. zool. Surv. India* 3 (6): 384-388. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
Distributional records are given of 21 libellulide spp. (For Pt. I cf. *OA* No. 2186).
- (2189) PRASAD, M. & A. KUMAR, 1977. Some distributional records of dragonflies (Odonata: Insecta) from Haryana, India. *Newsl. zool. Surv. India* 3 (6): 420-424. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
An annotated list is given of 36 spp. from the state of Haryana, and it is suggested that the recorded fauna shows great affinities to the odon. faunas of the plains of Punjab and the hilly tracts of Himachal Pradesh, Western Himalaya.
- (2190) PRASAD, M. & A. KUMAR, 1977. New records of Odonata from Dhanbad, Bihar. *Newsl. zool. Surv. India* 3 (6): 433-435. — (*Northern Reg. Stn, Zool. Surv. India, 13 Subhash Rd., Dehra Dun-24801, U.P., India*).
23 spp. are being reported for the first time from Dhanbad, incl. 17 spp. that are new to the fauna of Bihar, Gangetic plain, India. In all, 45 odon. spp. are so far known from the state of Bihar.
- (2191) SADYRIN, V.M., 1977. Daily ration of dragonfly (*Coenagrion armatum* Charp.) larvae under experimental conditions. *Gidrobiol. Zh.* 13 (3): 22-24. (Russ., with

Engl. s.). — (*All-Union Res. Inst. Pond. Fish., USSR-209813 Rybnoye*).

Daily rations were recorded for larvae of 4 size groups. When feeding on *Sida crystallina*, these values varied from 7-16.7% of the larva body weight and from 8.9-40.0% when feeding on *Cricotopus silvestris*.

- (2192) SAINI, R.S., 1977. Ultrastructural observations on the tracheal gills of *Aeshna* (Anisoptera: Odonata) larvae. *J. submicrosc. Cytol.* 9 (4): 347-354. (With Ital. s.). — (*Dept. Zool., Univ. Saugar, Saugar, Madhya Pradesh, India*).

The *Aeshna* larvae possess tracheal gills in the rectum. The gill filaments are numerous and are covered by a thin cuticle. The distribution of microfibrils in the endocuticle is helicoidal. Large cells with intracellular spaces form the respiratory epithelium. The plasma membrane is not folded. The cytoplasm of the cells is filled with a few mitochondria. The cell surface is in very intimate contact with the cuticular surface. The surface close to the subcuticular area is excessively tracheolated. The gills seem to be merely respiratory; ions and water are resorbed from the modified rectal epithelium.

- (2193) SCHMITSCHEK, E., 1977. Insekten in der bildenden Kunst im Wandel der Zeiten in psychogenetischer Sicht. *Veröff. Naturhist. Mus. Wien (N.F.)* 14: 119 pp. — (Publishers' address: *Naturhist. Mus., Burggring 7, Wien-I, Austria*).

This small monograph deals with the development of insect illustration from the paleolithic times to present. Odon. are considered at several places. Of interest are the reproductions of the odon. paintings by Chao-Ch'ang, from around 1000 A.D., entitled "Bambus and insects" (pp. 64-65), taken from K. Speiser's *Meisterwerke chinesisches Malerei* (Berlin, 1958).

- (2194) STEWART, K.W., 1977. Formation of the Aquatic Insects Subsection, ESA. *Bull. ent. Soc. Am.* 23 (4): 245-246. — (*Dept.*

Biol. Sci., North Texas St. Univ., Denton, Texas 76203, USA).

The history (1966-1976) is related of the events that led to formalization of the Subsection. The 3 most recent symposia of the Section are those of Washington, D.C. (1977, "Culturing and rearing aquatic insects"), Houston, Texas (1978, "Innovative approaches to teaching benthic science and aquatic entomology"), and Denver, Colorado (1979, title not given). It is stated that the activities of this Subsection of the Entomological Society of America will in the next decade undoubtedly encompass further credibility in various groups of aquatic insects, and promote idea exchange and research in the systematics and biology of aquatic insects.

- (2195) SUZUKI, H., K. HAYASHI & S. ASAHINA, 1977. Note on the transoceanic insects captured on East China Sea in 1976. *Trop. Med.* 19 (2): 85-93. (Jap., with Engl. s.). — (*Dept. Virol., Inst. Trop. Med., Nagasaki Univ., Nagasaki, JA*).

An account is given of the insects collected by the training ship "Nagasaki-Maru" on East China Sea, June 23 - July 3, 1976. *Pantala flavescens* is the only odon. sp. taken. The remaining taxa are referable to Lepidoptera and Homoptera.

- (2196) SWAIN, R., P. ALLBROOK & P.S. LAKE, 1977. The invertebrate aquatic fauna of western Tasmania. *Landscape & Man*, pp. 81-100. *Roy. Soc. Tasmania*. — (*Dept. Zool., Univ. Tasmania, Box 252 C, G.P.O., Hobart, Tasmania, 7001, AU*).

Although Tasmania contains several interesting dragonflies, it possesses only a small number of spp. (27, pertaining to 17 genera of 7 families) as compared to the total Australian fauna (263 spp. of 16 families). The 19 spp. (pertaining to 13 genera of 6 families) found in western Tasmania, together with their larval habitats, are collated and discussed. The most interesting are the cold-climate adapted spp., especially archaics such as *Archipetalia auriculata* and *Synthemiopsis gompho-*

macromioides. Attention is drawn to the probable importance of diapause as an adaptation to cold montane habitats. 3 components are recognised in the odon. fauna, viz. cosmopolitan groups, ancient Australasian groups, and very ancient Gondwanaland relicts (Authors).

- (2197) ZAIKA, V.V., I.B. STEBAEV & Zh.I. REZNIKOVA, 1977. Opyt izucheniya povedeniya nasekomyh v svyazi s yarusnoi strukturoi biogeotsenoza (Odonata, Acridoidea, Formicidae). [An attempt at the examination of the insect behaviour in the light of the layer structure of the biogeocenosis (Odonata, Acridoidea, Formicidae)]. *In: Etologiya nasekomyh i kleschei (prostranstvennaya orientatsiya)* [Insect and tick ethology (orientation in space)], pp. 7-39. Tomsk Univ., Tomsk. (Russian). – (*Dept. Ent., Tomsk Univ., 36 Lenin Ave., USSR-634010 Tomsk*).

The odon. hunting behaviour was studied quantitatively in the western and central Siberian steppes (by the senior author; pp. 9-18). Observations were carried out from June to Aug., during 5-7 consecutive days, with 10-14 day intervals. Every observation lasted for 5 min and was repeated in 10 min intervals. The behaviour registration was effected through a 20 X 200 mm opening in a plate, fixed at 200 mm distance from the observer's eye. 3 observers watched simultaneously into the same direction, each person registering the events in 1 out of the 3 different biotic layers. The (time) registered activities were: perching, taking off, flight, prey consumption and landing. The predators of the upper layer catch their prey at the height of 2-10 m. The middle layer perchers are posting on vegetation between 3-4 m height, while those of the lower layer gather their prey among the vegetation, and usually do not rise higher than 1 m. The behavioural features of the 3 groups are described in detail. As a rule, only 1 dragonfly sp. predominates in each layer during a certain phenological period.

- (2198) ZDUN, V.I. & R.S. PAVLYUK, 1977. Ob

izmenenii arealov nekotoryh vidov strekoz (Odonata) v Srednei Evrope. [On the range alteration of some dragonfly species (Odonata) in central Europe]. *Abstr. Rep. 7th int. Symp. Middle Europe Entomofauna, Leningrad, Sept. 19-24, 1977*, pp. 111-112. Nauka, Leningrad. (Russian). – (*Dept. Invertebr. Zool., Lvov Univ., 4 Shcherbakov Str., USSR-290005 Lvov*). The anthropogenous vectors causing the reduction of odon. ranges are enumerated. Whereas in the course of the last decade *Erythromma viridulum* became extinct in the ciscarpatian Ukraine, USSR, *Ischnura pumilio*, *Orthetrum albistylum* and *Sympetrum depressiusculum* extended their ranges considerably in the northward direction. It is suggested that the range extension is due to the broad ecological valence of the 3 spp.

1978

- (2199) (Anonymous), 1978. Dutch dragonfly expert visits Marlin. *Marlin Daily Democrat, Marlin, Texas 78 (127): 1* (Issue of July 29, 1978).

A local daily's note on the occasion of a dragonfly collecting trip through Texas, Louisiana, Alabama, Mississippi and Florida, made by Dr. & Mrs. B. Kiauta, July 20 – August 11, 1978. In the surroundings of Marlin, Falls Co., Texas, they have collected during 1 week, accompanied by the well-known Texan odonatologist and dragonfly photographer C.E. Williams, a reference to whose photographic opus on Texan dragonflies is also made.

- (2200) (Anonymous), 1978. Libelleninventarisaties in Twente door leden van de jeugdbonden voor natuurstudie. [Dragonfly inventory work carried out in Twente by members of the youth federations of nature friends], *Twensect 1978 (1): 21-24*. (Dutch). – (*c/o P. Venema, Ed., Glanestr. 52, Hengelo, O, NL*).

The records published in papers listed in *OA* Nos. 1749 and 2099 are summarized and discussed. (For a review paper on the

odon. fauna on the Twente region, Netherlands cf. *OA* No. 1193).

- (2201) (Anonymous), 1978. Schillernder Jäger über glitzerndem Wasser. Eine Libelle schlüpft aus. *Mücke* 1978 (6/7): 23-26. – (Publishers' address: *Gib Acht Verlag, Postfach 5720, D-62 Wiesbaden, GFR*). Colour photographs of *Calopteryx splendens*, *Aeshna cyanea*, and a series of photographs of an emerging *A. cyanea* are presented along with comments on dragonfly life. A double page colour poster of an *Anax imperator* is added. – (*Abstracter's note*: The journal, dealing mostly with technical and biological subjects, is designed for primary school children. Comments are styled appropriately to that age. While in Japan this kind of odonatological literature is very rich, only few similar texts are available in the western languages).
- (2202) (Anonymous), 1978. Thuner stellen in Bern aus: Libellen im Bild erfasst. *Thuner TagBl.*, issue of May 26, 1978, p. 4. Daily's article on the occasion of the opening of (the fourth) exhibition of dragonfly photographs (by O.R. Strub and I.E. Siegenthaler) in the Migros Galery, Bern, Switzerland, on May 17, 1978. The addresses were delivered by H.P. Grossniklaus and, on behalf of the International Odonatological Society, by Dr. B. Kiauta (for the texts cf. *OA* No. 2237). Brief references are made to the contents of the two addresses, and a photograph, showing the 2 photographers and Dr. & Mrs. B. Kiauta, is added. (Cf. also *OA* Nos. 2223, 2228; – for the references to articles on the earlier 3 exhibitions cf. *OA* No. 2049).
- (2203) (Anonymous), 1978. Time for discussion on near-extinct species. *Guernsey Evening Press and Star*, issue of July 24, 1978, p. 3. This is a rather extensive interview, given to the daily by Dr. J. Belle, who spent several summer months on the Island of Guernsey, Channel Islands, in 1978. It mainly deals with the problems of water pollution in the island. The pollution and other anthropogenic measures have greatly endangered the existence of many odon. spp. in Guernsey. One of these is *Calopteryx virgo*, which can be found only in a very small area in St. Andrew's Parish, and is likely to become extinct unless drastic steps are taken to restore its habitat, destroyed by the altered course of the stream that runs through the Talbot Valley. During his stay in Guernsey, the well-known Dutch odonatologist has investigated most of the local odon. biotopes. His experience with these are stated and some of the possible protective measures are suggested. A portrait of Dr. Belle is added.
- (2204) ASAHINA, S., 1978. A new and some known species of Odonata from Kashmir. *Senckenbergiana biol.* 59 (1/2): 115-120. – (*Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA*). *Ischnura inarmata* from Srinagar, and 5 spp. from Ladakh, India, are listed and briefly described and/or discussed, incl. *I. pumilio*, *Enallagma (?) risi* (incl. description and figures of the ultimate instar larva), *Libellula quadrimaculata grigorievi*, and *Sympetrum (?) vulgatum flavum* (description and figures of teriti- and quartultimate larval stage). *Orthetrum martensi* sp. n. is described and illustrated (♂ holotype: Kargil, Ladakh, 2950 m alt., 7.VI.1976, ♀ allotype: Shey, Ladakh, 3400 m alt., 4.VI.1976, paratypes from Ladakh and Kashmir). The new sp. is allied to *O. taeniolatum*, but it is more robust.
- (2205) BANE, C.A. & O.T. LIND, 1978. The benthic invertebrate standing crop and diversity of a small desert stream in the Big Bend National Park, Texas, SWest. *Nat.* 23 (2): 215-226. – (*Dept. Biol., Baylor Univ., Waco, Texas 76703, USA*). The invertebrate benthos of Tornillo Creek, Big Bend National Park, Brewster Co., Texas, USA, was analyzed in terms of standing crop, biomass, and spp. diversity.

Erpetogomphus spp. are the only Odon. referred to. Their larvae are present at most seasons in the Tornillo Creek, which phenomenon is attributed to the 2-yr cycle. However, the absence of Erpetogomphus spp. in June is not attributable to any known physical or sampling factor. This suggests that the Tornillo Creek populations may be univoltine due to the moderate winter water temperatures.

- (2206) BARTHEL, K.W., 1978. Solnhofen. Ein Blick in die Erdgeschichte. Ott, Thun. 393 pp. — Price: sFr. 54.—. (Publishers' address: Ott Verlag, Länggasse 57, Postfach 22, CH-3600 Thun-7).

The marine (lagoon) lithographic limestone of Solnhofen, Eichstätt and vicinity (10 basins North of Ingolstadt on the Danube, between Mönheim and Regensburg, Bavaria, German Federal Republic), lower Lower Tithonian, Upper Jurassic (age 140.000.000 yrs, duration of deposition 500.000 yrs) has long been famous as a source of Jurassic fossil insects which, after crabs and small fish, represent the most frequent fossil remains recovered. More publications have been devoted to the insect fauna of the shales of Solnhofen than to any other fossil insect fauna of equivalent size, chiefly because the commercial working of the limestone has produced an almost continuous output of specimens. Among insects, the Odon. are the commonest fossils met with, and they are usually exceptionally well preserved (venation enhanced by the action of iron oxide). This makes Solnhofen particularly valuable in studies of evolution of the Order, the more so, since the beds of Solnhofen are the oldest rocks to yield fossils of the Anisoptera. It is somewhat surprising, therefore, that our knowledge on the odon. fauna of Solnhofen shales is still greatly fragmentary. This is due to the fact that, save for A. Handlirsch's extensive compilation (1906-1908, Die fossilen Insekten und die Phylogenie der rezenten Formen. Engelmann, Leipzig) and a few minor papers, notably that of F.M. Car-

penter (1932, Ann. Carnegie Mus. 21: 97-129), all the literature was published prior to 1900, before the geological history, taxonomy and classification of the Order were well enough known to allow a proper appreciation of the material recovered. In all, more than 50 odon. spp. have been described from the shales of Solnhofen by E.F. Germar, H.A. Hagen, J.V. Deichmüller, A. Handlirsch, and F.M. Carpenter, to mention just a few of the more prominent workers, but at least half of them are synonyms. The Solnhofen odon. fauna is, thus, in need of a revision, and the present general monograph will be greatly useful to anybody interested in the general paleogeography, petrography, origin and paleontology of these rocks. The book is organized into 6 sections, containing chapters on petrography, origin, paleogeography, stratigraphy and commercial working of the Solnhofen lithographic limestone, fossil inventory, bibliography, and a list of the main public and private collections where the fossils are deposited. The odon. list contains the following 13 genera (listed alphabetically, but arranged here in systematic order): (Anisozygoptera): Tarsophlebiidae: Tarsophlebia Hag., — Isophlebiidae: Anisophlebia Handl., Isophlebia Hag., — Stenophlebiidae: Stenophlebia Hag.; — (Zygoptera): Amphipterygidae: Steleopteron Hag., — Euphaeidae: Euphaeopsis Handl., Pseudoeuphaea Handl.; — (Anisoptera): Gomphidae: Aeschnogomphus Hag., Nannogomphus Handl., Protolindenia Deichmüll., — Petaluridae: Libellulum Westw. (= Cymatophlebia Handl.), — Cordulegasteridae: Aeschnidium Westw., Urogomphus Handl. Black-and-white photographs of Anisophlebia and Stenophlebia, and a colour photograph of Libellulum are also reproduced. The author is the leading specialist in the geology and paleontology of Solnhofen; for many years he has been associated with the Bavarian Museum of Paleontology, and is now professor of geology and paleontology at the Techn. Univ. of West Berlin. The book is directed at the general

reader, but it should not remain unnoticed by anybody interested in the ecology of the Jurassic odon. fauna.

- (2207) BELTMAN, B. & W. BLEUTEN, 1978. Water quality research in the area of the river Kromme Rijn. *Hydrobiol. Bull., Amsterdam* 12 (1): 39-51. — (*Res. Group Landscape Ecol., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).
Ischnura elegans is recorded from the brook, Langbroeker Wetering, upstream of village Langbroek, Utrecht Prov., Netherlands.
- (2208) BENKE, A.C., 1978. Interactions among coexisting predators — a field experiment with dragonfly larvae. *J. anim. Ecol.* 47 (2): 335-350. — (*Sch. Biol., Georgia Inst. Technol., Atlanta, Georgia 30332, USA*).
 Larval dragonfly populations were manipulated in large littoral zone enclosures to determine the importance of inter-odon. interactions and the effects of dragonflies on their prey. — Initial densities of early emerging odon. cohorts were about 6 times greater in one group of pens than in others. When initial densities were low, survivorship was higher and growth appeared to be faster than when initial densities were high. Highly significant differences of early sp. densities were maintained between treatment pens during the 6-month experimental period. — Early emerging odon. had a highly significant influence on the abundance of the smaller, late emerging spp. indicating a strong interaction between odon. spp. The interaction appeared to be due to predation by large odon. on small odon. This is interpreted as an extreme form of interference competition which plays an important role in odon. population regulation. — Although there was a large treatment bias in prey spp. abundance, the results indicate that abundance of early emerging odon. plays some role in prey (especially Tanyptodinae) abundance. — It is suggested that the primary determinant of community structure and production is an interaction between refuge level and predation rate. It is necessary for prey to be turning over at an unusually high rate and it is possible that odon. function in stimulating the rate of prey production. (Author).
- (2209) C.J.G., 1978. The dragonflies of Great Britain & Ireland by C.O. Hammond. *Bull. amat. ent. Soc.* 37 (319): 81-82.
 Book review of the volume listed in *OA* No. 2062.
- (2210) CORDULIA. Cahier d'amateurs. Published by the Collège Bourget, Rigaud, Quebec, Canada; edited by R. Hutchinson & A. Larochelle, Collège Bourget, Vol. 4, No. 1 (March, 1978). (French and Engl., most larger papers with s's. in Engl.). — Annual subscription for 1978 (4 issues): Can. \$ 3.— (Canada, USA), Can. \$ 4.— (others). — (c/o R. Hutchinson, Collège Bourget, C.P. 1000, Rigaud, Que., JOP 1P0, CA).
Hutchinson, R.: Données préliminaires sur la rencontre du partenaire sexuel en vue de l'accouplement chez quelques espèces de libellules du Québec (Odonata) (pp. 21-28; Engl. s.); — *Larochelle, A.* (Coll. Bourget, C.P. 1000, Rigaud, Que., JOP 1P0, CA): Spiders as predators and prey of Odonata (pp. 29-34; Fr. s.); — *Samson, P.* (1201, ave. Forget, Sillery, Que., G1S 3V6, CA): Premier aperçu sur les odonates de la région de St-Joseph-de-la-Rive, Comté de Charlevoix, Québec (pp. 35-38; Engl. s.); — (*Anonymous*): V^e Symposium International d'Odonatologie au Québec en 1979 (p. 38); — *Hutchinson, R.*: Observation du comportement territorial d'*Argia moesta* Hagen (p. 38; Engl. s.).
- (2211) DIERL, W., 1978. Insekten. Schmetterlinge, Käfer, Libellen und unsere anderen Insekten nach Farbfotos bestimmen. BLV Verlagsgesellschaft, München. 143 pp., 128 col. figs. incl. — Price: DM 9.80. — (*Zool. Staatssammlungen, Schloss Nymphenburg, Maria-Ward-Str. 1 b, D-8000 München-19, GFR*).
 The slim volume is intended as a brief pictorial profile of the European insects.

- Colour photographs and rather detailed comments on morphological features, ecology, diet and life history are given for 6 odon. spp. — (*Abstracter's note*: The photograph facing p. 28 represents an emerging *Brachytron pratense* and not *Aeshna cyanea* as erroneously stated. Under the heading of *Libellula quadrimaculata* a ♂ of *L. depressa* is described).
- (2212) DUMONT, H.J., 1978. Neolithic hyperarid period preceded the present climate of the Central Sahel. *Nature* 274 (5669): 356-358. — (*Inst. Zool., Univ. Ghent, Ledeganckstr. 35, B-9000 Ghent*). The relict aquatic fauna of the Sahara-Sahel belt is analyzed, and evidence is produced that the present climate of the Central Sahel between the Middle Niger River and the Chad depression was preceded by a hyperarid period. Thus, since 5500 yrs B.P., the climate of the Central Sahel was first hyperarid, then arid, and its aquatic populations are derived from Saharan stocks and not from the Niger River. This is supported also by the distribution of 3 non-migrant odon. spp. in Air, which are of Mediterranean (*Ischnura saharensis*) or Mesasiatic origin (*Orthetrum ransonneti*, *Paragomphus sinaiticus*). The occurrence of the first two of these in Air, Adrar (Mauretania), Ahaggar, Tassili-n-Ajjer, Tibesti and Ennedi is shown in a table.
- (2213) GROSSNIKLUS, H.-P., 1978. [Vernissage zur Libellen Foyer-Ausstellung in der Klubschule Migros Bern 17. Mai 1978]. In: O.R. Strub & I. Siegenthaler, [Eds.], *Libellen*. pp. 8-11. Filmstudio 2 S, Thun. — (*Höheweg 6, CH-3700 Spiez*). This is the transcript of a tape-recorded address, delivered at the opening of the exhibition of dragonfly photographs (by O.R. Strub and I. Siegenthaler) in the Migros Gallery, Bern, Switzerland, on May 17, 1978. The twofold nature of the work of a dragonfly photographer is stressed: it is a combination of artistic aspects with those of a nature observer and a scientific insect behaviour recorder.
- (2214) HARITONOV, A.Yu., 1978. New data on morphology, ecology and behaviour of two little-known species of dragon-flies (Insecta, Odonata). *New little-known Spec. sib. Fauna* 12: 70-78, 206 (Russ. abstr.). (Russ., with Engl. s.). — (*Inst. Biol., Siberian Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk*). Notes on biology and description and illustrations of the larval stage are given of *Sympetrum tibiale*, and notes on the ecology of *Aeshna serrata* are presented. 2 field photographs of the latter spp. are appended.
- (2215) HARZ, K., 1978. *Coenagrion freyi* Bilek ist eine gute Art. (Odonata, Zygoptera, Coenagrionidae). *Vorläufige Mitteilung. Articulata* 1 (8): 61-64. — (*D-8801 Endsee 44, GFR*). The material of *C. freyi* from the type locality (Zwingsee, Bavaria, German Federal Republic) is reexamined and compared with that of *C. hylas* from Sachalin. It is argued that, contrary to the opinion of most workers, the two taxa are well-defined, distinct species.
- (2216) HARZ, K., 1978 [Buchbesprechung]. Jurzitza, G.: *Unsere Libellen. Articulata* 1 (8): 69. — (*D-8801 Endsee 44, GFR*). Book review of the volume listed in *OA* No. 2121.
- (2217) HEINRICH, B. & T.M. CASEY, 1978. Heat transfer in dragonflies: 'fliers' and 'perchers'. *J. exp. Biol.* 74: 17-36, 1 pl. excl. — (*Dept. Ent. Sci., Univ. California, Berkeley, Calif. 94720, USA*). Both 'perchers' (*Libellula saturata*) and 'fliers' (*Anax junius* and *Aeshna multicolor*) remained active in the field in sunshine at air temperatures from at least 24°C to 36°C. — The percher basked at low air temperatures and regulated exogenous heat input by postural adjustments. It markedly reduced flight activity at high air temperatures but flew nearly

- continuously at intermediate temperatures. — In direct sunlight, the abdomen of *L. saturata* heated faster than the thorax, but this percher exhibited little or no capacity to transfer heat between abdomen and thorax. — In contrast, the fliers gave no evidence of behavioural thermoregulation, but both showed impressive capacities for heat transfer from thorax to abdomen. — When heated exogenously on the thorax the temperature of the entire abdomen of both fliers increased uniformly, but with endogenous heat production during pre-flight warm-up there was only a slight temperature increase near the anterior portion of the abdomen. — Removal of abdominal air sacs or immobilizing the abdomen with wax to prevent all abdominal pumping did not significantly alter the capacity to transfer heat from thorax to abdomen. — Ligation of the heart anywhere along the length of the abdomen abolished heat transfer. Given sufficient exogenous heat input, fliers that can regulate their thoracic temperature by transferring the excess heat to the abdomen died in about 2 min due to overheating when the heart was occluded. Under our experimental conditions the fliers appeared to thermoregulate exclusively via a control of blood circulation. (Authors).
- (2218) HUGGINS, D.G., 1978. Redescription of the nymph of *Enallagma basidens* Calvert (Odonata: Coenagrionidae). *J. Kansas ent. Soc.* 51 (2): 222-227. — (*St. Biol. Surv. Kansas, 2045 Ave. A, Campus West, Lawrence, Kansas 66044, USA*).
The previously described larva of *E. basidens* is morphologically similar to the known larvae of Waler's (1953, *The Odonata of Canada and Alaska*, Vol. 1, Pt. 1, 2. Univ. Toronto Press) *Enallagma* Group II. It is most similar to *E. exulans*, but can be distinguished from the latter by the shape and colour patterns of the caudal lamellae and by the number of abdominal lateral carinae that bear coarse setae. It can be found in most permanent
- lentic and lotic waters within its range. (Author).
- (2219) HUTCHINSON, R., 1978. Le point à propos des études sur la vie et les moeurs des odonates. *Fabriques* 4 (3): 52-55. (With Engl. s.). — (*Coll. Bourget, C.P. 1000, Rigaud, Que., JOP 1P0, CA*).
Some suggestions are made to the young, local dragonfly students as to the work on the life histories and behaviour of the dragonflies of Quebec, Canada.
- (2220) KIAUTA, B., 1978. [Vernissage zur Libellen Foyer-Ausstellung in der Klubschule Migros Bern 17. Mai 1978]. In: O.R. Strub & I. Siegenthaler, [Eds.], *Libellen*. pp. 1-7. Filmstudio 2 S, Thun. — (*Dept. Anim. Cytogenet. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL*).
This is the transcript of a tape-recorded address, delivered at the opening of the exhibition of dragonfly photographs (by O.R. Strub and I. Siegenthaler) in the Migros Gallery, Bern, Switzerland, on May 17, 1978. It mainly deals with the history of odonatology in Switzerland (from 17th century to present). The portraits of 8 Swiss odonatologists are added.
- (2221) KLEIN, J.F., 1978. G. Jurzitza, *Unsere Libellen*. *Kosmos* 74 (5): 371. — (*Author's address unknown*).
Book review of the volume listed in *OA* No. 2121.
- (2222) KONDO, H., 1978. Efferent system of the lateral ocellus in the dragonfly: its relationships with the ocellar afferent units, the compound eyes, and the wing secretory system. *J. comp. physiol.* 125 (4): 341-349. — (*Dept. Biol., Fac. Sci., Kyushu Univ., Fukuoka, 812, JA*).
The activity of lateral ocellar nerve fibres of the dragonfly was studied with special reference to the activity of efferent fibres. Afferent and efferent impulses were recorded from the distal and proximal cut-ends of the ocellar nerve using suction electrodes. The lateral ocellar nerve was

found to contain, at least, 2 kinds of afferent (1 large and the other small) and 3 kinds of efferent (1 large and the others small) fibres. The large efferent fibre was activated by illumination of the compound eyes, and also during wingbeat. In the intact ocellar nerve, the large afferent fibre was also activated during wing-beat, but the evoked discharge was inhibited by illumination.

The result suggests an excitatory pathway from the efferent fibre to the large afferent within the distal synaptic region of the ocellar nerve. The impulse activities of wing sensory nerves were recorded relative to the position and movement of the wings. Electric stimulation of a wing sensory nerve produced bursting discharges in efferent fibres in both ipsi- and contra-lateral ocellar nerves. It is probable that the efferent fibres are excited by input from sense organs in the wing's hinges. (Author).

- (2223) KYBURZ, W., 1978. Sonderbares Flügelwesen Libelle. Brückenbauer, Gossau 1978 (24): 3. (Issue of June 16). – (Author's address unknown).

A general article on dragonflies, with reference to their fossil history, life history and behaviour. It is illustrated with large colour photographs (by O.R. Strub and I.E. Siegenthaler) of 5 spp. – (Abstracter's notes: (1) The article has been written for the occasion of the exhibition of dragonfly photographs of the 2 above mentioned photographers; for details cf. OA No. 2202; – (2) It contains a few errors, the most important of these is in the caption of Fig. 3; according to the personal communication from the 2 photographers, the depicted *Anax parthenope* does not originate from the Thuner Allmend; – (3) The journal is published by the (in Switzerland) well-known Migros Company, and has there a circulation of 780.000 copies).

- (2224) MARMELS, J. de, 1978. [Frauenwinkel, Altmatt, Lauerzersee]. Die Insektenfauna

der Streuwiesen und Moore. Ber. schwyz. naturf. Ges. 7: 16-20. – (In den Seewiesen 23, CH-8132 Egg).

5 odon. spp., collected at Lauerzersee, Canton Schwyz, Switzerland, on Aug. 8, 1976, are listed. Among these is *Ceragrion tenellum* (a small population at some distance from the lake), which sp. is otherwise known at the moment from the Swiss territory only from the cantons Zürich and Thurgau (old records from western Switzerland and Tessin could not be confirmed recently). The problems of the odon. fauna conservation are briefly discussed, and it is stated that *Coenagrion ornatum* and *C. vernale* probably became extinct in Switzerland.

- (2225) MARMELS, J. de, 1978. Insekten des Gebietes Altmatt-Ägerried. Ber. schwyz. naturf. Ges. 7: 57-58. – (In den Seewiesen 23, CH-8132 Egg).

From the area Altmatt-Ägerried, Canton Schwyz, Switzerland, the following 6 odon. spp. are listed: *Calopteryx virgo*, *Pyrrhosoma nymphula*, *Coenagrion hastulatum*, *Somatochlora arctica*, *Libellula quadrimaculata* and *Leucorrhinia dubia*. All of these are recorded in the (unpublished) diary of Dr. R. Ris (deposited in the archives of the Naturforschende Gesellschaft of Schaffhausen), though most of them were collected also recently. Ris's notes originate from the yrs 1917, 1921 and 1927.

- (2226) McCAFFERTY, W.P., 1978. Pre-management assessment of aquatic macroinvertebrates in a small, sedimentary drainage area of the Maumee and Lake Erie Basin. Great Lakes Entomol. 11 (1): 37-43. – (Dept. Ent., Purdue Univ., West Lafayette, Indiana 47907, USA).

In order to establish baseline data adjunct to the research development of soil conservation practices for sediment reduction in the Maumee River and Lake Erie, the aquatic macroinvertebrates of Black Creek and adjacent areas in northeastern Indiana, USA, were studied from 1974-1975. A

total of 90 spp. of insects and crustaceans were taken (incl. 8 Odon. of 5 families), 69 from Black Creek. Sp. diversity indices ranged from 1.04 to 2.75 in 2 downstream locations and were generally reflective of stressed conditions related to channelization and sedimentation from the agrarian drainage area. Benthic spp. from the adjacent Maumee River potentially contribute in part to population maintenance in Black Creek. (Author).

- (2227) MIELEWCZYK, S., 1978. Libellen (Odonata) der Pieninen. *Fragm. faun.* 12 (6): 265-294. (Pol., with Russ. and Germ. s's.). – (*Dept. Agrobiol., Inst. Ecol., Polish Acad. Sci., Swierczewskiego 19, PO-60-809 Poznań*).

A survey is given of the odon. fauna (26 spp.) of the Pienin region, Beskydy Mts., southern Poland. Adults and larvae were collected at 40 stations (1971-1973). Of particular interest are the records of *Ischnura pumilio*, occurring at 18 localities, incl. running water biotopes. The 110 yrs old record of *Onychogomphus forcipatus* could not be confirmed, but *Cordulegaster bidentatus* was taken at 5 stations. The zoogeographic composition of the fauna is analyzed, and considerations are given on the possible effect of the planned reservoir construction at the Dunajac River on the regional odon. fauna. – (*Abstracter's note*: This is a part of a comprehensive series on the arthropod fauna of the region. For the general characterization of the area cf. *Fragm. faun.* 21, 1976).

- (2228) MORGER, P., 1978. Ausstellung im Foyer der Migros-Klubschule. Schönheit und Vielfalt der Libellen. *Berner Nachr.*, issue of May 23, 1978, p. 25. – (*Author's address unknown*).

Daily's article on the occasion of the opening of (the fourth) exhibition of dragonfly photographs (by O.R. Strub and I.E. Siegenthaler), under the title "Einheimische Libellen und deren Entwicklung vom Ei zum Ei", in the Migros Gallery,

Bern, Switzerland, on May 17, 1978. For other articles and for further details cf. *OA* No. 2202).

- (2229) MOUZE, M., 1978. Rôle des fibres post-rétiniennes dans la croissance du lobe optique de la larve d'*Aeshna cyanea* Müll. (Insecte Odonate). *Wilhelm Roux Arch. develop. Biol.* 184 (4): 325-350. (With Engl. s.). – (*Service Biol. anim., Univ. Sci. & Techn. Lille-I, B.P. 36, F-59650 Villeneuve d'Ascq*).

The effect of the post-retinal fibres on the growth of the optic lobe was studied in larval *Aeshna cyanea* by (1) the removal of the zone producing new ommatidia, (2) overloading of post-retinal fibres (by inducing zones that produce supernumerary ommatidia), and (3) by removal of an ocular volet, followed by its immediate reinsertion (to provide a "surgery-control"). The following results were obtained: (1) A preliminary growth regulation controlled the total number of neuroblasts in the outer optic anlage. However, the permanent mitotic activity of these cells was not controlled by post-retinal fibres. – (2) A second regulation, much more precise, occurring in the lamina, consisted in the differentiation of the ganglion cells being affected by the new post-retinal fibres. The supernumerary cells then rapidly degenerated. – (3) A last regulatory process implying the integrity of post-retinal fibres maintained the ganglion cells.

- (2230) NILAMHNA, E., [Ed.], 1978. Provisional atlas of dragonflies in Ireland. An Foras Forbartha, Dublin. II+60 pp. – (*Natn. Inst. Physical Planning & Construction Res., St. Martin's House, Waterloo Rd., Dublin-4, EI*).

This is the second and revised edition of the volume listed in *OA* No. 2003.

- (2231) NOTTON, J.H.F., 1978. A late Southern *Aeshna*. *Bull. amat. ent. Soc.* 37 (319): 60. – (*16 Crawshaw Drive, Emmer Green, Reading, Berks., UK*).

Not far from Reading, England, a ♀ *Aeshna cyanea* was observed on wings on Nov. 20, 1977. This is an excessively late record, particularly after a week of cold weather, including 2 nights with frost (Nov. 17 and 18).

- (2232) NOTULAE ODONATOLOGICAE. Semi-annual Bulletin of the International Odonatological Society. Published by the Societas Internationalis Odonatologica (S.I.O.), Utrecht. Vol. 1, No. 1 (June 1, 1978). — Annual subscription: Hfl. 20.— net. — (c/o Dr. B. Kiauta, Dept. Anim. Cytogen. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL).

The publication program of the bulletin is focussed strongly on short, original papers related to faunistics, field observation, breeding and laboratory records, critical book reviews etc. Scientifically sound contributions, written in any language using the Latin script, are acceptable, but the use of English is strongly recommended. — Contents No. 1: *Editorial* (1-2); — *Belle, J.* (Onder de Beumkes 35, 6883 HC Velp, NL): *Neogomphus molestus* (Hagen, in Selys, 1854) new to Argentina (Anisoptera: Gomphidae) (2-4); — Dragonfly records from Highlands County, Florida, United States (4-5); — *Donnelly, T.W.* (Dept. Geol. Sci., St. Univ. New York, Binghamton, N.Y. 13901, USA): Odonata of the Sam Houston National Forest and vicinity, East Texas, United States, 1960-1966 (6-7); — *Kiauta, B.* (Dept. Anim. Cytogen. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL): Two cytotaxonomically interesting cases of irreversible autosome fusion in dragonflies: *Argia moesta* (Hagen) (Zygoptera: Coenagrionidae) and *Anaciaeschna isosceles* (Müller) (Anisoptera: Aeshnidae) (7-9); — *Paulson, D.R.* (Washington St. Mus., Univ. Washington, Seattle, Wash. 98195, USA): An Asiatic dragonfly, *Crocothemis servilia* (Drury), established in Florida (Anisoptera: Libellulidae) (9-10); — *Rudolph, R.* (Lehrgeb. Biol., Pädagog. Hochsch., Fließnerstr. 21,

D-44 Münster, GFR): Notes on the dragonfly fauna of very small pools near Münster, Westfalia, German Federal Republic (11-14); — *Parr, M.J.* (Dept. Biol., Univ. Salford, Salford, M5 4WT, UK): Book review. The dragonflies of Great Britain and Ireland. By Cyril A. Hammond (14-16).

- (2233) PARAGAMIAN, V.L., 1978. Food habits of Largemouth Bass (*Micropterus salmoides*) at Big Creek Lake. Proc. Iowa Acad. Sci. 85 (1): 31-34. — (*Manchester Fish Hatchery, R.R. 2 Box 269 A, Manchester, Iowa 52057, USA*).

The Big Creek Lake is a sub-impoundment of Saylorville Reservoir, Iowa, USA. The food habits were studied for 3 yrs (1974-1976). In the food item composition tables the Odon. are included in the categories "aquatic insects" and "terrestrial invertebrates" and are specified to the sub-order level only.

- (2234) PAVLYUK, R.S., 1978. O sluchayah poedaniya strekozami rastitel'noi pishchi. [On cases of dragonflies eating vegetable matter]. Vest Zool., Kiev 1978 (2): 8. (Russian). — (*Zool. Mus., Lvov Univ., 4 Shcherebakov Str., USSR-290005 Lvov*).

Scraps of vegetable tissue were found in intestines of *Ischnura elegans* and *Lestes dryas*. *Erythromma najas* has been observed twice eating a leaf of *Acorus calamus* and a not identified plant respectively. It is suggested that the vegetable diet is induced by some unknown physiological demands of the odon. organism.

- (2235) SELYSIA. A Newsletter of Odonatology. Compiled by M.J. Westfall, Jr. & C. Johnson, Dept. Zool., Univ. Florida, Gainesville. Vol. 8, No. 1 (June 1, 1978). — Sent free of charge to anybody expressing to the Editors the desire to receive it. — (c/o Prof. M.J. Westfall, Jr., Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA).

Westfall, M.J.: Fourth International Symposium of Odonatology (pp. 1-3); — [Cor-

- bet, P.S.] (Dept. Zool., Univ. Canterbury, Christchurch-1, NZ): Special message to Symposium participants from Dr. Philip S. Corbet (p. 3); – *Gloyd, L.K.* (Div. Ins., Mus. Zool., Univ. Michigan, Ann Arbor, Mich. 48109, USA): An appreciation and thanks (p. 3); – *Asahina, S.* (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA): Letter from Syoziro Asahina (p. 4); – *Pilon, J.-G.* (Dépt. Sci. biol., Fac. Arts & Sci., Univ. Montréal, C.P. 6128, Montreal, Que., H3C 3J7, CA): Fifth International Symposium of Odonatology – Advance Announcement (p. 4); – *Westfall, M.J.*: Correction (p. 4); – [*Westfall, M.J.*]: Notulae odonatologicae to be published (p. 5); – *Haritonov, A.Yu.* (Inst. Biol., Siberian Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk): The foundation of the Odonatological Cabinet in Siberia (pp. 5-6); – (*Anonymous*): Dragonfly stamp (p. 6); – Flying creature remains found (p. 6); – [*Westfall, M.J.*]: Dragonflies vs. mosquitoes (p. 6); – *Carle, F.L.* (Dept. Ent., Va Polytechn. Inst. & St. Univ., Blacksburg, Va 24061, USA): Preliminary species list of Virginia Anisoptera (pp. 7-8); – *Dunkle, S.W.* (Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA): Are there nocturnal odonates? (p. 8); – *Cordulegaster obliqua, fasciata*, and eye color (pp. 8-9); – *Paulson, D.R.* (Washington St. Mus., Univ. Washington, Seattle, Wash. 98195, USA): Odonata collection inventories (pp. 9-10); – Dragonfly field guide (pp. 10-11); – Potential changes in the list of North American Odonata (pp. 11-13); – *Carle, F.L.*: Progress on taxonomic and nomenclatural problems of Virginia Anisoptera: a reply to Dennis R. Paulson (pp. 13-14); – (*Anonymous*): Odonata envelopes still available (p. 14); – *Theischinger, G.* (OE Landesmus., Museumstr. 14, A-4010 Linz, Austria): Specimens desired (p. 14); – *Garrison, R.W.* (Div. Ent. & Parasitol., 201 Wellman Hall, Univ. California, Berkeley, Cal. 94720, USA): Request for information on *Enallagma* (p. 14); – *Tennessen, K.* (1949 Hickory Ave., Florence, Alabama 35630, USA): Records of Odonata from Alabama wanted (p. 14); – *Knopf, K.W.* (Dept. Ent. & Nematod., Univ. Florida, Gainesville, Fla 32611, USA): Protein variation in *Gomphus* (Odonata: Gomphidae). Abstract of Dissertation (p. 15); – [*Westfall, M.J.*]: Publications on Odonata (pp. 15-16); – *Gloyd, L.K.*: Concerning C.H. Kennedy's doctoral dissertation (p. 16); – [*Westfall, M.J.*]: Dragonflies of Switzerland (p. 16); – Exhibition of dragonfly photographs (p. 16); – *Anonymous*: New addresses for colleagues (p. 17); – B.E. Montgomery honored (p. 17); – *Dromogomphus* distribution (p. 17); – Westfall spends month in Guatemala (p. 17); – Student from Rockefeller University researching in Gainesville (p. 17); – *Crocothemis servilia* in Florida (p. 17); – Recent Odonata additions to the F[lorida] S[tate] C[ollection of] A[rthropods] (p. 17).
- (2236) STRUB, O.R., 1978. [Vernissage zur Libellen Foyer-Ausstellung in der Klubschule Migros Bern 17. Mai 1978]. In: O.R. Strub & I. Siegenthaler, [Eds.], Libellen. p. 12. Filmstudio 2 S, Thun. – (*Seestr. 26 J, CH-3601 Thun*).
This is the transcript of a tape-recorded closing address, delivered on behalf of the authors (Strub and Siegenthaler) at the opening of their exhibition of dragonfly photographs in the Migros Gallery, Bern, Switzerland, on May 17, 1978.
- (2237) STRUB, O.R. & I. SIEGENTHALER, [Eds.], 1978. Libellen. Vernissage zur Foyer-Ausstellung in der Klubschule Migros Bern Mai 17. 1978. Filmstudio 2 S, Thun. II + 12 pp. – (*Seestr. 26 J, CH-3601 Thun*).
The pamphlet contains the transcript of the tape-recorded addresses, delivered at the opening of the exhibition of dragonfly photographs (authors: O.R. Strub and I. Siegenthaler) in the Migros Gallery, Bern, Switzerland, on May 17, 1978, by B. Kiauta (cf. *OA* No. 2220), H.-P. Grossniklaus (cf. *OA* No. 2213) and O.R. Strub

(cf. *OA* No. 2236). (For the newspaper reports on the exhibition cf. *OA* Nos. 2202, 2223, 2228).

- (2238) STRUB, O. & I. SIEGENTHALER, 1978. Wasserjungfern beobachtet und mit der Kamera eingefangen von O. Strub und I. Siegenthaler. Schweizer Rotkreuz-Kalender 1979: 112-116. — (*Seestr.* 26 *J*, *CH-3601 Thun*).

Retrospective notes on the origin of the authors' book, *Das Libellenjahr*, listed in *OA* No. 1563. — (*Abstracter's note*: For some biographic notes on the senior author cf. *Schweizer Coiffeurmeister-Ztg.* 46 [1962]: 870-874).

- (2239) THEISCHINGER, G. & J.A.L. WATSON, 1978. The Australian Gomphomacromiinae (Odonata: Corduliidae). *Aust. J. Zool.* 26: 399-431. (*Abt. II, Oberösterreichisches Landesmus., Museumstr. 14, A-4010 Linz*).

The Australian members of the subfamily are revised. 13 spp. are recognized in 7 genera, incl. 3 spp. which are described as new, viz. *Archaeophya magnifica* (♂ holotype, ♀ allotype: Mossman Gorge, Queensland; paratypes from various localities), *Austrocordulia territoria* (♂ holotype, ♀ allotype, paratypes: Baroalba Creek, Northern Territory), and *Micromidia convergens* (♂ holotype, ♀ allotype, paratypes: Little Yabba Creek nr. Kenilworth, Nambour, Queensland). The ♂♂ of *Archaeophya adamsi*, *Austrophypha mystica*, and the ♀♀ of *Pseudocordulia circularis* and *P. elliptica* are described, and further details are given for other spp. A lectotype is designated for *Austrocordulia refracta*. The genera and spp. are keyed. (Authors).

- (2240) URK, C. van, 1978. The macrobenthos of the river IJssel. *Hydrobiol. Bull., Amsterdam* 12 (1): 21-29. — (*St. Inst. Sewage & Waste Wat. Treatment. R.I.Z.A., Lelystad, NL*).

The IJssel is the name of one of the Rhine River branches in the Netherlands. It is the only one that had not undergone any

major recent hydrological changes. Its macrofauna has been first brought on record by R. Lauterborn (1918, *Die geographische und biologische Gliederung des Rheinstroms*, Vol. 3, Heidelberg). The recent survey has been carried out during 1973-1977. As compared to the 1918 conditions, the recent decrease of water quality has particularly affected the composition of the insect community. The latter has nearly disappeared and *Ischnura elegans* is the only odon. sp. recorded.

- (2241) VERVOORT, W., 1978. Verslag van de Directeur over het jaar 1976. Rijksmuseum van Natuurlijke Historie te Leiden. [Annual report of the Director, 1976. State Museum of Natural History, Leyden]. *Ned. Rijksmus.* 98: 187-250. (Dutch). — (*Rijksmus. Nat. Hist., Raamsteeg 2, Leiden, NL*).

The Odon. Department is dealt with on p. 232 (acquisitions pp. 193-201). The staff situation was the same as mentioned in the report listed in *OA* No. 1600. The emer. curators, Drs. D.C. Geijskes and M.A. Lief tinck, have been working throughout the period. In all, 823 specimens from various faunal regions, have been added to the collection. A list of visitors and research guests is also given. (For earlier reports cf. *OA* 1600, 1660, 1661).

- (2242) WEITZEL, M., 1978. Funde der Wanderlibelle *Crocothemis servilia* (Drury) im Rheinland (Odonata, Libellulidae). *Atalanta* 9 (2): 179-180. — (*Auf der Steinrausch 15, D-5500 Trier, GFR*).

2 mature ♂ were taken nr. Monheim, Nordrhein-Westfalen (July 7, 1976) and at Igel nr. Trier, Rheinland-Pfalz (Aug. 30, 1977) respectively. The possible ability of this sp. to temporarily breed in Germany is briefly discussed. (*Abstracter's note*: The sp. dealt with is *C. erythraea* [Brullé]).

- (2243) WESTFALL, M.J., Jr., 1978. Odonata. In: R.W. Merrit & K.W. Cummins, [Eds.]. An introduction to aquatic insects of North America, pp. 81-98, 377-425 (cumulative

references), 427-441 (index). Kendall & Hunt, Dubuque, Iowa. — Price of the volume: US \$ 19.25. — (Author's address: *Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA*; — Publishers' address: *2460 Kerper Blvd, Dubuque, Iowa 52001, USA*).

The book is intended to provide a standard guide to North American families of aquatic insects, their taxonomy, phylogeny, morphology, ecology, and distribution, as well as collection and rearing techniques. The coverage should allow a variety of groups, both lay and professional, to identify and categorize the immatures and adults they collect, and to associate pertinent ecological and distributional information with the group in question. The book is directed at students and professionals in entomology, fisheries, wildlife and limnology. — The author of the odon. part is the leading North American odonatologist.

The chapter includes a general introduction and a brief outline of external morphology. The main body are the keys to the regional suborders and families. Very useful will be the reference list, divided into references to the general regional faunas, regional species lists (both arranged per state and, in the case of Canada, per province), and taxonomic treatments at the suborder, family and generic levels. Of utmost importance is the tabular summary of ecological and distributional data for regional taxa, containing (1) name of the taxon and statement of the number of known spp., information on (2) habitat, (3) habit, (4) trophic relations, (5) North American distribution, and (6) references to ecological literature. — (*Abstracter's note*: No reprints were provided by the Publishers; photocopies of pp. 81-98 will be furnished by the author upon request).

ERRATA

In the bibliography of the late A. BILEK, published by G. JURZITZA in Vol. 4, No. 1, pp. 32, 33 (March 1, 1975), two titles are omitted. The bibliographic data of these are listed in OA No. 2118 (K. Harz, Vol. 7, No. 3, p. 302; September 1, 1978).

Dr. R. RUDOLPH (Münster) has drawn the Editors' attention to the fact that in Dr. P. MÜNCHBERG's odonatological bibliography, which has appeared in the paper by G. JURZITZA, Vol. 4, No. 3, pp. 125-128 (September 1, 1975), a number of titles are missing, whereas some other references are not correct. A corrected bibliography will appear in one of the forthcoming issues of Odonatologica.

Two errors should be corrected in the article by C. UTZERI, E. FALCHETTI & G. CARCHINI, Vol. 5, No. 2, pp. 175-179 (June 1, 1976), viz.:

- p. 177, line 3 from the top: ". . . adulti vi ovidepongono . . ." should read: ". . . adulti non vi ovidepongono . . .";
- p. 178, Tabella 1, the first pond: the code number of the pond is "t9" and not "19", as erroneously printed.

The attentive reader has certainly noticed that in the paper by K.J. TENNESSEN & S.A. MURRAY, Vol. 7, No. 1, pp. 59-65 (March 1, 1978), on p. 62, the indication, "Table II", is missing. Above the title, "Analysis of variance table . . .", thus, the table number should be added.

In the obituary for the late Dr. P.-A. ROBERT, published by O.-P. WENGER in Vol. 7, No. 1, pp. 89-90 (March 1, 1978), on p. 90 the footnote should be appended to the Bibliography by an asterisk.

Two shortcomings were detected in the dedication article for Dr. V. TEYROVSKÝ, published by G. JURZITZA & A. SCHÖTTNER in Vol. 7, No. 3, pp. 187-190 (September 1, 1978), viz.:

- p. 188, line 1 from top: the year "1912" should read "1917";
- p. 190: the "1965" should be emended into "1965 a" and the following title added: 1965 b. [Review]. Colloquium on the Odonata. *Acta ent. bohemoslov.* 62 (1): 79-80. (Czech).

There are a few omissions and errors in the review of the history of odonatology in Switzerland, published by B. KIAUTA in Vol. 7, No. 3, pp. 191-222 (September 1, 1978), viz.:

- p. 208: lines 5 and 6 from the top: The bibliography of F. RIS (126 titles) has appeared in a privately distributed booklet, published (without publication date and Editor's name) by the Glarner Nachrichten, under the title, "Zum Andenken an Dir. Dr. Med. Friedrich Ris". (40 pp.). It also contains his extensive biography.
- p. 213: Mr. J. DE MARMELS (Egg) has notified the Editors that the following title and annotation should be added:

ALBERT, Pater, 1959. Die Odonaten (Libellen oder Wasserjungfern) im Gebiete der Gemeinde Flüfli. Nach einem Ferienaufenthalt in Flüfli im Jahre 1953. *Bl. Heimatk.*

Entlebuch 32 (8): 127-128; (9): 129-130. – [Canton Luzern].

- p. 218: Add the following title:

PERRET, P., 1973. Untersuchungen über die Bodenfauna des Litorals im eutrophierenden Sempachersee. *Schweiz. Z. Hydrol.* 35 (1): 69-113. – [Canton Luzern; *Gomphus pulchellus*, *G. simillimus* and *G. vulgatissimus* on pp. 98, 108].

There are two errors in the review of the history of odonatology in Switzerland, published by B. KIAUTA in Vol. 7, No. 3, pp. 191-222 (September 1, 1978), viz.:

- p. 219: Dr. M.A. LIEFTINCK (Rhenen) has furnished the following additional reference: RIS, F., 1928. *Enallagma desserti* Selys, eine vergessene Libelle. *Ent. Mitt.* 17: 277-282. – [On p. 280 notes on Swiss *E. cyathigerum*].

Consequently, the figure "184", as stated in the Abstract (p. 191, line 7 from the top) and on p. 212 (line 9 from the bottom), should be emended into "187".

- p. 220, SCHIESS, H.: the publication date of this paper is missing; it has appeared in 1973.

The following are the more serious errors that slipped into the text of *ODONATOLOGICAL ABSTRACTS*:

No. 1090 (PERRET; Vol. 4, No. 4, p. 278): the title is incomplete. It should read: "Untersuchungen über die Bodenfauna des Litorals im eutrophierenden Sempachersee". In the text should also be mentioned that the lake is situated in Canton Luzern (Lucerne). *Gomphus pulchellus*, *G. simillimus* and *G. vulgatissimus* are the only odon. spp. recorded.

No. 1269 (PERRY; Vol. 5, No. 1, p. 92): the correct pagination should read "14-18" and not "14-17", as erroneously stated.

No. 1854 (DREYER & LAUSCH; Vol. 7, No. 1, p. 96): the initial of Dreyer is erroneously stated as "F.", it should read "W."

No. 1937 (WATSON; Vol. 7, No. 2, pp. 113-114): the locality, ANIC type number, and material, as stated on p. 114, are those of Kennedy's *A. pusillissimus* rather than those of *A. parvulus*. The correct data of the latter should read: "Western Australia, Myalup (Beach), swamp (= Lake Josephine), 30-XII-1965, J.A.L. Watson, ANIC Type No. 9862. Allotype ♀, data as for holotype, no ANIC Type No.; other material: 180 ♂, 83 ♀, localities mapped".

No. 2119 (HARZ; Vol. 7, No. 3, p. 302): the correct journal citation should read: "Articulata 1 (7)" and not "7 (1)", as stated.

No. 2120 (HIGGINS; Vol. 7, No. 3, p. 302): the correct zip code is "66044" and not "66045".

The Editors have to apologize for the above errors and are grateful to the readers for drawing their attention to them. It goes without saying that any other corrections and/or additions received from the readers, will be greatly appreciated.