ODONATOLOGICAL ABSTRACTS

1971

(2418) DE CASTRO TEIXEIRA, R.M., 1971. Contribuição para o conhecimento da fauna odonatológica de Rio Grande do Sul. [Contribution to the knowledge of the odonate fauna of the Rio Grande do Sul]. Arqs Mus. nac. 54: 17-24. (Portuguese). — (*Pontificia Univ. Catolica, Pôrto Alegre, RS, Brazil*).

An annotated list is given of 16 zygopteran and 24 anisopteran spp. from the Rio Grande do Sul, Brazil. Some of the taxa listed are identified to the genus only.

(2419) LAI, Y.L., 1971. An introduction to the Odonata of Hong Kong. New Asia College Academic Annual 13 (Sept. 1971): 1-48. (Chinese, with Engl. s.). — (*Biol. Dept., Univ. Sci. Centre, Chinese Univ. Hong Kong, Smatin, Hong Kong*).

The history of odonatology of the crown colony of Hong Kong is traced from 1854 to present. The fullest and most authoritative account of the fauna is that by S. Asahina (1965, Kontyu 33: 493-506). The present paper is based on the previously published data and on extensive collections made by the Department of Biology, New Asia College, Chinese University of Hong Kong, brought together during several yrs in the New Territories, Kowloon and in the Hong Kong Island. In all, 56 spp. are described, among which 22 are new to the Colony. Special attention is being paid to their habits, reproductive behaviour and life histories. A complete list of the 77 spp. hitherto recorded from Hong Kong is also provided. It is mainly based on Dr. Asahina's 1965 account. — (*Abstracter's note*: As is apparent from the photographs accompanying the paper, some spp. have been erroneously identified: Fig. 13: Anax parthenope julius, not "A. guttatus"; — Fig. 16: probably a teneral Gynacantha japonica, stated only as "Gynacantha sp."; — Fig. 17: probably Aeschnophlebia anisoptera, not "Planaeschna sp."; — Fig. 18: Ictinogomphus pertinax, not "I. rapax"; — Fig. 19: Leptogomphus perforatus, not "L. sauteri"; — Fig. 20: Tholymis tillarga, not "Epitheca sp."; — Fig. 21: Zyxomma petiolatum, not "Somatochlora dido"; — Fig. 28: Rhyothemis variegata, not "Hydrobasileus croceus"; — Fig. 35: Orthetrum pruinosum neglectum, not "O. testaceum"; — Fig. 41: probably subadult of Trithemis aurora, not "Sympetrum imitans"; — Fig. 42: probably Brachythemis contaminata, not "Sympetrum striolatum"; — Fig. 56: Mnais mneme, not "M. earnshawi"; — Fig. 66: Prodasineura autumnalis, not "Indoneura delorosa"; — Fig. 71: Agriocnemis femina oryzae, not "A. lacteola"; — and Fig. 76: Ceriagrion latericum ryukyuanum, and not "C. coromandelianum" as stated in the captions. It is certainly unfortunate that the synonyms and/or identifications have not been checked by an experienced taxonomist prior to publication, though the biological notes are certainly among the very few so far published in Chinese, hence they might inspire other Chinese workers to undertake more systematic work in the field of ecology, bionomy and behaviour of the Chinese spp.).

1975

(2420) NANAO, J., 1975. Anax parthenope julius. Color Nature Ser. 10, Kaiseisha, Tokyo. II + 32 pp. (Japanese). — (Publishers' address: *Kaiseisha, 3-5, Sadohara-cho, Ichigaya, Shinjuku-ku, Tokyo, 160, JA*).
A book on the life history and biology of this sp. It is written for children and it is exceptionally richly illustrated with high quality colour photographs. — (*Abstracter's note*: The Japanese title runs "Gin-yamma", meaning a "silver colour aeshnid", i.e. Anax parthenope julius).

1976

(2421) CAILLIÈRE, L., 1976. Problème du repérage des proies chez les insectes carnivores, à la lumière des observations recueillies chez deux larves d'odonates Calopteryx splendens (Zygoptère) et Cordulegaster boltoni (Anisoptère). Colloques int. Cent. natn. Rech. scient. 265: 227-239. (With Engl. s.). — (*Dép. Biol. anim., Univ. C. Bernard, 43 Boul. 11-nov.-1917, F-69 Villeurbanne*).
The techniques and physiology of the prey detection in C. splendens and C. boltoni are analyzed. The habitat, prey spectrum and the predatory behaviour are essentially different in the 2 spp. The mask of C. boltoni can be projected in several directions, while that of C. splendens operates in the sagittal plane only. The prey detection in the former sp. is effected by mechanoreceptors (located on the legs and antennae), while in C. boltoni tactile and visual cues are involved.

(2422) DÉVAI, G., [Ed.], 1976. Research in the chorology and phenology of the dragonfly (Odonata) fauna of Hungary. Kossuth Univ., Debrecen. 203 pp. (Title in Hungarian, Engl. and Germ.; published as Acta biol. debrecina 13, Suppl. 1).
The volume represents a collection of papers listed in *OA* Nos. 2423-2426; the contents table is trilingual, but there is neither a common preface nor any other text connecting the 4 topics dealt with.

(2423) DÉVAI, G., 1976. Az Északkeleti-Alföld szitakötő (Odonata) faunájának elemzése. (Analysis of dragonfly [Odonata] fauna of the North-East-Plain of Hungary). Acta biol. debrecina 13 (Suppl. 1): 93-118. (Hungarian, with Engl. and Germ. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
A faunistic review and an analysis of the faunal composition of selected areas in the northeastern Hungarian Plain are presented, and methods of earlier faunistic surveys are critically discussed.

(2424) DÉVAI, G., 1976. A magyarországi szitakötő (Odonata) fauna chorológiai vizsgálata. (The chorological research of the dragonfly [Odonata] fauna of Hungary). Acta biol. debrecina 13 (Suppl. 1): 119-157. (Hungarian, with Engl. and Germ. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
The Hungarian odon. fauna is classed into the following chorographic groups: Holomediterranean (23.8%), Pontomediterranean (20.6%), Westsiberian (22.2%), Siberian (14.3%), Pontocaspian (9.5%), Atlantomediterranean (4.8%), Adriatomediterranean (1.6%), Mongolian (1.6%) and the Eremial (1.6%) group of faunal elements.

(2425) DÉVAI, G., 1976. A magyarországi szitakötő (Odonata) fauna fenológia vizsgálata. (Phenological study of the Hungarian dragonfly [Odonata] fauna). Acta biol. debrecina 13 (Suppl. 1): 159-203. (Hungarian, with Engl. and Germ. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
On the basis of approx. 7000 data the phenology of the majority of the Hungarian spp. is analysed statistically, and 6 phenological groups are proposed. The available evidence on the time-distribution of the larval stages is still insufficient for a statistical treatment.

(2426) DÉVAI, G., G. BODNÁR & P. BENEDEK, 1976. A szitakötök (Odonata) magyarországi elófordulási adatainak elemzése. (An analysis of the faunistic records of dragonflies [Odonata] in Hungary). Acta biol. debrecina 13 (Suppl. 1): 9-92. (Hungarian, with Engl. and Germ. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
A critical review is given of the Hungarian

faunistic records (approx. 10.000 records in 55 papers, related to 65 spp.), and the distribution of all spp. is mapped (6 x 6 km grid). Their frequency of occurrence and distribution, as well as the shortcomings of the traditional faunistic surveys are discussed.

1977

(2427) CRUCITTI, P. & P. GIOMI, 1977. Primi reperti odonatologici per Laghi di Fusine (Friuli). Boll. Soc. ent. ital. 109 (4/6): 89. (With Engl. s.). — (*Soc. romana Sci. natur., Via Fratelli Maristi 43, I-00137 Roma*).
Coenagrion puella, Aeshna juncea, Anax imperator and Sympetrum flaveolum are listed from a number of small alpine pools in the vicinity of the Lago Superiore di Fusine, Western Julian Alps, Friuli, Italy. It is stated that the Fusine lake represents the first certain locality of A. juncea in the Autonomous Region Friuli-Venezia Giulia. — (*Abstracter's note*: A. juncea has been recorded for the first time from the area by G. Tacconi [1888, Boll. Assoc. agrar. friulana, VI, 5: 10-16] [for further references cf. B. Kiauta, 1969, Atti Mus. civ. Stor. nat. Trieste 26, 4: 177-247], while a large population of this sp. has been described from a close vicinity of the present locality in the papers listed in *OA* Nos. 49 and 1842).

(2428) GALLETTI, P. & C. RAVIZZA, 1977. Note sull'entomofauna acquatica del corso medio-inferiore del Po: Odonata. Rc. Accad. Sci. Lett., Milano (B) 111: 89-100. (With Engl. s.). — (*Via Monte Generoso 2, I-20155 Milano*).
The odon. fauna (larvae and imagines) of the middle-low course of the Po River, northern Italy, was studied during 1973-1976. In all, 20 spp. were recorded. Of some interest are Erythromma viridulum, Gomphus flavipes, Ophiogomphus serpentinus and Orthetrum albistylum. In addition to the usual faunistic data, whenever possible, brief notes on larval habitats, relationships between the bottom structure and the larval populations, adult phenology and the zoogeographic composition of the odon. fauna are also provided.

(2429) HORIE, S., T. MIYAMA & K. SAEKI, 1977. Occurrence of enterococcal species of Insects. J. Food Hygienic Soc. Jap. 18 (4): 382-386. (Japanese, with Engl. s.). — (*Tokyo Univ. of Fisheries, 5-7, Konan 4-chome, Minato-ku, Tokyo, JA*).
From 37 of 89 insect samples collected in Tokyo, Japan, and neighbouring areas between July and Dec. 1974, enterococci were obtained by use of the azide esculin agar plate method in numbers of 10^3-10^8/g insect. The 37 samples included 11 spp. of Lepidoptera, 7 of Orthoptera, 8 of Coleoptera and 3 of Odon. 79 strains of enterococci so isolated were studied by means of the following tests: fermentation of mannitol, sorbitol, arabinose, glycerol, melezitose and melibiose, liquefaction of gelatine, nutritional requirement of folic acid, reduction of triphenyltetrazolium chloride, and growth in 0.04% potassium tellurite. 51 strains from 30 insects were identified as Streptococcus faecalis var. liquefaciens, 15 from 10 insects as S. faecalis and 13 from 8 insects as S. faecium. The majority of isolates of S. faecalis liquefaciens and S. faecalis agreed exactly in their biochemical test pattern with the typical organisms of human origin. By contrast, all the isolates of S. faecium deviated in one or more biochemical properties from typical S. faecium.

(2430) MALZ, H. & H. SCHRÖDER, 1977. Fossile Libellen - biologisch betrachtet. Osnabrücker naturw.Mitt. 5: 33-59. — (*Forschungsinst. Senckenberg, Senckenberganlage 25, D-6000 Frankfurt 1, GFR*).
From the Jurassic limestone of Solnhofen, GFR, at least 24 spp. of mesozoic odon. have been described. It is argued that the high number of fossil spp. reflects the diversified ecological conditions of a Jurassic tropical swamp. 11 photographs and 1 drawing of 8 fossil spp. are reproduced here. Referring to these, some morphological features by which taxonomic classification and sex identification of fossil Odon. is rendered possible (e.g. anal appendices and genital structures; wing venation pattern and pleating; size and shape of wings, head and eyes; shape of abdomen) are described in their biological function in recent Odon. The exceptionally good

preservation of the wing venation pattern in most fossil specimens is due to the precipitation of iron oxide along the capillaries left in the hardened sediment by the vanishing chitinous material. (For a detailed account on the geology and paleontology of Solnhofen see the publication listed in *OA* No. 2206). (*Abstracter's note*: In dragonflies the expansion of wings after emergence is managed by hemolymph pressure and not by pressing air into the nerves, as stated in the text).

(2431) SATO, Y., 1977. [Life history of Sympetrum frequens]. Akane Tokyo. VI + 54 pp. (Japanese). — (Publishers' address: *Akane Publishing Co., 3-2-1 Nishikanda, Chiyoda-ku, Tokyo, 101, JA*; — Author's address: *3-17-16, Narita-nishi, Suginami-ku, Tokyo, JA*).
This is the second edition of the volume listed in *OA* No. 110). — (*Abstracter's notes*: The Japanese term, "Aka Tombo", applies to any red anisopterans, in the first place to the members of the genus Sympetrum, but also to Crocothemis. It does not apply, however, to the Sympetrum spp. of non-red coloration, such as S. danae or S. gracile. — The sp. name mentioned in our Engl. translation of the title is based on the colour photographs shown in the book rather than on the general term used in the Japanese text. — The Author's name is transliterated occasionally also as "Satoh", and his photograph is provided in the book).

1978

(2432) (Anonymous), 1978. [Natural insect enemies]. Chinese Scientific Publishing House, Peking. III + 300 pp. — Price: PBY 5.35. (Chinese).
This monograph was published by the Institute of Zoology, Academia Sinica, Chekian Agricultural University, and deals with insect parasites and predators of other insects (especially agricultural pests). It includes information on 435 spp. of these natural enemies, arranged by families in the orders Hymenoptera, Coleoptera, Diptera, Hemiptera, Neuroptera, Strepsiptera and Odon. For each order, notes are provided on important features of the morphology and biology, and keys to the families, genera and species are given; notes are provided on each sp. separately, including host insects where known. Indexes are provided to the Chinese and scientific names of the taxa of natural enemies, and in Chinese with scientific equivalents for hosts. An important feature of the volume is the series of nearly 400 coloured illustrations of pests and parasites and selected morphological features.

(2433) ALEKSEEV, V.A., 1978. Sravnitel'naya toksikorezistentnost' vodnyh nasekomyh i paukoobraznyh k fenolu v ontogeneze. (Comparative toxic resistance of water insects and arachnids to phenol in ontogenesis). Gidrobiol. Zh. 14 (6): 92-100. (Russian, with Engl. s.). — (*Inst. Ecol. Toxicology, Ministry of Pulp & Paper Industry, USSR-665914 Baikalsk*).
In all insect taxa examined, incl. Odon., the resistance to phenol is highest during the egg phase. In larval Odon. it decreases with the advancement of growth. Thus Platycnemis pennipes larvae of 4.5 mm length can survive phenol concentrations of up to 50 mg/l, those of 8.1 mm can resist only up to 35 mg/l. Aeshna cyanea larvae of 12.0 mm survive still at 70 mg/l, while 50 mg/l is the lethal dosage for the individuals of 45.0 mm length. For Sympetrum flaveolum the values are: 5.7 mm - 90 mg/l, and 18,5 mm - 30 mg/l.

(2434) ALLBROOK, P. & J.A.L. WATSON, 1978. The status of the Australian aeshnid genera Acanthaeschna Selys and Austroaeschna Selys (Odonata). J. Aust. ent. Soc. 17 (4): 323-327. — (*Dept. Zool., Univ. Tasmania, G.P.O. Box 252 C, Hobart, Tasmania 7001, AU*).
The independence of the genera Acanthaeschna (type- and only known sp. A. victoria Martin) and Austroaeschna (type-sp. A. parvistigma Martin) is established. 11 additional spp. are referred to Austroaeschna, viz. anacantha Till., atrata Martin, flavomaculata Till., forcipata (Till.), hardyi Till., inermis Martin, longissima (Martin), multipunctata (Martin), tasmanica Till., unicornis (Martin) and weiskei (Först.).

(Authors).

(2435) ARMSTRONG, J.S., 1978. Colonisation of New Zealand by Hemicordulia australiae, with notes on its displacement of the indigenous Procordulia grayi (Odonata: Corduliidae). N.Z. Ent. 6 (4): 381-384. — (*Author deceased*).
From records reviewed in this paper it is inferred that the first resident populations of H. australiae in New Zealand became established in the early 1930s on the Rotorua-Taupo Volcanic Plateau and/or in the Auckland area, that this sp. colonised New Zealand by aerial dispersal, and that by 1960 it had colonised the North Island and invaded the South Island. On Lake Taupo, H. australiae has displaced P. grayi; it remains to be seen whether it will do so elsewhere. (Author).

(2436) ASAHINA, S., 1978. A remarkable new damselfly allied to Bayadera (Odonata, Euphaeidae). Proc. Jap. Soc. syst. Zool. 1978 (14): 43-46. — (*Takadanobaba, 4-4-24, Shinjuku-ku, Tokyo, 160, JA*).
Schmidtiphaea schmidi gen. n., sp. n. is described and illustrated (♂ holotype: Huiahu, 3800-5000 ft, Manipur, Assam, India; 1-VII-1960; no other specimens). The genus is dedicated to the late Dr. Erich Schmidt, Bonn, in whose collection the specimen was located, while the specific name is derived from the name of the collector, Dr. Fernand Schmid, Ottawa).

(2437) BOCHAROVA-MESSNER, O.M., 1978. Rel'ef poverhosti kryl'ev nasekomyh. [The relief of the insect wing surface]. Dokl. Akad. Nauk SSSR 241 (6): 1443-1446. (Russian). — (*Inst. Animal evol. Morphol. & Ecol., USSR Acad. Sci., Lenin Ave. 33, USSR-117071 Moscow*).
The relief of the wing surface in 14 orders, incl. Odon., is described, and the functional significance of various wing surface structures is discussed. It is stressed that the systems of (large) longitudinal- and (small) marginal grooves are of particular importance for the improvement of the aerodynamic properties of the wings.

(2438) BOURGAT, R. & S.-D. KULO, 1978. Recherches sur le cycle biologique de Metahaematoloechus exoterorchis (Rees, 1964), trématode pulmonaire de l'amphibien Dicroglossus occipitalis (Günther, 1858) au Togo. Annls Parasit. hum. comp. 53 (2): 195-200. (With Engl. s.). — (*Lab. Zool., Écol. Sci., Univ. Benin, B.P. 1515, Lomé, Togo*).
The sporocysts and xiphidiocercariae of M. exoterorchis develop in the planorbid Segmentorbis kanisaensis (Preston); experiment shows that Gyraulus chudeaui (Germain) and Bulinus forskalii (Ehrenberg) are possible vectors. Cercariae encyst in not further identified larvae of several zygopteran spp. ("Odonates Isoptères"). Adult M. exoterorchis is usually harboured by Dicroglossus occipitalis, but experimentally develops in the frog Conraua derooi Huls.

(2439) BUTORIN, N.V., [Ed.], 1978. Volga i ee zhizn'. [The Volga River and its life]. Nauka, Leningrad, 348 pp. (Russian). — (*Inst. Inland Water Biol., USSR Acad. Sci., USSR-152742 Borok, Nekouz, Yaroslavl*).
The monograph includes a list of 63 odon. spp. recorded from the Volga, along with the biotope data for each sp.

(2440) CAMMAERTS, R., 1978. Mission entomologique du Musée Royal de l'Afrique Centrale aux Monts Uluguru, Tanzanie (L. Berger, N. Leleup et J. Debecker; V-VIII. 1971). 24. Odonata. Revue zool. afr. 92 (1): 11-36. (With Engl. s.). — (*Lab. Biol. Anim. & Cellul., Univ. Libre Bruxelles, 50 av. Roosevelt, B-1050 Bruxelles*).
42 spp. are known from the forested and altitudinal parts of the Uluguru Mts, Tanzania. None of these is endemic to Ulugurus only, but a high specific identity rate exists between the Uluguru Mts., the Usambara Mts. and some neighbouring forests. This group of localities refers to E. Pinhey's East African coastal belt. The relationships of the taxa proper to this region are discussed, according to their systematical and geographical characteristics. 2 very specialised and geographically isolated spp., Coryphagrion grandis and Amanipodagrion gilliesi, pertaining to monotypical megapodagrionid genera, must be

associated with the permanently moist refuges of the Uluguru and Usambara Mts., at least since the formation of the East African Miocene dry peneplain. The rest of the typical taxa is mainly composed of spp. of Guinean forest origin which have reached the coastal belt and differentiated there as a result of the Pleistocene forest movements. (Author).

(2441) CANNINGS, R.A., 1978. The distribution of Tanypteryx hageni (Odonata: Petaluridae) in British Columbia. J. ent. Soc. Brit. Columbia 75: 18-19. — (*Dept. Zool., Univ. Brit. Columb., 2075 Wesbrook Mall, Vancouver, B.C., V6T 1W5, CA*).
In British Columbia, Canada, T. hageni is considered to be rare. A record in 1977 extends its known range almost to 51°N latitude. The record also disputes the belief that the sp. normally is restricted to subalpine habitats; in the northern part of its range it appears to occur autochthonously at sea level.

(2442) CORBET, P.S., 1978. John Scaife Armstrong: 1892-1977. N.Z. Ent. 6 (4): 444-446. — (*Dept. Zool., Univ. Canterbury, Christchurch-1, NZ*).
Obituary for the well-known New Zealand entomologist (born: June 9, 1892, North Allerton, Yorkshire, England; died: Feb. 7, 1977, Taupo, New Zealand; general medical practitioner), incl. a photograph and his entomological bibliography. Most of his papers are dealing with the Odon. of New Zealand. (For another biographic account and for the evaluation of his odonatological work cf. P.S. Corbet, 1977, Odonatologica 4: 293-295).

(2443) COSTA, J.M., 1978. Revisão do gênero Oxyagrion Selys, 1876 (Odonata, Coenagrionidae). Publções avuls. Mus. nac. Rio de J. 1978 (61): 1-213, pls 1-39 excl. (Portug., with Engl. s., without translation of the title). — (*Museu Nacional, Univ. Fed. Rio de Janeiro, Quinta da Boa Vista - ZC 08, BR-20000 Rio de Janeiro - GB, Brazil*).
This is a long-needed revisional study on the genus Oxyagrion, based on the examination of almost all type material, large unpublished collections (private and institutional) and on critical consideration of the existing literature. In all, 15 spp. are dealt with in detail. Among these 4 are described as new, viz. chapadense sp.n. (♂ holotype: Santa Ana da Chapada dos Guimarães, Mato Grosso, Brazil; numerous material from Argentina and Brazil), machadoi sp.n. (♂ holotype: Serra do Cipo, Minas Gerais, Brazil, ♀ allotype and numerous spec. of both sexes from a few localities in Minas Gerais), simile sp.n. (♂ holotype: Brejo de Lapa, Planalto do Itaiaia, Rio de Janeiro, Brazil, ♀ allotype and numerous spec. of both sexes from Espérito Santo, Rio de Janeiro, Paraná, Minas Gerais, São Paulo and Goiás, all Brazil), sulinum sp. n. (♂ holotype: Parque Nacional de Serra da Bocaina, São Paulo, Brazil, ♀ allotype and material of both sexes from Espirito Santo, São Paulo and Rio Grande do Sul, all Brazil). All spp. are figured and keys are provided for adult ♂♂ and ♀♀. The distribution of all taxa dealt with is mapped and the affinities are discussed between the genera Acanthagrion (for a revision cf. *OA* No. 2180) and Oxyagrion.

(2444) DAIGLE, J.J., 1978. A checklist of the Odonata from Orange County, Florida. Fla Ent. 61 (4): 201-204. — (*Orange Co. Pollution Control Dept., 2008 E. Michigan Ave., Orlando, Fla 32806, USA*).
85 spp. are now recorded from Orange Co., Florida, USA, incl. 7 spp. recently collected for the first time, viz. Dromogomphus armatus, Boyeria vinosa, Macromia georgina, Tetragoneuria costalis, Libellula semifasciata, Argia tibialis, and Enallagma civile.

(2445) DEACON, K.J.G., 1978. Seasonality in New Zealand dragonflies. N.Z. Ent. 6 (4): 359-360. — (*Dept. Zool., Univ. Canterbury, Christchurch-1, NZ*).
An outline of the seasonality of 4 New Zealand endemic spp., viz. Xanthocnemis zealandica, Austrolestes colensonis, Procordulia smithii and P. grayi is presented. The expression of seasonality of New Zealand Odon. is quite different from that of Odon. studied elesewhere and is probably the result of the distinctive moderate climate that they experience.

(2446) DEAN, G.J.W., 1978. Insect pests of rice in Laos. PANS 24 (3): 280-289. — (*Ent. Dept., Rothamsted Expl Stn, Harpenden, Hertf., UK*).
The results are presented of a survey (1973-1975) of insects feeding on rice in Laos, and their natural enemies, incl. Odon. Among over 20 potential predators the following odon. spp. are listed: Ceriagrion cerinorubellum, Acisoma panorpoides, Crocothemis servilia, Diplacodes trivialis, Neurothemis sp. (probably tullia feralis), Orthetrum sabina, Rhyothemis sp. (probably variegata) and Trithemis aurora.

(2447) DÉVAI, G., 1978. A Barcsi ösborókás két ritka szitokötőjének (Cordulia aeneaturfosa és Epitheca bimaculata) chorológiai-ökológiai sajátosságai. (The chorological-ecological features of two rare dragonflies, Cordulia aeneaturfosa and Epitheca bimaculata, in the Old Juniper Woodland of Barcs). Dunántúli Dolg. Term. Tud. Sor. 1: 79-92. (Hung., with Engl. and Ger. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
A summary is given of the available biological information on the 2 spp. It is based on literature records and on the author's observations on the Drau (= Drava, Vörőspart) River backwater of the Old Juniper Woodland of Barcs and in the Bodrog River flood-plain nr. Sárospatak-Végardó, Hungary.

(2448) DÉVAI, G. & D.M. KURUCZ, 1978. A Barcsi ösborókás szitakötö (Odonata) faunája. (The dragonfly fauna of the Old Juniper Woodland of Barcs, Odonata). Dunántúli Dolg. Term. Tud. Sor. 1: 65-78. (Hung., with Engl. and Germ. s's.). — (*Weszprény u. 4 I/4, HU-4028 Debrecen*).
36 spp. from Barcs on the Drau, Hungary, are listed and discussed. The figure represents 58% of the known Hungarian odon. fauna. The relative frequency, the chorological features, and the qualitative and quantitative composition of the odon. fauna of 5 biotopes studied are analyzed.

(2449) DUMONT, H.J., 1978. Odonata from Niger with special reference to the Aïr Mountains. Rev. Zool. afr. 92 (2): 303-316). — (*Inst. Zool., Univ. Ghent, Ledeganckstr. 35, B-9000 Ghent*).
Only 10 odon. spp. were known with certainty from the territory of the Republic of Niger. This number is brought up to 28. Upon comparing southern Niger with Chad and Mali, it is suggested that this may represent over half the total number of spp. to be expected. The Aïr highland has an odon. fauna which is quite different from that found in the South of the country. The latter is typically Equatorial, while the Aïr has a number of Ethiopian migrants, but in addition one mediterranean sp. (Ischnura saharensis) and 2 Middle-Eastern spp. (Orthetrum ransonneti, Paragomphus sinaiticus). These migrated down the central mountain axis of the Sahara, probably during the Neolithic pluvial. P. sinaiticus is a little known sp., hence it is described and figured in detail in the paper.

(2450) EVE, H.C., 1978, Aeshna cyanea (Müller) (Odonata: Aeshnidae) in Elgin, Morayshire (VC95). Ent. Rec. J. Var. 90 (12): 340. — (*173 Court Rd., Orpington, Kent, BR6 OPX, UK*).
On Sept. 3, 1978 a colony of A. cyanea (and Lestes sponsa) was observed in Culbin Forest nr. Forres. According to C.O. Hammond (1977, The dragonflies of Great Britain and Ireland, p. 32) this sp. has not previously been recorded north of N. Northumberland, United Kingdom.

(2451) FUDALEWICZ-NIEMCZYK, W., A. PETRYSCZAK, M. ROSCISZEWSKA & M. OLEKSY, 1978. Narządy zmysłowe prymitywnych rzędów owadów. (Sense organs in some more primitive orders of the insects. Przegl. Zool. 22 (2): 123-128. (Polish, with Engl. s:). — (*Inst. Appl. Zool., Acad. Agric., Al. Mieckiewicza 24/28, Krakow, Poland*).
Sense organs, such as hairs, hair plates, pegs, pores, pore canal organs, simple chordotonal organs, subgenual organs, tympanal organ and Johnston's organ, were found on various appendages in Odon., Dictyoptera, Isoptera and Orthoptera. An attempt is made to point out the similarities and

differences between the orders and to identify the homologies between various appendages. (Cf. also *OA* Nos. 2454, 2455).

(2452) HAYASHI, K., H. SUZUKI & S. ASAHINA, 1978. Note on the transoceanic insects captured on East China Sea in 1977. Trop. Med. 20 (3): 131-142. (Japanese, with Engl. s.). — (*Dept. Virol., Inst. Trop. Med., Nagasaki Univ., Nagasaki, JA*).
An account is given of 47 insect spp. captured during June 16 - July 2, 1977, on the East China Sea. The collections include 3 odon. spp., viz. Anax guttatus, Tholymis tillarga and Pantala flavescens, all taken on July 25. (For the 1976 record cf. *OA* No. 2195).

(2453) HORRIDGE, G.A., 1978. The separation of visual axes in apposition compound eyes. Phil. Trans. R. Soc. (B) 285 (1003); 1-59, pls. 1-8 excl. — (*Dept. Neurobiol., Australian Natn. Univ., Canberra, A.C.T. 2600, AU*).
Odon. are dealt with on pp. 27-36, pls. 2-6, and include the following spp.: Ischnura heterosticta, Xanthagrion erythroneurum, Argiolestes griseus, Austrogomphus guerini, Hemigomphus heteroclytus, Orthetrum caledonicum, Hemicordulia tau and Zyxomma obtusum.

(2454) IVANOV, V.P., 1978. Elektronnomikroskopicheskoe issledovanie mehanoreceptornyh voloskov nasekomyh. [Electron microscopic study of the insect mechanosensitive sensilla]. *In*: Yu. S. Balashov, [Ed.], Fine structural peculiarities of terrestrial arthropods, pp. 5-15, 77 (Russ. abstr.), 6 pls. excl., Acad. Sci. USSR, Leningrad (= Proc. Zool. Inst. Acad. Sci. USSR, Vol. 77). (Russian). — (*Inst. Zool., USSR Acad. Sci., Leningrad, USSR*).
The mechanosensitive sensilla of the antennae of larval Coenagrion sp. and Aeshna sp., as well as those of the anal segment of the larval midge Culex pipiens and of the antennae of the honey bee were examined, and the structural differences of these organs in the different organisms are pointed out (Cf. also *OA* No. 2451).

(2455) IVANOV, V.P., 1978. Tonkoe stronie dzhonstonova organa lichinok strekoz Aeschna sp. i Coenagrion sp. [Fine structure of Johnston's organ in the larval dragonflies Aeshna sp. and Coenagrion sp.] *In*: Yu. S. Balashov, [Ed.], Fine structure peculiarities of terrestrial arthropods, pp. 16-28, 77 (Russ. abstract), 5 pls excl., Acad. Sci. USSR, Leningrad (= Proc. Zool. Inst. Acad. Sci. USSR, Vol. 77). (Russian). — (*Inst. Zool., USSR Acad. Sci., Leningrad, USSR*).
Johnston's organ in the said dragonflies consists of 6 cells. The morphology of these is described and their possible functions are discussed (Cf. also *OA* No. 2451).

(2456) JONES, J.C., 1978. A note on the use of the terms instar and stage. Ann. ent. Soc. Am. 71 (4): 491-492. — (*Dept. Ent., Univ. Maryland, College Park, Maryland 20742, USA*).
The terms instar and stadium are not synonymous. An instar forms at the moment of apolysis or as soon as the 1st layer of a new cuticle is laid down underneath the old one. This period in the insect's life is always initially concealed. A stadium begins at the moment of ecdysis, when the instar emerges from either an egg shell, an old larval cuticle, or a pupal case. It is the period of an arthropod's life between ecdyses. If one knows when apolysis occurred, one can use the term instar specifically to indicate this fact. When the moment of apolysis is unknown, it is better to use the word stage. This simple distinction allows one to avoid an elaborated and clumsy terminology.

(2457) JURZITZA, G., 1978. Die Libellen (Odonata) des Russheimer Altrheines. Natur- u. Landschaftsschutzgeb. Bad.-Württ. 10: 399-405. — (*Bot. Inst., Univ. Karlsruhe, Kaiserstr. 12, D-7500 Karlsruhe, GFR*).
A list is presented of 24 spp. from the Russheimer Altrhein, Upper Rhine, German Federal Republic, among which Epitheca bimaculata is of particular interest. It is stated that at least 10 more spp. are regularly breeding in the area.

(2458) KOBAYASHI, T., Y. NOGUCHI, T. HIWADA, K. KANAYAMA & N. MA-

RUOKA, 1978. Studies on the arthropod associations in paddy fields, with particular reference to insecticidal effects on them. III. Effect of insecticide application on the faunistic composition of arthropods in paddy fields. Kontyu 46 (4): 603-623. (Japanese, with Engl. s.). — (Authors' address stated in Japanese only).
In Tokushima Pref., Shikoku, Japan, the effects of insecticide application upon arthropod fauna in rice fields was investigated in 1955 by comparing the faunistic composition obtained by the net-sweeping surveys among several areas that were applied with BHC and parathion from 1951 to 1955. As an index of the intensity of insecticide application (IIA), the percentage of the cumulative acreage of sprayed area to the total acreage of rice fields was employed. Different intensity of insecticide application was reflected on the diversity of the faunistic composition which was expressed as the relative number of individuals belonging to different taxa or of phytophagous and carnivous species. Essential points of the results are given below. Significant decreases in the abundance of Orthoptera and Odon. were found in the areas where IIA exceeded about 25 and 50%, respectively. In the areas of which IIA exceeded about 80%, decrease of Aranea and increase of leaf- and planthoppers were significant. Decrease of Hymenoptera was found in the areas where IIA exceeded about 120%. In general, higher composition rate of phytophagous arthropod and lower composition rate of carnivorous arthropods were found in the areas where insecticides were sprayed intensively. (Authors).

(2459) MATSUKI, K., 1978. Taxonomy of the larval stage of Gomphidae (Odonata) in Taiwan. M.Sc. thesis, 96 pp. Natn. Taiwan Univ., Taipei. (Chinese, with Engl. s.). — (*3-75-17 Nakana-dori, Tsurumi-ku, Yokohama, JA*).
The Gomphidae known to occur in Taiwan (Republic of China) are referable to 21 spp. and 3 sspp. of 13 genera and 3 subfamilies. The larval stages of all but 2 taxa are described and illustrated along with considerations on their comparative morphology. A Chinese vernacular name is also provided for each sp.

(2460) OSTEN-SACKEN, C.R., 1978. Record of my life-work in entomology. With an appreciation and Introductory Preface by K.G.V. SMITH. X + 242 pp., portrait, 3 pls. excl. Classey, Oxon. — (*Author deceased*).
This is the autobiography of the famous dipterologist, Carl Robert Romanovich Baron von der Osten Sacken (1828-1906). On pp. 2 and 206, annotations are given on his well-known paper, 1857 (reprints dated 1858), Ocherk' sovremennogo sostoyaniya poznaniy entomologicheskoy fauny okr. S.-Peterburga [Review of the present condition of our knowledge of the entomological fauna of the environs of St. Petersburg]., J. Minist. narod. Proswest., St. Petersburg 1857: 1-166; — Russian, and in which, on pp. 147-148, a list of the Odon. of the surroundings of the present-day Leningrad is presented. The paper has been rather carelessly printed after the author's departure for the United States, hence it contains innumerable misprints.

(2461) PELLERIN, P. & J.-G. PILON, 1978. Etude morphologique des larves de Lestes eurinus Say (Odonata: Lestidae), élevées en laboratoire. Can. J. Zool. 56: 2520-2529. (With Engl. s.). — (*Dept. Sci. biol., Univ. Montréal-101, C.P. 6128, Que. H3C 3J7, CA*).
The laboratory reared late instar larvae of L. eurinus were morphologically similar to those in the field. For the first time in this sp. the morphological changes occurring during larval growth are described and illustrated. The applicability of morphological features in the identification of larval instars is briefly discussed.

(2462) SANTOS, N.D. dos, 1978. Descrição de Leptagrion vriesianum sp.n. cenagrionideo bromelícola (Odonata: Coenagrionidae). [Description of Leptagrion vriesianum sp.n., a bromelia-breeding coenagrionide (Odonata: Coenagrionidae)]. Bol. Mus. nac. Rio de Janeiro (N.S., Zool.) 292: 1-6. (Portuguese). — (*Mus. nac., Univ. Fed. Rio*

de Janeiro, Quinta da Boa Vista, Guanabara-ZC-08, Rio de Janeiro, Brazil).
L. vriesianum sp.n. (♂ holotype, ♀ allotype, Parque Nacional da Serra da Bocaina, 1650 m alt., Rio de Janeiro, Brazil) is described and illustrated. Structurally the new sp. is allied to L. andromache, L. capixabae, L. aculeata and L. siqueirai, but can be easily separated from these in 6 characters. It breeds in the bromelias referable to the genus Vriesia.

(2463) SANTOS, N.D. dos, 1978. Contribuição ao conhecimento da fauna do município do Rio de Janeiro, RJ e arredores. 85 — Descrição da ninfa de Micrathyria atra (Martin, 1897) Calvert, 1906 (Odonata: Libellulidae). [Contribution to the knowledge of the fauna of the municipality of Rio de Janeiro, RJ and its vicinity. 85 — Description of the larva of Micrathyria atra (Martin, 1897) Calvert, 1906 (Odonata: Libellulidae)]. Atas Soc. biol. Rio de Janeiro 19: 17-18. (Portuguese). — (*Mus. Nac., Univ. Fed. Rio de Janeiro, Quinta da Boa Vista, Guanabara-ZC-08, Rio de Janeiro, Brazil*).
The larval stage of M. atra is described and illustrated on the basis of extensive material from various localities from a number of Brazilian states and from Peru.

(2464) TOMBO. ACTA ODONATOLOGICA. Published by the Society of Odonatology, Tokyo. Vol. 21, Nos. 1/4 (dated Dec. 31, 1978). — Annual subscription/membership for individual bona fide odonatologists ¥ 2000.— (orders to be sent to the Treasurer, Dr. S. Eda, Dept. Oral Pathol., Matsumoto Dental Coll., 1780 Gobara, Hirooka, Shiojiri, Nagano, 399-07, JA), for libraries and institutions ¥ 4000.— (orders to be sent to the Japan Publication Trading Co., Central P.O.B. 722, Tokyo, JA). — (c/o *Dr. S. Asahina, 4-4-24 Takadanobaba, Shinjuku-ku, Tokyo, 160, JA*).
Eda, S. (for address cf. above): Platycnemis echigoana Asahina in tandem [photograph only] (1); — *Asahina, S.* (for address cf. above): Notes on Chinese Odonata, IX. Kellog collection in the U.S. National Museum of Natural History (2-14); — Enigmas about Sympetrum depressiusculum in the Far East (14); — *Matsuki, K. & J.C. Lien* (3-75-17 Nakana-dori, Tsurumi-ku, Yokohama, JA): Descriptions of the larvae of three families of Zygoptera breeding in the streams of Taiwan (Synlestidae, Euphaeidae & Calopterygidae) (15-26); — *Uéda, T.* (Dept. Zool., Fac. Sci., Kyoto Univ., Sakyo-ku, Kyoto, 606, JA): Geographic variation in the life cycle of Lestes sponsa (27-34); — *Eda, S.*: 1978 Meeting of the Society of Odonatology, Tokyo (Japanese, with a group photograph) (34); — *Arai, Y.* (3-72 Ishiwara, Kumagaya, Saitama Pref., 360, JA): Oviposition of five species of Gomphidae (35-37); — *Tennessen, K.J.* (1949 Hickory Ave., Florence, Alabama 35630, USA): Fourth International Symposium of Odonatology (37-38); — *Yamaguchi, M.* (Kasuga-cho 2-13, Nerima-ku, Tokyo, 176, JA): Six years observation of artificially made hillside pond and the prevalence of its dragonfly fauna (39-42); — *Pilon, J.-G.* (Dép. Sci. biol., Univ. Montreal, C.P. 6128, Montreal, Que. H3C 3J7, CA): Fifth International Symposium of Odonatology, Advance announcement (42); — *Watanabe, K.* (845 A104, Tonoshiro, Ishigaki, Okinawa Pref., 907, JA): Notes on Sympetrum depressiusculum and S. corduleggaster taken in Ishigaki Island, the Ryukyus (43-44); — *Hirukawa, K.* (616, Nishino, Kaida-cho, Kiso-gun, Nagano Pref., 397-03, JA): New localities of Nannophya pygmaea in Nagano Prefecture (45-46); — *Yokoyama, A. & T. Shirashi* (address unknown; contact Dr. S. Asahina): New locality records of Chlorogomphus brunneus costalis in Miyazaki Prefecture (47). — (*Abstracter's note*: All back volumes of this unique and by far the oldest odonatological periodical are still available. Publication in the journal is primarily reserved for the members of the Society of Odonatology, Tokyo).

(2465) TYAGI, B.K., 1978. The chromosome numbers and sex determining mechanisms newly recorded in thirteen Indian dragonflies (Odonata). Chrom. Inf. Serv., Tokyo 1978 (25): 5-7. — (*Dept. Zool., D.A.V. Coll.*,

Dehra Dun-248001, U.P., India).
The germ cell chromosome numbers (in ♂♂, if not stated otherwise) are listed for the following spp. from various localities in the Dehra Dun Valley, India: Platycnemididae: Copera marginipes (n=13), Calicnemia sp. (n=13); Platystictidae: Drepanosticta sp. (n=13); Protoneuridae: Caconeura autumnalis (2n=25, *m*); Coenagrionidae: Rhodischnura nursei (2n=25, n=13, *m*), Agriocnemis pygmaea (n=14, *m*), A. clauseni (n=14, *m*); Chlorocyphidae: Rhinocypha biforata beesoni (n=12, *m*), R. trifasciata (n=12, *m*); Gomphidae: Onychogomphus schmidti (2n =22, 23, 24, *m*; n=12, *m*; neo-XY); Aeshnidae: Gynacantha hyalina (n♀=14, *m*); Libellulidae: Sympetrum commixtum (n= 13), Zygonix torrida (n=13, *m*). The specimens were identified by Dr. M.A. Lieftinck, Rhenen, the Netherlands.

(2466) VALTONEN, P., 1978. Cyril O. Hammond: The dragonflies of Great Britain and Ireland. Luonnon Tutkija 82 (4): 107. (Finnish). — (*Rantakuja 1 D 28, SF-36240 Nattari, Finland*).
Book review of the volume listed in *OA* No. 2062.

(2467) VAN TOL, J., 1978. Verspreidingsonderzoek aan Nederlandse ongewervelden, met voorbeelden uit het libellenonderzoek. [Research on the invertebrate distribution in the Netherlands, illustrated on the dragonfly work]. Jaarb. Ned. ent. Ver. 1976-1978: 64-66. (Dutch). — (*Rijksmus. Nat. Hist., Raamsteeg 2, Leiden, NL.*).
A note is given on general trends in invertebrate faunistics in the Netherlands, with special reference to the Dutch participation in the European Invertebrate Survey. In connection with the latter, Dr. D.C. Geijskes has mapped (but not yet published) the odon. material in the Dutch collections. As examples of eurytope and rheophilous odon. spp. the distributional maps of Ischnura elegans and Platycnemis pennipes respectively are presented.

(2468) WATSON, J.A.L. & A.L. DYCE, 1978. The larval habitat of Podopteryx selysi (Odonata: Megapodagrionidae). J. Aus. ent. Soc. 17 (4): 361-362. — (*Div. Ent., CSIRO, Canberra, A.C.T. 2601, AU*).
Larvae of P. selysi (Förster) were collected from water-filled tree holes in rainforest in N. Queensland, Australia, a habitat compatible with recorded observations on adult biology. The larvae resemble those of Argiolestes. A photograph of a ♀ ultimate instar is also provided.

1979

(2469) BELYSHEV, B.F. & A.Yu. KHARITONOV, 1979. Ob atlanticheskom razryve arealov strekoz (Odonata) yuzhnyh chastey Afriki i Ameriki. (On the Atlantic gap in the ranges of dragon-flies Odonata in the south parts of Africa and America). Zool. Zh. 58 (4): 610-611. (Russian, with Engl. s.). — (*Inst. Biol., Siberian Sect. Acad. Sci. USSR, Ul. Frunse 11, USSR-630091 Novosibirsk*).
The taxonomic composition of the odon. faunas of South America and South Africa is analysed, and it is concluded that no direct interrelations between the 2 territories existed even during the Tertiary. It is stated that some insignificant common features between the 2 faunas, if any, are due to southward migrations from the equatorial zone rather than to migrations across the ocean. (For a highly interesting paper on the same subject by T.W. Donnelly cf. *OA* No. 1798).

(2470) CORBET, P.S., 1979. Odonata. *In*: H.V. Danks, [Ed.], Canada and its insect fauna. Mem. ent. Soc. Can. 108: 308-311. — (*Dept. Zool., Univ. Canterbury, Christchurch-1, NZ*).
The objective of this monograph is to provide a basic reference point for future systematic and faunistic work on Canadian insects, augmenting the valuable early synthesis of Munroe (1956, Can. Ent. 88: 372-476). — It is unlikely that the number of the Canadian odon. spp. not yet described as adults much exceeds 1% of the 194 known. Existing keys to adults allow the non-specialist to identify to sp. ♂♂ of virtually all

spp., and ♀♀ of about 75%. Keys for larvae are less incisive; larvae of 15 Canadian spp. are still unknown. Efforts should be made to fill gaps is geographical distribution, and to improve the reliability of the methods for identifying ♀ adults and larvae. — (*Abstracter's note*: The type locality of Epiophlebia laidlawi, described and named first on the basis of the larval material, is Darjeeling, hence India should be added to the range of the Anisozygoptera as stated in the introductory paragraphs).

(2471) ETTINGER, W.S., 1979. A collapsible insect emergence trap for use in shallow standing water. Ent. News 90 (2): 114-117. — (*824 Spruce Str., Pottstown, Pa 19464, USA*).
A trap to collect emerging insects in shallow (< 15 cm) stagnant water is described and illustrated. Trap construction is nitex netting over an aluminium framework. The trap encloses a defined substrate surface area of 0.1 m^2 and captures all aquatic insects emerging within that area. When retrieved the trap can be collapsed to retain all insects. One trap collected 1464 specimens of 30 spp. of Diptera, Ephemeroptera and Odon. during 375 days of operation (May-Oct. 1975, March-Oct. 1976). It was blown over by wind only once during the period. (Cf. also *OA* No. 2481).

(2472) GEPP, J., 1979. Erhaltung bedrohter Tierarten durch Biotopschutz. Die Bedeutung des Biotopschutzes, dargestellt an Beispielen des Steirischen Alpen-Ostrandes. Jb. Ver. Schutz Bergwelt 44: 191-222. — (*Heinrichstr. 5, A-8010 Graz*).
The problems of biotope conservation management in Austria are briefly discussed. Several localities of faunistic or floristic importance are surveyed, two of which are noteworthy for their dragonfly fauna. (Cf. *OA* Nos. 2014, 2317).

(2473) GRACILE. (Newsletter of Odonatology). Published by the Kansai Research Group of Odonatology, Osaka, No. 24 (Febr. 1979). Japanese). — (c/o *K. Tani, 129 Jizocho, Nara, 630, JA*).
Inoue, K. (5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA): Review of Japanese dragonflies, pt. 6 (conclusive). Families Coenagrionidae, Platycnemididae, Lestidae and Megapodagrionidae (1-20); — *Muraki, A.* (2-51, Ohmiya-nishi-cho, Asahi-ku, Osaka, 535, JA): Ecology and habitats of Aeshna mixta in the Magano Prefecture (21-25); — *Arai, Y.* (3-73, Ishiwara, Kumagaya, Saitama Pref., JA): Dragonflies visiting a temporary rainpool (26-27); — *Hiura, I.* (Osaka Mus. Nat. Hist., Nagai Park, Higashinagai-cho, Higashisumiyashi-ku, Osaka, 546, JA): Report on the distribution survey of the Mnais species in Yoshino-gun, Nara Prefecture (28-30); — *Shimura, S.* (8-25, Nishikura-cho, Ashiya, Hyogo Pref., 659, JA): Mnais survey in the Mt. Koya test field, I, II (31, 31-33); — *Tani, K., N. Doi* (6-7, Sanjo-soekawa-cho, Nara, 630, JA) & *O. Tominaga*: Report on a survey trip to Higashiyoshino-mura (Ohmata and Takami Rivers) and Kawakumi-mura (Yoshino River), Nara Prefecture (33-34); — *Hirake, T.* (2-4-11, Johnan, Ikeda, 563, JA): My [dragonfly] observations in 1978 (36); — *Inoue, K.*: Mr. Y. Tarui in memoriam (37-38, with a photograph).

(2474) GRUNIN, K.J. & C.L. KRYZHANOVSKIJ, 1979. Panyati Borisa Borisovicha Rodendorfa (1904-1977). (In memory of B.B. Rohdendorf [1904-1977]. Ent. Obozr. 58 (1): 221-227. (Russian, with Engl. translation of the title). — (*Authors' addresses unknown*).
Brief biography and appreciation of work of Prof. B.B. Rodendorf (born: Jul. 12, 1904, Petrograd; deceased: Nov. 21, 1977, Leningrad) are followed by his bibliography (174 titles, 1923-1979). He was the leading paleoentomologist of the USSR. As taxonomist he was particularly interested in Diptera, but many of his general works on insect paleontology and on various evolutionary aspects are of considerable importance for odonatology as well. A portrait is also provided.

(2475) HÄMÄLÄINEN, M., 1979. Jurzitza, Gerhard, 1978: Unsere Libellen. No. ent. 59 (2):

67. (Finnish). — (*Dept. Agric. - & Forest Zool., Univ. Helsinki, SF-00710 Helsinki-71, Finland*).
Book review of the volume listed in *OA* No. 2121.

(2476) HUTTUNEN, E., 1979. Kuusamon pitäjän sudenkorennoista (Odonata). [The dragonflies of Kuusamo, NE Finland (Odonata)]. Notul. ent. 59 (1): 11-13. (Finnish, with Engl. and Swed. s's.). — (*Dept. Anat., Kuopion korkeakoulu, P.O.B. 138, SF-70101 Kuopio-10, Finland*).
From the Kuusamo biogeographical province, Finland, 20 spp. are recorded, among these Coenagrion armatum and Pyrrhosoma nymphula are new to the province.

(2477) KEEN, D.H.R., 1979. A late Southern Aeshna. Bull. amat. ent. Soc. 38 (322): 12. — (*Corbiere, 3 Woodbourne, Farnham, Surrey, UK*).
A brief comment on the note listed in *OA* No. 2231.

(2478) KENNEDY, J.H. & H.B. WHITE, III, 1979. Description of the nymph of Ophiogomphus howei (Odonata: Gomphidae). Proc. ent. Soc. Wash. 81 (1): 64-69. — (*Dept. Biol., Virginia Polytechn. Inst. & St. Univ., Blacksburg, Va 24061, USA*).
The larval stage of O. howei is described and illustrated for the first time. It is dinstiguished from other members of the genus by its small size (19.0-22.5 mm in length), the absence of dorsal hooks and the vestigial nature or absence of lateral spines on abdominal segment 7. The geographical range of O. howei is extended from the Susquehanna River in Pennsylvania to the New River in Virginia and North Carolina, USA, where it is a significant component of the benthic fauna. The larval habitat, species associations, food preference and emergence patterns are reported along with some observations of adult behaviour. (Authors).

(2479) KLEMM, N., 1979. Biogenic monoamines in the stomatogastric nervous system of members of several insect orders. Entomologia gen. 5 (2): 113-121. — (*Dept. neurobiol., Harvard Med. Sch., Boston, Mass., USA*).
The distribution of biogenic monoamines in the stomatogastric nervous system of insects of different orders was investigated by means of aldehyde-induced histofluorescence. The distribution of biogenic monoamines varies in different insect species. The stomatogastric nervous system of all insects studied contain biogenic monoamines. Fluorescent perikarya are restricted to the frontal ganglion. The fluorescent perikarya in the frontal ganglion of Lepisma contain a primary catecholamine, whereas fluorescent cell bodies in all other insects are found to contain an indolylalkylamine. The neuropil of the stomatogastric nervous system contain both indolylkylamine- and catecholamine fibres. In Acheta the catecholamine-containing neuropil is spatially separated from indolylalkylamine-containing fibres. Catecholamine fibres connect the stomatogastric nervous system to the central nervous system. Monoaminergic innervations of visceral muscles of the foregut are found in Aeshna and Acheta. (Author).

(2480) KOCH, S., 1979. Libellenfunde in Algerien und Tunesien (Odonata). Ent. Z., Stuttgart 89 (7): 77-80. (With Engl. s.). — (*Kirchenstr. 85, D-8000 München-80, GFR*).
An annotated list is given of 8 spp. taken during March-April, 1978 in Algeria and Tunesia.

(2481) LeSAGE, L. & A.D. HARRISON, 1979. Improved traps and techniques for the study of emerging aquatic insects. Ent. News 90 (2): 65-78. — (*Dept. Biol., Univ. Waterloo, Waterloo, Ontario, N2L 3G1, GA*).
A description is given of floating pyramidal emergence traps which can be used in running and stagnant water in semi-aquatic habitats. The construction, dimensions and the methods of setting the traps are described in detail and special problems, such as the frequency of emptying, water condensation, predators, and the criteria for the choice of models are discussed. The traps can be used for qualitative and quantitative studies, i.e. daily and seasonal emergence patterns, life

tables and the effects of peculiar ecological factors. (Cf. also *OA* No. 2471).

(2482) MAY, M.L., 1979. Insect thermoregulation. Ann. Rev. Ent. 24: 313-349. — (*Dept. Physiol. & Biophysics, Univ. Illinois, Urbana, Ill. 61301, USA*).
A review of the subject, with numerous and extensive references to the Odon.

(2483) NANDCHAHAL, N. & V.S. RATHORE, 1979. The stomodaeal nervous system of Pantala flavescens (Fabricius) Odonata. J. nat. Hist., London 13: 129-134. — (*Dept. Zool., Regional Coll. Educ., Ajmer, India*).
The frontal ganglion is conspicuously small, triangular and is connected to the brain by the frontal ganglion connective and the nervus connectivus. The hypocerebral ganglion is small, slightly elongated completely hidden by the dorsally situated corpora cardiaca, and connected with the latter by a pair of nervi cardiostomatogastrici. The gastric nerve runs on the dorsal surface of the oesophagus to the crop where it terminates into a single, small ingluvial ganglion. The corpora cardiaca are free anteriorly, fused posteriorly and connected with the brain by a pair of nervi corporis cardiaci. The corpora allata are conspicuously large, opaque and situated posterior to the brain and suboesophageal ganglion. They are connected with the brain and suboesophageal ganglion by the nervi corporis allati I and II. (Authors).

(2484) NOTULAE ODONATOLOGICAE. Semi-annual Bulletin of the International Odonatological Society. Published by the Societas Internationalis Odonatologica (S.I.O.), Utrecht. Vol. 1, No. 3 (June 1, 1979). — Annual subscription: Hfl. 20.— net. — (c/o *Dr. B. Kiauta, Dept. Anim. Cytogen. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL*).
De Marmels, J. (c/o Contreras, Av. Guaicaipuro, Res. El Mirador, 2 Piso, Apto 22, El Margues, Caracas, Venezuela): Liste der in der Schweiz bisher nachgewiesenen Odonaten (37-40); — *Grossniklaus, H.-P.* (Höhenweg 6, CH-3700 Spiez): Über die Ausstellung "Einheimische Libellen und deren Entwicklung vom Ei zum Ei" durch Otto R. Strub und Irene I. Siegenthaler (40-42); — *Musiał, J.* (Abt. Allg. Zool., Inst. Biol., Univ. Poznań, Ul. Fredry 10, PO-61-701 Poznań): Somatochlora arctica (Zetterstedt) in Nordwestpolen (Anisoptera: Corduliidae) (42-44); — *Williams, C.E.* (704 Foster Str., Marlin, Texas 76661, USA): Observations on the behavior of the nymph of Neurocordulia xanthosoma (Williamson) under laboratory conditions (Anisoptera: Corduliidae) (44-46); — *Belle, J.* (Onder de Beumkes 35, 6883 HC Velp, NL): Ischnura graellsi Rambur on wings in southern Spain in March (Zygoptera: Coenagrionidae) (46); — *Boon von Ochssée, G.A.* (Via Annibale de Gaspare 39, Interno II, Roma, Italy): Dragonflies in the diet of the teleostean fish in the Comoe River, Upper Volta, West Africa (46-47); — *Gloyd, L.K.* (Mus. Zool., Univ. Michigan, Ann Arbor, Mich. 48109, USA): An additional note on the name Negomphoides Muttkowski, 1910 (Anisoptera: Gomphidae) (47); — *Kiauta, B.* (Dept. Anim. Cytogen. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL): The karyotype of Ischnura pumilio (Charp.) (Zygoptera: Coenagrionidae) (47-48); — *Schoorl, P. & M. Verdonk* (Lod. Boisotstr. 20^{1}, Amsterdam, NL): New records of Erythromma viridulum (Charp.) in the Netherlands (Zygoptera: Coenagrionidae) (48); — *Theischinger, G.* (Biol. Abt. II, Oberoesterr. Landesmus., Museumstr. 14, A-4010 Linz): Cordulegaster boltoni trinacriae Waterston, 1976 new to the fauna of the mainland of Italy (Anisoptera: Cordulegasteridae) (48-49); — *Williams, C.E.* (cf. address above): An apparent size difference between northern United States and Texas specimens of Macromia pacifica Hag. (Anisoptera: Macromiidae) (49-50); — Gomphaeschna furcillata (Say), a new state record for Texas (Anisoptera: Aeshnidae) (50); — *Parr, M.J.* (Dept. Biol., Univ. Salford, M5 4WT, UK): Book review. Provisional atlas of the insects of the British Isles, Part 7: Odonata Dragonflies, by J. Heath (50-51); — *Schiess, H.* (Brüglenstr. 1,

CH-8344 Adetswil): Book Review. Étude faunistique des Odonates de Suisse romande, by C. Dufour [Engl.] (51-52).

(2485) NOVAK, B., 1979. Zum 80. Geburtstag von Professor RNDr. Vladimír Teyrovský. Acta ent. bohemoslov. 76 (3): 207. — (*Lehrstuhl Zool. & Anthropol., Naturwiss. Fak., Palacký Univ., Olomouc, CZ*).
A biographic note on Dr. V. Teyrovský, the leading Czechoslovakian odonatologist. For other notes and portraits cf. *OA* No. 813 and Odonatologica [1978]: 187-190.

(2486) OAKLEY, E.H.N., 1979. Odonata north of Cardiff and in north-east Essex, 1978. Ent. mo. Mag. 113 (1360-1363) [Sept.-Dec. 1977]: 249. — (*28 Heol Don, Whitchurch, Cardiff, CF4 2AU, UK*).
A list is given of the Odon. collected at various localities in NE Essex, United Kingdom. The Thorpe Hall (Thorpe-le-Soken) represents one of the few remaining unpolluted footholds of Platycnemis pennipes in eastern England.

(2487) PINHEY, E., 1979. A preliminary survey of insect mimicry and aposematism in Africa, Jl. S. Afr. biol. Soc. 18 [1977]: 23-41. — (*Natn. Mus., P.O.B. 240, Bulawayo, Rhodesia*).
A selection is given from 9 orders of aposematic insects, incl. those with evident mimetic association. On p. 27 the Odon. are dealt with. — [Verbatim text]: Males of many have vivid red abdomens or partially orange wings but in some it is more or less a generic characteristic, Ceriagrion, Crocothemis, Sympetrum, in others specific, in Trithemis, Hadrothemis, Urothemis and Anax. In general it only appears to be a group or sex recognition colour, not a warning. There are few records of avian predation on adults, mainly on emerging tenerals before their mature body colours have developed, although orange wing tints develop early. Like other insects dragonflies have been sampled as human food. No report on the avoidance of red ones has been seen, but adult red Sympetrum and other have been used in drugs. It may be added that black-winged species have been considered possible hymenopteran mimics, Rhyothemis fenestrina, which often flutters slowly down in masses from trees in sunny intervals dubiously fits this category and in Palpopleura lucia the pattern is more like the bee flies Litorrhynchus (Bombyliidae).

(2488) PIRANG, I., 1979. Beitrag zur Kenntnis der aquatischen Invertebratenfauna des Sauer- und Liesergebietes. Decheniana 132: 74-86. — (*Dorfstr. 17, D-53 Bonn 1, GFR*).
The results of collecting hydrocolous insects and a few other invertebrate orders at 8 creeks in the Eifel Mountains, GFR, are reported. The only odon. spp. collected are Calopteryx virgo, C. splendens, and Pyrrhosoma nymphula.

(2489) RUDOLPH, R., 1979. Faunistisch-ökologische Untersuchungen an Libellen-Zönosen von sechs Kleingewässern im Münsterland. Abh. Landesmus. Naturk. Münster 41 (1): 3-28 (With Engl. s.). — (*Landesmus. Naturkunde, Himmelreichallee 50, D-44 Münster, GFR*).
The dragonfly cenoses at some small pools near Münster, Westfalia, GFR, were recorded for about 10 yrs. The composition of the cenoses depended on the various ecological conditions, e.g. water chemism and vegetational character, which are described in detail. Referring to old faunistic data, the development of 2 cenoses through about 50 yrs could be described. In both cases, long-term alterations in water chemism and vegetation caused a strong reduction in number of spp. (Author).

(2490) SAGE, B., 1979. A mass emergence of Libellula quadrimaculata L. (Odonata). Ent. mo. Mag. 113 (1360-1363) [Sept.-Dec. 1977]: 247. — (*13 Dugdale Hill Lane, Potters Bar, Herts., EN6 2DP, UK*).
The mass emergence took place on May 26, 1978 at Llyn Ebyr, nr. Trefeglwys, Montgomeryshire, United Kingdom. It is estimated that from an area of 3.5 m² approx. 200 spec. emerged.

(2491) SELYSIA. A Newsletter of Odonatology.

Compiled by M.J. Westfall, Jr. & M.S. Westfall, Dept. Zool., Univ. Florida, Gainesville. Vol. 8, No. 2 (May 1, 1979). — 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 *Prof. M.J. Westfall, Jr., Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA*).

[No articles are signed, but all the texts were prepared by M.J. Westfall and M.S. Westfall, and are based on information received from the readers and other odonatologists]: Fifth International Symposium of Odonatology (1); — British Mapping Scheme Recorders Meeting (1); — S.I.O. members travel (1-2); — Article on the biology of Odonata (2); — Octogenarian celebrates birthday [C. Lunau] (2-3); — A survey of the (British) Channel Islands (3); — A guide to European Odonata proposed (4); — Fifth Colloquium of Dutch and Belgian odonatologists (4); — Swiss Odonata recorded (4); — Several S.I.O. members retire (4); — Promotions (4-5); — Bolsover dragonfly (5); — Photographs of dragonflies on exhibit (5-6); — Possibility of slide exchange among odonatologists (6); — Recent publications (6); — Work on Odonata of Uruguay (6); — Change in editorship of Selysia (7); — Revision of Selysia mailing list (7); — Changes of addresses (7); — Switzerland in 1981? [announcement of the Swiss invitation for the Sixth International Symposium of Odonatology] (7); — For sale: Dragonfly T-shirts [to be ordered, at the price of US $ 5.— plus postage, from Stephen Sickerman, 1101 S.E. 43rd Str., Gainesville, Fla 32601, USA] (7); — Welcome news from Dr. Chao (8); — Obituaries [Edda Gerlind Rudolph, Heinrich Greven, Y. Tarui] (8); — New [S.I.O.] members (8). — Starting with Vol. 9, No. 1 Selysia will appear on March 1 and September 1 and will be mailed automatically to all SIO members along with the corresponding issues of Odonatologica. The news items for publication should reach the Editors in Gainesville by January 1 and July 1 respectively.

(2492) STAVENGA, D.G., G.D. BERNARD, R.L. CHAPPELL & M. WILSON, 1979. Insect pupil mechanisms. III. On the pigment migration in dragonfly ocelli. J. comp. Physiol. (A) 129 (3): 199-205. — (*Biophysical Dept., Univ. Groningen, Groningen, NL*).

The light-dependent pigment migration system of dragonfly ocelli was studied by optical, non-invasive techniques. The median ocellus is comprised of 2 lateral halves, as can be demonstrated in the intact animal since illumination of the receptors in one half of the median ocellus only induces a movement of pigment located in that half. Measurable pigment migration can occur within a few sec., but its speed and extent depend on light intensity. Dispersal of pigment, which occurs upon light adaptation, proceeds faster than retraction, which occurs upon dark adaptation. Action spectra for pigment movement have been determined in Sympetrum and Anax. The spectrum for Sympetrum has a prominent UV peak, moderate blue sensitivity, and very low green sensitivity. A similar profile is obtained in Anax, but only after intense orange adaptation which suppresses the green sensitivity. The results conform to the known spectral sensitivities of libellulid and aeshnid ocellar receptors. It is concluded that the photoreceptors drive pigment movement through an unknown mechanism. The effect of the migration of pigment is the selective reduction of radiant flux on the retina from luminous sources at high elevations relative to the animal's normal flying posture. (Authors).

(2493) TENNESSEN, K.J., 1979. New records of Odonata from Alabama and Tennessee, with significant range extensions for several species. Ent. News 90 (2): 118-120. — (*1949 Hickory Ave., Florence, Alabama 35630, USA*).

To the state list of Alabama are added Calopteryx angustipennis (a map of its known distribution in the eastern USA is also provided), Archilestes grandis, Lestes congener, Neurocordulia yamaskanensis and Gomphus townesi, while N. yamaska-

nensis, Gomphaeschna furcillata and Celithemis verna are new for Tennessee.

(2494) TRAMPER, N.M., 1979. Veedrinkputten als instabiele aquatische oecosystemen. Een onderzoek naar de makrofauna en de daarop van invloed zijnde milieufaktoren van Zeeuwse veedrinkputten. [Cattle watering places as unstable aquatic ecosystems. A study of the macrofauna of the cattle watering places in Zealand and of the environmental factors influencing it.] Stud-Versl. D2-1979, Delta Inst. Hydrobiol. Onderz., Yerseke. IV + 74 pp. (Dutch, with Engl. s., without translation of the title). — (c/o *Delta Inst. Hydrobiol. Res., Yerseke, NL*).
Ischnura elegans is the only odon. sp. breeding more or less regularly in cattle watering places in the Zealand Prov., the Netherlands.

(2495) VALTONEN, P., 1979. Sudenkorento (Odonata) -tiedustelu. Trollsländе (Odonata) uppgifter sökes. [Inquiry on dragonfly records]. Not. ent. 59 (2): 50. (Finnish and Swedish). — (*Rantakuja 1 D 28, SF-36240 Nattari, Finland*).
A request to Finnish odonatologists to submit Finnish distributional records to the Author in order to get them included in the atlas of the odon. distribution in Finland. (Cf. also *OA* No. 2496).

(2496) VALTONEN, P., 1979. Suomen sudenkorentojen ruutukartoituksesta. (Mapping the distribution of Finnish dragon-flies). Luonnon Tutkija 83 (1): 18-19. (Finnish, with Engl. s.). — (*Rantakuja 1 D 28, SF-36240 Nattari, Finland*).
The present advances in the mapping of the Finnish Odon. are briefly described. As examples the distributional maps of Coenagrion hastulatum and Aeshna grandis are presented. Finnish odonatologists are requested to submit their distributional records to the Author in order to get them included in the atlas of the odon. distribution in Finland, scheduled to appear in 1980. (Cf. also *OA* No. 2495).

(2497) VERVOORT, W., 1979. Verslag van de Directeur over het jaar 1977. Rijksmuseum van Natuurlijke Historie te Leiden. [Annual report of the Director, 1977. State Museum of Natural History, Leyden]. Ned. Rijksmus. 99: 215-283. (Dutch). — (*Rijksmus. Nat. Hist., Raamsteeg 2, Leiden, NL*).
The Odon. Dept. is dealt with on pp. 261-262. The staff situation remained the same as mentioned in *OA* No. 1600. The emer. curators, Drs. D.C. Geijskes and M.A. Lieftinck, have been working throughout the period. New material was received from Papua, New Caledonia, Dehra Dun, Assam, Palawan, western Himalaya, Ceylon, Bismarck Archipelago, Saba, Salomon Islands, Fiji, Gabon, Japan, Turkey, the Philippines and Indonesia. (For earlier reports cf. the references in *OA* No. 2241).

(2498) WAAGE, J.K., 1979. Dual function of the damselfly penis: sperm removal and transfer. Science 203 (4383): 916-918. — (*Div. Biol. & Med., Brown Univ., Providence, Rhode Island 02912, USA*).
The male of Calopteryx maculata uses its penis not only to transfer sperm in the female, but also to remove that deposited in the female's sperm storage organs from previous matings. Apparently, no such sperm removal function has previously been attributed to the intromittent organ of any animal. (Author).

(2499) WICHARD, W., 1979. Zur Feinstruktur der abdominalen Tracheenkiemen von Larven der Kleinlibellen-Art Epallage fatime (Odonata: Zygoptera: Euphaeidae). Entomologia gen. 5 (2): 129-134. (With Engl. s.). — (*Heidelbergerstr. 53, D-5300 Bonn-3, GFR*).
The 7 paired abd. app. of the larva of E. fatime (material from Israel) are well supplied with tracheae. Their fine structure is typical of tracheal gills and suggests that they are exclusively respiratory in function. The respiratory epithelium has numerous tracheoles, packed densely beneath the cuticula. They are surrounded by a thin cytoplasmic sheath of tracheoblasts and extracellularly located in deep invaginations of the epithelium. Here the tracheoles run

almost parallel to the longitudinal axis of the filamentous tracheal gills. (Author).

(2500) YOUNG, W.C. & C.W. BAYER, 1979. The dragonfly nymphs (Odonata: Anisoptera) of the Guadelupe River Basin, Texas. Texas J. Sci. 31 (1): 85-98. — (First author: *Aquatic Stn, Swest Texas St. Univ., San Marcos, Texas 78666, USA*; — Second author: *North Central Texas Council of Governments, 360 Place, P.O.C.O.G., Arlington, Texas 76011, USA*).

Extensive collections from 56 lotic and 14 lentic sampling stations in the Guadelupe River Basin of central Texas, USA, yielded larvae of 44 anisopteran spp. Reliable published reports of an additional 17 spp. previously reported for that river basin were located. Utilizing the collections from the current study, along with specimens and descriptions from earlier collections, a key to the larvae of 61 anisopterans known to occur in the Guadelupe River Basin is presented. The larval stage of Dythemis nigrescens Calv., previously published unidentified, is described. (Authors). — (Cf. also *OA* No. 1757).