

## ODONATOLOGICAL ABSTRACTS

ODONATOLOGICAL ABSTRACTS will cover the World literature in such a way, that each issue will bring a bibliography as complete as possible of papers that have appeared between two issues of ODONATOLOGICA, i.e. in three months. Exception was made for the first two issues which deal with the 1971 publications.

In each issue the bibliography is arranged alphabetically, according to the first author, while the abstracts are numbered consecutively within each volume. The last issue of a volume includes an Author and a Subject Index.

Original language titles are given for the papers written in western congress languages. For those written in other languages, a translation of the title is given only. If no translation of the title has been provided in the source journal, the title is given in the original language if other than Japanese, if necessary in Latin transcription, with the English translation in brackets.

Bibliographic details cited are: author(s), year, title (cf. above), journal (abbreviated according to the World List of Scientific Periodicals), volume and pages. Illustrations are quoted only in special cases; plates, diagrams, maps and tables only if not incorporated in the pagination of the text. For all papers not written in a western congress language, the original language and that of the summary (ies), if any, are indicated.

At the end of each bibliographic reference the recent address of the (first) author is given in brackets whenever known. The countries are indicated by the usual English abbreviations or by the ICIREPAT country code.

Abstracts are usually based on any abstract or summary provided in the source journal. If the original summary or abstract is editorially acceptable, it is cited verbatim, except for minor alterations concerning style and abbreviations.

- (1) ABRO, A., 1971. Gregarines: their effects on damselflies (Odonata: Zygoptera). Ent. scand. 2: 294-300. — (*Inst. Anat., Univ. Bergen, Arstadvollen, Bergen, NO*).

Adults of *Pyrrhosoma nymphula* (Sulz.) from Bergen, Norway, were found to have their midgut infected with a eugregarine *Hoplorhynchus oligacanthus* (Siebold). Heavy infestation seriously damaged the gut epithelium, and the viability of the host seemed to be reduced. Marking experiments have revealed that individuals which attained great adult age were either lightly infected or non-infected,

or they were thought to have been infected late in their adult life. The conclusion is that the eugregarine infestation apparently reduces the longevity of adults when other conditions are sub-optimum. (Author).

- (2) ABSTRACTS OF PAPERS read at the First European Symposium on Odonatology, Gent, 1971. 47 pp. — (Issued by *Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).  
*Andries, J.C.*: Etude de l'activité des nids de régénération de l'intestin moyen d'*Aeshna cyanea*; — *Caillère, L.*: Dynamique de la capture chez la larve d'*Agrion* (syn. *Calopteryx*)

- splendens Harris, 1782 (Calopterygidae); – *Dumont, H.J.*: The taxonomic status of *Calopteryx xanthostoma* (Charp.); – *Glitz, D.*: Zur odonatologischen Bestandsaufnahme; – *Heymer, A.*: Comportement et évolution des Calopterygidae (Palaeoptera); – *Kiauta, B.*: Cytotaxonomic peculiarities in the neotropical genera *Leptagrion* Selys, *Orthemis* Hagen and *Macrothemis* Hagen; – *Kumar, A.*: Studies on the phenology of the dragonflies of the Dehra Dun valley (India); – *Lieftinck, M.A.*: Some unusual features of amphipterygid larvae and their possible phylogenetic significance; – *Mielewczyk, S.*: Über das Vorkommen von *Lestes barbarus* (Fabr.) in Polen; – *Mill, P.J. & R.S. Pickard*: The mechanism and neural control of ventilation in aeshnid larvae; – *Mouze, M.*: Étude descriptive et expérimentale de la croissance de l'oeil des insectes odonates; – *Schaller, F.*: Action de la température sur la diapause embryonnaire et sur le type de développement d'*Aeshna mixta* Latr. (Anisoptera, Aeshnidae); – *Schmidt, E.*: Zur Odonatenfauna Berliner Moore; – *Stanionyte, A.*: Some data on dragonflies in the Lithuanian SSR.
- (3) AITA, M., 1971. (Malformed superior caudal appendages of *Aeshna juncea*). The Nature and Insects 6 (7): 27. (Japanese). – (2-6, *Sakae-machi, Ichinomiya, Aichi Pref., JA*). The presence of a spiny process at the end of each superior appendage is described.
- (4) ASAHINA, S., 1971. A list of papers published since 1952 dealing with the descriptions of Japanese odonate larvae. I. Tombo 14 (1-2): 16. (with Introduction in Japanese). – (*Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA*). Bibliography of 14 papers, all by the Author; 8 of these in English, the other in Japanese.
- (5) (ASAHINA, S.), 1971. Col. Niall MacNeill. Tombo 14 (1-2): 11. – (*Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA*). Obituary for the Irish odonatologist (deceased November 6, 1969).
- (6) ASAHINA, S., 1971. Order Odonata. Dobutsu-Keito-Bungui-Gaku (Syst. Zool.) 7 (3 b): 18-67. Nakayama-Shoten, Tokyo. (Japanese). – (*Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA*). A general treatise of the Order, with special reference to morphology and bionomics.
- (7) ASAHINA, S., 1971. (Insect phylogeny). Dobutsu-Keito-Bungui-Gaku (Syst. Zool.) 7 (3 a): 203-341. Nakayama-Shoten, Tokyo. (Japanese). – (*Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA*). Extinct representatives of Protodonata, Protozygoptera, Protanisoptera, Archizygoptera, Anisozygoptera, Zygoptera and Anisoptera are summarized with citations of phylogenetic theories by various authors.
- (8) ASAHINA, S., 1971. Insect dispersal as observed by a weather ship on the north-western Pacific. Proc. XIIIth Int. Congr. Ent. (Moscow) 1: 106. – (*Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA*). During the summer season a weather ship is located 29°N 135°E on the northwestern Pacific. This point is about 500 km south of the mainland of Japan. In the daytime migratory Odon. occasionally visit this spot. The southasiatic *Anax guttatus* Burm. recorded at the ship does not occur in Japan. In the "eye" of the typhoon No. 10 of July 24, 1967 a dark cloud of insects was observed, consisting mainly of *Pantala flavescens* Fab.
- (9) ASATO, S., 1971. A description of the larva of *Anax panybeus* Hagen. Tombo 14 (1-2): 15. (Japanese). – (*Ikehata-cho 11, Shuri, Naha-Shi, Okinawa, JA*). The ♀ exuvia from the Okinawa Island are described and illustrated.
- (10) BALINSKY, B.I., 1971. A new species of *Pseudagrion* Selys (Odonata) from Eastern Transvaal. J. ent. Soc. sth. Afr. 34 (1): 11-15. – (*Zool. Dept., Univ. Witwatersrand, Jan Smuts Av., Johannesburg, ZA*). The mature ♂ teneral ♂ and ♀ of *P. inopinatum* sp. n. from Badplaas, E. Transvaal, S. Africa, are described and figured. The new sp. belongs to the "caffrum" group and appears to be nearest to *P. gigas* Ris.
- (11) BELL, H.L., 1971. Effect of low pH on the survival and emergence of aquatic insects. Water Res. 5: 313-319. – (*US Dept. Inter.,*

Natl. Water Quality Lab., Duluth, Minn., USA).

The studies were made on 9 spp. of 4 orders, incl. the dragonflies *Ophiogomphus rupinsulensis* (Gomphidae) and *Boyeria vinosa* (Aeshnidae). Ultimate stage larvae were tested in the laboratory at pH values 1.0-7.0. During emergence the insects were sensitive to low pH.

- (12) BELLE, J., 1971. De libellenpopulatie van een bijzonder biotoop (Odonata) (The dragonfly population of a special biotope). Ent. Ber. Amsterdam 31 (7): 140-142. (Dutch, with Engl. s.). — (*Onder de Beumkes 35, Velp, Gld., NL*).

Attention is drawn to the odon. fauna of some artificial ponds in the Netherlands. In one of these *Somatochlora arctica* and *Cordulegaster boltoni* seem to breed.

- (13) BELYSHEV, B.F., 1971. Odonatefauna zapovednikov Srednei Sibiri i nekotorykh soprodel'nykh s nimi zemel'. (Odonate fauna of the Central Siberian nature reservations and some adjacent territories). Tr. gos. zap. "Stolby", Krasnoyarsk 8: 80-83. (Russian). — (*Biol. Inst., Siberian Branch USSR Acad. Sci., Ul. Frunse 21, Novosibirsk 91, USSR*).

A list is given of 66 specific and subspecific taxa recorded from the River Basin of Biia, Eastern Altay, and the Upper Yenisei. Brief comments on some spp. are added.

- (14) BELYSHEV, B.F., 1971. Contributions to the zoogeography of the dragonflies of the World. II. Ann. Zool. Warszawa 28 (14): 331-344. (Russian with Polish and Engl. s.). — (*Biol. Inst., Siberian Branch, USSR Acad. Sci., Ul. Frunse 21, Novosibirsk 91, USSR*).

The odon. fauna of New Guinea and of the Lesser Sunda Islands is analyzed and compared to that of N. Australia and Indonesia. It shows almost no Australian elements; consequently, the islands should be considered as a part of the Indo-Malayan (Oriental) Region. From the odonotological point of view, thus, the Wallace line does not exist, being replaced by a line running at right angles to it, separating Australia from all islands N. of it. A detailed analysis of the distribution of the libellulid genera is given. As a working hypothe-

sis a zoogeographical map of the World is proposed, based on the distribution of dragonflies.

- (15) BELYSHEV, B.F., 1971. A new geographic form of the dragonfly (Odonata) from southern Siberia. In: *Novye i maloizvestnye vidy fauny Sibiri, Siberian Branch of the USSR Acad. of Sci., Novosibirsk*, pp. 5-6. (Russian with Engl. s.). — (*Biol. Inst., Siberian Branch USSR Acad. Sci., Ul. Frunse 21, Novosibirsk 91, USSR*).

The ♂ of *Somatochlora sahlbergi relicta* ssp. n. from the lake Turan, Tunkinnskaia Valley, Southern Pribaikal'ie is described. The type material is in the Biol. Inst., Acad. Sci., Novosibirsk. The contrasting characters of the nominate form and the new ssp. are given. The ♀ is unknown.

- (16) BICK, G.H. & J.C. BICK, 1971. Localization, behaviour, and spacing of unpaired males of the damselfly, *Argia plana* Calvert (Odonata: Coenagrionidae). Proc. Ent. Soc. Wash. 73 (2): 146-152. — (*Dept. Biol., Saint Mary's Coll., Notre Dame, Indiana 46556, USA*).

*Argia plana* is described as a sp. with an intermediate degree of territoriality compared to other zygoptera. The advantage of territoriality to ♂ stems from favourable positions they occupy relative to obtaining mates. Larger defended areas resulted in fewer aggressive events for *A. apicalis* (Say) giving a more successful expression of the behaviour. The observations were carried out at a small creek in S. Oklahoma, USA.

- (17) BISCHOF, A., 1971. Die Odonaten des Kantons Graubünden. Mitt. ent. Ges. Basel (N.F. 21 (1): 1-7. — (*Heckenweg 4, CH-7000 Chur*)). A faunistic list and phenological table of 22 spp. recorded from the Bagger Lakes (Baggerseen) nr. Zizers (alt. 532 m), Kanton Grisons, Switzerland are given. *Cordulegaster boltoni* is considered immigrant in the area.

- (18) BREMOND, J., 1971. Contribution à l'étude de la nervation alaire chez les Calopterygidae (Odonates). Ann. Soc. ent. Fr. 7: 261-286. (with German s.). — (*Lab. d'Anat. Comp., 55 rue Buffon, F-75 Paris 3e*).

New observations and interpretations on wing venation in *Calopteryx* are discussed from the

point of view of functional adaptations within the genus and the position of the family within the Order.

- (19) CHARLET, M., 1971. Présence d'organes neurohémaux associés à la chaîne nerveuse ventrale d'*Aeshna cyanea* (Müll.) (Insecte, Odonate). C.R. Acad. Sc. Paris, Sér. D, 272: 2910-2912, 1 pl. – (*Biol. Anim., Univ. d. Sci. et Techn. Lille, B.P. 36, F-59 Villeneuve d'Ascq*).
- There is a direct relationship between certain ganglion cells and the neurohaemal organs that are associated with the unpaired abdominal neural sympathetic system.
- (20) CONTACTBRIEF NEDERLANDSE LIBELLENONDERZOEKERS (Newsletter of Dutch dragonfly workers). Nos. 3 (June), 4 (July), 5 (August), 6 (December, 1971). (Dutch). – (c/o Dr. B. Kiauta, *Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).
- Various news items on work of Dutch odonatologists; – No. 3: Report on the Second Colloquium of Dutch dragonfly workers; – Bibliography on Dutch odonate fauna and that of Dutch odonatologists (for 1970); – No. 6: Report on the First European Symposium on Odonatology.
- (21) DAVIES, R.W. & T.B. REYNOLDS, 1971. The incidence and intensity of predation on lake-dwelling triclads (Plathelminthes) in the field. *J. Anim. Ecol.* 40: 191-214. – (*Dept. Biol., Univ. Calgary, Calgary 44, Alta., CA*).
- The influence of predation on the distribution and abundance of 4 spp. of triclads was studied in the field in Wales and in the laboratory. The larvae of *Enallagma cyathigerum*, *Ischnura elegans*, *Coenagrion pulchellum*, *C. puella* and *Sympetrum striolatum* were shown to be predators of triclads.
- (22) DUMONT, H.J., 1971. Need for protection of some European dragonflies. *Biol. Conserv.* 3 (3): 223-228. – (*Inst. Zool., Univ. Gent, Ledeganckstr. 35, B-9000 Gent*).
- Macromia splendens* (Pictet), *Coenagrion freyi* Bilek, *Selysiothemis nigra* (Vander L.), *Lindenia tetraphylla* (Vander L.) *Gomphus grasilini* Ramb. and *Calopteryx splendens faivreii* Lacroix are discussed. Four of these are under substantial danger of extinction: C.f. is restricted to a single locality and may already be extinct, the other three are endemic to SW France. S. n., and L. t. are widespread but of only limited occurrence in Europe, so that, unless effectively protected, they may soon disappear from the Continent.
- (23) DUMONT, H.J., 1971. A contribution to the ecology of some Odonata. The Odonata of a "trap" area around Denderleeuw (Eastern Flanders: Belgium). *Bull. Ann. Soc. R. Ent. Belg.* 107: 211-235. – (*Inst. Zool., Univ. Gent, Ledeganckstr. 35, B-9000, Gent*).
- An attempt is made at analyzing the factors that govern habitat selection in 29 spp. living closely together on a limited area.
- (24) EBERHARDT, L.L., R.L. MEEKS & T.J. PETERLE, 1971. Food-chain model for DDT kinetics in a freshwater marsh. *Nature* 230: 60-62. – (*Dept. Ecosystems, Mattele Mem. Inst., Pacif. NW Lab., Richland, Wash., USA*).
- Data on the transfer of the DDT to the water and various items of the biota were used to test a kinetic model of the process. The parameters of DDT uptake and retention are given for a not further identified anisopteran larva.
- (25) EDA, S., 1971. (Camera hunting for North-American dragonflies). *Kagaku-Asahi* 31 (4): 113-116, 3 pls. (Japanese). – (*2-7-4-208 Sodegaura, Narashino, Chiba Pref., JA*).
- Notes on observations of behaviour of some North American dragonflies are given.
- (26) EDA, S., 1971. A female of *Plathemis lydia*. *Tombo* 14 (1-2): 1. – (*2-7-4-208 Sodegaura, Narashino, Chiba Pref., JA*).
- A photograph.
- (27) EDA, S., 1971. Submerged oviposition of *Cercion sexlineatum*. *Tombo* 14 (1-2): 5. (Japanese). – (*2-7-4-208 Sodegaura, Narashino, Chiba Pref., JA*).
- A brief note.
- (28) EDA, S., 1971. (Dragonflies trapped by plants). *Gekkan Mushi* 1: 28-29. (Japanese). – (*2-7-4-208 Sodegaura, Narashino, Chiba Pref., JA*).
- Japanese records since 1898 are summarized. In 15 cases the Odon. were trapped by *Drosera*

- ra, in three cases by a tendril of Cucurbitaceae plants.
- (29) EDA, S., 1971. (Further notes on dragonflies caught by plants). *Gekkan Mushi* 1 (1): 32. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
Additions to the paper in *Gekkan Mushi* 1 (1971): 28-29.
- (30) EDA, S., 1971. (A beautiful early summer dragonfly, *Anax nigrofasciatus nigrofasciatus*). *Insectarium* 8 (5): cover, p. 85. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
An explanatory note.
- (31) EDA, S., 1971. (Agrionid damselflies). *Animal Life* 14: 389-392. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
A series of colour pictures with explanations.
- (32) EDA, S., 1971. (The discovery of a new damselfly). *The Nature and Insects* 6 (8): 29. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
A short note on the discovery.
- (33) EDA, S., 1971. (*Anotogaster sieboldii*). *Animal Life* 20: 825-828. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
Colour photographs with explanations.
- (34) EDA, S., 1971. (A new damselfly species from Honshu). *Gekkan Mushi* 1 (7): 20. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
Report on the discovery of an undescribed species.
- (35) EDA, S., 1971. (An introductory note on the dragonflies). *Insectarium* 8 (10): 196-197. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
A popular account on various features of Japanese dragonflies, with special reference to oviposition.
- (36) EDA, S., 1971. (Odonata). *Pictural Encyclopedia* 1, *Insects* 1: 116-129. Gaskushu-Kenkyusha, Tokyo. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).
- (37) EDA, S., 1971. (Calopterygid damselflies). *Animal Life* 42: 1149-1150. (Japanese). — (2-7-4-208 *Sodegaura, Narashino, Chiba Pref., JA*).  
Colour photographs with explanations.
- (38) EGUSHI, E., 1971. Fine structure and spectral sensitivities of reticular cells in the dorsal sector of compound eyes in the dragonfly *Aeschna* (Odonata, Aeshnidae). *Z. vergl. Physiol.* 71: 201-218. — (*Biol. Dept., Yokohama Univ., Mitsuura, Kanazawa-ku, Yokohama, 236, JA*).  
Reticular fine structure was studied with the electron microscope and the receptor potentials of single reticular cells responding to equal quantum narrow-band monochromatic stimuli between 327 and 615 nm were recorded in the dorsal sector of the compound eye of *A. cyanea*. Each retinula comprises 5 distal reticular cells, 2 proximal reticular cells and 1 small cell without a rhabdomere. Comparison of the structural and electrophysiological evidence suggests that the distal reticular cells are the green receptors and the proximal units the UV receptors, though direct evidence is lacking.
- (39) GAMBLES, R.M., 1971. A new species of *Macromia* Rambur 1842 (Odonata, Corduliidae) from Nigeria, and the hitherto undescribed female of *M. pseudaficana* Pinhey 1961. *Entomologist* 104: 177-189. — (*West Warren, Warren Rd., Woodley, Reading, RG5 3AR, UK*).  
The ♂ of *M. nigeriensis* sp. n. from Vom, Plateau Prov., Nigeria is described and illustrated. The sp. is closely allied to *M. africana*. For the two spp. contrasting characters are tabulated, and the description and figs. of the ♀ allotype of *M. pseudaficana*, from the same locality, are added.
- (40) GAMBLES, R.M., 1971. Dragonfly dormitories. *The Nigerian Field* 36: 166-170. — (*West Warren, Warren Rd., Woodley, Reading, RG5 3AR, UK*).  
A plant of *Bidens pilosus* in a spinney at Vom, Nigeria, was used as a roosting-place by *Lestes virgatus* (Burm.) night after night during 2 weeks that it was kept under observation. The numbers present varied from 3-9,

but 8 was the number most frequently observed. There were usually 2 ♀, occasionally 3, and from 1-6 ♂, 4, 5 and 6 being the numbers most commonly present. On the only occasion when they were observed to arrive, this was 15 minutes before sunset, but the whole night's aggregation was once found already in position as early as 50 minutes before. On various occasions stragglers arrived up to and shortly after sunset. One particular spray of the plant appeared to be specially favoured. It is not certain whether or not the dragonflies observed were the same individuals each night.

- (41) GEIJSKES, D.C., 1971. List of Odonata known from French Guyana, mainly based on a collection brought together by the mission of the "Muséum National d'Histoire Naturelle", Paris, Ann. Soc. ent. Fr. (N.S.) 7 (3): 655-677. — (*Nat. Hist. Mus., Raamsteeg 2, Leiden, NL*).

Among the 90 spp. recorded, 54 are mentioned for the first time from this territory. So far only *Leuromacromia dubitans* (Fraser) seems to be endemic for French Guyana. The met-allotypes of females *Telebasis carminata* (Calv.), *Argyrothemis argentea* Ris, and *Erythrodiplax longitudinalis* (Ris) are described and illustrated.

- (42) HAMAR, G., 1971. Tjapoeng-Kiendjeng. Tong-Tong ('s-Gravenhage) 15 (20): 15. (Dutch). — (*c/o T. Robinson, Pr. Mauritslaan 36, Den Haag, NL*).

A note on dragonfly folk names in Indonesia.

- (43) HEYMER, A., 1971. Unterbrochene soziale Bindung, Rivalenverhalten und Weibchen-Erkennung bei Prachtlibellen. Umschau in Wissenschaft und Technik (Frankfurt/Main) 1971 (2): 59-60. — (*Lab. d'Ecol. Gen., Mus. d'Hist. Nat., 4 av. du Petit Château, F-91 Bru-noy*).

The observations were carried out on individually marked imagines of *Calopteryx haemorrhoidalis* in their biotopes in S. France. The sexually mature ♂ occupy and mark small areas as own territories. The immature insects, on the other hand, dwell together in sexually mixed groups on definite spots. At the same places the mature adult ♂ pass nights and

rainy days. Mature ♀ are recognized and courted by ♂ in the territories only; competing ♂ too are fought exclusively in the territories.

- (44) HIGLER, L.W.G., 1971. Macrofauna in the river Linde and in some peat diggings in the "Lindevallei", Meded. Hydrob. Ver. Amsterdam 5 (3): 126-141. (Dutch, with Engl. s.). — (*R.I.N., Kasteel Broekhuizen, Leersum, Utr., NL*).

A list of 10 spp. collected in august, 1970 in two peat diggings in the Lindevallei (Friesland prov., Netherlands) is given. Three of these were taken in the Linde river as well.

- (45) IKEDA, H., 1971. (A female of *Lestes temporalis* captured by spines of *Bidens frondosa* L.). Gekkan Mushi 1 (6): 33. (Japanese). (*Yamaguchi Prefectural Mus., 8-2 Kasugacho, Yamaguchi, Yamaguchi Pref., JA*).

- (46) INAGAKI, H., 1971. Interspezifische Allometrie bei Agrionidae Selys, 1840 (Odonata, Zygoptera) und ihre evolutive Bedeutung. Zool. Mag., Tokyo 80 (2): 45-51. (Japanese with German s.). — (*Lab. de Génétique évolutive et de Biométrie, F-91 Gif-sur-Yvette*).

A working hypothesis is tested according to which the odon. wings are adaptive organs characteristic on the species level, whereas the legs are so on the family level. Statistical data obtained on 16 European representatives of Coenagrionidae conform to the hypothesis: there is an intraspecific allometric relation between antenodal and postnodal wing length in two species; in all coenagrionid spp. studied an interspecific allometry with regard to the wings could not be demonstrated. Between femur and tibia length, on the other hand, intra- as well as interspecific allometry was found.

- (47) INAMORI, M., 1971. (*Ictinogomphus clavatus* with an abnormal pterostigma). The Nature and Insects 6 (11): 29. (Japanese). (*13-66 Obanagawa, Otsu, Shiga Pref., JA*).

A description of a female with abnormally (2.5 times) elongated pterostigma.

- (48) JURZITZA, G., 1971. Von Drachenfliegen und Teufelsnadeln. Das Tier (Frankfurt/Main) 11 (7): 4-7. — (*Zehntwiesenstr. 40, D-7505*

*Ettlingen, GFR).*

A popular account on dragonfly life with colour and black-and-white photographs. Special attention is paid to folk-names in different languages (English, German, French, Slovene).

- (49) KIAUTA, B., 1971. Predation by ants, *Formica fusca* L. and *F. rufa polycytena* Bondr. on the emerging dragonfly, *Aeshna juncea* (L.) and its teratological consequences. Tombo 14 (1-2): 2-5. — (*Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).

Observations were made at a small, isolated pool in the W. Julian Alps (alt. 1790 m), Italy. The high density of *A. j.* is probably due to geographic isolation and lack of intraspecific competition. The sp. is likely to hibernate at the penultimate instar (at ultimate in lowlands). Simultaneous ecdysis of large numbers takes place during the warmer part of the day (at small hours in lowlands). The damage to the wings, as caused by ants, consists of a more or less extensive apical portion being cut off; if inflicted at the beginning of the last ecdysis, the wound heals before ecdysis is completed. If the wings of a transforming insect are attacked, the wound appears healed before they are spread out. A dense reticulation reinforces the newly created apical margin. The longitudinal venation originating in the basal portion of the wing is little changed, but that originating in the missing part undergoes essential modifications, though it is not completely lacking. The transversal venation is greatly modified throughout the wing.

- (50) KIAUTA, B., 1971. An unusual case of precocious segregation and chromosome fragmentation in the primary spermatocytes of the damselfly, *Calopteryx virgo meridionalis* Selys, 1873, as evidence for a possible hybrid character of some populations of the *Calopteryx-virgo-Complex* (Odonata, Zygoptera: Calopterygidae). *Genen Phaenen* 14 (2): 32-40. — (*Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).

In four out of seven specimens originating from León prov., Spain in some 10% of the primary spermatocyte metaphase figures up

to at least four bivalents segregate precociously. The process is described and figured in detail and a suggestion is made that the incomplete pairing, leading to precocious segregation could have been caused by the hybrid character of the population studied.

- (51) KIAUTA, B., 1971. Studies on the germ cell chromosome cytology of some cytotaxonomically interesting or hitherto not studied Odonata from the Autonomous Region Friuli — Venezia Giulia (Northern Italy). *Atti Mus. civ. Stor. nat. Trieste* 27 (2): 65-127. 85 figs. — (*Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).

The cytotaxonomic conditions in the spermatogenesis of *Platycnemis pennipes* (Pall.), *Ceragrion tenellum tenellum* (Vill.), *Cercion lindeni* (Sel.), *Calopteryx splendens caprai Conci*, *Aeshna juncea* (L.), *Orthetrum albistylum albistylum* (Sel.), *O. brunneum* (Fonsc.), *O. coerulescens coerulescens* (Fabr.), *Crocothemis erythraea* (Brullé) and *Sympetrum sanguineum* (Müll.) have been studied. Principal attention has been paid to karyotype analysis and chromosome behaviour. Taxonomic affinities of the taxa treated are discussed in the light of cytotaxonomic evidence. General features of the odonate spermatogenic cycle, as observed in this material, are outlined and the cytological techniques used are described in more than usual detail.

- (52) KIRMSE, W. & P. LASSIG, 1971. Struktur-analogie zwischen dem System der horizontalen Blickbewegungen der Augen beim Menschen und dem System der Blickbewegungen des Kopfes bei Insekten mit Fixationsreaktionen. *Biol. Zentralbl.* 90: 175-193. — (*Carl-Ludwig-Inst. Physiol., Karl-Marx-Univ., Liebigstr. 27, DDR-701 Leipzig, GDR*). *Aeshna mixta*, *Orthetrum cancellatum*, *Sympetrum danae*, *S. sanguineum* and *S. vulgatum* were studied next to 2 spp. of Asilidae. In man horizontal eye-movements are based on a system with 2 special pathways of signal flow. The same functional principle of fixation movements was found in the spp. studied. These visually specialised predatory insects fix the prey by directing a particular area of the compound eye towards it. This

- differentiated area is formed analogously to the fovea in the eyes of vertebrates. In spite of their quite different morphological structure, the Odon. and Asilidae achieve the same visual performance as visually well-equipped vertebrates. The analogy between the systems suggests the existence of a structure functionally specific to fixation movements in general, and which hardly, if at all, varies in different taxonomic groups.
- (53) KITAMURA, B., 1971. (Record of *Epiophlebia superstes* from Tanzawa area, Kanagawa Pref.). *The Nature and Insects* 6 (10): 24-25. (Japanese). – (2-8 *Miwa-cho, Machidashi, Tokyo, JA*).
- (54) KLOTZLI, A.M., 1971. Zur Revierstätigkeit von *Calopteryx virgo* (L.) (Odonata). *Mitt. schweiz. ent. Ges.* 43 (3-4): 240-248. (German). – (*Zool. Inst., Univ. Bern, Sahlstr. 8, CH-3000 Bern*).
- It was demonstrated, in a small population of *C. virgo* in the surroundings of Berne, Switzerland, that the frequency of the territory change varies in different life periods. Thus, it is small at the beginning of the time of territory formation, it increases thereafter, and decreases again in the last period. In the areas occupied by a low number of individuals, the territorial activity already at the beginning is relatively higher than in those with higher density.
- (55) KUMAR, A., 1971. The larval stages of *Orthetrum brunneum brunneum* (Fonscolombe) with a description of the last instar larva of *Orthetrum taeniolatum* (Schneider) (Odonata: Libellulidae). *J. nat. Hist.* 5: 121-132. – (*Ent. Branch, Forest Res. Inst., 26 Circular Rd., Dehra Dun, U.P., India*).
- There are 14 instars in *O. b.* of Dehra Dun, India. The instars 1-12 were reared from eggs, 13-14 were studied on material collected in the field. Detailed descriptions and figures of each instar are given. The emphasis is on the development of antennal segments, setal arrangement on the prementum and labial palp, tarsal segments, wing buds etc. The distinct characters of the last instar larva of the two species are tabulated, and the last instar of *O. t.* is illustrated in detail.
- (56) KURATA, M., 1971. The life history of *Gomphus melaenops* (Gomphidae). *Tombo* 14 (1-2): 6-11. (Japanese with Engl. s.). – (*Asahimachi Middle School, 740 Nakaharacho, Matsumoto, Nagano Pref., JA*).
- The account of field observations (Omachi, Nagano Pref., Japan) on emergence and larval development is illustrated by diagrams of the ♂ and ♀ emergence, vertical traveling distance, number of exuvia in two years and of the life cycle based on larval development. In addition, a histogram of the larval body lengths is given. Emergence takes place from early morning to noon, the ♂ emerge earlier than the ♀. While two age groups can be distinguished in the larval material from August to May, only a single one was observed in July. Emergence takes place in the spring of the third year.
- (57) KUWAHARA, H., 1971. Odonata from Hateruma-shima, in the Yayeyama Islands of the Ryukyus. *Tombo* 14 (1-2): 14-15. (Japanese with Engl. s.). – (4-16-17 *Huminosato, Abeno-ku, Osaka, JA*).
- A list of 14 spp. collected during 3 July days. All are new to the fauna of the island.
- (58) LAWTON, J.H., 1971. Maximum and actual field feeding-rates in larvae of the damselfly *Pyrrhosoma nymphula* (Sulzer) (Odonata: Zygoptera). *Freshwat. Biol.* 1: 99-111. – (*Dept. Biol., Univ. York, Helmsington, York, YO1: 5DD, UK*).
- The information on factors influencing maximum feeding-rates (measured in the laboratory) is given and estimates of feeding-rates in the field are compared with maximum feeding-rates for larvae of the same size at the same temperature in the laboratory. Feeding rates in the field were calculated from "balanced" energy equations, i.e. from the sum of larval growth, respiration and the production of faeces and exuviae. These were always much lower than the maxima for the same size of larva at the same temperature in the laboratory, usually no more than 70%. They were closer to the maximum in summer, but in winter they fell as low as 20% of it. The importance of odonate larvae as predators in aquatic ecosystems is discussed.
- (59) LAWTON, J.H., 1971. Ecological energetics

studies on larvae of the damselfly *Pyrrhosoma nymphula* (Sulzer) (Odonata: Zygoptera). *J. Anim. Ecol.* 40: 385-423. — (*Dept. Biol., Univ. York, Helsington, York YO1: 5DD, UK*).

The detailed annual energy budget was studied in natural populations nr. Durham City, U.K. The insect has a 2-year life cycle, with two generations or year classes present at any time. Larvae hatched in July, adult emergence taking place in a highly synchronized manner in May or June, nearly 2 years after hatching. Respiratory rates increase with increased temperature. P. n. does not show any metabolic acclimatization. Respiratory rates are not affected by final instar diapause, but increase markedly during metamorphosis prior to emergence. There is no difference in respiratory rates between ♂ and ♀, nor is there any diurnal periodicity in feeding, respiration or defaecation. Total consumption from hatching to emergence amounts to 189-185 cal/larva, of this 42-43% are used for growth and respiration, 2.4% are lost as exuviae and 12.2% as faeces. A major factor determining the pattern of energy utilization by individual larvae appears to be the need to maintain a synchronized emergence of adults in the spring. Annual energy flow was measured for 2 consecutive years, in both years it was remarkably similar. The relative inactivity of odonate larvae means that energy spent in movement is very low, and net production efficiencies high. This, in combination with high food energy assimilation efficiency and heavy larval mortality means, that gross population growth efficiency and maximum ecological efficiency are also high.

- (60) L'HOSTE, R., 1971. Captures et observations d'Odonates. (2e note). *Entomologiste* 27 (4-5): 104-112. — (*24, rue Victor Ladavèze, F-64 Pau*).

25 spp. taken at Béarn, in the Landes and in the Eastern Pyrenees during 1969 and 1970 are listed, with notes on distribution in France and some ethological observations (*Onychogomphus forcipatus unguiculatus* Vander Lind., *Anax parthenope* Sel.). — The first note appeared in *Entomologiste* 25 (1969): 72-80.

- (61) LIEFTINCK, M.A., 1971. Studies on Oriental Corduliidae (Odonata). I. *Tijdschr. v. Ent.* 114 (1): 1-63. — (*Nwe Veenendaalseweg 224, Rhenen, NL*).

An attempt is made to prove the incongruity of attributing family rank to the *Macromia* alliance and the classification of Corduliinae as a subfamily of Libellulidae. Instead, arguments are put forward in favour of restoring and maintaining the group as a subfamily of Corduliidae. Idionychidae and Synthemistidae are regarded as groups so closely affiliated with Macromiinae that their family status is questioned. Contrasting characters are tabulated of Idiophya, *Idionyx* and *Macromidia*. The ♂ of *Idionyx philippa* Ris and both sexes of *I. murcia* sp. n. (Sumbawa) are described and a key is constructed for the S.E.Asian spp., followed by a description and figs. of the larva of *I. montana* Karsch. Some taxa in *Macromidia* are recharacterized and *M. asahinai* sp. n. (Palawan) is added to the list. In *Macromia* several spp. are discussed and the list of Malaysian taxa is made up to date; new spp. are *M. dione* (Sumatra) and in the Papuan group *M. lachesis* (Bismarcks) and *M. astarte* (S.E. New Guinea). Lastly, a review is given of *Synthemis* in New Caledonia, with definitions of *S. campioni* sp. n., the ♀ of *S. fenella* Campion and *S. montagnei* Campion hitherto unknown, and a key to all insular species. Descriptions and illustrations of two New Caledonian *Synthemis* larvae lead to comments on the acquisition of adaptive features during larval development. (Author).

- (62) LIEFTINCK, M.A., 1971. A catalogue of the type-specimens of Odonata preserved in the Netherlands, with a supplementary list of the Odonata types described by Dutch scientists deposited in foreign institutional collections. *Tijdschr. v. Ent.* 114 (2): 65-139, pls. I-VII. — (*Nwe Veenendaalseweg 224, Rhenen, NL*).

Alphabetical enumeration of the types of all species-group taxa of Odon. deposited in institutional collections in the Netherlands and list of primary types described originally by Dutch authors and found presently in museum collections outside the Netherlands are given. Each entry begins with the specific or subspecific name, its author and the genus in

which it was described, and the reference by year, page and illustration, if any. The status of the type is followed by the data on the labels and those found in the original description. A complete bibliography and portraits of 23 Zygoptera and 18 Anisoptera are added.

- (63) LIEFTINCK, M.A., 1971. Odonata from Ceylon. Ent. scand. Suppl. 1: 188-207. — (*Nwe Veenendaalseweg 224, Rhenen, NL*). A faunistic account on 64 spp. collected by the 1962 Lund Univ. Ceylon Exped. and general distributional data for each sp. are given. Six new spp. are described and illustrated: *Drepanosticta brincki* (♂ ♀), *D. sin-*

*halensis* (♂), *Disparoneura ramajana* (♂), *Elatoneura bigemmata* (♂), *Mortonagrion ceylonicum* (♂) and *Anisogomphus solitaris* (♂ with exuviae). A synonymic note on *Indothemis* Ris and a revised list of Odon. recorded from Ceylon are added.

- (64) LINDROTH, C.H., 1971. Holarctic elements in the North American fauna. Proc. XIIIth Int. Congr. Ent. (Moscow) 1: 92-101. — (*Zool. Inst., Univ. Lund, SW*). The odon. faunas of N. America and Europe have 8 spp. in common, 3 of these, however, are represented by different spp. in the two Continents.