ODONATOLOGICA ABSTRACTS

1971

(5964) CARPENTER, F.M., 1971. Adaptations among Paleozoic insects. *Proc. N. Am. paleontol. Convention* 1969(1): 1236-1251. — (Mus. Comp. Zool., Harvard Univ. Cambridge, Mass. 02138, USA).
Some examples of adaptive modifications that have been found in Upper Carboniferous and Permian insects are reviewed. As far as the Protodonate and Odon. are concerned, references are made to the ovipositor, legs and venation.

1972

(5965) KUKALOVA-PECK, J., 1972. Unusual structures in the Paleozoic insect orders Megasecoptera and Palaeodictyoptera, with a description of a new family. *Psyche* 79(3): 243--268. — (Dept Geol., Carleton Univ., Ottawa, Ont. K1S 5B6, CA).
The paper deals with the conspicuous processes, which are short to very long, simple or branched, and occur in regular rows on the abdomen and thorax in most or all Megasecoptera and in at least some Palaeodictyoptera. Several of their features suggest that they might be homologous to certain tergal structures of Odon.

(5966) SCOTT, K.M.F., 1972. The Albany Museum collection of freshwater organisms. *Newsl. limnol. Soc. sthn Afr.* 19: 30-36. — (Author's current address unknown).
The odon. collection is referred to as one of the particularly large ones. (Director: Dr B.S. Wilmot, Albany Museum, Somerset St., Grahamstown-6140, RSA).

1974

(5967) KUKALOVA-PECK, J., 1974. Wing-folding in the Paleozoic insect order Diaphanopterodea (Paleoptera), with a description of new representatives of the family Elmoidae. *Psyche* 81(2): 315-333. — (Dept Geol., Carleton Univ., Ottawa, Ont., K1S 5B6, CA).
The basal plate in the Elmoidae is represented either by the enlarged cubitoanal plate, or by the fusion of the median, cubital, and anal plate. It is partly homologous with the fused subcostoanal plate of the Palaeodictyoptera, the fused basal plate of the Ephemeroptera, and the radioanal plate of the Odon.

1975

(5968) McCAFFERTY, W.P., 1975. Institutional insect collections in Indiana. *Proc. Indiana Acad. Sci.* 84: 294-306. — (Dept Ent., Purdue Univ., West Lafayette. Ind. 47907, USA).
The extent and functionality of 33 institutionally owned entomological collections in the State of Indiana, USA is reported. As far as the odon. are concerned, reference is made only to the Purdue Univ. collection, which is considered of 3rd importance in primary research usage.

1980

(5969) VEGA ORTEGA, A., 1980. *Libélulas.* Diputación Foral de Navarra, Pamplona. 35 pp.

(Temas de Cultura Popular, No. 363). — (Publishers: Dirección de Turismo, Bibliotecas y Cultura, ES-31071 Pamplona).
This is a small booklet (11x21 cm), directed at the general reader, giving an outline of dragonfly biology and a brief account of the 44 spp. known to occur in Navarra, Spain.

1981

(5970) VAN TOL, J., 1981. Libellen. — [Dragonflies]. *In:* J.G. van Gelderen, J. van den Kam & C. Laban, [Eds], Encyclopedie van de natuur van Europa. 3. Flora en fauna in en bij de zoete wateren, pp. 640-641. Spectrum, Utrecht-Antwerpen. (Dutch). — Rijksmuseum van Natuurlijke Historie, P.O. Box 9517, NL-2300 RA Leiden).
Article on dragonflies in a well known Dutch nature encyclopaedia.

1982

(5971) GOFFEN, R., 1982. *The Calouste Gulbenkian Museum, Lisbon.* Woodbine Books, Ft Lauderdale (Florida). 208 pp. — ISBN 0-934516--45-6.
A collection of close to 100 small, illustrated essays on the objects of arts exhibited in the Gulbenkian Mus., Lisbon, Portugal. Among these are a *Dragonfly Corsage Ornament* by Rene Lalique (ca 1898), and the *Red Dragonfly and Locust on Bamboo Fence* by Utamaro Kitagawa (1788, from his "Picture book of selected insects").

1983

(5972) COOLEY, S.D., 1983. Small grants program. *From the Land* 1983 (Summer): 1-2. — (c/o Connecticut Chapter, Nature Conservancy, 55 High St., P.O. Box MMM, Wesleyan Station, Middletown, CT 06457, USA).
A note on the inventarisation of rare or endangered dragonflies in Connecticut, USA, sponsored by the Connecticut Chapter of Nature Conservancy, and carried out by Mr Paul Miliotis, whose portrait is also provided. (His last known address: B-5, Black Oak Drive, Nashua, NH 03062, USA; check with the Connecticut Chapter, as above).

(5973) VERESHCHAGIN, B.V. & S.G. PLUGARU, [Eds], 1983. *Zhivotnyy mir Moldavii. Nasekomye. — Animal world of Moldavia. The insects.* Shtiintsa, Kishinev. 376 pp., col pls excl. (Russ., with Engl. s.). — (c/o Inst. Zool. & Physiol., Moldavian Acad. Sci., Kishinev Moldavian SSR, USSR).
This is the insect vol. in the well known series, directed at general readership. The Odon. are dealt with on pp. 28-35. In all, 5 of the common spp. are presented in considerable detail, incl. their ecology, biology and distribution in Moldavia. The col. pls are poor.

1984

(5974) LEERSCHOOL, J.M.T., 1984. Libellen (Odonata) van de Brunssummerheide en de Schinveldse bossen. — The Odonata of the Brunssummer Heide and the Schinveldse Bossen. *Natuurh. Maandbl.* 73(6/7): 119-123. (Dutch, with Engl. s.). — (Wieënweg 38, 6445 CE Brunssum, NL).
The odon. fauna (22 spp.) of the 2 localities, Zuid Limburg prov., the Netherlands, is recorded and briefly discussed. — For a supplementary note cf. *OA* 5984.

1985

(5975) AGUIAR, C. & S. AGUIAR, 1985. Estudos odonatológicos em Portugal, Odonatos portuguêses, Odonatos africanos em Portugal. *Biol. Soc. port. Ent.* 4 (Supl. 1) [Atas 2 Congr. ibér. Ent.]: 245-268. (With Engl. s.) — (Rua Alfredo Cunha 225-2, PT-4450 Matosinhos).
The first dragonfly representations in the Portuguese literature are those in the "Leitura nova", 1504-1552 (cf. *OA* 4359), the first list of the odon. fauna of Portugal was published by Domenico Vandelli (1797) in his "Florae et faunae lusitanicae specimen" (*Mem. Acad. Sci. Lisboa* 1: 37-79). Some of the other Port. papers, published up to 1960, are briefly summarized, and a checklist is given of the spp. hitherto reported from Portugal. The biogeographic composition of the Lusitanian odon. fauna is discussed with particular reference to

the taxa of African provenience.

(5976) CANNINGS, S., 1985. The Liard Highway — collecting in the Northeast wilderness. *Boreus* 5(2): 2-3. — (Spencer, Ent. Mus., Dept Zool., Univ. British Columbia, 6270 University Blvd, Vancouver, B.C., V6T 2A9, CA).
A brief account of dragonfly collecting in the extreme NE corner of British Columbia, Canada is presented. In spite of the endeavours, Leucorrhinia patricia was not seen, 6 widespread (mostly northern) spp. are recorded, but the highlight of the expedition was the discovery of a large emerging population of Ophiogomphus colubrinus at the Petitot R., representing only the second record of this sp. in British Columbia.

(5977) STERNBERG, K., 1985. *Zur Biologie und Ökologie van sechs Hochmoorlibellenarten in Hochmooren des Südlichen Schwarzwaldes* Diplomarbeit, Albert-Ludwigs-Univ., Freiburg/Br. XII+162 pp. — Available from the author, at DM 40.-. — (Biol. Inst. I Zoologie, Univ. Freiburg, Albertstr. 21a, D-700 Freiburg/Br., FRG).
The distribution and habitat requirements were examined in the southern Black Forest, FRG of Aeshna caerulea, A. juncea, A. subarctica elisabethae, Somatochlora alpestris, S. arctica and Leucorrhinia dubia. For 5 of these, the emergence phenology was evidenced on the basis of quantitative exuviae collections. The impact of abiotic environment features on the immature stages was studied experimentally. The conservation aspects of the 6 spp. and their habitats are discussed in considerable detail.

1986

(5978) ASAHINA, S., 1986. A list of the Odonata recorded from Thailand. Part XVI. Cordulegasteridae. *Proc. Japn Soc. syst. Zool.* 34: 39-45. — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
Anotogaster g. gregoryi, Chlorogomphus arooni, and a not identifiable Chlorogomphus exuviae are (re)described and figured, and for C. arooni new regional records are listed. — (*Abstracter's Note:* A primary journal printing error appears in the title of the paper listed in *OA* 5912. The serial sequence number of that paper should read XVII).

(5979) DE TOLEDO, Z.D.A., J.R.B. DE HERRERA & M. DEL V. AJMAT, 1986. Les ordenes de insectos. III. Pterygota, 2a parte: Odonata. *Miscelanea Fundacion Miguel Lillo* 78: 22-38. — (Author's address not stated, try c/o Fundacion Miguel Lillo, Ministerio de Educacion y Justicia, Tucuman, Argentina).
A technical, handbook-style treatment of all aspects of the order.

(5980) DEL CENTINA, P. & F. TERZANI, 1986. Odonati del Museo zoologico dell'Università di Firenze: revisione della vecchia collezione in alcool. *Redia* 69: 83-92. (With Engl. s.) — (Mus. Zool., Univ. Firenze, Via Romana 17, I-50125 Firenze).
Annotated catalogue of the (Italian) odon. collection, preserved in alcohol, in the Mus. Zool. "La Specola", Firenze, and brought together during 1864-1893.

(5981) DOGELS, V., 1986. *Bezmugurkaulnieku zoologija.* — [*Invertebrate zoology*]. Zvaigzne, Riga. 559 pp. (Latvian). — Price: Rb 2.10. — (Hortus botanicus, Latvian Acad. Sci., Miera iela 19-6, USSR-229021 Salaspils, Latvia).
This is a Latvian edition of the well known Russian text book by Prof. V.A. Dogel' (Russian title: *Zoologiya bespozvonochnyh*). The information on the Odon. is very brief (pp. 353-354). The Latvian vernacular names, given for Aeshna grandis and Calopteryx virgo are incorrect. These should read resp. *"dižpāres"* and *"krāšņspāres"*.

(5982) GIANELLI, L. & G. OSELLA, 1986. La fauna macrobentonica del fiume Fibbio (regione veronese). *Boll. Mus. civ. Stor. nat. Verona* 13: 493-529. (With Engl. s.) — (Mus. Civ. Stor. Nat. Verona, Verona, Italy).
The benthic fauna was studied at 12 sites, located throughout the course of the Fibbio R. (Montorio, Verona), Italy. 8 odon. spp. are listed.

(5983) GOLUBKOV, S.M., 1986. Zavisimost' skorosti potrebleniya kisloroda vodnymi lichinkami nasekomyh ot massy ih tela. — [Relationship between the rate of oxygen uptake by aquatic insect larvae and their body weight]. *Gidrobiol. Zh.* 22(4): 78-87. (Russ., with Engl. s.). — (Zool. Inst., USSR Acad. Sci., USSR--199034 Leningrad).
The method of closed vessels has been used to measure the oxygen consumption rate (OCR) in larvae of ephemerids, odon. (10 spp.) and trichopt. with body weight from 0.0001 to 1.047 g. It is shown that spp. with high rates of development (growth) are characterized by a high level of the OCR. Results from measurements of this index in certain spp. and data available in literature have permitted calculating equations of average dependence of the OCR on the body weight in larvae of the Ephemer, Odon., Trichopt. and Plecopt. at 20° C.

(5984) LEERSCHOOL, H., 1986. Libellen (Odonata) van de Brunssummerheide en de Schinveldse Bossen. *Natuurh. Maandbl.* 75(11): 216. (Dutch). — (Wieënweg 38, 6445 CE Brunssum, NL).
Supplementary note to the paper listed in *OA* 5974.

(5985) PAVLOVSKIV, S.A. & O.P. STERLIGOVA, 1986. O roli ersha Gymnocephalus cernuus (L.) i donnyh bespozvonochnyh kak potrebiteley ikry siga Coregonus lavaretus pallasi (Val.) Cyamozera. — [The role of the ruffe (Gymnocephalus cernuus (L.) and benthic invertebrates as consumers of the eggs of the white-fish Coregonus lavaretus pallasi (Val.) in the Syam Lake]. *Vopr. Ihtiol.* 26(5): 765-770. (Russ.). — (Inst. Biol., Karelian Branch, USSR Acad Sci., Petrozavodsk, USSR).
Experimental data are presented on the consumption of white-fish eggs by the ruffe and various invertebrates, incl. Coenagrion vernale. A direct correlation was found between the amount of consumed eggs and the individual weight of the invertebrates. Selectivity was revealed in the feeding of the fish and caddisflies.

(5986) PETERS, G. & H. HACKETHAL, 1986. Notizen über die Libellen (Odonata) in Mazedonien. *Acta Mus. maced. Sci. natur.* 18(5/151): 125-158. (With Engl. and Maced s's.). — (Mus. Naturk., Humboldt Univ., Invalidenstr. 43, DDR-1040 Berlin, GDR).
Observations are presented on regional distribution, population density, habitat preferences and seasonal activity of some 40 spp. in Macedonia, Yugoslavia. The emphasis is on the aeshnid genera Anaciaeschna, Anax, Aeshna, and Caliaeschna. There are some striking differences in biometric features between Macedonian and central European populations of Calopteryx splendens, C. virgo, Anax imperator, A. parthenope, Anaciaeschna isosceles, Aeshna affinis, Sympetrum sanguineum, etc. In several cases the individuals are larger in Central Europe, in the others they are so in Macedonia.

(5987) SCHMIDT-MOSER, R., 1986. Die Vogelwelt im Hauke-Haien-Koog. *Seevögel* 7 (Sonderheft) 3: 3-49. — (Forstweg 38, D-2054 Geesthacht, FRG).
On p. 48, there is a list of 19 odon. spp., recorded from the Hauke-Haien-Koog polder nr Bongsiel, on the Wadden Sea, GFR. Coenagrion armatum is of particular interest.

(5988) SOEFFING, K., 1986. Ecological studies on eggs and larvae of Leucorrhinia rubicunda (L.) (Odonata, Libellulidae). *Jber. ForschInst. Borstel* 1986: 234-237. — (Zool. Inst. & Mus., Univ. Hamburg, D-2000 Hamburg, GFR).
In laboratory studies, eggs and larvae were kept at 35, 25, 20, 15 and 10° C. The egg development was shortest and the hatching rate highest at 25° C, while no hatching took place below 6° C. All larvae died within 9 days at 35° C, the optimum is at 20° C, lower temperatures retard the molting, and no molting occurred at 10° C. — L. rubicunda oviposits over floating sphagnum, where the diurnal temperatures often rise up to 35° C. This facilitates the egg hatching, and the larvae can easily descend along the sphagnum stems to the cooler water (15-20° C at a depth of 15 cm). In sphagnum-free water, the eggs would drop to the bottom, where the low temperature would

prevent hatching.

(5989) STARMÜHLNER, F., 1986. Checklist of the fauna of mountain streams of tropical Indopacific islands. *Annln naturh. Mus. Wien* (B) 88/89: 457-480. (With Fr. & Germ. s's.). — (Inst. Zool., Univ. Wien, Althanstr. 14, A-1090 Wien).
A survey is given of the ecological conditions (temperature, conductivity, hardness) and of the macroinvertebrate fauna in the mountain streams of isolated Indopacific islands, such as Madagascar, the Seychelles, Ceylon, the Andamans, New Caledonia, the Comoros (Anjouan), La Réunion and Mauritius. The Odon. are listed either on the species or on the generic level, and the degree of local endemism is stated for each island.

(5990) SUGIMURA, M., 1986. *Tombo no rakuen.* — [*Dragonfly paradise*]. Akane-shobo, Tokyo. IV+64 pp. — [ISBN 4-251-06398] — Price: ¥ 1200.-. (Jap.). — (Author: 9-7, Uyama Satsuki-cho, Nakamura, Kochi Pref., 787, JA).
Picture book and a general introduction to dragonflies. The author is one of the most noted Japanese dragonfly photographers and dragonfly movie producers, organiser and manager of the Nakamura "Tombo Museum", author and/or publisher of various odonatol. titles directed at the general readership, and initiator of the Japanese Dragonfly Sanctuary (= "Tombo Natural Park"), the sole institution of this kind so far existence. — (A limited number of copies are available from the SIO Central Office, with 8 pp. of Engl. translations of fig. captions, by K. Inoue).

(5991) TERZANI, F., 1986. Gli odonati della provincia di Grosseto. *Atti Mus. civ. Stor. nat. Grosseto* 7/8: 33-51. (With Engl. s.). — (Mus. Zool., Univ. Firenze, Via Romana 17, I-50125 Firenze).
Annotated list of 39 spp., so far recorded from the prov. of Grosseto, Toscana, Italy.

(5992) VAN BUSKIRK, J., 1986. Establishment and organization of territories in the dragonfly Sympetrum rubicundulum (Odonata: Libellulidae). *Anim. Behav.* 34: 1781-1790. — (Dept Zool., Duke Univ., Durham, NC 27706, USA).
Territory formation by males was studied at a shallow temporary pond in Pennsylvania. Most males arrived at the pond between 1100 and 1200 h and sought unoccupied sites in which to land, which they immediately began defending against conspecific males. Incoming males were never observed to challenge previous residents for possession of territories. Most conflicts between males occurred in the mid-afternoon and involved occupants of adjacent territories; residents experienced a clear ownership advantage in these conflicts. Escalated contests for possession of territory sites did not occur, perhaps because unoccupied sites were continually becoming available due to territory abandonment. Certain regions of the pond were consistently favoured by both sexes and most mating occurred in them: the spatial distributions of copulating pairs, ovipositing females and unpaired females were in close agreement with the spatial distribution of territorial males. High density sites were also the first sites occupied in the morning by incoming males. Although most of the pond and the surrounding land was thickly vegetated, territorial males and ovipositing females were both significantly clumped along the water's edge. The spatial distribution of males may have resulted from a balance of factors: peripheral sites were better than central ones for encountering incoming females, but areas far from the water's edge were unsuitable for female oviposition.

(5993) WATANABE, H., N. OHSAWA & M. TAGUCHI, 1986. Studies on quantitative evaluation of forest-marsh complex ecosystem using Coenagrionidae (Zygoptera: Platycnemididae, Lestidae) as biological index. *Environ. Res. Quart.* 1986(61): 25-34, 134. (Jap., with Engl. s.). — (Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Mie, 514, JA).
A quantitative evaluation of the forest-marsh ecosystem was made, based on the life history patterns of the Zygoptera living in the woodlands. The mark-recapture method was used.

By classifying the human impact into 7 categories, it was found that the environmental degradation caused both the population and the individual insect size to decrease. When the ecosystem was kept in good condition the zygopteran community structure was stable. Consequently, the woodland Zygoptera can be used as biological indicators in the quantitative environmental evaluation of the forest-marsh ecosystem.

1987

(5994) ALY, C. & M.S. MULLA, 1987. Effect of two microbial insecticides on aquatic predators of mosquitos. *J. appl. Ent.* 103(2): 113-118. — (First Author: Ravensburgerstr. 16, D-6908 Schatthausen, FRG).
Aquatic mosquito predators were fed with Culex quinquefasciatus Say fourth-instar larvae intoxicated with either Bacillus sphaericus or B. thuringiensis var. israelensis preparations. Although the mosquito larvae contained large amounts of the bacterial preparations in their gut, no effect upon longevity or ability to molt was observed in the backswimmer Notonecta undulata Say (Heter., Notonectidae), in the larvae of Tarnetrum corruptum Hag. or in those of Enallagma civile (Hag.). Equally, the reproduction of N. undulata and the predation rate and ability to emerge normally in T. corruptum and E. civile were not affected by ingestion of large amounts of bacterial toxins.

(5995) ASAHINA, S., 1987. Insects' laziness, an entomologist's memorandum. *Nihon no Seibutsu = Natural History of Japan* 1(3): 5-7. (Jap., with Engl. s.). — (Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA).
The paper narrates some "biographic reminiscences" of the doyen of Japanese odonatology, and also includes an excellent recent portrait of the author. — Touching upon this article, Dr Asahina wrote on Nov. 4, 1987 to the Editor of *Odonatologica* the following: "...My article-... is somewhat a reminiscence, stating the story of my study of transoceanic insect migration around Japan. It was really strange that our agricultural entomologists had never thought about the annual overseas migration of the pests from Southeast Asia. In my attempts to catch transoceanic mosquitoes, which were believed to carry the encephalitis virus to Japan, I happened to collect a great number of leafhoppers, which are serious pests to paddies. Our entomologists had a traditional "idea" that many of the pest insects are very "lazy", adhering all the time to their habitat sites, although they did never succeed to demonstrate the actual hibernation site of the pest leafhoppers".

(5996) BANKS, M.J. & D.J. THOMPSON, 1987. Regulation of damselfly populations: the effects of larval density on larval survival, development rate and size in the field. *Freshw. Biol.* 17(2): 357-365. — (Second Author: Dept Zool., Univ. Liverpool, P.O. Box 147, Liverpool L69 3BX, UK).
The population density of Coenagrion puella larvae was monitored in 5 populations, and of Ischnura elegans in 2 populations, between Oct. 1982 and May 1983. There was no measurable mortality of larvae over winter and no larval growth until April. Larvae in high density populations were smaller than those in low density populations and were more likely to have a semivoltine life history. The population density of C. puella was also monitored (more frequently) in 2 populations with different initial densities between July and Nov. 1983. In the high density population there was a constant rate of larval mortality, while in the low density population there was no detectable larval mortality, indicating that larval mortality may be density dependent. Larvae in the high density population were again smaller, and more likely to be semi-voltine, than those in the low density population. The role of density-dependent larval growth, development and mortality in the regulation of damselfly populations is discussed.

(5997) BELLE, J., 1987. Three new species of Macrothemis from northern South America (Odonata: Libellulidae). *Zool. Meded.* 61(19): 287-294. — (Onder de Beumkes 35, NL-6883 HC Velp).
M. belliata sp. n. (♂ holotype: Surinam, Me-

rowijne Distr., Lawa/Litani, Gransoela), M. ludia sp. n. (♂ holotype: Venezuela, State of Bolivar, Santa Lucia) and M. proterva sp. n. (♂ holotype: Venezuela, State of Bolivar, Luepa) are described and figured. The Surinam holotype is in the Leijden Mus. (RMNH), those of the Venezuelan spp. are deposited in the Inst. Zool. Agrícola, Maracay.

(5998) BEUTLER, H., 1987. Das neue Naturschutzgebiet "Milaseen" — ein wichtiger Beitrag zur Erhaltung nährstoffarmer Heideseen. *Beeskow. naturw. Abh.* 1: 85-86. — (Frankfurter Str. 23, PF 63-13, DDR-1230 Beeskow, GDR).
Onychogomphus forcipatus, Epitheca bimaculata and Leucorrhinia albifrons are recorded from the "Milaseen" Nature Reserve, nr Beeskow, German Democratic Republic.

(5999) BEUTLER, H., 1987. Libellen aus dem Einzugsgebiet der Struma in Bulgarisch-Mazedonien (Odonata). *Opusc. zool. flumin.* 16: 1-8. (With Engl. s.). — (Frankfurter Str. 23, Postfach 63-13, DDR-1230 Beeskow, GDR).
23 spp. from the Struma R. Basin, Macedonia, are brought on record. Cordulegaster heros is new to the fauna of Bulgaria. Brief comments are given on Coenagrion scitulum, Ischnura elegans, Calopteryx virgo and Caliaeschna microstigma.

(6000) BOSSERT, T., 1987. Libellen — "fliegende Edelsteine" der Natur. *Musenalp Express* 1987(3): 40-45. — (c/o Musenalp Verlag, CH-6385 Niederrickenbach).
A general article on dragonflies, directed at (Swiss) secondary school students, with numerous good col. phot., but no faunistic records. — (Abstracter's Note: There are only German vernacular names, of which some are erroneous. The "Grosse Zangenlibelle" actually is a Gomphus pulchellus, "Gemeine Binsenjungfer" is a Chalcolestes viridis, the "Azurjungfern" are ovipositing Enallagma cyathigerum, and the phot. of a female "Grüne Mosaikjungfer" represents an Aeshna cyanea. A. viridis was erroneously recorded from Switzerland already by F.J. Zemp, 1934, *Mém. Soc. fribourg. Sci. nat.* 2: 66, but this sp. does not occur in that country).

(6001) BOTHE, G. & V. MAUSS, 1987. Oberalsterniederung 1985/86. *Naturk. Beitr. DJN* 18: 3-32. — (First Author: Walter-Gropius-Weg 1b, D-2000 Norderstedt, FRG).
The odon. fauna of the Alsterniederung, N. of Hamburg, FRG was described earlier by R. Pape (cf. *OA* 1412). The present status is compared with the earlier evidence.

(6002) BREUER, M., 1982. Die Odonatenfauna eines nordwestdeutschen Tieflandflusses. *Drosera* 87(1): 29-46. (With Engl. s.). — (Lehrgebiet Zool.-Ent., Fachbereich Biol., Univ. Hannover, Herrenhäuser Str. 2, D-3000 Hannover-21, FRG).
The odon. fauna (22 spp.) of the Wümme, Lower Saxony, FRG is described. The most abundant spp. are Calopteryx splendens, C. virgo, Gomphus vulgatissimus and Ophiogomphus serpentinus. The local distribution and habitats are described in detail.

(6003) BROCK, V. & T. FECHTLER, 1987. Libellen im Naturschutzgebiet Lüneburger Heide. *Naturschutz & Naturparke* 125: 4-8. — (First author: Genslerstr. 13, D-2000 Hamburg-60, FRG).
In 1986, 40 odon. spp. were evidenced in the Lüneburger Heide Nature Reserve, S of Hamburg, GFR. This is a general article on the dragonfly world of the Reserve, without a species list.

(6004) BRUSERUD, A., 1987. Odonata in Hallingdal, Norway. *Fauna norv.* (B)34: 97-98. — (Brumunddal videregaende skole, Box 147, N-2381 Brumunddal).
14 spp. are listed from 14 localities, incl. Lestes dryas and Sympetrum flaveolum that are of particular (local) interest.

(6005) *BULLETIN OF HOKKAIDO ODONATOLOGICAL SOCIETY*, Vol. 2 No. 1 (Sept. 1, 1987). — (c/o Dr H. Ubukata, Dept Sci. Educ., Kushiro Coll., Hokkaido Univ. Educ., Shiroyama 1-15, Kushiro, 085, JA).
Munakata, M.: A list of dragonflies collected from Okushiri Island (pp. 2-3); — *Fukumoto,*

A.: The flying season of the dragonflies occurring in Hokkaido (4-6); — A request to cooperate towards publication of a picture book of Hokkaido dragonflies (7); — *Hiratsuka, K.*: New records of odonata species in Ishikari District (8); — *Ubukata, H.*: Eleven odonata species from Ashibetsu (9); — The distribution table of the Odonata of Hokkaido, 3 (10-14); — The distribution table of the Odonata of islands near Hokkaido, 1 (15-17); — A course for the beginners of dragonfly study, 2 (18-21); — Book review (22); — Review of articles on dragonflies of Hokkaido (23-25); — Some methods to obtain papers on insects (26); — *Hiratsuka, K.*: The report of 1986 Sapporo H.O.S. meeting (27). — The issue also contains the list of new members, numerous miscellaneous notes, and letters by members to the Editor.

(6006) COLLINS, N.M., 1987. Legislation to conserve insects in Europe. *Pamphlet amat. Entomologists' Soc.* 13: 1-80. Commercially available under ISBN 0-90005-446-8, from the A.E.S., 355 Hounslow Ed, Hanworth, Feltham, Middx TW13 5JH, UK. — (Author: IUCN Conserv. Monit. Cent., 2190 Huntingdon Rd, Cambridge, CB3 ODL, UK).
This is a very convenient inventory of the legislation related to the protection of named insects in Europe. It is based on the computer database of the IUCN Environmental Law Centre in Bonn, FRG, with additions from the IUCN Conservation National Monitoring Centre in Cambridge, UK. The review is updated to August 1987, but it is not entirely complete. — The international, regional, and the European Community conventions are listed, but the main body of the booklet is made up by countrywise organised reviews of the national legislations. — Out of 35 European states, Albania, Andorra, Malta, Monaco, Romania, San Marino, and the City of Vatican are neither a party to any international convention, nor do they have any domestic legislation relative to insect conservation. The latter was so far promulgated in 19 countries, either on the national, or on the provincial level. — The Odon. are included in the domestic legislations of 7 countries, invariably so in terms of a total prohibition of collecting, trading, etc. In some countries this applies to the whole national territory, while in the others the restrictions are imposed in some provinces, states, cantons, etc. only, viz. Austria: all spp. in the "Länder" of Salzburg and Wien (= Vienna); — Belgium: all spp. in Flandres only (cf. *OA* 3102); — Federal Republic of Germany: all spp. throughout the national territory, but 17 spp. are "specially emphasised" as threatened (cf. *OA* 3112); — Greece: Anax imperator and Hemianax ephippiger, throughout the national territory (cf. *OA* 4753); — Luxembourg: all spp. throughout the national territory (cf. *OA* 5052, 5567): Switzerland: all spp. in the cantons of Schaffhausen and Vaud [but the latter is here erroneously omitted] only (cf. *OA* 3105); — United Kingdom: Anaciaeschna isosceles, in Great Britain, but not in Northern Ireland. —(*Abstracter's Note:* As is apparent from the above, Odon. legislation in Europe, where promulgated, is utmost primitive and contraproductive: for the sake of "convenience" either all or only a few of the more "spectacular" spp. are put under "protection". With the possible exception of Britain, no biological and biogeographic considerations underly the legislation. In Austria, Belgium and Switzerland the legislation is subject to "provincial" initiative. In no country is a single endemic or otherwise important taxon emphasised, and it is clear, again with the exception of Britain, that in no case expert opinion has been consulted prior to the promulgation of the legislation).

(6007) COLLINS, N.M. & S.M. WELLS, 1987. *Invertebrates in need of special protection in Europe.* 162 pp. Council of Europe (Europ. Committee Conserv. Nature & natur. Resour.), Strasbourg. — [ISBN 92-871-1030-1]. Available also in French. — (Publishers: Publs & Documents Div., Council of Europe, B.P. 431 R6, F-67006 Strasbourg).
This is a modified version of the report listed in *OA* 5384, published now as No. 35 in the Council of Europe Nature & Environment Series. In Dec., 1986, the Standing Committee for the Convention on the Conservation of

European Wildlife and Natural Habitats (Bern Convention) adopted it as the basis for additions to the appendices of the Convention. — The following 11 odon. spp. are included: Coenagrion freyi, C. mercuriale, Calopteryx syriaca, Ophiogomphus cecilia, Stylurus flavipes, Aeshna viridis, Oxygastra curtisii, Macromia splendens, Leucorrhinia albifrons, L. caudalis, and Brachythemis fuscopalliata; of which C. syriaca and B. fuscopalliata are restricted to Asiatic Turkey. The taxonomic status of C. "freyi" (= hylas) is uncertain, therefore M. splendens is the sole sp. on the list that is confined to Europe. Some of the others have their main distribution in Europe (e.g. A. viridis), while a few are widespread elsewhere (e.g. C. mercuriale), but the biogeographic origin of hardly any sp. is really clear and known with certainty. The general, countrywise reviews of the occurrence of each sp. are adequate, thoug they would need some updating. The indications of the (tentative?) reasons of decline are useful, but they are often too general to enable the undertaking of feasible protective measures in the field. — The general "Criteria for invertebrate candidates" [for the Bern Convention] are outlined in the introductory section of the book. To the Abstracter, 2 of these appear particularly objectionable, i.e. "The species must be reasonably easy to identify, and preferably familiar to the members of the general public" and "... only full species should be considered". As far as the Odon. are concerned, all Europ. taxa are "easy to identify", though hardly any *species* is "familiar to the general public". The infraspecific status of a certain taxon is often subject to the personal opinion of the worker concerned. Morphologically distinct geographic populations of various widespread "species" are in most cases theoretically of particular interest, and several of these are endemic to Europe. It would appear reasonable to replace these 2 provisions by another, specifying that knowledge on the biology, ecology and distribution of a taxon should be assumed at least "reasonably adequate" if the sp. is to be considered for nomination. — In the Preface, the authors have expressed their hope "that the inclusion of invertebrates in the Bern Convention will prove an important advance towards their protection in Europe". Opinions, expressed on this subject in the Erop. entomol. literature are, to say the least, controversial. It is clear that restrictions of collecting are not likely to enhance the reliability of monitoring the population status of any invertebrate sp.

(6008) COWAN, C.F., 1987. Damselfly egglaying habits: Agrion splendens (Harris). *Ent. Rec. J. Var.* 99(11/12): 251-252. — (4 Thornfield Terrace, Grange over Sands, Cumbria, LA11 7DR, UK).
Brief field observations on Calopteryx virgo, made on the Waver R., Cumbria, UK. In the concluding paragraph, the author is arguing in favour of the Fabrician generic name Agrion that should take precedence over the junior Calopteryx. — (*Abstracter's* Note: The author's argumentation is prefectly correct. In accordance with the rule of priority, the Agrion-Coenagrion nomenclature would be applicable. However, since some workers, even now, are still adhering to the unjustified use of "Agrion" for Coenagrion, confusion would be inevitable. It was suggested, therefore, to drop "Agrion" altogether and to replace it by Calopteryx as nomen conservandum. Consequently, the Calopteryx-Coenagrion nomenclature is used in all the SIO publications and in the majority of the world literature, though the formal sanction by the Commission has not (yet) been requested).

(6009) DE MARMELS, J., 1987. Ischnura (Anomalagrion) cruzi sp. n., eine neue Kleinlibelle aus Kolumbien (Odonata: Coenagrionidae). *Mitt. ent. Ges. Basel* (N.F.) 37(1): 1-6. (With Engl. s.). — (Inst. Zool. Agric., Fac. Agron., Univ. Central de Venezuela, Apartado 4579, Maracay 2101-A, Venezuela).
I. cruzi sp. n. is described and figured from Parque la Florida, Bogotà, Colombia; holotype ♂, allotype ♀: (17-V-1986). The new sp. is intermediate between Ischnura and Anomalagrion, and the subgeneric rank is suggested for the latter.

(6010) [DE MARMELS, J.], 1987. La coleccion odonatologica del I.Z.A. *Fefeyia* 9(3/4): 21. —

(Inst. Zool. Agric., Fac. Agron., Univ. Central de Venezuela, Apartado 4579, Maracay 2101-A, Venezuela).
Description of the odon. collection, by its Curator, in the Instituto de Zoologia Agricola, Maracay, Venezuela. It contains 15.000 catalogued and several thousands of unidentified specimens of adults from Venezuela and elsewhere. This includes 39 types and over 300 paratypes. The collection of larvae includes 600 specimens, pertaining to 54 spp., most of which are associated with the emerged adults.

(6011) DE MARMELS, J., 1987. Lista de los Odonata de Venezuela. Status julio 1987. *Resum. X Congr. venez. Ent.*, pp. 6-7. (Abstract only.) — (Inst. Zool. Agric., Fac. Agron., Univ. Central de Venezuela, Apartado 4579, Maracay 2101-A, Venezuela).
So far, 443 spp. and sspp. are known from Venezuela, not including over 40 undescribed or unidentified taxa.

(6012) DONATH, H. & K. RADESTOCK, 1987. Libellen schön und schutzbedürftig. *Umweltschutzinformation DDR* 21, 6 pp. — (First Author: Hauptstr. 36/37, DDR-7960 Lückau, GDR).
A pamphlet on dragonfly biology and conservation in the German Democratic Republic.

(6013) DREYER, W. & U. FRANKE, 1987. *Die Libellen. Bildbestimmungsschlüssel für alle Libellenarten Mitteleuropas und ihre Larven.* Gerstenberg, Hildesheim. 48 pp. — [ISBN 3-8067-2041-X]. (Soft cover, plastified, 14.5x21 cm). (First Author: Lehrstuhl Ökol., Zool. Inst., Univ. Kiel, Ohlshausenstr. 40-60, D-2300 Kiel-1, FRG).
Reprint of the keys from the volume listed in *OA* 5545, with some col. photographs from the same.

(6014) DUMONT, H. & P. STEVENS, 1987. *Soedan: een wetenschappelijk en archeologisch avontuur.* — [*Sudan: a scientific and archaeological adventure*]. 144 pp. Simon, The Hague & C. de Vries-Brouwers, Antwerpen. — [ISBN 90-70952-07-6]. (Dutch). — (First Author: Lab. Anim. Ecol. & Zoogeogr., Univ. Gent, Ledeganckstraat 35, B-9000 Gent).
Directed at the general reader and produced as a luxurious book, this is the account of the 1985 Flamish paleoclimatological mission to Darfur, Sudan. It also contains references to the Odon., and col. photographs of several spp.

(6015) EDA, S., 1987. Dragonflies on stamps of the world. Tenth report. *Nature & Insects* 22(10): 18-22. (Jap., with Engl. title). — (3-4-25 Sawamura, Matsumoto, Nagano, 390, JA).
Dealing with the postal stamps issued by Japan (1987), Turkey (1975), Vanuatu (1982), Belgium (1986), Cameroon (1986), St. Vincent (1986), Luxembourg (1987) and Monaco (1987).

(6016) FORSYTH, A. & R.D. MONTGOMERIE, 1987. Alternative reproductive tactics in the territorial damselfly Calopteryx maculata: sneaking by older males. *Behav. Ecol. Sociobiol.* 21(2): 73-81. — (Dept Biol., Queen's Univ., Kensington, Ont., K7L 3N6, CA).
Daily census was conducted on a marked population of C. maculata for 2 complete breeding seasons to document the reproductive tactics of individual males. Overall, 78% of the 600 males studied defended territories and 14% of those territorial males were also observed engaged in sneaking behaviour on some days. When sneaking, males did not defend territories but attempted to steal females from other males' territories. Sneakers were usually previously successful territorial males who emerged early in the season and began sneaking relatively late in their lives (Fig. 2). Thus the adoption of sneaking was conditional and related to both male age and population density It is suggested that sneaking, in this sp., is a "make the best of a bad situation" tactic adopted when intense male-male competition forced older males to abandon territoriality. Thus, sneaking allowed males with declining resource-holding potential to prolong their reproductive careers after they were no longer able to hold a territory.

(6017) GALLETTI, P.A. & M. PAVESI, 1987. Con-

siderazioni su odonati ellenici (Odonata). *In:* P. Crucitti, [Ed.], Atti del Convegno sul tema Zoologia ellenica, pp. 35-37. Soc. Romana Sci. Nat., Roma. — (First Author: Via Monte Generoso 2, I-20155 Milano).
The biogeographic composition of the odon. fauna of Greece is analysed.

(6018) GAUTHIER, A., 1987. Description d'une nouvelle espèce de Gomphidae du Togo (Afrique occidentale) Gomphidia gamblesi spec. nov. (Odonata). *Bull. Soc. ent. Mulhouse* 1987 (juillet/sept.): 41-44. (With Engl. s.). — (Lab. Ent., Univ. Paul Sabatier, 118 route de Narbonne, F-31062 Toulouse).
G. gamblesi sp. n. (♂ holotype; ♀ allotype: Togo, Kpalimé, IV-1984, VI-1985) is described and figured. — (*Abstracter's* Note: An Engl. version of the manuscript was submitted for publication in *Odonatologica* on Oct. 4, 1985, editorial comments were supplied in Dec. 1985, and the subsequent third letter, requesting the revised manuscript, was dated Jan. 28, 1986. The Editors did not receive reply to any of these communications, therefore the publication of this paper in the French periodical appears as a complete surprise).

(6019) HOLLIER, J.A., R.J. WISTOW & A. WALMSLEY, 1987. The insects of the Montgomery Canal. *Bull. amat. Ent. Soc.* 46(356): 151-153. — (Authors' addresses not stated).
The Montgomery Canal is 57 km long, running from Frankton in Shropshire to Newtown in Powys, United Kingdom. During the 1985-1986 survey, 10 odon. spp. were recorded and are listed here.

(6020) ISHIKAWA, Y., 1987. Scene in Japan: A dragonfly sanctuary. *Time* 1987 (Sept 21): 2 pp. — (Author's address not stated; further information from: M. Sugimura, 9-7 Uyama-satsuki-cho, Nakamura, Kochi Pref., 787, JA).
A detailed description of the philosophy and organisation of the Japanese Dragonfly Sanctuary at Nakamura (125-acre expanse of paddy fields and swamps nr the Shumanto R., one of the country's largest clear streams). The initiator and leader is M. Sugimura, locally known as "Dr Tombo" ("tombo" meaning "dragonfly in Japanese), and the sanctuary is sponsored by the city of Nakamura and by the Japanese Branch of the WWF.

(6021) ITÄMIES, J. & E. KORPIMÄKI, 1987. Insect food of the Kestrel, Falco tinnunculus, during breeding in western Finland. *Aquilo* (Zool.) 25: 21-31. — (Dept. Zool., Univ. Oulu, SF-90570 Oulu, Finland).
The odon. were eaten only accidentally, and the libellulids could be identified at the family level only.

(6022) JANEVA, I.J., 1987. The zoobenthos of the River Vit. I. Composition, structure and dynamics of the zoocoenoses. *Hidrobiologiya, Sofia* 31: 37-64. (Bulg., with Russ. & Engl. s's). — (Inst. Zool., Bulg. Acad. Sci., Sofia-1000, Bulgaria).
Platycnemis pennipes, Calopteryx splendens, Gomphus flavipes, G. vulgatissimus and Onychogomphus forcipatus are listed from the Vit River, Bulgaria.

(6023) JANSEN, G.W., 1987. *Libellen in het Noorderpark.* — [*The Noorderpark dragonflies*]. Staatsbosbeheer, Utrecht. VI+28 pp., 1 map + 2 folded maps excl. (Dutch). — (Kruisweg 18, NL-3513 CT Utrecht).
This is the final report on the Noorderpark odon. fauna (Utrecht prov., The Netherlands) as dealt with in the publiction listed in *OA* 5551. Among the 26 spp. recorded, Aeshna viridis and Anaciaeschna isosceles are of particular (local) interest. The species diversity is discussed in terms of landscape diversity, and some tentative conservation measures are briefly suggested.

(6024) KOMNICK, H. & J. KUKULIES, 1987. Cytology of the midgut epithelium of Aeshna cyanea larvae (Insecta, Odonata). *Zoomorphology* 107(4): 241-253. — (Inst. Cytol., Univ. Bonn, Ulrich-Haberland-Str. 61a, D-5300 Bonn-1, FRG).
The midgut epithelium of the larval A. cyanea consists of 4 types of differentiated cells, which all display secretory activity. Purely secretory cells are the mucocytes and two morphologically distinguishable types of endocrine cells,

while the enterocytes exert the dual function of secretion and absorption. Both functions can be performed more or less synchronously; however, appropriate feeding and starvation experiments can stress one function over the other. The heaviest accumulation of secretion granules was observed after a few days of starvation following a long period of regular feeding. Then the enterocytes resembled typical protein-secreting exocrine gland cells. It is still unknown whether the two main secretions, namely digestive enzymes and peritrophic membrane material, are jointly or separately distributed in the secretion granules. The morphological findings suggest that the secretory products follow the same cisternal pathway via endoplasmic reticulum, Golgi apparatus, membrane-bound storage granules and exocytotic extrusion that is well established for the exocrine pancreas of vertebrates. The routes of protein secretion and lipid absorption through the enterocytes of Aeshna are discussed in comparison with the enterocytes and mammocytes of vertebrates.

(6025) KOSTERIN, O.E., 1987. Nahodka bostochno-aziatskoy strekozy (Odonata, Libellulidae) na Manzherokskom ozere (Altay). — Discovery of East-asiatic dragonfly (Odonata, Libellulidae) at the Mangerock Lake (Altay). *Novye maloizv. Vidy Fauny Sibiri* 19: 57-63. (Russ., with Engl. s.). — (Author's address not stated).
An isolated population of Sympetrum croceolum Sel. is reported from the Mangerock Lake in the Altay, USSR. The morphology of both sexes is described and very good figs of terminalia are produced. The biological and behavioural features of S. croceolum differ significantly from those of the other regional Sympetrum spp. On the basis of paleogeographic and botanical evidence it is tentatively suggested that the Altay population represents a Tertiary relict.

(6026) KRÜNER, U., J.T. HERMANS & H.J.M. VAN BUGGENUM, 1987. *Libellen im deutsch-niederländischen Grenzgebiet: Teverener Heide, Brunssummer Heide und Schinvelder Wald.* Privately published, Mönchengladbach. 172 pp. — Price: DM 25.-. — (Orders to: U. Krüner, Gelderner Str. 39, D-4050 Mönchengladbach-4, FRG).
A monographic treatment of the odon. fauna (28 spp.) of a Nature Reserve (surface ca 206 ha) in the frontier area between the Nordrhein-Westfalen (FRG) and Zuid Limburg Prov. (the Netherlands), with emphasis on autecology and conservation.

(6027) KRÜNER, U., J.T. HERMANS & H.J.M. VAN BUGGENUM, 1987. *Libellen in het duits-nederlandse grensgebied: Teverenerheide, Brunssummerheide en Schinveldse bossen.* Privately published, Mönchengladbach. 168 pp. (Dutch, with Germ. s.). — Price: Hfl. 25.-. — (Orders to: J.T. Hermans, Hertestraat 21, NL-6067 ER Linne).
This is the (original) Dutch edition of the work listed in *OA* 6026.

(6028) LHOSTE, J., 1987. *Les entomologistes francais 1750-1950.* INRA & O[ffice] P [our l'] I [nformation] E [co-entomologique], Argentan (Orne), 355 pp. [ISBN not stated]. — Price: fF 180.-.
Contains biographic notes, some with portraits, of the following French odonatologists: René Antoine *Ferchault de Reaumur* (1683-1757; pp. 31-37: portr. and text of his "Pariade des Libellules"), Amboise Francois Joseph baron *de Palisot de Beauvois* (1752-1820; pp. 44-45), Pierre-André *Latreille* (1762-1833; pp. 48-51; portr.), Etienne Laurent Joseph Hippolyte baron *Boyer de Fonscolombe* (1772-1853; p. 120), Pierre Jules *Rambur* (1808-1870; pp. 120-121), Gaspard Auguste *Brullé* (1809-1873; 121-122), René *Martin* (1846-1925; p. 123), etc.

(6029) MADHAVI, R., C. DHANUMKUMARI & T.B. RATNAKUMARI, 1987. The life history of Pleurogenoides orientalis (Srivastava, 1934) (Trematoda: Lecithodendriidae). *Parasitol. Res.* 73(1): 41-45. — (Dept Zool., Andhra Univ., Waltair-530003, India).
Natural infections with cercariae were found in the prosobranch Alocinma travancorica, metacercarial cysts occur in the larvae of Tholymis tillarga and Tramea limbata and in some

aquatic Heteroptera, while adults were recovered from Rana cyanophlyctis. The entire life cycle from egg to egg-producing adults takes 2½ to 3 months. The stages are described and figured.

(6030) *MARTINIA.* Bulletin de liaison des Odonatologues de France. No. 6. (Oct., 1987). — (c/o J.-L. Dommanget, 7 rue Lamartine, F-78390 Bois d'Arcy).
Dommanget, J.-L.: Editorial (pp. 1-2); — *Vincent, G., J.-P. Boudot, G. Jacquemin, P. Goutet & F. Schwaab:* Epitheca bimaculata (Charpentier, 1825) dans l'Est de la France: rare ou discrète et méconnue? (Odonata Anisoptera: Corduliidae (3-13); — *Lebraud, C.:* Observation de Paragomphus genei (Sélys, 1841) en Corse (Odonata Anisoptera: Gomphidae (16); — *Coppa, G.:* Nouvelles observations sur la présence d'Epitheca bimaculata (Charpentier, 1825) dans le Département des Ardennes (Odonata Anisoptera: Corduliidae) (15-24); — *Grand, D.:* Nouvelle observation d'Epitheca bimaculata (Charpentier, 1825) dans les monts du Jura (Odonata Anisoptera: Corduliidae) (25-26); — *Lebioda, B.:* Un méditerranéen exile en Charante-Maritime: Lestes macrostigma (Eversmann, 1836) (Odonata Zygoptera: Lestidae) (27-28); — *Dommanget, J.-L.:* Enallagma cyathigerum (Charpentier, 1840), nouvelle espèce pour la Corse (Odonata Zygoptera: Coenagrionidae (28); — *Geijskes, D.G. & J.-L. Dommanget;* Odonates observés en Bretagne et dans les Pyrénées-Orientales (29-34); — [Analyses d'ouvrages]: *Dommanget, J.-L.:* Die Libellen, par W. Dreyer (34-36), — *Legrand, J.:* A complete guide to British dragonflies, par A. McGeeney (36).

(6031) MILLER, P.L., 1987. *Dragonflies.* Naturalists' Handb. 7. Cambridge Univ. Press, Cambridge. VIII+84 pp., 4 col. pls (by R. Lee) excl. — ISBN 0-521-31765-7. — Price: £ 5.95. — (Dept Zool. Oxford, South Parks Ed, Oxford, OX1 3PS, UK).
A very concise, but virtually complete "biology of dragonflies", by one of the greatest authorities on the subject, with keys to the (British) adults and larvae by resp. D. Chelmick and G. Vick.

(6032) MITRA, T.R., 1987. Note on Tholymis tillarga (Fabr.) (Odonata: Libellulidae) with special reference to its breeding habit. *J. Bengal nat. Hist. Soc.* 4(2) 1985: 144-146. — (Zool. Surv. India, M-Block, New Alipur, Calcutta-700053, India).
Observations on daily activities, and on territorial and reproductive behaviour are reported from the surroundings of Calcutta.

(6033) MOKRUSHOV, P.A., 1987. Rol' zritel'nyh stimulov v raspoznavanii brachnogo partnera u strekoz Sympetrum. — The role of the visual stimuli in mating partner recognition in dragonfly Sympetrum. *Vest. Zool.* 1987(4): 52--57. (Russ., with Engl. title). — Schmalhausen Inst. Zool., Ukrain. Acad. Sci., Lenin St. 15, USSR-252000 Kiev-30).
The work is mainly based on S. flaveolum. The males recognise their conspecifics by the body shape and wing patterns. The females are recognized by their body coloration rather than by the flight pattern.

(6034) MOORE, A.J., 1987. The behavioral ecology of Libellula luctuosa (Burmeister) (Anisoptera: Libellulidae): I. Temporal changes in the population density and the effects of male territorial behavior. *Ethology* 75: 246-254. — (Dept Environ., Popul. & Organismic Biol., Box 334, Univ. Colorado, Boulder, CO 80309--0334, USA).
A single population of L. luctuosa was studied at a site where the density of males increased dramatically during the breeding season. Early in the summer one active male was found on each territory on the pond. Satellite males were only occasionally found on the territories. Later in the season the number of males per territory increased so that two or more males simultaneously defended on many of the territories, and several satellite males occupied each of the territories. The number and rate of female visitations per day did not change over the summer. These factors resulted in a change in the operational sex ratio with variations in male density. Male behavior was also altered with increasing population density. As male density increased, males were less likely to be seen perching on their territories and more

likely to be seen performing aggressive acts such as chasing nearby territorial males and chasing intruders. At high male density, the duration of territorial behaviors was shorter than at low male density. Thus, the percent of a time budget spent in any one activity did not change despite the change in number of males. Male activity in L. luctuosa is not strictly determined by the opportunity for aggression. Costs of aggression associated with territoriality are minimized by maintaining flexible territorial behaviors. — (Author).

(6035) [MOORE, N.W.], 1987. A Japanese dragonfly reserve. *Species* 9: 13. — (Farm House, Swavesey, Cambridge, CB4 5RA, UK).
Brief report, by the Chairman of the IUCN Odonata Specialist Group, on his visit to the Dragonfly Sanctuary, set up at Nakamura, Japan, by M. Sugimura.

(6036) [MOORE, N.W.], 1987. [News from Specialist Groups]. Odonata. *Species* 9: 38. — (Farm House, Swavesey, Cambridge, CB4 5RA, UK).
Prof. H. Dumont and Dr A. Demirsoy made 2 research expeditions to Turkey in order to work out the Pontic range of Cordulegaster mzymtae.

(6037) MOORE, N.W., 1987. A most exclusive preserve. *New Scientist* 1987 issue of Aug. 13, p. 64. — (Farm House, Swavesey, Cambridge, CB4 5RA, UK).
This is a brief description of the Dragonfly Sanctuary in Ikedadani, Nakamura, southwestern Shikoku, Japan, set up in 1985 upon the initiative of M. Sugimura (Higashishita-cho, Nakamura, Kochi Pref., 786, JA). The area consists of interconnected, lowlying valleys, filled with paddy fields and marshes. The valleys are surrounded by low hills, covered by mixed forest. Little or no pesticides are used in the paddy fields, since their rice is consumed by the owners themselves. (The Japanese farmers tend to use pesticides only in fields producing for sales. The area contains a good variety of aquatic habitats of varying depth and flow. Even before the Sanctuary was created these supported 62 odon. spp. M. Sugimura hopes that the Sanctuary, consisting of paddy fields, woodland and marshes, will eventually cover 50 hectares. For the start, he successfully applied to the World Wildlife Fund, Japan for ¥ 3.200.000 to purchase the first 525 sqm. Thanks to further help from the WWF and donations from local businessmen, about one fifth of wetlands are protected by purchase and lease. A dragonfly society, "Tombo no Kai", has been formed to promote dragonfly conservation and to manage the Sanctuary. Ponds have been dug, with the result that existing odon. populations have greatly increased and 2 new spp. have colonised the reserve. An experiment to introduce the endangered Libellula angelina already shows promise. The local authorities of Nakamura designated the Sanctuary a Municipal Natural Park. On May 18, 1987, the city of Nakamura sponsored a one-day symposium on the Sanctuary. Dr S. Asahina (the doyen of the Jap. odonatologists) and Prof. N.W. Moore (Chairman of the IUCN Specialist Group Odonata) addressed the meeting and took part in a lively panel discussion. More than 500 people came to the symposium, which attracted considerable attention in the local and national press, and on television. Prof. Moore came to Japan with the sole objective to promote the conservancy aspects relative to the foundation of the Nakamura Dragonfly Sanctuary, and has given during his brief stay (May 13-27, 1987) 8 press interviews and participated in 2 press conferences. In the present paper he emphasises that the principal features of this venture lie in the effective cooperation between a local natural history society, local government, and an international conservation agency, which have worked together to a remarkable mutual advantage.

(6038) [MOORE, N.W.], 1987. [A "Thank you" to the Japanese who love dragonflies]. *Mainichi*, issue of May 5. (Jap., with a portrait). — (Farm House, Swavesey, Cambridge, CB4 5RA, UK).
This is the concluding of the 8 press interviews (and 2 press conferences) given by Prof. N.W. Moore, Charman of the IUCN Odon. Specialist Group, on the occasion of his visit to

Japan and the inspection of the Nakamura "Dragonfly Sanctuary" (southwestern Shikoku). It also contains some biographic reminiscences.

(6039) MOORE, N.W., 1987. *The bird of time. The science and politics of nature conservation — a personal account.* Cambridge Univ. Press, Cambridge-New York-New Rochelle-Melbourne-Sydney. XII+290 pp. — [ISBN 0521–25259-8 (hard cover), 0-521-33871-9 (paperback)]. — Available also from the SIO Central Office, Bilthoven. — (Author: Farm House, Swavesey, Cambridge, CB4 5RA, UK).
This is Prof Moore's *magnum opus* on the theory, practice, evolution and perspectives of Nature Conservation. He commenced his conservation career as Nature Conservancy's Regional Officer for Southwest England (1953-1960), continued as Head of the Nature Conservancy's Toxic Chemicals and Wildlife Section at Monks Wood (1960-1974) and as the Council's Chief Advisory Officer (1974-1983), and is serving now as the Chairman of the Odonata Specialist Group of the IUCN Species Survival Commission (since 1980). — The last 40 years have been a fascinating time for those who have lived at the formative stage of the environmental revolution, practising conservation. The book describes that experience and draws conclusions from it. It is not a history of the conservation movement, nor is it an autobiography, but it contains elements of both of these by recording the author's observations on the way ideas about conservation have developed. The theme of time runs through the book. The first part of the book sets the modern scene in the perspective and context of time. The second and third part recall the author's experience with the 2 subjects that have occupied most of his professional life: the safeguard of habitats for nature conservation and the control of pollution. The Odon., on which Prof. Moore first published as a boy of 16 (1939, *Entomologist* 72: 220), retained his attention throughout his life, and his experience with their conservation, colonisation and recolonisation is recorded in some detail at the appropriate places. The final section of the book is drawing the threads of the author's experience together, discussing their implications for the future, and outlining what he thinks should be done. — Through research work and land management Prof. Moore shows how he came to realise that conservation matters much more fundamentally than is accepted by conventional wisdom. While in the past too much emphasis has been put on the negative and esoteric aspects of conservation, this book shows its positive and commonplace aspects and, in so doing, demonstrates that conservation should now be accepted as a major national and international objective, of vital concern to everybody now and in the future. — The book is written for Everyman, and it can certainly not be missed in any odonatological library.

(6040) NEL, A., 1987. Un nouveau Calopterygidae fossile des laminites oligocènes d'Armissan (Aude, France) (Odonata). *Revue fr. Ent.* (N.S.) 9(3): 147-148. (With Engl. s.). — (8, av. Gassion, F-13600 La Ciotat).
Sapho armissani sp. n. is described and figured from the Upper Stampien, Oligocene of Armissan (Aude), France. The type is in the MNHN, Paris.

(6041) NIELSEN, P., 1987. Guldsmede og vandnymfer (Odonata) fra Skallingen. — [Dragonflies and damselflies (Odonata) from Skallingen]. *Zool. Meddel.* 54(1): 36. (Danish). — (Zool. Mus., Universitets-parken 15, DK-2100 København-Ø).
List of 16 spp. from this Danish locality.

(6042) OATES, M., 1987. Some late sightings of butterflies and other insects in and round Hampshire during the mild autumn of 1986. *Ent. Rec. J. Var.* 99(9/10): 222-224. — (The Lodge, Wyck Place, Wyck, Alton, Hampshire GU34 3AH, UK).
Aeshna cyanea was seen nr Alton, Hampshire, UK on Nov: 8, 1978, and again "into November" in 1986.

(6043) O'BRIEN, C.W. & C.R. WARD, 1987. Current state of insect collections in Honduras. Fol. ent. mex. 71: 87-101. — (First

Author: Coop. Extension Serv. & Agric. Sci. Center, New Mexico St. Univ., Route 1, Box 121, Artesia, NM 88210, USA).
Small to negligible odon. collections are harboured in 9 institutions. The number of specimens per collection, and a statement as to whether or not these are identified are given.

(6044) OCHARAN LARRONDO, F.J., 1987. *Los odonatos de Asturias y de España: aspectos sistematicos y faunisticos.* — [*The Odonata of Asturia and Spain: considerations on the systematics and faunistics*]. Ph. D. thesis, Univ. Oviedo. 983 pp. — Depto Zool., Fac. Biol., Univ. Oviedo, Oviedo, Spain).
This is a comprehensive monograph, based on the examination of 5218 specimens, pertaining to 75 spp., and on a critical literature review, covering ca. 700 regional localities. — The present (revised) status of the Iberian odon. fauna amounts to 70 spp. All the taxa are described and figured, all their published and unpublished regional records are enumerated, and their status is critically considered. — Coenagrion mercuriale hermeticum (Sel.), C. coerulescens theryi Schmidt, C. puella kocheri Schmidt and Anax parthenope geyri Buchholz are synonymised with the nominate sspp., while Enallagma cyathigerum possompesi Heymer is very likely to have to be considered a synonym of the nominate form. — Important evidence is presented on the Iberian Calopteryx spp., Coenagrion caerulescens caesarum Schmidt, Anax parthenope jordansi Buchholz, etc., and amended keys are given for some genera. — The biogeography and phenology of the regional fauna are among the topics discussed in some detail, and suggestions are offered for a tentative future research in various areas. — The monograph is indispensable to all workers on the Iberian fauna, and some of the views expressed will greatly influence our understanding of infraspeciation in a considerable number of westmediterranean taxa. It is to be hoped, therefore, that at least an abridged version will be published before long in a more readily accessible form.

(6045) PAINTER, S., 1987. Country Life Guide to Dragonflies and damselflies of Britain and northern Europe, by B. Gibbons. *Bull. amat. Ent. Soc.* 46(356): 137-138. — (Author's address not stated).

(6046) PIERCE, C.L., K.A. MUSGROVE, J. RITTERPUSCH & N.E. CARL, 1987. Littoral invertebrate abundance in bluegill spawning colonies and undisturbed areas of a small pond. *Can. J. Zool.* 65(8): 2066-2071. — (With Fr. s.). — (First Author: Dept Biol., McGill Univ., 1205 av. Docteur Penfield, Montreal, Que. H3A 1B1, CA).
Bluegill (Lepomis macrochirus) spawning activity creates benthic disturbances in the littoral zone of ponds and lakes. These were studied in a Prince George's Co. pond, Maryland, USA. Densities and biomass of most macroinvertebrate taxa were similar before and just after nest construction. Insects tended to be more abundant in undisturbed areas 6 weeks after nest construction, though the total macroinvertebrate densities and biomass did not differ significantly on any sampling date. Quantitative data for Zygoptera and Anisoptera are given, but not lower taxa are stated.

(6047) POETHKE, H.J. & H. KAISER, 1987. The territoriality threshold: a model for mutual avoidance in dragonfly mating systems. *Behav. Ecol. Sociobiol.* 20(1): 11-19. — (Lehrstuhl Biol. V (Ökol.), RWTH Aachen, Kopernikusstr. 16, D-5100 Aachen, FRG).
In the Anisoptera a variety of mating systems occur. Male strategies range from patrolling without site attachment to territorial behaviour with pronounced residentiality. Conceiving site attachment as a strategy of mutual avoidance that reduces the energy spent in intermale fights, a model for the cost and benefit of territoriality is developed. It suggests that high male density, high inter-male aggressiveness, and short duration of female visits at the mating place will strongly favour localization of males at the mating place and may thus trigger the evolution of territoriality. The predictions of the model are supported by field observations on several spp.

(6048) POIRIER, D.G. & G.A. SURGEONER,

1987. Laboratory flow-through bioassays of four forestry insecticides against stream invertebrates. *Can. Ent.* 119(9): 755-763. — (With Fr. s.). — (Dept Environ. Biol., Univ. Guelph, Guelph, Ont. N1G 2W1, CA).
The acute toxicities are assessed of permethrin, fenitrothion, aminocarb, and mexacarbate. The respective probit mortalities for dragonflies (Ophiogomphus sp.) were 3.7, 1.0, 0.8 and 0.6.

(6049) PRASAD, B. & A. MALIK, 1987. A note on the collection of Odonata from Imphal Valley, with new records. 1. Anisoptera. *Proc. 74 Session Indian Sci. Congr.* (Zool.) 3: 58 [Abstract only]. — (Lab. Ent., Life Sci. Dept, Manipur Univ., Imphal-3, India).
Indicative abstract, referring to 5 libellulid spp., but without names.

(6050) *SELYSIA*. Newsletter of the Societas Internationalis Odonatologica and the U.S. National Office, Vol. 16, No. 2 (Sept. 1, 1987). — (c/o D.M. Johnson, Dept Biol. Sci., East Tennessee St. Univ., Box 2359 OA, Johnson City, Tennessee 37614-0002, USA).
Due to a lapse, the pagination of this issue commences with p.1; it should start properly with p. 11. — *Mathavan, S.:* IX International Symposium of Odonatology: Registration deadline extended (p. 1); — *Tyagi, B.K.:* IX International Symposium of Odonatology: Registration fees for Southeast Asians (1); — *Johnson, D.:* Poetic folklore for Jill Lucas [reproduction of D. Johnson's poem "Snake Doctors", from his book "The importance of visible scars", ISBN 0-931694-26-4, Wampeter Press, Green Harbor, MA, USA, 1984] (1); — *(Anonymous):* Jean Belle honored (2); — *Donnelly, T.W.:* New York Odonata data sought (2); — *Johnson, D.M.:* "Dragonfly Art" (2); — *Asahina, S.:* Dr Norman W. Moore visits Japan (2); — *Schneider, W.:* Systematics and biogeography of the Levantine Odonata, with special reference to Zygoptera [abstract of Ph. D. thesis] (3); — *Pierce, C.L.:* Effects of fish on littoral invertebrates [abstract of Ph. D. thesis] (3); — *Harwood, P.D.:* Octogenarian searching for mysterious Gomphus (3); — *Perry, C.K.:* Obituary T. Edward Perry (3); — *Donnelly, T.W.:* Return to the South Pacific — collecting in Fiji, Vanuatu, and the Solomon Islands, 1987 (4); — *(Anonymous):* North American Benthological Society Meeting, Odonata Ecology Symposium (5); — *Kiauta, B.:* New books about dragonflies' (5); — *Pritchard, G.:* Proposed changes to the By-Laws of S.I.O. (6).

(6051) SPURIS, Z.D., 1987. [Recenzijas]. Advances in Odonatology, vol. 1. *Latv. Ent.* 30: 93-94. (Russ.). — (Hortus botanicus, Latvian Acad. Sci., Miera iela 19-6, USSR-229021 Salaspils, Latvia).
A very thorough book review of the volume listed in *OA* 4152, with a list of the hitherto held International Symposia of Odonatology.

(6052) SPURIS, Z.D., 1987. [Recenzijas]. Advances in Odonatology, vol. 2. *Latv. Ent.* 30: 94. (Russ.). — (Hortus botanicus, Latvian Acad. Sci., Miera iela 19-6, USSR-229021 Salaspils, Latvia).
Book review of the volume listed in *OA* 5007.

(6053) SPURIS, Z.D., 1987. [Recenzijas]. V. Dogels, Bezmugurkaulnieku zoologija. *Latv. Ent.* 30: 96-99. (Latvian). — (Hortus botanicus, Latvian Acad. Sci., Miera iela 19-6, USSR-229021 Salaspils, Latvia).
A very detailed review of the Latvian edition of the volume listed in *OA* 5981, with comments and corrective notes on the Odon. (pp. 98-99).

(6054) STERNBERG, K., 1987. *Heimische Libellen.* DBV-Verlag, Kornwestheim. 64 pp. — [ISBN 3-920220-17-X]. — (Author: Inst. Biol. I — Zool., Univ. Freiburg, Albertstr. 21a, D-7800 Freiburg/Br., FRG).
This is a small "field guide" (10x18 cm), covering the "common" spp. in Germany, of which 25 could be identified with the good col. photographs, while the structural features of further 25 spp. are shown in textfigs (all orig.). The text is concise and informative; for each sp. there are sections on morphology, phenology, habitat, distribution and biology. The latter contain a number of the author's original field observations. — *(Abstracter's Note:* On p. 35 the ♂ and ♀ of Libellula quadrimaculata are

mixed up; — the upper fig. on p. 39 represents a Sympetrum sanguineum rather than S. vulgatum).

(6055) STRAKA, V., 1987. Nový nález vážky pásavej (Sympetrum pedemontanum Allioni, 1766) v Turci. — [New record of Sympetrum pedemontanum Allioni, 1766 in the Turiec region]. *Kmetianum* 8: 365-366. (Slovak). — Turčianske múzeum, Engelsova 2, CZ-03601 Martin).
A ♀ is recorded from the Mädokýš stream (26-VIII-1984), representing the first record of S. pedemontanum in the Turiec area, Slovakia, Czechoslovakia, after that cited by S. Moscáry (1899, *Fauna Regni Hungariae* 3: 23-44, Budapest).

(6056) STUART, S.N., 1987. [IUCN Specialist Groups] Action plan progress. Odonata. *Species* 9: 18. — (c/o Dr N.W. Moore, Farm House, Swavesey, Cambridge, CB4 5RA, UK).
Funds are being sought for an Odonata database in the framework of the IUCN Odonata Specialist Group. Once this is operational, steps will be taken to produce an Action Plan.

(6057) TEALE, E.W. & F. COCCO, 1987. Children of the sun. *Audubon* 89(4): 64-71. — (Journal issue available, at US $ 3.- net, from: National Audobon Soc., P.O. Box 2666, Boulder, CO 80322, USA).
A brilliant (short) literary essay on dragonflies. Some of the full-page col. phot. (of N. American spp.) are of very high quality.

(6058) THOMPSON, D.J., 1987. Regulation in damselfly populations: the effects of weed density on larval mortality due to predation. *Freshw. Biol.* 17(2): 367-371. — (Dept Zool., Univ. Liverpool, P.O. Box 147, Liverpool L69 3BX, UK).
The effects of weed density on the predation of Coenagrion puella larvae by Notonecta glauca were investigated in a laboratory experiment. In the absence of weeds. Notonecta exhibited a Type 2 functional response, but this changed to a Type 3 response as weed density increased. Consideration is given to the possible significance of these results for the regulation of field populations of damselfly larvae.

(6059) TSUBAKI, Y. & T. ONO, 1987. Effects of age and body size on the male territorial system of the dragonfly, Nannophya pygmaea Rambur (Odonata: Libellulidae). *Anim. Behav.* 35(3): 518-525. — (First Author: Lab. Appl. Ent. & Nematol., Fac. Agric., Nagoya Univ., Nagoya, 646, JA; — Second Author: Lab. Biol., Kinjo-Gakuin Univ., Moriyama, Nagoya, 463, JA).
N. pygmaea males defended a small area including small bodies of water. Females visited these sites to oviposit and were usually captured by territorial males. There was considerable turnover in territory ownership at some sites during the course of the reproductive season. Some changes in ownership occurred because an intruder defeated the resident in an aerial contest. Old males were often replaced by young ones. High-quality territories, which attracted more females than others, were highly contended and large males usually occupied these territories. Large males occupied high-quality territories for more days than smaller males. Smaller or old males adjusted their behaviour to their social environment, occupying low-quality territories or sneaking into established territories if excluded from favoured ones. As a result, larger males had a higher lifetime mating success than smaller ones. Howeer, multiple regression analysis showed that most of the variation in male mating success could be explained by two variables related to weather conditions (number of sunny days during the reproductive span of each male, and number of sunny days while each male occupied a high-quality territory) and not by male size.

(6060) VAN DER POL, H., 1987. Libellen van de Blauwe Koepel. — [Dragonflies of the Blauwe Koepel]. *Wijde Blik* 4(3): 19-27. (Dutch). — (Dinkel 33, Huizen, NL).
The odon. fauna (17 spp.) of a pond nr the city of Baarn, Utrecht Prov., The Netherlands is described. Leucorrhinia pectoralis is of considerable local interest.

(6061) WASSCHER, M.T., 1987. *De invloed van de*

temperatuur in de laatste larvale stadia op het drooggewicht van borststuk en achterlijf van imago's van Erythromma viridulum Charp. en Ischnura elegans Vanderl. (Odonata: Coenagrionidae), en de mogelijke invloed hiervan op het gaan zwerven. — The influence of temperature experience by late instar larvae of Erythromma viridulum Charp. and Ischnura elegans Vanderl. (Odonata: Coenagrionidae) on the dry weight of thorax and abdomen of the imagines, and its possible effect on the dispersal. M. Sc. thesis, Univ. Amsterdam. 19 pp. (Dutch, with Engl. s. & tabs & figs captions). — (Minstraat 13 bis, NL-3582 CA Utrecht).

In NE Europe, E. viridulum occurs locally, but since 1969 its records are systematically increasing and large local populations were repeatedly reported. It was suggested that the dispersal may be favourably influenced by the increase in local temperature. — Late instar larvae were reared at different temperatures, and in the adults the total dry weight and those of thorax and abdomen were measured. The adults originating from the larvae kept at high temperature (24° C) show a relatively small total weight, but are characterised by a relatively high weight of thorax. In the males the ratio is entirely due to the significant increase in the thoracic weight. Larvae kept at 10.3° C yielded adults with significantly lower total weights, which may explain the size differences reported in the literature for individuals from different geographic populations. The increase of thoracic weight, caused by the increase of the environmental temperature may favour the dispersal capacity of the individuals concerned. — Identic experiments were made with I. elegans, in which the environmental temperature does not seen to affect either the absolute, or the relative weight measured. It is argued that, compared with I. elegans, the general body proportions of E. viridulum make the latter better suited for active dispersal (16% higher thorax weight, 6% shorter abdomen, 6% longer hind wings). — (Cf. also *OA* 5400).

(6062) YOUNG, J.O., 1987. Predation on leeches in a weedy pond. *Freshw. Biol.* 17(1): 161-167. — (Dept Zool., Univ. Liverpool, P.O. Box 147, Liverpool L69 3BX, UK).

A range of sizes of Erpobdella octoculata, Glossiphonia complanata and Helobdella stagnalis were introduced to a small weeded pond harbouring invertebrate and amphibian predators. Control leeches were kept in protective cages. Subsequently, gut contents of potential predators were tested against three anti-leech sera, using the precipitin test. Five of 15 spp. tested had fed on leeches, incl. Pyrrhosoma nymphula, Aeshna grandis and Sympetrum striolatum. The size distributions of introduced and surviving leeches were compared. Predation pressure had been greatest on smaller leeches and this may have accounted for the observed differential mortality between leech spp. It is concluded that predation may cause significant mortality in leech populations in weeded ponds, with severity determined by the types and abundance of predators present.

(6063) ZHOU, W., 1987. Nova rekordo de Gomphidae el Cînio. *Entomotaxonomia* 9(2): 128, 132. (Chin., with Esperanto title). — (Dept Ent., Zheijang Mus. Nat. Hist., Gu-shan, Hang Zhou, P.R. China).

Annotated list of 7 spp., with figs of the female genitalia of Anisogomphus forresti and Nihonogomphus thomassoni.

1988

(6064) DE MARMELS, J., 1988. Aeolagrion chimantai spec. nov., eine neue Kleinlibelle aus Venezuela (Odonata: Coenagrionidae). *Opusc. zool flumin.* 17: 1-5. (With Engl. s.). — (Inst. Zool. Agric., Fac. Agron., Univ. Central de Venezuela, Apartado 4579, Maracay 2101-A, Venezuela).

A chimantai sp. n. is described and illustrated from 2 ♂ and 1 ♀. (Holotype ♂: Venezuela, Bolivar, Chimanta-Tepy, alt. 2200 m, 10-X--1986; deposited at I.Z.A., U.C.V., Maracay). The new sp. is closely related to A. fulvum Needham from Mt Duida and to an undescribed sp. from Mt Neblina.