

ODONATOLOGICAL ABSTRACTS

1971

- (1085) SCHÖTTELNDREYER, B. & H. SCHÖTTELNDREYER, 1971. A vocabulary of the Sherpa language. Summer Inst. Linguistics, Tribhuvan Univ., Kirtipur (Nepal). II + 17 pp. – (*Author's address unknown*).

This is a reprint of the Sherpa chapter from the publication F.K. Lehmann [Ed.], 1970.

Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics. Vol. 3. Tone systems of Tibeto-Burman languages of Nepal. Pt. 2. Lexical lists and comparative studies. Publs Dept. Linguistics, Univ. Illinois. The latter gives lists of close to 900 most frequently used terms in 7 better known Nepalese languages, organized into 12 subject groups. The section on "Animals" includes 100 terms; term No. 91 is "dragonfly" and is provided, without etymology, for 5 languages, viz. Gurung: "kyuq AAmā", – Tamang: none, – Thakali: "pingkyur napraang", – Chepang: "duy?, laa?", – Newari: "bhama", – Sunwar: "utus", – Sherpa: none. (*Abstracter's note*: For more vernacular terms for "dragonfly" in the Nepalese languages cf. *Odonatologica* II, 1: 29-32; 1973).

1972

- (1086) BULLA, L.A., 1972. Revisión de dos especies argentinas del género *Cynallagma* Kennedy (Odonata, Coenagriidae). [Revision of two Argentine species of *Cynallagma* Kennedy (Odonata, Coenagriidae)].

Rev. Soc. ent. Arg. 34 (1-2): 95-105. (Spanish, with Eng. s.). – (*Inst. Limnol., Fac. Cienc. Nat. y Mus., Pase del Bosque, La Plata, Argentina*).

C. bonariense and *C. interruptum* are redescribed and figured on adults and larvae. The relationships between *Cynallagma* and related genera are discussed.

- (1087) SMITH, V.W., 1972. Trans-Sahara 1966. Niger. Fld 37 (1): 5-20. – (*21 Purdie Av., Ardross, Perth, West Australia, AU*).

This is an account, mainly ornithological and geographical, of a journey made by the author from Kano to Tangier, and illustrated by photographs. One paragraph describes a guelta (deep rockpool, seldom – if ever – drying out) in the Ahaggar Mountains, at 7000 feet, where he stopped for two weeks, 35 miles from Tamanrasset. Dragonflies were common, and *Anax imperator* and *Orthetrum ransonneti* were collected.

1973

- (1088) BIEDERMANN, J., 1973. Libellen Liechtensteins. Bericht Bot.-Zool. Ges. Liechtenstein 73: 4. – (*Liechtensteinisches Gymnasium, FL-9490 Vaduz, Liechtenstein*).

This is a brief abstract of a lecture on Odon. in general and on the Liechtenstein fauna in particular, given on Febr. 14, 1973 for the Botanical-Zoological Society of Liechtenstein. The author expressed the hope, within a few years, to prepare a cata-

logue of the odon. fauna of the Principality of Liechtenstein. (cf. also *OA* No. 1099).

- (1089) MANNING, G.S. & P. LERTPRASERT, 1973. Studies on the life cycle of *Phanerosolus bonnei* and *Prosthodendrium molenkampi* in Thailand. *Ann. trop. Med. Parasitol.* 67 (3): 361-365. — (*Sch. Med. Sci., Univ. Reno, Nevada 89507, USA*).

The snail, *Bithynia goniomphalus*, was infected with several unidentified spp. of trematodes and was thought to be the intermediate host of the 2 spp. mentioned. Various odon. spp. were the second intermediate host, the most important of these are *Crocothemis servilia*, *Orthetrum sabina*, *Trithemis pallidinervis* and *Brachythemis contaminata*. It is postulated that man becomes infected by eating the larvae, and that other hosts become infected mainly by ingesting the adult dragonflies.

- (1090) PERRET, P., 1973. Bodenfauna des Litorals im Sempachersee. *Schweiz. Z. Hydrol.* 35 (1): 69-113. (With Eng. and Fr. s's). — (*Unterhofen 6, CH-8625 Gossau*).

The macrobenthos of the littoral of the lake Sempachersee, Switzerland, is described and discussed in the light of studies made in 1967-1969. Odon. are one of the 5 insect orders considered.

- (1091) SANDHALL, Å., 1973. Småkryp. (Small creatures). Interbook Publishing, Stockholm. V + 208 pp., (Swedish). — Price: sKr. 60.—. — (Author's address: *Bygglövsgränden 9, SW-22247 Lund*).

This is a popular "field guide", illustrated by 432 colour photographs, mainly of (European) insects. Each photograph is accompanied by the taxonomic and vernacular name and by a few brief but concise notes on biology, behaviour and distribution of the sp. presented. In addition, there is a tabular review of the systematic organization of the invertebrates, illustrated by 250 drawings. A chapter on insect photography and an explanatory vocabulary of technical terms will be also very useful to amateur insect observers. Figs.

286-309, 341 represent 20 of the more common northern European odon. spp. (The author is an active odonatologist). (*Abstracter's note*: The book appeared also in Danish, Dutch and German versions, while it is to be published shortly also in Norway, Finland, Great Britain and France. Although the illustrative material is the same in all editions, the distributional notes are modified to fit the local conditions). (Cf. also *OA* Nos. 1147, 1189).

1974

- (1092) ALI KHAN, B., 1974. The copulatory complex of *Neurobasis chinensis chinensis* (Linn.) (Agriidae: Zygoptera). *J. Bombay Nat. Hist. Soc.* 71 (1): 124-130. — (*Zool. Dept., Agra Coll., Agra-2, U.P., India*).

The ♂ copulatory apparatus is described and illustrated.

- (1093) ANAZE, N., 1974. (Dragonfly survey of Kishigawa). *Gracile* 15: 6-7. (Japanese). — (*529 Takara, Yukawa-cho, Gobo, Wakayama Pref., 644, JA*)

A list is given of 15 spp., taken at Kishigawa River, Kishigawa, Wakayama Pref., Japan, on May 14, 1972. Among these were also the larvae of *Anisogomphus maackii*, which emerged in the laboratory, on June 12 and 16. (Cf. also *OA* No. 1120 and *Abstracter's note* in *OA* No. 1047).

- (1094) ANAZE, N., 1974. (Report on *Anisogomphus maackii* survey at the Kinokawa river). *Gracile* 17: 15-16. (Japanese). — (*529 Takara, Yukawa-cho, Gobo, Wakayama Pref., 644, JA*).

14 specimens were observed at the locality, Wakayama Pref., Japan, on June 9, 1974. The emergence of a ♂ was noticed to commence at 12.20 hrs and was completed at 13.00 hrs. (Cf. *Abstracter's note* in *OA* No. 1047).

- (1095) ASAHINA, S., 1974. Nepalese Odonata taken by Dr. J. Martens in 1969/70 and 1973. Results of the Nepal expeditions of J. Martens 1969/70 and 1973, No. 25.

Senckenbergiana biol. 55 (4/6): 281-291. – (*Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA*).

28 spp., taken at Thakkhola area, southern Annapurna and the Kathmandu Valley, are recorded. Special attention is paid to *Cephalaeschna orbifrons* Selys. This is the type sp. of this Himalayan genus. It is here redescribed and illustrated in detail. Some taxonomic notes on it are also furnished.

(1096) ASAHINA, S., 1974. (On the scientific name of Hosomi-otsunen-tombo). *Kakocho* 26 (100): 49-51. (Japanese). – (*Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 160, JA*). The Japanese letid sp., first described by Ris (1916) as *Lestes gracilis peregrina*, is compared with the Ceylonese nominate form, and hence recognised as a distinct sp. The revised name is *Indolestes peregrinus* (Ris, 1916), with a synonym "Lestes extraneus Needham, 1930" from China. Figures of the structural characters are also provided. (Author).

(1097) BALESTRAZZI, E., 1974. Iconografia degli Odonati italiani. *Atti IX Congr. Naz. ital. Ent.* (1972): 19-22. (With Engl. s.). – (*Via Lanfranco 26, I-27100 Pavia*). A brief review is given of the present state of knowledge on the distribution of a number of spp. that are considered scarce in Italy. Portraits of *Nehalennia speciosa*, *Mesogomphus genei* and *Ophiogomphus serpentinus* are added.

(1098) BHARGAVA, R.N. & M. PRASAD, 1974. *Orthetrum glaucum* (Brauer) preying upon *Palpopleura sexmaculata sexmaculata* (Fabr.) (Odonata: Libellulidae). *J. Bombay Nat. Hist. Soc.* 71 (1): 164. – (*Zool. Surv. India, 13 Subhas Rd, Dehra Dun, U.P., India*). In the Corbett National Park, Uttar Pradesh, India, a specimen of *O. glaucum* was observed devouring *P. s. sexmaculata* (Nov., 1971).

(1099) BIEDERMANN, J., 1974. Beitrag zur Libellen-Fauna Liechtensteins. *Bericht Bot.-zool.*

Ges. Liechtenstein 74: 77-80. – (*Liechtensteinisches Gymnasium, FL-9490 Vaduz, Liechtenstein*).

This is the first faunistic list ever published on the odon. fauna of the Principality of Liechtenstein – a minute sovereign state, (surface 160 km²), situated on the Rhine river between Switzerland and Austria. In all, 19 spp. are listed with the usual locality and capture data. (Cf. also *OA* No. 1088).

(1100) BLANKENSPoor, H.D., 1974. Host-induced variation in *Plagiorchis noblei* Park, 1936 (Plagiorchidae: Trematoda). *Am. Midl. Nat.* 92 (2): 415-433. – (*Mus. Zool., Univ. Michigan, Ann Arbor, Mich. 48104, USA*).

Eggs of the trematode were recovered from a single worm originating from a naturally infected red-winged blackbird, *Agelaius phoeniceus*. Laboratory-reared snails (*Lymnaea stagnalis*, *Stagnicola reflexa*), Chironomus sp. and dragonflies *Aeshna* and *Coenagrion* harboured experimental infections of this plagiorchiid.

(1101) BUCCIARELLI, I., 1974. Raccolta, preparazione e conservazione degli Odonati. *Inf. giovane Ent.* 15 (70): 1-4. – (*Mus. Civ. stor. Nat., Corso Venezia 55, I-20121 Milano*).

Detailed instructions are presented on the collecting, preparing and labelling of odon. specimens for collections. Different morphological types require different treatments. (*Abstracter's note*: The periodical appears as a supplement to the *Bull. Soc. ent. Ital.*, and is intended for young entomologists).

(1102) CAILLÈRE, L., 1974. Ontogenèse du comportement de capture chez la larve d'*Agrion* (*Calopteryx* Auct.) *splendens* Harris (Odonatoptères). *Behaviour* 51 (3-4): 166-194. (With Engl. s.). – (*Dép. Biol. anim. et Zool., Univ. Claude Bernard Lyon I, 43 bd. du 11-novembre-1918, F-69621 Villeurbanne*).

All sequences occurring in the prey-catching behaviour of old larvae were also

observed in the first instar larvae. The latter is characterized by intense exploratory behaviour, with each sequence passing quite slowly; only the sequence of displacement is dispensable. In proportion to the growth, and from the sixth instar onwards, it is clear that the antennal mobility increases and the coherence of the sequences improves (diminution of the length of the capturing cycle, suppression of sequences like exploration). Furthermore as regards the responsiveness of the larvae towards dummies, a lower diameter can be defined below which the dummy leaves the larvae more or less indifferent and above which the dummy becomes attractive, and a higher diameter, above which escape responses are released. In the course of ontogenesis, the maximal range of antennal or tarsal detection increases regularly in relation to the diameter of the dummy. For each antenna, the perceptual space has the form of an ellipsoide, the great axis of which coincides with the axis of the antenna. In the 7th instar, a phenomenon reaches its completion: remote stimulation of the different tarsi is followed, in the young larvae, by the lifting of the corresponding leg, before the antennal tips come into contact with the dummy. The frequency of this lifting sequence gradually diminishes. In the end, the tarsus remains in the same place throughout its stimulation, and serves as a pivot in the rotation. The adjustment of the capture is done quickly, provided that the orientation movements of the animal are exact and precise. During ontogenesis, the responses of the larvae become quicker, while the exploration sequence can be suppressed and while the precision of the orientation movements is increasing, one can assume that maturation processes of the nervous and muscular systems are acting together for a greater efficiency of the predatory behaviour. (Author).

- (1103) CAMPANELLA, P.J. & L.L. WOLF, 1974. Temporal leks as a mating system in a temperate zone dragonfly (Odonata: Anisop-

tera). I. *Plathemis lydia* (Drury). Behaviour 51 (1-2): 49-87. (With Germ. s.). — (Dept. Biol., Syracuse Univ., Syracuse, N.Y., USA).

The behavioural ecology of *P. lydia* was studied at several ponds in northern New York State, USA. ♂♂ and ♀♀ utilized restricted areas of the ponds. ♀ occurrence was highest during a short time period each day, while ♂♂ occurred throughout most of the day. Thus, ♂♂ and ♀♀ were considered to be highly predictable in time and space. ♂♂ returned daily to a traditional area which was utilized primarily for mating. All ♂♂ in one area interacted aggressively with each other to establish a dominance hierarchy. Each individual in the area appeared to recognize and maintain the integrity of the territorial boundaries. The organizational system allowed conspecific trespassers which showed submissive behaviour within the defended area. The dominant ♂ had the advantage, relative to the subordinate conspecific at the site, in clasping and copulating with ♀♀ which flew into the area. The dominance hierarchy on the traditional mating area appeared to increase the reproductive efficiency of the dominant ♂. Time budgets and analyses of mating behaviour of ♂♂ under various densities are presented and analyzed with reference to a time-energy-maturational-experiential hypothesis for the evolution of the behaviour. Comparisons are made between dragonflies and birds and mammals which exhibit similar types of behaviour. (Authors). (Cf. also OA No. 363).

- (1104) CARCHINI, G.M., 1974. Rinvenimento nell'Italia meridionale di una stazione di *Lestes dryas* Kirby (Odonata). Boll. Soc. ent. ital. 106 (8-10): 174-176. (With Engl. s.). — (Ist. Zool., Univ. Roma, Città Universitaria, I-00100 Roma).

The discovery of *L. dryas* in a marsh (elevation 1700 m) on the Monte Pollino, southern Italy, is reported. The biotope is described in some detail and some field observations on the reproductive behaviour are added. This is the first known record of this

sp. in the peninsular southern Italy.

- (1105) CLAUSNITZER, H.J., 1974. Die ökologischen Bedingungen für Libellen (Odonaten) an intensiv bewirtschafteten Fischteichen. Beitr. Naturk. Niedersachs. 27 (4): 78-90. – (Südstrasse 24A, D-3106 Eschede, GFR). Although the text is slightly modified, the contents of the paper are essentially the same as those of the publication listed in OA No. 146.
- (1106) DUKRAVETS, G.M., L.N. SUMBAEVA & P.H. MAMILOVA, 1974. Sud'ba Kara-Uzyaskih ozer v nizov'yah reki Syrdar'yi. (The destiny of the Kara-Uzyak lakes in the Lower Syr Darya River area). In: Rybnye resursy vodoemov Kazahstana i ih ispol'sovanie. (Fish resources of the Kazakhstan waterbodies and their utilization). 8. Kainar, Alma-Ata. pp. 114-117. (Russian). – (Lab. Reservoirs, Kazakh Res. Inst. Fishery, 152 Kirov Str., USSR-480012 Alma-Ata). 3 odon. spp. were recorded, but *Ischnura elegans* is the only one of them named, and is the most abundant and widely spread. Next to Trichoptera and Ephemeroptera the larval Odon. prevail in the benthos of 4 out of a high number of lakes studied.
- (1107) EDNEY, E.B., 1974. Desert arthropods. In: G.W. Brown Ed., Desert biology. Special topics on the physical and biological aspects of arid regions. Academic Press, London-New York. Vol. 2, pp. 311-384. – (Dept. Biol., Univ. California, Riverside, Cal., USA). The book is a 2 volume treatise (1st vol. published in 1968) composed of topics written by experts dealing with the biology of arid regions or with the geophysical characteristics of these environments. Edney's paper is divided into the following main chapters: "The insect organization", "Water balance", "Tolerance of water depletion and high temperatures", "Body temperature in the field", Morphological adaptations, including surface colour", "Phenology and behaviour". Of interest is a table giving quantitative data on arthropods (mainly insects) collected in the Deep Canyon Desert Research Area, Palm Springs, California, USA. Among 1160 identified spp., referable to 796 genera of 245 families, there are only 6 Odon. of 6 families.
- (1108) EMBERGENOV, S., 1974. O makrozoobentose vodoemov Hazarasparskogo raiona Horezmskoi oblasti. (Macrozoobenthos of water bodies of the Hazarasp region of the Horezm Province). Uzb. Biol. Zh. 18 (3): 41-43. (Russian, with Uzbek s.). – (Complex Inst. Nat. Sci., Kara Kalpak Sect., Uzbek SSR Acad. Sci., 179 a Maxim Gorki Str., USSR-742000 Nukus). Morphological and hydrobiological characteristics of the waters of the lakes Dungguldy, Hassa, Davroh, Yumalandy and Akkul in the Hazarasp region, Usbek SSR, USSR, and the qualitative composition of macrozoobenthos in them are discussed. The macrozoobenthos was composed of 23 spp. in 8 taxonomic groups and 3 types. The larvae of Chironomidae (11 spp.), Odon. (*Ischnura elegans*, *I. pumilio*, *Anax imperator*, *Libellula quadrimaculata*), Ephemeroptera and Hemiptera (2 spp. each) made up 52,5%. The average abundance of the odon. larvae fluctuated between 40-96 spec./m², and the average biomass between 240-560 mg/m².
- (1109) EMBERGENOV, S., 1974. O mikrozoobentose novyh vodoemov nizhnei delty Amudar'yi. (On microzoobenthos of newly arisen water bodies in the lower part of the Amu Darya Delta). In: Biologicheskie osnovy rybnogo hozyaistva respublik Srednei Azii i Kazahstana. Tezisy dokladov. (Biological basis of fishery in the Soviet Central Asian Republics and Kazakhstan. Abstracts of papers). 1. Ylym, Ashakhabad. pp. 60-61. (Russian). – (Complex Inst. Nat. Sci., Kara Kalpak Sect., Uzbek SSR Acad. Sci., 179 a Maxim Gorky Str., USSR-742000 Nukus). Larvae, referable to 7 odon. spp. were recorded in the Shomaikul lakes. Their density amounted to 150 spec./m², and the biomass to more than 1.2 g/m². The spe-

cific names are not given.

- (1110) ENGELMANN, H.D., 1974. Lichtfang unter Wasser. *Fol. Ent. Hung.* 27 (suppl.): 173-176. — (*Staatl. Mus. Tierk., Am Museum 1, DDR-89 Görlitz, GDR*).
The construction of a battery-powered light trap for catching insects under water, and preliminary field results obtained with it are described. Among the orders collected there are also larval Zygoptera. (Cf. also *OA* No. 1025).
- (1111) HAMA, E., 1974. (Nannophya pygmaea Rambur in the central Alps). *Nature and Insects* 9 (10): 11-16. (Japanese). — (*Author's address unknown*).
A review of the records in the Japanese central Alps.
- (1112) HIURA, I., 1974. (Observations on the biology of Rhipidolestes aculeata, Shikoku District race). *Gracile* 15: 1-6. (Japanese). — (*Osaka Mus. Nat. Hist., Nagai Park, Higashinagai-cho, Higashi-sumiyoshi-ku, Osaka, 546, JA*).
Notes are presented on habitat selection, sperm transfer, copulation, oviposition, larval habitats and the duration of larval development, as observed at a stream on the northern slope of Mt. Tsurugi, Tokushima Pref., Japan.
- (1113) HIURA, I., 1974. (Reports on the 23rd and 24th meetings of the Kansai Research Group of Odonatology). *Gracile* 15: 12-14. (Japanese). — (*Osaka Mus. Nat. Hist., Nagai Park, Higashinagai-cho, Higashisumiyoshi-ku, Osaka, 546, JA*).
The meetings took place at the Osaka Nat. Hist. Mus., on December 17, 1972 and February 18, 1973 respectively, and were attended by 23 members. Among the talks given there was a discussion on the world distribution of Corduliidae and on the mixed spp. migratory flights (viz. Somatochlora uchidai in a swarm of Pseudothemis zonata, Macromia daimoji in a swarm of M. amphigena, etc.).
- (1114) INOUE, K., 1974. (Odonatological references). *Gracile* 16: 12. (Japanese). — (5-9, *Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA*).
Bibliographic references are listed of 9 Japanese titles that are considered useful for younger Japanese students.
- (1115) INOUE, K., 1974. Malaysian dragonflies taken by Mr. Kiyoshi Ohkubo. *Gracile* 17: 11-14. (Japanese with Engl. title). — (5-9, *Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA*).
An account is given of 17 spp., referable to 7 families, collected in Malay Peninsula from Febr. through March, 1974. Only 10 of these were represented in material dealt with in the paper listed in *OA* No. 1117.
- (1116) INOUE, K., 1974. (Societas Internationalis Odonatologica and the Society of Odonatology, Tokyo. — An introduction). *Gracile* 17: 18. (Japanese). — (5-9, *Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA*).
General information is presented about the 2 societies.
- (1117) INOUE, K. & H. KUWAHARA, 1974. Malaysian dragonflies taken by Hideo Kuwahara. *Gracile* 17: 1-11. (Japanese, with Engl. title). — (5-9, *Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA*).
A list is produced and the records are discussed from various angles (incl. the nature conservation aspects) of 25 and 30 spp. collected from 6 through 30 March, 1971 in the Malay Peninsula and Serawak (total 48 spp. referable to 12 families). (Cf. also *OA* No. 1115).
- (1118) INOZEMTSEV, A.A., 1974. Dinamika troficheskikh svyazei ryzkhil lesnyh murav'ev i ih rol' v regulyatsii chislennosti vrednyh bespozvonochnyh v dubravah Tul'skoi oblasti. (Dynamics of the food relationships of common red ants and their role in controlling the abundance of harmful invertebrates in oak forests of the Tula region). *Ekologiya* 5 (3): 62-75. (Russian). — (*Biol. Dept., Lenin Moscow State Pedagog. Inst., Moscow, USSR*).

A study was made of the food relationships of *Formica rufa*, and of the role of the latter in controlling various groups of invertebrates, incl. Odon., during spring-summer periods 1966-1971 in an insular oak forest in the Tula region, Russian SSR, USSR. The intensity of the effect of ants on invertebrate populations and on invertebrates as a group reaches a maximum by early July and then drops rapidly. Distinct preferences were noted in the feeding of ants, with Lepidoptera and Coleoptera ranking first. (Cf. also *OA* No. 49).

- (1119) KAISER, H. & R. FRIEDRICH, 1974. Die Libelle *Orthetrum albistylum* am Oberrhein. Mitt. bad. Landesver. Naturk. u. Naturschutz 11 (2): 145-146. - (*Zool. Inst., Univ. Köln, Weyertal 119, D-5000 Köln-41, GFR*).

A note on the occurrence of *O. albistylum* near Neuenburg, Upper Rhine, German Federal Republic.

- (1120) KIMURA, T., 1974. (Additions to the dragonflies of Kishigawa). *Gracile* 15: 7-8. (Japanese). - (*708-1 Hanwa-cho, Izumi, Osaka, 594, JA*).

A list is given of 9 spp., incl. *Trigomphus citimus tabei*, that were observed at 2 ponds in Kishigawa, Wakayama Pref., Japan, on May 14, 1972. (Cf. also *OA* No. 1093, and Abstracter's note in *OA* No. 1047).

- (1121) KORBEL, L., 1974. Die Lage der entomologischen Forschungen in der Slowakei. *Fol. ent. hung.* 27 (suppl.): 259-264. - (*Inst. Allg. Zool. u. Tierphysiol., Komensky Univ., Kalinciakova 8, CZ-800 00 Bratislava*).

In a brief review on the subject, it is stated that in the Federal Republic of Slovakia, Czechoslovakia, only 1 worker is specialized in Odon. (Cf. also *OA* Nos. 1002, 1175).

- (1122) KUWAHARA, H., 1974. Relaxing of dragonfly specimens by means of the enzyme (protease). *Gracile* 16: 2. (Japanese). -

(16-17, *Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA*).

The following method for relaxing of dry specimens is described: (1) dissolve 1.0 g of "Prozyme 907" in 200 cc sterilized water solution of 1% Ca⁺⁺, at 30-40°C (use water bath); (2) store in refrigerator; (3) inject the solution into dry specimen; (4) heat the specimen to 40°C for 20-30 min. After this time the specimen will be relaxed as a fresh insect. 0.3 cc of this solution is sufficient for a specimen of about *Sympetrum* size. (*Abstracter's note*: In the title, as listed in *OA* No. 1047 instead of "relaxing" the term "plasticizing" is erroneously used).

- (1123) LESHCHEVA, E.I., 1974. Kormovaya baza vyrastnykh prudov Ust'-Kamenogorskogo prudovogo hozyaistva. (Food reserve in the rearing ponds of the Ust-Kamenogorsk Pond Farm). In: *Rybnye resursy vodoemov Kazahstana i ih ispol'zovanie*. (Fish resources of the Kazakhstan waterbodies and their utilization). 8. Kainar, Alma-Ata, pp. 68-72. (Russian). - (*Lab. Reservoirs, Kazakh Res. Inst. Fishery, 152 Kirov Str., USSR-480012 Alma-Ata*).

Larvae of 4 odon. spp. are referred to without listing their names. They accumulate on besoms sunk artificially in water near the shore.

- (1124) LEVI, E.K., 1974. Otryady: Thysanura - schetinkohvostki. Ephemeroptera - podenki. Odonatoptera - strekozy. (Orders: Thysanura - bristle tails. Ephemeroptera - mayflies. Odonatoptera - dragonflies). In: *Zhivot. mir Kirov. obl.* (Anim. World Kirov Distr.) 2: 8-24. Kirov. (Russian). - (*Author's address unknown*).

A brief general characterization of Odon. is followed by a list of 47 spp. known to occur in the Kirov District, USSR.

- (1125) LINDLEY, R.P., 1974. The dragonflies of Korhogo, Ivory Coast. *Bull. Inst. fr. Afr. noire* 36, A (3): 682-698. - (*Barham Court, Barham, Canterbury, Kent CT4 6PD, UK*).

The object of the paper is to provide a

preliminary check-list for the "Zone Dense", Ivory Coast, and to add relevant information on distribution and habitats. The material is presented in 2 main sections: (1) checklist/table based entirely on the specimens taken in the area (nearly 100 spp.), and (2) various notes on selected spp.

- (1126) LOGINOVSKY, E.V., 1974. Makrozoobentos Alakol'shikh ozer. (Macrozoobenthos of the Alakol Lakes). In: Rybnye resursy vodoemov Kazakhstana i ih ispol'zovanie. (Fish resources of the Kazakhstan waterbodies and their utilization). 8. Kainar, Alma-Ata. pp. 73-80. (Russian). — (*Lab. Reservoirs, Kazakh Res. Inst. Fishery, 152 Kirov Str., USSR-480012 Alma-Ata*). Larvae referable to 9 odon. spp. were found only on sandy ground in the Kasharkol Lake. Their biomass was 15 mg/m², and their frequency 5%. The bottom sampling was made in autumn, but neither the sampling technique nor the specific names are stated.
- (1127) MATSUMOTO, K., 1974. (Report on the dragonfly survey in the northern part of Mt. Ibuki). *Gracile* 15: 8-9. (Japanese). — (*2-5 Hanayama-cho, Nagata-ku, Kobe, 653, JA*). 7 spp., incl. *Tanypteryx preyeri*, are reported from 2 localities North of Mt. Ibuki, Shiga and Fukui Prefectures, respectively, and another 6 spp., incl. *Nihonogomphus viridis*, from the western shore of Lake Biwa, Shiga Pref., Japan. The collection date is June 11, 1972. (Cf. Abstracter's note in *OA* No. 1047).
- (1128) MATSUMOTO, K., 1974. (Dragonfly survey at Yamato-kogen). *Gracile* 16: 7-8. (Japanese). — (*2-5 Hanayama-cho, Nagata-ku, Kobe, 653, JA*). A list is given of 19 spp. taken in the area on June 10, 1973. (Cf. Abstracter's note in *OA* No. 1047).
- (1129) MEDVEDEV, S.I., 1974. Data towards the study of the food of Amphibia in the area of the middle section of the Severskly Donets. *Vest. Zool., Kiev* 1974 (1): 50-59. (Russian, with Engl. s.) — (*Fac. Biol., Kharkov Univ., 4 Dzerzhinsky Square, USSR-310078 Kharkov*). The stomach contents of 7 spp. of adult Anura (genera *Bombina*, *Bufo*, *Pelobates*, *Rana*) from the Severskly Donets River, Ukraina, USSR, were examined. The insects (9 orders, incl. Odon.) formed 75-86% of the ingested animals. The food specializations of the predator spp. are discussed in relation to the ecology and habits of the prey.
- (1130) MOSKVITIN, S.S., 1974. Nekotorye biotsenoticheskie svyazi drozda-ryabinnika v raione Srednego Priob'ya. (Some biocenotic relations of *Turdus pilaris* L. in the middle part of the Ob Basin). *Trans. Res. Inst. Biol. Biophys. Tomsk Univ.* 4: 15-22. (Russian). — (*Res. Inst. Biol. & Biophysics, Tomsk Univ., 36 Lenin Av., USSR-634010 Tomsk*). A single adult odon. spec. was found in the stomach of a bird, representing 0.11% of the total number of animals recovered from the stomachs examined.
- (1131) MUSIAŁ, J., 1974. New localities of the dragonfly *Cordulegaster boltonii* (Donov.) (Odonata) from north-western Poland. *Badan. fizijogr. Pol. zachod., (C)* 27: 125-126. (Polish, with Engl. s.). — (*Lab. Gen. Zool., Inst. Biol., Univ. A. Mickiewicz, ul. Fredry 10, PO-61701 Poznan*). Material, collected in 1970 and 1973, is brought on record.
- (1132) NAGASE, K., 1974. (Dragonfly list of Hyonesen and Hachibuse). *Gracile* 16: 3-4. (Japanese). — (*Sanrakuso, 548 Abiko-cho, Sumiyoshi-ku, Osaka, 558, JA*). A list is given of 31 spp. recorded at the two localities, Hyogo Pref., Japan. (Cf. Abstracter's note in *OA* No. 1047).
- (1133) NAGASE, K., 1974. (Observations on pellet projection and cannibalism in the larval *Polycanthagyna melanictera*). *Gracile* 16: 6-7. (Japanese). — (*Sanrakuso, 548 Abiko-*

cho, Sumiyoshi-ku, Osaka, 558, JA).

It was observed, under laboratory conditions, that the larvae of this sp. projected faecal pellets over 30 cm out of water, over the low ridge of the container in which they were kept in high density. It is suggested that this habit is of adaptive value, since in this way the insects prevented the pollution of water. Cannibalism was also often observed in the small containers: the slowly growing ♀♀ were liable to being predated on by the larger ♂ larvae.

- (1134) NAGASE, K., 1974. (Two unusual colour patterns in the wings of *Mnais strigata*). *Gracile 16: 10.* (Japanese). – (*Sanrakuso, 548, Abiko-cho, Sumiyoshi-ku, Osaka, 558, JA*).
- 2 ♂ with pale orange wings were taken at Manno-cho, Kagawa Pref., on Apr. 24-26, 1973, while on June 28, 1973, 3 ♂ with orange transparent wings were captured at Fukuyoshi, Fukuoka Pref., Japan.
- (1135) NAGASE, K., 1974. (*Platycnemis foliacea sasakii* in Shikomu District). *Gracile 17: 17.* (Japanese). – (*Sanrakuso, 548, Abiko-cho, Sumiyoshi-ku, Osaka, 558, JA*).
- This is the first record of this sp. (2 ♂, 2 ♀, Manno-cho, June 20, 1974) for the Shikoku District, Kagawa Pref., Japan.
- (1136) OBANA, S., 1974. (Dragonfly observations at Mt. Kongo). *Gracile 15: 10-11.* (Japanese). – (*3-4-10 Kinryochō, Sakai, 590, JA*).
- 3 spp. incl. larvae of *Epiophlebia superstes*, were collected at Mt. Kongo, Osaka Pref., Japan, on July 23, 1972. (Cf. Abstracter's note in *OA* No. 1047).
- (1137) OBANA, S., 1974. (Summer observations on dragonflies of the Anegawa River). *Gracile 15: 11-12.* (Japanese). – (*3-4-10 Kinryochō, Sakai, 590, JA*).
- A list is given of 10 spp. collected at the Anegawa River, Shiga Pref., Japan, on August 13, 1972. A detailed description of the oviposition behaviour of *Anisogomphus maackii* is also provided. (Cf. Abstracter's note in *OA* No. 1047).
- (1138) OBANA, S., 1974. (Duration of the egg stage in dragonflies). *Gracile 16: 1-3.* (Japanese). – (*3-4-10, Kinryō-cho, Sakai, 590, JA*).
- A table, based on original observations and on literature, of the duration of the egg stage in 67 spp. is presented. In accordance with the duration of this stage, these are divided into 5 groups. A clear distinction between northern and southern spp. is apparent, and also some parallels seem to exist between this feature and the taxonomic affiliation of the spp. involved.
- (1139) OBANA, S., 1974. (*Epiophlebia superstes* at Mt. Kongo). *Gracile 16: 7.* (Japanese). – (*3-4-10, Kinryō-cho, Sakai, 590, JA*).
- 17 ♂, 4 ♀ adult *E. superstes* were captured at a rapid stream in Mt. Kongo, Japan, on May 13, 1973. At the same time the oviposition was observed and the incisions on stems were found. *Lanthus fujiacus*, *Mnais strigata* and *Orthetrum japonicum* were also found on wing at the same locality.
- (1140) OBANA, S., 1974. (Dragonfly observations at Mt. Koya). *Gracile 16: 8-9.* (Japanese). – (*3-4-10, Kinryō-cho, Sakai, 590, JA*).
- Males of *Mnais strigata*, with transparent orange wings, were abundant at the locality on June 17, 1973.
- (1141) OBANA, S., 1974. (Dragonfly observations at the lower Yodogawa river). *Gracile 16: 9.* (Japanese). – (*3-4-10, Kinryō-cho, Sakai, 590, JA*).
- Numerous specimens of *Mortonagrion Hirosei* were captured at this recently discovered locality, on Aug. 19, 1973. Ultimate instar larvae, exuviae and ovipositing ♀♀ of *Pantala flavescens* were also observed at that date at small pools in the same region.
- (1142) OBANA, S., 1974. (Reports on the 25th and 26th meetings of the Kansai Research Group of Odonatology). *Gracile 16: 10-11.* (Japanese). – (*3-4-10, Kinryō-cho, Sakai, 590, JA*).
- The meetings were held at the Osaka Natu-

ral History Museum on Apr. 1, and at the Nara Culture Hall on Nov. 25, 1973, and were attended by 27 and 22 members respectively. Talks were given on 8 topics on ecology, and on 20 topics on distribution.

- (1143) OBANA, S., 1974. (Report on the 28th meeting of the Kansai Research Group of Odonatology). *Gracile* 17: 18. (Japanese). — (3-4-10, *Kinryo-cho, Sakai, 590, JA*).

The meeting was held at the Nara Culture Hall on March 31, 1974 and was attended by 26 members. A paper on the embryology of *Lestes sponsa*, and a preliminary report on the starvation survival were read. (Abstracter's note: In *OA* No. 1047 the title of this note was unfortunately omitted. Cf. also Abstracter's note in *OA* No. 1154).

- (1144) PEAIRS, F.B. & R.E. BUGBEE, 1974. Odonata naiads from Canadohta Lake, Crawford County, Pennsylvania. *Ent. News* 85 (7/8): 225. — (*Dept. Ent., Caldwell Hall, Cornell Univ., Ithaca, N.Y. 14855, USA*). 12 spp. are listed, of which 6 are new records for the County.

- (1145) PRUSEVICH, N.A., 1974. K gidrobiologicheskoi karakteristike nekotorykh ozer Ob'-Ketskoi poimy. (On the hydrobiological features of some lakes in the Ob and Ket floodplain). *Trans. Res. Inst. Biol. Biophys. Tomsk Univ.* 4: 140-142. (Russian) — (*Res. Inst. Biol. & Biophysics, Tomsk Univ., 36 Lenin Av., USSR-634010 Tomsk*).

In the lakes studied *Coenagrion hastulatum* and *Somatochlora sahlbergi* are the most abundant odon. spp.

- (1146) SAMONOV, A.M., 1974. Bentos ozer nizhnei del'ty reki Ili. (Benthos of the lakes in the lower part of the Ili River Delta). *In: Rybnye resursy vodoemov Kazakhstana i ih ispol'sovanie. (Fish resources of the Kazakhstan waterbodies and their utilization)*. 8. Kainar, Alma-Ata. pp. 87-89. (Russian). — (*Lab. Reservoirs, Kazakh Res. Inst. Fishery, 152 Kirov Str., USSR-480012 Alma-Ata*).

Reference is made to the larvae of 11 not further specified odon. spp.

- (1147) SANDHALL, Å., 1974. Insekten und Weichtiere. VLB Verlagsgesellschaft, München-Bern-Wien V + 206 pp. — Price: DM 25.—. — (Author's address: *Bygglövsgränden 9, SW-222 47 Lund*).

German version, prepared by the lepidopterologist W. Dierl, of the book listed in *OA* No. 1091. A book review (in German), by W. Förster, appeared (1975) in *NachrBl. bayer. Ent.* 24 (4): 80.

- (1148) SAUTER, W., 1974. Der Stand der faunistischen Erforschung der Schweiz, Fol. ent. hung. 27 (suppl.): 265-274. — (*Ent. Inst. ETH, Universitätsstr. 2, CH-8006 Zürich*). A review is given of the present state of knowledge on the fauna of Switzerland. Up to 1973, 74 odon. spp. were known to occur in the Swiss territory, while it is expected that only one more sp. will still be found to be autochthonous in Switzerland.

- (1149) SHENDRIK, L.P., 1974. O zoobentose Kapchagaiskogo vodohranilishcha. (On the zoobenthos of the Kapchagai Reservoir). *In: Biologicheskije osnovy rybnogo bozayaistva respublik Srednei Azii i Kazakhstana. Tezisy dokladov (Biological basis of fishery in the Soviet Central Asian republics and Kazakhstan. Abstracts of papers)*. 1. Ylym, Ashakhabad. pp. 129-131. (Russian). — (*Altay Sect., Kazakh Res. Inst. Fishery, 152 Kirov Str., USSR-480012 Alma-Ata*). Unidentified odon. larvae were recorded in the reservoir built on the Upper Ili River.

- (1150) SIBIRTSEVA, L.K., 1974. Zoobentos verhnogo techeniya Syrdar'yi. (Zoobenthos of the Upper Syr Darya). *In: Biologicheskije osnovy rybnogo hozayaistva respublik Srednei Azii i Kazakhstana. Tezisy dokladov. (Biological basis of fishery in the Soviet Central Asian republics and Kazakhstan. Abstracts of papers)*. 1. Ylym, Ashakhabad. pp. 106-107. (Russian). — (*Inst. Zool. & Parasitol., Uzbek SSR Acad. Sci., 34 Sovetskaya Str., USSR-700000 Tashkent*).

Gomphus vulgatissimus inhabits fine-grained near-riverside silt; *Calopteryx splendens* dwells in submerged vegetation in reservoirs.

- (1151) SIBIRTSEVA, L.K. & L.I. AFANAS'YEVA, 1974. *Gidrobiologicheskaya kharakteristika Dzhizakskogo vodohranilishcha*. (Hydrobiological features of the Dzhizak Reservoir). In: *Biologicheskie osnovy rybnogo hozyaistva respublik Srednei Azii i Kazahstana. Tezisy dokladov*. (Biological basis of fishery in the Soviet Central Asian republics and Kazakhstan. Abstracts of papers). 1. Ylym, Ashkhabad. pp. 108-109. (Russian). — (*Inst. Zool. & Parasitol., Uzbek SSR Acad. Sci., 34 Sovetskaya Str., USSR-700000 Tashkent*). In the reservoirs of the Uzbek SSR, *Enallagma cyathigerum* and *Anax imperator* are elements of the phytophilous biocenosis.
- (1152) [SIEEC.] Statuten der Internationalen Symposien für Entomo-faunistik Mitteleuropas (Symposium Internationale Entomofaunisticum Europae Centralis, SIEEC). 1974. *Fol. ent. hung.* 27 (suppl.): 447-449. — (For further information about the organization and the date and place of the forthcoming Symposium contact *Dr. H. Malicky, Biol. Station Lunz, Oesterr. Akad. Wiss., A-3293 Lunz am See*). This is the official (German) version of the Constitution of the International Symposia on the Insect Faunistics of Central Europe (SIEEC). These will be taking place in 2-3 yrs. intervals. The initiative for this scheme has been taken by the Silesian Museum, Opava, Czechoslovakia. The 10 participating countries are: GFR, GDR, Yugoslavia, Austria, Poland, Roumania, Switzerland, USSR, Czechoslovakia and Hungary.
- (1153) SOLONINOVA, L.N., 1974. *Pitanie molodi shchuki v Butharminskom vodohranilishche*. (The diet of young pike in Bukhtarma Reservoir). In: *Rybnye resursy vodoemov Kazahstana i ih ispol'zovanie*. (Fish resources of the Kazakhstan waterbodies and their utilization). 8. Kainar, Alma-Ata. pp. 149-152. (Russian). — (*Lab. Reservoirs, Kazakh Res. Inst. Fish., 152 Kirov Str., USSR-480012 Alma Ata*). Odon. larvae were found in 5% of examined fish stomachs; all in May only. Their weight amounted to 3% of the weight of the total stomach contents. They were eaten by pikes of 5-15 cm body length.
- (1154) TANI, K., 1974. (Report on the 27th meeting of the Kansai Research Group of Odonatology). *Gracile* 17: 17. (Japanese). — (*129 Jizochō, Nara, 630, JA*). The meeting was held at the Nara Culture Hall, on Feb. 10, 1974, and was attended by 16 members. A report was read on a survey trip to Okinawa, while the discussion centred mainly around the survey schedule for the forthcoming season. (*Abstracter's note*: In *OA* No. 1047 the title of this note was erroneously quoted, and that of the note under *OA* No. 1143 was unfortunately omitted altogether).
- (1155) TIMMS, B.V., 1974. Morphology and benthos of three volcanic lakes in the Mt. Gambier district, South Australia. *Aust. J. mar. freshwat. Res.* 25 (3): 287-297. — (*Sci. Dept., Avondale Coll., Cooranbong, N.S.W. 2265, AU*). Lakes Valley, Leake and Edward are medium sized (65 ha) maars, 16, 4.5 and 7 m deep respectively. Each has a low shoreline and a huge volume development. The lakes support at least 24, 12 and 17 benthic spp. respectively. *Hemicordulia tau* is abundant in all of them.
- (1156) TOMINAGA, O., 1974. (Dragonfly observations at Ohyodo-cho). *Gracile* 17: 16. (Japanese). — (*1395, Fukui-cho, Takahata, Nara, 630, JA*). 13 spp., observed at the locality, Nara Pref., Japan on Oct. 20, 1974 are listed. (Cf. *Abstracter's note* in *OA* No. 1047).
- (1157) VERON, J.E.N., A.F. O'FARRELL & B. DIXON, 1974. The fine structure of Odonata chromatophores. *Tissue & Cell* 6 (4): 613-626. — (*Dept. Marine Biol., Sch. Biol.*

Sci., James Cook Univ. North Queensland, P.O.B. 999, Townsville, Queensland 4811, AU).

The appearance, fine structure and pigment composition of the epidermal chromatophores of mature *Austrolestes annulosus* (Lestidae) are described and compared with the developing chromatophores of teneral *Austrolestes* and the mature chromatophores of *Diphlebia lestoides* (Amphipterygidae) and *Ischnura heterosticta* (Coenagrionidae). Mature chromatophores contain masses of near spherical lightscattering bodies and larger irregularly shaped pigment vesicles. These effect colour change by migrating in opposite directions, through a system of interconnecting granular endoplasmic reticulum tubules. The pigment, a mixture of xanthommatin and dihydroxanthommatin, has a liquid or gelatinous consistency. Developing chromatophores of teneral insects lack lightscattering bodies and well-defined migratory pigment vesicles, but contain irregular masses of pigment of similar chemical composition. (Authors).

- (1158) WAKISAKA, K. & I. HIURA, 1974. (Report on the dragonfly survey of the Yodogawa River). *Gracile* 15: 9-10. (Japanese). — (*Higashi 4-97, Nagaicho, Sumiyoshi-ku, Osaka, 558, JA*).

19 spp., incl. *Ceriagrion nipponicum*, were collected at 4 localities along the Yodogawa River, Osaka Pref., Japan, on July 9, 1972. *C. nipponicum* occurs along an open, treeless pond. (Cf. Abstracter's note in *OA* No. 1047).

- (1159) WHITE, III, H.B., P.S. MILIOTIS & C.W. LEAHY, 1974. Additions to the Odonata of Massachusetts. *Ent. News* 85 (7/8): 208-210. — (*Dept. Chem., Univ. Delaware, Newark, Delaware 19711, USA*).

The following spp. are reported from Massachusetts, USA, for the first time: *Argia apicalis* (Say), *A. translata* Hagen, *Coenagrion resolutum* (Hagen), *Enallagma vernale* Gloyd, *Gomphus scudderi* Selys, *Somatochlora cingulata* (Selys), *S. elongata*

(Scudder), *S. forcipata* (Scudder), *S. georgiana* Walker, *S. linearis* (Hagen), *S. williamsoni* Walker and *Pantala hymenaea* (Say). (Authors).

1975

- (1160) ABDULLAH, M., 1975. Recopilación de noticias sobre insectos comestibles con comentarios personales y recetas culinarias. (Review of the edible insects, with comments and culinary recipes). *Graellsia* 29: 225-238. (Spanish, with Engl. s., without translation of the title). — (*Author's address unknown*).

A review is presented of the representatives of 11 orders, recorded in earlier literature (incl. the Bible and Koran) as being edible. Arguments are presented against indiscriminate eating of insects: locusts should be eaten only when freshly killed and properly cleaned. The suggestion is made to consider the feasibility of developing an industry based on locusts. Some original recipes for locust soup, fried locusts, locust salad sandwich, locust curry etc. are also offered. As far as Odon. are concerned, "dragonflies" were recorded as human food in Asia and America, "dragonfly larvae" in Africa and Madagascar, and *Anax guttatus* in Asia. (*Abstracter's note*: The bibliographic references listed are rather incomplete. Among others, there is missing the important paper by J.C. van der Meer Mohr, 1965, *Insects eaten by the Karo-Batak people*. A contribution to entomo-bromatology. *Ent. Ber. Amsterdam* 25: 101-107, in which the larvae of *Anax guttatus*, *Pantala flavescens* and *Tramea limbata euryale* are listed as food of the Karo-Highlanders in northern Sumatra, Indonesia. A recipe for their preparation is also added and it is stated that in *Kaban Djahe* and *Brastagi*, a curry soup, containing odon. larvae, is sold on market days).

- (1161) ASAHINA, S., 1975. A revisional study of the genus *Mnais* (Odonata, Calopterygidae). III. Southwest Chinese and Burmese representatives. *Kontyû* 43 (1): 1-12. — (*Takada-*

nobaba 4-4-24, *Shinjuku-ku, Tokyo, 160, JA*).

The continental Asiatic spp. of *Mnais* ranging from Yunnan to Bengal are revised. Yunnanese *M. andersoni* MacLachlan, Burmese *earnshawi* Williamson, Burmese "microstigma" (nom. nud.) and a Thai *Mnais* are ascribable to a single sp., *andersoni*. A possible "Bengali" specimen is recorded, and a discussion is made regarding a puzzling Burmese species, *M. icteroptera* Frazer. (Author). (For Pts. I, II and IV cf. *OA* Nos. 940, 941 and 1162).

- (1162) ASAHINA, S., 1975. A revisional study of the genus *Mnais* (Odonata, Calopterygidae). IV. Taiwanese and East and North Chinese representatives. *Kontyû* 43 (2): 119-137. — (*Takadanobaba* 4-4-24. *Shinjuku-ku, Tokyo, 160, JA*).

Continental Chinese forms other than the 3 groups treated in the 3 previous papers are revised. *M. tenuis* (Taiwan), *decolorata* (Kansu), *auripennis* (Fukien, Chekiang, Szechuan), *pieli* (Kiangsi), and available representatives from Fukien, Chekiang, Kiangsi, Shansi and Shensi are united into a single taxon, *M. tenuis* Oguma (1913). The main diagnostic characters are found in the general features of the wings, caudal appendages, penile organ and entirely yellowish metepimeron, although the Szechuan material is an exception in the last character (Author). (For Pts. I-III cf. *OA* Nos. 940, 941 and 1161).

- (1163) BELYSHEV, B.F., & A. YU. HARTONOV, 1975. O sistematičeskom i nomenklaturnom položzeniyah severnogo evraziatskogo vida *Sympycna braueri* Bianchi (Odonata, Lestidae). [On the taxonomic position and nomenclature of the north- Eurasian species *Sympycna braueri* Bianchi (Odonata, Lestidae)]. *Trudy Stolby* (Vopr. Ekol.) 1975 (10): 189-198. (Russian). — (*Biol. Inst., Siberian Sect. Acad. Sci. USSR, Ul. Frunse 11, USSR-630091 Novosibirsk*).

The generic name *Sympycna* Charpentier, 1840 and the sub-family name *Sympycnati-*

nae nom. nov. are proposed. The genus includes 4 spp., viz. *fusca* (Vander Linden, 1823), *braueri* Bianchi, 1905 (with the spp. *striata* St. Quentin, 1963, in the north, and *braueri* in the south), *gobica* Foerster, 1900, and *annulata* Selys, 1887. Save for *annulata*, illustrations of the body design and anal appendages of all forms are provided. (*Abstracter's note*: In their considerations concerning the name *Sympycna* and its derivative *Sympycnatinae* nom. nov. the authors do not follow the Code of Zoological Nomenclature as now in force, and the history of the term *Sympycna* is not set forth quite correctly. For the correct statement of the spelling problem, *Sympycna* versus *Sympycna*, and its definite solution cf. C. Longfield, 1954, *Ent. Mo. Mag.* 90: 145, and D. St. Quentin, 1963, *Annln naturh. Mus. Wien* 66: 381).

- (1164) BULLA, L.A., 1975. Clave para la identificación de los Odonata Zygoptera de la Republica Argentina al sur del paralelo 30°S (Odonata). [A key for the identification of Odonata Zygoptera of the Argentine Republic south of the 30° parallel (Odonata)]. *Revta Soc. ent. Arg.* 34 (3-4) [1973-1974]: 217-228. (Spanish with Engl. s.). — (*Inst. Limnol., Fac. Cienc. Nat. y Mus., Pase del Bosque, La Plata, Argentina*). A key is provided for the adults of both sexes (incl. the heteromorphic ♀ forms), and the ♀ mesostigmal laminae and some other characters are illustrated.

- (1165) CARNELUTTI, J., 1975. Insects in the Triglav National Park and its surroundings. In: S. Peterlin [Ed.], *Fifty years of the Triglav National Park*, pp. 46, 52, 57-58, 64-66. Natural History Society of Slovenia, Ljubljana. (Slovene, with Engl., Ital. and German s's). — (*Inst. Biol., Slovene Acad. Sci. Arts, Novi Trg 3, YU-61000 Ljubljana*). This is a reprint of the publication listed in *OA* No. 775. Extensive summaries are added to the original text.

- (1166) CORDULIA. *Cahier d'amateurs*. Published by the Collège Bourget, Rigaud, Quebec,

Canada; Edited by R. Hutchinson & A. Larochelle, Collège Bourget. Annual subscription: Can.\$ 2.-. Vol 1 (1975), No. 1 (Jan), No. 2 (March), No. 3 (June). (French). - (c/o Mr. R. Hutchinson, Collège Bourget, Rigaud, Que., CA).

This is a French language quarterly, devoted to Odon. and Carabidae (Coleoptera) and intended for young French Canadian entomologists.

(No. 1) (all articles by R. Hutchinson): Presentation; - *Cordulia shurtleffi*, une libellule du Québec; - *Lestes unguiculatus*, proie d'une araignée; - Suggestion d'activités; - Collection de libellules adultes; - Observation de dortoirs; - Quelques *Somatochlora* de la région de Port-au-Saumon; - Captures d'*Ophiogomphus* à Port-au-Saumon; - Bibliographie: manuels d'identification; - Boîte aux questions; - Notes bibliographiques: Adrien Robert, c.s.v.

(No. 2) (all articles by R. Hutchinson): Les 1001 questions sur les insectes; - *Aeshna umbrosa* Walker, libellule du Québec; - Catalogues des odonates du Québec (première partie: Zygoptères); - Fiches pour l'étude des moeurs d'un odonate.

(No. 3) (if not stated otherwise, all articles by R. Hutchinson): Catalogue des odonates du Québec (première partie: Zygoptères (suite)); - Captures de *Lestes eurinus* Say près de Port-au-Persil; - Récolte d'un reste d'*Aeschna*; - Un *Aeschna* se nourrit au crépuscule; - Tentatives d'accouplements précoces d'*Enallagma*; - Comportement curieux d'un *Plathemis lydia* Drury mâle; - Des larves de libellules dans une piscine; - La journée d'une libellule adulte; - Une femelle qui se cache dans les framboisiers?; - Sur la ponte de libellules dans un étang temporaire; - Autres observations sur les dortoirs de libellules; - Libellules prises dans des toiles d'araignées; - Quelques libellules printanières (by G. Joubert & R. Hutchinson); - Les libellules ont-elles un territoire? (*Abstracter's notes*: Nos. 2 and 3 contain also a few articles on Carabidae by A. Larochelle, that are not listed in the above text. - English abstracts are available

from R. Hutchinson, or from the Editors of *Odonatologica*).

- (1167) DICKEHUTH, R. & B. DICKEHUTH, 1975. Phänologischer Beitrag zur Odonatenfauna des Bezirkes Bad Lippspringe - Paderborn. Ent. Z., Stuttgart 85 (14): 153-163. - (*Arminiuspark 3-5, D-4792 Bad Lippspringe, GFR*).

Phenological observations are recorded for 24 spp. of the area Bad Lippspringe-Paderborn, Westfalia, German Federal Republic.

- (1168) DUNKLE, S.W., 1975. New records of North American anisopterous dragonflies. Fla Ent. 58 (2): 117-119. - (*South Campus, Santa Fe Community College, Gainesville, Fla 32601, USA*).

New state records for the continental USA and new early or late dates of flight are listed for 23 spp.

- (1169) FABRY, K.E., 1975. Novoe o povedenii strekoz. O knige A. Heymera "Izuchenie povedeniya strekoz. K poznavaniyu etologii i evolyucii Calopterygidae". A. Heymer. Verhaltensstudien an Prachtlibellen. Beiträge zur Ethologie und Evolution der Calopterygidae Selys, 1850 (Odonata; Zygoptera). Berlin und Hamburg, Paul Parey, 1973, 100 S, 50 Abb. [News on dragonfly behaviour. On the book of A. Heymer "Studies on dragonfly behaviour. Contribution to the ethology and evolution of Calopterygidae". A. Heymer. Verhaltensstudien an Prachtlibellen. Beiträge zur Ethologie und Evolution der Calopterygidae Selys, 1850 (Odonata: Zygoptera). Berlin und Hamburg, Paul Parey, 1973, 100 S, 50 Abb.]. Bull. Moscow Soc. Naturalists (Biol.) 80 (1): 151-152. (Russian, with Engl. transcription of author's name). - (*Fac. Psychol., Univ. Moscow, Lenin Hills, USSR-117234 Moscow*).

Extensive review of the publication listed in *OA* No. 309. (Cf. also *OA* No. 479).

- (1170) GAMBLES, R.M., 1975. A new species of *Chlorocypha* Fraser, 1928 (Odonata: Chlorocyphidae) from Nigeria, and some

new or little-known Nigerian subspecies of forms better known from the Cameroons. *Ent. Mo. Mag.* 110 (1974): 105-121. — (*Windings, Whitchurch Hill, Reading RG8 7NU, UK*).

C. centripunctata sp. n. is described and illustrated from the Nigeria-Cameroons border, the difference between the faunas of Nigeria and the Cameroons is referred to, and separate Nigerian ssp. are described or redescribed of 3 well-known Cameroons spp., viz. *C. glauca glauca* (Sel.), *C. glauca radix* Longfield, *C. selysi selysi* (Karsch), *C. selysi nigeriensis* ssp. n., *Pseudagrion sjoestedti sjoestedti* Förster and *P. sjoestedti nigeriensis* ssp. n. *Chlorocypha pavonis* Liefertinck, 1973 is found to be identical with *C. glauca radix* Longfield, 1959.

- (1171) GRZIMEK, B. [Ed.], 1975. *Encyclopaedia of animals. Vol. 2: Insects.* Engl. translation from Vol. 2 of "Das Tierleben", Kindler, Zürich (1969). Published in England by Van Nostrand Reinhold (*Molly Millars Lane, Wokingham, Berks.*) and in the USA by the same Publishers (*450 West 33rd Str., New York, N.Y. 10001*). 643 pp. — Price: £12.—; US\$ 29.95.

This is a general survey of insects, aimed at the general public. The accounts will be especially interesting and stimulating to the secondary-school biology student. The odon. part was contributed by P. Rietschel (Zool. Inst., Univ. Frankfurt/Main, GFR). A systematic classification is provided for genera and supergeneric taxa, and lists are presented of Engl., Germ., French and Russ. common names. Metric conversion tables are included, together with a list of further reading and a taxonomic index.

- (1172) HEYMER, A., 1975. *Der stammesgeschichtliche Aussagewert der Pterostigma Oberflächenfeinstruktur bei Odonaten.* *Z. zool. Syst. Evolutionsforsch.* 13 (2): 81-91. (With Engl. and Fr. s's.). — (*Lab. d'Ecol. Gén., Mus. Natn. Hist. Nat., 4 av. du Petit Château, F-91800 Brunoy*).

Stereoscan microscope studies of the pterostigma surface in Odon. have shown

that its ultrastructure is phylogenetically significant, indicating evolutionary affinities. The constitution of the ultrastructure, however, is not suitable for the distinction of genera; according to the present evidence all genera of the same family exhibit the same ultrastructural pattern. In the present paper special attention is being paid to the complex superfamily Calopterygoidea, and a new phylogenetic arrangement of its different families is suggested. (Author). (Cf. also *OA* No. 580).

- (1173) HEYMER, A., 1975. *Der stammesgeschichtliche Aussagewert des Verhaltens der Libelle Epallage fatime* Charp. 1840. *Z. Tierpsychol.* 37: 163-181. (With Engl. and Fr. s's.). — (*Lab. d'Ecol. Gén., Mus. Natn. Hist. Nat., 4 av. du Petit Château, F-91800 Brunoy*).

The phylogenetic implications of the behavioural patterns of *E. fatime* (Zygoptera: Euphaeidae) are considered. The larva of this sp. is a litho-rheobiont. The morphological similarities to Gomphidae (Anisoptera), resulting from this habitat adaptation, as well as the similarities in exuviation behaviour, also arising from identical ecological niches, point to a clear case of convergence. The lateral abdominal appendages which may be termed "ephemeropteroid" characteristics are present among the Odon. only in the oriental Euphaeidae and the neotropical Polythoridae, which gives these two families a particular phylogenetic status. Epallage ♂ capable of reproduction in a particular display posture, occupy temporary perch sites where they "await" the sexually motivated ♀♀. Egg laying occurs with the ♂ attached to the ♀ in the primitive "Lestes type". The phylogenetic value of the various behaviour patterns is discussed; affinities to the Calopterygidae (Calopterygoidea) could not be demonstrated, therefore the erection of a new superfamily, Euphaeioidea, embracing the families Euphaeidae and Polythoridae, is proposed. (Author).

- (1174) HARRIDGE, G.A. [Ed.], 1975. The com-

pound eye and vision of insects. Clarendon Press, Oxford. VI + 595 pp. — (Author's address' *Res. Sch. Biol. Sci., Austral. Nat. Univ., P.O.B. 475, Canberra, A.C.T. 2601, AU*).

This is a collection of 25 papers, by various authors, submitted at the symposium on eye and vision of insects, held during the XIVth International Congress of Entomology, Canberra, 1972. These are organized into 6 chapters, viz. "Receptor anatomy", "Receptor physiology", "Optics", "Electrophysiology of the optic lobe", "Behavioural analysis" and "Ocellus". References to Odon. are made in several places.

(1175) HŮRKA, K. & P. ŠTYS, 1975. The present state and prospects of insect taxonomy in Czechoslovakia. *Acta ent. bohemoslov.* 72 (3): 145-155. — (*Dept. Syst. Zool., Charles Univ., Viničná 7, CZ-128 44 Praha-2*).

The present state of the study of insect taxonomy and closely related disciplines of entomology in Czechoslovakia is analyzed and critically evaluated from various points of view. Prospects of taxonomic research, its present shortcomings and possible future lines of development are discussed, and some organizational measures proposed. The study of the Czechoslovak fauna of the amphibious orders, incl. Odon. (Plecoptera, Ephemeroptera, Megaloptera, Trichoptera) is considered practically finished, while attention is focused on the identification characters of preimaginal and imaginal stages. (Cf. also *OA* Nos. 1002, 1121).

(1176) JURZITZA, G., 1975. Rasterelektronenmikroskopische Untersuchungen an den appendices und den laminae mesostigmales einiger Enallagma-Arten (Odonata, Zygoptera). *Forma et Functio* 8: 33-48. (With Engl. and Fr. s's.). — (*Bot. Inst. 1, Univ. Karlsruhe, Kaiserstr. 12, D-75 Karlsruhe, GFR*).

Scanning electron microscope studies of the superior appendages, the mesostigmal laminae and the δ copulatory organs were performed on 7 spp. of the *Enallagma*

cyathigerum-deserti group. Considering the position of apical lobe and subapical tooth on δ superior appendages, 2 groups of spp. were found: (1) In *cyathigerum*, *hageni* and *vernale* the lobe covers part of the tooth, while (2) in *boreale*, *deserti* and *circulatum* both are situated side by side. It is suggested that the latter 3 taxa should rank as ssp. of a single sp., viz. *E. deserti* Selys, 1871. Californian *cyathigerum* shows differences in the structure of the superior appendages and the mesostigmal plates, hence it should be regarded as a distinct ssp. Due to the small material available, however, for the time being the author refrained from assigning a name to it. (Cf. also *OA* No. 968).

(1177) JURZITZA, G., 1975. Falter frassen mir aus der Hand. *Kosmos* 71 (8): 309-312. — (*Bot. Inst. 1, Univ. Karlsruhe, Kaiserstr. 12, D-75 Karlsruhe, GFR*).

Biologist's impressions from a visit to the Iguazú Waterfalls in the three-countries-corner, Brazil-Argentina-Paraguay. Though butterflies represent the main subject of the account, the article includes also a note on Odon., viz. *Pantala flavescens* and *Orthemis ferruginea*. Brief observations on the behaviour (incl. sexual behaviour) of the latter are also provided.

(1178) KANSAI RESEARCH GROUP OF ODONATOLOGY (Ed.: I. Hiura), 1975. Dragonfly fauna of the Kinki District, Central Japan. Part 2: Cordulegasteridae, Aeshnidae, Macromiidae and Corduliidae. *Spec. Pubs Osaka Mus. Nat. Hist.* 7: 28-53. (Japanese, with Engl. translation of the title). — (*c/o Dr. I. Hiura, Osaka Mus. Nat. Hist., Nagai Park, Higashinagai-cho, Higashiumiyoshi-ku, Osaka, 546, JA*).

This is the second part of a series on the odon. fauna of the Kinki District, Japan (cf. Abstracter's note in *OA* No. 307). The paper deals with 21 spp. of the 4 families (Cordulegasteridae 1, Aeshnidae 13, Macromiidae 3, Corduliidae 4). The collection data of an *Anax* sp., presumably a hybrid *A. parthenope julius* X *A. nigrofasciatus*,

are also given. Histograms of the seasonal occurrence of all 21 spp. and that of 13 spp. of Gomphidae are also presented. (For Pt. I of the series cf. *OA* No. 786).

- (1179) KHARITONOV, A. YU., 1975. Life conditions of larvae phases of dragonflies in Transpolar regions. [Sic!]. *Ekologiya* 1975/3: 96-99. (Russian, with Engl. translation of the title). — (*Biol. Dept., Siberian Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091 Novosibirsk*).

A review is given of the abiotic conditions and densities of odon. larvae populations in 9 breeding sites above the Arctic Circle, USSR, and the patterns of larval development under the Arctic conditions are analyzed.

- (1180) KLECKER, R., 1975. Was erwartet Berchtesgaden vom Nationalpark Königssee und Alpenpark Berchtesgaden? Nationalpark 1975 (2): 19-25. — (*Gemeindehaus Berchtesgaden, Berchtesgaden, Bavaria, GFR*).

Considerations are presented on the economic and scientific importance of the planned foundation of an alpine national park in Berchtesgaden, German Federal Republic, centred around the well known Nature Reserve Königssee. An account of general aspects of plant and animal life of the Königssee lake (littoral, free water, deep water) is given, incl. a brief reference to the Odon. (no spp. list). Among several instructive photographs of the main biotopes, there is also a colour picture of a copula of *Ischnura elegans*. (*Abstracter's note*: No reprints are available from the author. The journal issue can be obtained, at the price of DM 3.—, from the publishers, Verlag Morsak, D-8352 Grafenau, GFR).

- (1181) LEE, N.R. & M.S. MULLA, 1975. Impact of Altosid on selected members of an aquatic ecosystem. *Environ. Ent.* 4 (1): 145-152. — (*Kern Mosquito Abatement Dist., P.O.B. 9428, Bakersfield, Cal. 93304, USA*).

Repeated treatments of the insect growth

regulator, Altosid EC₄ (isopropyl 11-methoxy-3,7,11-trimethyl-2,4-dodecadienoate), at the rate of 0.1 ppm (0.27 lb/acre) to experimental ponds, reduced abundance of several arthropod prey and predator spp. Because of the size differential among affected spp. the altered community biomass reflected the impact of Altosid more profoundly than abundance. After the larvae of *Laccophilus* sp. (Coleoptera, Dytiscidae), odon. larvae represented the 2nd major group of predators throughout the study. They preyed heavily on mosquitoes and ostracods, and were not affected by Altosid.

- (1182) MYKLEBUST, R., 1975. The ultrastructure of the myocardial cell in the dragonfly *Aeschna juncea* (L.). *Norw. J. Zool.* 23: 17-36. — (*Inst. Anat., Univ. Bergen, Årstadveien 19, N-5000 Bergen*).

The ultrastructure of the myocardial cell is described. The cell is striated, Z-I-A- and H-bands are found. The contractile material consists of thick and thin filaments, and each thick filament is surrounded by 9-11 thin filaments. The sarcomeres exhibit supercontraction as the minimum length is less than the length of the thick filaments. The T-tubule system and the sarcoplasmic reticulum are well developed. The couplings are both of the dyadic and the triadic form. (Author).

- (1183) PAASIVIRTA, L., 1975. Insect emergence and output of incorporated energy and nutrients from the oligotrophic lake Pääjärvi, southern Finland. *Ann. zool. fenn.* 12 (2): 126-140. — (*Lammi Biol. Stn, SF-16900 Lammi, Finland*).

The insect emergence in a dysoligotrophic lake was studied for several yrs with the aid of tent and funnel traps. The annual emergence of insects represents 0.2% of the organic matter, 0.5% of the nitrogen and 0.2% of the phosphorus that accumulates yearly in the lake. The output of the littoral is 96%, though the area of the littoral is only 48% of the whole lake area. The only odon. sp. of which more than 1 spec.

- was trapped is *Erythromma najas*. The other spp. recorded are *Coenagrion hastulatum*, *Enallagma cyathigerum* and *Somatochlora metallica*. (*Abstracter's note*: In the head of the paper/reprint the volume number and the publication date are erroneously printed as vol. 11, 1974).
- (1184) PARRACK, J., 1975. Records. Odonata. *Vasculum* 60 (2): 7. – (c/o Mr. T.C. Dunn, Ed., *The Poplars, Chester-Le-Street, UK*). *Sympetrum danae* is recorded for Muckle Moss, UK.
- (1185) PFAU, H.-K., 1975. Zwei neue Kleinlibellen (Odonata, Zygoptera – möglicherweise Platycnemididae) aus dem baltischen Bernstein. Stuttgart. Beitr. Naturk. (A) 270: 1-7. – (*Zool. Inst., Univ. Saarbrücken, D-6600 Saarbrücken, GFR*). The imagos of 2 zygopteran spp., contained in the amber specimens Nos. 3B 696 and K 8088 of the Königsberg Amber Collection in the Institute of Geology and Paleontology of the University of Göttingen, German Federal Republic, are described and illustrated. They represent 2 distinct, hitherto undescribed platycnemididae-like spp. No taxonomic names are assigned.
- (1186) PIECHOCKI, R., 1975. Makroskopische Präparationstechnik. Leitfaden für Sammeln, Präparieren und Konservieren. Teil II. Wirbellose. Fischer, Jena. 349 pp. – Price: M 32.–. (*Zool. Mus., Martin Luther Univ., Halle-Wittenberg, GDR*). This is a handbook for collecting and preparation of invertebrate material, ranging from Porifera to Protochordata. The introductory chapter deals with general methods and equipment for collecting, and with the methods of transportation of field collections. The bulk of the book deals with each group separately, Odon. being treated on pp. 266-273. Next to the collecting techniques for dragonflies, the various methods of preparation of specimens are described in considerable detail. Of particular interest are the accounts of the techniques for the preservation of natural eye and body coloration.
- (1187) PROGRAMME OF THE THIRD INTERNATIONAL SYMPOSIUM OF ODONATOLOGY. Lancaster, 1975. Issued by the University of Lancaster in conjunction with the Department of Biological Sciences. Lancaster, 12 pp. – (c/o Dr. T.T. Macan, *Freshwater Biol. Assoc., Ferry House, Ambleside, Westmorland LA22 0LP, UK*). Contents: Symposium Committee, Guest of Honour, Sponsor, [general] Information, Programme, Societas Internationalis Odonatologica, Odonatologica, List of participants. (cf. also *OA* No. 1084. – For the programs of the first 2 international symposia cf. *OA* Nos. 2 and 530 respectively). (*Abstracter's note*: The 1975 S.I.O. membership fee is stated erroneously).
- (1188) ROBEY, C.W., 1975. Observations on breeding behavior of *Pachydiplax longipennis* (Odonata: Libellulidae). *Psyche* 82 (1): 89-96. – (*Mus. Comp. Zool., Cambridge, Mass. 02138, USA*). Observations are reported of 3 Massachusetts, USA, populations. While the territorial and mating behaviour is similar to that described by Johnson (1962, *SWest. Nat.* 7: 191-197), the earlier findings are extended in some areas. In addition, the coloration in ultraviolet light is described and speculations are offered as to the behavioural significance of the high reflectance of areas of blue pruinescence.
- (1189) SANDHALL, Å., 1975. Insekten en andere kleine dieren. (Insects and other small animals). Zomer & Keuning, Wageningen. VI + 208 pp. (Dutch). – Price: Hfl. 35.–. – (Author's address: *Bygglövsgården 9, SW-222 47 Lund*). Dutch version, prepared by the entomologist W.J. Kabos, of the book listed in *OA* No. 1091.
- (1190) SCHMIDT, E., 1975. Zur Libellenfauna zweier Heidweiher bei Flensburg. *Heimat, Kiel* 82 (7/8): 207-209. – (*Biol. Seminar, Pädagogische Hochschule, Mürwikerstr. 77, D-239 Flensburg, GFR*). A review of and considerations on the

odon. fauna (23 spp.) of 2 bog pools in the dunes nr. Trefsee, Flensburg, Schleswig Holstein, German Federal Republic, are presented.

- (1191) TENNESSEN, K.J., 1975. Description of the nymph of *Somatochlora provocans* Calvert (Odonata: Corduliidae). Fla Ent. 58 (2): 105-110. — (*Dept. Ent. & Nematol., Univ. Florida, Gainesville, Fla 32611, USA*).

The larva of *S. provocans*, previously undescribed, is morphologically similar to those of *S. elongata* (Scudd.), *S. minor* Calv., and *S. walshii* (Scudd.). It can be distinguished from *elongata* by the shorter hind tibiae, from *minor* by the absence of a dorsal hook on abd. segment 3, and from *walshii* by the medium anal appendage being longer than the lateral appendages. The description and illustrations are based on material from a small lake inlet with sphagnum covered edges, Cheraw State Park, Chesterfield County, South Carolina, USA.

- (1192) UBUKATA, H., 1975. Life history and behaviour of a corduliid dragonfly, *Cordulia aenea amurensis* Selys. II. Reproductive period with special reference to territoriality. J. Fac. Sci. Hokkaido Univ. (VI), 19 (4): 812-833. — (*Zool. Inst., Fac. Sci., Hokkaido Univ., Sapporo, 060, JA*).

The observations were carried out at a dystrophic pond nr. Sapporo, Japan, from 1970 through 1974. (1) The reproductive period was June 12 – August 17 (♂) and June 19 – August 6 (♀) in 1971, generally coinciding with the results in 1970, '73 and '74, with the peak from late June to mid July. Studies of marking and recapture revealed the maximum and mean ♂ adult longevities respectively as 45 and 10.3 days (1970). The sex ratio at the pond during the reproductive period was extremely biased: 928 (98.6%) ♂♂ and 9 (1.4%) ♀♀ in 1971, apparently caused by the behavioral difference between sexes. (2) The pattern of diurnal flight activity at the pond is typically plateau-shaped, extending over: 4:40 – 19:00 on clear days at the end of

June. The activity is suppressed completely by cool air temperature lower than 5.8°C or ordinary rain, while only lowered by strong reduction of illumination or slight rain. No suppression by high temperature (28.8°C) or strong wind (force of wind – 5) was recognized. (3) Behaviour patterns exhibited at the reproduction site are classified and described: ♂ behaviour; patrol flight, attack, feeding, self-cleaning, sperm transfer, resting and bathing. ♀ behaviour; pre-mating flight, oviposition and resting. Mating behaviour; pretandem, tandem, copula, sexual chase and triple connection. (4) Localization and spacing by the ♂ territorial behaviour are discussed in relation with population density and its heterogeneity among sectors. As the function of territory in *C. aenea*, prevention of interference with mating is assumed. (Author). (For Pt. I cf. OA No. 609).

- (1193) VENEMA, P., 1975. Nieuwe impulsen voor de libellenstudie in Twente. Overzicht van de libellen (Odonata) van Twente. [New impulses for dragonfly study in Twente. Survey of the Twente dragonflies (Odonata)]. Natuur en Museum, Enschede 19 (2): 1-10. (Dutch). — (*c/o Natuurmuseum, Tromplaan 19, Enschede, NL*).

A brief outline of the history of the inventarisation of the odon. fauna of the Twente region, Netherlands, is followed by an annotated list of 40 spp. so far recorded from the region. Among these, 4 spp. are tyrphophilous and 8 are rheophilous. A brief indication of the biotype preference is stated for each sp., and a complete list of bibliographic references on the local fauna is provided.

- (1194) WALKER, E.M. & P.S. CORBET, 1975. The Odonata of Canada and Alaska. Vol. III. Part 3: The Anisoptera – three families. Univ. Toronto Press, Toronto & Buffalo. 307 pp., 1 portrait. — Price: Can.\$ 25.—. (Address second author: *Dept. Zool., Univ. Canterbury, Christchurch, NZ*; — Publisher's address: *Toronto M5S 1A6, Ont., CA*, or *33 East Tupper St., Buffalo, NY 14203, USA*).

This is the third and last volume of the late Professor Walker's classical monograph on the Canadian dragonflies. (The first 2 volumes appeared at the same Publishing House in 1953 and 1958 respectively, and are still available). It is largely based on Walker's manuscript notes and illustrations, but the final responsibility for the completion and publication of this volume lies with Professor Corbet. Though limited to the Canadian fauna, the wealth of information presented makes the book indispensable to anybody seriously interested in the order. — While the 2 preceding volumes deal, respectively, with the Zygoptera and with 4 families of the Anisoptera (Aeshnidae, Petaluridae, Gomphidae, Cordulegasteridae), the third volume deals with the Libelluloidea, encompassing the families Macromiidae, Corduliidae and Libellulidae (76 spp. of 20 genera). (Including the additions to the Canadian fauna, published in an appendix at the end of this volume, so far 193 spp. are known from Canada, of which 51 are Zygoptera). The contents of the present volume are arranged and treated almost exactly as in the preceding 2 volumes. To comply with Walker's intention regarding this volume and to conform with his practice in preceding volumes, spp. have been listed in the order that reflects Walker's assessment of their affinity. The superfamily Libelluloidea and each family and genus are prefaced by a section describing the principal distinguishing features of each, first of adults and then of larvae. This section is normally short, but is most detailed for the 3 genera that are primarily north-temperate in distribution and, therefore, particularly strongly represented in Canada and Alaska (*Somatochlora*, *Sympetrum*, *Leucorrhinia*). — The information presented for each sp. includes keys to and detailed descriptions of larval and adult stages, notes on habitat and range, and on distribution in Canada and Alaska. Particularly valuable are also the "Field notes", containing information related to flight period, seasonal life history, habitat (of adults and larvae) and to behaviour. Corri-

genda to volumes I-II, and a rather extensive bibliography, appearing at the end of the book, will be also very useful. — Dr. Corbet accepted the invitation for completion and revision of the manuscript of the present volume in April 1964; his all-round odonatological experience and his familiarity with the North American fauna enabled him to bring his task to a marvelous conclusion. By completing and revising Walker's original manuscript and thus enabling the complete publication of Walker's outstanding 3-volume monograph, he did the best possible service to the memory of the late first author, and greatly obliged the present and the forthcoming generations of odonatologists. — (*Abstracter's note*: For Walker's autobiographic sketch, his odonatological bibliography, the evaluation of his odonatological work, and for a review of his manifold accomplishments in biology in general, cf. the specially prepared tribute volume: Wiggins, B., [Ed.], 1966. Centennial of entomology in Canada 1863-1963. A tribute to Edmund M. Walker. Univ. Toronto Press. 94 pp.).

- (1195) WENGER, O.P., 1975. Keine Angst vor Teufels-Nadeln! Wer Libellen beim Schlüpfen beobachten will, muss früh aufstehen. *Das Tier* 15 (7): 41-42. — (*Postfach 2532, CH-3001 Bern*).

A popular account on the life of dragonflies, accompanied by a number of beautiful colour and black-and-white photographs. (*Abstracter's note*: No reprints are available from the author. The issue of the journal can be obtained from the Publishers: Hallwag Verlag, Nordring 4, CH-3001 Bern, for the price of sFr. 3.60).

- (1196) WESTFALL, M.J., Jr., 1975. A new species of Gomphus from Arkansas (Odonata: Gomphidae). *Fla Ent.* 58 (2): 91-95. — (*Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA*).

G. ozarkensis sp. n. (♂, ♀) from Arkansas, USA, is described, figured and compared in detail with *G. crassus* Hagen. *G. hybridus* Williamson is removed from the Arkansas state list.

- (1197) YANO, K., T. MIURA, K. NOHARA, T. WONGSIRI, P.W. RESMA & L.H.Y. LEE, 1975. Preliminary evaluation on the use of a modified Malaise trap in paddy fields. *Mushi* 48 (11): 125-144. — (*Ent. Lab., Fac. Agric., Kyushu Univ., Fukuoka, JA*).
The modified Malaise trap is described and its insect catches are analyzed. These also include 2 not further identified zygopteran specimens. Dragonflies were thus scarcely seen in the trap catches, though they were abundant at the same site. Anisoptera were also seen in the sites of this study, but they were never collected by the trap. This is in accordance with observations in a forest by Matthews & Matthews (1970, *Jl N.Y. Ent. Soc.* 78: 52-59).
- (1198) ZACHETNOVA, T.I., 1975. K izucheniyu bentosa r. Urala. (On the study of benthos of the Ural River). *Gidrobiol. Zh.*, Kiev 11(2): 34-38. (Russian, with Engl. s.). — (*Ural-Caspian Sect., Central Res. Inst., Sturgeon Fishery, Baklyshi, USSR-466400 Gur'yev*).
- The number of odon. larvae in the benthos of the Ural River, USSR, is 1 specimen/m², the biomass amounts to 0.36g/m², the frequency in 1/40 m² bottom sampler catches is 4%, and the density index 1.18. *Gomphus vulgatissimus* is the most abundant sp.
- (1199) ZAHVATKIN, YU.A., 1975. *Embriologiya nasekomyh. Kurs lektsii.* (Insect embryology. A series of lectures). *Vysshaya Shkola, Moscow*. 328 pp. (Russian). (*Dept. Ent., Moscow Univ., Lenin Hills, USSR-117234 Moscow*).
A short university text book. The odon. part appears on pp. 166-185.
- (1200) ZASLAVSKY, V.A., 1975. The spread of the staged photoperiodic reactions among insects and mites. *Ent. Obozr.* 54 (2): 291-304. (Russian, with Engl. translation of the title). — (*Inst. Zool., Acad. Sci. USSR, Leningrad, USSR*).
The only odon. sp. considered is *Anax imperator*.

ERRATA

Dr. JEAN BELLE has drawn the Editors' attention to the following errors in two of his papers:

Odonatologica 2 (4): 296, line 3 from below: "... less acute in *intricatus* ..." should read: "... less acute than in *intricatus* ...".

Odonatologica 4 (2): 65, line 11 from below: "No figure was ever published ..." should read: "No accurate figure was ever published ...".

The following are the more serious errors that slipped into the text of the ODONATOLOGICAL ABSTRACTS:

No. 681 (Vol. 3, No. 3, p. 195): The authors of the paper are SNYDER, A.W., R. MENZEL & S.B. LAUGHLIN, and not A.W. Snyder alone, as erroneously indicated.

No. 765 (Vol. 3, No. 4, p. 282, lines 6-8 from below): "... The Second Colloquium was scheduled ... at Erlangen ..." should read: "... The Second Colloquium was scheduled ... in Guttau ...".

Nos. 771 and 772 (Vol. 3, No. 4, p. 283): These are two *different* papers, viz. two parts of a series. Hence, the titles should read as follows: No. 771: "(Dragonfly collecting and photographing trip to Hokkaido. I. Chimikkep Lake)", and No. 772: "(Dragonfly collecting and photographing trip to Hokkaido. II. Akan Lake and Kushiro Marsh)". Contrary to the statement in abstract No. 772, the texts of the two papers are *not* identic.