

ODONATOLOGICAL ABSTRACTS

1971

- (2859) REDDELL, J.R., 1971. A preliminary bibliography of Mexican cave biology. Bull. Assoc. Mexican Cave Stud. 3: 1-184. — (Dept. Biol., Texas Tech. Univ., Lubbock, Texas 79409, USA).

A taxonomically arranged checklist of all spp. of fungi and animals reported from Mexican caves (with locality names and bibliographic references) is followed by a list of caves and by a bibliography. Odon. are dealt with on pp. 51-53. The following spp. are listed: *Acanthagrion gracile*, *Argia gaurmeri*, *A. translata*, *Protoneura corculum*, *Telebasis filiola*, *T. salva*, *Brachymesia furcata*, *Cannaphila funerea*, *Dythemis sterilis*, *Erythemis plebeja*, *E. simplicicollis*, *Erythrodiplax connata*, *Libellula gaigei*, *Micrathyria debilis*, *M. hageni*, *Orthemis ferruginea*, *O. levis*, and *Perithemis domitia*. The bibliography contains 9 odonatol. titles (L.K. Gloyd, D. McKenzie, N.B. Marshall & G.L. Thinès, J.R. Reddell, L.M. Roth, L.M. Roth & E.R. Willis, E.B. Williamson). (Cf. also *OA* Nos. 2755, 2866).

1972

- (2860) KLEKOWSKI, R.Z., E. FISCHER, Z. FISCHER, M.B. IVANOVA, T. PRUS, E.A. SHUSHKINA, T. STACHURSKA, Z. STEPIEŃ & H. ZYROMSKA-RUDZKA, 1972. Energy budgets and energy transformation efficiencies of several animal species of different feeding types: In: Z. Kajak & A. Hillbricht-Ilkowska, [Eds.],

Productivity problems of freshwaters, pp. 749-763, 1 folded tab. excl. Polish Sci. Publs, Warszawa-Kraków. — (Dept. Bioenerg. & Bioprodukt., Nencki Inst. Biol., Polish Acad. Sci., Pasteura 3, Warszawa, Poland). A review is given of laboratory investigations on bioenergetics of a number of mainly aquatic animal spp., incl. *Lestes sponsa*. The latter's hemimetabolic character of development defines its energy budget essentially during the larval development. During the whole period a constant growth occurs with simultaneous only slight changes of calorificity per mg body. The parameters of the cumulative budget change only within the limits of a narrow range and continuously. The efficiency coefficients are the highest of the youngest larvae after which they remain nearly constant during the other 3/4 of the development period: Uc^{-1} — about 35%, $K1c$ — about 22%, $K2c$ — about 65%. The latter indicator is probably so high because of the exceptionally immobile way of living of the *Lestes* larvae. (Cf. also *OA* No. 500).

- (2861) LÉVÊQUE, C., J.P. CARMOUZE, C. DE-JOUX, J.R. DURAND, R. GRAS, A. ILTIS, J. LEMOALLE, G. LOUBENS, L. LAUZANNE & L. SAINT-JEAN, 1972. Recherches sur les biomasses et la productivité du Lac Tchad. In: Z. Kajak & A. Hillbricht-Ilkowska, [Eds.], Productivity problems of freshwaters, pp. 165-181. Polish Sci. Publs, Warszawa-Kraków. (With Engl. s.). — (Office Rech. Sci. & Techn. Outre-Mer, B.P. 65, Fort-Lamy, Chad). 7 insect groups are contributing essentially

to the biomass of the Chad Lake, viz. Chironomidae (74%), Ephemeroptera (10%), Chaoboridae (7%), Trichoptera (6%), Ceratopogonidae (1.5%), and Hemiptera and Odonata (1%). The specific names are not stated. (Cf. also OA No. 290).

- (2862) NAIDENOW, W., 1972. The formation of fauna in Bulgarian barrage lakes. *In: Z. Kajak & A. Hillbricht-Ilkowska*, [Eds.], Productivity problems of freshwaters, pp. 901-908. Polish Sci. Publ., Warszawa-Kraków. — (*Zool. Inst., Bulg. Acad. Sci., Boul. Russki 1, BG-1000 Sofia*).

The formation of fauna in different types of Bulgarian man-made lakes is traced. In the first months the rheotrophic groups prevail (Ephemeroptera, Plecoptera, Odon., Trichoptera, Chironomidae). With increasing depth of the newly forming water basin and the subsequent decomposition of inundated vegetation and absorption of oxygen in the water, some of these groups disappear completely; only spp. of larger ecological adaptability remain or replacement takes place by a characteristic limnophilous fauna. The development of the odon. fauna is not further traced.

- (2863) PIECZYŃSKA, E., 1972. Ecology of the eulittoral zone of lakes. *Ekol. pol.* (A) 20 (44): 637-732. (With Polish s.). — (*Dept. Hydrobiol., Zool. Inst., Univ. Warsaw, Nowy Swiat 67, Warszawa, Poland*).

Environmental conditions and biological processes in the eulittoral (i.e. intermediate zone between lake and the surrounding land) are analyzed on the basis of systematic studies on 16 eutrophic, mesotrophic and dystrophic lakes in northern Poland. Only very sparse reference is made to Odon.

- (2864) RUSSEV, B.K., 1972. Influence of some ecological factors on changes of the standing crop of zoobenthos of the Danube in the Bulgarian stretch. *In: Z. Kajak & A. Hillbricht-Ilkowska*, [Eds.], Productivity problems of freshwaters, pp. 813-826, 1 folded tab. excl. Polish Sci. Publ., Warszawa-Kraków. — (*Zool. Inst., Bulg. Acad. Sci.,*

Boul. Russki 1, BG-1000 Sofia).

Statistical analysis of several yr of investigations on the zoobenthos biomass is presented and discussed. *Gomphus flavipes* is the only odon. sp. considered. It occurs in the Middle- and Eastern sectors (resp. 688-532, and 531-375 km from the delta) representing resp. 5.15 and 4.03% of the total biomass. It inhabits the depths of 1.0-4.0 m (1.92% of total biomass), 4.1-7.0 m (3.29%) and 7.1 m (4.46%), and is optimally represented in sections with current velocities above 0.6 m/sec (6.23% of total biomass).

- (2865) YAMAMOTO, G., 1972. Trophic structure in Lake Tatsu-uma, an acidotrophic lake in Japan, with special reference to the importance of the terrestrial community. *In: Z. Kajak & A. Hillbricht-Ilkowska*, [Eds.], Productivity problems of freshwaters, pp. 405-419. Polish Sci. Publ., Warszawa-Kraków. — (*Dept. Biol., Yamagata Univ., 990 Kushirakawa-cho, Yamagata, JA*).

The 2 fish spp. inhabiting the lake (*Tribolodon hakonensis*, *Moroco steindacheri*) are supported by benthic fauna, sessile algae, and by insects which fall into water from the terrestrial community. The trophic structure is heavily dependent on input from the terrestrial community. While the total weight of fallen insects in the littoral well exceeds 700 mg (no Odon.), the Odon. account for 38.2 mg (out of the total 86.8) in the offshore zone.

1973

- (2866) REDDELL, J.R. & W.R. ELLIOTT, 1973. A checklist of the cave fauna of Mexico. V. Additional records from the Sierra de Guatemala, Tamaulipas. *Bull. Assoc. Mexican Cave Stud.* 5: 181-190. — (*Dept. Biol., Texas Tech. Univ., Lubbock, Texas 79409, USA*).

The Sierra de Guatemala is the best-known high altitude karst region in Mexico. The only odon. sp. listed (p. 186) is *Dythemis* (multipunctata?) from Sótano de El Molino. No doubt the specimen was washed into the cave. — (*Abstracter's note: For pt. VI of this*

series cf. *OA* No. 2755; pts. I-IV contain no information on Odon. Cf. also *OA* No. 2859).

1974

- (2867) MILLER, D., 1974. Common insects in New Zealand. Reed, Wellington-Sydney-London. XX+178 pp., 9 col. pls excl. — (Author deceased; — Publishers: *A. H. & A. W. Reed, 182 Wakefield Str., Wellington, NZ, 53 Myoora Rd., Terrey Hills, Sydney 2084, AU, - 11 Southampton Row, London, WC1B 5HA, UK*).

This is a general account of the insect fauna of New Zealand. Odon. are dealt with on pp. 52-55, and 4 spp. are given on pl. 6. Of particular interest is a note on the Maori dragonfly names and superstitions. In the Maori language the Zygopteras are called "*riemiemi*", while the "*kapokapowa*" are the anisopterans. One of the Maori ancient legends tells of a chieftain who sent legions of dragonflies to exterminate his enemies and lay waste their habitations.

1975

- (2868) DEACON, K.J.C., 1975. The seasonal regulation of *Leucorrhinia intacta* Hagen (Odonata: Libellulidae). XX+139 pp. M.Sc. Thesis, Univ. Waterloo, Waterloo, Ont., Canada. — (c/o *K. Andersen, Ludvig Jensensvej 3, DK-3460 Birkerød*).

The phenology and mechanism of seasonal regulation of *L. intacta* were studied. Monthly larval samples were carried out for 2 yr and laboratory studies were conducted at constant temperatures and photoperiods. Field studies at 80°12'W, 43°32'N showed that *L. intacta* is a temperate, univoltine, vernal sp. — Egg and early instar larvae responded only to temperature. Larvae developed very rapidly until late Aug. Penultimate and ultimate instars first appeared at this time and immediately entered diapause. Reactivation of larvae in diapause took place by early Nov. The majority of the population over-wintered in the ultimate instar. Growth was resumed in early May in

response to rising vernal temperatures. Emergence began in late May and continued for 55 to 65 days. 50% of the population emerged one third of the way through the emergence period. Emergence took place during the day. The reproductive maturation period varied from 8 to 12 days and the adult lived at least 20 days. Females appeared to outnumber males in the populations. The duration of the ultimate instar decreased as the temperature and daylength experienced by the larvae increased. Diapause was induced by daylengths greater than between 14 to 16 hr before the end of Aug. After this, the response was reversed and larvae entered diapause if the daylength was shorter than between 15 and 15.5 hr. A further change in response of larvae to photoperiod and temperature was centered on the autumnal equinoctial photoperiod. — As larvae were exposed to cooler temperatures, below 25°C, the critical daylength necessary for inducing diapause was reduced. Individuals exposed to winter temperatures lost their response to photoperiod. Specimens in diapause could complete development without exposure to cool temperatures; or if transferred to a non-diapause inducing photoperiod, they resumed development at a normal rate. It was not necessary for larvae to undergo diapause to over-winter. Diapause served to prevent emergence in the fall and to reduce the temporal variation of emergence the following year. A gradation of the lower thermal threshold was shown to exist between the penultimate and ultimate instars which also served to reduce temporal variation of emergence. — It is postulated that the limits of distribution of *L. intacta* are a direct result of its mechanism of seasonal regulation. (Author).

1976

- (2869) ISHIDA, S., 1976. Insects' life in Japan. Vol. 2: Dragonflies. IV + 265 pp., 56 col. pls., 16 black-and-white pls. excl. Hoikusha, Osaka. (Jap., with Engl. translation of the title, and Latin taxonomic names). — Price: ¥ 3200.— — (2-8, *Okinoshima-cho, Yokkai-*

chi, Mie Pref., 510, JA).

This is the 2nd, slightly revised edition of the famous 1969 handbook on the Japanese odon. fauna, covering also the main evidence brought to light after 1969. A completely revised edition is in preparation. Colour photographs are given of freshly killed specimens of all spp. of the Japanese fauna known up till 1969; for many of these colour figures of the exuviae are also shown. Each sp. is discussed in detail, and many colour- and black-and-white field photographs of various spp. and of some characteristic biotopes are provided. Due to the exceptionally high quality of the photographic material, the book could be used for the identification of the Japanese taxa by workers unable to read the Japanese text. The volume is most certainly one of those that should not be lacking in any odonatological library; in its technique of treatment, scope and technical lay-out, it is unique in the odonatological literature. — (*Abstracter's note:* It would be opportune to adopt, in the forthcoming editions, the usual Coenagrion-Calopteryx nomenclature, and to correct the erroneous spelling of the generic name Aeshna).

1977

- (2870) READ, B.E., 1977. Chinese materia medica. Insect drugs, dragon and snake drugs, fish drugs. Chinese Medicine Series, Vol. 2. X + 416 pp., pls excl. (3 pts bound in 1, pagination separate: 1-124, 1-66, 1-136). Originally published in Peking nat. Hist. Bull., 1941. Reprint edition by Southern Material Center, Taipei. — Price: US \$ 7.50. — (Publishers: P.O.B. 36-22, Taipei, Taiwan).
Odon. '*ching ling*' are dealt with in pt. 1, pp. 72-73. While the mandarin expression for "dragonfly" is "*ching ting*", the following synonyms are given here: '*ching t'ing*', '*ting hsing*', '*'ju lao*', '*t'sung*', '*chu ch'eng*', '*sha yang*', and '*ch'ih tsu*' (= a red variety). The Korean name is '*chung raing*'. In a footnote it is stated that the "Zoological Dictionary" gives '*chih tsu*' for *Crocotothemis servilia*, '*ising hsing*' for *Orthetrum albistylum*, and

'*ju lao*' for *Libellula quadrimaculata*. — [Verbatim text]: (1) Interpretation of names: Li Shih-chen: the names *ching* and *t'sung* are given because of the natural green or onion green colour. The names *ling* and *ting* refer to its solitary flying habits or it is said to be because the tail is like a nail *ting*, or because the tail is straight *t'ing*, moreover it is extended *t'ing*, hence it is called *ting* or *hsing*. The colloquial name *sha yang* is used because the wings are like gauze, *sha*. According to the T'sui Pao Ku Chin Chu the *ching t'ing* is large and azur in colour, the small yellow species is called *hu li* in the eastern Yangtse region. The South Anhui name is *k'ang yi*, the po yang name is *chiang chi*, the small red species is called *ch'ih tsu* or *chiang chou*, or *ch'ih yi shih che*, or *ch'ih pien chang jen*; the large purple black species in the Liaotung Peninsula is called *kan fan* or *t'ien chi*. — (2) Descriptive notes: Tao Hung-ching: there are 5 or 6 kinds of dragonflies. The azure ones with big eyes are called *chu ch'eng*, known colloquially as *hu li* and are used in medicine. The Taoists say that the eyes can be changed into azur pearls. Besides this there are fine yellow and black species which are not used in medicine. — Han Pao-sheng: they are found everywhere and like to fly over the surface of water, with 6 feet and 4 wings. — K'ou Tsung-shih: there is an exceedingly large species which is called by the Honanese *ma ta t'ou che*. There are those with a green body the females of which have a jade banded waist, but it is the males which are used in medicine. These insects are water-born and hence like to fly over the water. They all have large eyes, so why does T'ao say that only the green kind have large eyes. — Li Shih-chen: dragonflies have big heads with protruding eyes, short necks, long waists, coarse tails, and wings as fine as gauze. They eat mosquitoes and gadflies, they drink the dew. The Tsao Hua Ch'uan Yu says (written by Chao Tzu-mien of the T'ang dynasty) the larva metamorphoses into a dragonfly. The Lo Yuan say larvae change into dragonflies which copulate on the surface of the water and deposit their eggs on things which again

change into larvae. The Po Wu Chih, by Chang Hua, also says that if the heads of dragonflies be taken on the fifth day of the fifth moon and buried inside the house, they can change into azure pearls. It is not known whether this is so or not. Old prescriptions used the big azure species; today in aphrodisiac medicines the red species are also used. T'sui Pao states that in the Liaotung Peninsula there is the *Kan fan ch'ung* q.v. which is like a dragonfly, purple black in colour; in the sixth and seventh moons they fly in swarms and blacken the heavens, they are eaten by the barbarians: It is said they are metamorphosed from sea-shrimps. The Yun-nan Chih states all the people of Lants'ang, P'u Man and many other places in Yunnan eat all local insects like humblebees, dragonflies, locusts and their kind. — (3) **Qualities:** Slightly cooling and nonpoisonous. — (4) **Uses:** Pieh-lu: a sexual stimulant delaying emission. Jih-hua: it stimulates erection, warming to the genito-urinary system. (For application of dragonfly material in the Tibetan traditional medicine cf. *OA* No. 851). — (*Abstracter's note:* All Chinese terms are stated also in Chinese script).

1978

- (2871) RIGGERT, J., 1977. Fandens ridehest. En bog for børn om den gådefulde guldsmed. [The devil's riding horse. A children's book about the strange dragonfly]. Rhodos, Copenhagen. 28 pp. (Danish). — Price: Dkr 20.76. — (Publishers: *Rhodos, Niels Brocks-gård, Strandgade 36, DK-1401 Copenhagen-K*).
- "Fandens ridehest" (= devil's riding horse) is the old Danish folkname for *Aeshna grandis*. In the Danish fairy tales the devil is not the Satan but rather a good-natured troll, with a grandmother and a family, which certainly originates in the Scandinavian mythology. It is a happy-going troll, riding in sunshine on a dragonfly. The booklet is written in elegant verse, for which music is also provided. The text and the 13 water colour illustrations (by H. Scherfig) are in accordance with both the biological facts and popular superstition.
- (2872) ANDO, T., 1978. [Reproductive behaviour in three species of the genus *Sympetrum*]. *Kakocho* 30 (113): 33-36. (Japanese). — (*1-5-24 Otowa, Ichinomiya, Aichi, 491, JA*). *S. gracile* usually scatters eggs in tandem in the air, but 2 cases were noticed when a perched female scattered eggs on the ground ("non-contact sitting-oviposition" of Eda). In *S. parvulum* oviposition takes place while the male is flying around the female. *S. frequens* oviposits in tandem, striking the mud or the water.
- (2873) ARAI, Y., 1978. [Reproductive behaviour in *Sympetrum frequens*]. *Nature and Insects* 13 (2): 23-25. (Japanese). — (*1-127, Motoishi; Kumagaya, Saitama, 360, JA*). Out of 71 pairs arriving in tandem at the water side, only 29 copulated, 11 oviposited, 25 flew away, and 6 separated. The oviposition techniques applied were striking the water (59.7%), pushing the mud (27.8%), or both of these (12.5%).
- (2874) BOZKOV, D.K., 1978. Über einige Umweltveränderungen als Faktoren sekundärer Vereinfachung der Lebenszyklen der Helminthen. *Helmintologiya, Sofia* 5: 10-13. (With Bulg. and Russ. s's.). — (*Central Lab. Helminthol., Bulg. Acad. Sci., Sofia, Bulgaria*).
- Causes leading to secondary simplification of the life cycle of trematodes are cited. As far as the Odon. are concerned, reference is made to the 1975 paper of M.G. Bayanov (cf. *OA* No. 1365), dealing with *Prosotocus confusus*. The first vectors of this trematode are fresh water snails, the intermediate hosts are the anisopterans, and the final host is a frog. In the Karagaji lake (Bashkir SSR, USSR) this final host had disappeared. As a consequence, birds, or dragonfly-eating fishes were used for the propagation of the eggs.
- (2875) DUMONT, H.J., 1978. Les odonates du Parc national du Niokolo-Koba et du lac de Guiers (Sénégal) pendant la saison sèche.

- Bull. Inst. fr. Afr. noire (A) 40 (4): 847-851. — (*Inst. Zool., Univ. Gent, Ledeganckstr. 35, B-9000 Gent*).
18 spp. are listed and the fauna is briefly discussed.
- (2876) EDA, S., 1978. [Review of odonatology in Japan in 1977]. *Nature and Insects* 13 (5): 15-18. (Japanese). — (3-4-25 *Sawamura, Matsumoto, Nagano, 390, JA*).
Chronicle of the Japanese odonatological achievements and events in 1977. The 20th anniversary meeting of the [Japanese] Society of Odonatology took place on Sept. 1, at Hokkaido Univ.
- (2877) HAMADA, Y., 1978. [A list of Odonata of Kochi Prefecture]. *Nature and Insects* 13 (10): 11-13. (Japanese). — (101 *Nishi-shinya-shiki, Kochi, Kochi, 780, JA*).
79 spp. are recorded, incl. *Rhipidolestes aculeata hiraoui*, *Epiophlebia superstes*, *Somatochlora clavata* and *Sympetrum striolatum*. *Anax guttatus*, *Sympetrum cordulegaster*, *Tholymis tillarga* and *Tamea transmarina yayeyamana* are considered southern immigrants.
- (2878) HIROSE, M., 1978. [Mortonagrion hirosei at the Hinuma Lake]. *Nature and Insects* 13 (13): 31-32. (Japanese). — (3-4-7 *Daikucho, Mito, Ibaraki, 310, JA*).
The sp. has been discovered in 1971 (for the description cf. *OA* No. 223), and is known to occur in the following prefectures: Miyagi, Ibaraki, Chiba, Tokyo, Kanagawa, Aichi, Mie and Osaka. It breeds in brackish ponds, where it does not encounter competition by stronger dragonflies. It is this circumstance that is considered responsible for the sp. survival.
- (2879) KAWAGUCHI, S., 1978. [A collecting method for *Anaciaeschna martini*]. *Nature and Insects* 13 (4): 27. (Japanese). — (2-16, *Ottecho, Shizuoka, Shizuoka, 420, JA*).
The emergence commences towards the mid of May, and mature males are on wing up to Sept. It is stated that collecting is most successful 40-50 min prior to sunset, and the
- best method is an upward stroke when the insect is passing at the height of 1-2 m above the ground.
- (2880) MAGADZA, C.H.D., 1978. Field observations on the environmental effect of large-scale aerial applications of endosulfan in the eradication of *Glossina morsitans centralis* Westw. in the Western Province of Zambia in 1968. *Rhodes. J. agric. Res.* 16 (2): 211-220. — (*Natn. Council Sci. Res., P.O.B. CH 158, Lusaka, Zambia*).
A field survey was conducted to investigate the environmental impact of the large-scale aerial application of endosulfan at 2.8 kg/km² to eradicate the tse-tse fly from an area of 1632 km² in the Sinjambela District, Western Prov., Zambia. Collections of arthropods from sprayed areas, ground observations during spraying sorties, estimates of predacious insects (especially Odon.), the application of double doses of the insecticide, and other general observations revealed no deleterious effects on non-target animal spp.
- (2881) TOKUMOTO, H., 1978. [An unusual record of *Tamea virginia* from the Hegurajima Island]. *Nature and Insects* 13 (6): 27. (Japanese). — (1-2-6 *Izuminodecho, Kanazawa, Ishikawa, 921, JA*).
The island (surface 1.2 km²) is situated in the Japan Sea, 50 km N from the Noto Peninsula of Honshu, Japan. A male was captured and 9 other individuals of this sp. were watched on July 25, 1977.
- (2882) TOMOKUNI, M. & M. SATO, 1978. Aquatic and semiaquatic insects of the Bonin Islands (including the Volcano Islands). *Mem. natl Sci. Mus., Tokyo* 11, 107-121. (Jap., with Engl. s.). — (*Dept. Zool. Natl Sci. Mus., Tokyo, JA*).
There occur 55 spp. of aquatic and semiaquatic insects in the Bonin Islands, Japan. The Odon. are represented by 14 spp. of 6 fam. of which *Anax guttatus* is reported here for the first time. The spp. are listed along with a brief zoogeographic characterization of each of them. 5 of these are

endemic, viz. *Boninagrion ezoin* Asah., *Lestes boninensis* (Asah.), *Rhincocypha ogasawarenensis* Oguma, *Hemicordulia ogasawarenensis* Oguma, and *Boninthemis insularis* (Matsumura). From the Volcano Islands only 5 spp. were recorded, and none of these is endemic.

- (2883) WALKER, E.M. & P.S. CORBET, 1978. The Odonata of Canada and Alaska. Vol. III, Part 3: The Anisoptera — three families. 2nd & corrected ed. XVI + 308 pp. Univ. Toronto Press. Toronto-Buffalo-London. — (First author deceased; — Second author: *Dept. Biol. Sci., Univ. Dundee, Dundee, DDI 4HN, UK*). This is a slightly revised edition of the volume listed in *OA* No. 1194, containing the corrections stated in the paper listed in *OA* No. 2557. — (*Abstracter's note*: The first edition of all three volumes is out of print, but Vols. I & II are available in a reprint edition. The latter is of reasonable quality, but with a binding different from that of the original edition).
- (2884) YAMAMOTO, T., 1978. [Dragonfly records from the Nansei Islands]. *Nature and Insects* 13 (13): 22. (Japanese). — (2-4-9 *Isharadera-cho, Sakai, 593, JA*). *Stylogomphus sirozui*, *Planaeschna ishigakiana*, *Anaciaeschna jaspidea*, *Macromia clio* and *Macrodiplax cora* are reported from the Iriomoto Island. *Epophthalmia elegans* and *Hydrobasileus croceus* were taken on the Okinawa main island, while *Brachythemis contaminata* was collected on the Ishigaki Island, all Japan.
- (2885) ZURWERRA, A., 1978. Beitrag zur Wasserinsektenfauna der Tümpel und Weiher von Kleinbödingen (Freiburg, Schweiz). *Bull. Soc. frib. Sci. nat.* 67 (2): 85-143. (With Fr. and Engl. s's). — (*Ent. Abt., Zool. Inst., Univ. Freiburg, Péroles, CH-1700 Fribourg*). On pp. 123-128 the composition of the odon. fauna (16 spp.), inhabiting artificial ponds nr. the village of Kleinbödingen on the Saane R. (alt. 490 m), Canton Freiburg (Fribourg),

Switzerland, is discussed. *Ischnura pumilio* is the only sp. of some interest.

1979

- (2886) ANDRIKOVICS, S., 1979. Contribution to the knowledge on the invertebrate macrofauna living in the pondweed fields of Lake Fertő. *Opusc. zool. Budapest* 16 (1/2): 59-65. — (*Inst. Zoosyst. & Ecol., Eötvös Loránd Univ., Puskin u. 3, HU-1088 Budapest-8*). During 2 yr monthly sampling, 73 macroinvertebrate taxa were recorded in the lake, Hungary, incl. 8 identified and 2 unidentified odon. spp. (larvae). The quantitative data of these are given (per sp. and month, May-Oct., 1971-1972) in a table. The odon. biomass was considerable, and *Ischnura pumilio* and *Crocothemis erythraea* seem of particular interest. (Cf. also *OA* No. 1213).
- (2887) ARRUDA, J.A., 1979. A consideration on trophic dynamics in some tallgrass prairie farm ponds. *Am. Midl. Nat.* 102 (2): 254-262. — (*Div. Biol., Kansas St. Univ., Manhattan, Kansas 66506, USA*). Ecosystem structure may be in part determined by the adaptations of spp. to the relative degrees of population regulation by food or predation. Data from 5 tall-grass prairie farm ponds in Kansas, USA, show that the biomass of trophic level consumer groups seem to vary systematically with the primary productivity of the ponds and with each other in a manner indicative of predator-prey pairings. Mean body size of zygopteran larvae decreases with increased primary production (by phytoplankton) and fish biomass while mean chironomid body size increases.
- (2888) BACCETTI, B., 1979. Ultrastructure of sperm and its bearing on arthropod phylogeny. In: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 609-644. Van Nostrand Reinhold, New York - London - Toronto - Melbourne. — (*Inst. Zool., Univ. Siena, Via Mattioli 4, Siena, Italy*). On p. 621 it is stated that in certain aspects

of motility, the first pterygote orders appear more primitive than lepismatids. The Ephemeroptera are strongly aberrant in the axoneme, which is of the 9+9+0 pattern and the mitochondrial derivative lacks crystallomitin. The Odon. have a conventional 9+9+2 axoneme (cf. R.G. Kessel, 1966, *J. Ultrastruct. Res.* 16: 293-304; — D.M. Philipps, 1970, *J. Cell Biol.* 44: 243-77) and 2 accessory bodies, but the 2 mitochondrial derivatives are still devoid of crystalline protein (cf. F. Rosati, G. Selmi & M. Mazzini, 1976, *J. submicrosc. Cytol.* 8: 51-67). Ephemeroptera and Odon., therefore, seem to be separated from all the other pterygote orders.

- (2889) BAUER, S., 1979. Libellenbeobachtungen im westlichen Allgäu (1978). *Mitt. ArbGem. Naturschutz Wangen* 1979 (2): 70-74. — (*Rossittenweg 8, D-7761 Möggingen, GFR.*).

Additions to the annotated list given in the paper listed in *OA* No. 2283 are supplied, and *Lestes dryas* is added to the fauna of the western Allgäu region, southern German Federal Republic, bringing the number of odon. spp. known to occur there up to the 42 mark.

- (2890) BOURGAT, R. & S.-D. KULO, 1979. Cycle biologique d'*Haematoloechus johnsoni* Bourgat, 1977, (Trématode) parasite pulmonaire de *Dicroglossus occipitalis* (Günther, 1858) (Amphibien, Anoure) au Togo. *Revue suisse Zool.* 86 (2): 467-472. (With Engl. s.). — (*Dép. Biol. gén., Fac. Sci., Univ. Perpignan, Av. de Villeneuve, F-66025 Perpignan Cedex.*).
- Sporocysts and xiphidiocercariae of *H. johnsoni* develop naturally in the planorbid snail, *Biomphalaria pfeifferi*. Metacercariae encyst in the rectum of larval anisopterans and can infest the definitive host, *D. occipitalis*, after 22 days. The adult matures in 2 months in the normal host. (Cf. also *OA* No. 2438).
- (2891) CALLAHAN, P.S., 1979. Evolution of antennae, their sensilla and mechanism of

scent detection in Arthropoda. *In*: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 259-298. Van Nostrand Reinhold, New York-London-Toronto-Melbourne. — (*Insect Attractant, Behavior & Basic Biol. Res. Lab., Gainesville, Fla, USA.*).

On p. 280 reference is made to the work of U. von Jander (1966, *Z. Tierpsychol.* 23: 799-844), who has demonstrated that, with few exceptions, the Myriapoda and Thysanura groom the antenna and all of the legs with the mouthparts, and who regard this type of grooming as the primordial mode among the arthropods. In the Hemimetabola, the Odon. and Hemiptera exhibit a derived form (apomorphic) of grooming that utilizes exclusively the rubbing actions of the legs. In Coleoptera the grooming is usually by the primordial method, though often replaced by specialized methods. Higher insect orders have special grooming organs on the fore-legs.

- (2892) CHERRY, D.S., S.R. LARRICK, R.K. GUTHRIE, E.M. DAVIS & F.F. SHERBERGER, 1979. Recovery of invertebrate and vertebrate populations in a coal-ash stressed drainage system. *J. Fish. Res. Board Can.* 36 (9): 1089-1096. (With Fr. s.). — (*Biol. Dept. & Cent. Envir. Stud., Virginia Polytech. & St. Univ., Blacksburg, Va 24061, USA.*).

The influence of coal-ash effluent upon the densities of macrobenthic invertebrate and mosquitofish populations in a swamp drainage system (Savannah River Project, Aiken, South Carolina, USA) was studied during 50 months. The density of aquatic biota (16 odon. genera identified) was periodically altered by heavy ash siltation, lowered pH from the fly ash addition, and by coal-ash associated elemental concentration. Siltation appeared to be most influential in reducing the invertebrate densities, while low pH (mean change from 7.2 to 5.5, extreme of 3.5) was more effective in reducing mosquitofish populations and retarding the recovery of invertebrates. Chironomids and Plathemis lydia and Libellula sp. were the invertebrates most tolerant

to coal-ash stress. Upon the completion of an efficient primary-secondary retaining basin system, most invertebrate groups in the swamp were able to recover to a level of abundance equal to or greater than that which existed 4 yr earlier. (Cf. also *OA* No. 2624).

- (2893) CLARKE, K.U., 1979. Visceral anatomy and arthropod phylogeny. In: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 467-549. Van Nostrand Reinhold, New York-London-Toronto-Melbourne. — (*Dept. Zool., Univ. Nottingham, Nottingham, U.K.*).

On p. 483, the Odon. gut is described in detail. The mouth opens to a well-developed pharynx, which leads to a long, narrow oesophagus, passing back to the base of the abdomen, where it expands to form a crop. Posteriorly, the crop opens to a well-developed gizzard, much better developed in the larvae than in the adult, and finally the foregut opens to the midgut through a simple proventricular valve invaginated to the midgut lumen. The midgut is a simple tube, lacking caeca at its anterior end. It is lined by a columnar epithelium; the anterior region appears to be specialized for the formation of the peritrophic membrane. Posteriorly the midgut narrows sharply to open into the hindgut: a strong sphincter muscle is present at this junction. The hindgut is differentiated to form a short, narrow tube, the ileum, which opens to a broader tube characterized by a thick pad of epithelium on its ventral surface. R.J. Tillyard (1917, *The biology of dragonflies*. Cambridge Univ. Press) named this region the pre-rectal ampulla. It leads posteriorly to a rectal sac which contains well-developed gills, and from this a short rectum leads to the anus. In the adult, the rectal sac is very short and lacks gills; there is no separation of the hindgut to form ileum and pre-rectal ampulla, but a ventral epithelial pad extends the whole length of the tube. Numerous malpighian tubules are present. They unite near their bases in groups of five or six, which open to the lumen of the hindgut

through a short, very narrow tube. In the early instars only three malpighian tubules are present. — On p. 512 it is stated that in the primitive apterygotans inorganic ions are responsible for almost all the osmotic pressure of the haemolymph. This seems to be true also for the Onychophora, and is found in the Ephemeroptera and Odon. and often also in primitive families of more advanced orders.

- (2894) DEL PILAR VILLEDA, M. & E. GONZÁLEZ S., 1979. Estudio preliminar de la familia Coenagrionidae (Odonata: Zygoptera) de la región de los Tuxtlas, Ver. *Fol. ent. mexic.* 42: 78. — (*Geranios 17, Colonia Jard. de San Mateo, Estado de Mexico, Mexico*).

This is an abstract of a paper presented at the 13th Natn. Congr. Entomol. (Mexico). In the "Los Tuxtlas" area, state of Veracruz, Mexico, 16 spp., referable to 10 coenagrionide genera were so far recorded. A list of these is not given.

- (2895) FARAGHER, R.A., T.R. GRANT & F.N. CARRICK, 1979. Food of the platypus (*Ornithorhynchus anatinus*) with notes on the food of brown trout (*Salmo trutta*) in the Shoalhaven River, New South Wales, Australia. *Aust. J. Ecol.* 4 (2): 171-180. — (*Fish. House, N.S.W. St. Fish., 211 Kent Str., Sydney, N.S.W. 2000, AU*).

Feeding in the platypus (Mammalia: Monotremata) was investigated by identifying material found in the cheek pouches of animals trapped in nets in a study area on the upper Shoalhaven R., New South Wales, Australia. Benthic samples were taken in the rapids and pools of the river and the relative abundance of food items available was related to the food found in the platypus cheek pouches. The main food items found were insect larvae, notably Trichoptera, Diptera, Coleoptera, Ephemeroptera and Odon. They were generally taken in direct proportion to their numerical abundance in the river. Comparisons were made with the food selected by the brown trout from the area, and estimates are made of the weights

of invertebrate food necessary to maintain a platypus in various seasonal conditions.

- (2896) GUPTA, A.P., 1979. Arthropod hemocytes and phylogeny. In: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 669-735. Van Nostrand Reinhold, New York-London-Toronto-Melbourne. — (*Dept. Ent. & Econ. Zool., Rutgers Univ., New Brunswick, New Jersey, USA*).
On p. 698 it is stated that while Orthoptera appear to be the most extensively studied group, followed by Lepidoptera, Hymenoptera, Coleoptera and Diptera, a few spp. only have been examined in the Odon.
- (2897) JELLYMAN, D.J., 1979. Observations on the biology of the Giant Kokopu, *Galaxias argenteus* (Gmelin 1789). *Mauri Ora* 7: 53-61. — (*Fish. Res. Div., Min. Agric. & Fish., Christchurch, NZ*).
In the stomachs of 6 adult fish examined larval Zygoptera were also found. Material originates from Lake Pounut, Wairarapa, New Zealand.
- (2898) KARAMAN, B.S., 1979. Contributions à la connaissance de l'écologie des larves d'Odonates dans l'écosystème du lac de Doiran. *Ann. Fac. Biol. Univ. Skopje (= God. Zb. biol. Fak. Univ. Skopje)* 32: 191-199. (With Macedonian s.). — (*Fac. Biol., Univ. Skopje, P.O.B. 107 Cair, YU-91001 Skopje*).
The ecology of the odon. larvae in the eutrophic Doiran Lake, Macedonia, Yugoslavia, has been studied (1967-1968) with special reference to habitat distribution, annual dynamics, and the population density. (Cf. also *OA* Nos. 1276, 1289, and the paper by the same author in *Fragm. balcan.* 7 [1969] (11): 93-102).
- (2899) KLEPSEK, H.-H. & W. WÜNSCH, 1979. Das Naturschutzgebiet "Blauer Steinbruch" bei Ehingen: ein schutzwürdiger Biotop aus zweiter Hand. *Veröff. Naturschutz Landschaftspflege Bad.-Württ.* 1979 (49/50): 31-50. — (*Bezirksstelle Naturschutz & Landschaftspflege, Nauklerstr. 58, D-7400 Tübingen, GFR*).
- Enallagma cyathigerum*, *Lestes viridis*, *Aeshna cyanea* and *Libellula quadrimaculata* are listed (p. 46) from this nature reserve nr. Ehingen, German Federal Republic.
- (2900) KOMATSU, A. & R. KUSACHI, 1979. Responses of respiratory motoneurons to segmental nerve stimulation in the dragonfly larvae, *Anax parthenope*. *J. physiol. Soc. Jap.* 41 (8/9): 405. — (*Dept. Physiol., Tokyo Women's Med. Coll., Shinjuku-ku, Tokyo, JA*).
[Verbatim text]: Rhythmic motor discharges were recorded in the abdomen from the segmental nerve, n2A, innervating the dorso-ventral muscles and from the median nerve, sn, innervating the transverse muscles. Burst activity in n2A coincided expiration and that in sn did inspiration. Electrical stimulation of the segmental nerve, n1A, during inspiratory period inhibited inspiratory discharges of sn and evoked expiratory discharges in n2A, and the respiratory rhythm was reset. — Intracellular recordings were made from respiratory motoneurons of the abdominal ganglion. Expiratory motoneurons showed e.p.s.p.'s during expiration, and i.p.s.p.'s during inspiratory period. Inspiratory motoneurons showed i.p.s.p.'s during expiratory period. No motoneurons appeared to have an intrinsic rhythmicity. Stimulation of n2A evoked a depolarizing response in expiratory motoneurons and a hyperpolarizing response in inspiratory motoneurons.
- (2901) KUMAR, A., 1979. On the occurrence of multivoltine generations in some Indian dragonflies. *Sci. & Cult., India* 45 (3): 126-127. — (*Zool. Surv. India, 13 Subhash Rd., Dehra Dun-248001, U.P., India*).
Field and laboratory investigations revealed that *Ceriagrion coromandelianum*, *Pseudagrion rubriceps*, *Ischnura delicata*, *Agriocnemis pygmaea*, *Orthetrum sabina*, *Diplacodes trivialis*, *Acisoma p. panorpoides* and *Crocothemis servilia* are multivoltine (3 annual generations) in the Dehra Dun Valley, India. There is an overlapping in broods and apparently it seems that these

spp. reproduce almost round the year. Their larval habitats are in the perennial ponds, ephemeral monsoon ponds, and in shallow water of slow streams.

- (2902) KUMAR SRIVASTAVA, B., 1979. The male reproductive system of the dragonfly, *Diplacodes trivialis* Rambur (Odonata, Anisoptera: Libellulidae). *Folia morphol.* 27 (3): 232-244, pls. 2-3 excl. — (*Dept. Zool., Univ. Saugar, Saugar 470003, India*).
The morphology and histology of internal and external male reproductive organs of adult *D. trivialis* is described and illustrated in detail. The more important features discussed are concerning the position and histological structure of the testis, the lateral disposition of the common central duct, the absence of sperm bundles in the vas deferens, sperm sac and the penis vesicle, the absence of the accessory reproductive glands, the presence of a rudimentary true penis in the form of a chitinous structure lodging the cup-shaped ejaculatory duct, the occurrence of black tubercle-like protuberances of a secondary sexual nature on the ventral surface of supra-anal appendages and the situation of the single orifice of the penis near the distal end of the third segment. (Author).
- (2903) LANCIANI, C.A., 1979. The food of nymphal and adult water mites of the species *Hydryphantes tenuabilis*. *Acarologia*, Paris 20 (4): 563-565. (With Germ. s.). — (*Dept. Zool., Univ. Florida, Gainesville, Fla 32611, USA*).
Nymphs of *H. tenuabilis* successfully metamorphosed after having fed on the eggs only of the dragonfly *Pachydiplax longipennis*. Adult females reared on the same food grew, mated and laid viable eggs. Aquatic insect eggs may be an important food for a wide variety of water mites.
- (2904) MARLIER, G., 1979. Une mission hydrobiologique aux Seychelles. *Naturalistes Belges* 60 (1): 44-58. — (*Inst. r. Sci. nat. Belgique, 31 rue Vautier, B-1040 Bruxelles*).
Fresh-water fauna, especially insect larvae, was studied Sept.-Nov. 1976 in the Seychelles, Indian Ocean. General characteristics of the islands (geology, climate etc.) are considered and some aquatic insect spp. are listed. Odon. are mentioned (20 spp.), but a list of these is omitted. The origin of the endemic fauna is discussed.
- (2905) MIOTK, P., 1979. Das Lösswandökosystem im Kaiserstuhl. Veröff. Naturschutz Landschaftspflege Bad.-Württ. 1979 (49/50): 159-198. — (*Abt. Naturschutz, Niedersächsisches Landesverwaltungsamt, Postfach 107, D-3000 Hannover-1, GFR*).
The ecosystem developed on the loess grounds of Kaiserstuhl, German Federal Republic, is discussed. *Sympecma fusca* is the only odon. sp. mentioned (p. 179).
- (2906) MORI, H., 1979. Embryonic hemocytes: origin and development. In: A.P. Gupta, [Ed.], *Insect hemocytes: development, forms, functions and techniques*, pp. 3-27. Cambridge Univ. Press, Cambridge-London-New York-Melbourne. — (*Dept. Nat. Hist., Fac. Sci., Tokyo Metropolitan Univ., Setagaya-ku, Fukazawa, Tokyo, 158, JA*).
Although the paper deals principally with the situation in *Gerris* (Heteroptera), the embryonic hemocyte formation, as occurring in Odon., is also discussed. The origin of embryonic hemocytes in various insect orders is given in a table.
- (2907) MYLECHREEST, P.H.W., 1979. Hydroelectric-induced changes in lake Waikere-moana. *Wildlife Review*, New Zealand (10): 46-50. — (*Wildlife Serv., Dept. Int. Affairs, Rotorua, NZ*).
The lake was formed some 2000 yrs ago by a landslide. Before 1946 the lake level tended to rise in winter and fall in summer. Since hydroelectric development the level now tends to rise in summer and fall in winter. The littoral invertebrate fauna is adapted to falling lake level in summer and a rising level in winter. Winter drawdown now threatens the upward migrating invertebrates, especially so the ultimate instar odon. larvae, which congregate in the shallow littoral

during winter in preparation for their emergence in the spring. The spp. names are not stated.

- (2908) NEHRING, R.B., R. NISSON & G. MINASIAN, 1979. Reliability of aquatic insects versus water samples as measures of aquatic lead pollution. *Bull. Environm. Contam. Toxicol.* 22: 103-108. — (Reprints from the second author: *Products Control Div., Swedish Natl Environm. Protect. Board, Fack 17120, Solna-1, Sweden*). In the field (Chalus River, Iran) and in the laboratory the reliability was tested of representatives of 5 aquatic orders, incl. the anisopteran larvae. Field concentration factors were determined by dividing the average value of lead accumulation ($\mu\text{g/g}$) for each sp. by the lead level in the stream (mg/l). These concentration factors were used to determine an estimated lead level in the stream during subsequent sampling periods 2-6 months later.
- (2909) PAULUS, H.F., 1979. Structure and the monophyly of the Arthropoda. *In*: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 299-383. Van Nostrand Reinhold, New York-London-Toronto-Melbourne. — (*Biol. Inst. 1, Albert-Ludwigs-Univ., Freiburg-1, GFR*). Odon. are mentioned only with reference to the larval eyes (p. 344). Usually, the adult faceted eye is found even in the larval stages of different groups. During ecdysis this eye grows by adding rows of new, but identical ommatidia. In Odon. the lamina is reorganized before adult ecdysis (cf. G.T.W. Lew, 1933, *Entomologica am.* 14: 41-97; — J.E. Lerum, 1968, *Proc. Iowa Acad. Sci.* 75: 416-432; — M. Mouze, 1972, *Int. J. Insect Morphol. Embryol.* 1: 181-200). In some higher hemimetabolous forms (Aphidina, Coccina, Aleurodina), the young instars have eyes different from those of the adults.
- (2910) ROBACK, S.R., 1979. The effects of thermal effluents and sediments on the insect fauna. *Proc. Symp. biol. Resour. Potomac Basin Streams*, pp. 119-123. — (*Dept. Limnol., Acad. Nat. Sci. Philadelphia, 19th & The Parkway, Philadelphia, Penn. 19103, USA*). Periodical surveys (1956-1972) were performed on the Potomac River from Point of Rocks to Whites Ferry, USA. The insect fauna has systematically declined, apparently due to nonpoint sources of pollution (increased domestic pollution, agricultural runoff, and road construction). There is no evidence to indicate that the point source discharge of thermally elevated condenser water has differentially reduced the number of spp. at the relevant stations. The decrease of the gomphid fauna is stated in some detail (no spp. names) and it is shown in a graph.
- (2911) SAUER, F., 1979. Tiere in Bach und Weiher. *Hallwag Taschenbuch (Zool.)* 37. 128 pp. Hallwag, Bern-Stuttgart. — Price: sFr 10.80. A pocket-size, primitive field guide to some of the main forms of the Central European freshwater invertebrates, illustrated by numerous colour photographs. The Odon. are dealt with on pp. 102-119 (12 figs. incl.). For a similar work in Engl. cf. *OA* No. 2327.
- (2912) SCHALLER, F., 1979. Significance of sperm transfer and formation of spermatophores in arthropod phylogeny. *In*: A.P. Gupta, [Ed.], *Arthropod phylogeny*, pp. 587-608. Van Nostrand Reinhold, New York-London-Toronto-Melbourne. — (*Zool. Inst. 1, Univ. Wien, A-1010 Wien*). All pterygotes copulate, whereby many primitive forms still transfer spermatophores. The pairing behaviour of Odon. is quite peculiar. The males have developed special gonopodial appendages on the frontal part of the abdomen, which are used for sperm transfer, these are situated on the 2nd and 3rd abdominal segments, thus roughly at the same place where the genital opening is found in the progoneate millipedes. [Verbatim, p. 600. No other reference to Odon. is made in the paper].
- (2913) SCHIESS, H. & J. DEMARMELS, 1979.

Die bisher bekannten Libellenvorkommen des Kantons Graubünden. Jber. naturf. Ges. Graubünden 98: 67-91. (With Engl. s.). [Issue published in June, 1980]. — (*Brüglenstr. 1, CH-8344 Adetswil*).

The hitherto published odon. records from canton Grisons, Switzerland, are compiled and supplemented with a great deal of unpublished material, incl. that contained in F. Ris's unpublished entomological diary. Each sp. (44) is critically discussed and it is concluded that the cantonal distribution of the taxa is still inadequately known, though it is expected that the future surveys will not significantly increase the number of known sp. The regional bibliography is exhaustive.

- (2914) SCHMIDT, E., 1979. Libellen im Fockbeker Moor. Rendsburger Jb. 29: 61-67. — (*Biol. Seminar, Pädagog. Hochschule, Römerstr. 164, D-5300 Bonn, GFR*).

A talk on the dragonfly fauna of the Fockbeker Moor nr Rendsburg, Schleswig Holstein, German Federal Republic, directed at the general reader.

- (2915) SCHMIDT, E., 1979. 6. Ord. Odonata, Libellen. In: W. Tischler, [Ed.], Paul Brohmer Fauna von Deutschland. Ein Bestimmungsbuch unserer heimischen Tierwelt. 14th revised and enlarged ed., pp. 185-189. Quelle & Meyer, Heidelberg. — (*Biol. Seminar, Pädagog. Hochschule, Römerstr. 164, D-5300 Bonn, GFR*).

This is a slightly revised and enlarged edition of the text listed in *OA* Nos. 113, 895, 1926.

- (2916) STARK, W., 1979. Zum Vorkommen der Kleinlibellen *Coenagrion scitulum* und *Erythromma viridulum* in Österreich mit ökologischen, biologischen und morphologischen Beiträgen (Ins., Odonata: Coenagrionidae). Ber. ArbGem. ökol. Ent. Graz 9: 13-18. — (*Burgenländisches Landesmus., Museumgasse 5, A-7000 Eisenstadt*).

The Austrian distribution of the 2 spp. is mapped and notes on their biology and ecology are provided. The variation of the abd. pattern in *C. scitulum* is figured, and it is stated that some of the Austrian *E.*

viridulum are, to a certain extent, similar to *E. v. orientale*.

- (2917) SUZUKI, K. & M. EGUCHI, 1979. Intraspecific forms and their geographical distribution of the *Mnais*-damselflies (Odonata, Calopterygidae) inhabiting the Hokuriku District, Central Honshu, Japan. J. Coll. Liberal Arts Toyama Univ. (Nat. Sci.) 12: 65-85, 2 col. pls. incl.). — (*Dept. Biol., Coll. Liberal Arts, Toyama Univ., Gofuku 3190, Toyama City, 930, JA*).

The results of the 1976-1979 field surveys are reported. 5 major infraspecific forms, referable to *M. p. hawaii* and *M. p. pruinosa*, occur in the District. The 5 forms, their intermediate forms, and several aberrant forms which have so far been found in the district are illustrated together with short descriptions of the most pronounced characteristics as compared with Asahina's categorization of infraspecific forms and their definitions (cf. *OA* No. 1655). Intra- and interpopulational variability of the *Mnais* occurring in the Hokuriku District was preliminarily analyzed (body size in several populations, coloration of pterothoracic poststernum and pterothorax side in the Bessō-gawa population), showing that: (1) the body size is nearly inherent from population to population; (2) it shows a clinal variation from SW to NE as a whole; (3) it occurs almost parallelly in both sexes, (except in some populations); (4) these tendencies seem to occur parallelly in the 2 "subspecies" examined, and (5) the variability of the coloration of the pterothoracic poststernum and pterothorax side in the population sampled from the Bessō-gawa Creek in Yatsuo-machi, Nei-gun, Toyama Prefecture, seems to be independent of each other and inherent in each infraspecific form. As the colour patterns of both pterothoracic poststernum and pterothorax side vary remarkably and continuously, these characters may not be applied as diagnostic characters, though Asahina emphasized the validity of the coloration of pterothoracic poststernum as one of the important taxonomic characters together with that of wings. — Geographical distribution of the

Hokuriku District infraspecific forms is discussed: (1) the "sub-species" generally coexist in the streams of Ishikawa and Toyama Prefectures, except for the NE parts of the latter. Considerably clear habitat segregation and reproductive isolation are recognized between them; that is, as a rule, nawai inhabits relatively lower reaches and pruinosa relatively upper ones, though their habitats largely overlap topographically with each other; (2) the "intrasubspecific" variability seems to be peculiar to each population in both "subspecies"; (3) it seems that there is a geographical distributional boundary line between the two Hokuriku "subspecies" and *M. p. costalis* somewhere from the NE region of Toyama Prefecture to the SW one of Niigata Prefecture. The "intersubspecific" relationships between the 2 Hokuriku "subspecies" are also discussed. (Authors).

- (2918) SWEET, M.H., 1979. The original feeding habits of the Hemiptera (Insecta). *Ann. ent. Soc. Am.* 72 (5): 575-579. — (*Dept. Biol., Texas A & M Univ., College Station, Texas 77843, USA*).

The argument is presented that prohemipterans were originally phytophagous and terrestrial rather than carnivorous and hygrophilous as proposed by Cobben. Association of plesiomorphic Heteroptera with aquatic habitats is paralleled by other primitive insect taxa, such as the Ephemeroptera, Odon., Plecoptera, Megaloptera, Trichoptera, and primitive Diptera and Coleoptera.

- (2919) WILLIAMS, M., 1979. The social structure, breeding and population dynamics of Paradise Shelduck in the Gisborne-East Coast District. *Notornis* 26 (3): 213-272. [New Zealand Dept. Int. Aff., Wildlife Serv. Publ. No. 220]. — (*Wildlife Serv., Dept. Int. Aff., Private Bag, Wellington, NZ*).
The breeding biology of the Paradise Shelduck (*Tadorna variegata*) was studied on hill-country farmland west of Tokomaru Bay, New Zealand (1973-1976). Among the food items of the 1st and 3rd class ducklings

are also larval Zygoptera and Anisoptera respectively.

1980

- (2920) (Anonymous), 1980. Mr. and Mrs. Basil Montgomery. *Lafayette Journal-Courier*, West Lafayette, Ind., USA, issue of Apr. 12, 1 p.
A local daily's notice on the occasion of the 50th wedding anniversary of the well-known United States odonatologist, Prof. B. Elwood Montgomery and the former Esther Barrett (906 N. Chauncey Ave, West Lafayette, Ind. 47906, USA). A portrait of Prof. and Mrs. Montgomery is also provided.
- (2921) ASAHINA, S., I. HATTORI, M. KONISHI, T. KURIHARA, M. OHNO, S.-I. UENO, K. UMEYA & T. YAMASAKI, [Eds.], 1980. *Entomology in Japan*. VI + 134 pp. Published by XVIth Int. Congr. Ent., Kyoto. — (For copies contact *Dr. S. Asahina, 4-4-24 Takadanobaba, Shinjuku-ku, Tokyo, 160, JA*).
An outline is given of the history and current research activities in the field of entomology in Japan. Lists of research institutions and research workers are presented along with their postal addresses, and a catalogue is given of the Japanese entomological periodicals. In many places reference is made to Odon.
- (2922) ASKEW, R.R., 1980. The Odonata of the Cayman Islands, British West Indies. *Atoll Res. Bull.*, Wash. 1980 (241): 115-120. — (*Dept. Zool., Univ. Manchester, Manchester, M13 9PL, UK*).
A review is presented of the odon. fauna (18 spp.) of the Caymans; 5 spp. are reported here for the first time. In view of the proximity of the archipelago to Cuba, Jamaica and Central America, it is not surprising that no endemic forms are known from the islands. Many of the recorded spp. are migratory with large geographic ranges, and all are widespread in the Greater Antilles.

- (2923) BALCIUNAS, J.K., 1980. New dragonfly (Odonata) records for Tuscarawas County, including a species new to Ohio. *Ohio J. Sci.* 80 (2): 58. — (*Aquatic Plant Manag. Lab., Univ. Florida, 3205 SW 70th Ave., Fort Lauderdale, Fla 33314, USA*).
Odon. larvae were collected at 212 sites in the Tuscarawas Co., Ohio, USA. Out of 25 spp., 17 are new county records, while *Lanthus parvulus* is here for the first time recorded from Ohio (a stream nr. Warwick township). This collection brings the number of odon. spp. now known from Ohio to 152.
- (2924) CARLE, F.L., 1980. A new *Lanthus* (Odonata: Gomphidae) from eastern North America with adult and nymphal keys to American octogomphines. *Ann. ent. Soc. Am.* 73 (2): 172-179. — (*Dept. Ent., Virginia Polytech. Inst. & St. Univ., Blacksburg, Va 24061, USA*).
A brief taxonomic and nomenclatural history of *L. parvulus* (Sel.) and *Stylogomphus albistylus* (Hag.) are given, and the adults and larvae of *L. parvulus* and *L. vernalis* sp.n. described. The new sp. is distinct from *L. parvulus* in the confluence of the mesanepimeral and metanepisternal pale strips above the metathoracic spiracle. Holotype ♂: Cove Branch, Craig Co. Va, USA, allotype ♀: Cherry Run Bog, Union Co., Pa, USA, paratypes: various localities in Maine and Georgia, USA. Both spp. prefer pristine upland streams and are valuable biological indicators. Keys to the larvae and adults are given, and the systematic position of the genus and its allies is discussed.
- (2925) CHELMICK, D., C. HAMMOND, N. MOORE & A. STUBBS, 1980. The conservation of dragonflies. 24 pp. Nature Conservancy Council, London. (First author: "Bredon", High Beech Lane, Haywards Heath, Sussex, UK; — Publishers: Interpretative Branch, Nature Conservancy Council, 19-20 Belgrave Square, London, SW1X 8PY, UK).
The chapters of this slim and useful volume are: "Conservation value", "Outline of the British fauna", "Vulnerability of our fauna", "Habitat requirements", "Factors against survival", "Conservation areas", and "Recording dragonflies". In the Appendix information is given on the habitat, distribution and status of the Odon. of Great Britain. Although related to the British fauna only, because of thorough conservancy considerations the booklet would be useful to dragonfly conservationists in any part of the world.
- (2926) DUMONT, H.J., 1980. The dragonfly fauna of Egypt and the role of the Nile in its origin and composition. *Water Supply & Management* 4: 29-34. — (*Inst. Zool., Univ. Gent, Ledeganckstr. 35, B-9000 Gent*).
The odon. fauna of Egypt consists almost completely of African spp., carried North by the Nile. Typical palaeartic elements are rare, but a fair number of mesasiatic spp. are firmly implanted. Future changes in this faunal spectrum must now be expected, as a result of the creation of Lake Nasser. Although the lake is not likely to develop a weedy littoral, the irrigation schemes that it makes possible will pave the way North for many more Ethiopian spp. A checklist of the 52 hitherto known Egyptian spp. is appended along with the bibliographic references and brief annotations on their distribution.
- (2927) EIGNER, J. & E. SCHMATZLER, 1980. Bedeutung, Schutz und Regeneration von Hochmooren. *Naturschutz Aktuell* (4): 1-78. — (*Landesamt f. Naturschutz, Hansaring 1, D-2300 Kiel-14, GFR*).
On p. 32 there is a table showing 12 odon. spp. endangered (7 spp.) or threatened with extinction (5 spp.) in the moorlands of the Lower Saxony, German Federal Republic.
- (2928) GERKEN, B., 1980. Vorläufiger Sammelbericht über Libellen-vorkommen in Baden-Württemberg nach Unterlagen der Biotopkartierung (Stand: März 1980). *Inst. Ökol. & Naturschutz, Karlsruhe*. 22 pp. — (*Lehrstuhl Geobotanik, Biol. II, Univ. Freiburg, Schänzlestr. 1, D-78 Freiburg/Br.*).
A list is given of 63 odon. spp. known to

- occur in the state of Baden-Württemberg, German Federal Republic, and the distributional maps are provided for 41 of these, showing the records evidenced after 1970.
- (2929) HARITONOV, A.Yu., 1980. Shirotnye izmeneniya fenologii strekoz (Insecta, Odonata) Zaural'ya i Kazakhstana. [Latitudinal alteration in the dragonfly (Insecta, Odonata) phenology in the Zaural territories and Kazakhstan]. *Ekologiya* 1980 (2): 93-96. (Russian). — (*Inst. Biol., Siberian Sect. USSR Acad. Sci., Ul. Frunse 11, USSR-630091*).
- The odon. phenology has been studied at various points between the subarctic Ural Mts in the N, and the Syr Darya Riv. in the S. In the subarctic forest-tundra region the adult season lasts from early July-late August, in the central Ural taiga, late May-early Oct. (5 seasonal groups), in the South Ural forest-steppe, mid May-mid Oct. (8 seasonal groups) and in the semidesert of the lower Syr Darya, mid Apr.-early Nov. (5 seasonal groups of spp.). The reasons and adaptive significance of the latitudinal phenology alteration in Odon. are discussed. (Author).
- (2930) HIGASHI, K., S. NOMAKUCHI, M. MAEDA, M. HARADA & Y. OKAME, 1980. An analytical study of the territorial system of *Mnais pruinosa pruinosa* (Odonata: Calopterygidae). *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 141. — (*Dept. Biol., Coll. Liberal Arts, Saga Univ., Saga, 840, JA*).
- [Verbatim]: The emergence was studied at a mountain stream Fukuoka City, Kyushu, Japan (late Apr.-early May). It is considered, from the short emergence period, that the sp. is referable to the 'spring type' of Corbet. The reproductive period territorial system was simulated and the influence of the synchronization of emergence to the occupancy and maintenance of the territory and residentiality is discussed. In the simulation, the following 4 stages were considered: (1) emergence curve, (2) teneral period, (3) arrival at the stream, and (4) occupancy of the territory.
- (2931) IDEKER, J. & D.-F. YAN, 1980. *Lestes* (Mammalia) a junior homonym of *Lestes* (Zygoptera). *Vertebrata Palasiatica* 18 (2): 138-141. (Chinese and Engl., with Germ. s.). — (*McDonnell Nat. Hist. Cent., P.O.B. 1433, Edinburg, Texas 78539, USA*).
- Lestes* Yan & Tang, 1976 (Mammalia, Carnivora, Mesonychidae) is shown to be a junior homonym of *Lestes* Leach, 1815 (Odon., Zygoptera), and *Yantanglestes* gen. nov. is proposed as a replacement. (Authors).
- (2932) IWASAKI, M., 1980. Breeding behaviour of *Mnais pruinosa* Selys. *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 233. — (*Dept. Zool., Fac. Sci., Kyoto Univ., Kitashirakawa, Sakyo-ku, Kyoto, 606, JA*).
- [Verbatim]: Species complex of *M. pruinosa* presents many interesting problems. Observations of the mating strategy of *M. p. pruinosa* were examined in Kyoto, Japan, where only hyaline winged type is distributed and suggest the character displacement in *M. p. costalis* and *M. p. pruinosa*.
- (2933) JOHNSON, D.M., C.C. CONEY & M.J. WESTFALL, 1980. The Odonata of Bays Mountain Park, Sullivan County, Tennessee. *J. Tenn. Acad. Sci.* 55 (3): 73-76. — (*Dept. Biol., Coll. Arts & Sci., East Tennessee St. Univ., Johnson City, Tenn. 37601, USA*).
- 46 spp. are recorded from the Park. The collection includes 25 new records for Sullivan Co.; *Lestes eurinus* and *Celithemis verna* are for the first time reported from Tennessee. Adult flight seasons are outlined for 28 more common spp.; 25 of these are extensions of published evidence for Tennessee.
- (2934) KIAUTA, B. & M.A.J.E. KIAUTA, 1980. Considerations on cytotaxonomy and speciation in the dragonfly genus *Rhinocypha* (Odonata: Chlorocyphidae). *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 19. — (*Dept. Anim. Cytogenet. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL*).
- [Verbatim]: Along with the cytologically

little-known Polythoridae, the Chlorocyphidae are the only calopterygoid family with the type number ($n=12$) lower than that of the Order. The taxa examined are: *R. biforata besoni* Fr. (India), *biseriata biforata* Sel. (Thailand), *c. colorata* Sel. (the Philippines), *fenestrella* Ramb. (Thailand), *quadrifasciata* Sel. (India, Nepal), *trifasciata* Sel. (India), and *unimaculata* Sel. (India, Nepal). The karyotypic morphology of the genus is characterized by variation in chromosome number and TCL on intra- and interspecific levels, with or without a geographic gradient, resulting in an appreciable variation of the recombination index which, however, hardly ever reaches the calopterygoid adaptive level. — The association of low recombination potentials with the rather unique *Rhinocypha* ecology, resulting in an exceptionally low grade of interspecific competition, is tentatively assumed. The lack of cytogenetic stability suggests the present occurrence of intense evolutionary processes in the genus.

- (2935) KILLER, M., 1980. *Satansbolzen*, Wasserjungfern. Über das kurze Leben der Libellen. Tages Anzeiger Magazin, Zürich 1980 (27): 24-27. (Issue of July 5). — (Author's address unknown; — Publishers: *Tages Anzeiger AG, Werdstr. 21, CH-8004 Zürich*).

A narrative on the biology of dragonflies, directed at the general (Swiss) reader, and accompanied by a few colour and black-and-white photographs. The article contains no faunistic data, but a few (German) vernacular names for the order are mentioned. Among these, the terms "*Satansbolzen*", "*Schillebolden*" and "*Himmelsperferde*" are but seldom mentioned in the literature.

- (2936) KLEINPASTE, R., 1980. [Predation of *Vespula germanica* on *Uropetala carovei*]. *Weta* (Sci. Suppl. N.Z. Ent.) 3 (2): 17. — (*Ent. Div., D.S.I.R., Private Bag, Auckland, NZ*).
2 observations are recorded and the behaviour of the wasp and the dragonfly is described.

- (2937) KOMATSU, A., 1980. Intracellular recordings from the respiratory motoneurons in the dragonfly larvae, *Anax parthenope julius*. *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 242. — (*Dept. Physiol., Tokyo Women's Med. Coll., Tokyo, Shinjuku-ku, Tokyo, 162, JA*).

[Verbatim]: Intracellular recordings were made with microelectrodes penetrating neuropilar regions of respiratory motoneurons in the 4th abdominal ganglion of the dragonfly larvae. During spontaneous rhythmic activities recorded from nerves innervating respiratory muscles, the motoneurons showed burst of spikes superimposed on the depolarizing phase of their oscillatory membrane potential. EPSP's and IPSP's were observed in some motoneurons. Injection of depolarizing current pulse into a respiratory motoneuron produced spike discharges, but it neither altered the rhythmicity nor affected activities of other motoneurons. Therefore the respiratory motoneurons appear to behave merely as output elements which relay the activity of an oscillator(s). Long-lasting hyperpolarizing current injected into an inspiratory motoneuron enhanced the inspiratory depolarizing potential, while it reduced the expiratory hyperpolarizing potential which reversed its polarity by increasing current. It is suggested that the inspiratory depolarization is caused by excitatory inputs and the expiratory hyperpolarization by inhibitory ones, and that these inputs are mediated by chemical synapses. In case of the expiratory motoneurons it appears that the oscillatory membrane potential is similarly produced by excitatory and inhibitory synaptic inputs but with an reverse phase. Electrical stimulation of the lateral nerve, n1A, evoked a depolarizing response in the expiratory motoneurons and a hyperpolarizing response in the inspiratory motoneurons.

- (2938) KOMNICK, H., M. SCHMITZ & H. HINSEN, 1980. Biochemischer Nachweis von HCO_3^- - und Cl^- -abhängigen ATPase-Aktivitäten im Rectum von anisopteren Libellenlarven und Hemmung der rectalen

Chloridaufnahme durch Thiocyanat. Eur. J. Cell Biol. 20 (3): 217-227. (With Engl. s.). — (*Inst. Cytol., Univ. Bonn, Ulrich-Haberland-Str. 61a, D-5300 Bonn-1, GFR*).

Hydrocarbonate and chloride activated, ouabain-insensitive ATPase activities are demonstrated in the salt-absorbing rectum of larval *Aeshna cyanea*. Maximal activation is achieved at approx. 30 mM HCO_3^- and 20 mM Cl^- , respectively. The stimulation of each anion obeys Michaelis-Menten kinetics K_m values are 4.65 mM for HCO_3^- and 10.25 mM for Cl^- -activation. The activating anion of one type of ATPase simultaneously exerts an inhibitory effect on the other. Cl^- -activation is also reduced by Mg.ATP in concentrations above 0.5 mM and by Tris-Hepes buffer exceeding 2.5 mM. Both anion-dependent ATPase activities are found enriched in subcellular membraneous fractions of the rectum. Thiocyanate inhibits both activities and causes a significant decrease in rectal uptake of radioactive chloride from hypo-osmotic external solution. In the case of HCO_3^- -dependent ATPase a competitive inhibition of SCN^- was found with an inhibitor constant of $K_i=0.5$ mM. (Authors)

(2939) KUMAR SHRESTHA, T., 1980. Some aspects of the ecology and behaviour of Freshwater Eel *Anguilla bengalensis* (Gray) in the Temple Pond of Chaddibarha and adjacent rivers. J. nat. Hist. Mus., Kathmandu 2 (1/4) [1978]: 73-90. — (*Dept. Zool., Tribhuvan Univ., Kirtipur, Kathmandu, Nepal*).

On p. 80, a not further identified *Anax* sp. (larva) is reported from the pond, 4 mi upstream from the confluence of Madi and Seti rivers, Damauli, Nepal. (Cf. also *OA* Nos. 2942, 2951, 2952). — (*Abstracter's Note: The issue appeared in April, 1980, though '1978' is shown as the date on the cover*).

(2940) LOHMANN, H., 1980. Faunenliste der Libellen (Odonata) der Bundesrepublik Deutschland und Westberlins. Soc. int. odonotol. rapid Comm. 1: 1-34. — (*Untere Dorfstr. 16, D-7888 Rheinfelden, GFR*). — Orders to be sent to the Editors of

Odonatologica, Dept. Anim. Cytogenet. & Cytotaxon., Univ. Utrecht, Padualaan 8, Utrecht, NL. — Price: Hfl. 10.— net.

This is a preliminary checklist of the odon. fauna (80 spp.) of the German Federal Republic and the West Berlin territory. For each sp. a concise ecological characterization and a statement on its present regional distribution are given, along with vernacular names and extensive bibliography.

(2941) LOSOS, B., M. PEŇÁZ & J. KUBIČKOVÁ, 1980. Food and growth of fishes of the Jihlava River. Prir. Prace Ust. Českoslov. Akad. Véd, Brno (Acta Sci. natur. Acad. Sci. bohemoslov., Brno)(N.S.) 14: 1-46. — (*Dept. Anim. & Human Biol., J.E. Purkyně Univ., Kotlářská 2, CZ-611 37 Brno*).

The evaluation is presented of food, growth and production of fish in the Jihlava River, nr. Hrubšice, Moravia, Czechoslovakia. Out of the 16 fish spp. studied, the Odon. are fed upon only by *Barbus barbus*.

(2942) MALLA, Y.K., V.C. KAPOOR, A.S. TAMRAKAR & K. VAIDYA, 1980. On a collection of aquatic insects of Kathmandu Valley. J. nat. Hist. Mus., Kathmandu 2 (1/4) [1978]: 1-19. — (*Zool. Instruction Committee, Tribhuvan Univ., Kirtipur, Kathmandu, Nepal*).

An annotated list and a "key" are given of 61 spp. of various orders, collected in the Kathmandu Valley. It is stated that 37 of these are new records for Nepal. The list includes 13 odon. genera. The paper has only limited value; its poor reliability is apparent from the mere fact that such New World (!) taxa as "*Orthemis ferruginea*" (probably *Orthetrum pruinosum neglectum*) and "*Pseudoleon* sp." (probably *Rhythemis variegata*) "are reported for the first time from Nepal". (Cf. also *OA* Nos. 2939, 2951, 2952). — (*Abstracter's Notes: (1) The issue appeared in April, 1980, though '1978' is shown as the date on the cover; — (2) In view of the nearly total lack of adequate literature and collections, it is extremely difficult for the Nepalese workers to produce reliable taxonomic work. The foreign taxonomists,*

on the other hand, are thoroughly discouraged by the peculiar policy of the Nepalese government, demanding exorbitant taxes and fees both for the field work and for the export of insect specimens for scientific research. The procedure is regularly coupled with considerable waste of time, due to inefficiency of and chicaneries by the "responsible officers". In addition, even for brief collecting trips, the foreign worker is forced to take along a local "liaison" (usually a totally desinterested local biology undergraduate, without any personal interest in or knowledge either of the subject or of the local terrain and regional languages), to pay his salary and provide his equipment, portage, food, etc. The demand to hand in to the local Wild Life Office the (unidentified!) "duplicates" before the latter is willing to consider any application for the "export licence" of the specimens, has the inevitable consequence that the local institutions will never be able to acquire adequately studied and identified reference material, to say nothing of scarce and/or otherwise interesting taxa. In most cases, the duplicates of these would be most gladly sent to Nepal, after having been properly studied in the worker's home institution, provided the Nepalese authorities would be able to guarantee their proper safe keeping and free access to them, and provided the local government would show at least a minimum of good will towards foreign taxonomists and research workers, instead of considering them merely as an easy and unlimited source of revenue. It should be noted that most taxonomists visiting Nepal have to provide for the costs from their own private means, are working on a purely idealistic basis, and are unable to cope with the unreasonable financial and other burdens laid upon them by the local authorities. It is strongly recommended, therefore, that entomologists visiting Nepal should omit any reference to their intended research and collecting, strictly stating in the Immigration Forms and in any other documents (incl. the applications for the permits to visit places outside the Kathmandu Valley) "tourism" and "sight-

-seeing" as the only objective of their visit. This would spare them much time, money, trouble (in preparing project descriptions prior to the commencement of the work, and report after its completion), and frustrating interviews. (The Kathmandu Wild Life Office is notorious by its habits of systematic obstruction of interview appointment dates: in spite of clearly made appointments, one may have to keep calling on the Office daily for a week or longer, before he/she would succeed in getting the "responsible officer" with whom the appointment has been made, and then often only to hear to have to return for a further interview the next day again!). In case there is a fear of difficulties with the export of specimens, the entomologists should contact their local diplomatic or consular representatives. It should be stressed that the described "formalities" and restrictions are by no means set up for the sake of any conservancy considerations. In the first place they are intended as a psychological and revenue measure, and in Nepal (as in some other underdeveloped countries) the idealistic taxonomic research by foreigners tends to be regarded as a "scientific imperialism". The first to suffer from this policy are the local professional institutions, who are increasingly losing good will of foreign workers, and who will remain in this way bare of urgently needed reference material, technical information and of other facilities that could only be provided by the foreign specialists. — The Editors of *OA* have decided to publish the above lengthy comments as a warning to the colleagues, in view of the fact that some of the world's most prominent odonatologists, unaware of the local situation, have been treated in Nepal recently in a way beyond any description).

- (2943) MOORE, N.W., 1980. *Lestes dryas* Kirby — a declining species of dragonfly (Odonata) in need of conservation: notes on its status and habitat in England and Ireland. *Biol. Conserv.* 17: 143-148. — (*Nature Conserv. Council, 19/20 Belgrave Square, London, SW1X 8PY, UK*).

In 1978 no *L. dryas* was found in 10 localities in SE England, which had held populations in 1940-1947. Major changes had occurred in 8 of these. The sp. was found on 3 out of 80 waterbodies visited in the W and S of Ireland. Neutral or slightly acid waters with extensive emergent vegetation, notably *Equisetum fluviatile*, *Scirpus lacustris* and *Typha* sp., and supporting *Sympetrum sanguineum* and/or *Coenagrion pulchellum*, appear to indicate a suitable habitat for this sp. The decline of *L. dryas* appears to have been caused by a combination of factors: loss of habitat, periods of drought and small population numbers. Since in the past in England the sp. bred successfully in small ponds constructed for agricultural reasons, it is suggested that similar ponds could be dug for conservation purposes on suitable nature reserves within the former range of the sp. If the dragonfly would not colonise them naturally it could be introduced into them, once the ponds had developed suitable vegetation.

- (2944) MORSE, J.C., J.W. CHAPIN, D.D. HERLONG & R.S. HARVEY, 1980. Aquatic insects of Upper Three Runs Creek, Savannah River Plant, South Carolina. Part 1: orders other than Diptera. *J. Georgia ent. Soc.* 15 (1): 73-101. — (*Dept. Ent. & Econ. Zool., Clemson Univ., Clemson, South Carolina 29631, USA*).

The aquatic insect fauna of Upper Runs Creek and its tributaries nr. Aiken, South Carolina, USA, is documented to support ecological investigations by the Savannah River Laboratory. The chapter on the Odon. (pp. 81, 84-85) was contributed by K.J. TENNESSEN (1949 *Hickory Ave., Florence, Alabama 35630, USA*). 24 spp. were identified from 748 larvae and are listed in a table. Of particular interest are *Lestes inaequalis*, *Hylogomphus* sp., and *Ophiogomphus* (?) sp.

- (2945) MOULDS, M.S., 1980. The identity of the dragonfly *Macromia viridescens* Tillyard (Odonata: Corduliidae). *J. Aust. ent. Soc.* 18 (4): 343-347. Publication date in the head of

the paper incorrectly stated as 1979. — (*Ent. Dept., Austral. Mus., 6-8 College Str., Sydney, N.S.W. 2000, AU*).

The male of *M. viridescens* from North Queensland, Australia, is described and illustrated, and the validity of the sp. confirmed. *M. amymone* Liefstinck from New Guinea is shown to be its junior synonym. — (*Abstracter's note*: The journal issue has been published on Apr. 11, 1980. It is regrettable that the Editors of an important taxonomic periodical are creating confusion, apparently for commercial reasons and for the sake of subscribers, by printing an incorrect publication date in the head of the paper. Although the correct date is stated on the cover of the issue, the covers often tend to get lost in the process of volume binding, hence the information on the true date becomes obscure. The reprints are also wrongly dated).

- (2946) PINHEY, E., 1980. A melanic morph amongst Transvaal Chlorolestidae (Odonata). *Arnoldia, Zimbabwe* 8 (39): 1-4. — (*Natl Mus., P.O.B. 240, Bulawayo, Zimbabwe*).

Chorolestes fasciata (Burm.) was found in large numbers on the Soutpansberg range, northern Transvaal, extending the known range of this sp. further N than previous Transvaal records. The majority of specimens (teneral and mature alike) represented a melanic form, named here as morph *nigerrima* nov. A figure of the prophallus is also provided.

- (2947) PINHEY, E., 1980. A revision of African Lestidae (Odonata). *Occ. Pap. natl. Mus. Rhod.* (B) 6 (6): 327-479. — (*Natl Mus., P.O.B. 240, Bulawayo, Zimbabwe*).

All known taxa of African Lestidae are reviewed and described, both Afrotropical (Ethiopian) and Palaearctic North African species. Emphasis is on Afrotropical species and their types, where available, but some have been lost, others damaged. Examination has stressed features of wing venation and anal appendages, as in earlier reviews, and also some of the more neglected

venational and other characters indicated by studies of orbit, prothorax, sternite, pro-phallus (peneal organ), vulvar scale and ovipositor of all species; bursae of only a few females since they are not readily taxonomic. Details of anal appendages and particularly prophalli have necessitated introduction of a few descriptive terms, which are explained in a glossary. — From inter-relationships it has been shown that Chalcolestes Kennedy and Paralestes Schmidt are of subgeneric status and Schmidt's interpretation (1951) of Chalcolestes is incorrect, a new subgenus Pseudochalcolestes being required for silvaticus. Two other new subgenera are erected, Icterolestes for ictericus, Malgassolestes for simulator. Africolestes remains in synonymy to subgenus Lestes. Straightness of a radial vein in Kennedy's genus is shown to be a size criterion, not a diagnostic feature. Xerolestes is accepted, on further examination, as a valid subgenus. There are consequently two genera in this fauna, Sympecma and Lestes, and seven subgenera, subordinate to Lestes. It also appears that Sympecma is closer to the Paralestes groups than to typical Lestes. — Examples of type species of genera and subgenera are all detailed, including praemorsus, the Oriental type of Paralestes. New types have been erected for three of the valid species, amicus, pruinescens and silvaticus. — Recorded synonymy has only been checked for Afrotropical taxa and new synonyms or other alterations have been made in these. Confusion in some taxa has been overhauled as far as possible. Altogether, twentyone species are listed for this Continent, but the true status of regulatus Martin remains uncertain in the absence of its type. *L. pruinescens* is restored as a good species. — Earlier descriptions relied too much at times on markings of preserved material, some of which were due to post-mortem discoloration. Emphasis is laid on strong tendencies in many species to melanism and staining which can both appreciably affect patterns and colours. — Early stages are excluded except for mention of larval character under the family diagnosis and in a few of the references.

Notes are recorded on ecology and behaviour, sex recognition factors and also possible causes for some of the melanistic tendencies. Separation of the Malagassian taxa is briefly discussed with other aspects of distribution. — A historical survey, a list of abbreviations employed and a glossary, keys to all taxa and detailed references are included. — Grammatically, species have been much confused in gender. Conformity has been achieved here by accepting "Lestes" as a masculine term. (Author).

- (2948) SCHALLER, F. & M. CHARLET, 1980. Neuroendocrine control and rate of ecdysone biosynthesis in larvae of a paleopteran insect: *Aeshna cyanea* Müller. *In*: J.A. Hoffmann, [Ed.], *Developments in endocrinology*, Vol. 7 (Progress in ecdysone research), pp. 99-110. Elsevier-North Holland Biomedical Press. — (*Lab. Biol. gén., Univ. Louis Pasteur, 12 rue de l'Université, F-67000 Strasbourg*).
- Cautery of the median neurosecretory cells of the brain prevents the synthesis of ecdysone by the ventral (prothoracic) glands. The moulting process is blocked and the insects survive as permanent larvae. The critical period for this experiment has been determined in the two last larval instars; after this period, brain cautery only delays moulting without preventing this process. The implantation of brains to permanent brain-cauterized larvae restores the moulting process, whatever the age and the physiological stage of the donors; thus the excised brains seem always capable of exerting their stimulatory effect on the ventral glands. — The extirpation of the ventral glands also results in an induction of permanent larvae and the critical periods for blocking the two last moulting processes have been determined. The implantation of ventral glands to permanent ventralectomized larvae always restores the moult; however the rapidity with which the subsequent moult is achieved depends on the number of the implanted glands and the physiological age of the donors. — A study of ecdysone titer in the blood (RIA - determination) shows two

peaks in the two last larval instars. In those instars, the first peak coincides with the critical period for ventralectomy, the second peak, much more intense than the first one, is observed at the beginning of the last third of the instar, precisely at the physiological stage when the implanted ventral glands show the highest efficiency in restoring the moulting in the ventralectomized larvae. — The kinetic study of in vitro biosynthesis of ecdysone by excised ventral glands brings the proof that the observed variations of the blood hormone titer result essentially from a varying secretory activity of the ventral glands. (Schaller).

- (2949) SCHMIDT, E., 1980. *Orthetrum albistylum* und andere südliche Libellenarten (Odonata) an einem Badeteich in den Nordalpen bei Mittenwald (Tennessee bei Krün). Ent. Z. Frankfurt/M 90 (13): 145-147. — (*Biol. Seminar, Pädagog. Hochschule, Römerstr. 164, D-5300 Bonn, GFR*).
The Tennessee nr Krün (alt. 900 m) is reported as the third known locality of *Orthetrum albistylum* in the German Federal Republic (cf. also *OA* Nos. 1119, 2108, 2940). Along with several males of this sp., *Anax parthenope* and *Sympetrum fonscolombe* were also collected (Aug. 7, 1973). The 3 spp. are considered immigrants, and the composition of the odon. fauna of the locality is briefly discussed (3 + 17 spp.).
- (2950) SCHRÖDER, H., 1980. Buchbesprechung. Gerhard Jurzitza; *Unsere Libellen*. Ent. Z. Frankfurt/M 90 (13): 152. — (*Senckenberg Mus., Senckenberganlage 25, D-6000 Frankfurt/M.-1, GFR*).
Book review of the volume listed in *OA* No. 2121.
- (2951) SMITH, C., 1980. Dragonflies (Odonata) of Nepal with particular reference to Kathmandu Valley, part 1, Agridae. J. nat. Hist. Mus., Kathmandu 2 (1/4) [1978]: 27-33. — (*Nat. Hist. Mus., Inst. Sci., Tribhuvan Univ., Anandakuti, Swayambhu, Kathmandu, Nepal*).
10 calopterygoide spp. from the Kathmandu Valley, Nepal, are keyed and briefly described. (Cf. also *OA* Nos. 2939, 2942, 2952). — (*Abstracter's note*: The issue appeared in April, 1980, though '1978' is shown as the date on the cover).
- (2952) SMITH, C., 1980. Dragonflies (Odonata) of Nepal with particular reference to Kathmandu Valley, part 2, Gomphidae. J. nat. Hist. Mus., Kathmandu 2 (1/4) [1978]: 67-71. — (*Nat. Hist. Mus., Inst. Sci., Tribhuvan Univ., Anandakuti, Swayambhu, Kathmandu, Nepal*).
8 gomphide spp. from the Kathmandu Valley, Nepal, are keyed, briefly described and illustrated. (Cf. also *OA* Nos. 2939, 2942, 2951). — (*Abstracter's note*: The issue appeared in April, 1980, though '1978' is shown as the date on the cover).
- (2953) SMITH, N., 1980. Artist's work bugs viewers. Dallas Morning News 131 (246), p. 4 C (issue of June 2). — (c/o Editorial Office, Communications Center, Dallas, Texas 75265, USA).
A daily's article on the latest creation of the well-known Dallas artist, Bob Wade, a huge sculpture of a dragonfly (wing span: 16 ft, body length: 12 ft, stained glass wings, iron legs, 28.000 beads in eyes). In view of the modern flight technology the artist considers the dragonfly, as the first living creature ever to fly, a "socially significant" animal, and hopes to sell the sculpture to Bond's Disco in New York's Time Square. A photograph, showing the artist and his creation, is added.
- (2954) STEWART, W.E., 1980. The Australian genus *Diphlebia* Selys (Odonata: Amphipterygidae). I. Taxonomic revision of the adults. Aust. J. Zool. (Suppl.) 75: 1-58. — (*Ent. Dept., Royal Ontario Mus., 100 Queen's Park, Toronto, Ontario, M5S 2C6, CA*).
Detailed redescriptions of adults of the genus *Diphlebia* are presented based on the examination of large numbers of specimens of all taxa (except *D. hybridoides*). Keys are presented for males and females of all taxa. *D. lestoides lestoides* and *D. lestoides*

tillyardi are of subspecific rank but each contain two polymorphic male forms: *D. l. lestoides* a Bar and a Clear-Wing form, and *D. l. tillyardi* a Bar and Tip and a Clear-Wing form. Only one female morph was recognized for each subspecies. *D. coerulescens* Tillyard is demonstrated to be of specific rather than subspecific rank. *D. reinholdi* Forster is considered synonymous with *D. euphaeoides* Tillyard. In each taxon, colour pattern variations were expressed in percentage values, as no geographic trends in colour patterns were evident (except for *D. l. tillyardi* in rain forest). (Author). (Cf. also *OA* No. 2955).

- (2955) STEWART, W.E., 1980. The Australian genus *Dipblebia* Selys (Odonata: Amphipterygidae). II. Taxonomy of the larvae. *Aust. J. Zool. (Suppl.)* 75: 59-72. — (*Ent. Dept., Royal Ontario Mus., 100 Queen's Park, Toronto, Ontario, M5S 2C6, CA*). Previously, the larvae of only two taxa (*D. lestoides* and *D. nymphoides*) of the Australian Zygopteran genus *Dipblebia*, of which one redescription is presented here, were known. Descriptions of larvae of an additional four taxa (*D. l. tillyardi*, *D. coerulescens*, *D. euphaeoides* and *D. hybridoides*), as well as keys for the separation of the taxa described, are here presented for the first time. (Author). (Cf. also *OA* No. 2954).
- (2956) UBUKATA, H., 1980. Territoriality as a density-dependent mating strategy in *Cordulia*. *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 234. — (*Kushiro Coll., Hokkaido Univ., Shiroyama, Kushiro, 085, JA*). [Verbatim]: Adult ♂♂ of *C. aenea amurensis* Sel. occupy territories at high population densities, whereas they search over a long distance along the pond shore at low densities. The rate of aggressive encounter increases with the ♂ density (M , per m shore) of the whole pond. The average length (L m, measured along the shore) of a 'patrol range' decreases with M according to an empirical formula: $L = 4.96^{-0.33}$. The ratio of victory in fighting of a given ♂ increases with

contraction of his patrol range. This 'effect of prior residence' is attained within a couple of min after localization. The ratio of ♂ density at sector 'NE', at which the predictability of ♀ arrival is highest, to M decreased according to an increase of M . This suggests a promotion of dispersal of ♂♂ from NE to the other sectors due to the aggression by the territory occupants at NE. Based upon a simple 'patrolling model' the relationships among patrol range, population density and mating success are discussed.

- (2957) UÉDA, T., 1980. Males' site selection process and mating success in a damselfly, *Cercion calamorum*. *Abstr. Pap. XVIth Int. Congr. Ent., Kyoto*, p. 140. — (*Dept. Zool., Fac. Sci., Kyoto Univ., Sakyo-ku, Kyoto, 606, JA*). [Verbatim]: *C. calamorum* ♂♂ wait for ♀♀ to mate at pond and the surrounding area. Therefore, it is very important where ♂♂ wait for ♀♀ relating to the ♂♂ mating success. Site suitability for mating should be assessed originally by the probability of encounter with ♀, but ♂ actually seems to perceive it by the suitability for oviposition. Ideal free distribution of ♂♂ (all ♂♂ experience equal ♀ quotas) was modified by limiting mobility and ♂-♂ interactions. Residentiality of ♂♂ restricted the searching range for site selection. ♂♂ could not always choose the most suitable site. Aggressive interactions among ♂♂ had a buffer effect on density increase at the suitable site and produced many floaters, which crowded out to the surrounding area. The surrounding areas were less suitable for oviposition and mating; but the floaters sometimes intercepted and copulated with ♀♀ before they arrived at the suitable sites. Therefore, increasing of such floaters raised the rate of interception and reduced the mating rate of the males even at the suitable sites.
- (2958) VALTONEN, P., 1980. Sudenkorentojen (Odonata) luonnollisista kuolemansyistä. (Natural causes of death in dragonflies). *Luonnon Tutkija* 84 (2): 88. (Finish, with

Engl. s.). — (Dept. El. Eng., Tampere Univ. Technol., Box 527, SF-33101 Tampere-10). 4 natural deaths are recorded: *Lestes sponsa* was killed by a *Notonecta*, *Calopteryx virgo* was drowned, *Aeshna juncea* was killed by ants while hatching, and a pair of *Leucorrhinia dubia* were the victims of sundews (*Drosera*).

(2959) [WAAGE, J.K.] - NOVALES, R.R., 1980. Zoology. In: Britannica Book of the Year 1980, pp. 492-495. Encyclop. Brit., Chicago. In this annual supplement of the authoritative Encyclopaedia Britannica Dr. J.K. Waage's discovery of sperm removal in *Calopteryx maculata* (cf. OA No. 2498) is listed (p. 493) among the noteworthy achievements in the field of zoology in 1979.

(2960) WALKER, W.F., 1980. Sperm utilization strategies in nonsocial insects. Am. Nat. 115 (6): 780-799. — (Dept. Biochem., Charles Tupper Bldg. Dalhousie Univ., Halifax, Nova Scotia, CA). It is postulated that the sperm precedence characteristics of most insect populations have resulted primarily from selection of females to optimize the genetic composition

of progeny, discourage or encourage multiple matings for reasons other than genetic considerations, and to optimize their sperm storage capacity and utilization. The recently described case of *Calopteryx* (cf. OA No. 2498) is also considered in this connection.

(2961) WATSON, J.A.L. & H.M. ABBEY, 1980. Dragonflies (Odonata) from the Northern Territory. A provisional synopsis, with a key to adults, notes on the biology and distribution of species, and a section dealing with species known from the Alligator Rivers uranium province. CSIRO Aust. Div. Ent. Rep. 21: 1-44. — (Div. Ent., C.S.I.R.O., P.O. Box 1700, Canberra City, A.C.T. 2601, AU).

The scope of the paper is completely covered by its subtitle. So far 95 spp. are known to occur in the Northern Territory, Australia, incl. a number of undescribed taxa, referred to here by the initials of their manuscript names. The questionable record of *Austroaeschna unicornis* is mentioned, but not listed in the synopsis. The keys are well-illustrated, though it has not been considered feasible to illustrate all the diagnostic characters used.

ERRATA

In the ERRATA of Vol. 7 (no. 4, p. 416), lines 6 and 7 from the top should be deleted.

Vol. 8, No. 3, p. 212 (WINSTANLEY): lines 12-17 from the top should be deleted.

Vol. 8, No. 4, p. 275 (KIAUTA): legends of figures (28-29) and (32-33) should read: "(28-29) *E. peruviana* (Ramb.), spermatogonial metaphase and early metaphase I, respectively; —" ..."(32-33) *E. paraguayensis*: (Foerst.), metaphase I (note the extremely tiny, hardly visible *m*-bivalent)."

Vol. 9, No. 2, p. 131 (BOYES et al.): abstract, line 3 from the top: read *Ceriagrion* instead of *Coenagrion*.

Only two serious errors were so far detected in the ODONATOLOGICAL ABSTRACTS of Vol. 9, viz.:

No. 2679 (RETTIG, No. 2, p. 200): postal code number in the address is D-297.

No. 2795 (GORE, No. 3, p. 265): the name of the author is "Gore", not "Gorre" as erroneously printed.

The Editors have to apologize for the above errors and are grateful to the readers for drawing their attention to them. It goes without saying that any other corrections and or additions received from the readers, will be greatly appreciated.