ODONATOLOGICAL ABSTRACTS

1971

(617) PUZANKOVA, R.N., 1971. Pitanie ptenzov turkestanskogo skvorza v Uzbekistane. (The diet of the Turkestan Starling nestling in Uzbekistan). Uzbeksk. Biol. Zh. 1971 (2): 43-45. (Russian). – (*Inst. Zool. and Parasitol., Acad. Sci. Uzbek SSR, 1 G. Hidoiatov Str., 700000 Tashkent, USSR*).
In Uzbekistan, USSR, adult and larval Odon. constitute 20% of the diet of Sturnus vulgaris porphyronotus nestlings.

1972

(618) BOSINA, E.D., 1972. Entomofauna strekoz Riazanskoi onlasti. (Dragonfly fauna of the Riazan Province). Dokl. mosk. Obshch. Ispyt. Prir. (Zool. Bot.) 1970-1971: 262-263. (Russian). – (*Dept. Zool., Riazan Pedagogical Inst., 46 Svobody Str., 390000 Riazan, USSR*).
Annotated list of 32 spp., recorded from the Riazan Prov., USSR.

(619) CASPERS, N., 1972. Ökologische Untersuchungen der Invertebratenfauna von Waldbächen des Naturparkes Kottenforst-Ville. Decheniana 125 (1-2): 189-218. – (*Inst. Landwirtschaftliche Zool. u. Bienenkunde, Univ. Bonn, Melbweg 42, D-5300 Bonn, GFR*).
A faunistic survey was made of the invertebrate fauna and the principal abiotic factors were recorded over a 12-month period in 1971 of the woodland streams in the Kottenfors-Ville Nature Park near Bonn, German Federal Republic. Among 61 spp. recorded there are only 3 Odon., viz. Coenagrion puella, Pyrrhosoma nymphula and Cordulegaster bidentatus.

(620) FINTHA, I., 1972. Neuere montane Elemente in der Insektenfauna des Szamos-Gebietes. Fol. ent. Hung. 25 (2): 500-501. (Hungarian, with German translation of the title). – (*c/o Hungarian Nat. Hist. Mus., Baross u. 13, Budapest-VIII, HU*).
Calopteryx virgo and Somatochlora metallica are reported from the Szamos region, Hungary.

(621) MOKRUSHOV, P.A. & L.I. FRANTSEVICH, 1972. Harakteristiki puskovyh zritel'nyh stimulov v povedenii lichinok i vozroslyh strekoz. (The features of the initial optical stimuli in the behaviour of larval and adult dragonflies). In: Povedenie zhivotnyh. Ekologicheskie i evolucionnye aspekty. Pervoe Vsesoyuznoe Soveshchanie. Referaty dokladov. (Animal Behaviour. Ecological and evolutionary aspects. The 1st All-Union Conference. Abstracts of Papers). Nauka, Moscow, pp. 93-94. (Russian). – (*Lab. Insect Physiol., Inst. Zool., Acad. Sci. Ukrainian SSR, 15 Lenin Str., 252030 Kiev, USSR*).
Information is presented on models stimulating larval predatory and escape reactions, and on those initiating the predatory and perching reactions in adults.

(622) PAVLYUK, R.S., 1972. Itogi izucheniya parazitofauny strekoz (Insecta, Odonata) zapadnyh oblastei Ukrainskoi SSR. (Results of the studies on the fauna of the dragonfly parasites [Insecta, Odonata] of the western provinces of the Ukrainian SSR). In: Problemy parazitologii. Proceedings of the 7th Conference of Parasitologists of the Ukrainian SSR. Naukova Dumka, Kiev. pp. 102-103. (Russian). – *(Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR).*

In 43% (48 spp.) of 12500 adult and larval Odon., collected in the western provinces of Ukraine, USSR, and referable to 55 spp., 62200 specimens of various parasites were found, including 23600 Arrhenurus larvae (Hydracarina), 30150 gregarines, 8300 trematode metacercariae, 83 cysticercoids of Taenia decacantha (Cestodes), and 43 mermithids (Nematodes). A list of identified gregarines and trematodes is given and the intensity of infestation is stated for many parasite spp.

(623) PAVLYUK, R.S., 1972. K biologii metacerkariev trematody Prosotocus confusus (Looss, 1894). (On the biology of the metacercariae of the trematode Prosotocus confusus [Looss, 1894]). In: Problemy parazitologii. Proceedings of the 7th Conference of Parasitologists of the Ukrainian SSR. Naukova Dumka, Kiev. pp. 100-101. (Russian). – *(Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR).*

Metacercariae were found in 26 out of 55 odon. spp. examined. In all, 12500 adult and larval odon. specimens, collected in the western provinces of Ukraine, USSR, were dissected. The metacercarial cysts are described and the infestation intensities per odon. sp. are stated.

(624) PAVLYUK, R.S., 1972. K. voprosu o vidovoi prinadlezhnosti neincistirovannyh metacerkarii plagiorhidnogo tipa iz polosti tela lichinok i imago strekoz. (On the identity of not-cysted plagiorchoid metacercariae from the body cavity of larval and adult dragonflies). In: Parazity vodnyh bespozvonochnyh zhivotnyh. I. vsesoyuznyi simpozium po bolezniam i parazitam vodnyh bespozvonochnyh. Materialy simpoziuma. (The parasites of aquatic invertebrates. The 1st All-Union Symposium on the diseases and parasites of aquatic invertebrates. Abstracts of Papers). University of Lvov, Lvov, pp. 68-69. (Russian). – *(Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR).*

6.84% of 500 dissected larval and 14000 adult Odon. contained non-cysted progenetic plagiorchoid metacercariae (Trematoda). The metacercariae fed to frogs developed into maritae of Skrjabinoecus similis (Looss).

(625) PLATEROS, C.G., 1972. The libelluline dragonflies in Bohol, Cebu and Leyte. Philippine Scientist 9: 51-55. – *(Dept. Biol., Univ. San Carlos, Cebu City, Philippines).*

This is a summary of a PhD thesis submitted to the San Carlos University, Philippines, presenting a brief review of the libelluline fauna of the three islands.

(626) SVESHNIKOV, G.V., 1972. The structure and functional peculiarities of the head receptors controlling the activity of wing muscles in the dragonfly Aeschna grandis. Zh. Evol. biohim. fiziol., Leningrad 8 (5): 530-535, 1 pl. (Russian, with Engl. s.). – *(Inst. Marine Biol., 690022 Vladivostok, USSR).*

Trichoid sensillae on the head are receptors responsible for maintenance of dragonfly flight. Their location and structure are described. The receptor axons are connected with the central nervous system. The impulses stimulated by wind undergo a synaptic processing in specialized interneurons. Neurons controlling the activity of wing muscles are receiving from the interneurons information on the onset, velocity and duration of the air current along the head during the flight.

(627) TAKARA, T. & S. AZUMA, 1972. Fauna of the Iromite Island, Ryukyus. II. List of the Insects. I. Orders Protura, Collembola, Thysanura, Ephemeroptera, Odonata and Plecoptera. Sci. Bull. Coll. Agric. Univ.

Ryukyus 1972 (19): 87-97. (Japanese, with Engl. s.). – *(Dept. Ent., Coll. Agric., Univ. Ryukyus, Okinawa, JA).*
List of spp., with records and notes on general distribution.

1973

(628) BABENKOVA, V.A., 1973. Fauna strekoz r. Volgi vyshe i nizhe Saratova. (Dragonfly fauna of the Volga River up- and downstream of the town of Saratov). Trudy Kompleks. Eksped. Saratov. Univ. izuch. Volgogr. i Saratov. vodohranilishch 3: 114-120. (Russian). – *(Flat 17, 41 Vavilov Street, 410078 Saratov, USSR).*
40 spp. collected in the Volga River near Saratov, USSR, are listed. Among these, the records for 32 spp. are based on older literature (1906-1913), while 25 spp. were collected in the Volgograd (formerly Stalingrad) Reservoir by the author herself. 21 spp. dwell in backwaters, 12 in river arms and 10 in isolated waterbodies of the river floodplain. Only 10 spp. live in the river bed. After the artificial regulation of the latter, some rheophile spp. vanished, while a few stagnicolous, southern elements appeared for the first time (e.g. Sympecma braueri, Anax imperator). Due to the recent water and ground pollution, the odon. fauna as a whole became 2-3 times poorer.

(629) BISCHOF, A., 1973. Die Odonaten des Kantons Graubuenden. 2. Mitteilung. Mitt. ent. Ges. Basel, (N.F.), 23 (1): 24-26. – *(Heckenweg 4, CH-7000 Chur).*
Enallagma cyathigerum, Aeshna juncea and Anax imperator were observed at a small alpine lake, Lag des Laus, at an elevation of 1614 m above sea level, nr. Disentis, Kanton Grisons, Switzerland. The record of A. imperator is of particular interest since this sp. has not been previously recorded from alpine localities of such altitude. (For the first paper in this series cf. *OA* No. 17).

(630) BRODSKY, A.K. & V.P. IVANOV, 1973. Aerodynamic peculiarities of insect flight. I. Dependence of the parachute drag coefficient on Raynolds's numbers. Vestn. Leningrad. Univ., (Biol.) 15: 17-20. (Russian, with Engl. s.). – *(Dept. Ent., Leningrad Univ., 7-9 University Quay, 199164 Leningrad, USSR).*
Aeshna mixta is the only odon. sp. studied. Its drag, compared to that in the examined representatives of other orders, is relatively weak. The curve as found at different flight speeds is given.

(631) BULLA, L.A. 1973. Cinco ninfas nuevas o poco conocidas del genero Oxyagrion Selys (Odonata, Coenag.). (Five new or little known larvae of the genus Oxyagrion Selys, [Odonata, Coenag.]). Revta Mus. La Plata, (N.S.), 12 (Zool.) (112): 11-25. (Spanish, with Engl. s.). – *(Inst. Limnol., Fac. Cienc. Nat. y Museo, Pase del Bosque, La Plata, Argentina).*
The larval stages of O. terminale Sel., O. basale Sel., O. hempeli Calv. and O. peterseni Ris are described and illustrated for the first time. The larva of O. rubidum (Ramb.) (syn. O. rufulum Hag.) is redescribed and figured. The affinities between the Argentine spp. of the genus are discussed on the basis of larval morphology. (Author).

(632) CODY, M.L., 1973. Character convergence. Ann. Rev. Ecol. Syst. 4: 189-211. – *(Dept. Biol., Univ. California, Los Angeles, Cal., USA).*
Species that converge in appearance, voice and/or morphology are apparently responding to selection by resources unable to support them as separate ecological entities. As a good instance of character convergence in Odon. the case of Micrathyria eximia and Nephepeltia phryne is described. These are interspecifically territorial, visually oriented and look identical in the field.

(633) DONNELLY, T.W., 1973. The status of Enallagma traviatum and westfalli (Odonata: Coenagrionidae). Proc. Ent. Soc. Wash. 75: 297-302. – *(Dept. Geol., State Univ. N.Y. at Binghamton, Binghamton, N.Y. 13901, USA).*
E. westfalli Donnelly, 1964, is recognized as a subspecies of E. traviatum Selys, 1876, and noted to range west of the Appalachian

Mts. from Pennsylvania to Michigan and Louisiana to Texas, USA.

(634) JOHNSON, C., 1973. Variability, distribution and taxonomy of Calopteryx dimidiata (Zygoptera: Calopterygidae). Fla Ent. 56: 207-222. – *(Dept. Zool., Univ. Florida, Gainesville, Florida 32601, USA).*
This study reviews the taxonomy of C. apicalis Burm., and C. dimidiata Burm. The data support Hagen's revision where he recognized only C. dimidiata. A complete synonymy appears followed by criteria for distinguishing the species from other Western Hemisphere congenerics, an interpretation for the nomenclatural usage, and summary of distribution. An analysis of variability through the species range finds spring adults to be larger in wing, leg, and body characters than summer and fall specimens from the same regions. A possible explanation is advanced based on larval growth periods. Wing color patterns, female stigma size, and female morphs have little seasonal variation and occur in geographical clines. (Author).

(635) KUMACHEV, I.S., 1973. Rol' strekoz i os v snizhenii chislennosti gnusa v basseine reki Ili. (The role of dragonflies and wasps in the reduction of blood sucking fly numbers in the Ila River basin). In: Regulyatory chislennosti gnusa na yugo-vostoke Kazahstana. Kazakh Acad. Sci. Publ. House, Alma Ata. pp. 78-87. (Russian). – *(Inst. Zool., Acad. Sci. Kazakh SSR, 480065 Alma-Ata, USSR).*
Density, phenology, daily activity, behaviour and diet were studied (1970, 1971) in 22 odon. spp. in the Ila River Basin, Kazakh SSR, USSR. The following spp. turned up as important vectors controlling the density of blood-sucking insects: Ischnura elegans (mosquitoes representing 90% of its diet), Lestes macrostigma (mosquitoes), Orthetrum cancellatum and O. albistylum (horseflies 90%), Aeshna affinis (mosquitoes), and Anax parthenope (horse-flies). (Cf. also *OA* No. 212).

(636) LAUGHLIN, S.B., 1973. Neural integration in the first optic neuropile of dragonflies. I. Signal amplification in dark-adapted second-order neurons. J. comp. Physiol. 84: 335-355. – *(Dept. Neurobiol., Australian National Univ., Canberra, AU).*
The responses of retinula cells and large monopolar cells (LMC's) to axial light flashes were recorded intracellularly in dark-adapted Australian spp. (Hemicordulia tau and Anax gibbulosa). (1) LMC's respond to retinal illumination with a triphasic graded hyperpolarisation whose amplitude and waveform are intensity dependent. An initial hyperpolarising "on" transient is followed by a smaller amplitude sustained plateau. A rapid positive going "off" transient follows the cessation of the stimulus. Intensity is encoded as hyperpolarisation amplitude for action potentials are not recorded in these cells. (2) Measurements of the difference between LMC and retinula response latency (2 msec) and the LMC angular sensitivity confirm the previous anatomical studies suggesting that the LMC's are post-synaptic to retinula axons and receive their major input from axons with the same fields of view. (3) Comparison of retinula and LMC response/intensity functions suggests that the visual signal is amplified when it is transferred from the retinula cell soma to a LMC. (4) The derivation of average normalised response/intensity functions leads to an estimation of gain during the transfer of the LMC "on" transient and plateau amplitudes. Their maximum values are times 14 and times 12, respectively. (5) The possible mechanisms for producing amplification at this level in the visual system are discussed together with the significance of amplification in terms of the performance of the visual system. (6) The synaptic noise level in the LMC's is high, from 4.2% to 15.6% of the maximum response amplitude with an average value of 8.6%. It is shown that this is equivalent to a receptor signal of 400 μV at threshold. It is proposed that the high noise level is the result of multiple synapses. It is shown that multiple synapses increase the visual signal: synaptic noise ratio in proportion to the square root of the number of synapses, in a manner analogous to a signal

averager. (7) It is concluded that the retinula-LMC pathway acts, in the dark-adapted state as a high sensitivity detection system, and shows several adaptations to maximise the signal: noise ratio. (Author).

(637) LUTZ, P.E. & E.A. McMAHAN, 1973. Five-year pattern of emergence in Tetragoneuria cynosura and Gomphus exilis (Odonata). Ann. Ent. Soc. Am. 66: 1343-1348. – *(Dept. Biol., Univ. N. Carolina, Greensboro, N.C. 27412, USA).*
Emergence patterns were measured by collecting exuvia samples. Both spp. have spring-species patterns, with T. cynosura emerging somewhat earlier in the day. Temperature dependence is suggested on the duration and actual timing of emergence. ♂♂ emerge earlier in the season and constitute approx. 47% of the population.

(638) MIELEWCZYK, S., 1973. The dragonflies (Odonata) of the River Raba, of some of its tributaries, and of riverine water bodies. Acta Hydrobiol. 15 (4): 379-385. – *(Inst. Zool., Polish Acad. Sci., ul. Swierczewskiego 19, PO-60-809 Poznan).*
The odon. fauna of the water courses studied is considered relatively poor (26 spp.). In the Raba R., Poland, dragonflies breed in the middle and lower sections only. The fauna of the "riverine" waters (water bodies accompanying the main river course) is considerably richer than that of the main river. It is characterized by spp. characteristic of small water bodies and by those prevailing usually in weakly eutrophicated basins. The riverine waters represent a kind of refugium for some rheophilous spp.

(639) MIYAGI, I., 1973. On the insects of medical importance in the Danjo Islands, with particular reference to the larval habitats, the blood-sucking habits and trans-oceanic flight of the haematophagous species. Trop. Med. 15 (1): 1-10. (Japanese, with Engl. s.). – *(Dept. Med. Zool., Inst. Trop. Med., Univ. Nagasaki, Nagasaki, JA).*
Pantala flavescens was the only odon. sp. captured during a survey carried out on August 4-9, 1972, on the islands of Meshima and Oshima, East China Sea, 170 km W. from Akune, Kagoshima Kyushu, Japan.

(640) MOKRUSHOV, P.A. & L.I. FRANTSEVICH, 1973. Neurons sensitive to the motion of contrast objects in nymphs of the dragonfly Aeschna cyanea. Zh. Evol. Biochim. Fiziol. 9 (2): 189-194. (Russian, with Engl. s.). – *(Lab. Insect Physiol., Inst. Zool., Acad. Sci. Ukrainian SSR, 15 Lenin Str., 252030 Kiev, USSR).*
Movements of light bands on a cathode ray tube and movements of white and black disks against a grey background were presented to larvae, and electric activity in the protocerebron and in the optic lobes was registered. 70 neurons responding to optical stimuli were detected. Their reaction to black disks is better than that to white ones, but they are indifferent to direction of motion and to targets of a small size. Receptive fields of different neurons have different size and shape, ranging from one ommatidium to the whole field of vision of the insect.

(641) MOUZE, M., J.C. ANDRIES & F. SCHALLER, 1973. Effets sur la mue et la métamorphose de l'injection d'ecdysone à des larves permanentes d'Aeshna cyanea Müll. (Insecte, Odonate). C.R. Acad. Sc. Paris (D), 277: 2509-2512, pl. 1. – *(Lab. Biol. anim., Univ. Sci. Techn. Lille-I, B.P. 36, F-59650 Villeneuve d'Ascq).*
A single injection of α- or β-ecdysone into larvae whose moulting cycle has been blocked by extirpation of the ventral glands ("permanent larvae") re-establishes the moulting phenomenon in a very short time (cuticular apolysis and synthesis), but metamorphosis is abnormal and the larvae develop adultoid characters. The results of ecdysone injections, compared to those of reimplantation of ventral glands into permanent larvae, suggest that the programmation of the imago necessitates a slow and progressive ecdysone action (Translation of authors' abstract).

(642) OYEN, G.A.M., 1973. In het rijk van de libellen. (In the kingdom of dragonflies). Spiegel der Natuur 4 (4): 111-114, 1 cover col. pl. (Dutch). – *(Lindeweg 10, Voeren-*

daal, Z.-L., NL).
A brief popular sketch on dragonflies, with special reference to the odonatological work carried out in the Netherlands during the 1960ies by the former (Dutch) State Institute for Nature Conservation Research (at present Research Institute for Nature Management).

(643) PAVLYUK, R.S., 1973. New data on the metacercariae of Halipegus ovocaudatus Vulp., 1858 (Trematoda, Halipegidae). Vest. Zool., Kiev 1973 (2): 33-37. (Russian, with Engl. s.). – (*Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR*).
400 larval and 13520 adult odon. specimens were dissected. In the midgut of 1 larva and 124 adults, referable to 17 spp., 227 metacercariae were found. The infestation degree of all spp. is shown in a table.

(644) PAVLYUK, R.S., 1973. On cysticercoids of Tatria decacantha Fuhrmann, 1913 (Cestoda: Amabiliidae) in dragonflies from the western provinces of the Ukraine. Parazitologiya 7 (4): 353-356. (Russian, with Engl. s.). (*Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR*).
500 larval and 14000 adult odon. specimens referable to 58 spp. were dissected; 98 cysticercoids were found in 56 imagos of 10 spp. New data are presented on the morphology and development of the cysticercoids. (Cf. also *OA* Nos. 544, 599).

(645) PAVLYUK, R.S., 1973. O neobhodimosti tshchatel'nogo vidovogo opredeleniya lichinok strekoz. (On the necessity of a precise identification of dragonfly larvae). Gidrobiol. Zh., Kiev 9 (4): 129-131. (Russian). – (*Mus. Zool., Lvov Univ., 4 Shcherbakov Str., 290005 Lvov, USSR*).
Some taxonomic identifications published recently by various authors are questioned and criticised, viz. Lestes viridis from Kaliningrad Province, Coenagrion mercuriale from southeastern Lithuania, C. mercuriale, C. scitulum, Leucorrhinia albifrons and L. dubia from Dnieper-Bug Estuary, and Oxygastra from the Dnester, all USSR.

(646) SCHALLER, F. & J. HOFFMANN, 1973. Evolution du taux d'ecdysone au cours du dernier stade larvaire d'Aeshna cyanea Müll. (Insecte, Odonate). C.R. Acad. Sc. Paris (D), 277: 741-743. – (*Lab. Biol. gén., Univ. L. Pasteur, 12 rue de l'Université, F-67 Strasbourg*).
Larval extracts assayed by means of the Calliphora test were found to have moulting hormonal activity during one third of the 25 days lasting period of the ultimate instar, with a peak corresponding to 0.1 mg of pure ecdysone per g fresh body weight of Aeshna on the 20th day. Extracts of "permanent larvae" (obtained by extirpation of the ventral glands at the beginning of the intermoult) show no hormonal activity. The roles played by the glands and by the hormone are discussed. (Translation of authors' abstract).

(647) SCHEFFLER, W., 1973. Libellen (Odonata) aus Bulgarien. Dt. ent. Z. (N.F.) 20 (4-5): 357-362. – (*Abt. Limnologie, Zentralinst. f. Mikrobiol. u. exp. Therapie, Forschungszentrum f. Molekularbiol. u. Medizin, Akad. Wiss. DDR, DDR-1431 Neuglobsow, GDR*).
10 spp. collected during 2 summer excursions (1969, 1970) at 9 localities in South- (Rhodop Mts.), Central- (Sredna Gora Mts.) and Eastern Bulgaria (Black Sea coast) are brought on record. In addition, a list and bibliographic references are given of the 66 odon. spp. hitherto known from the Bulgarian territory.

(648) SNYDER, A.W., 1973. Polarization sensitivity of individual retinula cells. J. Comp. Physiol. 83 (4): 331-360. – (*Inst. Adv. Stud., Res. Sch. Phys. Sci., Austral. Nat. Univ., Canberra 2600, AU*).
The effect of the structure of a rhabdom on the polarization sensitivity of its retinula cells is elucidated. The polarization sensitivity of a retinula cell is that found by single cell electrophysiology and depends strongly on the gross morphology of the rhabdom. From the theoretical analysis and its correlation with experiments it was concluded that the functional significance of partitioned or tiered rhabdoms, as occurring in Zygoptera, is to enhance the polarization sensitivity of

the retinula cells at a loss of absolute sensitivity in addition to altering the spectral sensitivity of the more proximal cells due to colour filtering effects of the distal rhabdomeres.

(649) THEISCHINGER, G., 1973. Entwicklungsanomalie bei Sympetrum danae (Sulzer) (Ins. Odonata). Ent. NachrBl. 18 (1-2): 84-85. – *(Stadtmuseum Linz, Bethlehemstr. 7, A-4020 Linz).*
An abnormality in the coloration of the hind left wing pterostigma and in the structure of the left appendix superior of a ♂ taken in a field nr. Linz, Austria, is described and illustrated. Possible causes of the phenomenon are discussed.

1974

(650) ASAHINA, S., 1974. Interspecific hybrids among the Odonata. Jap. J. Zool. 17 (2): 67-75, 2 pls. – *(Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA).*
A review is presented of the 20 hitherto known cases of interspecific hybridization in the order. The genera involved are: Coenagrion (1), Gomphus (1), Anax (7), and Sympetrum (11). Save for 3, all hybrids originate from Japan, 10 of them have not been published previously.

(651) BAY, E.C., 1974. Predator-prey relationships among aquatic insects. Ann. Rev. Ent. 19: 441-453. – *(Dept. Ent., Univ. Maryland, College Park, Maryland, USA).*
A special chapter is devoted to Odon. The larvae of the latter fall generally into 2 categories: (1) sprawlers that lie in ambush or stalk their prey at the bottom, and (2) climbers that inhabit submerged vegetation. Both groups feed on essentially the same prey, depending upon its frequency and availability. Dragonfly larvae are among the more convenient invertebrate predators to investigate for field consumed prey. This is because fecal material is passed in pellets enclosed by a peritorphic membrane and undigested material is quickly voided so as not to interfere with colonic respiration. Fecal pellets can thus be dissected, and sclerotized prey fragments can be identified. While some spp., e.g. Tramea (a sprawler), have been shown experimentally to feed in darkness, most Odon. are diurnal predators. The feeding habits and diets of various spp. are briefly mentioned.

(652) BELLE, J., 1974. A revision of the New World genus Progomphus Selys, 1854 (Odonata: Gomphidae). Bronder, Rotterdam. XII + 118 pp. – *(Onder de Beumkes 35, Velp, Gld., NL).*
The booklet is a PhD thesis of the University of Leyden, the Netherlands. Its main body represents the reprint of the paper published in Odonatologica 2 (4), 1973, pp. 191-308. The first 12 pages form an introduction (in Dutch), giving a brief outline of the main features of Gomphidae, author's biography and his odonatological bibliography. The introductory part has appeared also separately, in the same cover, but without the text of the Odonatologica paper. (Cf. also *OA* No. 655).

(653) BELYSHEV, B.F., 1974. The dragonflies of Siberia (Odonata). (Russian title: Strekozy Sibiri [Odonata]). Vol. 2, Part 3. Nauka, Novosibirsk. 351 pp., 49 figs. (Russian, with English translation of the title, a brief characterization of the book and Table of Contents). – *(Biol. Inst., Siberian Branch USSR Acad. Sci., Ul. Frunse 11, Novosibirsk-91, USSR).*
This is the 3rd and final volume of the work listed in *OA* No. 473. Whereas the first two parts deal with the dragonfly species individually, in this volume the Siberian odon. fauna is treated as a whole. The book is divided into three main sections, viz. (1) Biology, (2) Zoogeography, and (3) Formation of the odon. fauna of Siberia and the adjacent territories. The subjects treated are as follows: B i o l o g y: (1) Dragonfly distribution in view of the water reservoir typology, (2) Seasonal development of the odon. faunas and its dependence on ecological and geographical conditions, (3) Annual features in the odon. fauna structure of Southern Priobje, (4) Weather conditions and daily activity of dragonflies, (5) Vertical zonation

of the odon. fauna in the Siberian mountains, (6) Odon. as components of the biocenosis and some general aspects of predation in nature, (7) Origin of some biological features in Siberian Odon. – Zoogeography: (1) Introduction into Siberian zoogeography, based on odon. distribution (incl. demarcation and subdivision of the Old World Boreal and Holarctic, general features of odon. faunas of Siberia and the American Boreal), (2) Zoogeography of Siberia (incl. zoogeographical subdivision of Siberia based on odon. distribution), (3) Some regularities in geographic variability of morphological features in Siberian Odon. – Fauna formation: (1) Paleogeographical and geophysical background of odon. distribution, (2) Fossil faunas of Siberia and adjacent areas, (3) Relics in the Siberian odon. fauna and the concept of a relic in general, (4) Some selected aspects of the history of odon. faunas: (a) history of the genus Lestes in the Holarctic, (b) a probable centre of origin and dispersal of the genus Somatochlora, (c) history of the origin of the Chinese and Kamchatkan disjunctive distribution of Anax junius, (d) formation of distribution areas and constancy of morphological features in Pantala flavescens, (e) cases of intrusion of western faunal elements into Siberia from the East, (5) Fauna formation of some Siberian territories: (a) probable centre of origin and the main dispersal routes of the Holarctic odon. fauna, (b) some Tertiary elements in the odon. fauna of the pine forests of the southern West Siberian Lowland, (c) history of the origin of the Upper Priobje odon. fauna, (d) some interesting records from the Narym Taiga, explaining the occurrence of southern species in the Arctic region, (e) structure and faunal history of the North Asian insular and peninsular odon. faunas, (f) origin and history of the Mongolian odon. fauna, (6) The problem of the Pacific from the point of view of odonatology, (7) Some peculiarities in geographic dispersal and degree of yellow colour development in North Eurasian Odon. and connection of this phenomenon with the history of the Boreal odon. fauna. (*Abstracter's note*: The book can be purchased from any scientific bookseller; the original price is 2.22 Rubles).

(654) BELYSHEV, B.F. & N.B. BELYSHEV, 1974. Anax parthenope Selys – reliktovyi vid v odonatofaune Altaya. (Anax parthenope Selys – a relic species in the odonate fauna of the Altay). In: A. I. Cherepanov (Ed.), Voprosy entomologii Sibiri. Nauka, Novosibirsk. pp. 35-37. (Russian). – (*Biol. Inst., Siberian Branch USSR Acad. Sci., Ul. Frunse 11, Novosibirsk-91, USSR*).
A teneral ♂ of A. parthenope was taken at the Aya Lake, northern Altay, USSR, on June 8, 1971. Considering the teneral condition of the specimen, it is suggested that in the Altay mountains the sp. represents a relic from the last xerothermic period. It is interesting, in this context, that the isolated population of A. parthenope in the Ural Mts. (Miassovo Lake) can also be understood only as a relic. The geographic distribution of this sp. in Siberia has, thus, a considerable importance from the point of view of holocene paleogeography.

(655) CONTACTBRIEF NEDERLANDSE LIBELLENONDERZOEKERS. (Newsletter of Dutch Dragonfly Workers). No. 11 (April 4, 1974). (Dutch). – (*c/o Dr. B. Kiauta, Inst. Genet., Univ. Utrecht, Opaalweg 20, Utrecht, NL*).
Announcement of PhD graduation of J. Belle, at the University of Leyden, the Netherlands, on April 24, 1974. The title of the thesis is "A revision of the New World genus Progomphus Selys, 1854 (Odonata: Gomphidae)". (Cf. also *OA* No. 652).

(656) GRESSITT, J.L., 1974. Insect biogeography. Ann. Rev. Ent. 19: 293-321. – (*Bishop Museum, Honolulu, Hawaii, USA*).
In the chapter on the spread of insects over the Earth, reference is made to the work of J.W. Evans (1958. Insect distribution and continental drift. In: Continental Drift, a Symposium. Geol. Dept., Univ. Tasmania, pp. 134-161), who demonstrated that many genera of primitive aquatic insects, in-

cluding Odon., have a wide southern hemisphere distribution, occuring in Chile, Tasmania, Australia and/or New Zealand, and sometimes also in southern Africa.

(657) HARITONOV, A. YU., 1974. Zaeniseyskie strekozy na polyarnom Urale. (Dragonflies of the Zayenisey zoogeographic district in the arctic region of the Ural Mts.). In: A. Cherepanov (Ed.), Voprosy entomologii Sibiri. Nauka, Novosibirsk. pp. 68-69. (Russian). – *(Biol. Inst., Siberian Branch USSR Acad. Sci., Ul. Frunse 11, Novosibirsk-91, USSR).*

The records of Leucorrhinia orientalis and Coenagrion hylas from the arctic tundra region of the northern Ural Mts., USSR., demonstrate that some odon. spp. of the northern parts of the Zayenisey zoogeographic district penetrated considerably far in western direction.

(658) KAISER, H., 1974. Die Regelung der Individuendichte bei Libellenmännchen (Aeschna cyanea, Odonata). Eine Analyse mit systemtheoretischem Ansatz. Oecologia 14: 53-74. – *(Zool. Inst. Univ. Köln, Weyertal 119, D-5000 Köln-41, GFR).*

An analysis with a system theory approach of the control of ♂ density of Aeshna cyanea is given. Mature ♂♂ visit a pond several times a day for mating. The individuals arrive in a random manner, but the density of the ♂♂ at the pond varies little. The ♂♂ at the pond are described as a system which has the property of regulating ♂ density, by a feedback mechanism involving interaction of 2 behavioural parameters: (1) the number of fights between the ♂♂ increases with their density and (2) a ♂ visit is shorter when there are more fights. (Author).

(659) TOMBO. ACTA ODONATOLOGICA. Published by the Society of Odonatology, Tokyo. Vol. 16, Nos. 1-4 (dated December 31, 1973; issued March, 1974). – *(c/o Dr. S. Asahina, Totsuka III-123, Shinjuku-ku, Tokyo, 160, JA).*

Eda, S.: A male of Aeschna mixta hovering in his territory above the Scirpus community [Frontispiece photograph]; – *Asahina, S. & K. Inoue*: Descriptions of two new geographical races of Davidius moiwanus (Gomphidae); – *Asahina, S.*: Records of two Taiwanese Odonata, a correction; – *Asahina, S.*: Discovery of Erythromma najas in Japan (Agrionidae); – *Aida, M.*: Behaviour of Anisogomphus maackii (Selys) at the reproductive site; – *Taketo, A.*: New locality records of two dragonfly species in Ishikawa Prefecture; – *Eda, S., T. Usui & M. Okuma*: Further observations on the triple-connection of Odonata; – *Eda, S.*: Females of Gomphus postocularis preparing a bigg egg-mass just before their oviposition; – *Eda, S.*: Mortonagrion hirosei in Tokyo and its vicinity; – *Kaji, T.*: A hybrid male specimen of Sympetrum risi risi x S. eroticum taken from Toyama Prefecture; – *Kitawaki, W.*: Odonata from South Brodino Island located to the east of Okinawa Island; – *Tabaru, N.*: Confirmation of the early three larval instars of Epiophlebia superstes; – *Asahina, S.*: The labium of the second and third instar larvae of Epiophlebia superstes; – *Yamamoto, Y.*: Ceriagrion nipponicum biting a spider; – *Yamaguchi, M.*: Dragonfly fauna encountered at an artificially made pond; – *Watanabe, K.*: Instant adhesive utilized to observe the connection of dragonflies; – *Hashimoto, H.*: Anax guttatus in Shizuoka Prefecture, 1973 record; – *Asahina, S.*: The Second International Symposium of Odonatology; – *Inoue, K.*: S.I.O. Executive member from Japan. (*Abstracter's note*: The abstracts and addresses of the authors will appear in Odonatologica III, 3, September, 1974).

(660) ZAIKA, V.V., 1974. Fauna strekoz (Odonata) severnoy chasti Kulundinskoy stepi. (Dragonfly fauna [Odonata] of the northern part of the Kulundin steppe). In: A. Cherepanov (Ed.), Voprosy entomologii Sibiri. Nauka, Novosibirsk. pp. 43-44. (Russian). – *(Dept. Biol., Novosibirsk State Univ., Novosibirsk, USSR).*

27 spp. were recorded from the NW part of Kulunda, Novosibirsk District, USSR. A list is not presented; a possible relic character in this region of Sympetrum striolatum, S. meridionale, Nehalennia speciosa and Lestes macrostigma is discussed in some detail.