

ODONATOLOGICAL ABSTRACTS

1972

1977

- (3691) HISADA, M., 1972. Azimuth orientation of the dragonfly (*Sympetrum*). In: S.R. Galler, K. Schmidt-Koenig, G.J. Jacobs & R.E. Belleville, (Eds), *Animal orientation and navigation*, pp. 511-522. U.S. Govt Printing Office, Washington D.C. — (Inst. Zool., Fac. Sci., Hokkaido Univ., Sapporo, JA).

Based on observations of *S. frequens*, *S. darwinianum* and *S. infuscatum*, evidence is presented of directional orientation of the alighting adult dragonfly relative to the azimuth of the Sun, and an indication is given of the contribution of the wind direction to this orientation. Some preliminary experiments to find a possible operative receptor for this orientation are also noted.

1974

- (3692) VOJTKOVÁ, L., 1974. Motolice obojživelníků ČSSR. I. Dospělé motolice. (Die Trematoden der Amphibien in der Tschechoslowakei. I. Erwachsene Trematoden). *Fol. Fac. Sci. nat. Univ. purkyn. brun.* (Biol.) 15 (4): 1-132. (Czech, with Russ. and Germ. s's.). — (Dept Parasitol., Fac. Nat. Sci., Purkyne Univ., Kotlářská 2, Brno, CZ).

A monographic account is given of the Trematoda recorded from the amphibians of Czechoslovakia. The morphology and life cycles are described, and the relevant literature is considered. Various Odon. are the intermediate hosts of a number of taxa.

- (3693) FERRO, D.N., A.D. LOWE, R.G. ORDISH, K.G. SOMERFIELD & J.C. WATT, [Eds], 1977. Standard names for common insects of New Zealand. *Bull. ent. Soc. N.Z.* 4, 42 pp. — (c/o Ent. Soc. New Zealand, Ent. Div., D.S.I.R., Private Bag, Auckland, NZ).

Taxonomic/Engl. and Engl./taxonomic alphabetic indices are produced for close to 800 New Zealand insect, arthropod and other invertebrate spp. or genera. Those Maori names that are more or less specific are also included. In all, 6 odon. spp. are listed; Maori names are available for *Xanthocnemis zealandica* ("*kihitarā*"), *Austrolestes colenisonis* ("*kekewai*"), and for *Uropetala carovei* ("*kapokawai*"). Etymological notes are not given. — (*Abstracter's Note*: For more Maori dragonfly names cf. D. Miller, 1952, *J. Polynes. Soc.* 61: 1-62).

- (3694) HUNN, E.S., 1977. *Tzeltal folk zoology. The classification of discontinuities in nature.* Academic Press, New York — San Francisco — London. XLIV + 368 pp. [ISBN 0-12-361750-2]. — Price: US \$ 57.-. — (Author: Dept Anthropol., Univ. Washington, Seattle, Wash., USA; — Publishers: 111 Fifth Ave., New York, NY 10003, USA; — 24/28 Oval Rd, London NW1, UK).

This is an encyclopedic dictionary of the zoological lexicon used by the Indians of Tenejapa, a municipio in the central highlands of the Mexican state of Chiapas, speaking a dialect of Tzeltal, a language of the Mayan family without written tradition. The Odon.

are dealt with on pp. 95, 251, 254, 285-289, 315. — The larval stage is not recognized as such, the Tenejanepecos being unaware of the facts of odon. metamorphosis. Odon. larvae are classified under the "Water Bug complex" (= "čanul ha") which is partly defined by habitat, and partly by body shape, incl. also the aquatic larvae of Neuroptera and Diptera. None of the included taxa are considered inedible. The following terms are given for odon. larvae: (1) "bac'ul ha" (= "howler monkey of the water") used for Zygoptera. According to informants, these are collected for food. The relation with the howler monkey (bac=monkey) is not clear. (2) "šk'ohowil čan" (= "masked bug") used for Anisoptera. They are collected for food by turning stones at the water's edge. Variants include "šk'ohow čan" and "šk'ohowil čanul ha" ("masked water bug"); the prefix "š-" being optional. The name apparently refers to the shape of the head. — The adult Odon. (= "tuluš", a residual category of "typical" dragonflies) are neither eaten, nor were any medicinal uses recorded. This may explain the relative lack of detailed distinctions recognized. The following terms are listed: (1) attributives applied quite literally in accordance with the size and colour: "č'in tuluš" ("small dragonfly"), "muk'ul tuluš" ("large dragonfly"), "cahal tuluš" ("red dragonfly"), "ihk'al tuluš" ("black dragonfly"), "k'anal tuluš" ("yellow dragonfly"), "muk'ul k'anal tuluš" ("large yellow dragonfly"), "vasal tuluš" ("green-blue dragonfly"), "c'ibal tuluš" ("striped dragonfly"), (2) "meba tuluš" ("orphan dragonfly", most Zygoptera, but not Hetaerina, which is considered as "typical" dragonfly). A specimen generally called "č'in tuluš" (cf. above) (syn.: "k'umil tuluš" = "soft dragonfly") was also placed here by some informants. (3) "nen tuluš" ("mirror dragonfly", applied to Mecistogaster ornata, and referring to the wing-tip pattern, which flashes like a mirror in the sunlight). The synonyms are "hkil te' tuluš" = "wood-carrier dragonfly", and "nahil tuluš" = "long dragonfly", both referring to the long and slender abdomen. (4) "hmah ha" ("water-hitter", referring to the behavioral trait of oviposition by striking the water in flight, peculiar to some Gomphidae

and Libellulidae; agentive affix + mah="hit it", ha'=water. — A "Folk systematic list of the fauna", and a taxonomic/Zeltal zoological vocabulary are also provided.

- (3695) LAHIRI, A.R., 1977. New records of Odonata from Tripura and Arunachal Pradesh. *Proc. zool.Soc.Calcutta* 90 (1/2): 45-49. — (Eastern Regional Stn, Zool.Surv.India, Fruit Garden, Risa Colony, Shillong-793003, Meghalaya, India).
Agriocnemis lanceola, *Ceriatrigon cerinorubellum*, *C. coromandelianum*, *Orthetrum pruinosum neglectum*, *O.s. sabina*, *Potamarcha congener*, *Diplacodes trivialis*, *Neurothemis fulvia*, *N. intermedia atlanta*, and *N. tullia* are reported from the state of Tripura, eastern India. *Calicnemia eximia*, *Rhinocypha cuneata*, *Orthetrum glaucum*, *Trithemis festiva*, and *Tholymis tillarga* are new to the fauna of Arunachal Pradesh. Notes on the morphology of some spp. are given, and the general range of distribution is stated.

1978

- (3696) CLAY, P. & H. CLAY, 1978. *Nature in close-up. The dragonfly*. A. & C. Black, London. II+ 25 pp. (cover excl.). — Price: £ 2.95. — (Authors' address not stated).
 A picture book (all col. photogr.), directed apparently at primary-school children. The titles of the chapters are: "What are dragonflies?" (2-3), "Dragonflies of the past" (4-5), "Mating" (6-7), "Dragonfly nymphs" (8-9), "Preparing to emerge" (10-11), "Emergence" (12-15), "The nymphal case" (16-17), "Different types of dragonfly" (18-20), "Colour change" (21-22), and "Where dragonflies live" (23-25).
- (3697) MOUZE, M., 1978. *Contribution à l'étude du développement post-embryonnaire de l'appareil visuel des odonates anisoptères (insectes)*. Thèse, Docteur ès Sciences Naturelles, Univ. Sci. & Techn. Lille. Vol. I (text): XVI+152 pp. (bibl.incl.), Vol.2 (atlas): 32 pls. — Order No. 421. — (Lab. Biol. Anim., Univ. Sci. & Techn. Lille I, B.P. 36, F-59650 Villeneuve d'Ascq). [Verbatim translation of author's abstract]: A

study was made of the regulation of the growth of various organs constituting a single apparatus. The model chosen was the visual apparatus of the larva of a hemimetabolous insect [*Aeshna cyanea*]. — The compound eye on one hand, the optic lobe on the other, develop according to totally different mechanisms. However, although the regions responsible for their respective growth are incomparable both in nature and in function, a close parallelism exists in the growth of these 2 organs. The determination and the coordination of these 2 modes of development were subjected to experimental studies which led to the following conclusions: (1) The growth of the eye is independent of the optic lobe, due to the continuous transformation of the cephalic epidermis into ommatidia; — (2) The growth of the optic lobe is dependent on the overlying eye, the regulation being exerted through the intermediary of the post-retinian fibres (of ocular origin) controlling the formation and the differentiation of the newly-formed ganglion cells. — The endocrine regulation of the growth of the visual apparatus was studied experimentally by the induction of various perturbations of the hormonal equilibrium. The results obtained show that ecdysone plays but a minor role in the post-embryonic development of the visual apparatus, the latter being mainly controlled by the insect's level of juvenile hormone.

- (3698) NIKOLAEVA, N.V. & V.N. OLSHVANG, 1978. Prosteyshiy biocenometr dlya ucheta vodnyh nasekomyh v melkih vodoemah. [A simple biocenometer for calculating aquatic insects in shallow water bodies]. *Ekologiya* 1978 (5): 93-95. (Russ.). — (Author's postal address not stated).
The apparatus, as used for collecting aquatic insect larvae in the Ob tundra, USSR, is described with special reference to mosquitoes. It is briefly compared to the equipment used for odon.-larvae population studies, as reported in the paper listed in *OA* No. 1068.
- (3699) SARKAR, N.K., 1978. Studies in cephalic gregarines (Protozoa: Sporozoa) from odonate insects in West Bengal. *Proc. 65th*

Ind.Sci.Congr. 3 (Abstracts): 311-312. — (Dept Zool., Rishi Bankim Chandra Coll., Naihati-743165, West Bengal, India).

12 West Bengalese odon. spp. were examined, and gregarine infestation was found in all of them. The sporozoans are referable to 12, probably underscribed spp. of Monosporidae (7) and Actinocephalidae (5). — (For detailed accounts and descriptions of some of these cf. *OA* Nos. 3505, 3648-3652, 3742, 3743).

- (3700) SOLOV'EV, F.P. & V.V. SHIGAEV, 1978. Pitanie nekororyh vidov plastinchatokluyvyh na vesennem prolete v rayone ust'ya reky Kenkeme. [The food of some duck species during the spring flight in the Kenkeme R. estuary]. In: Yu.V.Labutin, [Ed.], *Vodno-bolotnye vidy ptic doliny sredney Leny*, pp. 85-89. Yakut Sect. USSR Acad.Sci., Yakutsk. (Russ.). — (Publishers: Inst.Biol., Yakut Sect. USSR Acad.Sci., Ul.Petrovskogo 36, USSR-677891 Yakutsk).

The stomach contents of 257 specimens, pertaining to 11 duck spp. were examined. Not further identified odon. larvae were found in the following percentages of stomachs: *Anas crecca* (1.7%), *A.penelope* (11.8%), *A.acuta* (2.5%), *A.querquedula* (4.2%), *A.clypeata* (3.7%), *Aythya fuligula* (9.5%), and in *Mergus albellus* (22.5%). No Odon. occurred in *Anas platyrhynchos*, *A.formosa*, *A.falcata*, and in *Bucephala changala*.

1979

- (3701) DYL'KO, N.I., 1979. *Biologicheskii metod borby s gnusom. [Biological control of the blood-sucking flies]*. 88 pp. Urodzhai, Minsk. (Russ.). — (Publishers: "Urodzhai", Parkovaya magistral 11, USSR-220600 Minsk).
Under laboratory conditions, the larvae of *Aedes communis* were consumed by the odon. larvae in the following daily quantities: *Leucorrhinia* spp. (5-28 specimens), *Lestes* spp. (4-20 spec.), and *Coenagrion* spp. (2-6 mosquito specimens).
- (3702) KARPENKO, S.V. & V.V. ZAIKA, 1979. Materialy po ekologii trematody *Plagiorchis elegans* (Rudolphi, 1802) v severnoy Kalunde.

[The ecology of the trematode *Plagiorchis elegans* (Rudolphi, 1802) in northern Kuldanda]. *Trudy biol.Inst.sib.Otd.Akad.Nauk SSSR* 38 (Ekologiya i biologiya gel'mintov Zapadnoy Sibiri): 131-138. (Russ.). — (Biol. Inst., Siberian Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk).

In the northern Kuldanda lakes, USSR, the infestation by *P. elegans* is the highest in *Sympetrum vulgatum* (metacercariae recorded in 46.7% of specimens examined) and in *S. flaveolum* (44.0%). The biology of the helminth-carrying dragonflies was studied. The abundance of larvae in the lakes studied amounts to 40 spec./m³. The principal food of the larval *Sympetrum* are mayfly and harlequin fly (*Chionomus*) larvae.

- (3703) KUKASHEV, D. Sh., 1979. K prirodnoy ochagovosti prostogonimozy v Central'nom Kazakhstane. [On the natural prostogonimosis foci infection in the Central Kazakhstan]. *Tez. Dolk. 10 vsesoyuz. Konf. prir. Ochag. Bolezney*, Alma-Ata ("Nauka"), pp. 194-195. (Russ.). — (Inst. Zool., Kazakh Acad. Sci., Akademgorodok, USSR-480032 Alma-Ata). Almost all odon. spp. common in the Central Kazakhstan, USSR were examined for the presence of *Prosthogonimus cuneatus* and *P. ovatus*. The infection by metacercariae was the highest in adult *Libellula quadrimaculata* (65%), *Anax parthenope* (63%), and *Aeshna mixta* (62%). The intensity of infestation might exceed 100 metacercariae per dragonfly. In the larvae, on the other hand, the degree of infestation was low. It is suggested that the odon. larvae accumulate the metacercariae in the course of ontogenesis, and the maximum of infestation is reached just before to the emergence.

- (3704) NIKOLAEVA, N.V., 1979. O hishchnyh nasekomyh, istreblyayushchih lichinok krovososushchih komarov na Yuzhnom Yamale. (On insects, predators of larvae of blood-sucking mosquitoes on the South Yamal). *Zool. Zh.* 58 (4): 505-508. (Russ., with Engl.s.). — (Inst. Plant & Anim. Ecol., Ural Sci. Cent., USSR Acad. Sci., Ul.-8-Marta 202, USSR-620008 Sverdlovsk).

A qualitative and quantitative analysis of the insect predators of the blood-sucking mosquito larvae was performed during a 3-yr period. The importance of various groups varies per year and depends on the type of habitat. Generally, however, the leading role is played by the larval Chaoboridae and Dytiscidae (Coleopt.). The larvae of *Somatochlora sahlbergi* and *Leucorrhinia rubicunda* occur in deep water only.

- (3705) PUSHKIN, Yu.A., A.E. MOROZOV, E.L. ANTONOVA & T.A. KORTUNOVA, 1979. Gidrofauna vodoema-ohladiatelya Yaivinskoy GRES Permskoy oblasti. [Aquatic fauna of the cooling effluent of the Yaiva Power Station, Perm District]. *Sb. nauch. Trud. perm. Lab. gosud. nauch.-issled. Inst. ozer. rechn. rybn. Khoz., Leningrad* 1979 (2): 61-68. (Russ.). — (St. Res. Inst. Lake & River Fishery, 26 Naberezhnaya Makarova, USSR-1990553 Leningrad).

The larvae of larger Odon. constitute the main food item of young pike and of perch of different ages. In Oct., in perch of 55-74 mm length, the Odon. made up for 20% of food, being second to the Ephem. larvae only (57.5%).

- (3706) SAVAN, B.I., 1979. *Studies on the foraging behaviour of damselfly larvae (Odonata: Zygoptera)*. Ph.D. thesis, Imperial College, University of London. 339 pp. (appendices incl.). — (Author's last known address: 23 Cuthbert Crescent, Toronto, Ontario, M4S 2G9, CA; — University address: Dept Zool. & Appl. Ent., Imperial Coll. Fld Stn, Silwood Park, Sunninghill, Ascot, Berks., UK).

A series of experiments, based on the functional response, was designed to test alternative hypotheses regarding the change in diet breadth of a polyphagous predator, faced with a reduction in prey abundance due to competitive exploitation. Experiments on *Pyrhosoma nymphula* and *Coenagrion puella* feeding on *Aedes aegypti* and *Daphnia magna* revealed irregular and variable functional responses. — Investigations into the effects of the experimental conditions on the predatory behaviour showed that the starvation period

prior to experimentation and the experimental arena size both affected the variance and mean numbers of prey eaten. Damselfly age within the ultimate instar was also shown to significantly influence the number of each prey type eaten. Sit and watch experiments revealed that the functional response parameters themselves may vary with prey density, although such variations need not always result in irregular functional response curves.

— Mixed-prey experiments showed that both predators prefer *A.egypti* to *D.magna*, and neither predator switches. Both damselfly contract their diets in response to a reduction in prey density, although *Pyrrhosoma*'s diet is narrowest when *Coenagrion*'s effect on it is greatest, while the reverse is true for *Pyrrhosoma*'s effect on *Coenagrion*. Mechanisms are suggested which may operate to reduce the intensity of competition between these two predators in the field, and a mathematical model, formalizing one of these hypotheses, is constructed. (Author).

1980

- (3707) DAVIS, J.R. 1980. Species composition and diversity of benthic macroinvertebrates of lower Devil's River, Texas. *SWest Nat.* 25 (3): 379-384. — (Water Quality Assessment Unit, Texas Dept Water Resour., P.O. Box 13087, Capitol Station, Austin, Texas 78711, USA). High macrobenthic diversity, comparable to that observed in other nonimpacted streams of the region, is promoted by excellent water quality, physicochemical stability, the complex substratum and the geographical location of the lower Devil's River. The species assemblage contains elements of the Balconian, Chihuahuan, and Tamaulipan biotic provinces, and includes several taxa not found in nearby streams. Various lower macroinvertebrate groups and 6 insect orders, incl. the Odon., are considered.
- (3708) GODLEY, S.J., 1980. Foraging ecology of the striped swamp snake, *Regina alleni*, in southern Florida. *Ecol.Monogr.* 50 (4): 411-436. — (Dept Biol., Univ.S.Fla, Tampa, Fla 33620, USA).
- The foraging ecology and trophic dynamics of the striped swamp snake were studied (1974-1977) in a south Florida water hyacinth community. The mean standing crop of *R.alleni* was 30.79 kg (1289 individuals)/ha of water hyacinths. This biomass estimate is greater than that known for any snake sp., and appears to be related, i.e., to the high primary productivity of water hyacinths. Snake density was lowest in summer, increased in fall and winter, then decreased in spring. *R.alleni* showed dramatic seasonal and ontogenetic shifts in food habits. Young snakes (120-200 mm snout-vent length) fed primarily on libellulid larvae, but switched to seasonally abundant palaemonid shrimp and astacid crayfish. Between 200-300 mm length, a major dietary shift occurred and crayfish gradually replaced dragonflies and shrimp. This change occurs throughout the range of the sp. and also involves a reorganization of snake feeding behaviour to accommodate prey of different shapes. The ecological and energetic consequences of this dietary shift are interpreted in terms of the divergent life histories and growth patterns of the predator and its prey. In most seasons juvenile snakes consumed more but smaller prey than adults, and the mean percent of snake body mass eaten/day was higher for adults. Because juveniles fed on odon. larvae that were higher in protein but lower in ash content than the decapodes taken by the adults, the energetic intake/gram snake body mass was higher in juveniles. The predatory impact of *R.alleni* may be a significant factor limiting the growth of both the snake and the prey populations. During fall, when measured rates of food intake were highest, adult snakes consumed some 9.6% of the adult crayfish population. Juveniles accounted for removal of about 90.7% of the odon. population in the same time period. When given an unlimited food supply in the laboratory, the daily energetic intake of juveniles was more than 2 times that of maximum field estimates.
- (3709) HALKKA, L., 1980. Accumulation of gene products in the previtellogenic oocytes of the dragonfly *Cordulia aenea*: an ultrastructural and cytochemical study. *Acad.Diss.,Univ.*

- Helsinki. [ISBN 951-99285-2-9]. Helsingin yliopiston monistuspalvelu Pajnatujsaos Helsinki. 127 pp. + 11 pls excl. (With Finnish s.). — (Dept Genet., Univ. Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki-10).
- This is an "abridged" edition of the volume listed in *OA* No. 3385, without the reprints of the earlier published journal papers. — (Copies are available from the Library of the Dept Genet., Univ. Helsinki, P. Rautatiekatu 13, SF-00100 Helsinki-10; refer to the Order No. 528).
- (3710) ISHIDA, S., 1980 [Habitat selection of stagnant-water dragonflies]. *Nature and Insects* 15 (10): 19-22. (Jap.). — (Okinoshima-cho 2-8, Yokkaichi, Mie Pref., 510, JA).
- The specific breeding-habitat preferences of the Japanese stagnicolous spp. are discussed, and it is argued that the following 9 types can be distinguished: (1) spp. breeding in habitats characterized by submerged and/or floating vegetation, (2) emerged vegetation, (3) dense floating vegetation, (4) floating wood, (5) wide open surface, (6) spp. showing no apparent habitat preferences, (7) breeding in water with overhanging branches, (8) in marshes and swamps, and (9) in rice fields and the adjacent ditches.
- (3711) MADSEN, H.B., E.S. NIELSEN & S. ØDUM, 1980. The Danish Scientific Expedition to Patagonia and Tierra del Fuego 1978-1979. *Geogr. Tidsskr.* 80: 1-28. — (Second Author: Zool. Mus., Univ. Copenhagen, Universitetsparken 15, DK-2100 Copenhagen-Ø).
- A survey is presented of various projects carried out during the expedition in the Argentinean and Chilean Andes and the adjacent lowlands (I-XI-1978/15-IV-1979). The entomology report (pp. 9-13), contributed by the Second Author, indicates that 300 odon. specimens were collected, but no further comments are given. — (*Abstracter's Note*: The quotation of the authors' names is that given in the authors' abstract. In the heading of the paper, the authorship is given, without any typographic distinction between the given and surnames, as follows: "Henrik Breuning Madsen, Ebbe Schmidt Nielsen, Søren Ødum". This is inevitably to cause confusion in alphabetization — a rather frequent occurrence in Danish periodicals and/or with Danish authors).
- (3712) MASAKI, S., 1980. Summer diapause. *Ann. Rev. Ent.* 25: 1-25. — (Lab. Ent., Fac. Agric., Hirosaki Univ., Hirosaki, 036, JA).
- The summer diapause is defined as the case of dormancy "which can be distinguished from winter diapause in that it is terminated and followed by the active phase in autumn or winter". The term "aestivation" has frequently been used to designate dormancy occurring in the dry season in the tropics; however, tropical diapause is distinct from summer diapause, and excluded from the scope of this paper. A summary of the distribution of the occurrence of summer diapause in various insect orders and Acari is given in a table; the phenomenon has been demonstrated in a single odon. sp. (adult). With reference to T. Uéda (1978, *Tombo* 21: 27-34), the geographic variation in the incidence of summer diapause in *Lestes sponsa* in Japan is described.
- (3713) NAKAYAMA, S., 1980. [Four dragonfly species from Komatsu and its surroundings, Ishikawa Prefecture]. *Nature and Insects* 15 (14): 10-11. (Jap.). — (13 Matsuto-machi, Komatsu, Ishikawa Pref., 923, JA).
- The spp. listed are *Enallagma deserti* circulum and *Nihonogomphus viridis* (new to the prefectures of Ishikawa and Toyama), and *Sinogomphus flavolimbatus* and *Stylogomphus suzukii* (first record for the "Hokuriku District", i.e. the prefectures of Ishikawa, Toyama and Fukui).
- (3714) OLSHVANG, V.N., 1980. Nasekomye polyarnogo Urala i Priobskoy lesotundry. [The insects of the northern Urals and of the Ob Forest-Tundra]. In: N.N. Danilov, [Ed.], *Fauna i ekologiya nasekomykh Priobskogo Severa*, pp 3-37. Sverdlovsk (Russ.). — (Inst. Plant & Anim. Ecol., Ural Sci. Cent., USSR Acad. Sci., Ul.-8-Marta 202, USSR-620008 Sverdlovsk).
- The present status of the regional subarctic insect fauna is reviewed, and the Odon. are

considered as the most thoroughly investigated order. Based on the papers listed in *OA* Nos 1048, 1532, 12 spp. of the northern Urals are listed, among which *Coenagrion hylas*, *Aeshna squamata*, *A. subarctica*, and *Somatochlora sahlbergi* are the most common. *Sympetrum flaveolum* is recorded here for the first time (July 1979, on the Ob River, 10 km N of the Labytnanga village).

- (3715) PAVLYUK, R.S., 1980. O porazhennosti strekoz v zapadnyh oblastiakh USSR metacerkariyami *Skrjabinoeces similis* (Trematoda, Plagiorchiidae). (On the affection [sic!] of dragon-flies in the western regions of the Ukrainian SSR with *Skrjabinoeces similis* (Trematoda, Plagiorchiidae)). *Vest. Zool., Kiev* 1980 (1): 81-84. (Russ., with Engl. title). — (Dept Invert. Zool., Lvov Univ., 4 Shcherbakov Str., USSR-290005 Lvov).

S. similis is the most abundant and widely spread helminth parasite in the W. Ukrainian Odon. During 1965-1976, 500 larvae and 15385 imagoes, referable to 58 spp., were examined from 160 localities. The metacercariae of this sp. were found in 33 odon. spp., of which 28 were not known previously as hosts. On the average, the infestation in Anisoptera ($15.56 \pm 0.64\%$) is about 3 times higher than in Zygoptera ($5.63 \pm 0.21\%$). It is particularly heavy (22% approx.) in spp. breeding in shallow, warm, weedgrown waters. The highest degree of infestation (up to 117 metacercariae) was found in *Sympetrum sanguineum*, while the rheophilous spp. mostly remain almost unaffected. A tabular review of the examined odon. spp., showing the infestation intensities encountered, is also given.

- (3716) PRITYKINA, L.N., 1980. Novye strekozy iz nizhneyurskiy otlozheniy Sredney Azii. [New dragonflies from the Lower Jurassic deposits of Central Asia]. In: V.G. Dolin, D.V. Panfilov & L.N. Pritykina, *Iskopaemye nasekomye mezozoya*, pp. 119-131 (cumulative references excl.), pls 19-21. Naukova Dumka, Kiev. (Russ.). — (Inst. Palaeontol., USSR Acad.Sci., Profsoyuznaya 113, USSR-117321 Moscow).

8 new genera and 13 new spp., referable to 3 heterophlebioidean families (author's classification, as outlined in the paper listed in *OA* No. 3274), based on ca 30 wings from 3 Lower Jurassic localities in Southern Fergan and Issyk-Kul, are described and illustrated. The material is deposited in the Inst. Palaeontol., USSR Acad.Sci., Moscow. The taxa dealt with are the following: Oreopteridae: *Sogdopteron leve* gen.n., sp.n., *S. legibile* sp.n., *S. elongatum* sp.n., *Amblyopteron breve* gen.n., sp.n., *Pauropteron miserum* gen.n., sp.n., *P. exile* sp.n., *Sogjutella mollis* gen.n., sp.n.; — Archithemistidae: *Cyclothemis sagulica* gen.n., sp.n., *C. sogjutensis* sp.n., *Shurabiola nana* gen.n., sp.n.; — Karatawiidae: *Karatawia shurabica* sp.n., *Adelophebia obsoleta* gen.n., sp.n., and *Gompsophlebia modica* gen.n., sp.n.

- (3717) TILLEY, K., 1980. *Feeding study of the short finn eel, Anguilla australis schmidtii in Pukepuke Lagoon, Manawatu*. B.Sc. (Hons) thesis, Victoria Univ., Wellington. 70 pp. — (c/o Dept Zool., Victoria Univ., Private Bag, Wellington, NZ).

The diet of *A. a. schmidtii* was studied by analysis of 124 stomachs collected over a 5 months period from Pukepuke and the Makara Stream nr. Wellington, New Zealand. The Zygoptera were found in the Pukepuke stomachs only (4). Larvae of *Xanthocnemis zealandica* occurred in 1 stomach, adults only of *Austrolestes colenonis* in 2 stomachs, and in 1 stomach both an adult and a larva of the latter sp. were found. The occurrence of adult *Austrolestes* in the eel diet is surprising, since this sp. oviposits above water level.

1981

- (3718) ANDRIKOVICS, S., 1981. Further data to the daily migration of the larvae of aquatic insects. *Opusc. zool., Budapest* 17/18: 49-55. — (Zoosyst. & Ecol. Inst., Eötvös Loránd Univ., Puskin u. 3, HU-1088 Budapest-VIII). The circadian vertical movement of the larval Ephemeroptera, Odon., Chironomidae and Heteroptera was studied in the pondweed habitats of the Lakes of Fertő and Velence,

Hungary, using the aquatic funnel-trap. The Coenagrionidae revealed considerable vertical migrations during the night and at dawn. The results of observations are also shown in the graphs.

- (3719) ANDRIKOVICS, S., 1981. On the possibilities of a scanning electron microscopic examination of Ephemeroptera, Odonata and Trichoptera larvae. *Opusc.zool., Budapest* 17/18: 191-194. — (Zoosyst. & Ecol.Inst., Eötvös Loránd Univ., Puskin u. 3, HU-1088 Budapest-VIII).
The paper mainly deals with Ephemeroptera. The SEOL 50 A microscope was used in an attempt at the taxonomic and ecological applications of the SAM technique.
- (3720) ANDRUSHAYTIS, G.P. & O.L. KACHALOVA, [Eds], 1981. *Gidrobiologicheskij rezhim malyh rek v usloviyah antropogenogo vozdeystviya. (Hydrobiologic regime of small rivers under conditions of anthropogenic influence)*. Zinatne, Riga. 166 pp., 2 pls. (Russ., with Engl.s.). — (c/o Inst.Biol., Acad. Sci.Latvian SSR, Riga, USSR).
The results of investigations into general relationships of biological self-purification in the Latvian (USSR) rivers of Svetupe (coastal lowlands) and Rauna (inner uplands), both of which are under the impact of human economic activities, are presented. Odon. are dealt with on pp. 117-118. *Calopteryx virgo* and *Gomphus vulgatissimus* are reported from the R.Rauna, while *Platycnemis pennipes*, *Calopteryx splendens*, *C.virgo*, and *Cordulia aenea* occur in the Svetupe.
- (3721) BELLE, J., 1981. *Addition to the list of dragonflies from Alderney*. Stencil issued by the Alderney Society, Alderney, Channel Islands. 1 p. — (Onder de Beumkes 35, 6833 HC Velp, NL).
Anax imperator is added to the list given in *OA* No. 3212, bringing the status of the Alderney (Channel Islands) odon. fauna up to 8 spp. (4 of which are at present autochthonous there).
- (3722) BEUKEBOOM, L., 1981. Libellenstudiekring. [Dragonfly Study Club]. *Anax* 13: 5. (Dutch).
— (Van Sijsenstr. 50 A, 9724 NR Groningen, NL).
The Organizer's technical notes on the operation and current program of the Club, set up in 1976 by the Netherlands Youth Federation of Nature Friends. (Cf. *OA* 1423).
- (3723) BEUKEBOOM, L., 1981. Contactblad van de Ned.libellenonderzoekers. *Anax* 13: 8. (Dutch).
— (Van Sijsenstr. 50 A, 9724 NR Groningen, NL).
A review of the journal issue listed in *OA* No. 3412.
- (3724) CANNINGS, R.A., 1981. The larva of *Sympetrum madidum* (Hagen) (Odonata: Libellulidae). *Pan-Pacif.Ent.* 57 (2): 341-346.
— (Ent.Div., British Columbia Prov.Mus., Victoria, B.C., V8V 1X4, CA).
The ultimate-instar larva, from various localities in British Columbia, Canada, is described, figured, and compared to the larvae of some allied spp.
- (3725) CHAO, H.-f., 1981. *An annotated checklist of insects heretofore recorded from Fujian Province*. Sci. & Technol.Press, Fujian. VIII+658 pp. (Chin., with Engl.s.). — (Author: Lab. Biol. Control, Dept Plant Prot., Fujian Agric.Coll., Fuzhou, Fujian, P.R. China).
This book contains an annotated checklist, alphabetic index, and a complete bibliography of the insect fauna of the Fujian Prov., SE China, covering the period up to 1978 (4742 identified spp., 29 orders), incl. 161 odon. spp. (some identified to the genus only), referable to 17 families, viz. *Calopterygidae* 7, *Philogangidae* 2, *Euphaeidae* 4, *Caliphaeidae* 1, *Chlorocyphidae* 2, *Epallagidae* 2, *Synlestidae* 3, *Megapedagrionidae* 3, *Lestidae* 3, *Protoneuridae* 1, *Platycnemididae* 4, *Coenagrionidae* 13, *Gomphidae* 55, *Aeshnidae* 12, *Cordulegasteridae* 3, *Corduliidae* 6, and *Libellulidae* 40 (pp.21-31). In addition, the regional inventory of the 1979 paper, listed in *OA* No. 2693, is given in the appendix (pp. 595-596).
- (3726) CRAWFORD, C.C., 1981. *Biology of desert invertebrates*. Springer, Berlin-Heidelberg-

New York. XVI+314 pp. — Price: DM 89.—
— (Dept Biol., Univ. New Mexico., Albuquerque,
New Mexico 87131, USA).

The Odon. are mentioned in connection with
the desert temporary waters, pond fauna
succession, and in the section on rapid
maturation. With reference to J.E. Sublette &
M.S. Sublette (1967, *SWest. Nat.* 12: 369-406),
the role of the Odon. play in the faunal succession
in the Playa lakes on the Llano Estacado (New
Mexico, Texas; USA) is stated.

- (3727) CSIBY, M., 1981. A Balaton-flevidék szita-
köyö-faunája (Insecta: Odonata). (Die Libellen-
-Fauna des Balaton-Oberlandes (Insecta:
Odonata)). *Veszprém megyei Múz. Közl.* 16:
69-90. (Hung., with Germ.s.). — (Author
deceased; — for the reprints contact Dr S.
Tóth, Bakonyi Természet-Tudományi Múz.,
Rákóczi tér 1, Postafiók 36, HU-8420 Zirc).
Annotated list and collection data are given of
5571 specimens (44 spp.) from the Balaton
Highlands, Hungary. Among the more
interesting taxa are *Erythromma viridulum*,
Orthetrum anceps, *Crocothemis erythraea* (as
"servilia"), etc. The Hungarian vernacular
names are stated for all spp.

- (3728) DOS SANTOS, N.D., 1981. Odonata. In:
S.H. Hurlbert, G. Rodríguez & N.D. Santos,
[Eds], Aquatic biota of tropical South
America, pt I: Arthropoda, pp. 64-85. San
Diego St. Univ., San Diego, California. (Engl.
& Port.). — (Dep. Ent., Mus. Nac., Univ. Fed.
Rio de Janeiro, Quinta da Boa Vista, BR-
20.970 Rio de Janeiro).

This review paper is supplementing that listed
in *OA* No. 2342. In the introductory para-
graphs general considerations are given on the
Order, with emphasis on morphology and the
regional biogeography. The faunal coloniza-
tion of South America appears to have
consisted of 4 phases (Gondwana, Mesozoic,
early Cenozoic, Pliocene); the Chilean *Neope-
talia*, *Hypopetalia*, *Phyllopetalia* and *Phenes*
raptor representing the oldest faunal elements,
surviving there only due to the isolation
imposed by the Andes. The extant neotropical
fauna is referable to 19 families, represented by
193 genera and 1491 spp. In a tabular, family-

wise review the figures for genera/spp. of
various regions are given as follows: South
America 168/1203, — Brasil 117/609, —
French Guiana 47/88, — Guyana 59/134, —
Surinam 50/116, — Venezuela 102/393, —
Colombia 90/235, — Ecuador 60/171, — Peru
78/293, — Bolivia 46/104, — Paraguay 38/93,
Chile 24/46, — Argentina 58/158, — and
Uruguay 13/21. So far 273 descriptions of
neotropical larvae were published, distributed
over 97 genera; 220 of these are assigned to a
sp. (an annotated review of these is given), 43
only to a genus, 4 to a sp. by supposition, and 7
are poorly described. Consequently, 15% of
neotropical spp. are known from the larval
stage (13 fam.), and a special chapter is devoted
to the general considerations on these. The
bibliographic list contains close to 350
references, incl. over 100 related to the im-
mature stages and life histories. The indices
to the taxonomic literature of the imagoes
(p.67) and larvae (p.69) of tropical South
America will be also useful.

- (3729) GAEDIKE, R., 1981. Bibliographie der
Bestimmungstabellen europäischer Insekten
(1974-1978). *Beitr. Ent., Berlin* 31 (2): 235-304.
(With Engl. and Russ.s's.). — (Abt. Taxonomie
d. Insekten, Inst. Pflanzenschutzf., Schick-
lerstr. 15, DDR-13 Eberswalde-Finow-1,
GDR).

This is an annotated bibliography of publica-
tions containing keys to European insects,
covering the period 1974-1978. For an earlier
bibliography cf. *OA* No. 1621. Among the 827
titles listed, there are only 5 of exclusively
odonatol. contents, viz. those listed in *OA* Nos
473, 653, 1484, 1802, 2062.

- (3730) GONZÁLEZ SORIANO, E., 1981. Oviposi-
tion y comportamiento postcopulario en
algunas especies de zigóteros neotropicales
(Odonata). *Folia ent. mexic.* 48: 40-41. [Ab-
stract]. — (Dept Zool., Inst. Biol., Univ. Nac.
Auton. México, Apartado Postal 70-153,
México-20, D.F., Mexico).

The general evolutionary significance of the
odon. reproductive behaviour is briefly stated.
The abstract is indicative, and the list of spp.
studied is not given.

- (3731) GONZALEZ VELÁZQUEZ, S. & E. GONZÁLEZ SORIANO, 1981. Estudio comparativo de comportamiento reproductivo de una comunidad de libelulas tropicales (Insecta: Odonata). *Folia ent.mexic.* 48: 41-42. [Abstract]. — (Dept Zool.,Inst.Biol.,Univ.Nac. Auton.México, Apartado Postal 70-153, México-20,D.F.,Mexico).
During 1979-1980 systematic observations were carried out on the reproductive behaviour of 18 spp., representing the odon. community of a temporary marsh in the Los Tuxtlas region, Veracruz, Mexico. The abstract is indicative, and no factual information is supplied.
- (3732) HASHIMOTO, Y. & Y. NISHIUCHI, 1981. Establishment of bioassay methods for the evaluation of acute toxicity of pesticides to aquatic organisms. *J.Pestic.Sci. (Nihon Noyakugaku Kaishi)* 6 (2): 257-264. (Jap.,with Engl.s.). — (First Author: Tokai Reg.Fish. Res.Lab.,Ueda,Nagano,386,JA).
Standard method for the evaluation of acute toxicity of pesticides to fish, and a method for the evaluation of acute toxicity of pesticides to daphnids were established to give 48 h median threshold limit (TLM) values for carp and 3 TLM values for *Daphnia pulex* or *Moina macrocopa*. Sensitivity of other aquatic organisms to pesticides was also evaluated. Larvae of *Orthetrum albistylum speciosum* and *Cloeon dipterum* (Ephemeroptera) had lower sensitivity than daphnids.
- (3733) HEINRICH, B., [Ed.], 1981. *Insect thermoregulation*. Wiley, New York-Chichester-Brisbane-Toronto. IX+328 pp.
The following papers include various considerations on the Odon.: *Josephson, R.K.* (Dept Develop. & Cell Biol.,Univ.California, Irvine,Cal.92664,USA): Temperature and the mechanical performance of insect muscle (pp. 19-44); — *Bartholomew, G.A.* (Dept Biol., Univ.California,Los Angeles,Cal.90024,USA): A matter of size: an examination of endothermy in insects and terrestrial vertebrates (pp.45-78); — *Casey, T.M.* (Dept Environ.Physiol.,Cook Coll.,Rutgers Univ., New Brunswick, NJ 08903,USA): Behavioral mechanisms of thermoregulation (pp. 79-114); — *Kammer, A.E.* (Div.Biol.,Kansas St.Univ., Manhattan,Kansas 66506,USA): Physiological mechanisms of thermoregulation (pp. 115-158); — *Heinrich, B.* (Dept Zool.,Univ.Vermont, Burlington,Vermont 05405,USA): Ecological and evolutionary perspectives (pp. 235-302).
- (3734) KEMP, R., 1981. Dragonflies. *Inf.Leafl. Worcesters.Nat.Conserv.Trust* 3: II+34 pp. — Price: £ 0.75 net. — (Author: 33 Bridge Rd,Alveley,Bridgnorth,Shrops.,Engl.,UK; — Publishers: Worcestershire Nature Conservancy Trust, The Lodge,Beacon Lane, Rednal, Birmingham, B45 9XN, UK).
The author is the coordinator of the Odonata Recording Scheme for Worcestershire and Shropshire, UK. This slim volume is a useful tool for the local dragonfly recorders. A general account on the morphology and biology of Odon. is followed by an annotated list of the 21 spp. known to occur in Worcestershire, and by a checklist of British sp. A key to the adults of British spp. is also provided, and notes on the British Odonata Recording Scheme, with emphasis on the Worcestershire and Shropshire requirements, are given on the cover.
- (3735) McDONALD, G. & G.A. BUCHANAN, 1981. The mosquito and predatory insect fauna inhabiting fresh-water ponds, with particular reference to *Culex annulirostris* Skuse (Diptera: Culicidae). *Aust.J.Ecol.* 6 (1): 21-27. — (Mildura Horticult.Res.Stn, Box 460, Irymple, Victoria 3498, AU).
Colonization and abundance of mosquitoes and other insects were studied in man-made ponds at Mildura, Victoria, Australia. As far as the Odon. are concerned, *Ischnura* sp. and *Diplacodes* sp. are the only taxa considered. Species names are not stated.
- (3736) MIELEWCZYK, S., 1981. Uwagi o faunie wazek (Odonata) Ojcowskiego Parku Narodowego. (Remarks on the dragonfly fauna (Odonata) of the Ojców National Park. *Przegl.zool.* 25 (2): 259-263. (Pol.,with Engl.s.). — (Inst.Agric. & Forest Biol.,Polish Acad.Sci., ul.Swierczewskiego 19, PO-60-809 Poznan).
The records (1855-1970) are reviewed, and the

status of the fauna (16 spp.) is discussed. It is likely that due to the recent habitat destruction the calopterygids and the gomphids became extinct in the Park.

- (3737) NOVELO G [UTIERREZ], R. & E. GONZÁLEZ SORIANO, 1981. Territorialidad y sistemas de apareamiento en *Orthemis ferruginea* (Fab.) (Odonata: Libellulidae). *Folia ent.mexic.* 48: 41. [Abstract]. — (Dept Zool., Inst.Biol.,Univ.Nac.Auton.México, Apartado Postal 70-155, México-20,D.F.,Mexico). The indicative text is apparently based on the paper listed in *OA* No. 3444.
- (3738) OGILVIE, R.M., 1981. [Book review]. M.J. Winterbourn & K.L.D. Gregson, 1981, Guide to the aquatic insects of New Zealand. *N.Z.Jl Zool.* 8(4): 565-566. — (Fish.Res.Div.,P.O.B. 297, Wellington, NZ). An exhaustive critical review of the volume, the odon. chapter of which is listed in *OA* No. 3321. Three corrective notes refer to Odon.
- (3739) OLFF, H., 1981. Libellen paringsgedrag. [The pairing behaviour of dragonflies]. *Trias* 1981 (4): 20-23. (Dutch). — (Kievitsweg 29, 8191 BE Wapenveld, NL). A general narrative, with figs, directed at members of the Youth Federation of Nature Friends.
- (3740) PERRY, T.E., 1981. Dragonflies and damselflies (Odonata) of the Grand River system, northeastern Ohio, 1974-1978. *Ohio J. Sci.* 81 (3): 125-131. — (Chagrin River Rd,Gates Mills, Ohio 44040, USA). Collecting stations (53) were established on the Grand River system, incl. tributary streams and watershed. Adults, exuviae and larvae were collected (77 spp.). Populations were measured and plotted as to habitat and time. Selected physical and chemical data were measured, and a base-line was established for further work on the subject. 6 habitat areas of the river proper were identified, which yielded distinct odon. fauna, viz. *Boyeria-Calopteryx-Cordulegaster* (tributary streams), *Calopteryx-Hagenius-Nasiaeschna* (upper river), *Basiaeschna-Didymops-Dromogomphus* (transition area), *Argia-Gomphus-Hetaerina* (middle portion of the river), and *Argia-Enallagma-Libellula* (lower portion near the mouth). Lakes and ponds studied in the watershed contained mainly *Aeshna-Enallagma-Libellula*. (Author).
- (3741) PINHEY, E., 1981. Odonata collected in Ethiopia. III. Anisoptera. *Problemi att.Sci. Cult.* (VI) 252: 5-56, pl.1 excl. (With Itals.). — (Wye View Villa, Cloucester Rd, Tutshill, Chepstow, Gwent NP6 7DH, UK). This is a sequel to the papers listed in *OA* Nos 2349, 2350, presenting all available records for the regional Anisoptera (72 spp.), with detailed information for Ethiopia, incl. Eritrea and the Ogaden. Brief records for Somalia are also mentioned. Gomphidae provide the greatest number of endemics (7 out of the 11 recorded spp.). Comments are made on the absence or paucity of some taxa in Ethiopia, and distinctions are given between some closely related taxa. Corrected dates of publication are applied to Palisot de Beauvois' spp. — *Palpopleura jucunda radiata* ssp.n. is described and figured (♂ holotype: Jimma, Kaffa, alt. 1700 m, 23-X-1973; ♀ allotype: Belletà forest, between Jimma-Shebe, Kaffa, alt.2100 m, 25-X-1973; various paratypes of both sexes, from Kaffa and Sudan).
- (3742) SARKAR, N.K., 1981. On some actinocephalid gregarines (Apicomplexa: Eugregarinida) of odonate insects from West Bengal, India. *Proc.Indian Acad.Sci. (Anim. Sci.)* 90(6): 649-657. — (Dept Zool., Rishi Bankim Chandra Coll., Naihati-743165, India). The morphology and life histories are described of *Mukundaella undulatus* gen.n., sp.n., *Odonaticola elliptica* sp.n., and *O.nonacontha* (Devdhar & Deshpande) comb.nov. from the midguts of resp. *Enallagma* sp., *Crocothemis s.servilia*, and *Urothemis s.signata*.
- (3743) SARKAR, N.K. & D.P. HALDAR, 1981. Observations on a new cephaline gregarine (Protozoa: Sporozoa), *Acanthospora bengalensis* n.sp. from an odonate insect. *Arch. Protistenk.* 124: 378-384. — (Dept Zool., Rishi Bankim Chandra Coll., Naihati-743165, India).

The morphology and life history of *A. bengalensis* sp.n., from *Ceriagrion coromandelianum*, collected at Chinsurah, N of Calcutta, India, are described and illustrated. This is the first record of an *Acanthospora* sp. recovered from a dragonfly. The new sp. is compared with the other members of the genus.

- (3744) TAYLOR, C.P. 1981. Contribution of compound eyes and ocelli in steering of locusts in flight. I. Behavioural analysis. *J.exp.Biol.* 93: 1-18. — (Dept Physiol., Tulane Univ. Sch. Med., 1430 Tulane Ave., New Orleans, LA 70112, USA).

Locusts were tethered inside a simulated horizon visual display. Rotation of the horizon elicited following motions of the animal's head and rudderlike movements during flight. Head and steering motions were still elicited after either the compound eyes or the ocelli were surgically ablated. Head motions after ocellar cautery suggested that the ocelli may function synergistically with the compound eyes to (a) minimize the delay of visual responses and (b) augment visual responses when no sharp horizontal border is present. Flight steering motions were found not to depend on proprioception of head position. *Argia vivida* and *Tametrum illotum* also followed horizon rotations with head motion after their compound eyes had been ablated.

- (3745) TÓTH, S., 1981. A Kornyitó szitakötő-faunájának mennyiségi és minőségi vizsgálata (Insecta: Odonata). (Die quantitative und qualitative Untersuchung der Libellen-Fauna des Kornyitó-Sees [Insecta: Odonata]). *Veszprém megyei Múz. Közl.* 16: 91-100. (Hung., with Germ.s.). — (Bakonyi Természet-Tudományi Múz., Rákóczi tér 1, Postafiók 36, HU-8420 Zirc).

The fauna (35 spp.) of the Kornyitó Lake, Bakony Mts, Hungary is enumerated and analysed. Special reference is made to the species abundance and to zoogeographic composition of the fauna.

- (3746) TWEEDIE, M., 1981. Dragonflies. *Living Countryside, Lond.* 3 (27): 524-526. — Author's address not stated; — Editor: D.

Hall, 7 Cromwell Rd., London SW7 2HR, UK).

A general narrative on the order, with emphasis on the British fauna, directed at the general reader.

- (3747) VERDUGO GARZA, M. & E. GONZÁLEZ SORIANO, 1981. Observaciones sobre el comportamiento reproductivo de *Heteragrion alienum* Calvert (Odonata: Megapodagrionidae). *Folia ent.mexic.* 48: 40. [Abstract]. — (Dept Zool., Inst. Biol., Univ. Nac. Auton. México, Apartado Postal 70-153, México-20, D.F., Mexico).

A statement on the habitat and habits of *H. alienum* in the Los Tuxtlas region, Veracruz, Mexico. As far as the reproductive behaviour is concerned, the sp. is most active between 16.00-18.00 hr.

- (3748) WARINGER, J., 1981. Die Fangmaske der Libellenlarven: Anisoptera (Grosslibellen). *Mikrokosmos* 70 (9): 266-270. — (Wiesfeldgasse 6, A-3130 Herzogenburg).

The structure of the anisopteran larval labium is outlined on the basis of the Austrian fauna. The article is directed at the general reader at the undergraduate level. (For the Zygoptera part cf. OA No. 3802).

- (3749) WEISS, H.B. & G.M. ZIEGLER, 1981. *Thomas Say, early American naturalist*. Thomas, Springfield-Baltimore. XIV+260 pp., 27 pls excl. — (Authors' addresses not stated).

A comprehensive monograph on the life and works of T. Say (1787-1834), one of the earliest describers of the North American Odon.

1982

- (3750) (Anonymous), 1982. Dragonfly watch. *Wildlife, Lond.* 24 (5): 166.

In May, 1982, Watch, the junior section of the Royal Society for Nature Conservation, has started the project "Kingfisher". Herewith an appeal is made to the membership to keep record of dragonflies. The Report Forms and identification assistance are available from "Watch", 22 The Green, Nettleham, Lincoln, UK.

- (3751) (Anonymous), 1982. Odonata society. *Wild-life, Lond.* 24 (5):166.
With reference to a note published in *Habitat* 18 (1); 1982, it is stated that plans are afoot to set up a British Branch of the International Odonatological Society. The initiative is said to come from Dr Peter Mill and Dr M.J. Parr, and it is hoped that the society will produce newsletters, organize meetings and provide better communication between odonatologists for the conservation of dragonflies and wetlands.
- (3752) ÅBRO, A., 1982. The effects of parasitic water mite larvae (*Arrenurus* spp.) on zygopteran imagoes (Odonata). *J.invert. Pathol.* 39 (3): 373-381. — (Inst.Anat.,Univ.Bergen, Årstadveien 19, N-5000 Bergen).
Arrenurus larvae, ectoparasitic on zygopteran imagoes, attach to the host's cuticle and tear it to obtain the host's tissue fluids. Within the host's epidermis, each larval mite produces a feeding device, the stylostome, a narrow gelatinous resilient blind sac. Heavy mite infestation brings about several wounds in close proximity, accompanied by loss of more or less extensive areas of the epidermis. Despite wound repair by congregating hemocytes, local lack of epidermis seems to enfeeble the host, presumably owing to desiccation. Heavily mite-loaded zygopterans have lost the typical agility and are easily caught. A mite-induced mortality seems to exist in zygopteran populations; the infestation contributes to reduced longevity. The study of formation and decline of the arrenurid stylostome in zygopterans renders it possible to trace cellular defence reactions under natural conditions. Most stylostomes seem to thwart the ability of the host to recognize them as foreign bodies. The host's defence appears as a two-step reaction: (1) initial hemolymph clotting and deposition of melanin associated with aggregating hemocytes at the penetration site, (2) occasional subsequent melanization and cellular encapsulation of the stylostome. (Author).
- (3753) ALCOCK, J., 1982. Post-copulatory mate guarding by males of the damselfly *Hetaerina vulnerata* Selys (Odonata: Calopterygidae). *Anim.Behav.* 30: 99-107. — (Dept Zool.,Arizona St.Univ.,Tempe,Ariz. 85287, USA).
Males of *H.vulnerata* remain with their mates after copulation. The sp. exhibits 2 unusual features of post-copulatory mate guarding. First, a male will often leave his territory to accompany a female in tandem on a search for oviposition sites elsewhere. Second, a male will perch near his ovipositing female even though she completely submerges when egg-laying and cannot be captured and mated by another male while she is underwater. These activities carry two potential costs: (1) a male may miss other receptive females while guarding one mate and (2) he may lose his territory to an interloper while he is absent. These costs were low, however, because territorial males secured only one mating per 3.6 days on average. Moreover, 23 times out of 26, territorial males reclaimed their plots quickly after being away for 30-60 min. The gain from postcopulatory guarding came from being present to recapture a female should she fly up from the water after rejecting an oviposition site. There was a 40% chance that a female would leave one site to search for another during an oviposition bout. If the male were not present, his mate would be captured and mated by another individual (no female ever selected an oviposition site without being carried to it by a male). Her new partner would fertilize the remaining eggs in the female's clutch (if sperm precedence occurs in this species). The total number of eggs fertilized by a male will be affected by how well he prevents any one mate from copulating again before she lays her entire clutch and the total number of receptive females he captures. The variation in the degree of mate guarding by male odon. seems to be the evolutionary outcome of differences in fitness gains derived from these two competing activities in different ecological settings. (Author).
- (3754) ANSELIN, A., 1982. De libellen (Odonata) van de Kraenepoel. [Dragonflies (Odonata) of the Kraenepoel]. In: A.Anselin, R.Bosmans & A.Verstraete, De Kraenepoel, een evoluerend stukje Kempen in Vlaanderen, pp. 25-28. Aalterse Werkgroep Leefmilieu & De Wielawaal, Aalter. (Dutch). — Available from:

J.Tavernier, Keltenlaan 8, B-9880 Aalter. — (Lab. Anim. Ecol., Univ. Gent. Ledeganckstr. 35, B-9000 Gent).

The odon. fauna (18 spp.) of the Kraenepoel at Aalter, Flandres, Belgium is listed, discussed and evaluated.

- (3755) ARTHINGTON, A.H. & J.A.L. WATSON, 1982. Dragonflies (Odonata) of coastal-dune fresh waters of south-eastern Queensland and north-eastern New South Wales. *Aust. J. Mar. Freshw. Res.* 33: 77-88. — (First Author: Sch. Austr. Environ. Stud., Griffith Univ., Nathan, Qld 4111, AU; — Second Author: Div. Ent., C.S.I.R.O., P.O. Box 1700, Canberra City, A.C.T. 2601, AU).

The Odon. and physicochemical properties of freshwater streams, lakes, ponds and bogs in the sand-dune systems of Fraser, Moreton and North Stradbroke Islands and Cooloola. Queensland, and Wooli, New South Wales, are described. The odonate faunas of these dune masses show some differences from those of nearby areas, and there are close associations between some species and particular types of dune fresh water. Although no physicochemical characteristics were identified that might limit these dune dragonflies to their specific habitats, the lake-dwellers in particular may be useful indicators of environmental change. (Authors).

- (3756) BAUMBAUER, D., 1982. Libellen: die "fliegenden Edelsteine" sind bedroht. *Die Zeit, Hamburg* 1982 (31): 43. — (Publishers: Zeitverlag Gerd Bucerius KG, Pressehaus, Postfach 10 68 20, D-2000 Hamburg-1, FRG). A weekly's note on the rapid deterioration and destruction of dragonfly habitats, and the subsequent decrease of populations in Camargue (France) and Germany. The article is based on an interview with the well-known German odonatologist Dr H. Itzerott (address: Bückelhaube 7, D-6718 Grünstadt, FRG).

- (3757) BELLE, J., 1982. A review of the genus *Archaeogomphus* Williamson (Odonata, Gomphidae). *Tijdschr. Ent.* 125 (3): 37-56. — (Onder de Beumkes 35, 6883 HC Velp, NL).

The genus is reviewed, and *A. densus* sp.n. is described and illustrated (♂ holotype, ♀ allotype: Santa Catarina, Nova Teutonia, Brazil, 3-1-1941, II-1949 resp.). The female from Misiones, Argentina, referred to *A. infans* by Ris, is conspecific with the new sp. The hitherto unknown male of *A. infans* is described. New distributional records of *Archaeogomphus* spp. are given, and a key to the 5 known spp. is provided. Generic characters, structures of specific value, mating adaptations, immature stages, habitats, behaviour, and distribution are discussed. The manner of grasping of the female by the male during copulation is indicated. An outline of the history of the research on the genus as well as a full bibliography on the subject are also included.

- (3758) CARLE, F.L., 1982. *Ophiogomphus incurvatus*: a new name for *Ophiogomphus carolinus* Hagen (Odonata: Gomphidae). *Ann. ent. Soc. Am.* 75 (3): 335-339. — (Dept Ent., Virginia Polytechn. Inst. & St. Univ., Blacksburg, Va 24061, USA).

O. carolinus Hagen, 1885 is shown to be a synonym of *O. rupinsulensis* Walsh, 1862, and the name *O. incurvatus* is proposed for the sp. heretofore identified as *O. carolinus*. The adults and larvae of *O. i. incurvatus* and of *O. i. alleghaniensis* ssp.n. are described. The type locality of *O. i. incurvatus* is central Virginia, and that of *O. i. alleghaniensis* is eastern West Virginia (♀ holotype, ♀ allotype: Rich Creek, Monroe Co., W. Virginia, USA; June 14, 1980; deposited in Florida St. Coll. Arthropods, Gainesville; — paratypes and additional material from Tennessee, Virginia and Alabama).

- (3759) CLAUSEN, W., 1982. Nachweis der Hochmoor-Mosaikjungfer (*Aeschna subarctica* Wlk.; Odonata) aus dem nördlichen Westfalen. *Natur & Heimat, Münster* 42 (1): 30-31. — (Oppenwehe 459, D-4995 Stemwede-3, FRG).

On the basis of collected exuviae, *A. subarctica* (elizabethae) is shown to be autochthonous at the Stemmer Moor, Lower Saxony, Federal Republic of Germany.

- (3760) CLAUSNITZER, H.-J., 1982. Bundesartenschutzverordnung und Biologieunterricht. *Unterricht Biol.* 6 (67): 39-40. — (Südstr. 6, D-3160 Eschede, FRG).
The unbalanced stipulations and the general policy of the (West German) Federal Species Conservation Act (cf. *OA* No. 3112) are critically commented upon from the points of view of the Secondary-School Biology-Teaching Programs and nature conservancy. As far as the Odon. are concerned, it is emphasized that, in Germany, the larvae of not a single sp. can legally be kept in a laboratory for any length of time, and that even "catch-immediately release" specimens cannot be collected for demonstration [or identification] purposes of any sp., not even at field trips with clearly educational or research objectives. It is stated that the damage caused by this Act in the field of biology education, pure and conservancy research in Germany is far-reaching, an early revision is demanded, and some compromising stipulations are suggested.
- (3761) COFRANCESCO, A.F. & F.G. HOWELL, 1982. Influence of temperature and time of day on ventilatory activities of *Erythemis simplicicollis* Say (Odonata) naiads. *Environ. Entomol.* 11 (2): 313-317. — (First Author: Waterways Exp.Stn, Vicksburg, Ms 39180, USA; — Second Author: Dept Biol., Univ. Southern Mississippi, Hattiesburg, Ms 39401, USA).
Both temperature and time of day influence the occurrences and frequencies of major types of ventilation in *E. simplicicollis* larvae. Between 16-32°C, frequency of normal ventilation is linearly related to the temperature of an individual's ambient environment. Under constant temperature conditions, frequencies of normal ventilation are rhythmic within the diel: highest during photophase and lowest during skotophase. Gulping ventilation occurs more frequently at higher acclimation temperatures. (Authors).
- (3762) COSTA, J.M., 1982. Descrição da fêmea de *Oxyagrion hematinum* Selys, 1876 (Odonata — Coenagrionidae). [Description of the female of *Oxyagrion hematinum* Selys, 1876 (Odonata — Coenagrionidae)]. *Resum. IX Congr. brasil. Zool., Porto Alegre*, p. 173. [Abstract]. (Port.). — (Dept Ent., Mus. Nac., Univ. Fed. Rio de Janeiro, Quinta da Boa Vista, BR-20970 Rio de Janeiro, RJ).
This is the first description of the female, which could not be included in the monograph listed in *OA* No. 2443.
- (3763) DE MARMELS, J., 1982. *Hetaerina crassidens* sp.n., especie gemela de *Hetaerina capitalis* Selys (Odonata: Calopterygidae). [*Hetaerina crassidens* sp.n., a sibling species of *Hetaerina capitalis* Selys (Odonata: Calopterygidae)]. *Resum. VII Congr. venezol. Ent., Maturin*, p. 44 [Abstract]. (Span.). — (Dept. & Inst. Zool. Agric., Fac. Agron., Univ. Central Venezuela, Apdo 4579, Maracay 2101-A, Aragua, Venezuela).
H. capitalis, described from Bogotá, Colombia, occurs from Mexico, through Central America to Aragua in Venezuela. Eastwards from here (San Christóbal, Táchira) it is replaced by *H. crassidens* sp.n. The latter is distinct in the configuration of the male anal appendages, venation, and in the coloration in both sexes. — (*Abstracter's Note*: A description of the new sp. is not given, hence, for the time being, the name is a nomen nudum).
- (3764) DE MESQUITA, H.G., 1982. Variação dos caracteres labiais em *Leptagrion andromache* Selys, 1876 (Odonata-Coenagrionidae). [Variation of the labial characters in *Leptagrion andromache* Selys, 1876 (Odonata-Coenagrionidae)]. *Resum. IX Congr. brasil. Zool., Porto Alegre*, p. 178. [Abstract]. (Port.). — (Dept. Ent., Mus. Nac., Univ. Fed. Rio de Janeiro, Quinta da Boa Vista, BR-20970 Rio de Janeiro, RJ).
The imagoes of *L. andromache* and *L. perlongum* Calv. are readily distinguished. Their larvae, breeding in the bromelias, however, cannot be easily separated. In the present note, 3 features, peculiar to the former sp., are mentioned.
- (3765) DOS SANTOS, N.D., 1982. A especiação do gênero *Nephepeltia* Kirby, 1889 (Odonata: Libellulidae). [On the speciation of the genus

- Nephepeltia Kirby, 1889 (Odonata: Libellulidae)]. *Resum. IX Congr. brasil. Zool., Porto Alegre*, p. 179. [Abstract]. (Port. — (Dept. Ent., Mus. Nac., Univ. Fed. Rio de Janeiro, Quinta da Boa Vista, BR-20970 Rio de Janeiro, RJ).
On the basis of the structural features, encountered in a new, here not named sp. from Rio Claro, Brazil the tentative lines of speciation within the genus are briefly outlined.
- (3766) FERGUS, C., 1982. Lord & Master of June. *Science* 82 3 (5): 54-59. — (c/o Dr C. Shiffer, 254 Gill Str., State College, Pa 16801, USA). An excitingly written interview on dragonflies and dragonfly collectors, given by the well-known Pennsylvanian odonatologist, Dr Clark Shiffer.
- (3767) FRASERIA. *Newsletter of the S.I.O. National Office in India*, Ukai, No. 2 (June 1, 1982). — For the order conditions cf. *OA* No. 3423. — (c/o Dr B.K. Tyagi, Malaria Res. Cent., I.C.M.R., UGH 61-70/Secton VI, Ukai-394680, Distr. Surat, Gujarat, India).
The issue contains a report on the First Informal Meeting of Indian Odonatologists, organized by the S.I.O. National Office in Mysore, Jan. 4, 1982; a Directory of the Indian S.I.O. members; and several personal requests and announcements.
- (3768) GRESENS, S.E., M.L. COTHRAN & J.H. THORP, 1982. The influence of temperature on the functional response of the dragonfly *Celithemis fasciata* (Odonata: Libellulidae). *Oecologia* 53: 281-284. — (First Author: Dept Zool., Univ. Wisconsin, Madison, Wisc. 53706, USA; — others: Savannah Riv. Ecol. Lab., P.O. Drawer E, Aiken, SC 29801, USA).
Functional response curves were constructed for *C. fasciata* larvae feeding on 6 different densities of midge larvae at 10, 15, 20 and 25°C. Values for attack rate and handling time were estimated with Roger's random predator equation. Polynomial regression revealed that the functional response curves were linear although a tendency toward decreasing consumption rates at higher densities was shown. The mean number of prey eaten increased with temperature; however, temperature did not alter the fundamental shape of the functional response curve. The attack rate and handling time were linearly related to temperature in general, but changed relatively between 15 and 20°C. (Authors).
- (3769) GREVEN, H., 1982. Beobachtungen über den Schlüpfprozess der Libelle *Cordulegaster boltoni* Don. *Gewässer & Abwässer* 68/69: 103-106. — (Author deceased).
This is a German version of the note, published in *Notul. odonatol.* 1 (4): 72-73; 1979.
- (3770) JACKSON, R., 1982. *Wildlife New Zealand*. Bateman, Auckland. 160 pp. — (Author's address not stated).
The author describes his book as a first-hand diary of travels in New Zealand. It incorporates drawings and paintings of New Zealand wildlife with brief commentary on animals and places. A sketch of the "large dragonfly" (= *Uropetala carovei*) appears on p. 152, and it is mentioned as found nr Lake Lochie.
- (3771) KOMATSU, A., 1982. Respiratory nervous activity in the isolated nerve cord of the larval dragonfly, and location of the respiratory oscillator. *Physiol. Ent.* 7 (2): 183-191. — (Dept Psychol., Tokyo Women's Med. Coll., Shinjuku-ku, Tokyo, 162, JA).
Rhythmic respiratory nerve activity was recorded in *Anax parthenope julius*. Alternating expiratory and inspiratory bursts of spikes occurred in abdominal nerve cords isolated from all peripheral connections. These bursts are similar to the activity recorded in semi-intact preparations, suggesting that the respiratory rhythm can be generated without peripheral sensory feedback. Expiratory bursts started and ended at the same time in different segments of semi-intact preparations. When connectives were severed, the nerve cord separated from the last abdominal ganglion did not normally show rhythmic bursts; the last ganglion alone and the nerve cord connected to the last ganglion exhibited the rhythmic bursts. However, in a few cases the nerve cord separated from the last ganglion

exhibited the rhythm. The results suggest that the last ganglion contains the main oscillator, but that other weak oscillators occur elsewhere. (Author).

- (3772) LAHTI, P., 1982. Kosteikkojen lentotaiturit. [The masters of flight in damp]. *Koululainen* 1982 (5): 6-7. (Finnish). — (Author's address not stated; — Editors: P.O.B.150, SF-00100 Helsinki-10).

A general narrative on natural history of dragonflies, directed at school children and illustrated with 5 colour photographs, in which *Calopteryx virgo*, *Coenagrion hastulatum* (?), *Aeshna juncea* (in flight), *Leucorrhinia rubicunda* (?), and *L. dubia* (not *Libellula*, as stated in the text) can be recognized.

- (3773) LANG, W. & F. THIENEL, 1982. Die Sandgrube bei Schauernheim — Beispiel für einen zu erhaltenden Sekundärbiotop. *Pfälzer Heimat* 33 (1): 32-34. — (Authors' addresses not stated).

9 common anisopteran spp. are listed from a gravel-pit nr Schauernheim, Pfalz, Fed.Rep. Germany.

- (3774) LEGRAND, J., 1982. Contribution à l'étude des odonates de Lamto, Cote d'Ivoire. *Revue fr.Ent.* (N.S.) 4 (1): 7-17. (With Engls.). — (Lab.Ent., Mus.natn.Hist.nat., 45 rue de Bufon, F-75005 Paris)

The odon. material brought together since 1965 by various collectors in Lamto, Ivory Coast, and deposited in Brit.Mus. (Nat.Hist.), Ecole normale supérieure, Paris, and in the Inst.d'Ecol., Abidjan, is listed and discussed (75 spp.). The ♀ neallotypes are designated for *Platycnemis guttifer* Fraser, *P. sikassoensis* Martin, and for *Ceriagrion bakeri* Fraser. Two new synonyms are also established, viz. *Ceriagrion villiersi* Fraser, 1951, for *C. bakeri* Fraser 1941; and *Platycnemis sub-aquistyla* (Fraser, 1928), for *P. sikassoensis* (Martin, 1912).

- (3775) LOUTON, J.A., 1982. A new species of *Ophiogomphus* (Insecta: Odonata: Gomphidae) from the Western Highland Rim in Tennessee. *Proc.biol.Soc.Wash.* 95 (1): 198-

-202. — (Dept Zool., Univ.Tennessee, Knoxville, Tenn. 37916, USA).

O. bouchardi sp.n. (♂ holotype, ♀ allotype: Will Hall Creek at US Hwy 70, Dickson Co., Tennessee, USA, deposited in Florida St.Coll. Arthr., Gainesville) is described and illustrated. A description and illustrations of the larval stage are also provided, and notes on the taxonomic affinities and larval habitats are given. — From a postscript added to galley proof it is apparent that the new sp. is likely to be conspecific with *O. acuminatus* Carle, 1981 (*Odonatologica* 10: 271-278).

- (3776) MARTENS, K., 1982. De Odonata van de kollektie Hostie. (The Odonata of the Hostie collection). *Phegea* 10 (3): 179-183. (Dutch, with Engl. & Fr.s's.). — (Inst.Zool., Univ.Gent, Ledeganckstr. 35, B-9000 Gent).

A list is given of 34 spp. of the E.Hostie collection, deposited in the Mus.Zool., Univ. Gent, Belgium, and collected (1919-1961) at various localities in the Antwerp area (Belgium) and in Switzerland (Nismes and Basel). The records of the more interesting taxa are discussed in some detail.

- (3777) MEINERTZHAGEN, I.A. & C. ARMETT-KIBEL, 1982. The lamina monopolar cells in the optic lobe of the dragonfly *Sympetrum*. *Phil.Trans.R.Soc.Lond.* (B) 297: 27-49. — (First Author: Life Sci. Cent., Dalhousie Univ., Halifax, Nova Scotia, B3H 4J1, CA; — Second Author: Dept Biol., Univ.Massachusetts, Boston, Mass. 02125, USA).

The connectivities of five monopolar cells, M I-M V, within the ventral, cartridge of the lamina have been analysed from serial electron microscopy and their morphologies confirmed from Golgi-electron microscopy. The results of synaptic analyses are presented from a single cartridge photographed in its entirety in one series of transverse sections through the complete depth of the lamina and corroborated from shorter series of sections of additional cartridges. Each monopolar cell is defined by and identified from the location of its soma and the characteristic position of its axon in the cartridge cross section. M I and M II are two axial monopolar cells with large-

-calibre axons, while axons of M III-M V are slender and occupy polar positions, M III and M IV next to M I, M V next to the long visual fibres R 6 en R 7. M I and M II contribute postsynaptically at the triad synapses of all six reticular terminals, M I contributing exclusively at its dendrites, which number about 50% more than those of M II. The distribution of M I and M II dendrites in general reflects the geometry and extent of synaptic engagement with the surrounding reticular terminals. In addition M II is postsynaptic at synapses of the long visual fibres R 6 and R 7, thus receiving a comprehensive and exclusive receptor input; it is only postsynaptic in the lamina. M I, on the other hand, forms an output back upon certain of its reticular inputs and upon M IV. M III too forms an important output upon M IV and it receives a selective reticular input from R 1 at synapses that are the focus of an unexpected asymmetry within the cartridge. M V, like M III, receives a selective reticular input (from R 7) while M IV receives its reticular input only indirectly, from both M I and M III. M IV and M V, like M II, have no output within the lamina. Finally, all monopolar cells excluding M II receive input from an unidentified cell type or types, called α , an input that for M I and M III is reciprocal. To judge from the diversity of their synaptic configurations, the numbers of their dendrites and probably the numbers of their synapses too, the monopolar cells form a sequence in ascending richness M V-M I. Definite parallels exist between, respectively, M I and M II of *Sympetrum* and L 2 and L 1 of *Musea* and *Apis* and between M III of *Sympetrum* and L 3 of *Apis*, but further homologies are unclear. (Authors).

- (3778) MILLER, P.L., 1982. Observations on the reproductive behaviour of *Celithemis eponina* Drury (Libellulidae, Odonata) in Florida. *Ent.mon.Mag.* 117 (1408/1411) [1981]: 209-212. — (Dept Zool, Univ. Oxford, South Parks Rd, Oxford OX1 3PS, UK).
The copulation activities are divisible into an initial rhythmically active stage, followed by a longer quiescent stage. It is likely that the sperm removal is of less significance in this sp. than in zygopterans. The confinement of

reproductive activity to the period 0800-1030 hr each morning may be correlated with the high density of this sp. at the observation site compared with all other Odon. Various suggestions are made to account for the concentration of reproductive activity into an early-morning period, but none of these hypotheses could be tested.

- (3779) MÜLLER, J.P., 1982. Das Bündner Natur-Museum. *Bündner Jb., Chur* (N.F.) 24: 26-31. — (Bündner Natur-Mus., Masanserstr. 31, CH-7000 Chur).
An outline is given of the program and activities of the cantonal Nat.Hist.Mus. in Chur, Switzerland (at the present location opened officially on March 21, 1981). On p. 29, a reference is made to, and a photograph is shown of the exhibit, "Dragonflies — pearls of our waters", the details of which are given in OA No. 3515.
- (3780) NORLING, U., 1982. Structure and ontogeny of the lateral abdominal gills and the caudal gills in Euphaeidae (Odonata: Zygoptera) larvae. *Zool.Jb. Anat.* 107 (3): 343-389. (With Germ.s.). — (Inst.Zool., Univ.Lund, Helgonavägen 3, S-223 62 Lund).
The morphology, ultrastructure and ontogeny of the lateral abdominal gills, which occur in some Odon. (Euphaeidae and Polythoridae), were studied in *Epallage fatime*. To some extent the abdominal musculature, innervation and tracheation are included in the investigation, as well as an examination of the caudal gills. Supplementary observations were made on 2 other euphaeid spp. on an unidentified polythorid larva, and on 2 zygopteran genera lacking lateral gills. — The slender, usually tapering lateral gills of euphaeid larvae are simple, thin-walled, extremely well tracheated and almost naked evaginations from the posterior part of the pleural membrane of abdominal segments 2 to 8. They are situated directly behind the spiracles, or somewhat more ventrally. Intrinsic musculature and readily apparent segmentation are absent. In the gills, thin fat-body cells, and their basal laminae form an open, concentric membrane system that encloses and

supports the tracheal trunks. Except in the eighth segment, the large trachea that supplies each gill is closely associated with the deflated spiracular trachea. A single small dorsoventral muscle, suggestive of the most posterior part of the dorsoventral musculature in other Zygoptera, acts directly on the gill base. The principal gill movements observed are not ventilatory, but serve to protect the delicate gills under the abdomen. The more leg-like lateral gills of Polythoridae are briefly described and compared with those of Euphaeidae. — Development of the lateral gills is heterochronous, and all gill pairs are not present in the larva until after several ecdyses. The first distinctanlagen appear in the embryo soon after katrepsis as pleural, posterolateral buds on abdominal segments 4 to 7, behind the spiracular invaginations and dorsal to the level of the pleuropodia, present on the first segment. Remnants of all gill pairs persist in the imago. — The adaptive significance of the euphaeid lateral gills and the functional significance of some of their features are briefly discussed. Respiration appears to be the only function of the lateral gills. — The possible origin of the lateral gills of Odon. from limbs, from wing homologues or as separate developments is discussed. All three hypotheses receive some support in the present material, but the first 2 hypotheses seem to be the more tenable ones. A derivation from leg remnants appears to show the best overall compatibility with the morphological findings; however, the position of the embryonic gill buds dorsal to the pleuropodial level may suggest a derivation from wing precursors. The conclusion is dependent on how pleuropodia and wings are interpreted morphologically. — The large and swollen caudal gills of Euphaeidae are well tracheated only on their protected, naked ventral and medial areas, and even these are less well adapted for gas exchange than the lateral gills. The exposed, hairy and almost untracheated areas can hardly be used in respiration, but may be important as receptor carriers. (Author).

lo (N.F.) 3 (1): 1-16. — (Bot.Inst.,Fachber. Biol.,Goethe Univ.,Siesmayerstr. 70, D-6000 Frankfurt/Main, FRG).

The odon. fauna of the "Mönchbruch". nr Frankfurt/Main (37 spp.) is enumerated, and noted, based on a decade of field observations, are provided relative to the local occurrence, ecology and phenology. It is emphasized that in view of the provisions of the (German) Species Conservation Act (cf. OA No. 3112) this is likely to be the last treatment of the odon.fauuna of this area for a long time to come.

- (3782) *ODONATA RECORDING SCHEME NEWSLETTER*, No. 6 (June, 1982). Compiled by National Organiser, R.Merritt (48 Somersby Ave.,Walton, Chesterfield, Derbyshire, S42 7LY, UK). (Available from Biological Records Centre, Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, Cambs. PE17 2LS, UK).

In addition to various editorial and organizational items, the issue contains the following articles (authors' addresses not stated; contact the Editor): *Cotton, D.C.F.*: *Coenagrion lunulatum* (Charpentier) — a new species to the British Isles (pp. 3-4; Sligo Co.,Eire, 28-VI-1981); — *Robinson, H.P.K.*: Dragonflies — early and late dates in Devon and Cornwall (4-5; 20 spp.; *Pyrrhosoma nymphula*: 13-IV, *Sympetrum striolatum*: 16-XI); — *Merritt, R.*: An Odonata society, or not? (6); — A few words about Ireland (6; additions to the list and notes on the status of some spp.). — (*Abstracter's Note*: The Newsletter is becoming an indispensable tool to anyone interested in the odonate faunistics of the British Isles).

- (3783) PFEFFER, A., 1982. RNDr. Vladimír Teyrovský. *Acta ent.bohemoslov.* 79 (3): 239. (Engl.). — (Edit.Office,U Salamounky 41, CZ-15800 Praha-2).

A brief obituary for the distinguished Czech odonatologist (born March 15, 1898, deceased Nov. 4, 1980). For a biography, bibliography and a portrait cf. *Odonatologica* 7 (1978): 187-190.

- (3781) NÖRPEL, M., 1982. Die Libellen (Odonata) des Mönchbruchgebiets. *Nachr.ent.Ver.Apol-*

- (3784) RETTIG, K., 1982. Im Reich der Grünen Mosaikjungfer am Grossen Meer. *Jber.dt. Bund.Vogelschutz Emden* 1981 (2): 51-52. — (Danziger Str. 11, D-2970 Emden, FRG).
The Grosse Meer is the only known locality of *Aeshna viridis* in Ostfriesland (=East Friesland), Niedersachsen (=Lower Saxony), Federal Republic of Germany. The sp. is referred to here on its oviposition behaviour (Sep. 5, 1981).
- (3785) RETTIG, K., 1982. Zum Vorkommen einiger Insektenarten in Ostfriesland. Teil VIII. *Ber. Beitr. Vogel-Insektenwelt nordw. Ostfriesland* 11: 14-15. — (Danziger Str. 11, D-2970 Emden, FRG).
From the Flachsmeer/Wolfsmeer area, *Aeshna cyanea*, *Libellula quadrimaculata*, and *Sympetrum danae* are reported (early Sept., 1981). — (For the earlier pts of this series cf. OA No. 3684).
- (3786) RETTIG, K., 1982. Zur Verbreitung von Libellen, Heuschrecken, Faltern und Käfern in Ostfriesland im Zeitraum 1968-1982. *Ber. Beitr. Vogel-Insektenwelt nordw. Ostfriesland* 12: 1-27. — (Danziger Str. 11, D-2970 Emden, FRG).
The 1968-1982 records of 26 odon.spp. from East Friesland, Federal Republic of Germany are mapped.
- (3787) ROBERTSON, H.M. & H.E.H. PETERSON, 1982. Mate recognition and mechanical isolation in *Enallagma* damselflies (Odonata: Coenagrionidae). *Evolution* 36 (2): 243-250. — (Dept Zool., Univ. Wisconsin, Madison Wisc. 53706, USA).
Evidence is presented on the tactile recognition system in 6 African *Enallagma* spp. (glaucum, nigradorsum, rotundipenne, sapphirina, sinuatum, subfurcatum), whereby the female, once clasped in tandem, recognizes a conspecific male via the mechanical stimulation of his superior anal appendages on her mesostigmal plates, which are appropriately modified for this purpose. Similar systems, suggested earlier in *Ischnura* and *Lestes*, will probably be found in other Odon., lacking the secondarily developed male visual recognition systems. It is suggested that the mechanical isolation, sometimes observed in this and other genera, may be an incidental result of changes in such a tactile recognition system during the formation of new species.
- (3788) RUSSENBERGER, H., 1982. Das Eschheimertal und sein Weiher. *Neujahrsbl.naturf. Ges.Schaffhausen* 34: 1-112 (pls incl.). — Price: sFr. 24. — (to be ordered from P.Meili & Co., CH-8200 Schaffhausen). — (Author: Belairstr. 11, CH-8200 Schaffhausen).
A small monograph, directed at the general reader, on the natural history of the Eschheimertal nr. Schaffhausen, Switzerland, dealing with the Odon. on pp. 54-58. No faunistic data are presented in the text, but for several spp. these can be extracted from the fig. captions.
- (3789) SATŌ, Y., 1982. [Reproductive behaviour of *Calopteryx atrata*]. *Greenpower* 1982 (8): 28-29. (Jap.). — (3-17-16, Narita-nishi, Suginami-ku, Tokyo, 166, JA).
5 excellent colour photographs, with a brief caption, are provided of courtship display, mating and oviposition.
- (3790) SATŌ, Y., 1982. Wings of *Mnais pruinoso* and *Calopteryx cornelia* as photographed through a UV filter. *Insectarium, Tokyo* 19(2): 34-35. (Jap., with Engl. title). — (3-17-16 Narita-nishi, Suginami-ku, Tokyo, 166, JA).
Ordinary-light and UV-filter photographs of the fore- and hind wings of both sexes of the 2 spp. are shown and discussed.
- (3791) SAVARD, M., 1982. Liste des espèces d'odonates de la région du Saguenay-Lac-Saint-Jean, Québec. *Fabriques* 8 (4): 71-80. — (175 av.du Pont sud, Alma, Que., G8B 2T4, CA).
Based on literature records and on unpublished material, a list is given of 66 spp. known from the region of Saguenay-Lac-St-Jean, Quebec, Canada. The status of some of these is discussed in detail.
- (3792) SCHIESS, H., 1982. Libellen [Graubündens in ihrem Lebensraum]. *Terra Grischuna* 41 (3):

- 169-170. — (Brüglenstr. 1, CH-8345 Adetswil). A general article on dragonflies and dragonfly habitats in canton Grisons, Switzerland, listing a number of spp. (German names only) and a number of interesting localities. (For a full account of the odon. fauna of the canton cf. *OA* No. 2913).
- (3793) SCHIESS, H., 1982. Zur Insektenfauna der Umgebung der Vogelwarte Sempach, Kanton Luzern. VI. Odonata (Libellen). *Ent.Ber., Luzern* 7: 74-76. — (Brüglenstr. 1, CH-8345 Adetswil).
14 spp. are listed, and their tentative breeding sites in the area of Sempach, Luzern, central Switzerland, are briefly discussed. A male of *Aeshna cyanea* has been collected at a light trap, and reference is made to the light traps at Gudo-Demania and Gordolo-Aeroporto, in the Magadino Plain, canton Ticino (=Ticino), Switzerland, where many dozens of *A. mixta*, and less numerous *A. cyanea*, all males, are being annually collected.
- (3794) SCHMIDT, E., 1982. Die Libellenfauna im Wollerscheider Venn. *Mitt.Landesanst.Ökol. Nordrhein-Westf.* 7(2): 38-40. — (Seminar Biol. & ihre Didaktik, Pädagog.Fak., Univ. Bonn, Römerstr. 164, D-5300 Bonn-1, FRG). The (summer) odon. fauna (9 spp.) of the Nature Reserve Wollerscheider Venn nr Lammersdorf, close to the Belgian border, Western Germany, is discussed. The autochthonous occurrence of *Aeshna subarctica* is of particular interest.
- (3795) SCHMIDT, E., 1982. Odonaten-Zönosen kritisch betrachtet. *Drosera* 82 (1): 85-90. (With Engl.s.). — (Seminar Biol. & ihre Didaktik, Pädagog.Fak., Univ. Bonn, Römerstr. 164, D-5300 Bonn-1, FRG).
The system of the Central European odon. cenoses, introduced by U. Jacob (1969, *Faun. Abh. Staat. Mus. Tierk. Dresden* 2: 197-239), and adopted by various, mostly German workers, is critically examined. A number of inconsistencies in Jacob's model is shown, and the autecological approach is advocated as an alternative.
- (3796) SCHMIDT, E., 1982. 6. Ord. Odonata, Libellen. In: W. Tischler, [Ed.], Paul Brohmer Fauna von Deutschland. Ein Bestimmungsbuch unserer heimischen Tierwelt. 15th revised and enlarged ed., pp. 185-189. Quelle & Meyer, Heidelberg. — (Seminar Biol. & ihre Didaktik, Pädagog.Fak., Univ. Bonn, Römerstr. 164, D-5300 Bonn-1, FRG).
A new edition of the work listed in *OA* Nos. 113, 895, 1926, 2915.
- (3797) SPÄH, H. & W. BEISENHERZ, 1982. Ökologisch-faunistische Untersuchung der Fischfauna der im Bereich des Truppenübungsplatzes Senne gelegenen Bäche. *Decheniana* 135: 66-87. (With Engl.s.). — (Fak. Biol., Univ. Bielefeld, Universitätsstr., Postfach 8640, D-4800 Bielefeld, FRG).
In summer-autumn 1980 the fish population (12 spp., of which 6 autochthonous) of some brooks in the Senne Training Area, eastern Westphalia, Fed. Rep. Germany was examined. In the list of recorded invertebrates, 6 odon. spp., incl. *Calopteryx virgo* and *Cordulegaster boltoni*, are listed.
- (3798) VAN TOL, J., 1982. Iets over de stand van zaken van EIS-Nederland in begin 1982. [A report on the general situation of the Netherlands Section of the European Invertebrate Survey in the early 1982]. *Nieuwsbr. Europ. Invert. Surv. Nederland* 1982 (11): 9-11. (Dutch). — (Rijksmus. Nat. Hist., P.O. Box 9517, 2300 RA Leiden, NL).
On Jan. 1, 1982, the Section's inventory contained 8251 basic data units on the Netherlands odon. fauna. The administrative coordinator is Miss M. Verdonk (Floralialaan 47, 1402 NJ Bussum, NL), [and the senior investigator is Dr D.C. Geijskes (Rijksmus. Nat. Hist., P.O. Box 9517, 2300 RA Leiden, NL)].
- (3799) VON HAGEN, H., 1982. Libellen im Bereich Bochum/Witten (Odonata). *Mitt. westf. Entomol.* 6 (1): 5-9. — (Akazienweg 23, D-5810 Witten, FRG).
This is a supplementary note to that listed in *OA* No. 3377. No spp. are added to the local list (17), while an apparent decrease in the number of taxa was noticed since 1977. The

inventory is only in part documented by photographs and exuviae; the specimens were not collected.

- (3800) WALTZ, E.C., 1982. Alternative mating tactics and the Law of Diminishing Returns: the Satellite Threshold Model. *Behav.Ecol. Sociobiol.* 10 (2): 75-83. — (Dept Biol., Lyman Hall, Syracuse Univ., Syracuse, NY 13210, USA).

The mating systems of many spp. comprise at least 2 alternative mating tactics — broadly termed here "Dominant" and "Satellite" tactics. However, there exists no satisfactory conceptual framework in which to explain their co-occurrence and persistence. — A Dominant male's ability to copulate is a positive, but decelerating function of either his territory's attractiveness or his own attractiveness to females. This "Diminishing Returns Effect" affords mating opportunities for Satellite males associated with the most attractive sites (or males). A geographical Satellite Threshold Model, analogous to the Polygyny Threshold Model (G.H. Orians, 1969. *Am.Nat.* 103: 589-603), is developed to predict quantitatively the presence or absence of Satellite male tactics. — 5 predictions of the Model are supported quantitatively by data from libellulid (*Plathemis lydia*, *Libellula luctuosa*, *L.pulchella*, *Leucorrhinia intacta*) and anuran social systems. — The Model should apply both to circumstances in which males are able to alternate between tactics and the instances in which males make an irrevocable tactical "decision". (Author).

- (3801) WARD, J.V. & J.A. STANFORD, 1982.

Thermal responses in the evolutionary ecology of aquatic insects. *Ann.Rev.Ent.* 27: 97-117. — (Dept Zool. & Ent., Colorado St.Univ., Fort Collins, Colorado 80523, USA).

A review describing the thermal heterogeneity that has shaped temperature response patterns of aquatic insects is followed by an analysis of the influence of temperature on distribution patterns, life cycle phenomena, behavioural responses, and trophic relationships. Patterns of temperature-related biotic diversity suggest that analysis of man-induced temperature gradients provides opportunities for insight into the evolutionary ecology of aquatic insects. Many examples are drawn from the odon. literature and specific references to the order appear on pp. 106-108.

- (3802) WARINGER, J., 1982. Die Fangmaske der Libellenlarven: Kleinlibellen. *Mikrokosmos* 71 (4): 118-122. — (Wiesfeldgasse 6, A-3130 Herzogenburg).

The structure of the zygopteran larval labium is outlined on the basis of the Austrian fauna. The article is directed at the general reader on the undergraduate level. (For the Anisoptera part cf. *OA* No. 3748).

- (3803) WARINGER, J., 1982. Die Embryonalentwicklung der Kleinlibelle *Coenagrion puella*. Lebendbeobachtung an Libelleneiern. *Mikrokosmos* 71 (5): 138-140. — (Wiesfeldgasse 6, A-3130 Herzogenburg).

A simple method for the in vitro observation of embryonic development of the dragonfly egg is outlined, and the 7 stages of cleavage and the egg hatching in *C.puella* are described and illustrated.