

ODONATOLOGICAL ABSTRACTS

1971

- (5450) VARSHNEY, R.K., 1971. On some dragonflies of Khasi Hills. *J. Assam Sci. Soc.* 14(1): 97-100, 1 pl. excl. — (Author's current address unknown).
Descriptive notes on 5 common spp. from the Shillong area, India.

1972

- (5451) NARDIN, C., 1972. Trois libellules rares pour notre région. *Bull. Soc. Hist. nat. Montbéliard* 1972: 21-29, 4 pls excl. — (c/o Musée du Château, Montbéliard, France).
Lestes barbarus, *Sympetrum pedemontanum* and *Somatochlora alpestris* are listed and discussed.

1975

- (5452) DEVAI, G., 1975. A makroszervezetek jelentősége és szerepe a biológiai vízminőség megítélésében. — [The significance and the role of macroinvertebrates in the assesment of the biological water quality]. *In: G. Öllös, Ed., A vízellátás vízszerezési vonatkozásai és problémái szeminárium, Nyíregyháza, pp. 99-131.* (Hung.). (Dept. Zool. & Anthropol., Kossuth Univ., HU-4010 Debrecen).
The paper contains a list of spp. of NE Hungary, and it is entirely based on odonotol. evidence.

1978

- (5453) KATAI, J. & G. DEVAI, 1978. Adatok a Hortobágy szitkötő (Odonata) faunájához. — Angaben zur Libellen (Odonata) Fauna der Landschaft Hortobágy. *Évk. Debrecen. deri Muz.* 1977: 97-109. (Hung., with Germ. s.). — (Dept. Zool. & Anthropol., Kossuth Univ., HU-4010 Debrecen).
[For a slightly abridged Engl. edition of the same paper cf. *OA* 3632].

1979

- (5454) STRAKA, V., 1979. Živočíšstvo Sučian a blízkeho okolia. [The fauna of Sučian and its environments]. *In: P. Beláčik, Ed., Sučany, pamätnica k 35. výročiu SNP, pp 22-28.* Osveta, Martin. (Slovak). — (Turčianske múzeum, Engelsova 2 CZ-03601 Martin).
Contains a list of 8 odon. spp. (pp. 25-26).

1981

- (5455) GOTTSCHALK, H.-H., 1981. Faunistische Beobachtungen an Odonaten in der Umgebung von Rostock. *Ent. Ber., Berlin* 1981: 59-63. — (Asterweg 8, DDR-2500 Rostock-1, GDR).
Review and analysis of the odon. fauna (32 spp.) of the Rostov area, GDR. (Cf. also *OA* 3272).

1982

- (5456) BALL, R. & S. HOPE, 1982. Report on entomological studies carried out at Sapi-Zambezi confluence, August, 1981. *Zimbabwe Sci. News* 16(4): 84-87. — (c/o Dr D.L. Hancock, Natn. Mus., P.O. Box 240, Bulawayo, Zimbabwe).
Pseudagrion acaciae, Paragomphus genei hageni, Brachythemis leucosticta, Trithemis kirbyi ardens and T. wernerii are reported.
- (5457) KOBAYASHI, T. & N. ISHIZAWA, 1982. [Records of five dragonfly species from Yamanashi Prefecture]. *Nature & Insects* 17(14): 15-16. (Jap.). (First Author: Lion Co., Ninomiya-ryo, 457, Yamanashi, Ninomiya-machi, Naga-gun, Kanagawa, 259-01, JA).
First prefectural records of Copera annulata, Ischnura asiatica, Asiagomphus melaenops, Trigomphus melampus and Libellula quadrimaculata asahinai.
- (5458) STRAKA, V., 1982. Entomologické zberky Turčianskeho múzea Andreja Kmeta. — Entomological collections of Turiec Museum of A. Kmet. *Múzeum, Bratislava* 27: 43-49. (Slovak, with Engl. s.). (Turčianske múzeum, Engelsova 2, CZ-03601 Martin).
The odon. collection consists of 663 spec., pertaining to 34 spp., from various localities in Czechoslovakia.
- (5459) STRAKA, V., 1982. Vážky (Odonata) Turčianskej kotliny a prilahlej časti Veľkej a Malej Tatry. (Die Libellen (Odonata) Turiec-Beckens und der angrenzenden Teile der Grossen und Kleinen Tatra). *Kmetianum* 6: 129-134. (Slovak, with Russ. & Germ. s's). — (Turčianske múzeum, Engelsova 2, CZ-03601 Martin).
Annotated list of 17 spp. recorded from the Turiec Basin and the adjacent hills, Slovakia, Czechoslovakia.

1983

- (5460) (Anonymous), 1983. [Dragonfly tile]. *Akitsu* (N.S.). 51: Trontispiece, with caption.
- (5461) ARAI, Y & K. MURABAYASHI, 1983. Life history and ecology of *Aeschna juncea* L. in Chichibu district. I. Larval period. *Nature & Insects* 18(13): 32-33. (Jap., with Engl. title). — (First Author: 1233-2, Oaza Sueno, Torii-machi, Osato-gun, Saitama, 369-12, JA).
Observations were carried out in nature and in the laboratory. Most of the Saitama larvae emerged after a single hibernation, though some hibernated twice. This is at variance with the observations by M. Kurata (1974, *OA* 1228; 1980, *OA* 3605), where 2 larval hibernations took place.
- (5462) DUDONES, T., 1983. An American bittern hunting dragonflies. *Kingbird* 33: 108. — (30 Ampersand Ave., Saranac Lake, NY 12983, USA).
A field note on the predatory behaviour of *Botaurus lentiginosus*.
- (5463) EDA, S., 1983. [Iconographic works on dragonflies, Pts 3-7]. *Nature & Insects* 18(9): 40-43; (10): 28-31; (11): 32-35; (12): 32-35; (13): 26-29. (Jap.) — (3-4-25 Sawamura, Matsumoto, Nagano, 390, JA).
For pts 1-2 cf. *OA* 5336. — Pt 3: 4 Japanese books published in 1938-1939 are described and their iconographic inventory is analysed. Among these, the work by K. Doi (1938, *Jakuso-an Chufu, Tatsumi: Seireifu*) is a reproduction of the iconography published under the same title by *Jakusuno-an Yoshida* (1805-1859). An attempt is also made to identify the taxa shown in 41 pls by T. Okumura (1938), I. Matsui (1951) and S. Ishida (1974, not in *OA*) and a critical comparison of these inventories is made. — Pt 4: 9 books published during 1940-1950. — Pt 5: 10 books published during 1950-1959. — Pt 6: 10 books published during 1959-1960. — Pt 7: 9 books published during 1965-1970. In most cases reproductions of title pages and text samples are provided.
- (5464) EDA, S., 1983. [Numerous individuals of *Tramea virginia* caught in Nagano Prefec-

A tile with a dragonfly, from the "Sumiya" house (constructed in 1641), Shimabara gay, Kyôto, Japan.

- ture]. *Nature & Insects* 18(12): 43-44. (Jap.). — (3-4-25 Sawamura, Matsumoto, Nagano, 390, JA).
Prior to 1982 only 3 ♂ of this migratory southern sp. were known from Nagano. In 1983, 24 ♂ were collected at a pond in Omachi (Aug. 1-19). It is speculated that these may have emerged on the spot, as progeny of a female immigrating from the South.
- (5465) HIROSE, Y., 1983. [Records of Ceriagrion nipponicum at Kiyosumi Garden, Kotoku, Tokyo]. *Nature & Insects* 18(11): 37. (Jap.) — (14-5, Umibe, Koto-ku, Tokyo, 135, JA). Numerous individuals, recorded July 26-Aug. 23, 1983.
- (5466) IKEZAKI, Y., 1983. [Dragonfly fauna of Nagasaki Prefecture]. *Nature & Insects* 18(10): 7-8. (Jap.) — (Nagasaki Nishi Senior High Sch., Takenokubo-cho, Nagasaki, 852, JA). List of 66 spp. and ssp., Japanese names only. Among these, 4 are of southern, and 3 spp. of northern origin.
- (5467) KARUBE, H., 1983. [Deielia phaon f. dispar collected in Kanagawa Prefecture]. *Nature & Insects* 18(11): 37. (Jap.). — (1-7-34 Tsurumi, Tsurumi-ku, Yokohama, 230, JA).
1 ♀, Futatsuka Pond, Yokohama, Aug. 3, 1983.
- (5468) MICHEL, B.M., 1983. Captures dans le Gard de deux odonates rares en France. *Entomologiste* 39(3): 252. — (Chusclan, F-30200 Bagnols-sur-Cèze).
Macromia splendens and Sympetrum pedemontanum are recorded from the area of Bagnols-sur-Cèze, Dép. du Gard, France.
- (5469) SAVARD, M., 1983. Additions à liste des espèces d'odonates de la région du Saguenay — Lac-Saint-Jean. *Faberies* 9(3): 41-48. — (184 av. Eymard Nord, Alma, Qué. G8B 5H9, CA).
Lestes dryas, Enallagma cyathigerum and Gomphus brevis are added to the earlier published list (cf. OA 3791).
- (5470) STRAKA, V. & J. SVATOŇ, 1983. Živo-
čišstvo Martina a blízkeho okolia. [The fauna of Martin and its environments]. *Acta Mus. Andreja Kmeta* 6: 18-22. (Slovak). — (Turčianske muzeum, Engelsova 2, CZ-03601 Martin).
Contains a reference to the Odon., but not list of spp.
- (5471) TAKETO, A., 1983. [My encounter with insects]. *Nature & Insects* 18(13): 25. (Jap.). — (3-22, Ishibiki 2-chome, Kanazawa, 920, JA). A biographic note, with reference to dragonflies.
- (5472) TANAKA, T., 1983. Current entomology in China. *Nature & Insects* 18(11): 1-2. (phot.), 4-8 (text). (Jap., with Engl. title). — (Fac. Agric., Utsunomiya Univ., 350 Mine-machi, Utsunomiya, Tochigi, 321, JA).
Upon an invitation of the Chinese Government, the author stayed in China during May 4-24, 1983. Some odon. spp. are listed and figured. — For a review of the recent aspects of entomology in China cf. C.-m. Chao & Y.-r. Wu, 1985, *Akitu* (NS) 75: 1-12.
- (5473) TANAKA, T., 1983. [Appeal for recovery of marked dragonflies]. *Nature & Insects* 18(12): 31. (Jap.). — (Fac. Agric., Utsunomiya Univ., 350 Mine-machi, Utsunomiya, Tochigi, 321, JA).
710 individuals of Sympetrum frequens were released at Kotoku and Yumoto, Nikko (alt. 1500 m), Aug. 30-31, 1983, to study their downward return migration in autumn.

1984

- (5474) DONCOV, A.E., V.A. LAPINA & M.A. OSTROVSKIY, 1984. Fotogeneraciya 0₂ om-mohromami i ih rol' v sisteme antiokislitel' noy zashchiti kletok glaza bespozvonochnyh. — Photogeneration of O₂ by ommochromes and their role in the system of anti oxidative protection of invertebrate eye cells. *Biofizika* 29(5): 878-882. (Russ., with Engl. s.). -- (Inst. Chem. Physics, USSR Acad. Sci., Moscow, USSR).
Illumination of screening eye pigments (ommochromes) with visible or UV-light results in

O_2 generation which is recorded by reduction of nitroblue tetrazoic into formazane. The detergent bromide cetyltrimethyl ammonium significantly accelerates O_2 generation. Superoxide dismutase inhibits this process. Reoxidation of lipids induced by bivalent ferrum ions slows down essentially in the presence of ommochromes. Acceleration of O_2 dismutation with ommochromes seems to be one of the inhibiting mechanisms of the latter acting on lipid peroxidation. A scheme is advanced of photo-dependent reduction of ommochromes from inactive oxidized into an active reduced form. — The work is based on material of a decapod crustacean, a butterfly, and *Calopteryx splendens*.

- (5475) GENGE, W., 1984. Amphibien und Libellen der Alpenweiher Adelbodens. *Mitt. naturf. Ges. Bern* (N.F.) 41: 107-118. (W. Genge, Sekundarlehrer, CH-3715 Adelboden).
A nice treatment (by a retired Secondary School teacher) of the odon. fauna (9 spp., incl. *Somatochlora alpestris*) of 39 alpine ponds (alt. 1609-1992 m) in the Adelboden area, canton Bern, Switzerland, based on 330 field protocols, made up during 1972-1983. Of particular interest are the phenological observations; the oviposition of *Sympetrum striolatum*, on ice, was recorded as late as Nov. 12, 1983 (alt. 1930 m).
- (5476) GONZÁLEZ SORIANO, E. & M. VERDUGO GARZA, 1984. Estudios en odonatos neotropicales. II: Notas sobre el comportamiento reproductivo di *Cora marina* Selys (Odonata: Polythoridae). *Fol. ent. mex.* 62: 3-15. (With Engl. s.). — (Depto Zool., Inst. Biol., Univ. Nac. Auton. Mexio, Apto Postal 70-153, MX-04510 Mexico, D.F.).
Reproductive behaviour on *Cora marina* is described. Its courtship behaviour is compared with that of some other calopterygoideans, and the phylogenetic affinities between Euphaeidae and Polythoridae are discussed from the ethological point of view.
- (5477) HANDA, S.M., O.P. MITTAL & H.N. BATRA, 1984. Chromosomes in ten species of dragonflies (Anisoptera: Odonata). *Res. Bull. Panjab Univ. (Sci.)* 35(3/4): 65-73. — (Dept Zool., Panjab Univ., Chandigarh-160014, India).
The paper is based on the same material as that listed in OA 3386. It is argued now that the chromosomes are holokinetic, but the kinetochore becomes localized during meiosis I.
- (5478) ŁABEDZKI, A., 1984. Ważki (Odonata) rezerwatu "Jezero czarnie" na terenie Nadleśnictwa Doświadczalnego Zielonka. — Dragonflies (Odonata) of the reservation "Jezero czarnie" on the area of the Experimental Forest Inspectorate Zielonka. *Rocz. Akad. roln. Poznan.* 152: 17-26. (Pol., with Engl. & Russ. s's). — (Kat. Ent. Lesnej, Akad. Rolnicza, Ul. Wojska Polskiego 71c, PO-60-625 Poznan).
The odon. fauna (32 spp.) of this Nature Reserve nr Poznan, Poland, is listed and briefly discussed.
- (5479) PAJANI, H.R. & K.K. SHARDA, 1984. A report on the Zygoptera of Chandigarh (Odonata). *Res. Bull. Panjab Univ. (Sci.)* 35(1/2): 181-183. — (Dept Zool., Panjab Univ., Chandigarh-160014, India).
Annotated list of 24 common spp., collected during 1975-1976. (For the Anisoptera of the same area cf. OA 4636).
- (5480) RATTI, E., 1984. Le collezioni entomologiche del Museo Civico di Storia Naturale di Venezia: cenni storici, recenti acquisizioni ed attuale consistenza. *Lavori Soc. venez. Sci. nat.* 9(2): 225-230. — (Mus. Civ. Stor. Nat., S. Croce 1730, I-30125 Venezia).
History of the entomol. collections of the Nat. Hist. Mus. of Venice is briefly outlined, and the 1978-1983 acquisitions are listed. The latter include the odon. collections of Lorenzo Bonometto (1980) and Italo Bucciarelli (1979).
- (5481) REZBANYAI-RESER, L., 1984. Wasserinsekten und andere Kleintiere. In: P. Stadelmann, Ed., *Der Vierwaldstättersee und die Seen der Zentralschweiz*, pp. 101-112. Keller, Luzern. — (Natur-Museum, Kasernenplatz 6, CH-6003 Luzern).
A chapter in a monograph, directed at the general reader. Odon. are dealt with on pp.

- 103-105, but there are no definite data on the local fauna.
- (5482) RYAN, J.G., J.P. O'CONNOR & B.P. BEIRNE, 1984. *A bibliography of Irish entomology*. Fly Leaf Press, Dublin. IV+ 363 pp. [ISBN 0-9508466-0-0]. — Price: IR£ 12.-. — (Publishers: 4 Spencer Villas, Glengearry, Co. Dublin, Ireland).
Complete bibliography up to and incl. 1980. The Odon. titles appear on pp. 318-326.
- (5483) SAVARD, M. & C. GIRARD, 1984. Notes sur la présence d'*Epitheca princeps* (Hagen) (Odonata, Corduliidae) en Mauricie, Québec. *Fabrerics* 10(4): 61-64. — (First Author: 184 av. Eymard Nord, Alma, Qué. G8B 5H9, CA). Description of the locality, with a note on the occurrence of this sp. in Quebec.
- (5484) SAVARD, M. & N. TREMBLAY, 1984. *Calopteryx amata* Hagen et *Ophiogomphus aspersus* Morse, deux nouvelles espèces d'odonates au Saguenay — Lac-Saint-Jean, Québec. *Fabrerics* 10(3): 56-60. — (Second Author: 460 rue Ste-Thérèse Ouest, Alma, Qué. G8B 4M7, CA).
Description of the habitats and notes on the behaviour of the 2 spp.
- (5485) STRAKA, V., 1984. Náčrt fauny hmyzu Martina a okolia. (Ein Abriss der Insektenfauna von Martin und Umgebung). *Kmetianum* 7: 265-277. (Slovak, with Russ. & Germ. s's). — (Turčianske muzeum, Engelsova 2, CZ-03601 Martin).
General review of all orders, with a list of 8 odon. spp.
- (5486) STRAKA, V., 1984. Prispievok k poznaniu vážok (Odonata) Turčianskej kotliny. 2. časť. (Ein weiterer Beitrag zum Kennenlernen der Libellen (Odonata) des Turiec-Beckens). *Kmetianum* 7: 297-300. (Slovak, with Russ. & Germ. s's). — (Turčianske muzeum, Engelsova 2, CZ-03601 Martin).
With reference to the work listed in OA 5459, 8 further spp. are recorded from the Turiec Basin.
- (5487) SUI, J.-zh. & H.-g. SUN, 1984. *Common species of dragonflies from China*. Agricultural Publishing House, Beijing. XX+328 pp., 26 pls excl. (14x20 cm, soft cover with a col. photogr.). (Chin., with Engl. title). — (Authors: Inst. Zool., Acad. Sinica, Haitien, Beijing, P.R. China).
This is an attractive little handbook and field guide on Chinese dragonflies, the first work of this kind in the Chinese language. — The introductory chapter (pp. 1-14) deals with morphology and biology, and is followed by descriptions of and keys to 208 spp., supported by 217 textfigs (pp. 15-315), and by 191 black-and-white photographs of specimens (mostly in natural size), on the appended pls. Indices of Chinese and taxonomic names conclude the book. — (*Abstracter's Note*: The Authors have to be congratulated on the nice presentation of the booklet, which will certainly greatly stimulate and facilitate odonatological studies in China).
- (5488) VOLKMER-RIBEIRO, C., B. MOTHES DE MORAES, R. DE ROSA-BARBOSA, M.C.D. MANSUR & I.L. VEITENHEIMER-MENDES, 1984. Um estudo do bentos em raízes de *Eichhornia azurea* (Sw.) Kunth, do curso inferior de um rio subtropical Sul-Americano. *Revta brasil. Biol.* 44(2): 125-132. (Port., with Engl. s.). — (Mus. Cien. Naturais, Fundação Zoobotânica Rio Grande do Sul, Porto Alegre, RS, Brazil).
A modification of the method currently used to sample the fauna on the roots of floating aquatic macrophytes, applied to the lowermost roots of the semifloating water hyacinth, *Eichhornia azurea*, from the lower Rio Cai, Rio Grande do Sul, Brazil, evidenced the occurrence of diversified benthic fauna (incl. Odon., no spp. names), anchored to the substratum contained among the roots. A seasonal variation in the fauna was also evidenced. The earlier statements in the literature on the absence of benthic fauna in the lower Rio Cai have to be modified now.

1985

- (5489) ARNETT, R.H., 1985. *American insects. A*

handbook of the insects of America north of Mexico. Van Nostrand Reinhold, New York. XIV+850 pp. [ISBN 0-442-20866-9]. — Price: US \$ 87.45. — (Author: Florida State Coll. Arthropods, Gainesville, Fla, USA). Odon. are dealt with on pp. 92-103. General characterisation, key to families, list of genera (most of which are briefly characterised) and, brief descriptions of some spp.

- (5490) ASAHINA, S., 1985. [Odonatological works published in 1984. (International publications)]. *Gekkan Mushi* 168: 2-6. (Jap.). — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
Highlights of odonatol. literature published in 1984.
- (5491) ASAHINA, S., 1985. A revisional study of Japanese and East Asiatic "Gomphus" species with the descriptions of *Asiagomphus* gen. nov. *Gekkan Mushi* 168: 6-17. (Jap., with Engl. s.). — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
The Japanese and East Asiatic taxa of the genus "Gomphus" are revised, and *Asiagomphus* gen. n. (type sp.: *G. melaenops* Sel.) is defined.
- (5492) BERGELSON, J.M., 1985. A mechanistic interpretation of prey selection by *Anax junius* larvae (Odonata: Aeschnidae). *Ecology* 66(6): 1699-1705. — (Biol. Dept, Univ. York, Hel-sington, York, YU1 5DD, UK).
Preferential orientation, pursuit, and capture by predator have been proposed for the establishment of prey preference and prey switching; however, very little is known about which of these behaviours is actually involved in active prey selection. Based on laboratory arena experiments in which the proportions of 2 prey types were manipulated, the specific foraging process underlying prey preference and prey switching in *A. junius* larvae is distinguished. These showed a higher probability of pursuing the more abundant of 2 prey types than predicted from relative prey frequencies. An increased pursuit probability was correlated with an increased capture success on the abundant prey type. It is hypothesized that prey selection in *A. junius* larvae results from a simple behavioural rule of thumb: "Continue to pursue only those prey types you have successfully captured in the immediate past".
- (5493) BLATTNER, M. & M. RITTER, 1985. *Basler Natur-Atlas*. Basler Naturschutz, Basel. File-bound in 3 vols (A4 size), 525 pp., numerous maps etc. excl. — (Publishers: Sekretariat SBN, Postfach 73, CH-4020 Basel).
Detailed descriptions of Nature Reserve areas in canton Basel Stadt, Switzerland, with lists of recorded vegetation, plant and animal spp. The Odon. are dealt with on pp. 108-110. The annotated list contains 18 spp., incl. *Coenagrion scitulum* and *C. mercuriale* (both from the Eisweiher). — (*Abstracter's Note*: The former sp. represents the first record for Switzerland, and the occurrence of the latter appears most unusual. Both records are in need of confirmation).
- (5494) BLOIS, C., 1985. Modifications du comportement de capture des larves d'*Anax imperator* (Odonata: Aeshnidae), en fonction du type de proies reconstruit. *J. Physiol., Paris* 80: 19A [abstract only]. — (Lab. Ethol., Univ. Rennes I, Avenue du Général Leclerc, F-35042 Rennes). [For the full paper cf. *OA* 5218].
- (5495) BORISOV, S.N., 1985. Iskusstvennye orositel'nye sistemy kak stacii lichinok strekoz (Insecta, Odonata) v dolinah Tadzhikistana. — [Artificial irrigation systems in the valleys of Tadzhikistan as breeding sites of dragonfly larvae (Insecta, Odonata)]. *Dokl. Akad. Nauk tadzhik. SSR* 28(9): 541-543. (Russ., with Tadzhik s.). — (Pavlovsky Inst. Zool. & Parasitol., Tadzhik Acad. Sci., Dushanbe, USSR).
The odon. fauna (35 out of 46 recorded spp.) of the arid Tadzhik valleys is analysed as to the breeding sites. It is concluded that all spp. can breed in the irrigation systems, and about 50% of them show a preference for these above the natural habitats.
- (5496) BORISOV, S.N., 1985. Strekozy (Insecta, Odonata) Pamira. — [Dragonflies (Insecta, Odonata) of the Pamir]. *Mater. nauchno-teor. Konf. molodyh Uchenyh & Specialistov*

- tadzhik. SSR, Dushanbe* (Biol.), pp. 87-88. (Russ.). — (Author: Pavlovsky Inst. Zool. & Parasitol., Tadjik Acad. Sci., Dushanbe, USSR; — Publishers: "Donish", Ul. Ayni 121, korp. 2, USSR-734029 Dushanbe).
From the high altitudes of the Pamir only 2 spp. were so far known, viz. *Orthetrum brunneum* (thermal springs at Shaymak, alt. 3900 m) and *Pantala flavescens* (Zulumart, alt. 3730 m; Balandkiika Valley, alt. 4300 m). In the present paper the following are reported from elevations 3360-4650 m: *O. brunneum* (alt. 3360-3800 m), *Sympetrum tibiale* (alt. 3360-3550 m), *S. haritonovi* (alt. 3550 m), *S. fonscolombei* (alt. 3800 m), *P. flavescens* (alt. 3360...4260-4650 m), *Ischnura pumilio* (alt. 3360 m), and *Enallagma cyathigerum* (alt. 3360 m).
- (5497) BORISOV, S.N., 1985. Sutochnyy ritm aktivnosti *Anax parthenope* Selys (Odonata, Aeschnidae) v usloviyah aridnoy zony. — [Daily rhythm of activity in *Anax parthenope* Selys (Odonata, Aeschnidae) under arid zone conditions]. *Dokl. Akad. Nauk tadzhik. SSR* 28(10): 603-606. (Russ., with Tadjik s.). — (Pavlovsk Inst. Zool. & Parasitol., Tadjik Acad. Sci., Dushanbe, USSR).
A detailed analysis of daily activities in SW Tadjikistan, within the temperature range of 12.2-34°C and air humidity of 17-97%. Contrary to the behaviour under "normal" climatic conditions daily peaks of activities in the arid zone were recorded at night and in the early morning hours.
- (5498) CHAO, H.-f., 1985. Description of the male of *Labrogomphus torvus* Needham reared from nymph, with ascertainment of its placement in the subfamily Gomphinae (Odonata, Gomphidae). *Wuji Sci. J.* 5: 11-16. (Chin., with extensive Engl. s.). — (Biol. Control Res. Inst., Fujian Agric. Coll., Fuzhou, Fujian, P.R. China).
Both sexes were reared from larvae collected at a small river in the southern suburbs of Shaowu Fujian. The male is redescribed and figured, notes on the larval habitats are provided and the systematic affiliation of the sp. is discussed.
- (5499) COOPER, S.D., D.W. SMITH & J.R. BENCE, 1985. Prey selection by freshwater predators with different foraging strategies. *Can. J. Fish. aquat. Sci.* 42(11): 1720-1732. — (With Fr. s.). — (Dept Biol. Sci., Univ. California, Santa Barbara, CA 93106, USA).
Several freshwater predators, incl. larval *Pachydiplax longipennis* and *Anax junius*, feeding on a variety of microcrustacean prey, were studied and the frequency of the component parts of predator-prey interactions (encounter, attack, capture, ingestion) are determined.
- (5500) DE MARMELS, J., 1985. Hallazgo de Odonata nuevos para Venezuela o poco conocidos. 4. *Bolet. Ent. venezol.* 4(11): 85-91. (With Engl. s.). — (Depto & Inst. Zool. Agric., Fac. Agron., Univ. Cent. Venezuela, Apdo 4579, Maracay-2101-A, Venezuela).
Cocoides mungo, *Progomphus guyanensis*, *Zonophora batesi*, *Aeschnosoma auripennis*, *Lauiromacromia dubitalis*, *Fylgia amazonica*, *Orthemis regalis*, *Zenithoptera viola*, *Epipleoneura fuscaenea* and *Leptobasis mammilaris* are listed from Venezuela for the first time. A new locality is given for each, *Philogenia polyxena* and "*Acolagrion*" *fulvum*. The habits of all spp. are discussed and figs of some structures of *E. fuscaenea* and "*A.*" *fulvum* are presented.
- (5501) DONATH, H., 1985. Die Besiedlung eines künstlich geschaffenen Naturschutzweihers durch Libellen. *NaturschutzArb. Berlin Brandenburg* 21(1): 12-14. — (Jahnstr. 6, DDR-7960 Luckau, GDR).
The succession of Odon. (13 autochthonous spp.) in a freshly made artificial pond nr Luckau, GDR, in the 2nd and 3rd year is stated and discussed.
- (5502) EL SAFI, S., A.A.M. HARIDI & F.M.A. EL RABAA, 1985. The impact of the exotic fish *Gambusia affinis* (Baird and Girard) on some natural predators of immature mosquitoes. *J. trop. Med. Hyg.* 88(2): 175-178. — (Third Author: Dept Zool., Univ. Khartoum, Sudan).
The effects of *G. affinis* on some suspected

predators of mosquitoes were studied for a period of 12 months. The Odon. are family-wise considered.

- (5503) FINCKE, O.M., 1985. Alternative mate-finding tactics in a non-territorial damselfly (Odonata: Coenagrionidae). *Anim. Behav.* 33: 1124-1137. — (Dept Biol., Univ. Missouri-St. Louis, 8001 Natural Bridge Rd, St. Louis, Missouri 63121-4499, USA).

Males of the non-territorial *Enallagma hageni* have 2 alternative tactics for finding mates: (1) they search the banks of the pond for unmated females (searching tactic), or (2) wait at oviposition sites for females that resurface prematurely from underwater oviposition (waiting tactic). Although the searching tactic yielded more fertilizations than the waiting tactic, for time invested, the waiting tactic became increasingly successful later in the reproductive season due to changes in female oviposition behaviour. The 2 tactics can be maintained in the population because males can mate by the waiting tactic during the afternoon when few females are available to searchers. Among males visiting the breeding site an equal number of times, males mating by a mixture of tactics were as successful as males mating only by the main tactic. Because marked males were found to use both tactics, these behaviours are interpreted as evidence of behavioural plasticity within individuals, representing one conditional evolutionary strategy.

- (5504) FUJIYAMA, I., 1985. Early Miocene insect fauna of Seki, Sado Island, Japan, with notes on the occurrence of Cenozoic fossil insects from Sado to San-in district. *Mem. natn. Sci. Mus., Tokyo* 18: 35-56. (Jap., with Engl. s.). — (Dept Paleontol., Natn. Sci. Mus., Tokyo, JA).

The Masaragawa Formation (Early Miocene) insect fauna is described, and the Miocene faunal succession is stated. It is interesting that the Early Miocene insect fauna of Japan seems much more to resemble the present-day fauna than that of the Late Miocene. The described assemblage contains 2 Lestidae taxa (gen. & sp. indet.). Figs of the wing fragments of these are also reproduced.

- (5505) GAEDIKE, R., 1985. Berichtigungen und Ergänzungen zu P. Gilbert: A compendium of the biographical literature on deceased entomologists. *Beitr. Ent.* 35(2): 369-408. (With Engl. & Russ. s's). — (Inst. Pflanzenschutzfor., Abt. Taxon. Ins., Schicklerstr. 5, DDR-1300 Eberswalde-Finow-1).

More than 3100 additions and corrections are given for 1915 (out of the 7500) authors listed in the work cited under OA 2172.

- (5506) GLOTZHOBER, R.C., 1985. Preliminary survey of the Odonata of Stages Pond Nature Preserve, Pickaway County, Ohio. *Ohio J. Sci.* 85(4): 198-199. — (Ohio Historical Soc., 1985 Velma Ave., Columbus, Ohio 43211, USA).

Annotated list of 20 spp., of which 6 are new county records, bringing the county total to 42 spp.

- (5507) GREGG, W.W. & F.L. ROSE, 1985. Influences of aquatic macrophytes on invertebrate community structure, guild structure, and micro-distribution in streams. *Hydrobiologia* 128: 45-56. — (First Author: Dept Marine Sci., Univ. South Florida, 140 Seventh Ave. South, St. Petersburg, FL 33701, USA).

Ranunculus aquatilis and *Rorippa nasturtium-aquaticum* were transplanted into substrate trays and placed in a stream alongside unvegetated substrate (Portneuf R., Idaho, USA). *Enallagma* sp. exhibited a strong association with macrophytes. The effect of the latter in reducing current velocities appeared to play the most important role in invertebrate micro-distribution.

- (5508) HARITONOV, A. Yu. & S.N. BORISOV, 1985. *Trithemis Brauer* — novyy dlya fauny SSSR rod strekoz (Odonata, Libellulidae). — [*Trithemis Brauer* — a new dragonfly genus for the USSR fauna (Odonata, Libellulidae)].

Dokl. Akad. Nauk. tadzhik. SSR 28(8): 482. (Russ., with Tadzhik s.). — (First Author: Inst. Biol., Siber. Sect. USSR Acad. Sci., U1. Frunse 11, USSR-630091 Novosibirsk).

T. festiva is recorded from Karlyuk, SE Turkmenia (May, 1961; May, 1966).

- (5509) HUGGINS, D.G. & G.L. HARP, 1985. The

nymph of *Gomphus (Gomphurus) ozarkensis* Westfall (Odonata: Gomphidae). *J. Kansas ent. Soc.* 58(4): 656-661. — (Kansas Biol. Surv., Univ. Kansas, 2291 Irving Hill Drive, Campus West, Lawrence, Kansas 66045-2969, USA).

Reared and synoptically collected exuviae from Kansas, Missouri and Arkansas are described and illustrated. The similar larvae of *G. crassus* and *G. vastus* are differentiated from *G. ozarkensis*.

- (5510) KOENING, W.D. & S.S. ALBANO, 1985. Patterns of territoriality and mating success in the Whitetailed Skimmer *Plathemis lydia* (Odonata: Anisoptera). *Am. Midl. Nat.* 114(1): 1-12. — (First Author: Hastings Reservation & Mus. Vertebr. Zool., Univ. Calif., Carmel Valley 93924, USA; — (Second Author: Dept Zool., Univ. Calif., Berkeley, Calif. 94720, USA).

The behavioural ecology of *P. lydia* was studied in central coastal California during summer 1983. Oviposition peaked in the early afternoon, was fairly synchronous, and varied spatially, with females avoiding a sandbar and preferring the deepest section of the pond. Only 79% of males known to be alive visited the pond on any particular day. Those that did come were territorial nonterritorial "poachers", or often both within the same day. Territories were always defended individually and individual males were territorial for only a few hours in any one day, even though mating success was considerably higher for territory holders. Daily mating success of males was estimated based on the time, place and duration of territorial behaviour. Estimated daily mating success correlated significantly with wing condition and body length. The components of mating success we measured all correlated with one another; thus, we found no evidence that tradeoffs occurred either among components of daily mating success or between estimated daily mating success and survivorship.

- (5511) KORI, S.S. & S.D. AMOJI, 1985. *Tetrameridionospinispora karnatakii* gen. nov., sp. nov. A new cephaline gregarine from damselfly,

Agriocnemis sp. *Acta protozool.* 24(2): 139-146. — (Second Author: Dept Post-Grad. Stud. & Zool., Gulbarga Univ., Gulbarga-585106, Karnataka, India).

The morphology of various stages of the new gregarine sp., recovered from the midgut of an *Agriocnemis* sp. (Gulbarga, India) is described, and the taxonomic position of *Ancyrophora ceriagrioni* (cf. *OA* 2988) is reconsidered.

- (5512) ŁABEDZKI, A., 1985. Wążki Odonata rezerwatu Czartowe Pole na Roztoczu. — The dragonflies Odonata of the Czartowe Pole Reserve on Roztocze. *Parki narod. Rezerw. Przyr.* 6(2): 85-91. (Pol., with Engl. s.). — (Kat. Ent. Lesnej, Akad. Rolnicza, Ul. Wojska Polskiego 71c, PO-60-625 Poznan).

The odon. fauna (29 spp.) of the Czartowe Pole Nature Reserve is listed, and the known records (43 spp.) from the Roztocze, Poland, are briefly discussed.

- (5513) ŁABEDZKI, A., 1985. Wazki (Odonata) Świątokrzyskiego Parku Narodowego. — [Dragonflies (Odonata) of the Świątokrzyski National Park]. — *Mater. Symp. Fauna Gór Świątokrzyskich*, Świty Krzyż, p. 29 (abstract only. (Pol.). — (Kat. Ent. Lesnej, Akad. Rolnicza, Ul. Wojska Polskiego 71c, PO-60-625 Poznan).

36 spp. were recorded from 31 localities (1975-1981). These are not listed, but the fauna is generally compared with those of other Polish national parks, and it is considered relatively rich (51.4% of the fauna of Poland).

- (5514) MACHADO, A.B.M., 1985. Estudos sobre protoneurídeos neotropicalis. 6. Três novas espécies de *Epipleoneura* da região amazônica (Odonata-Zygotera). *Revta brasil. Biol.* 45(4): 695-701. (Port., with Engl. s.). — (Depto Morfol., Inst. Cien. Biol., Univ. Fed. Minas Gerais, C.P. 2486, BR-30000 Belo Horizonte). *E. kaxuriana* sp. n. (♂ holotype: Igarapé Saracazinho, Porto Trombetas, Oriximiná, Pará; 21-VI-1982), *E. tariana* sp. n. (♂ holotype: Taracuá, Amazonas; 15-VIII-1964) and *E. waiwiana* sp. n. (♂ holotype: Aldeia Mapuera, Pará; 19-VI-1982), all from the Amazon Re-

- gion, Brazil, are described and illustrated. The names refer to the Indian tribes inhabiting the areas where the spp. have been collected.
- (5515) MACHADO, A.B.M., 1985. Notes on the types of *Aeshna punctata* Martin, 1908 (Odonata, Aeshnidae). *Revta brasil. Zool.* 2(6): 327-332. — (Depto Morfol., Inst. Cien. Biol., Univ. Fed. Minas Gerais, C.P. 2486, BR-30000 Belo Horizonte, MG).
The type series of *A. punctata* Martin, 1908 was examined and some inconsistent points in the original description are elucidated. A lectotype is designated, described and illustrated. The 2 females originally referred to this sp. actually belong to the Mexican *A. jalapensis* Williamson, 1908. *A. punctata* should be dropped from the list of the Mexican fauna.
- (5516) MATSUKI, K. & S. OBANA, 1985. Description of the larva of *Anaciaeschna jaspidae* (Burmeister) from Japan and Taiwan (Odonata: Aeschnidae). *Gekkan Mushi* 175: 29-31. (Jap., with Engl. title). — (Second Author: Kinryô-chô 3-4-10, Sakai-shi, Osaka, 590, JA). The ultimate instar is described and illustrated.
- (5517) OHSAWA, N., M. WATANABE & M. TAGUCHI, 1985. Comparative ecological studies of Coenagrionoidea [sic!] in woodlands. III. Environmental analysis of adult damselflies' habitats. *Bull. Fac. Educ. Mie Univ.* (nat. Sci.) 36: 69-76. (Jap., with Engl. title). — (Second Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu, Mie, 514, JA). [Abstract not available].
- (5518) PIERCE, C.L., P.H. CROWLEY & D.M. JOHNSON, 1985. Behavior and ecological interactions of larval Odonata. *Ecology* 66(5): 1504-1512. (First Author: Dept Zool., Univ. Maryland, College Park, Maryland 20742, USA).
Enallagma aspersum and *E. traviatum* are most abundant larval odonates in Bays Mountain Park (Sullivan County, Tennessee, USA), although their spatial distributions are essentially nonoverlapping. *E. traviatum* coexists with insectivorous fish in a small lake, whereas *E. aspersum* is restricted to a small fishless pond nearby. Behavioral observations revealed that *E. aspersum* larvae were more active than *E. traviatum*, and tended to occupy more conspicuous positions. *E. aspersum* also engaged in more confrontations than *E. traviatum*, especially at higher density. In laboratory experiments with juvenile bluegills (*Lepomis macrochirus*) as predators, *E. aspersum* larvae were more vulnerable to predation than *E. traviatum*. Red-spotted newts (*Notophthalmus viridescens*) also preyed on *E. aspersum* disproportionately. Field enclosure experiments revealed that dry mass of individual *E. aspersum* larvae was density dependent, and that increased density of *E. aspersum* or addition of *E. traviatum* produced similar reductions. Competition was asymmetrical, as *E. aspersum* appeared to have no significant effect on *E. traviatum*. The substantial increase in confrontations among *E. aspersum* larvae at higher density and the lack of evidence for prey depletion, suggest that interference may be the mechanism of competition. The results suggest that the distribution of *E. aspersum* larvae may be limited by fish predation, but although competitive interactions were detected, there is no evidence that larval competition influences the distribution of either species.
- (5519) ROWE, G.W. & I.F. HARVEY, 1985. Information content in finite sequences: communication between dragonfly larvae. *J. theor. Biol.* 116: 275-290. — (Second Author: Dept Biol. Sci., Univ. Dundee, Dundee, DD1 4HN, UK). A method for determining the bias in information theory measures due to finite length in short sequences of events such as occur during agonistic interactions between animals is proposed. It is applied to the sequences of behaviour during territorial interactions between *Pyrhosoma nymphula* larvae. While previous methods of analysis indicate order present in the sequences, the authors find that most of the sequences are random at the pair level.
- (5520) SAMPEDRO MARÍN, A., L. MONTAÑEZ HUGUEZ & O. SUÁREZ BOADO, 1985. Alimentación de *Rana catesbeiana* en dos zonas de captura de Cuba. *Cien. biol., Cuba* 13: 59-66. (With Engl. s.). — (Fac. Biol.,

- Univ. La Habana, Cuba).
The unidentified Odon. were found in 2.89% of stomachs examined (Granma, Cuba). The prevailing groups were Coleoptera (30.43%), Orthoptera (24.63%) and Arachnida (14.49%).
- (5521) SAVARD, M., 1985. Observations sur une population d'*Ophiogomphus aspersus* Morse dans la Réserve des Laurentides, Québec (Anisoptera: Gomphidae). *Faberies* 12(1): 1-5. — (184, av. Eymard Nord, Alma, Que. G8B 5H9, CA).
Field observations (July 9-12, 1984) on the habitat and behaviour of *O. aspersus* at the Milieu R., Quebec, Canada, are presented.
- (5522) SCHULTZ-BENKER, P. & B.J. MATHIS, 1985. Macroinvertebrate populations in a thermally impacted reservoir. *Trans. Illinois St. Acad. Sci.* 78(1/2): 67-80. — (Second Author: Dept Biol., Bradley Univ., Peoria, Illinois 61625, USA).
The macroinvertebrate community of Duck Creek Reservoir, Fulton Co., Illinois, USA, was stated over a 12-month period to determine the effect of heated effluents on distribution and abundance. The Shannon-Weaver function, H, was used to express species diversity. The over 34 thousand organisms encountered represent 57 taxa, incl. 9 odon. spp. (all Zygoptera). The number of individuals per square meter increased when water temperature was moderately elevated, but abundance and diversity were significantly reduced by higher temperature at the immediate discharge area. Bathymetric distribution showed diversity and abundance greatest between 2-4 m, with a rapid decline between 6-10 m. Below 10 m, organisms were rarely encountered.
- (5523) STOCH, F. & S. DOLCE, 1985. Osservazioni sull'alimentazione degli anfiabi: II. *Triturus cristatus carnifex* (Laur., 1786) negli stagni del Carso triestino (Italia nordorientale). *Atti Mus. civ. Stor. nat. Trieste* 37(2): 153-159. (With Engl. s.). — (Second Author: Mus. Civ. Stor. Nat., Piazza Hortis 4, I-34123 Trieste).
In the ponds of the Karst of Trieste, NE Italy, adult and larval Odon. were recovered from the stomachs of adult *Triturus*, while only larvae occurred in the tadpoles.
- (5524) TAGUCHI, M. & M. WATANABE, 1985. Ecological studies of dragonflies in paddy fields surrounded by hills. II. Diurnal behaviour of *Sympetrum pedemontanum elatum* Selys. *Rep. environ. Sci. Mie Univ.* 10: 109-117. (Jap., with Engl. s.). — (Second Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu, Mie, 514, JA).
In immature adults the daily activity pattern is bimodal, low in the morning, high in the afternoon. The flight activity of mature males decreased from morning to evening, while that of females increased. The reproductive strategy is considered non-territorial.
- (5525) TIBERGHEN, G., 1985. *Macromia splendens* (Pictet, 1843): additions faunistiques, biologiques et récapitulation des principales données connues (Odon. Anisoptera Corduliidae). *Bull. Soc. ent. Fr.* 90(9/10): VIII-XIII. [Sic: roman pagination]. — (Lab. Ecol. Hydrobiologique, Chaire de Zoologie, INRA, 65, rte de Saint-Brieuc, F-35042 Rennes).
New faunistic data are presented, all the known records of *M. splendens* are mapped and analysed, and the biol. and ecol. features of the sp. are outlined. The bibliography on the subject is exhaustive, though not complete.
- (5526) TOTH, S., 1985. Adatok a Zirci arborétum szitakötő faunájához (Insecta: Odonata). (Data on the knowledge of the dragonfly fauna of the Zirc arboretum [Insecta: Odonata]). *Resultat. Investigat. Rerum nat. Montium Bakonyi* 16: 51-55. (Hung., with Engl. s.). (Bakonyi Termész. Muz. Rákóczi tér 1, HU-8420 Zirc).
16 odon. spp. are listed. (Cf. also *OA* 2541, 3141, 4650).
- (5527) TRAVIS, J., W.H. KEEN & J. JULIANNA, 1985. The role of relative body size in a predator-prey relationship between dragonfly naiads and larval anurans. *Oikos* 45(1): 59-65. (With Russ. s.). — (First Author: Dept Biol. Sci., Florida St. Univ., Tallahassee, FL 32306, USA).

Size-limited predator-prey systems can be the ecological background for natural selection on prey growth rate and body size. In a laboratory experiment on one such system, individual predatory *Tamea lacerata* (Libellulidae) larvae of varying sizes were exposed to 3 densities of *Rana areolata* tadpoles in each of 5 size classes. Predation rate decreased with increases in tadpole body size. Larger larvae consumed slightly more tadpoles than did smaller larvae when tadpoles were very small, but at larger tadpole sizes, dragonfly size did not affect predation rate. Although the number of tadpoles consumed increased with increasing tadpole density, the proportion of the number that were eaten decreased with increasing density. When tadpoles were very small, dragonflies that ate more prey grew larger. When tadpoles were larger, there was little variation in the number eaten and no detectable relationship between the number eaten and subsequent dragonfly growth. These data resolve several paradoxical reports in the literature.

tribution of larvae in a small Indiana pond revealed that many spp. which overlap extensively have highly size-structured populations. Because dragonfly larvae are dietary generalists, similarly sized instars which co-occur in time and space are potential competitors, whereas disparately sized instars should interact as predators and prey. An index was developed to calculate the proportion of all encounters between pairs of spp. which are potentially predatory or competitive by accounting for both the densities and size ratios of all co-occurring instars. Predictions are made about which spp. interact most frequently, the relative occurrence of predation and competition and how intensities of interactions vary during development. Such information is useful for designing manipulative experiments with dragonfly larvae or any other taxa with size-structured populations.

1986

- (5528) WAISBERG, Y., A.B.M. MACHADO & A.A. OLIVEIRA, 1985. Crendices populares relativas ao olho: as borboletas e o olho. *Revta brasil. Oftalmol.* 44(3): 7-15. (Port., with Engl. s.). — (Second Author: Depto Morfol., Inst. Cien. Biol., Univ. Fed. Minas Gerais, C.P. 2486, BR-30000 Belo Horizonte).
The widespread (in Brazil) popular belief that the introduction of lepidopteran scales on the eye may cause blindness was studied and found to have no scientific basis. A reference is also made to the popular belief in various European countries that dragonflies are harmful to the human eyes.
- (5529) WISSINGER, S.A., 1985. Predicting key species interactions in guilds of predators with size-structured populations. *Am. Zool.* 25(4): 11A [Abstract only]. — (Address incomplete: Purdue Univ., West Lafayette, Ind., USA). [Verbatim text]: Overlap indices which describe the potential for predation vs. competition were used to identify the subset of possible interactions most likely to affect coexistence among 14 spp. of anisopteran larvae. Detailed study of the spatial and temporal distribution of larvae in a small Indiana pond revealed that many spp. which overlap extensively have highly size-structured populations. Because dragonfly larvae are dietary generalists, similarly sized instars which co-occur in time and space are potential competitors, whereas disparately sized instars should interact as predators and prey. An index was developed to calculate the proportion of all encounters between pairs of spp. which are potentially predatory or competitive by accounting for both the densities and size ratios of all co-occurring instars. Predictions are made about which spp. interact most frequently, the relative occurrence of predation and competition and how intensities of interactions vary during development. Such information is useful for designing manipulative experiments with dragonfly larvae or any other taxa with size-structured populations.
- (5530) ASAHINA, S., 1986. Revisional notes on Nepalese and Assamese dragonfly species of the genus *Chlorogomphus* (Odonata, Cordulegasteridae). *Chō Chō* 9(1): 11-26. (With Jap. s.). — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
C. atkinsoni (Sel.) (adult and larva), *C. p. preciosus* Fras., *C. p. fernandi* ssp. n. (♂ holotype, ♀ allotype: Mawpran, 900-2000 ft, Unkhasi & Jaintla Hills, Assam; 9-IV-1960; deposited in the author's coll.), *C. fraseri* St. Quentin, and *C. schmidtii* sp. n. (♀ holotype: Luang-long, Khunou, 2500 ft, Manipur, Assam; 28-V-1960; deposited in the author's coll.) are described and illustrated. A preliminary suggestion on the grouping of the *Chlorogomphus* spp. is also made.
- (5531) ASAHINA, S., 1986. A list of the Odonata from Thailand. Part XIII. Gomphidae-1. *Chō-Chō* 9(2): 29-43. (With Jap. s.). — (Takadanobaba 4-4-24, Shinjuku, Tokyo, 160, JA).
The taxa critically examined, described and illustrated are: *Asiagomphus* sp., *Burmagomphus divaricatus* Lieft., *B. johnseni* Lieft., *Burmagomphus* sp., *B. w. williamsoni* Foerst.,

- Merogomphus parvus (Krueger), Microgomphus chelifera thelyphonus Lieft., and M. thailandica Asah. New is Burmagomphus? insolitus sp. n. (♂ holotype, ♀ allotype: Chiengkan, Loey; 14-XI-1955; deposited in Dept Agric., Bangkok). The new sp. is "allied to, but atypical in, the genus Burmagomphus (s. str.)".
- (5532) ASAHINA, S., 1986. [Odonatological works published in 1985. (International publications)]. *Gekkan Mushi* 180: 8-11. (Jap.). — (Takadanobaba 4-4-24, Tokyo, 160, JA). Highlights of odonatol. literature published in 1985.
- (5533) ASAHINA, S., 1986. On the occurrence of *Anax nigrofasciatus nigrolineatus* in Thai territory (Odonata). *Kontyu* 54(2): 224. — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA). 2 males from Doi Inthanon (alt. 1300 m), N. Thailand are recorded. In the number of forewing antenodals and in the markings on the last abd. segment they resemble the E. Asiatic nominate form, while in all other features they agree with the Himalayan subspecies *nigrolineatus*.
- (5534) BAKER, R.L., 1986. Developmental stages and the analysis of zygopteran life histories. *J. Freshw. Ecol.* 3(3): 325-332. — (Dept Zool., Univ. Toronto, Erindale Coll. Campus, Mississauga, Ont. L5L 1C6, CA). A simple method for analyzing zygopteran life histories based on developmental stages is described. Analysis of the life history of an *Ischnura verticalis* population in southern Ontario shows the same conclusions were reached using either the new method or a conventional instar analysis; yet, the new technique requires only one tenth the effort. Use of developmental stages is also preferable to conventional methods as it allows for more useful comparisons of life histories between species and habitats.
- (5535) BAKER, R.L., 1986. Effects of density, disturbance, and waste products on growth of larval *Enallagma ebrium* (Hagen) (Odonata: Coenagrionidae). *Can. Ent.* 118(4): 325-328. (With Fr. s.). — (Dept Zool., Univ. Toronto, Erindale Campus, Mississauga, Ont., L5L 1C6, CA). Individual growth rates of larval dragonflies can exhibit density dependence under field conditions. Retarded growth can occur despite an apparent abundance of food and may be due to some form of stress caused by aggressive interactions. Laboratory experiments were used to test for effects of larval density, accumulated waste products, and disturbance on growth of larval *E. ebrium* given abundant food. Experimental treatments had no clear effect on larval weight, size, or duration in an instar. Thus aggressive interactions, in the absence of food limitation, may not be important in affecting growth rates of larval odonates.
- (5536) BAKER, R.L., 1986. Estimating food availability for larval dragonflies: a cautionary note. *Can. J. Zool.* 64: 1036-1038. (With Fr. s.). — (Dept Zool., Univ. Toronto, Erindale Campus, Mississauga, Ont. L5L 1C6, CA). Fecal pellets produced by larvae of *Enallagma ebrium* and *Ischnura verticalis* given ad libitum feedings of enchytraeid worms were heavier than pellets produced by larvae given ad libitum feedings of *Daphnia magna*. Dependence of pellet weight on food type has marked implications for indices of food limitation for larval dragonflies.
- (5537) BAKER, R.L. & S.M. DIXON, 1986. Wounding as an index of aggressive interactions in larval Zygoptera (Odonata). *Can. J. Zool.* 64: 893-897. (With Fr. s.). — (Dept Zool., Univ. Toronto, Erindale Campus, Mississauga, Ont. L5L 1C6, CA). The use of frequency of wounds to legs and lamellae of larval Zygoptera as an index of aggressive interactions was investigated. Criteria for recognizing recent wounds were based on laboratory studies of *Ischnura verticalis* and *Enallagma ebrium* larvae with autotomized legs and lamellae; legs and lamellae showing less than 75 and 66% regeneration, respectively, were likely wounded in the preceding instar. Laboratory studies indicated that the frequency of wounds was strongly related to the number of aggressive interactions and that, when smaller larvae were paired with

larger larvae, the smaller larvae were more likely to be wounded. Under field conditions, the frequency of wounds of larval I. verticalis and E. ebrium was not correlated with population density but was correlated with dispersal rates. Also, wounded larvae were significantly smaller than nonwounded larvae. The seasonal pattern of wound frequency also suggested that wounds were the result of aggressive interactions. Wounds were more frequent when scarcity of vegetation should have increased the number of encounters between larvae. Frequency of wounding may be a more accurate method of indexing aggressive interactions than density since density estimates are confounded by the quality and quantity of available substrate. The index should prove useful in analysing the effects of behavioural interactions on larval odonate populations.

- (5538) BANSE, G., 1986. Der Einsatz der Clusteranalyse für ökologische Fragestellungen in der Entomologie (Beispiel Libellen, Odonata). *NachrBl. bayer. Ent.* 35(2): 39-42. (Auenstr. 7a, D-8045 Ismaning, FRG). Clusteranalysis of 11 Zygoptera spp. in 30 localities nr Freising, Bavaria, FRG.
- (5539) BARNARD, P.C., 1986. Obituary. Douglas Eric Kimmins. *Trichoptera Newsl.* 13: 7-11. — (Dept Ent., Brit. Mus. (Nat. Hist.), Cromwell Rd, London, SW7 5BD, UK). Brief biographic sketch, with his trichopterological bibliography (1930-1967; 84 titles).
- (5540) BATTIN, T., 1986. Morphologische Untersuchungen an den Kaudallamellen von *Erythromma najas* (Hansem., 1823) hinsichtlich ihrer lokomotorischen Bedeutung (Odonata; Zygoptera: Coenagrionidae). *Paiperlek* 8(1): 13-20. — (21 rue de l'Hôpital, L-4137 Esch-sur-Alzette, Luxembourg). The morphology and physiology of the caudal lamellae in *E. najas* are described from the point of view of their locomotory function.
- (5541) BELLE, J., 1986. New World Lindeniinae, with *Melanocacus interioris* gen. nov. et spec. nov. (Odonata: Gomphidae). *Ent. Ber., Amst.* 46(7): 97-102. — (Onder de Beumkes 35, 6883 HC Velp, NL). The New World Lindeniinae are reviewed. *Melanocacus* gen. n. is proposed for *Cacus mungo* Needham from Surinam, and *M. interioris* sp. n. is described (♂ holotype, ♀ allotype: Sinop, Mato Grosso, Brazil; Oct. 1975; coll. A.B.M. Machado). The known spp. of the subfamily are commented.
- (5542) BELLE, J., 1986. *Cyanogomphus pumilus*, a new species from Venezuela (Odonata: Gomphidae). *Ent. Ber., Amst.* 46(8): 111-112. — (Onder de Beumkes 35, 6883 HC Velp, NL). The new sp. is described and figured on the basis of 2 reared males and their exuviae from the Territorio Federal Amazonas. Morphologically it is similar to *C. minutus* and *C. demerarae*.
- (5543) BORISOV, S.N., 1986. Chrislennost' nekotorykh vidov strekoz v dolinah yugo-zapadnogo Tadzjikistana. — [The abundance of some dragonfly species in the valleys of south-western Tadjikistan]. *Vestn. Zool.* 1986(2): 38-42. (Russ.). — (E.N. Pavlovsky Inst. Zool. & Parasitol., Tadjik Acad. Sci., Dushanbe, USSR). *Ischnura elegans*, *I. evansi*, *I. fontainei*, *Crocothemis erythraea* and *Diplacodes lefebvrei* are dealt with.
- (5544) CONTACTBLAD NEDERLANDSE LIBELLENONDERZOEKERS — [Newsletter of the Dutch Dragonfly Workers], No. 11 (April, 1986). (Dutch). — (c/o Miss K. Verspui, Westerkade 27 bis, 3511 HC Utrecht, NL). In addition to the usual news items, a note on the preparation of specimens (*H. Verhaar*, pp. 2-3), and a review of some noteworthy records (*M. Verdonk*, pp. 4-5) are of interest. Also included are book reviews (by *L. Beukeboom*, p. 6 and *H. Verhaar*, p. 7), dealing with resp. the Distribution Atlas of Belgium and Luxembourg (cf. *OA* 5434), and with the recent edition of the Dutch identification keys (cf. *OA* 5234).
- (5545) DREYER, W., 1986. *Die Libellen. Das umfassende Handbuch zur Biologie und Ökologie*

aller mitteleuropäischen Arten mit Bestimmungsschlüsseln für Imagines und Larven. Gerstenberg, Hildenheim. 220 pp. [ISBN 3-8067-2022-3]. (Bound, dust jacket, 28.5 x 21.5 cm). — Price: DM 59,-. — (Author: Lehrstuhl Ökol., Zool. Inst., Univ. Kiel, Ohlshausenstr. 40-60, D-2300 Kiel-I, FRG; — Publishers: Rathausstr. 18, Postfach 390, D-3200 Hildenheim, FRG).

An attractive "handbook", directed at the non-professional reader, and a valuable item in every odonatol. library. — This is a "colloquial style" monographic treatment of the German fauna, organised in 16 main chapters, with keys to mature and immature stages and an extensive, classified reference list in the Appendix. 15 chapters are concerned with paleontology, morphology, behaviour, ecology, phenology, distribution and conservation, while the "systematic part" consists of small essays on each of 80 regional spp., containing also a number of original, hitherto unpublished field observations. Where necessary, a number of line-drawings elucidate the text. The (very concise) adult key would need perhaps a few more illustrations, and that to the larvae is pictorial only. "Whenever reasonably possible", colour photographs are given of most spp. Many of these are of high quality, though their col. reproduction is not always optimal, in some cases it is inadequate (e.g. *Crocothemis*, p. 78). — The Author is a master of style: there are but few dragonfly books as legible as this. The attractiveness is also enhanced by some editorial features, e.g. the use of pictorial symbols indicating the status of each sp. — A number of errors and/or shortcomings should/could be corrected in a second edition, e.g. *Coenagrion mercuriale* is autochthonous in Germany, Switzerland, etc. (p. 25); photograph on p. 102 shows a *Sympetrum depressiusculum*; statements on the habitats are often too definite (e.g. in tab. on p. 131 and in some individual species sections). If figs and tabs were numbered, this would facilitate the citation. — This is the most complete book so far published on German dragonflies. It is based on the experience the Author gained during his "30 dragonfly summers". A useful handbook, a valuable reference work and

highly enjoyable reading, reflecting also much of the Author's personal attitude towards dragonflies to whom he devoted most of his professional work and leisure hours alike. It should not be missed in any entomological library.

- (5546) FINCKE, O.M., 1986. Lifetime reproductive success and the opportunity for selection in a non-territorial damselfly (Odonata: Coenagrionidae). *Evolution* 40(4): 791-803. — (Dept Biol., Univ. Missouri-St. Louis, 8001 Natural Bridge Rd, St. Louis, Missouri 63121-4499, USA).

The work is based on *Enallagma hageni*, and the results caution against drawing conclusions about the dynamics of sexual selection on populations based on a superficial comparison of standardized variance values.

- (5547) FINCKE, O.M., 1986. Underwater oviposition in a damselfly (Odonata: Coenagrionidae) favors male vigilance, and multiple mating by females. *Behav. Ecol. Sociobiol.* 18: 405-412. — (Dept Biol., Univ. Missouri-St-Louis, 8001 Natural Bridge Rd, St. Louis, Missouri 63121-4499, USA).

In *Enallagma hageni*, risks associated with submerged oviposition favour both mate guarding and multiple, within-clutch mating by females. For males, mate guarding functions in the context of natural and sexual selection. It insures that a mate lives to lay a complete egg clutch in addition to protecting a male's sperm investment.

- (5548) FRASERIA. Newsletter of the S.I.O. National Office in India, Pondicherry, No. 10 (June 1, 1986). — (c/o Dr B.K. Tyagi, Vector Control Res. Cent., I.C.M.R., Medical Complex, Indira Nagar, Pondicherry-605006, India).

The issue contains a detailed "advance announcement" of the Ninth Int. Symp. Odonatol. (Madurai, India; early Jan., 1988), the final information on the Second Indian Symp. Odonatol. (Dehra Dun, India; Oct. 8-10, 1986). 2 book reviews, some editorial notes, and a paper by Prasad, M.: Reproductive behaviour in *Tholymis tillarga* (Fabricius) (Anisoptera: Libellulidae) pp. 43-44).

- (5549) GIBBONS, B., 1986. *Dragonflies and damselflies of Britain and northern Europe*. Country Life Guides, Hamlyn Distribution Services, Rushden, 144 pp. [ISBN: 0-600-358-410 soft-cover; 0-600-353-787, hardcover]. — Price: £ 7.95 and 12.95, resp. — (Publishers: HDS, Sanders Londge Estate, Rushden, Northants, NN10 9RZ, UK).
Relatively expensive pocket-size (12 x 20 cm) booklet, the title of which does not correspond to its actual scope. The latter is apparently intended to cover most of Central Europe, from N. Switzerland to S. Scandinavia, most of France and parts of Poland, Czechoslovakia and Austria. About 75 spp. are treated, but none of the "northern" (i.e. subarctic) taxa, and many of the locally, within the outlined area, common and widespread spp. are missing, e.g. 3 Calopteryx spp., Sympecma braueri, Aeshna subarctica, Somatochlora alpestris, etc. Col. photographs are given of most spp., but the vast majority of these is set in unnatural postures, and some are misidentified (e.g. "Coenagrion mercuriale ♀", on p. 75, is a melanogastrum female of Ceriagrion tenellum). The amount of information per sp. varies, the sections on "British spp." are generally longer. There are also some keys, but these are incomplete, in some cases to the males only. — (*Abstracter's Note*: As far as the European spp. are concerned, hardly any new biological information can be documented by classical macrographs. If these show set specimens, the information may be even misleading. If the photographs are mainly intended to facilitate species recognition, the Japanese method of photographing freshly killed specimens would probably better serve the purpose. Although the esthetic value of nature photographs is unquestionable, photographs of set specimens cannot be considered under this category)
- (5550) GLOTZHOBER, R.C., 1986. *Ohio dragonflies and damselflies*. Ohio Historical Society, Columbus. 3 pp. — (Author: Ohio Historical Soc., 1985 Velma Ave., Columbus, Ohio 43211 USA).
Checklist of 155 spp. known to occur in Ohio, USA.
- (5551) JANSEN, G.W., 1986. *Dagvlinders en libellen in het Noorderpark*. — [*Butterflies and dragonflies of the Noorderpark*]. Natuur, Milieu & Faunabeheer, Utrecht. 58 pp., 1 folded map excl. (Dutch). — (Author; Kruisweg 18, 3513 CT Utrecht, NL; — Publishers: Museumlaan 2, 3581 HK Utrecht, NL).
Contains a list of, and a discussion on the odon. fauna of some areas in the surroundings of Utrecht, the Netherlands.
- (5552) *JOURNAL OF THE BRITISH DRAGONFLY SOCIETY*. Vol 2, No. 1 (Apr., 1986). — (c/o R.H. Dunn, 4 Peakland View, Darley Dale, Matlock, Derbyshire, DE4 2GF, UK).
Sheppard, D.A.: Notes on the folklore of dragonflies (1-3); — *Fox, A.D.*: The dragonflies of Ceredigion — an update (4-7); — *Clausen, W.*: More characters to separate Aeshna subarctica (Walker) from Aeshna juncea (L.) in the field (8-10); — *Welstead, N. & T. Welstead*: A reappraisal of the status of Sympetrum sanguineum (Müller) in the New Forest, Hampshire (10-12); — *Cham, S.A.*: A cautionary note on the use of the discoidal cell (or triangle) in the identification of Somatochlora metallica (Vander Linden) and Cordulia aenea (L.) (12-13); — *Whalley, P.*: Mortality in the damselfly, Ischnura elegans (Vander Linden) (14-15); — *Thicket, L.A.*: Some notes on the behaviour of Odonata (15-16); — *Jenkins, D.K.*: A population study of Coenagrion mercuriale (Charpentier) at a New Forest side using a modified "Pollard Walk" (17-20).
- (5553) JURZITZA, G., 1986. Nota sobre la morfología y la etología de Antiagrion grinbergi Jurzitza, 1976; especie gemela de A. gayi (Selys; 1876) (Odonata: Coenagrionidae). *Revta chil. Ent.* 13: 47-49. (With Engl. s.). — (Bot. Inst. I, Univ. Karlsruhe, Kaiserstr. 12, D-7500 Karlsruhe, FRG).
The 2 spp. occur in central and northern Chile. The main distinctions in structure and coloration are described. A. grinbergi oviposits only into fronds of the fern Blechnum chilense, A. gayi was noticed to oviposit into an unidentified aquatic plant.
- (5554) KISHI, K., 1986. [The fauna of butterfly and

- dragonfly in Oiso Hills]. [Sic!]. *Nature & Insects* 21(9): 23-26. (Jap. with Engl. title). — (Address unknown).
[Abstract not available].
- (5555) KUHN, K. & H. FISCHER, 1986. Verbreitungsatlas der Libellen Schwabens. *Ber. naturf. Ges. Augsburg* 41(181): 1-80. — (Second Author: Vogelmauer 33, D-8900 Augsburg, FRG).
With reference to the checklist listed in OA 5045, this is the distribution atlas of the dragonflies in Schwaben, FRG (73 spp.). It covers the period 1813-1985, was compiled on the basis of evidence contributed by 95 collaborators, and shows 914 (after critical consideration) accepted localities. No doubt this is among the most thoroughly prepared regional atlases yet published for the Odon.
- (5556) KURT, F., 1986. "La belle" Libelle. *Sonntagsblick*, issue of June 8, pp. 72-77. — (Author's address unknown).
A rather extensive account on dragonfly biology, with references to, and col. photographs of Swiss spp., in a well known Swiss weekly.
- (5557) LEMMEL, G. & H. NORENZ, 1986. Ein neues Vorkommen der Zwerglibelle (*Nehalennia speciosa*) in Niedersachsen. *Beitr. Naturk. Niedersachs.* 39(1): 32-34. — (First Author: Isernhagener Str. 27, D-3000 Hannover-1, FRG).
A recently discovered locality is described, the odon. fauna is stated, and a photograph of *N. speciosa* is provided. The name and the exact location of the moor are not disclosed.
- (5558) *LIBELLULA*. Mitteilungsblatt der Gesellschaft deutschsprachiger Odonatologen (GdO), Vol. 5, No. 1/2 (June, 1986). — (c/o Prof. Dr R. Rudolph, Biol. Didaktik, Univ. Münster, Fliednerstr. 21, D-4400 Münster, FRG).
Mlody, B.: Vorkommen und Wetterabhängigkeit von Libellen auf der Wattenmeer-Insel Scharhörn mit einem Fund von *Sympetrum meridionale* (Selys, 1841) (1-47); — *Heidemann, H. & R. Kull*: Untersuchungen zur Libellenfauna und Gewässergüte an ausgewählten Fließgewässern in Rheinland-Pfalz und Baden-Württemberg (48-62); — *Schmidt, E.*: Zur Habitatpräferenz von *Cordulegaster boltoni* und *Calopteryx splendens* an einem Mittelgebirgsbach im Spessart: Nachweis der Entwicklung von *C. splendens* in stehendem Wasser (63-69); — Verdüsterung der Blaufärbung nach kühlen Nächten bij ♂♂ von *Aeshna mixta* (Eifel/BRD) und *A. interrupta* (Rocky Mountains, Canada) (70-71); — *Jurziuta, G.*: Unter-Wasser-Eiablage bei *Ischnura elegans* (Van der Linden) (72-74); — *Rudolph, R.*: Bibliographie der Libellenfauna Westfalens (75-83).
- (5559) *LINDENIA*. Notiziario dell'Ufficio Nazionale Italiano della Societa Odonatologica Internazionale, Roma, No. 6 (July 1, 1986). — (c/o Prof. Dr C. Utzeri, Dipt. Biol. Anim. & Uomo, Univ. Roma, Viale dell'Università 32, I-00185 Roma).
Of paramount importance is the Editor's review of odonatological collections and libraries in Italy, based on an earlier circulated questionnaire, and listing the addresses of 34 institutions, specifying their collection and library holdings. Also included is the Second Announcement of the First Meeting of Italian Odonatologists (Rome, Oct. 6-10, 1986), at which the set-up of an Italian Odonatol. Documentation Centre, central library and national odonatol. archives will be discussed.
- (5560) LUDE, A., 1986. Untersuchungen zur Ökologie eines Gartenteiches. *Junge Wissenschaft, Seelze* 1986(1): 52-64. — (Babenberger Str. 39, D-7520 Göppingen, FRG).
Comparison of the ecology and biotic communities of an artificial garden pond with those of 3 natural lakes. The emphasis is on the odon. composition and ecology.
- (5561) MACHADO, A.B.M., 1986. Microscopia eletrônica de veredura de ovos de libélulas do gênero *Mecistogaster* (Odonata-Pseudostigmatidae). *Resum. XIII Congr. brasil. Zool., Culabá, MT*, p. R. 140 [abstract only]. — (Depto Morfol., Inst. Cien. Biol., Univ. Fed. Minas Gerais, C.P. 2486, BR-30000 Belo Horizonte, MG).

- Scanning electron microscope examination of the egg morphology of 8 *Mecistogaster* spp. has revealed that these could be organized into 5 groups, viz. (1) *amalia-linearis-lucretia*, (2) *modesta*, (3) *ornata*, (4) *jocaste*, and (5) *asticta-martinezi*. It is emphasized that the peculiarities in egg structure generally agree with the subgeneric classification proposed by D.A.L. Davies & P. Tobin (1984, *Soc. int. odonotol. rapid Comm.* (Suppl.) 3: 117-119).
- (5562) MAHATO, M., 1986. List of some dragonflies of Kanchanpur area, Saptari district, Nepal. *J. nat. Hist. Mus., Kathmandu* 8(1/4) [1984]: 23-27. (With Nepali s.). — (Nat. Hist. Mus., Anandakuti, Swayambhu, Kathmandu, Nepal).
Preliminary list of 19 spp., collected in Oct., 1983. *Onychargia atrocyana* is recorded from Nepal for the first time.
- (5563) MAHATO, M. & U.K.R. YADAV, 1986. The composition of benthic macro-invertebrates of two ponds of Mahottary district, Nepal. *J. nat. Hist. Mus., Kathmandu* 8(1/4) [1984]: 79-88. (With Nepali s.). — (First Author: Nat. Hist. Mus., Anandakuti, Swayambhu, Kathmandu, Nepal).
The Ghari and Khelawan ponds were studied during July-Sept., 1982. The Odon. are only family-wise considered.
- (5564) MALANGPO. Newsletter of the Thai National Office of the International Odonatological Society, Chiang Mai, Vol. 1, No. 2 (Apr. 1, 1986). (Thai). — (c/o Dr M. Titayavan, Dept Ent., Fac. Agric., Chiang Mai Univ., Chiang Mai-50002, Thailand).
For the general information and order conditions cf. OA 5151. — In addition to the general SIO communications, the present issue contains the following items: a note on the trip of *P. Eak-Amnuay* to Malaysia and Singapore (the odonotol. photographic material from which was supplied to the National Office); comments on the newsletter (by Bro. A. *Pinratana*); literature acquisitions of the National Office; Thai visitors at the Office; obituary notices for D.E. Kimmins and Dr D.C. Geijskes; a brief outline of the set up of the SIO International Odonata Research Institute in Gainesville, Fla, USA; bibliography on the Thai odon. fauna (by M. *Titayavan*, pp. 12-16; 44 titles); and an appeal for news items for publication in the forthcoming issues.
- (5565) [MALICKY, H.], 1986. Obituary. Dr Dirk Cornelis Geijskes. *Trichoptera Newsl.* 13: 12. — (Biol. Stn, A-3293 Lunz am See).
Brief biographic sketch; with his trichopterological bibliography (1936-1980; 11 titles).
- (5566) McGEENEY, A., 1986. *A complete guide to British dragonflies*, Jonathan Cape, London. X+133 pp., frontispiece. [ISBN 0-224-02307-1]. — Price: £ 12.95. — (Author: 12 Lincolnsfield, Epping, Essex CM16 5DY, UK; — Publishers: 32 Bedford Squ., London WC1B 3EL, UK).
Attractive volume (19 x 25 cm, hard cover), organised under the headings: Introduction, Structure, Reproductive behaviour, Life cycle, Habitat, Conservation, Observation and study, Collecting larvae, British dragonflies (pp. 15-102), Glossary, pictorial keys to adults and larvae, Further reading, Check list and Index. The treatment of the British spp. is well balanced and presented in such a way that the information on each sp. fits exactly 2 (opposite) pages, incl. col. photogr. of both sexes in different views. The information supplied is generally adequate (description, notes on the larval stage, behaviour and habitat, distribution and phenology) and the editorial presentation is excellent. The dragonfly portraits, however, pretend to have been taken in nature, therefore it is unfortunate that some Zygoptera and most Anisoptera are set, showing often unnatural postures and "artificial" position of legs. The publication of locality data of the photographed insects would enhance the value of the work. Some photographs are based on non-British individuals.
- (5567) MEYER, M., 1986. Kurzer Kommentar zur Novellierung der Verordnung über geschützte Tierarten. *Paiperlek* 8(1): 21-22. — (Mus. Hist. Nat., Marché-aux-Poissons, L-2345 Luxembourg).
Due to a strong protest from the Luxembourg

Society of Sport Fishermen, the Governmental Regulation of Oct. 22, 1984 (cf. *OA* 5052) was amended on April 8, 1986. One fish sp. was removed from the "protected" spp." list, but all the Odon., Plecoptera and Ephemeroptera, which the fishermen also demanded to set free for the use as baits (!), will continue figuring on the list.

- (5568) MOUBAYED, Z., 1986. *Recherches sur la faunistique, l'écologie et la zoogéographie de trois réseaux hydrographiques du Liban: l'Assi, le Litani et le Beyrouth*. Thèse Docteur d'Etat, Univ. Paul Sabatier, toulouse. 496 pp. (Order No: 1242). — (Author's address not stated). A monographic treatment of the aquatic fauna of the basins of the Assi-Orontes, Litani and the Beyrouth (Beirut), Lebanon, incl. descriptions of 44 new taxa. Odon. are dealt with on pp. 185-192, incl. a list of (35) spp. known to occur in the Lebanon. General features of the Lebanese odon. fauna and autecology of *Ischnura elegans ebneri*, *Epallage fatime*, *Caliaeschna microstigma* and *Sympetrum meridionale* are briefly stated.
- (5569) *NEWSLETTER [OF THE] BRITISH DRAGONFLY SOCIETY*, No. 9 (Spring, 1986). — (c/o R.H. Dunn, 4 Peakland View, Darley Dale, Matlock, Derbyshire, DE4 2GF, UK). Contains 13 items, incl. the 1986 meetings program, and the announcements of publication of several new books.
- (5570) *OCCASIONAL PUBLICATIONS OF THE SIO NATIONAL OFFICE IN INDIA*, Pondicherry. Commenced publication on Oct. 2, 1986. Edited by Mrs Ajita Tyagi & Dr B.K. Tyagi (Vector Control Res. Cent., I.C.M.R., Medical Complex, Indira Nagar, Pondicherry-605006, India). Published at irregular intervals. Single issues available from and Standing Orders to be sent to the Editors, or to the SIO Central Office (P.O. Box 256, 3720 AG Bilt-hoven, NL). — Price depends on the volume and is fixed per issue, in RsIC (for countries under the administration of the Indian National Office) and in US \$ (all others). For No. 1 cf. *OA* 5589. — This is a typographi-
- cally attractive series (brookprint, good cover, 14 x 22 cm), the first issue of which was published on the occasion of the Second Indian Symposium of Odonatology (Dehra Dun, Oct., 1986). It will bring refereed papers of general odonatol. importance, or such of particular bearing on the fauna and odonatology of the Indian Subcontinent.
- (5571) OHSAWA, N. & M. WATANABE, 1986. Comparative ecological studies of Coenagrionoidea [sic!] in woodlands. IV. Biogeography of a white-legged damselfly, *Platycnemis echi-goana* Asahina. *Bull. Fac. Educ. Mie Univ.* (nat. Sci.) 37: 77-84. (Jap., with Engl. title). — (Second Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu, Mie, 514, JA). [Abstract not available].
- (5572) OMORI, T., 1986. [The fauna of dragonfly in Kanagawa]. *Nature & Insects* 21(9): 13-16. (Jap., with Engl. title). — (3-5-5, Tode, Saiwai-ku, Kawasaki, 210, JA). [Abstract not available].
- (5573) OTT, J., 1986. Etho-ökologische Untersuchungen an Libellen (Odonata) einer Kiesgrube unter besonderer Berücksichtigung einiger Grosslibellenarten (Anisoptera). *Kurz-fassungen Entomologentagung Wuppertal*, p. 85 [Abstract only]. — (Abt. Allgem. Zool., Fachber. Biol., Univ. Kaiserslautern, Postfach 3049, D-6750 Kaiserslautern, FRG). The exuviae of 17 spp. were collected at a gravelpit nr Ludwigshafen, FRG. The populations of 7 Anisoptera spp. were studied in some detail. *Crocothemis erythraea* is of particular interest.
- (5574) PAUL, J., 1986. *Sympetrum danae* (Sulz.) (Odonata: Libellulidae), a dragonfly new to Warwickshire. *Ent. mon. Mag.* 122(1460/63): 74. — (45 Beaufort Crescent, Stoke Gifford, Bristol, BS12 6QY, UK). A male from Coleshill Bog, Warwickshire, UK, is reported (Sept. 12, 1984).
- (5575) PELLETIER, V. & D. PELLETIER, 1986. Odonates en forêt de Compiègne. *Bull. Soc. Sci. nat* 49: 8. — (Author's address not stated).

- Records of *Anax parthenope* and *Cordulegaster boltoni* from Compiègne, France.
- (5576) PRÉVOT, G. & R. PRÉVOT, 1986. Impact d'une crue sur la communauté de la moyenne Durance. Rôle de la dérive dans la reconstitution du peuplement du chenal principal. *Annls Limnol.* 22(1): 89-98. (With Engl. s.). — (Lab. Biol. Anim. & Ecol., Fac. Sci. St. Jérôme, rue Henri Poincaré, F-13397 Marseille Cedex-13). Drift samples taken simultaneously in the main and secondary channels of the Durance R. (nr Sainte-Tulle, Alpes-de-Haute-Provence, France) in the period after the spate have shown the importance of drift in reconstitution of the main channel communities. *Calopteryx splendens* and *Onychogomphus forcipatus* are also considered.
- (5577) RATTI, E., 1986. Le casse di colmata della Laguna Media, a sud di Venezia. XIII. Reperti di odonati nella cassa "D-E" (Odonata). *Lavori Soc. venez. Sci. nat.* 11: 27-28. (With Engl. s.). — (Mus. Civ. Stor. Nat., S. Croce 1730, I-30125 Venezia). 9 spp. are listed and discussed from a brackish polder in the Lagoon of Venice, Italy.
- (5578) REDARD, O., 1986. Étude écofaunistique des points d'eau de la région neuchâteloise. Les mares de pâturage de la Chauv-d'Amin. III. Notes sur l'écologie de quelques espèces d'insectes aquatiques. *Bull. Soc. neuchâtel. Sci. nat.* 109: 65-76. (With Engl. s.). — (Inst. Zool., Univ. Neuchâtel, 22 chemin de Chantemerle, CH-2000 Neuchâtel-7). The spatial and temporal distribution of 6 odon. spp. in the grassland ponds of the Neuchâtel Jura (alt. 1320 m), Switzerland is stated. — Cf. *OA* 5279.
- (5579) RÜPPELL, G., G. REHFELDT & A. MARTENS, 1986. Raubritter der Liebe. *Geo, Hamburg* 1986(5): 64-78. — (Zool. Inst., Techn. Univ., Pockelsstr. 10a, D-3300 Braunschweig, FRG; — journal issue available at DM 10.- from Geo Magazine, P.O. Box 101602, D-2000 Hamburg-1, FRG). The article deals with odon. reproductive behaviour, with emphasis on photographic documentation. It is directed at the general reader. Col. portraits of the authors are also provided. The senior author is among the leading authorities in the field of odon. flight kinematics.
- (5580) SCHMIDT, E., 1986. Zur Odonatanfauna an Angelteichen der Nordeifel. *Kurzfassungen Entomologentagung Wuppertal*, p. 98. [Abstract only]. — (Biol. Didaktik, Univ. Bonn, Römerstr. 164, D-5300 Bonn-1, FRG). The odon. fauna of the fishponds nr Rheinbach, Nordeifel, FRG, is stated and briefly discussed.
- (5581) SCHWALLER, L., 1986. Arten-Liste der Libellen vom Mürgelbrunnen. Flugzeit und Flugtage. Beobachtungen-Beschreibungen 1983. *Mitt. naturf. Ges. Kant. Solothurn* 32: 215-239. — (Wangenstr. 209, CH-4707 Deitingen). 23 odon. spp. are reported from the Nature Reserve Mürgelbrunnen, nr Deitingen, canton Solothurn, Switzerland, with emphasis on autecology and phenology. *Calopteryx splendens*, *Cordulegaster bidentatus* and, above all, *Epithea bimaculata* are of particular interest.
- (5582) S[schweizerische] S[tiftung für] V[ogelschutz] R[eservate] = [OBERHÄNSLI, H.], 1986. Vielfalt des Bannriets. *Vögel der Heimat* 56(5): 91-93. — (c/o I. Hugentobler, Tannerstr. 725, CH-9437 Marbach). Reference is made to the occurrence of *Orthemtrum brunneum* in the Bannriet moor, canton St Gallen, Switzerland.
- (5583) SELYSIA. Newsletter of the Societas Internationalis Odonatologica and the U.S. National Office. Vol. 15, No. 2 (Sept. 1, 1986). — (c/o M.J. Westfall, Dept Zool, Univ. Florida, Gainesville, Fla 32611, USA). *Mathavan, S.*: Ninth International Symposium of Odonatology: Advance Announcement (21-22); — *Pritchard, G.*: Nominations for S.I.O. Council (1887-1889) (22-23); — *Dunkle, S.W.*: 1986 North American odonatologists' meeting (23-24); — *Trek to Belize* (25-26); — [Anonymous, all by *M.J. Westfall*]: S.I.O. International Odonata Research Institute (23);

- Policy Board of I.O.R.I. (23); — Asian wetlands inventory (25); — NABS Symposium of odonata ecology (26); — [Obituary notices for]: Mrs Robert Gambles (Margaret) (26); — Dirk Cornelis Geijskes (1907-1985) (26-27); — Heinrich Kaiser (29); — In addition to a few personal notes on Prof. M.J. Westfall and Mrs L.K. Gloyd, there is a list of some recent dragonfly books, while a list of SIO membership mutations closes the issue.
- (5584) SHRESTHA, R.L. & M. MAHATO, 1986. Habit and feeding behaviour of dragonfly larva *Anax guttatus* Burmeister (Odonata). *J. nat. Hist. Mus., Kathmandu* 8(1/4) [1984]: 29-32. (With Nepali s.). — (Nat. Hist. Mus., Anandakuti, Swayambhu, Kathmandu, Nepal).
The locomotion and the respiratory and feeding behaviour were studied under laboratory conditions. In the aquarium, coinhabited by the fish *Barilius vagra*, the larvae were very active and fed on the fish. Those kept with *Heteropneustes fossilis*, however, were rather inactive and fed upon tadpoles and various macroinvertebrates. Cannibalism was often observed in the controls. The material was collected in the Kathmandu area.
- (5585) SUMNER, D.P., 1986. The geographical and seasonal distribution of the dragonflies of Lancashire and Cheshire 1985. *A. Rep. Proc. Lancashire Cheshire ent. Soc.* 108: 177-194. — (54 Blackshaw Lane, Royton, Oldham, Lancs OL2 6NR, UK).
24 spp. are mapped and phenologically diagrammed.
- (5586) TAGUCHI, M. & M. WATANABE, 1986. Ecological studies of dragonflies in paddy fields surrounded by hills. III. Population dynamics of *Sympetrum frequens* Selys. *Bull. Fac. Educ. Mie Univ. (nat. Sci.)* 37: 69-75. (Jap., with Engl. title). — (Second Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu, Mie, 514, JA).
[Abstract not available].
- (5587) TILLEMA, J., 1986. The mysterious dragonfly. *Bull. Young Entomol. Soc., Mich.* 3(1): 22-23. — (4009 Winnemac Ave., Madison, WI, USA).
A Middle School pupil's account of dragonfly biology.
- (5588) *TOMBO. ACTA ODONATOLOGICA*. Published by the Society of Odonatology, Tokyo, Vol. 29, No. 1/2 (Aug. 30, 1986). — (c/o Dr S. Asahina, Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
Eda, S.: Emergence of a male of *Epiophlebia superstes* (1, frontispiece); — *Asahina, S.*: Centennial of the capture of *Epiophlebia superstes* (2-4); — *Eda, S. & R. Shirasawa*: Dragonflies of Oyomo marsh in Hakuba-murra, Nagano Prefecture (5-6); — *Asahina, S.*: A list of the Odonata recorded from Thailand. XIV, Gomphidae-2 (7-53; treatment of 26 spp., referable to 12 genera, incl. 4 previously unrecorded spp. and the description of *Macrogomphus matsukii* sp. n.); — *Yamaguchi, H.*: Records of some interesting Odonata from Obihiro, Hokkaido (54); — *Obana, S.*: Results of the survey trips for *Mnais pruinosa* ssp. along the Fujikawa River, central Honshu (55-56); — *Shiraishi, K.*: Newly recorded dragonflies from Amami-oshima (57); — *Asahina, S.*: Two topics on *Epiophlebia superstes* (57); — Capture of *Epiophlebia laidlawi* adult at Darjeeling (57).
- (5589) TYAGI, A. & B.K. TYAGI, 1986. Directory of odonatologists from the Indian Subcontinent (including India, Bangladesh, Pakistan and Nepal). *Occ. Publ. SIO natn. Office India* 1: 1-20. — (Vector Control Res. Cent., I.C.M.R., Medical Complex, Indira Nagar, Pondicherry-605006, India).
Addresses and fields of current odonatol. interests of 8 workers in Bangladesh, 110 in India, 9 in Nepal and 2 in Pakistan. — For general information on this new periodical cf. *OA* 5570. Price of the first issue: Rs1C 10. — (Indian Subcontinent), or US \$ 2.- (others). Orders and Standing Orders are accepted by the SIO National Office in India, and by the SIO Central Office.
- (5590) TYAGI, B.K., 1986. Cytogenetics, karyostematics and cytophylogeny of the Indian O-

donata. *Indian Rev. Life Sci.* 6: 215-229. — (Vector Control Res. Cent., I.C.M.R., Medical Complex, Indira Nagar, Pondicherry-605006, India).

The genetical, evolutionary and taxonomic significance of the odon. karyotypes is discussed with reference to the Indian taxa.

- (5591) URABE, K., T. IKEMOTO, S. TAKEI & C. AIDA, 1986. Studies of *Sympetrum frequens* (Odonata: Libellulidae) nymphs as natural enemies of mosquito larvae, *Anopheles sinensis*, in rice fields. III. Estimation of the prey consumption rate in the rice fields. *Jap. J. appl. Ent. Zool.* 30(2): 129-135. (Jap., with Engl. s.). — (First author: Saitama Inst. Public Health, Kamiokubo, Urawa, 338, JA). Investigations were carried out during 1978-1980 in the Omiya suburbs, Japan. *S. frequens* reached the 5-6th instar by early June, and emerged (10th instar) in early July. The larval populations were estimated (early June) at 50,000 (field A, 920 m²) and 30,000 individuals (field B, 1000 m²). The density of mosquito larvae became higher towards the end of June, when the density of *S. frequens* decreased. The distribution patterns of dragonflies and mosquitos had a non-overlapping tendency, indicating effective predation by *S. frequens*. This was also confirmed by precipitin testing of mosquito larvae antiserum against dragonfly larvae. In early June, 0-2.7% of dragonfly guts contained mosquito larvae, but the percentage increased to 33.3-56.5% after June 20. It was estimated that during the first half of June, 90-100% of mosquitos were predated upon by dragonflies, therefore it is concluded that larval *S. frequens* is the major predator in the rice fields studied.
- (5592) WAAGE, J.K., 1986. Evidence for widespread sperm displacement ability among Zygoptera (Odonata) and the means for predicting its presence. *Biol. J. Linnean Soc.* 28(3): 285-300. — (Ecol. & Evol. Biol., Box G, Brown Univ. Providence, RI 02912, USA). Males of *Argia moesta*, *A. sedula* and *Ischnura ramburii* use similar penis morphology to remove and/or reposition sperm of previous males from the storage organs of females prior to inseminating them. Although the spp. vary in the degree to which sperm is removed from or packed into the spermatheca, in all 3 spp., sperm is removed from the bursa copulatrix. Since sperm in the bursa probably has priority in fertilizing eggs in at least the first oviposition after mating, sperm precedence can be estimated as the percentage of sperm (by volume) in the bursa belonging to the last male to mate. Estimated sperm precedence for these spp. is approx. 71% for *Argia sedula*, 82% for *I. ramburii* and 93% for *A. moesta*. These results, combined with similar ones for other damselfies clearly indicate that the ability to displace sperm may be widespread among temperate-zone Zygoptera. Species with each of the four major variations in damselfly penis structure have now been shown to displace sperm using this morphology. The systematic distribution of these major variants suggests several origins of sperm displacement ability within the Zygoptera. Whether or not all damselfies are capable of sperm displacement depends on both the presence of micro-structures used in sperm removal or repositioning and on the presence of sperm of previous males in mating females. It is possible, therefore, to predict that sperm displacement occurs in a damselfly if (1) females mate more than once, (2) mating females store sperm in organs accessible to penis morphology, (3) the distal segment of the male penis has structures similar to those known to be involved in sperm removal or repositioning, and (4) oviposition occurs in tandem or with the male non-contact guarding his mate.
- (5593) WILDERMUTH, H., E. KNAPP, A. KREBS & G. VONWIL, 1986. Zur Vorbereitung und zur Ökologie von *Orthetrum albistylum* Selys 1848 in der Schweiz (Odonata, Libellulidae). *Mitt. ent. Ges. Basel* (N.F.) 36(1): 1-12. (With Engl. s.). — (First Author: Mythenweg 20, CH-8620 Wetzikon). In Switzerland *O. albistylum* breeds in shallow pools with sparse vegetation. The known localities (12) are mapped, and the associated odon. fauna is stated. The latter includes 16 indigenous spp., most of which are typical pioneers.

- (5594) YAMAMURA, N., 1986. An evolutionary stable strategy (ESS) model of postcopulatory guarding in insects. *Theor. Popul. Biol.* 29(2): 438-455. — (Dept Nat. Sci. Saga Med. Sch., Nabeshima-machi, Saga, 840-01, JA).
A simple Evolutionarily Stable Strategy (ESS) model for promiscuous insect species is analyzed to obtain the optimal strategy for the duration of male guarding behavior after copulation with a female. Such guarding behavior prevents other males from copulating with that female. Predictions of the model are (1) that the ESS is either a non-guarding strategy, a perfect guarding strategy until oviposition, or a polymorphic equilibrium between the two types, and (2) that the perfect guarding strategy has more advantages than the non-guarding strategy when (a) the ratio males to females is large, (b) the searching efficiency is high, (c) the population density is high, and (d) the preoviposition period is short. Male guarding behavior in several species seems to agree with the predictions of the model. The situation in various Calopteryx, Hetaerina, Mnais, etc. spp. is discussed on the basis of the relevant literature.
- (5595) ZANIBONI FILHO, E., V. CAMPOS TORQUATO, N.D. DE CAMPOS BARBOSA & A.C. BEAUMORD, 1986. Odonata — um problema para a piscicultura — (linhas de pesquisa da est. de pesq. a desenv. ambiental. [sic!]) *Resum. IV Simp. brasil. Aquicult. Cuiabá*, p. 38 [abstract only]. — (CEMIG, Estação de Pesquisas e Desenvolvimento Ambiental, C.P. 17, BR-38.120 Conceição das Alagoas, MG).
The odon. larvae are a major vector of fish mortality. Experiments are described aiming at the control of adults (by birds) and larvae (by young *Astronotus ocellatus*, and through application of the chemical Neguvon).
- (5596) ZUBER, J., 1986. Bedrohte Flugartisten. *Brückenbauer* 1986(33): 36. — (c/o C. Meier, Riedweg, CH-8606 Werrikon).
An incidental "season" article in a popular Swiss weekly, with reference to the *Schweizer Libellenatlas*, now in preparation by Dipl.-Zool. C. Meier, in cooperation with the Nat. Hist. Mus., Neuchâtel.