ODONATOLOGICAL ABSTRACTS

1973

(8020) KOVÁŘÍK, J., 1973. Príspèvek k poznání vážek (Odonata) jižní ðásti Středočeského kraje. - Beitrag zur Kenntnis der Odonata im südlichen Teil Mittelböhmens. *Zpravy československ. Spol. Ent.* 9:91-96. (Czech, with Germ.s.). - (CZ-259 01 Votice 332, okr. Benešov, Bohemia).
Commented list of 21 spp. from the surroundings of Votice, S of Prague, central Bohemia, Czechoslovakia.

1978

(8021) KOVÁŘÍK, J., 1978. Príspèvek k poznání vážek (Odonata) středního Polabí. - [Indications faunistiques des espèces des libellules (Odonata) dans la région de Polabí centrale]. *Zpravy československ. Spol. ent.* 14:109-112. (Czech, with Fr.s.). -- (CZ-259 01 Votice 332, okr. Benešov, Bohemia).

(8022) STÖCKEL, G., 1978. Die Gebänderte Heidelibelle nun auch im Bezirk Neubrandenburg nachgewiesen. *Naturk. Forsch. Ber. Neustrelitz* 1:17-18. - (Rudower Str. 22, D(O)-2080 Neustrelitz, FRG).
A review of the known records of Sympetrum pedemontanum from the former German Democratic Republic.

1979

(8023) SENSENHAUSER, H., 1979. Zur Odonatenfauna des naturschutzgebietes Degensmoor. *Naturk. Forsch. Ber. Neustrelitz* 2:29-32. - (Author's address unknown).
Commented list of 24 spp.; Nature Reserve "Degensmoor", distr. Neubrandenburg, FRG.

1981

(8024) DEGRANGE, C., 1981. Odonates des zones humides de lisière. *In:* Les milieux aquatiques de lisière dans la vallée du Rhône en amont de Lyon. *Rapp. Minist. Environ. (Faune Flore), Univ. Grenoble* 1:1-19. - (Lab. Biol. Alpine, Univ. Joseph Fourier, B.P. 53 X, F-38041 Grenoble).
Analysis of the odon. fauna (52 spp.) of various types of wetlands along the Rhône R. and the adjacent regions, France.

1982

(8025) STOCKEL, G., 1982. Mecklenburgische Entomologen. J.M.G. Füldner, einer der ersten Odonatologen. *Zool. RundBr. Neubrandenburg* 2:61-62. - (Rudower Str. 22, D (O)-2080 Neustrelitz, FRG).
A brief biography, evaluation of work and odonatol. bibliography of J.M.G. Füldner (Nov. 27, 1818 - Nov. 22, 1873).

1983

(8026) VOLKMANN, T., 1983. Die Libellen (Odonata) aus der Sammlung des Müritz-Museums Waren. *Zool. RundBr. Neubrandenburg* 3:61-68. - (Specker Str. 61, D(O)-2060 Waren/Müritz, FRG).
List, with locality data, of 47 spp., mostly from the Müritz R. area, eastern FRG. Much of the material was collected in the 19th century.

1984

(8027) SCHLÜPMANN, M., 1984. Lebensgemeinschaft einer Ruderalfläche bei Hagen-Berchum. *Sauerländ. NaturBeob.* 17:230-242. - (Hierseier Weg 18, D(W)-5800 Hagen-Hohenlimburg, FRG).
Contains a list of 12 odon.spp., Lenneaue nr Berchum, Northrhine-Westfalia, FRG.

1985

(8028) HERTZEL, G. & U. FISCHER, 1985. Odonaten zweier Teiche bei Volkenroda, Kreis Mühlhausen. *Wiss. Z. pädagog. Hochsch. Erfurt-Mühlhausen (Math.-Naturw.)* 21(2):87-90. - (Sekt. Chemie/Biol., Pädagog. Hochsch. "Dr.-Theodor-Neubauer", Erfurt-Mühlhausen, FRG).
Commented list of 14 spp.

(8029) PARDUE, W.J. & D.H. WEBB, 1985. A comparison of aquatic macroinvertebrates occurring in association with Eurasian Watermilfoil (Myriophyllum spicatum L.) with those found in the open littoral zone. *J. Freshw. Ecol.* 3(1):69-79. - (Florida Power Corp., P.O. Box 14042, MAC G20, St Petersburg, FL 33733, USA).
Studies were conducted at Guntersville Reservoir, on the Tennessee R., AL & TN, USA. The "Coenagrionidae" occur also in the open littoral habitat, while Lestes, Epitheca, Neurocordulia and Libellulidae were collected in the Myriophyllum vegetation only.

(8030) ROBERTSON, D.J. & K. PIWOWAR, 1985. Comparison of four samplers for evaluating macroinvertebrates of a Sundy Gulf Coast Plain stream. *J. Freshw. Ecol.* 3(2):223-231. - (Florida Inst. Phosphate Res., 1855 West Main St., Barlow, FL 33830, USA).
Aquatic macroinvertebrates were collected from 2 sections of Sink Branch, a central Florida stream disturbed by surface mining, channelization and grazing. Benthic organisms were sampled over a 12 month period with "stovepipe" substrate cores, drift nets, dip nets and multiple plate artificial substrate samplers. As far as the odon. are concerned, the results are compared for 10 spp.

(8031) VOLKMANN, T., 1985. Libellenfunde aus der Umgebung von Waren (Müritz). *Zool. RundBr. Neubrandenburg* 4:59-63. - (Specker Str. 61, D(O)-2060 Waren/Müritz, FRG).
Records for 33 spp., distr. Waren, eastern FRG.

1986

(8032) EMETZ, V.M., 1986. Ispol'zovanie parametrov populyaciy hishchnyh nasekomyh dlya fonovogo monitoringa ekosistem. - Utilization of parameters of predatory insect populations for background monitoring of ecosystems. *Byull. mosk. Obshch. Ispytat. Prir.* (Biol.) 91(6): 36-43. (Russ., with Engl.s.). - (Author's address not stated).
The possibilities of the utilization of certain biological and biochemical parameters (e.g. content of heavy metals in the body), characterizing populations of insect predators, with the objective of background monitoring of the ecosystem quality, are limited. Here are given the results of a many yr monitoring in a given area, containing also references to the variation in venation in Sympetrum, caused either by the break-down of the genetic balance, or by the impact of unusual environmental conditions.

(8033) GORE, J.A. & R.M. BRYANT, 1986. Changes in fish and benthic macroinvertebrate assemblages along the impounded Arkansas River. *J. Freshw. Ecol.* 3(3): 333-345. - (First Author: Fac. Biol. Sci., Univ. Tulsa, Tulsa, OK 74104, USA).
In order to determine cumulative impacts of multiple impoundments on the Arkansas R., forage fish, macroinvertebrate, and physical and chemical samples were collected from stations upstream and downstream of 4 hypolimnial release reservoirs and from stations along unimpounded reaches between Florence/CO, and Bixby/OK. Data on the distribution and densities of Ophiogomphus severus and Gomphoides sp. are presented.

(8034) KALMUND, P., & K. HANDKE, 1986. *Biotopkartierung Ochtumniederung.* Landschaftsökol. Forschungsstelle Bremen. - [Odon. part available only: pp. 16, 110-116; distribution maps pp. 437-459]. - (For the odon.: c/o Dipl.-Biol. A. Didion, Marienstr. 21, D(W)-6650 Homburg-6, FRG).

Analysis of the regional odon. fauna (22 spp.), with detailed distribution maps for each sp., Ochtum Lowlands, Bremen, FRG.

(8035) ZETTELMEYER, W., 1986. Die Bedeutung von Kleingewässern für den Biotop- und Artenschutz. *Mitt. faun. ArbGem. Weserbergland* 1986 (1):185-194. - (Hauptstr. 59, D(W)-4952 Porta Westfalica/Hausberge, FRG).
Directed at the general readership, the paper contains odon. succession lists of a man-made garden pond in Höxter, FRG.

1987

(8036) BELZ, A., 1987. Die Libellen Wittgensteins. *Wittgenstein* 51(2): 72-84. - (Author's address not stated).
Commented list of 28 spp., Wittgenstein (alt. 300-800 m), SW Westfalia, FRG.

(8037) COOPER, C.M., 1987. Benthos in Bear Creek, Mississippi: effects of habitat variation and agricultural sediments. *J. Freshw. Ecol.* 4(1):101-113. - (Natn. Sedimentation Lab., USDA-ARS, Box 1157, Oxford, MS 38655, USA).
Contains comprehensive (quarterly, 1976-1978) water quality values, and a list of 6 odon. taxa (of which 3 identified to the sp. level).

(8038) DÖRFLER, S., 1987. Die Gebänderte Heidelibelle, bedrohter Jäger in der Großstadt. *Okowerk Mag.* 1(4):24. - (Burscheider Weg 41, D--1000 Berlin-20, FRG).
A note on Sympetrum pedemontanum in the Berlin area.

(8039) DÖRFLER, S., 1987. *Gutachten zur Libellenfauna an Kleingewässern in Bezirk Reinickendorf.* Published by the Author, Berlin. ii+15 pp. - (Burscheider Weg 41, D-1000 Berlin-20, FRG).
Description of 21 odon. habitats and their fauna (22 spp.) in the Reinickendorf Distr. of Berlin.

(8040) PUJOL-LUZ, J.R., 1987. Notas sobre duas novas larvas do género Dythemis Hagen, 1861 (Odonata: Libellulidae). *Resum. XI Congr. brasil. Ent., Campinas* 2:474. - (Depto Ent., Museu Nac., UFRJ, Quinta da Boa Vista, BR-20942 Rio de Janeiro, RJ).
The principal distinguishing larval characters are stated for D. cannacrioides and D. constricta. - (*Abstracter's Note:* The 2 spp. are now placed into Elasmothemis Westfall, 1988).

(8041) PUJOL-LUZ, J.R., & A.L. CARVALHO, 1987. Composição prévia da fauna odonatologica da Ilha Grande, RJ (Insecta: Odonata). *Resum. XI Congr. brasil. Ent., Campinas* 2:475. - (First Author: Depto Ent., Museu Nac., UFRJ, Quinta da Boa Vista, BR-20942 Rio de Janeiro, RJ).
36 spp. are said to have been recorded during 1984-1986, from Ilha Grande, Rio de Janeiro, Brazil. 15 of these are listed, the Argia spp. were not yet identified.

(8042) PUJOL-LUZ, J.R. & J.M. COSTA, 1987. Descrição da exuvia de Dythemis cannacrioides Calvert, 1906 (Odonata: Libellulidae). *Anais Acad. brasil. Cienc.* 59(3):281. - (Depto Ent., Museu Nac., UFRJ, Quinta da Boa Vista, BR-20942 Rio de Janeiro, RJ).
Brief description, without figs; for a full description cf. *OA* 6450. - (The sp. is now placed into Elasmothemis Westfall, 1988).

(8043) RACHLIN, J.W., A. PAPPANTONIOU & B.E. WARKENTINE, 1987. A bias estimator of the environmental resource base in diet preference studies with fish. *J. Freshw. Ecol.* 4(1): 23-31. - (Dept Biol. Sci., Herbert H. Lehman Coll., C.U.N.Y., Bedford Park Blvd West, Bronx, NY 10468, USA).
An assessment of the resource base for determining dietary preference is obtained by using the pooled stomach content data derived from all fish collected at a study site. The assessment provides a different bias than is obtained by using standard independent environmental sampling methods, in that all food taken by the fish community is included in the preference estimates. An important characteristic of a preference index is its conservativeness. In the example shown, the aeshnids are family-wise considered.

(8044) RODRIGUES CAPITULO, A., & J. MUZON, 1987. Anisopteros del parque nacional "El Palmar", prov. de Entre Rios (Odonata). *Revta Soc. ent. argent.* 44(2): 128. - (Inst. Limnol., "Dr R.A. Ringuelet", Univ. Nac. La Plata, C.C. 712,

AR-1900 La Plata).
Records of 21 spp., of which Micrathyria spuria and Orthemis ambirufa are new for the fauna of Argentina.

(8045) VOLPERS, M., 1987. *Auswertung tierökologischer Bestandsaufnahmen im Rahmen einer Umweltverträglichkeitsprüfung zum Hochwasserschutz am Oberrhein unter besonderer Berücksichtigung tagfliegender Schmetterlinge, Libellen und Heuschrecken.* DiplArb. Univ. Paderborn, Höxter. 127 pp., append. excl. - (c/o Fachb. 7-Landespflege, Abt. Höxter, Univ. Paderborn, An der Wilhelmshöhe 44, D(W)-3470 Höxter, FRG).
The study area is situated in Baden-Württemberg, S of Breisach, FRG, within which 32 odon. spp. were recorded. The odon. communities are analysed on pp. 21-98.

1988

(8046) DELL'ANNA, L., 1988. *Alcuni aspetti del comportamento territoriale di Libellula depressa L. (Insecta, Odonata).* Tesi di Laurea, Univ. Roma "La Sapienza", Roma. vi+73 pp. - (Author: Circonvallazione Gianicolense 142, I-00152 Roma).
A very detailed account on reproductive [1] and territorial behaviour, as evidenced during 2 adult seasons at a locality nr Rome.

(8047) DÖRFLER, S., 1988. *Gutachten zur Libellenfauna am Uferbereich des Aalemannkanals in Spandau.* Published by the Author, Berlin. iv+8 pp. - (Burscheider Weg 41, D-1000 Berlin-20, FRG).
Evaluation of the odon. fauna (3 spp.) of this small area in Berlin.

(8048) GEBERT, J., 1988. Bericht vom Spezialistenlager Junger Entomologen in Schlepzig (Bezirk Cottbus). *Ent. Nachr. Ber.* 32(4):158. - (Heinz-Hamann-Str. 3, D(O)-7580 Weisswasser, FRG).
Contains a record of Gomphus flavipes.

(8049) GÖCKING, C., 1988. Die Libellen im Umkreis der Stadt Warendorf. *Flora Fauna Warendorf* 5:18-23. - (Dahlweg 87, D(W)-4400 Münster, FRG).
Commented list of 22 spp.; Northrhine-Westfalia, FRG. Of particular interest is the description of a mooreland habitat of Coenagrion mercuriale.

(8050) GOULDING, M., M.L. CARVALHO & E.G. FERREIRA, 1988. *Rio Negro, rich life in poor water. Amazonian diversity and foodchain ecology as seen through fish communities.* xii+200 pp. Academic Publishing, The Hague. - ISBN 909-5103-016-9. - (Available from the S.I.O., Bilthoven).
So far about 450 fish spp. were collected in the blackwaters of the rio Negro, the largest tributary of the Amazon R. In a brief chapter on the odon. (p. 74) it is stated that adult dragonflies are relatively rare in the rio Negro fish diets, but larvae were found in 33 fish spp. The highest occurrence is in the flooded forest habitats, where 14 fish spp. were found feeding on them.

(8051) LEFF, L.G. & M.D. BACHMANN, 1988. Basis of selective predation by the aquatic larvae of the salamander, Ambystoma tigrinum. *Freshw. Biol.* 19:87-94. - (Dept Anim. Ecol., Iowa St. Univ., Ames, IA, USA).
Gives the "Electivity Index" values (sensu A.N. Freed, 1980, *Ecology* 61:461-465) for various size classes of "damselfly" larvae, and an analysis of their behaviour in the presence/absence of the predator.

(8052) NIKANOROV, A.M., A.V. ZHULIDOV & N.A. DUBOVA, 1988. Faktory, opredelyayushchie velichinu soderzhaniya rtuti v gidrobiontah presnovodnyh ekosistem. - Factors determining mercury contents in hydrobionts of freshwater systems. *Ekologiya, Moskva* 1988 (1): 55-62. (Russ., with Engl. title). (Hydrobiol. Inst., Rostov-na-Dony, Ukraine).
3 groups of factors are identified, and 6 odon. spp. are considered.

(8053) PROVINCIA DI PERUGIA, 1988. *Isola Polvese. Risorsi ambientali e profilo storico dell'isola nel contesto socio-economico del Comprensorio del Trasimeno.* Ufficio Stampa Prov. Perugia, Perugia. iv+76 pp., 1 pl. +6 col.maps excl.
Selysiothemis nigra and Sympetrum depressiusculum are mentioned (p.40) from Trasimeno Lake, Perugia, Italy. - For the complete treat-

ment of the Odon. of the lake cf. F. Capra, *Riv. idrobiol.* 2(1963):157-196, 3(1964):173-185.

(8054) WATANABE, M., N. OHSAWA & M. TAGUCHI, 1988. Behavioral ecology of Coenagrionoidea (Zygoptera: Platycnemididae, Lestidae) as a biological index for forest-marsh complex ecosystems. *Rev. Res. Projects Nissan Sci. Found.* 11:263-272. (Jap., with Engl.s). - (First Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu-shi, Mie, 514, JA).
The lifetime daily patterns of flight activity in Lestes sponsa are described and discussed.

1989

(8055) ASHMOLE, M. & P. ASHMOLE, 1989. *Natural history excursions in Tenerife. A guide to the countryside, plants and animals.* 252 pp. Kidston Mill Press, Peebles/Scotland. - ISBN 0-9514544-0-4. - (Available from the S.I.O., Bilthoven, at Hfl. 38,- net).
A pocket-size, very thoroughly prepared field guide; the odon. are dealt with by the local odonatologist, M. Baez. There are 10 spp. known from Tenerife (Canary Isls, Spain). These are described and keyed (pp. 214-217), and mentioned in the iteneraries of various excursions where they can be met with. - For a nice book on the odon. of the Canary Isls cf. *OA* 5370 (also available from the S.I.O., at the same price).

(8056) CORPUZ-RAROS, L.A., 1989. A preliminary assessment of biosystematic resources and services in entomology in the Oriental Region. *Philipp. Ent.* 7(5): 459-470. - (Dept Plant Prot., Visayas St. Coll. Agric., Baybay, Leyte, Philippines).
This is a report prepared for the Int. Advisory Council for Biosystematic Services in Entomology, as inaugurated by the XVIIth Int. Congr. Ent. It deals with the history and present status of entomological systematics in the Region, containing a single passing reference to the odon.

(8057) DEGRANGE, C., 1989. Origine et évolution de quelques éléments de l'entomofaune d'un lac-torbière de haute-montagne: le Lac du Lait (2180 m), Parc national de la Vanoise. *Trav. scient. Parc natn. Vanoise* 17:167-192. (With Engl.s.). - (Lab. Biol. Alpine, Univ. Joseph Fourier, B.P. 53 X, F-38041 Grenoble).
Population changes, as evidenced during a 20-yr study, are described for Coenagrion hastulatum, Enallagma cyathigerum, Aeshna juncea, Somatochlora alpestris, Leucorrhinia dubia, Libellula quadrimaculata, Sympetrum danae and S. flaveolum.

(8058) FERRERAS-ROMERO, M., 1989. Los odonatos de Andalucía (España). Análisis zoogeográfico. *Misc. zool.* 13:63-71. (With Engl.s.). - (Depto Biol. Anim., Fac. Cien., Univ. Cordoba, Avda San Alberto Magno s/n, ES-14004 Córdoba).
64 odon. spp. were so far recorded from Andalusia, Spain (cf. *OA* 4672). According to the 1960 D.St. Quentin system (*Zool. Jb* [Syst.] 87:301-316) the fauna consists mainly of western Mediterranean, holomediterranean and allochthonous eastern Mediterranean spp., while after Ocharan's classification (cf. *OA* 6044) it is basically composed of Ibero-Maghrebian, West Mediterranean, Holomediterranean and Ethiopian elements.

(8059) *HEFTE DER BREMER LIBELLENGRUPPE*, No.1 (Jan., 1989): *Ergebnisse einer 8-Jährigen Tätigkeit.* 60 pp. Compiled & produced by, and available from Dipl.-Ing. J. Ruddek. - Price: DM 6.-, postage excl. - (Am Rütten 48, D(W)-2800 Bremen-33, FRG).
This is a detailed outline of the organisational set-up (in the framework of the Bremen Nat.-Hist.Soc.) and activities of the Bremen Dragonfly Group. It is also intended as a small "handbook" for the members of the Group, presenting information on odonatol. meetings, identification literature, on various aspects of practical work, collecting and preserving specimens, etc. Of interest is also a checklist of the hitherto issued postage stamps with dragonrly motifs. - The Group is headed by M. Breuer, and had in 1989 only 17 standing members. Even so, it is one of the most active local odonatological organisations in Germany.

(8060) JURZITZA, G., 1989. Libellen, Flugartisten ohne Zukunft? *InfBl. dt. Umwelthilfe* 7:1-4. - (Reinmuthstr. 27, D(W)-7500 Karlsruhe-21,

FRG).
A concise outline of the current threats to dragonfly habitats and spp. in Germany.

(8061) KUKLIŃSKA, B., 1989. Zoobenthos communities of near-shore zone in the Zegrzyński Reservoir. *Ekol.pol.* 37(3/4):299-318. (With Pol.s.). - (Dept. Zool., Olsztyn Agric. Univ., PO-10-957 Olsztyn).
Only at 2 out of 4 sampling stations in the selected fishing grounds on the Bug R., Poland, did odon. occur. (in less than 1% of the total number of microinvertebrate individuals recovered), therefore they are not further considered.

(8062) MALESHKO, R.P., 1989. Vidovoy strekoz (Odonata) Osveyskogo biologicheskogo stacionara. - [Species composition of dragonfly fauna (Odonata) of the Osveya biological station]. *Tez. Dokl. 6 zool. Konf., Vitebsk,* p.95. (Russ.). - (Vitebsk Pedagog. Inst. Vitebsk, Byelorussia).
28 spp. (over 60% of the fauna of NE Byelorussia) were reported from the Osveyskoe Lake, but these are not listed here. The dominant spp. are Enallagma cyathigerum, Lestes dryas, Aeshna isosceles, A. viridis, Cordulia aenea, and Libellula quadrimaculata.

(8063) MORENO ARROYO, B., 1989. Estudio preliminar de la comunidad de insectos acuaticos de los rios Genilla y Salado (Córdoba, sur de España). *Oxyura* 5(1): 139-145. (With Engl.s.). - (Asocn Naturalista de las Sierras Subbéticas, Alta 15, ES-14800 Priego de Córdoba).
The Gomphidae and Cordulegastridae are briefly considered, family-wise.

(8064) PATRZICH, R., M. GRENZ, M. KORN & T. NORGALL, 1989. Was sind häufige Libellenarten? Folgerungen aus einer flächendeckenden Kartierung. *Verh. Ges. Ökol., Osnabrück* 19(2): 164-169. (With Engl.s.). - (First Author: Gnauthstr. 5, D(W)-6300 Giessen, FRG).
Full paper, a preliminary abstract of which is listed in *OA* 7028.

(8065) SCHLÜPMANN, M., 1989. *Die Odonatenfauna stehender Kleingewässer im Raum Hagen: Faunistik, Ökologie und bioökologische Bewertung.* Dipl.Arb. Ruhr-Univ., Bochum. 482 pp. - (Author: Hierseier Weg 18, D(W)-5800 Hagen-Hohenlimburg, FRG).
A very detailed analysis of ecology and community structure of the odon. fauna in over 300 small stagnant-water bodies in the Ruhr area, Westfalia, FRG.

(8066) SCHRAMM, H.J. & K.J. JIRKA, 1989. Effects of aquatic macrophytes on benthic macroinvertebrates in two Florida lakes. *J. Freshw. Ecol.* 5(1):1-12. - (First Author: Dept Range & Wildl. Manag., Texas Tech Univ., Lubbock, TX 79409, USA).
The studies were conducted at the alkaline, soft-water, eutrophic Orange Lake, and at the alkaline, hard-water, mesotrophic Henderson Lake. Information is presented on the occurrence of 11 odon. genera in various types of aquatic vegetation and in open water.

(8067) UNRUH, M., 1989. Beiträge zur Tierwelt der "Osterfelder Heideteiche", Teil 3: Libellen (Insecta: Odonata). *Osterfeld. Kultur- HeimatsBl.* 10:427-429. - (Mus. "Schloss Moritzburg", Schloßstr. 6, D(O)-4900 Zeitz, FRG).
The odon. fauna (11 spp.) of the Osterfelder Heideteiche wetland area, distr. Zeitz, E.Germany, is briefly discussed.

1990

(8068) BRODSKIY, A.K. & A.L. L'VOVSKIY, 1990. *Priroda Leningradskoy oblasti: pauki, nasekomye. - [Nature of the Leningrad district: spiders and insects].* ii+142 pp., 16 col. pls excl., Lenizdat, St Petersburg. - ISBN 5-289-00610. - Price in Russia: Rb 0.40 net. (Russ.) - (First Author: Dept Ent., Univ. St Petersburg, Universitetskaya naberezhnaya 7/9, USSR-199164 St Petersburg, Russia).
A small, pocket-size booklet (12.5x16.5 cm), directed at the general reader. The odon. are shown on pls 2-3, and are dealt with on pp. 57-63, where a concise outline of dragonfly biology is presented. Only vernacular names are used, and no species list is given. - *(Abstracter's Note:* During the communist reign, 1924-1991, the city was called "Leningrad". For a "classical" field guide to the regional dragonflies cf. *OA* 3671).

(8069) BURMEISTER, E.-G., 1990. Die Tierwelt der Moore (speziell der Hochmoore). *In*: K. Göttlich, [Ed.], Moor- und Torfkunde, pp. 29-49, Schweizerbart'sche Verlagsbuchhandlung, Stuttgart. - (Zool. Staatssamml., Münchhausenstr. 21, D(W)-8000 München-60, FRG).
Deals with all groups, from Protozoa through Vertebrata, and contains several general references to the odon.

(8070) CARLE, F.L. & D.C. WIGHTON(†), 1990. Insects from the Santa formation, Lower Cretaceous, of Brazil. 3. Odonata. *Bull. Am. Mus. nat. Hist.* 195:51-68. - (146 Mountain View Rd, Warren, NJ 07060, USA).
The following new taxa are described and figured: Euarchistigma atrophium gen.n., sp.n. (Euarchistigmatinae sfam.n., in Pseudostigmatidae), Euprotoneura hyperstigma gen.n., sp.n. (Euprotoneurinae sfam.n., in Protoneuridae), Cordulagomphus tuberculatus gen.n., sp.n., C. fenestratus sp.n., C. santanensis sp.n., Gomphaeschnaoides gen.n. (for Gomphaeschna obliqua Wighton) (all Cordulagomphinae sfam.n., in Gomphidae), Wightonia Carle, gen.n., W. araripina sp.n. Pseudomacromia sensibilis gen.n., sp.n. (all in Aeshnidiidae, of Aeschnidioidea superfam. n.).

(8071) GESSNER, K.-G., 1990. Flächendeckende Biothopkartierung Mörfelden-Walldorf. *Coùrier* [sic!] *Forsch.-Inst. Senckenb.* 126:77-84. - (Kelsterbacherstr. 90, D(W)-6082 Mörfelden-Walldorf, FRG).
Out of 30 odon. spp. recorded at this locality, S of the Frankfurt Int. Airport, FRG, 6 spp. of particular interest are listed.

(8072) GOEL, S.C. & A. KUMAR, 1990. Insect pests and predators associated to sunflower in winters of northern India. *Indian J. Ent.* 52(1):39-45. - (Dept Zool., Sanatan Dharm Coll., Muzaffarnogar-251001, India).
Quantitative references are made to the odon., without spp. names (W Uttar Pradesh, alt. 245 m, Nov.-Febr.).

(8073) GONZALEZ-SORIANO, E. & R. NOVELO-GUTIERREZ, 1990. Dos nuevas especies de Phyllogomphoides Belle, 1970 (Odonata: Gomphidae) del estado de Morelos, Mexico. *Fol. ent. mex.* 79:33-43. (With Engl.s.). - (First Author: Depto Zool., Inst. Biol., UNAM, Aptdo postal 70-153, MX-04510 Mexico, D.F. Mexico).
P. luisi sp.n. (holotype ♂, allotype ♀: Rio Sabinos, 16-VIII & 12-VII-1986, resp.) and P. danieli sp.n. (holotype ♂ and numerous paratypes: the same locality, 26-VI-1985, ♀ unknown) are described and figured, and notes on habits and habitat are appended. The types are deposited at IBUNAM, Mexico.

(8074) GUPTA, P.K. & M.C. PANT, 1990. Distribution and seasonal abundance of benthic macroinvertebrates in Lake Naini Tal, U.P., India. *Int. Revue Hydrobiol.* 75(4):493-506. - (Zool. Dept, Kumaon Univ., Naini Tal, U.P., 263002, India).
In view of the absurd taxonomic "identifications", the value of this paper is nil, and its appearance in a reputed international journal is incomprehensible. - Only 2 odon. spp. are listed for the Naini Tal fauna, viz. the New World (!!) Anax junius and the holarctic Libellula quadrimaculata. With reference to D.N. Sahni's treatment of the Kumaon fauna (1970, *Bull. Ent.* 37-54, 121-130), the latter sp. does not occur there, while the former could be referable to A. parthenope, which is said to be "very common around Naini lake, Naini Tal".

(8075) HANDKE, K., 1990. Ergebnisse zoologischer Untersuchungen in einem Grünland-Graben-Gebiet der Wesermarsch (Bremen). *Verh. Ges. Okol.* 19(2):132-143. (With Engl.s.). - (Landschaftsökol. Forschungsstelle Bremen, Am Wall 177, D(W)-2800 Bremen, FRG).
Aeshna viridis and A. isosceles are reported from the Niedervieland, Bremen, FRG.

(8076) HANSON, J.M., 1990. Macroinvertebrate size-distributions of two contrasting freshwater macrophyte communities. *Freshw. Biol.* 24(3):481-491. - (Marine & Anadromous Fish Div., Sci. Branch, Gulf Region, P.O.Box 5030, Moncton, New Brunsw., E1C 9B6, CA).
In Narrow Lake, Alberta, Canada, macroinvertebrates were collected every 2 weeks for 18 weeks from weedbeds dominated by either the macroalga Chara or rooted plants. Significant differences in total biomass, taxonomic composition and size-structure of the macroinverte-

brate community were found between the 2 weedbed types. The principal benthivore in the lake is Perca flavescens. The high biomass of larval Anisoptera in the Chara beds as compared with the rooted-plant weedbeds is consistent with the hypothesis that Chara provides a better refuge from fish predation. A list of spp. recorded is not given.

(8077) *HEFTE DER BREMER LIBELLENGRUPPE*, No. 2 (Oct., 1990): *Dokumentation zur Ausstellung der Bremer Libellengruppe im Bremer Uberseemuseum anlässlich der 125-Jahr-Feier des Naturwissenschaftlichen Vereins*. 56 pp. Compiled & produced by, and available from Dipl.-Ing. J. Ruddek. - Price: DM 5.-, postage excl. - (Am Rüten 48, D(W)-2800 Bremen-33, FRG).
Contains detailed background information on the odonatol. exhibit (Nov. 17, 1989-Feb. 18, 1990) in the Bremen "Ubersee"Mus., incl. an outline of the history of dragonfly research in the Bremen area (from 1836 to present), with facsimile reproductions of historical publications, etc.

(8078) JUNGMANN, E. & W. SYKORA, 1990. Zum Entwicklungsstand der Libellenfauna (Odonata) in Feuchthabitaten der Bergbaufolgelandschaft: Restloch Zechau und Lossener Senke. *Mauritiana* 12(3):505-511. - (First Author: Friedrich-Engels-Str. 35, D(O)-7400 Altenburg, FRG).
The odon. fauna of the habitats left after the abondoning of the open cast mining at 2 localities in Altenburg, E. Germany, is stated (15 and 20 spp., resp.), its population dynamics briefly outlined, and some suggestions relative to the habitat and species conservation are made.

(8079) KONDĚLKA, D., 1990. Nálezy vzáchnych druhû vážek v Severnomoravském kraji. - Findings of rare species of dragonflies (Odonata) in the North Moravian region. *Čas. slez. Muz. Opava* (A)39:281-282. (Czech, with Engl.s.). - (Pedagogická fakulta, Bráfova 7, CZ-701 03 Ostrava-1).
Records are listed of 4 spp. Leucorrhinia rubicunda is new for Northern Moravia, Bohemia, Czechoslovakia.

(8080) KURY, D., 1990. Hohe pH-Werte als Folge der Eutrophierung in anthropogenen Naturschutz-Weihern und ihre Auswirkungen auf Libellen und Amphibien. *Revue suisse Zool.* 97(4): 809-810. - (Gammarus, Clarastr. 19, CH-4058 Basel).
Informative abstract of the PhD work listed in *OA* 7005.

(8081) PRINSLOO, G.L., 1990. Commentary on the insect fauna of the Lower Kuiseb River, Namib Desert. *Transv. Mus. Monogr.* 7:67-75. - (Biosyst. Div., Plant Prot. Res. Inst., Private Bag X 134, Pretoria-0001, SA).
From the seasonally dry Kuiseb R., which has its origin in the central highlands of Namibia, S. Africa, Paragomphus genei, Pantala flavescens, Sympetrum fonscolombei and Tholymis tillarga are recorded. They mainly frequent man-made wells in the river bed.

(8082) PUJOL-LUZ, J.R., 1990. Descrição da larva de Elasmothemis constricta (Calvert, 1898) (Odonata: Libellulidae). *Revta brasil. Biol.* 50(2):487-490. (With Engl.s.). - (Depto Ent. Museu Nac., UFRJ, Quinta da Boa Vista, BR-20942 Rio de Janeiro, RJ).
The ultimate instar is described and figured from reared material, and the sp. is compared with E. cannacrioides.

(8083) RICHARDSON, S. & J. JANOVY, 1990. Actinocephalus carrilynnae n.sp. (Apicomplexa: Eugregarinoida) from the Blue Damselfly, Enallagma civile (Hagen). *J. Protozool.* 37(6):567-570). - (Sch. Biol. Sci., Univ. Nebraska, 348 Manter Hall, Lincoln, NE 68588-0118, USA).
The new sp. is described from Lake Ogallala and Martin Bay Pond, both in Keith Co., Nebraska. The parasite infects both adult and larval hosts.

(8084) SINGER, F., 1990. Reproductive costs arising from incomplete habitat segregation among three species of Leucorrhinia dragonflies. *Behaviour* 114 (3/4):188-202. (With Fr.s.). - (Dept Biol., Coll. Arts & Sci., Radford Univ., Radford, VA 24142, USA).
L. frigida, L. proxima and L. intacta show extensive temporal and spatial overlap in their use of

mating grounds. This sets the stage for potentially costly interspecific interactions during mating and subsequent oviposition. Males frequently attempt to mate with heterospecific females, but prolonged interspecific matings are uncommon. Males guard ovipositing mates against takeovers by intruding males. Guarding males were as likely to chase heterospecific intruders as conspecific intruders during the oviposition period. Males incurred considerable reproductive cost from this lack of species discrimination; 29% of the successful takeovers by conspecifics occurred while males were chasing heterospecific intruders. One hypothesis for lack of species discrimination in this group is that effective discrimination would require a time investment by the guarding male while he assessed the species identity of the intruder. During this assessment period, the guarding male would risk losing his female to the intruder.

(8085) SPEIGHT, M.C.D., 1990. Hippodamia 13-punctata (Coleoptera: Coccinellidae) and other insects from All Saint Bog, Co. Offaly, Ireland. *Bull. Ir. biogeog. Soc.* 13(2):200-212. - (Res.Br., Wildlife Serv., Sidmonton Pl., Bray, Co. Wicklow, Ireland).
Pyrrhosoma nymphula, Aeshna juncea, Brachytron pratense and Sympetrum striolatum are reported.

(8086) SUROVA, G.S., 1990. Deystvie hishchnikov na lichinok ostromordoy lyagushki Rana arvalis v estestvennyh usloviyah. - The press of predators on larvae of Rana arvalis in nature. *Zool. Zh.* 69(10):86-97. (Russ., with Engl.s.). (Fac. Biol., Moscow St. Univ., Moscow, USSR).
Due to the predator/prey spatial separation, and to the changing diet of predators as they grow, the tadpole population size and age composition do not depend on the density of larval Aeshna and Dytiscus, and on that of larval and adult Notonecta.

(8087) TAYLOR, P.M., 1990. The folk biology of the Tobelo people. *Smithson. Contr. Anthropol.* 34:1-187. - (Author's address not stated).
This is an ethnographic study of folk biology among a West-Papuan speaking ethnic group of Halmahera Island, Maluku, Indonesia, outlining local cultural presumptions about classifying flora and fauna, describing the system of folk biological nomenclature in terms consistent with the morphology and syntax of the Tobelo language, and analysing the local system of folk classification with a posited semantic domain of "biotic forms". The adult "dragonfly" is called "*o gaawuhi*". The etymology is not stated.

(8088) TSCHARNTKE, E., 1990. *Untersuchungen zum Schlupferfolg von Grosslibellen im Grabensystem des Niedervielandes bei Bremen.* Dipl.Arb. Westfalische Wilhelms-Univ. Münster, vi+106 pp., append. & maps excl. - (Mittelstr. 52, D(W)-4132 Kamp-Lintford, FRG).
So far, 31 odon. spp. are known from the ditch system of Niedervieland nr Bremen, FRG, 19 of which were recorded in 1989, during the present study. A very detailed analysis of the ecdysis success is presented for Aeshna grandis, A. viridis, Anaciaeschna isosceles and Brachytron pratense.

(8089) WATANABE, M. & M. TAGUCHI, 1990. Mating tactics and male wing dimorphism in the damselfly, Mnais pruinosa costalis Selys (Odonata: Calopterygidae). *J. Ethol.* 8:129-137. - (First Author: Dept Biol., Fac. Educ., Mie Univ., 1515 Kamihama, Tsu-shi, Mie, 514, JA).
Males exhibit wing color dimorphism: one form has orange wings, and the other hyaline wings which resemble female wings. The former is usually territorial and the latter uses sneaky mate securing tactics. When orange-winged males failed to establish territory, they became floaters that day. Hyaline-winged males perched around their territories and often formed in tandem without any apparent courtship behavior when they found females. Their copulation frequency was higher and copulation duration longer than those of territorial males. A few females oviposited without remating. Total oviposition duration of females with which a hyaline-winged male mated was more than 32 min per male on average in a day. Females that copulated with hyaline-winged males often remated with orange-winged residents before oviposition. Total duration of oviposition bouts of females after mating with floaters was short

(15 min), while that with territorial residents was long (66 min). As a result, total oviposition duration of females with which an orange-winged male mated was about 40 min in a day. The reproductive success of the hyaline-winged males may be similar to that of the orange-winged males.

1991

(8090) (Anonymous), 1991. Samraoui ova Benyacoub bahitan fi biologia eliaassib. - [Samroui and Benyacoub: two odonatologists]. *El Aneb*, issue of July 18-24, p.4. (Arabic). - (c/o Dr B. Samraoui, 4 rue Hassi-Beïda, Annaba, Algeria).
Local weekly's article on odonatol. work of Dr B. Samraoui and his associate, Mr S. Benyacoub, with a portrait and references to their discovery of Urothemis edwardsi, etc. - Cf. also *OA* 7941, 8002.

(8091) ANDRIES, J.C., G. BELEMTOUGRI & G. TRAMU, 1991. Multiple peptide immunoreactivities in the nervous system of Aeschna cyanea (Insecta, odonata). An immunohistochemical study using antisera to cholecystokinin octapeptide, somatolibrin, vasoactive intestinal peptide, motilin and proctolin. *Histochemistry* 96(2):139-148. - (First Author: Lab. Biol. Anim., Univ. Sci. Techn. Lille, F-59655 Villeneuve d'Ascq).
By use of the indirect immunoperoxidase method, the brain, the suboesophagal ganglion and the corpora cardiaca of the penultimate instar larvae have been shown to be immunoreactive to proctolin antiserum and to several mammalian peptide antisera including unsulfated cholecystokinin octapeptide (CCK-8 NS), vasoactive intestinal peptide (VIP), human somatoliberin (hGRF) and motilin antisera. Immunohistochemical studies have been performed on material fixed in a solution of picric-acid paraformaldehyde or in Bouin Hollande's sublimate solution. Antisera were applied on alternate sections or one after another on the same section. Multiple peptide immunoreactivities appear expressed in the brain and the suboesophageal ganglion. Cells reactive to both hGRF and VIP antisera show also gastrin/CCK-like immunoreactivity and some of them are also detected by motilin antiserum. Besides, some cells immunopositive to CCK-8 NS and motilin antisera do not show hGRF or VIP immunoreactivity. Lastly, two pairs of protocerebral cells appear immunoreactive to both CCK-8 NS and proctolin antisera. Therefore, the present observations support our previously developed idea (cf. *OA* 7345) that the population of CCK-like cells is heterogeneous.

(8092) *ARGIA*. The news journal of the Dragonfly Society of America, Vol. 3, No. 3 (Sept 15, 1991). - (c/o Dr C. Cook, 469 Crailhope Rd, Center, KY 42214, USA).
Cook, C.: Dragonfly Society of America's "Grantsburg Dragonfest" (pp.1-7); - Presidential profile: T.W. Donnelly (pp.7-8); - *Daigle, J.J.:* A new key to the larvae of North American Somatochlora (pp.9-10); - *Donnelly, N.:* Western collecting trip - 1991 (p.11); - Northeastern Odonata Meeting, 8-9 June, 1991 (p.12); - *Michalski, J.:* Midwestward, ho! The story of three rugged bughunters in the wilderness of I-80 (pp.12-14); - *Novelo-G., R.:* The status of odonatology in Mexico and Central America (pp.15-19); - *Cook, C.:* From the Editor's desk (pp.19-21); - *Exchanges and Notices* (p.22); - *Book Reviews*, by *R.W. Garrison* and *C. Cook* (pp.23-24); - *Poetry about dragonflies*, with a poem by *K.J. Tennessen* (p.25). - The issue contains a lay-in Announcement-cum-Subscription Blank for a new periodical, *"Bulletins of American Odonatology"* to be edited by Dr T. Donnelly, the first issue of which is to contain "The Odonata of New York". Subscription orders, accompanied by a US $ 15,- cheque, are to be sent to the Editor of *Argia*.

(8093) AZUMA, A., 1991. Flying behaviour of insects. *Insectarium, Tokyo* 28(8): 256-263. (Jap., with Engl. title). - (37-3 Miyako-cho, Saiwai-ku, Kawasaki, 210, JA).
This general article, by one of the foremost Japanese specialists on the subject (cf. *OA* 5214, 6693) deals with all orders, but a clear emphasis is given on the odon.

(8094) BEDJANIČ, M., 1991. *Odonatna favna Turnerjevih ribnikov v Spodnjih Račah. - [Odonate fauna of the Turner fishponds in Spodnje Rače].* Nagola 8.Srečanja mladih Raziskovalcev, Maribor, iv+27 pp. (Slovene). - (Fram 117/a, SLO-

62313 Fram, Slovenia).
The locality is situated at the outskirts of the Pohorje Mts (= Bachergebirge), Southern Styria, Slovenia. 23 spp. are listed, of which Sympetrum depressiusculum is said erroneously to be for the first time recorded from Slovenia. (The first Slovene record of this sp. comes from O. Strobl, 1906, *Mitt. naturw. Ver. Steiermark* 42:225-266). Lestes dryas and Epitheca bimaculata are also of some regional interest. - *(Abstracter's Note:* So far only 2 notes were published on the Pohorje Mts Odon., viz. G. Dorfmeister et al., 1864, *Mitt. naturw. Ver. Steiermark* 2:120-127; - and J. Koprivnik, 1913, *Planin. Vest.* 19:45-51).

(8095) BUCHWALD, R., 1991. Libellenfauna und Vegetation - eine Zwischenbilanz biozönologischer Forschung. *Beih. Verh. Ges. Ökol.* 2:45-62. (With Engl.s.). - (Inst. Biol. II/Geobotanik, Univ. Freiburg, Schänzlerstr. 1, D(W)-7800 Freiburg/Br., FRG).
Although vegetation is an important part of the habitats of most odon. spp., in odonatol. research only very few biocoenological investigations have been undertaken so far. 4 of them are presented in this paper. Dragonflies are associated with the vegetation on different levels and in different ways. It is suggested that their habitats should be described by several parameters of vegetation structure and composition. Some aspects of future biocoenological odon. research are discussed.

(8096) CANNINGS, R.A. & R.W. GARRISON, 1991. Sympetrum signiferum, a new species of dragonfly (Odonata: Libellulidae) from western Mexico and Arizona. *Ann. ent. Soc. Am.* 84(3):474-479. - (First Author: Dept Environ. Biol., Univ. Guelph, Guelph, Ont., N1G 2W1, CA).
The new sp. is described and its diagnostic characters illustrated from a long series from western Mexico and southern Arizona. Holotype ♂, allotype ♀: Mexico, Durango, El Salto, alt. 2500 m; 29-VIII-1965; deposited in FSCA, Cainesville, FL. Notes are given on habitats and behaviour, and the known distribution is outlined.

(8097) CIANFICCONI, F., Q. PIRISINU & F. TUCCIARELLI, 1991. Ecological influence of the tributaries on the macrobenthos in the Umbrian Tiber River (1974-75). *Arch. Hydrobiol.* 122(2):229-244. - Ist. Zool., Fac. Sci., Univ. Perugia, Via Elce di Sotto, I-06100 Perugia).
Contains a list of 10 odon. spp., collected at 13 stations, with data on their density (indiv./m^2), and with detailed evidence on 20 physical and chemical parameters of the habitats at the collecting stations.

(8098) CLARK, W.H., 1991. *Literature pertaining to the identification and distribution of aquatic macroinvertebrates of the western U.S. with emphasis on Idaho.* Idaho Dept Health & Welfare, Div. Environ. Quality, Boise, ID. 64 pp. - Free on request to the author. - (Div. Environ. Quality, 1410 N.Hilton, Boise, ID 83706-1290, USA).
The odon. bibliography (pp.22-24) contains 35 titles.

(8099) DE KNIJF, G., 1991. Libellenwaarnemingen tijdens de J.N.M.-Zomerkampen. - [Dragonfly observations during the J.N.M. Summer Workshops]. *Stridula* 15(2):63-78. (Dutch). - (Dennenlaan 13, B-9550 Herzele).
The odon. fauna is discussed of De Famenne, Buzenol, The Hoge Rielen and Postel, De Harchies, and Gerhagen, all in Belgium. Species lists are given for 68 localities.

(8100) DE MARMELS, J., 1991. Progomphus incurvatus bivittatus subspec. nov. from Venezuela (Odonata: Gomphidae). *Opusc. zool. flumin.* 71:1-7. - (Depto & Inst. Zool. Agric., Fac. Agron., Univ. Central Venezuela, Aptdo 4579, Maracay 2101-A, Venezuela).
The new spp. is described and illustrated from 5 ♂ and 6 ♀ (all reared) and from several exuviae and ultimate instar larvae (holotype ♂: Venezuela, Aragua, Maracay, Río Limón, alt. 450 m, V/VI-1990; deposited at MIZA, UCV, Maracay). Males are structurally very similar to *P. i. incurvatus* Belle, from which they differ in colour pattern. The 2 forms occupy widely disjunct areas.

(8101) DONATH, H., 1991. [Buchbesprechung]. Beutler, H.: Die Flussjungfer. *Ent. Nachr. Ber.* 35(3):210. - (Hauptstr. 36/37, D(O)-7960 Luc-

kau, FRG).
A comprehensive book review of the work listed in *OA* 7825.

(8102) DUNKLE, S., 1991. *Dragonflies and damselflies (Odonata) of Gainesville, Alachua Co., Florida area.* 3 pp. Handout at the Community Education Class on Odonata, Sierra Club, Gainesville, FL. - (Int. Odon. Res. Inst., 1911 SW 34th St., Gainesville, FL 32608, USA).
Brief characterisations of some of the common Alachua spp. - For the details on the Class see *Selysia* 20(2):9; 1991.

(8103) EMMRICH, R. & F.J. OBST, 1991. Zum Gedanken an Dr. habil. Hans Schiemenz (24.II.1920-27.XII.1990). *Faun. Abh. Mus. Tierk. Dresden* 18(1):93-96. - (Authors' addresses not stated).
Obituary, with biographic data complementary to those listed in *OA* 7664.

(8104) FALLER, W.E. & M.W. LUTTGES, 1991. Recording of simultaneous single-unit activity in the dragonfly ganglia. *J. Neurosci. Methods* 37:55-69. - (Dept Aerospace Engin.Sci., Univ. Colorado, Campus Box 429, Boulder, Co 80308, USA).
A technique for discriminating simultaneously active single units from multiple-unit data records has been developed, using adult Aeshna multicolor and A.mutata. Multiple unit records were obtained extracellularly from the dragonfly mesothoracic ganglion using two paired-electrode sets. The multiple-unit records were post processed based on the unique physical characteristics imparted to each spike via the tissue medium and spatial geometry of cells. It was assumed that the action potential amplitude falls off roughly as the inverse of distance squared from the recording electrode. Further, it was assumed that the tissue RC characteristics coupled with action potential amplitudes and neuron dipole characteristics impart a spike waveform unique to each cell. Accordingly, spikes were sorted by amplitude ratio as well as by matching of spike waveforms. Additional waveform characterization was derived from the spike angle (width) within grouped spikes. Decomposition of the multiple-unit records based on these parameters yielded clustered spike records from defined cellular sources. The defined clusters were combined to provide the cumulative record for a large number of simultaneously active single units.

(8105) FALLER,W.E. & M.W. LUTTGES, 1991. Spatiotemporal analysis of simultaneous single-unit activity in the dragonfly. I. Cellular activity patterns. *Biol. Cybern.* 65:381-389. - (Dept Aerospace Engin.Sci., Univ.Colorado, Campus Box 429, Boulder, CO 80308, USA).
Continuous neural spiking records were obtained from the mesothoracic ganglion of adult Aeshna multicolor and A.mutata.
For analysis the 12 s records of all 58 discriminated cells were "tracked" across three continuous behavioral states: pre-flight, flight and post-flight. The recorded spike amplitudes and angles (widths) for each cell were used to construct a simple map of individual cell positions relative to each other within the ganglion. Individual cell activity patterns were then characterized both with respect to neighboring cell locations and patterns of cell spiking observed across three behavioral states. The results indicated that this technique for constructing a "neighboring cell map" effectively reflects the known histological features of the ganglionic cell architecture. The gross firing histories of individual cells were found to correspond to the overall spike patterns of neighboring ganglionic cells as opposed to more distal cells. Such relationships suggest that the physical layout of this ganglionic network may help to determine or bias individual cell firing histories that occur during different behavioral states in the dragonfly.

(8106) FALLER,W.E. & M.W. LUTTGES, 1991. Spatiotemporal analysis of simultaneous single-unit activity in the dragonfly. II. Network connectivity. *Biol.Cybern.* 65:391-399. - (Dept Aerospace Engin. Sci.,Univ. Colorado,Campus Box 429, Boulder, CO 80308, USA).
The work describes a new technique for the identification of "functional connectivity" between neural firing patterns, and is based on unnamed material, probably Aeshna multicolor and A.mutata (of.*OA* 8105). The simultaneous single-unit recordings obtained from over 50 individual cells in the dragonfly mesothoracic

ganglion during three consecutive behavioral states: pre-flight, flight and post-flight were evaluated. Each individual spike train was converted into a synthesized "analog gradient" designed to capture crucial physiological characteristics of the cell from which the spike train emanated. Estimates of network "functional connectivity" were calculated using correlations between analog gradient spike trains for all possible cell pairings. Both functional excitation and inhibition could be detected in the correlations. The detection of functional connectivity was relatively independent of cell firing rate. More detailed analyses indicated the existence of cellular firing histories and connectivity patterns during flight that strongly resembled the characteristics of a bi-stable oscillator. Such an oscillator, hypothetically, could drive the elevator and depressor motor neuron firing patterns that support wing kinematics. There was no evidence for the functional existence of such an oscillator within either pre- or post-flight spike records. The detected spatiotemporal patterns of neural activity are hypothesized to be consistent with neural command sequences that the dragonfly might use to control flight. The demonstrated capability to define short-time scale functional relationships between spike trains obtained from dragonfly ganglia should have valuable applications to the comparative study of neural information processing strategies in a variety of other neural systems.

(8107) *GOMPHUS*. Mededelingsblad van belgische libellenonderzoekers - Bulletin de liaison des odonatologues belges, Vol.7, No. 2 (July, 1991) (Dutch & Fr.). - (c/o Ms A. Anselin, KBIN, 29 rue Vautier, B-1040 Brussel; - Dr P. Goffart, Lab. Ecol. & Biogeogr., UCLL, B-1348 Louvain-la-Neuve).
Contains a report on a field trip to the Aalsterse *(A. Anselin,* p.3), a paper on odon. observations in the Hoge Rielen and Postel *(G. de Knijf,* pp. 4-8), a preliminary note on the comparison of the odon. fauna of the Limburg prov. in 1893 and at present *(A. Anselin,* pp.9-10), a book review *(K. Martens* ,pp.11-13), and the field trip program for the late summer 1991. (pp.14-15).

(8108) GORB, S.N., 1991. *Funkcianal 'naya morfologiya sistemy arretira u strekoz. - (Functional morphology of the head fixation system in dragonflies).* - 175+203 pp. Diss. Kand. Biol. Nauk, Inst. Zool., Akad. Nauk USSR, Kiev. - (Author: Dept Insect Physiol., Schmalhausen Inst. Zool., Ukrain. Acad. Sci., Lenin St. 15, USSR-252001, Ukraine).
This is a monographic treatment of the subject. Some parts of this work were published in the papers listed in *OA* 6936, 6986, 7505, 7636, 7637 and 8109, but these do not cover the highly relevant chapters on the distribution of the different morphological types of the system at higher taxonomic levels (pp.87-132) and on the evolution of the system within the order. (pp.133-146). - Numerous excellent SAM photographs and the reconstruction of a genealogical tree of the order, based on the evidence from this work, enhance the general importance of the monograph.

(8109) GORB, S.N., 1991. Sensilly v sisteme arretira u strekoz (Odonata). - Sensilles in dragonflies arrester system. *Vest. Zool.* 1991 (1):61-68. (Russ., with Engl.s.). - (Lab. Insect Physiol., Schmalhausen Inst. Zool., Lenin St. 15, USSR-252601 Kiev, Ukraine).
Sensillar topography of the hinge system was studied in 69 spp. of 10 fam. Essential regularities in the sensillal positions were established, and a functional interpretation of different sensory fields is proposed.

(8110) GRACILE Newsletter of odonatology). Published by the Kansai Research Group of Odonatology, Osaka, No.46 (Dec. 1, 1991). - (Jap., with Engl. titles). - (Distribution outside Japan: K.Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA).
Saitoh, Y.: Stylurus nagoyanus along Edogawa River, Chiba prefecture (pp.1-8); - *Matsuki, K.*: On the moulting line of some platycnemiid (sic!) larvae (pp.9-10); - *Arai, Y.*: An experimental study on the hatching of Sympetrum gracile (p.11); *Yamashita, Y.*: Observation on the emergence of Orthetrum triangulare melania (p.12); - *Aoki, T.*: a survey record on the gomphid fauna of Kobe City, Hyogo prefecture (pp.13-17); - *Kitabata, M.*: A record of Ischnura asiatica

flying to light (p.18); - *Mori, T. & M. Mori*: Fauna and habitats of dragonflies in Muko city, Kyoto prefecture (pp.19-26): - *Nishu, S.*: Report of the survey trip on the odonate fauna of north Hyogo (4) in early summer, 1991 (pp.27-32); - *Aoki, T.*: Report of the survey trip on the odonate fauna of North Hyogo (5) in late summer, 1991 (pp.33-39); - *Matsuda, I.*:"Tombo-turi" (catching dragonflies by threads) meeting held in Osaka prefecture (pp. 40-42); - *Tsuda, S., S. Nishu & T. Takeuchi*: Mesh code of "Dragonflies of Kinki district", 1984: part 4: Anisoptera (3) (pp.43-53); - *Matsuda, I.*: Report of the congratulatory party of publication of Dr S. Tsuda's "A distributional list of world Odonata, 1991" (pp.54-55).

(8111) GÜNZEL, W.R., 1991. Libellen Jäger mit tausend Augen. *Wild & Hund* 94(16):63. - (Author's address not stated).
General article, with photographs, in a national sportsmen magazine.

(8112) HÄMÄLÄINEN, M., 1991. Anisogomphus pinratani n.sp. aus Nord-Thailand (Odonata: Gomphidae). *Ent. Z., Essen* 101(22): 413-418. (With Engl.s.). - (Tullilaboratorio, Pl 53, Tekniikantie 13, SF-02150 Espoo).
The description is almost bilingual: holotype : Chiang Mai prov., Doi Inthanon, 11-VI-1991, deposited in Zool. Mus., Univ. Helsinki. Paratype ♂/♀ series from the same locality, same date. - The new sp. is the largest in the genus. The characteristic structure of the sup. app. enables an easy identification.

(8113) HARRIS, A.C.,1991. [Obituary]. Winifred Joy Crumpton. 1946-1991. *N.Z. Ent.* 14:54. - (Otago Mus., P.O.Box 6202, Dunedin, NZ.
Born in Greymouth, NZ, Apr. 10, 1946, in the 1970s she was among the few active New Zealand odonatologists. A brief biography, evaluation of work and her complete bibliography are provided.

(8114) HAWKING, J.H., 1991. The first record of the dragonfly Dendroaeschna conspersa from Victoria. *Victorian nat.* 108(1):6-7. - (Murray-Darling Freshw. Res. Cent., P.O.Box 921, Albury, NSW 2640, AU).
4 larvae were collected from the la Trobe R., Rosedale, Vic., Australia (6-I-1983; 4-2-1985). The record necessitates a modification of the key in the book listed in *OA* 5656; the proposed couplet is given here.

(8115) *HEFTE DER BREMER LIBELLENGRUPPE*, No.3 (May, 1991): *Libellen im Grossraum Bremen: Beobachtungsergebnisse der Bremer Libellengruppe*. 60 pp. Compiled & produced by, and available from Dipl.-Ing. J. Ruddek. - Price: DM 5.-, postage excl. - (Am Rüten 48, D(W)-2800 Bremen-33, FRG).
Checklist and detailed maps of odon. distribution (52 spp.) in the district of Bremen, FRG.

(8116) HERMANS, J., 1991. Libellen, kleinoden van de waterkant. - (Dragonflies, pearls of the waterside). *Natura, Amst.* 88(8):184-186. (Dutch). - (Hertestraat 21, NL-6067 ER Linne).
The article appears in the issue devoted to the 90th anniversary of field biology in the Netherlands. Various general aspects of dragonfly field work in the Netherlands are outlined for the general readership.

(8117) HIROSE, Y. & G. AOKI, 1991. List of dragonflies from Abashiri, Hokkaido, Japan. *Gekkan-Mushi* 248:9-12. (Jap., with Engl. title). - (First Author: Katuramachi 4-56-7, Ra modo 102, Abashirishi, Hokkaido, 093, JA).
Annotated list of 40 spp.

(8118) HOESS, R., 1991. [Aufruf]. Das berner libellen-inventar. *Nouvelles Cent. suisse Cartogr. Faune* 2:33. - (Bernastr. 15, CH-3005 Bern).
Appeal for information on records. Since 1988, the number of evidenced odon. records in canton Bern, Switzerland, increased from 3800 to 7000.

(8119) HUTCHINSON, R., 1991. Notes sur la biologie de l'odonate Ophiogomphus mainensis Packard (Odonata: Gomphidae) et récoltes de larves, d'exuvies et d'adultes dans la province de Québec. *Fabreries* 16(2):33-38. (With Engl. s.). - (Cent. Biosyst. Res., Agriculture Canada, Ottawa, Ont., K1A 0C6, CA).
Detailed observations from Low (Gatineau, Ottawa region) and from the vicinity of Lake Séminaire (Charlevoix-Est) are presented, and an excellent drawing of the larva is included.

(8120) HUTCHINSON, R., 1991. Récoltes de larves et d'exuvies de Gomphus furcifer Hagen (Odonata: Gomphidae) et répartition géographique de l'espèce au Québec. *Fabreries* 16(2):56-60. (With Engl. s.). - (Cent. Biosyst. Res., Agriculture Canada, Ottawa, Ont., K1A 0C6, CA).
The geographic distribution of the sp. in Quebec, Canada, is outlined, and a drawing of the larva from Fairy Lake nr Hull is presented.

(8121) JAHN, A., 1991. *Okologische Untersuchungen über die Fauna einer Abbaugrube des Wendlands unter besonderer Berücksichtigung der Libellen.* HausArb. Staatsprüfung Lehramt Gymnasien. IV+135 pp. - (No other bibl. data & author's address unknown. Contact SIO National Office in Germany, c/o Dipl. - Ing. M. Schorr, Waldfrieden 25, D(W)-5504 Zerf, FRG).
The odon. fauna of the sandpit area "Blütlinger Kuhle", in the Hannover Wendland, Lower Saxony, FRG, was studied during 1978-1991 (36 spp., of which during 1989-1990 26 autochthonous). On the basis of exuviae collections, the composition of larval populations appears unstable and varies annually to a considerable extent. The work contains various new data on autecology of a number of spp., and analyzes the regional distribution, emphasizing the importance of the area studied for some spp.

(8122) *JOURNAL OF THE BRITISH DRAGONFLY SOCIETY*, Vol. 7, No. 2 (Oct., 1991) - (c/o Mrs J. Silsby, 1 Haydn Ave., Purley, Surrey, CR2 4AG, UK).
Corbet, P.S.: Obituary Cynthia Longfield (pp. 29-32); - *Thickett, L.A.:* Inverted emergence by Ischnura elegans (Vander Linden) (p. 33); - *Long, R.:* An observation of an apparently water-divining dragonfly (p. 34); - *Winsland, D.C.:* The English and Latin names of dragonflies: some pros and cons (pp. 35-36); - *Barker, A.M. & M.V. Barker:* Further observations of Odonata as food for wagtails (pp. 36-37); - *Fox, A.D.:* How common is terrestrial oviposition in Somatochlora metallica Vander Linden? (pp. 38-39); - *Moore, N.W.:* Where do adult Gomphus vulgatissimus (L.) go during the middle of the day? (pp. 40-43); - *Paine, A.:* Brief notes and observations (pp. 43-45); - [Book Reviews]: *Corbet, P.S.:* Madam Dragonfly, by J. Hayter-Hames (pp. 45-47); - *Kemp, R.G.:* Habitat conservation for insects, by R. Fry & D. Lonsdale, [Eds] (p. 48); - *Brooks, S.J.:* Distribution of dragonflies in Gloucestershire, by S. Holland (pp. 49-50). - *Recent odonatological publications* (pp. 51-52).

(8123) KEIM, C., 1991. Recensement des odonates du Valais romand. *Nouvelles Cent. suisse Cartogr. Faune* 2:32-33. - (Finettes 10, CH-1920 Martigny).
52 spp. were so far recorded from the western (francophone) part of Valais (Wallis), Switzerland. Some of these are mentioned, incl. 8 novelties for the fauna of the canton (with localities and dates).

(8124) *KIMMINSIA*. Newsletter of the United Kingdom National Office of the International Odonatological Society (SIO), Vol. 2, No. 2 (Nov. 1, 1991). - (c/o Mrs J. Silsby, 1 Haydn Ave., Purley, Surrey, CR8 4AG, UK).
The introductory (anon.) obituary for Cynthia Longfield (p. 11) is compiled from various obituaries in British dailies. There are the traditional sections: "News from members" (pp. 12-13), "News from universities" (p. 14), "Conservation news" (p. 14), "Visitors to Natural history Museum" [=BMNH] (p. 14), a note on the change in the UK National Office [after 20 yr of service Dr P.J. Mill has resigned and Mrs J. Silsby is to take over], and the following signed articles: *Silsby, J.:* S.I.O. Symposium at Trevi (pp. 11-12); - *Corbet, P.S.:* Suppression of the yellow fewer mosquito by augmentative release of dragonfly larvae (Odonata: Libellulidae) (pp. 13-14); - Odonatology in Algeria (p. 14); - *Davies, A.:* Odonata collections at the Natural History Museum, London [=BMNH] (p. 15); - *Butler, S.:* In search of the Greek cordulegasters (pp. 15-16); - and *Davies, A.:* Australia - the "top end" (pp. 16-18).

(8125) KOMNICK, H. & R. BAUERFEIND, 1991. Intestinal absorption of defined lipids by the larval dragonfly Aeshna cyanea (Insecta, Odonata): wax esters and fatty alcohols. *J. Insect Physiol.* 37(3): 179-191. - (Inst. Cytol., Univ. Bonn, Ulrich-Haberland-Str. 61a, D(W)-5300 Bonn-1, FRG).
Dragonfly larvae are able to hydrolyse wax es-

ters in the midgut lumen and to absorb both the fatty acid and the fatty alcohol moieties. The fatty acid is partly used for the synthesis of triglyceride and partly, together with the fatty alcohol, for the synthesis of wax ester. While the synthesis of triglyceride leads to the accumulative formation of lipid droplets in the midgut enterocytes, no accumulation of lipid droplets occurs after the ingestion of free fatty alcohol alone or of wax esters containing saturated long-chain fatty acids although in both cases wax ester is present in the midgut tissue. Under the same conditions wax ester is also present in the haemolymph, where it is associated with lipophorin. Time course studies suggest that the wax ester is transported from the midgut via the haemolymph to the fat body. The digestive juice and midgut wall are capable of acylating fatty alcohol when incubated in vitro in the presence of fatty acid. Wax ester is a natural constituent of the larval cuticle of A. cyanea.

(8126) KOTARAC, M. & M. BEDJANIČ, 1991. Kačji pastirji (Odonata): predstavitev skupine in prikaz materiala. - [Dragonflies (Odonata): presentation of the order and demonstration of the material]. *In:* D. Devetak & M. Jež: [Program of the meetings of the Slovene Ent. Soc., Sect. Maribor, p.1]. (Slovene). - (First Author: Ul. Marohovih 11, SLO-62000 Maribor, Slovenia).
Title of the meeting only (Nov. 4, 1991).

(8127) KOZLOV, M.A. & I.M. OLIGER. 1991. *Shkol'nyy atlas-opredelitel' bespozvonochnyh. [The macroinvertebrate school atlas and identification key]*. Prosveshchenie, Moscow, 207 pp. - ISBN 5-09-001435-1. (Russ.). - Price in Russia: Rb 2.70 net.
Covers 12 common European odon. spp. (pp. 69-76), with taxonomic and Russian vernacular names, good descriptions, and col. water paintings of adults and larvae.

(8128) KÜRY, D. & H. DURRER, 1991. Libellenschutz in anthropogenen Naturschutzweihern. Eine Studie zur Erfolgskontrolle. *Mitt. schweiz. ent. Ges.* 64: 155-163. (With Engl.s.). - (First Author: Gammarus, Clarastr. 19, CH-4058 Basel).
During 1985-1986, 22 odon. spp. were evidenced from the man-made ponds in the area of Basel, Switzerland. The list includes only 3 out of 12 stagnicolous spp. locally considered as "endangered". This is ascribed to the inadequate ecological diversity of the artificial habitats.

(8129) LARSSON, J.I.R., 1991. On the cytology and fine structure of the neogregarine Syncystis aeshnae Tuzet and Manier, 1953 (Apicomplexa, Syncystidae). *J. Protozool.* 38(4): 383-392. - (Dept Zool, Univ. Lund, S-223 62 Lund).
The work is based on material obtained from larval Aeshna grandis and Libellula quadrimaculata, collected in S. Sweden. - (*Abstracter's Note:* The correct name of the protozoan is S. aeschnae. The sp. was described in *Annls Sci. nat.* (II) 15 [1953]:241-246.).

(8130) LOTZING, K., 1991. Libellenstudien am FND "Kiesgrube" bei Stassfurt. *Ent. Nachr. Ber.* 35(3): 205-206. - (Str. der Einheit 7, D(O)-3250 Stassfurt, FRG).
Commented list of 12 spp. from a locality nr Stassfurt, eastern FRG.

(8131) [MAIBACH, A. & C. MEIER], 1991. Bibliographie [sur la faune odonatologique de Suisse]. *Nouvelles Cent. suisse Cartogr. Faune* 2:33. - (First Author: Le Bourg, CH-1610 Oron-la-Ville).
Contains 5 titles (1990, 1991).

(8132) MAIBACH A. & C. MEIER, 1991. Compte-rendu 4. Tagung der Schweizerischen Libellenkundler] Aarau. *Nouvelles Cent. suisse Cartogr. Faune* 2:30-31. - (First Author: Le Bourg, CH-1610 Oron-la-Ville).
Brief report on the 4th Colloquium of Swiss odonatologists, Aarau, Nov. 9, 1991, with brief summaries of the papers presented, viz. *Christ. J., D. Küry & T. Reiss:* Vorkommen und Besiedlungsdichten von Quelljungfern in der Region Basel (p. 30); - *Vaucher von Ballmoos, C.:* Odonates de la torbière du Cachot (Vallée de la Brévine, NE) (p. 30); - *Lohmann, H.:* Sind Cordulegaster boltonii und C. bidentata Vertreter unterschiedlicher Gattungen? Gedanken zur Evolution der Cordulegastridae (p. 30); - *Oertli, B. & D. Cambin:* Les larves d'odonates d'un étang forestier de la région genevoise: abondance, production, respiration et alimentation (p. 30); - *Kohler, H.U.:* Epitheca bimaculata,

Ophiogomphus cecilia, Onychogomphus uncatus, Macromia splendens und andere seltene Libellen im Diapositiv (p. 30); - *Vonwil, G.:* Libelleninventarisierung an der aargauischen Reuss (p. 30); - *Wildermuth, H.:* Das Habitatspektrum von Aeshna juncea (p. 31); - *Buchwald, R.:* Artenschutzprogramm "Libellen in Baden-Württemberg" (p. 31); - *Monnerat, C.:* Les odonates du canton du Jura (p. 31); - *Kiauta, B.:* Notizen zu Habitat und Verhalten von Coenagrion hylas freyi im Tirol (p. 31); - *Keim, C.:* Résultats du recensement des odonates du Valais (p. 31); - *Meier, C.:* Lebensraum von Macromia splendens (p. 31). - The formal organiser of the Symposia is the Swiss odonatological society, known under the following 4 (country language) names: "Vereinigung der schweizerischen Libellenkundler", "Groupement des odonatologues de Suisse", "Gruppo degli odonatologhi di Svizzera", "Gruppament dils odonatologs svizzers".

(8133) *MALANGPO.* Newsletter of the Thai National Office of the International Odonatological Society (S.I.O.), No. 8 (Nov., 1991). - (c/o Bro. A. Pinratana, St. Gabriel's Coll., 565 Samsen Rd, Bangkok-10300, Thailand).
Hämäläinen, M. & A.Pinratana: A list of dragonflies recorded from Doi Suthep-Pui National Park (pp. 49-52); - *Kiauta, B. & M. Hämäläinen:* Additions to the bibliography on the Tai Odonata fauna (pp. 53-54); - *Pinratana, A.:* XIIth International Symposium in Japan (p. 54); - *Keller, W.C.F.:* Some Odonata from Thailand (p. 55); - *Pinratana, A., Rojanavongse, V., Saiwichian, P.:* [Impressions from the] XIth International Symposium (Trevi, Italy 1991) (p. 56).

(8134) MARRO, A.J., 1991. A delicate balance. *Rutland Daily Herald,* issue of Aug. 7, p. 13.
A 15.0 x 21.5 cm col. phot. of Libellula pulchella, under the above title and with a brief caption, in a Vermont local daily. - (It is listed here as a tentative "example" of the increasing number of recent "indications" that dragonflies may be gaining in popularity in the USA, where the general public interest in odon. is appreciably lagging behind that in industrialized western Europe and Japan).

(8135) MARTIN, H.T., D.M. JOHNSON & R.D. MOORE, 1991. Fish-mediated alternative life-history strategies in the dragonfly Epitheca cynosura. *Jl.H.N. Am. benthol. Soc.* 10(3): 271-279. - (First Author: Center Limnol., Univ. Wisconsin, Madison, WI 53706, USA).
With the objective to investigate the potential impact of predation on life history traits of aquatic insects, various factors affecting the voltinism patern of E. cynosura in Bays Mountain Lake, Sullivan Co., TN, USA, were examined. The results show that in the absence of potentially deleterious biotic interactions, most Epitheca larvae in Bays Mountain Lake follow univoltine development, but competition and predation from sunfish (Lepomis microlophus) result in lowered success of the univoltine strategy.

(8136) *MARTINIA.* Bulletin de liaison des odonatologues de France Vol. 7, No. 3 (Sept. 1991). - (c/o J.-L. Dommanget, 7 rue Lamartine, F-78390 Bois d'Arcy).
Grand, D.: Nouvelles observations d'odonates dans le département du Morbihan (pp. 49-51); - *Balança, G. & M.N. de Visscher:* Migrations et prédation d'Hemianax ephippiger (Burmeister) (p. 52); - *Coppa, G.:* Note sur la durée de l'émergence d'Epitheca bimaculata (Charpentier) (Odonata: Corduliidae) (pp. 53-57); - *Landemaine, D.:* Lestes macrostigma (Eversmann) dans le marais d'Olonne (Vendée) (p. 58); - *Aguiar, S. & M. Faria:* Livres d'heures et libellules (pp. 59-61); - *Dommanget, J.-L.:* Nouvelle observation de Sympetrum flaveolum (Linné) à Versailles (Yvelines) (p. 62); - *Kérautret, L.:* Liste Rouge provisoire des odonates du Nord-Pas-de-Calais (pp. 63-64); - *Heidemann, H.:* Analyse d'ouvrage A. Arnold, Wir beobachten Libellen (pp. 65-66); - *Machet, P.:* Nouvelles philatéliques (pp. 67-68).

(8137) MEEK, S.B. & T.B. HERMAN, 1991. The influence of oviposition on the dispersion and behaviour of calopterygid damselflies. *Can. J. Zool.* 69(4): 835-839. (With Fr.s.). - (Second Author: Dept Biol., Acadia Univ., Wolfville, N.S., BOP 1X0, CA).
The size of oviposition patches was manipulated in order to test 2 hypotheses: (1) males position themselves at patches where they have the greatest probability of finding females, and (2) fe-

males are more strongly attracted to patches with the most oviposition resources. More females were attracted to large patches in all 3 spp. studied. In C. amata and C. maculata single males maintained territories at small patches and several males concurrently occupied and patrolled large patches. C. maculata males divided the large patches into small, individual territories, whereas amata males at large patches were unable to maintain exclusive areas. There were single territorial C. equabilis males at both large and small patches. Time budgets of individual males were affected by the size of the oviposition patch most strongly in amata, where at large patches males engaged in aggression, patrolling, and courtship more frequently and for longer than at small patches. C. maculata males courted more frequently at large patches, but patrolling and male-male aggression were unaffected. Time budgets of aequabilis were virtually unaffected by the size of the oviposition patch. The frequency of mating by individual males dit not differ between patch sizes for any of the 3 spp. Dispersion and behaviour of Calopteryx are modified by the size and availability of oviposition resources.

(8138) MERMOD-FRICKER, F. & W. GEIGER, 1991. Bibliographie concernant la faune entomologique suisse, 1989. *Bull. romand Ent.* 9(2): 113-128. - (Cent. suisse Cartogr. Faune, Terreaux 14, CH-2000 Neuchâtel).
Contains 13 odonatol. titles.

(8139) MONNERAT, C., 1991. *Etude faunistique des odonates du canton du Jura et des zones limitrophes*. ii+147 pp. Published privately by the author, Vicques. - Available at sFr. 40,-- net from the author. - (Chemin des Noisetiers 2, CH-2824 Vicques).
This is a monograph on the odon. fauna of canton Jura, Switzerland (54 spp.), with some information on canton Bern and the neighbouring areas in France. During 1988-1990, the author visited 104 localities, which are here listed and characterized, but no records are given either per locality, or per sp.(!!), though the occurrence of each sp. is mapped, and its local status stated. - Cf. also *OA* 7987.

(8140) MOORE, N.W., 1991. [Suggestions on the possible improvements of the Warwickshire nature reserves for dragonflies]. *Warwickshire Wildlife* 78:15. - (Farm House, Swavesey, Cambridge, CB4 5RA, UK).
Specified comments and suggestions; cf. *OA* 8148.

(8141) MOSER, D., 1991. A. picture plea to save California's endangered species. *Smithsonian* 22(7): 114-119. - (Author's address not stated).
In a col. picture (p. 118), the "San Francisco Forktail" [= Ischnura gemina] is shown, and in the caption it is stated that all but one of its habitat areas are now jeopardized by urban sprawl, while at present there are no efforts to protect the sp.

(8142) *NEWSLETTER [OF THE] BRITISH DRAGONFLY SOCIETY*, No. 20 (Autumn, 1991). - (c/o Mrs J. Silsby, 1 Haydn Ave., Purley, Surrey, CR2 4AG, UK).
On 8 pp., there are 19 news items and the 1990/1991 Accounts Statement. Item (2): The committee appointed Dr M. Rothschild as the first B.D.S. Patron. Item (15) gives brief reports on 9 field trips, by various authors, most of which contain local records. Of particular interest is item (17), titled "Light-hearted thoughts on migrant Odonata", by *A. Davies* (pp. 6-7), discussing records of various spp. in Britain. Among these his personal capture of Pantala flavescens in Kent, 1989, is fascinating, since the sp. has not been seen in Britain since 1823 (save for a specimen on a ship returning from Singapore, in 1955).

(8143) *ODONATOLOGICAL LIBRARY NEWS*. Published by the Kansai Research Group of Odonatology, Osaka, No. 9 (Dec. 1, 1991). (Jap., with Engl. title). - (Distribution outside Japan: K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA).
Lists 120 Japanese, and 11 foreign titles.

(8144) OLURIN, K.B. & O.O. AWOLESI, 1991. Food of some fishes of Owa Stream, south-western Nigeria. *Arch. Hydrobiol.* 122(1): 95-103). - (Dept Biol. Sci., Ogun St. Univ., P.M.B. 2002, Ago-Iwoye, Nigeria).
Not further identified odon. larvae are mentioned from the stomach contents of Hemichromis

fasciatus.

(8145) OTTOLENGHI, C., 1991. Contributo alla conoscenza degli odonati di Grecia. *Boll. Mus. civ. Stor. nat. Verona* 15[1988]:231-242. (With Engl.s.). - Via Mure 5, I-37011 Bardolino/Verona).
23 spp. are listed, of which Cordulia aenea is recorded for the first time from Greece. The regional Platycnemis p. pennipes cf. nitidula, Pyrrhosoma n. nymphula cf. elisabethae, Calopteryx splendens spp., Gomphus schneideri helladicus and Cordulia aenea are discussed in some detail.

(8146) PILON, J.-G. & D. LAGACÉ, 1991. Capture de Sympetrum semicinctum (Say) (Odonata: Libellulidae) dans la zone boréale du Québec. *Fabreries* 16(2): 39-42. (With Engl.s.). - (Dép. Sci. biol., Univ. Montréal, C.P. 6128, Montreal, Qué., H3C 3J7, CA).
The capture of 2 ♂ at the outflow of Lake Martin (47°27'N, 76°04'W; 22-VIII-1990) extends the northern range of this sp. into the southern boreal zone. The distribution of S. semicinctum in the cold temperate zone of Quebec, Canada, is reviewed.

(8147) PUJOL-LUZ, J.R., 1991. Notas sobre a morfologia e distribuiçao geográfica do gênero Zenithoptera Bates in Selys, 1869 (Odonata, Libellulidae). *Resum. XVIII Congr. brasil. Zool., Salvador-Bahia*, p. 213. - (Depto Ent., Museu Nac., UFRJ, Quinta da Boa Vista, BR-20942 Rio de Janeiro, RJ).
There are 3 known sp. (americana, lanei, viola), and the genus occurs from Santa Catarina (Brazil) to Colombia, Nicaragua and Cuba. So far the spp. were mainly discerned by their colour patterns. Recently, however, reliable penile characters were discovered, on the basis of which a fourth sp. could be identified. Its range and structural peculiarities are indicated, but the name and the description are not given here.

(8148) REEVE, P., 1991. Dragonfly expert visits. *Warwickshire Wildlife* 78:15. - (c/o Prof. Dr N.W. Moore, Farm House, Swavesey, Cambridge, CB4 5RA, UK).
A brief note on Prof. Moore's inspection tour along 11 odon. sites in Warwickshire, UK, made upon invitation of the Warwickshire Nature Conservation Trust, with the objective of the formulation of an adequate dragonfly conservation strategy, particularly with reference to Platycnemis pennipes, for which Warwickshire represents the northern range limit. - Cf. also *OA* 8140.

(8149) RETTIG, K., 1991. Urlaubs-Beobachtungen in Wildschönau/Tirol. *Beitr. Vogel- Insektenwelt Ostfrieslands* 52:14-20. - (Danziger Str. 11. D(W)-2970 Emden, FRG).
Aeshna juncea is recorded from the Schatzberg-Alm, North Tyrol, Austria, alt. 1770 m (24-IX-1991).

(8150) ROBINSON, J.V., D.A. HAYWORTH & M.B. HARVEY, 1991. The effect of caudal lamellae loss on swimming speed of the damselfly Argia moesta (Hagen) (Odonata: Coenagrionidae). *Am. Midl. Nat.* 125(2): 240-244. - (Dept Biol., Univ. Texas, Arlington, TX 76019, USA).
Burst swimming speed in A. moesta is directly proportional to body length, provided that at least 1 of its 3 caudal lamellae remains attached to its abdomen. If 2 of these lamellae are missing, larger individuals swim faster than smaller individuals but statistically slower than individuals that retain 2 or 3 lamellae which swim at the same speed. Reduced swimming speed probably subjects larvae to higher risk of predation.

(8151) SEBASTIAN, A., M.M. SEIN, M.M THU & P.S. CORBET, 1991. Suppression of the yellow fever mosquito, Aedes aegypti (L.) (Diptera: Culicidae) by augmentative release of the dragonfly, Crocothemis servilia (Drury) (Odonata: Libellulidae). *Opusc. zool. flumin.* 72: 1-5. - (First Author: Med. ent. Res. Div., Dept Med. Res., Ministry of Health, 5 Ziwaka Rd, Dagon P.O., Yangon, Burma).
In a pilot field study the periodic augmentative release of dragonfly larvae rapidly suppressed the mosquito during the rainy season in Rangoon, Burma. Success of the trial, which involved more than 550 households, was ascribed to: the virtual confinement of the pre-adult population of A. aegypti to domestic waterstorage containers; the availability of a suitable predator that could be propagated and distributed reliably and

in sufficient numbers; and the awareness and participation of local householders.

(8152) THOMPSON, D.J., 1991. Dragonflies from the western Kimberley region. *Westn austr. Nat.* 18:197-200. - (Dept Environ. & Evol. Biol., Univ. Liverpool, P.O. Box 147, Liverpool, L69 3BX, UK).
32 spp., collected during May-June 1988, in the Kimberley region, Australia, are listed, and notes are provided on habitats, ecology and/or behaviour of Agriocnemis rubescens, Nososticta kolumburu, N. liveringa and Gynacantha sp.

(8153) THOMPSON, D.J., 1991. Size-biased dispersal prior to breeding in damselfly: conflicting evidence from a natural population. *Oecologia* 87:600-601. - (Dept Environ. & Evol. Biol. Univ. Liverpool, P.O. Box 147, Liverpool, L69 3BX, UK).
The sizes of adult Coenagrion puella that were marked at emergence and recaptured as mature adults at the natal pond and at the next nearest pond were compared. In addition the sizes of a much larger sample of animals that were never recaptured were compared with those that returned to breed at the natal pond. There was no statistically significant difference in mass or wing length between adults in either comparison. This result contrasts with a previous study on a coenagrionid sp. in which, from an equally small sample, some evidence of size-biased dispersal was detected (dispersing adults were larger than those returning).

(8154) UEDA, K., 1991. Insect fossils: collecting and research in the field. *Insectarium, Tokyo* 28(2): 54-62. (Jap., with Engl. title). - (Author's address unknown).
General article, with references to the Odon., and with a topographic map of the main fossil insect-bearing localities in Japan.

(8155) WATSON, J.A.L., G. THEISCHINGER & H.M. ABBEY, 1991. *The Australian dragonflies. A guide to the identification, distributions and habitats of Australian Odonata.* viii+278 pp. CSIRO, Canberra-Melbourne. - ISBN 0-643-05136-8. - Price in Australia: AU $ 60,- net. (20.5 x 27.5 cm, hardcover). - Available from the SIO, Bilthoven.
The book is basically designed to provide a replacement for F.C. Fraser's now largely outdated 1960 "*A handbook of the dragonflies of Australasia*" (R. Soc. N.S.W., Sydney), and complements the Houston & Watson 1988 Catalogue, listed in *OA* 6595. In its kind, it is an excellent work, the scope and contents of which are perfectly covered by the title. The emphasis is on the identification keys to the adults, the immature stages of Australian Odon. are largely unknown and are not dealt with here. A brief introductory chapter on biology and conservation is kept at an absolute minimum (12 pp.), there are no "species monographs" (with descriptions, life history accounts, field notes, etc.), but in the keys for each sp. there is a statement on its general distribution and habitat, while the Australian distribution is region-wise shown in a table. The simple and clear figs of structural features greatly enhance the value of the work. (Unfortunately, they are not numbered, therefore their citation will be a bit difficult). Over 50 col. phots make the book attractive also to the non-specialists. - An unusual feature of a commercial identification guide is the inclusion of descriptions of 15 new taxa, by G. Theischinger (T.) and J.A.L. Watson (W), in different combinations, viz. Austrocnemis obscura T. & W. sp.n., Pseudagrion jedda W. & T. sp.n., Eurysticta coomalie W. sp.n., E. kununurra W. sp.n., Labidiosticta W. gen.n. (for Phasmosticta vallisi Fr.), Lithosticta macra W. gen.n., sp.n., Neosticta fraseri W. sp.n., Rhadinosticta W. gen.n. (for the Australian spp. hitherto referred to isosticta), Austroaeschna unicornis cooloola T.ssp.n., Gynacantha nourlangie T. & W. sp.n., Hemicordulia flava T. & W. sp.n., H. kalliste T. & W. sp.n., Lathrocordulia garrisoni T. & W. sp.n., and Nannophlebia mudginberry W. & T. sp.n. - The bibliographic References represent a good regional, though selected bibliography. Somewhat unfortunate is the accidental omission of D.A.L. Davies's paper on his rediscovery of Hemiphlebia mirabilis (1985, *Odonatologica* 14: 331-339), the single member of a highly peculiar family, which was considered as probably extinct (cf. *OA* 5023), and the rediscovery of which certainly is among the major recent achievements in odonatology. - The book certainly is a "milestone" in Australian odona-

tology, and a worthy continuation of the standard of excellence set during the first decades of this century by R.J. Tillyard.

(8156) WILDERMUTH, H., 1991. Verbreitung und Status von Leucorrhinia pectoralis (Charp., 1825) in der Schweiz und in weiteren Teilen Mitteleuropas (Odonata: Libellulidae). *Opusc. zool. flumin.* 74: 1-10. (With Engl.s.). - (Mythenweg 20, CH-8620 Wetzikon).
The 47 known Swiss localities are listed, and information on autochthony and the present status is provided. The sp. concentrates in the NE part of the lowlands and in some scattered places in W Switzerland, but it does not occur in the Alps. At 49% of the localities it is extinct, and at 17% of the spots where adults were recorded breeding is unlikely. At 23% of the known sites breeding seems possible, but only at 17% of the localities authochthony could be evidenced by exuviae. - The situation in Switzerland is compared with that in other Central European countries. The sp. is rare and endangered almost everywhere in Europe. Its decline is attributed to the destruction and eutrophication of larval habitats (mainly mesotrophic peat waters). Some tentative conservation measures are suggested.

(8157) WOOTTON, R.J., 1991. Das Design von Insektenflügeln. *Spektrum Wiss.* 1991 (January):59-65. - (Dept Biol. Sci., Univ. Exeter, Prince of Wales Rd, Exeter, EX4 4PS, UK).
The shapes and functioning of insect wings, and the various modes and evolution of insect flight are described, with extensive references to the odon. An editorial biographic note on the author is appended.

(8158) ZHOU, W., L. LOU & Z.XU, 1991. Studies on Mnais Selys from China. *J. Zhejing Forest. Coll.* 8(1):67-70. (Chin., with Engl.s.). - (Dept Ent., Zhejiang Mus. Nat. Hist., Gu-shan, Hang Zhou, P.R. China).
Records of, and descriptive notes on M. andersoni, auripennis, earnshawi thoracica, gregoryi, and maclachlani.

(8159) ZHU, H., 1991. A new species of the genus Davidius from southern Shaanxi (Odonata: Gomphidae). *Entomotaxonomia* 13(3): 175-177. (Chin., with extensive Engl.s.). - (Dept Biol., Shanxi Univ., Taiyuan, Shanxi 030006, P.R. China).
D. squarrosus sp.n. is described and illustrated from Yuanba, Shaanxi, China, 25-VI-1985 (holotype ♂, allotype ♀. 1 ♂ paratype; all deposited in Hanzhong Teacher's Coll, Shaanxi prov., China).

1992

(8160) AGUERO PELEGRIN, M. & M. FERRERAS ROMERO, 1992. Dynamics of a dragonfly community in a man-made lake of the Sierra Morena, Andalusia, southern Spain (Odonata). *Opusc. zool. flumin.* 83:1-7. - (Depto Biol. Animal, Seec. Zool., Fac. Cien., Univ. Córdoba, Avda San Alberto Magno s/n, ES-14004 Córdoba).
In the "Embalse de Encantada" reservoir (alt. 450 m, surface 50 ha approx.), 16 spp. were evidenced during March-Nov., 1990. The local population of Platycnemis latipes Ramb. is probably univoltine, and that of Trithemis annulata (P. de Beauv.), could be either bivoltine, or partly so. Due to the local hydrographic conditions, the maturation period in Lestes viridis (Vander L.) lasts several months, as to 4 weeks in NW Iberian Peninsula, and 2 weeks in Central Europe.

(8161) CARCHINI, G., 1992. Some new records of odonate larvae in Italian caves, with a note on the advantage of cave-dwelling for Somatochlora meridionalis Nielsen (Odonata: Cordulidae) *Opusc. zool. flumin.* 82:1-6. - (Dipto Biol., II Univ. Roma "Tor Vergata", Via Orazio Raimondo, I-00173 Roma).
An ultimate instar larva and an exuviae of S. meridionalis are reported from resp. and Etruscan tomb at the necropolis of Cerveteri and from a karstic cave at Pastena, both in Lazio. The habitats and the circumstantial evidence are described in detail, and it is tentatively suggested that the ability of colonizing cave habitats could be an advantage to the sp. in the southern part of its range, where surface waters tend to seasonally dry up. - From the same natural cave very young specimens (1 each) of a coenagrionid and a sympetrine sp. are also brought on record and their provenience is discussed. - In

conclusion, incidental cave breeding is considered likely in S. meridionalis, but unlikely in the other 2 spp. A record of an adult Somatochlora metallica from a cave in Switzerland is also included.

(8162) DE MARMELS, J., 1992. Sympetrum evanescens spec.nov., a hitherto overlooked dragonfly from the central Andes of Venezuela (Odonata: Libellulidae). *Opusc. zool. flumin.* 79:1-7. - (Inst. Zool. Agric., Fac. Agron., Univ. Central Venezuela, Aptdo 4579, Maracay 2101-A, Venezuela).

The new sp. is described and illustrated from 5 ♂ and 3 ♀, and from 44 ultimate instar exuviae (holotype ♂: Venezuela, Trujillo, road Boconó--Batatal, 11 km E of Mosquey, alt. 1700 m, 21-X-1991; deposited at MIZA, UCV, Maracay). Adults and larvae are much larger than sympatric S. illotum gilvum (Sel.), showing some similarities with S. nigrocreatum Calv., from Costa Rica. The long inferior caudal appendage is diagnostic for male S. evanescens sp. n. Living mature males have deep ruby coloured abdomen and wing venation, but dark brown pterostigmata. The number of premental and palpal setae in the larval labium is lower in the new sp. than in S. nigrocreatum, but the metafemora are longer.