

## NOTES &amp; NEWS

## Soviet Contributions to Malacology in 1973

BY

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FOR SEVERAL YEARS we have listed English titles of Soviet malacological works which are abstracted in Section D, Invertebrate Zoology of the Referativny Zhurnal (see JACOBSON & BOSS, 1974, The Veliger 16 (4): 423 - 426). As in the past, we have followed the arrangement of the Russian abstracting service in placing each paper in a category (*i. e.*, Morphology, Systematics and Faunistics, etc.). Since many of the scientific reports bear importantly on current work of Western malacologists, particularly those contributions in which new taxa are introduced, we have occasionally added abbreviated comments taken from the abstracts so that readers may, to some extent, assess the contents of an individual paper.

A general textbook on molluscan biology by Poznanin appeared as part of an apparent series on invertebrate animals. Local terrestrial fauna in Russia received some attention and in particular some poorly known regions, such as Tadzhikistan, were the object of works by Izzatulaev, Dil'man and Mukhitdinov. Systematic studies, especially those of Shileyko on the various taxonomic groups of the Helicacea deserve mention. Studies of freshwater mollusks included a number of articles on vast drainage systems in Siberia; Cheremnov treated the malacofauna of the Yenisei River and its basin, while Krivosheina and Starobogatov remarked on that of the Irtysh Basin. While Kodolova and Logvinenko revealed the great variation – both immunological and conchological – of the unionids *Unio tumidus* and *U. pictorum*, Moskvicheva treated the anodontine species of the Far Eastern Amur River and vicinity. The primitive Margaritanidae of the same region were described by Moskvicheva and Starobogatov who erected a number of new species and generic-

level taxa. That the freshwater fauna of the Soviet Union and its satellites – like the aquatic mollusks of North America – is overnamed is indicated by Timm's study on Lake Vyrts'yarv in Estonia, a comparatively small, post-glacial body of water which supposedly harbors 66 species, virtually as diverse as far as mollusks are concerned as those of the grand Lake Baikal or Lake Tanganyika!

Aspects of the zoogeography of marine mollusks were treated by several Russian workers. Sirenko discussed some species of chitons along the continental shelf in the northern Pacific while several teuthologists contributed to the knowledge of the distribution of cephalopods in the northern Pacific by Nesis, the south-central Pacific by Shevtsov and the Caribbean by Zuev.

Research in physiology, especially neurophysiology and the biochemistry of respiratory pigments signaled several advances and the papers in parasitology, both human and veterinarian, dealt with aspects of control of intermediate molluscan hosts.

## Abbreviations and symbols we have used are:

- AN – Akademiya nauk (Academy of Science)
- ES – English Summary
- Fankhoi – Akhboroti Akad. Fankhoi RSS Tochikiston. Shu'bai fankhoi biol., Izv. AN Tadzh. SSR. Otd. biol. nauk
- GZ – Gidrobiol. Zhurnal (Hydrobiological Journal)
- 6<sup>th</sup> Conv. Nauk – 6<sup>e</sup> Nauch. soveshch. i Simpoz. po evolyuts. Fiziol., posvyashch. 90- letiyu so dnya rozhd. akad. Leona Abgarovicha Orbeli. Tezisy i ref. dokl. Leningrad, Nauka. (6<sup>th</sup> scientific convention and symposium on evolutionary physiology, celebrating the 90<sup>th</sup> anniversary of Lenin Academy. Abgarovich Orbeli. Thesis and reference report, Leningrad, Science.)
- ZZ – Zoologicheskii Zhurnal (Zoological Journal)

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## GENERAL

BEER, S. A. & V. D. ZVAYKIN

- 1973. The molluscicidal properties of the nitrogenous salt, phenasol. Med. parazit. i parazit. bolyezni 42 (3): 354 - 356 (ES)



[NSF was tried on *Bithynia inflata*. It proved to be effective on the cercariae of *Opisthorchis felineus*, which issue from mollusks, and also on several other aquatic invertebrates. NSF has strong molluscicidal properties.]

GOROKHOV, V. V.

1973. Perspectives of the integrated control of helminths via their intermediate molluscan hosts. Probl. obshch. i prikl. gel'mintol. Moskva Nauka, 48 - 53

[Reports results of an investigation of the possibility of integrated control methods employing chemical, biological, and ecological means for the elimination of the host mollusks of helminths.]

PIDOPLICHKO, I. G. & G. I. MOLYAVKO

1973. Contemporary problems and perspectives of the study of Neogene and Anthropogene mollusks. Vestn. zoologii No. 3: 3 - 11

[Life history, systematics, phylogenesis and ecology are treated, as well as the economic importance of mollusks for man and their role in the biosphere.]

POZNANIN, L. P. (Editor)

1972. Invertebrate Zoology. Vol. 1, Land and freshwater mollusks. Itogi nauki i tekhn. VINITI AN SSSR Moskva, 188 pp.

[Deals with systematics and nomenclature, morphology, problems of biology and ecology, populational variability, faunistics and zoogeography, methods of study, and economic importance of mollusks. A new systematic arrangement of the Helicidae, especially the subfamily Helicellinae, is proposed.]

TOTOMANOV, KHRISTOSKO

1973. The garden snails of Bulgaria and their economic importance. Gradinskie okhlyuvi v Bulgaria i stopanskoto im znachenie (Izsledv.). Sofia, Zemizdat, 127 pp. (in Bulgarian)

## MORPHOLOGY

BARSKOV, I. S.

1973. On the structure of the protoconch and the ontogenesis of the belemnites (Coleoidea, Cephalopoda). Dokl. AN SSSR 208 (2): 439 - 442

[Examination of the protoconch with electron microscopy discloses new information regarding the layering of this structure.]

BEER, S. A. & V. M. MAKEEVA

1973. Systematic status and variability of the genus *Bithynia* (Gastropoda) in West Siberia. ZZ 52 (5): 668 - 675 (ES)

[3 species are discussed: *B. tentaculata*, *B. inflata* and *B. sibirica*; the authors apparently still recognize the latter 2 species even though no differences in conchological or anatomical features separate them.]

DIDENKO, A. P.

1972. Characteristics of the histological structure of the arms of the octopus. Izv. Tikho-ocean. NII ryb. kh-va i okeanogr. 83: 148 - 151

[There are 5 layers of muscle: layers 1 and 3 are circular; 2 and 4 are longitudinal; 5 is oblique. The lowest layer has a mucous-like cover, encircling the central nervous trunk.]

KODOLOVA, O. P. & B. M. LOGVINENKO

1973. The comparison of various populations of the bivalve *Unio pictorum* and *U. tumidus* according to the systems of myogen-

muscle proteins and morphology of the shells. ZZ 52 (7): 988 - 999 (ES)

[359 examples of *Unio pictorum* from 15 localities and 353 of *U. tumidus* from 18 were compared by disc electrophoresis and by 6 indices of shell morphology. Of 24 protein fractions, 16 were similar, the others differing in mobility and indicating the specificity of the species. Although highly variable morphologically, no basis for further taxonomic distinction was found.]

LIKHAREV, I. M.

1972. Two new species of the family Clausiliidae (Gastropoda, Pulmonata) from Bulgaria. Trudy zool. inst. AN SSSR 52: 117 - 120

MESHCHERYAKOV, V. N. & L. V. BYELOUSOV

1973. Changes in the spatial organization of early cleavage of the mollusks *Lymnaea stagnalis* L. and *Physa fontinalis* L. in the presence of the activity of trypsin. Ontogenez 4 (4): 359 - 372 (ES)

MILOVIDOVA, N. YU.

1973. The growth of mussels in the Bay of Novorossisk. Gidrobiol. issled. ser.-vost. chast Chernogo Morya Rostov-na-Donu Un-t., 78 - 81

[The present pollution in Novorossisk Bay does not adversely affect the growth rate of mussels.]

MOTAVKIN, P. A., V. V. YEVDOKIMOV & S. M. DZYUBA

1971. The origin of the gonocytes and developing gonad in *Mytilus grayana*. Nauch. soobshch. In-ta biol. morya AN SSSR Dal'nevost. nauch. tsentr 2: 162 - 165

SIRENKO, B. I.

1973. Amphipacific distributions of chitons and new species from the northwestern part of the Pacific Ocean. ZZ 52 (5): 659 - 667 (ES)

[Two new species are described: *Deshayesiella extensibilis* and *Tonicea undocaerulea*. *Deshayesiella* is divisible into 2 subgenera: a nominate group with 3 species, *D. curvata*, *D. bidentata* and *D. extensibilis*, and *Oldroydia* with the species *O. percrassa*. The existence of amphipacific species inhabiting the continental shelves is doubtful.]

SKARLATO, O. A.

1972. New species of the family Cuspidariidae (Septibranchia, Bivalvia) from the far eastern seas of the USSR. Trudy zool. inst. AN SSSR 52: 121 - 128

TOLSTIKOVA, N. V.

1972. Microstructural variability of the shells of *Unio tumidus* (Bivalvia). ZZ 51 (10): 1565 - 1569 (ES)

[Changes are noted in microstructure of main layers of the shell (periostracum, ectostracum and endostracum); short simple prisms are replaced by longer, more complicated ones at the annual ring zone in the shell.]

YEVSEEV, G. A.

1971. Pathological features of the shells of bivalve mollusks of the far eastern seas. Nauch. soobshch. In-ta biol. morya AN SSSR Dal'nevost. nauch. tsentr 2: 79 - 80

[There are 2 types of malformation: physiological (growth and shape), and pathological, accompanied by structural changes and morphological neoplasms in the interior of the shell. The greater part of pathological growth was observed to result from musculo-circulatory injuries. Mechanical injuries did not bring about pathological growth.]



## SYSTEMATICS AND FAUNISTICS

CHEREMNOV, A. D.

1972. New data on the molluscan fauna in the Upper Enisei Flow. ZZ 51 (12): 1887 - 1889 (ES)

[The malacofauna of the Upper Enisei consists of 30 species, including a new sphaeriid herein described, *Musculium johanseni*.]

1973. Freshwater mollusks of the upper Yenisei Basin.

Nauch. dokl. vyssh. shkoly. biol. nauki No. 6, 12 - 15

[58 species listed of which 14 reported for the first time for Central Siberia and upper Yenisei; the mixed character of the fauna is related to the geographical position of the basin between Eastern and Western Siberia.]

DIL'MAN, P. N.

1973. On the terrestrial mollusks of Tadzhikistan. Fankhoi No. 2, 94 - 96

[Of 26 species, 7 are noted for the first time. Some, *Cochlicopa lubrica*, *Jaminia potoniana*, *Zonitoides nitidus* and *Subzebrinus sogdianus*, are probably intermediate hosts for sheep trypanosomes.]

GAIDASH, YU. K. &amp; I. P. LUBYANOV

1972. The distribution of *Monodacna colorata* (Eulamellibranchiata, Cardiididae) in Samarsky Bay of the Zaporozhsky Water Reservoir. ZZ 51 (9): 1402 - 1404 (ES)

[*Monodacna* was introduced to this particular bay and has slowly proceeded to increase in numbers during 10 years, especially in response to a more favorable hydrochemical regime. Its present biomass (782g/m<sup>2</sup>) is second, among bivalves, to *Dreissena* (about 30kg/m<sup>2</sup>); it provides a substrate for other invertebrates and will contribute to the productivity of fishes.]

IZZATULLAEV, Z.

1972. First discovery of *Deroceras sturanyi* and *Oxychilus kutaianus* in Tadzhikistan. Vopr. zool. Tadzhikistana Dushanbe, Donish, 80 - 86

[Short descriptions of internal and external characteristics of these species, along with comments on their life histories and distributions, are presented.]

1972. On the freshwater molluscan fauna of the Gissoarsky Mountain Ridge and contiguous regions of Tadzhikistan.

Fankhoi No. 3, 44 - 49

[Data for 19 species in 6 families and 10 genera are provided; 3 new species are *Caspia tadjikistanica*, *Pseudamnicola narzikuloui* and *Armiger schamaricus*.]

1973. New species of the family Planorbidae (Mollusca, Gastropoda) from southern Tadzhikistan. Dokl. Akad. Fankhoi RSS Tochikiston, Dokl. AN Tadzh. SSR 16 (4): 65 - 68

[New are: *Polypylis starobogatovi*, *Trochorbis tadjikistanicae*, and *T. anastasiae*. A key to segmentinine planorbids of middle Asia is provided.]

1973. Two new species of freshwater mollusks of Tadzhikistan of the genus *Pseudamnicola* Paulicci (Gastropoda, Lithoglyphidae). Dokl. Akad. Fankhoi RSS Tochikiston, Dokl. AN Tadzh. SSR. 16 (5): 76 - 77

[*Pseudamnicola pavlovskii* and *P. likharevi* are described as new.]

KARABAEVA, S. D.

1972. On the discovery of *Agriolimax reticulatus* in Kazakhstan. Biol. nauki, Alma-Ata 4: 109

[This exclusively European slug was found in various localities at 1600m and higher.]

KRIVOSHEINA, L. V. &amp; YA. I. STAROBOGATOV

1973. The composition and zoogeographical characteristics of the malacofauna of the hilly portions of the upper Irtysh Basin. ZZ 52 (3): 348 - 355 (ES)

[Of 71 species, 15 are of wide Palearctic distribution, 23 European-Siberian, 8 Siberian and 1 endemic to the mountains of Asia.]

LUS, V. YA

1973. New fascioliariids (Mollusca, Neogastropoda) from the abyssal depths of the northern part of the Pacific Ocean.

Tr. In-ta okeanol. AN SSSR 91: 203 - 212

[A new subfamily with its new genus and species: *Brevisiphoninae*, *Brevisiphona circumreta* at abyssal depths between 5502-6740m.]

MOSKVICHEVA, I. M.

1973. Mollusks of the subfamily Anodontinae (Bivalvia, Unionidae) from the Amur and Primor (Maritime Territory) Basins. ZZ 52 (6): 822 - 834 (ES)

[17 species belonging to 4 genera are treated: 2 new genera are erected: *Amuranodonta* and *Buldowskia* as is one new subgenus, *Cristariopsis*; 8 new species are introduced: *Sinanodonta likharevi*, *S. amurensis*, *S. crassitesta*, *S. buldowskii*, *Amuranodonta starobogatovi*, *A. kijaensis*, *A. parva*, and *Buldowskia suputinensis*.]

1973. The molluscan fauna of the Amur Basin and Primor (Maritime Territory), including features of its distribution.

Otchet. nauch. sessiya po itogam rabot 1972 goda, Zool. in-t. AN SSSR Tezisy dokl. Leningrad Nauka, 19 - 20

[60 species of bivalves and 53 of gastropods are discussed. The distribution by families is given. The most extensive distributional data are for the families from the Amur Basin in Siberia. The overwhelming majority are endemic in the Amur-Japonic subregion of the Sino-Indic region.]

MOSKVICHEVA, I. M. &amp; YA. I. STAROBOGATOV

1973. On the East Asian potamid-like unionids (Bivalvia) [Margaritanidae]. Biol. Mosk. o-va ispyt. prirodi, Otd. biol. 72 (2): 21 - 37 (ES)

[The unionids of eastern Asia, usually placed with *Rhombuniopsis* and *Nodularia* or *Inversidens*, were found to belong to *Rhombuniopsis*, *Pronodularia*, and *Middendorffinaia* n. gen. (with 3 subgenera, *Middendorffinaia* s. s., *Sujfunio* n. subgen., and *Pseudoptomida*, n. subgen.). New species include: *Rhombuniopsis fultoni*, *Middendorffinaia ussuriensis*, *M. arsenievi*, *M. sujfunensis*, *M. shadini*, *M. dulkeitiana*, *M. welczkowskii*, *M. hassanika* and *M. martensi*.]

MUKHITDINOV, A.

1972. Materials on the terrestrial molluscan fauna of northern Tadzhikistan. Fankhoi No. 3, 39 - 43

[35 species in 10 families are listed, vertical distribution of zones given, and some species cited as harmful to agriculture.]

NEIMYSHEV, M. V. &amp; N. V. TOLSTIKOVA

1972. The *Anodonta* of the freshwater reservoir of the Chuisky midmountain depression (Northern Tian-Shan). Kirghiz SSR Ilimder Acad. kabarlary. Izv. AN Kirghiz SSR No. 5, 10 - 14

[Species here referable to *Anodonta retteri*.]



NESIS, K. N.

1972. Two new species of squids of the family Gonatidae from the North Pacific Ocean. *ZZ* 51 (9): 1300 - 1307 (ES)  
[The boreal mesopelagic *Gonatus tinro*, the type species of a new genus, *Eogonatus*, and the mesobathypelagic *G. okutanii* are described as new; data on morphology, larvae and copulation are provided.]

1973. Types of range of cephalopod mollusks of the northern part of the Pacific. *Tr. In-ta okeanol. AN SSSR* 91: 213 - 239  
[An exhaustive descriptive analysis of the ranges and distributions of 87 species and 9 subspecies of Pacific cephalopods, based on literature as well as the results of collections made by Russian research vessels.]

PIROGOV, V. V.

1972. Large mollusks of the family Pisidiidae in the Volga Delta. *ZZ* 51 (12): 1798 - 1803 (ES)  
[*Musculium hungaricum* is not a subspecies of *M. creplini*; *Pisidium inflatum* also present; distribution correlated with hydrological regime.]

1972. The malacofauna of Il'men' great Karabulak (Volga Delta). *GZ* 8 (6): 88 - 96 (ES)

SCHILEYKO, A. A.

1972. The subfamily Metafruticolinae as a phyletic line (Pulmonata, Hygromiidae). *Nauch. dokl. vyssh. shkoly. biol. nauki* No. 12, 12 - 19  
[A new subfamily is introduced on the basis of 'traditional' features, namely, the characteristics of the shell, the formation of penial papillae and a shortened flagellum; 3 genera are diagnosed.]

1973. Comparative characteristics of Palaearctic families of terrestrial mollusks of the superfamily Helicoidea. *ZZ* 52 (4): 492 - 506 (ES)  
[The Palaearctic helicacean families are discussed. Since each lineage has its ecologically adaptive types (*i. e.*, forest dwellers, rock climbers, etc.), conchological characters may not be used to separate the families. Features of the reproductive anatomy are most useful, and the taxa are most complicated in the western Palaearctic and least complex in the Nearctic.]

SHEVTSOV, G. A.

1973. On the cephalopod fauna of the south-eastern and central parts of the Pacific Ocean. *Tropich. Zona Mirovogo okeana i svyazannye s nei globalin protsessyi* Moskva Nauka, 225 - 230

[In an area of the Pacific from the equator to 13° S and in depths of 25 to 85 m, larval cephalopods, particularly the ommastrephid *Rhynchoteuthion*, constitute a large element of the planktonic biomass. 3 species are described as new and 3 noted here for the first time.]

VOROBYEVA, N. V. & A. M. SAMONOV

1972. The mollusks of Lake Balkhash. *Rybn. resursy vodoemov Kazakhstana i ikh ispol's* (Fisheries resources of the reservoirs of Kazakhstan and their utilization), Alma-Ata "Kainar" 7: 82 - 83

The molluscan fauna consists of 14 species of which 4 are introduced.]

## BIOLOGY AND ECOLOGY

ALEKSEEV, A. N., V. V. BULGAKOV & A. N. NIKOLENKO

1972. On the migration of gastropod mollusks in the Sea of Azov. *Izv. Melitop. otd. Geogr. o-va SSSR* 2: 125 - 126  
[The predatory muricid *Rapana thomasi* from the Far East was accidentally introduced into the Black Sea 25 years ago. Now it has spread to the Sea of Azov where ecological conditions are favorable for its reproduction and where it will probably seriously affect the fisheries.]

BEER, S. A.

1973. On the problem of the local distribution of the biotopes of *Bithynia leachi* subsp. *inflata* - the first intermediate hosts of *Opisthorchis* in the Obs'ky floodlands. *Probl. obschch. i prikl. gel'mintol.* Moskva Nauka, 186 - 190

BUBNOVA, N. P.

1972. Detritus feeding in the mollusks *Macoma baltica* [sic] (L.) and *Portlandia arctica* (Gray) and its effect on sediment precipitation. *Okeanologiya* 12 (6): 1084 - 1090 (ES)  
[*Macoma* on coarse detritus processes more food than *Portlandia* on thin. Assimilation rates differ between the 2 species: in 6 months a *Macoma* population occupying 1 m<sup>2</sup> processed 5.84 kg of detritus, *Portlandia* only 0.114 kg.]

KONDRATENKO, A. P.

1972. The duration of the life cycle of *Hydrobia ulvae* (Gastropoda) in the region of Chupa Inlet of the White Sea. *ZZ* 51 (10): 1570 - 1572 (ES)

[A single generation is completed in 2 or more years.]

KOZLITINA, L. M.

1971. The stability of several mollusks and their cells during alterations of the salinity conditions of their habitats. *Nauch. soobshch. In-ta biol. morya AN SSSR Dal'nevost. nauch. tsentr* 2: 106 - 108

[3 species of *Acmaea* and *Mytilus edulis* were studied. The greatest stability appeared in *Collisella dorsuosa*, next in *C. radiata*, and least in *Acmaea pallida*. As for all organisms and cells, the stability to change shows itself to be higher in experiments conducted in autumn than in summer, the result, apparently, of the higher summer temperatures.]

LEVINA, O. V.

1973. Fecundity of freshwater mollusks *Lymnaea stagnalis* and *Radix ovata*. *ZZ* 52 (5): 676 - 684 (ES)  
[The amount of eggs laid during a life time equals about 4 times the body weight.]

NIGMATULLIN, CH. M.

1972. On the problem of schooling behavior of the winged squid *Ommatostrophes pteropus* Steenstrup. *In* BOROK. *Povedeniye vod. Bezpozvonochnikk* (The Behavior of Aquatic Invertebrates), 86 - 92

[Schools of squid consist of varying numbers, from 2 to 1000 individuals and more, all of approximately the same size, and all swimming in parallel. During hunting the schools scatter but the squids come again together to the same groups. The schools can be classified as lineal, with 2 to 16 individuals; oval, with 8 to 25 individuals; and by volume, from 30 to 800 individuals. Larger squids form only lineal schools.]



SHAKHMATOVA, R. A. & F. S. MEDVEDEV

1972. The production of the viviparids of the Oka River.

Ych. zap. Gor'kov un-t. 164: 79 - 86

[The relation between linear measurements, age, and weight is given as well as the quantity and biomass. The increase of weight, growth, and reproduction in a population of *Viviparus viviparus* is presented graphically.]

SIRENKO, B. I.

1973. Ecology and productive properties of *Ischnochiton hakedadensis* (Chitonida, Ischnochitonidae) in Posjet Bay (Sea of Japan). ZZ 52 (3): 342 - 347 (ES)

[With a biomass of 3g/m<sup>2</sup>, the species lives often in ecological association with *Grenomytilus grayanus*; the lifespan may be 8 - 10 years with the 2 - 3 year class predominating.]

SMIRNOVA, N. F.

1973. A contribution to the ecology of some masses of bivalves in the Posjet Bay (Sea of Japan). ZZ 52 (3): 356 - 364 (ES)

SMIRNOVA, V. A. & S. I. IBRASHEVA

1970. Ecologic-faunistic and parasitic characters of the freshwater mollusks of the Naurzumski Preserve. Biol. Nauki, Alma-Ata 3: 189 - 192

[83.4% of *Lymnaea stagnalis*, *L. peregra* and *Planorbis planorbis* were found to be infected with avian trematodes. *Gyraulus acroniscus* and *Anodonta* were free of infection.]

TIMM, V. YA.

1973. Mollusks in the zoobenthos of Lake Vyrts'yarv. Limnology of Northwestern USSR No. 3, Tallin, 125 - 128

[A total of 66 species is noted: 32 gastropods and 34 bivalves; animals are most abundant at grassy stations in the littoral and sublittoral.]

TRUSHIN, I. N.

1973. The role of ecological factors in the natural infection of mollusks with the larvae of *Mulleria*. Probl. obshch. i prikl. gel'mintol. Moskva Nauka. 344 - 347

[5 species of intermediate hosts of *Mulleria* in the Kalinin and Yaroslav territories are described. Ecological factors influence the invasion of mollusks by *Mulleria* larvae.]

TSICHON-LUKANIA, E. A.

1973. The feeding of marine prosobranch mollusks. Trofologiya vod. zhivotnikh Moskva Nauka, 212 - 225

[175 species of 33 families were studied, including detritophages, phytophages and predators.]

VOVK, A. N. & CH. M. NIGMATULLIN

1972. Some aspects of the behavior of the winged squid *Ommastrephes pteropus* Steenstrup in the photic zone. In BOROK. Povodeniye vod. Bezpozvonochnikk (The Behavior of Aquatic Invertebrates), 38 - 43

[The winged squids of the tropical zone of the Atlantic use white and red bioluminescence in deeper water to attract prey. In the illuminated zone they school and for 3 to 20 minutes at a time on prey 2 to 3 times smaller than themselves. In hunting, a school of squid first surrounds the crustaceans or fish prey, and then each squid hunts by itself displaying extreme maneuverability and speed.]

ZUEV, G. V.

1973. Some features of the biology and the distribution of the squids, *Ommastrephes pteropus* in the Caribbean Sea. ZZ 52 (2): 180 - 184 (ES)

[The Caribbean populations are apparently isolated everywhere in the pelagic zone, outside the limits of the continental shelf, and have an unusual sex ratio: 14 ♀ / 1 ♂.]

## PHYSIOLOGY

ALIMOV, A. F.

1973. Growth and metabolism in fresh water bivalves. Otchet. nauch. sessiya po itogam rabot. 1972 goda, 1973. Zool. in-t. AN SSSR Tezisy dokl. Leningrad Nauka, 3 - 4

[Intensity of metabolism is a function of the weight of the organism; growth rate varies in different species of the same genus.]

ALYAKRINSKAYA, I. O.

1972. Biochemical adaptations of aquatic mollusks to life in the air environment. ZZ 51 (11): 1630 - 1636 (ES)

[The buffering capacity of hemolymph sharply increases in animals exposed to air, providing a partial explanation for the ability of such species as *Mytilus edulis*, *Donax julianae*, *Cardium edule*, *Mya arenaria* and *Rapana thomasiana* to survive out of water for extended periods.]

1973. Effect of some factors on hemoglobin content in mollusks. ZZ 52 (1): 124 - 127 (ES)

[Hemoglobin occurs in most active muscles (radular moieties in gastropods and chitons); cardiac muscles in some gastropods. In the bivalve *Yoldia hyperborea* it is found in tissues which are responsible for respiration under conditions of oxygen insufficiency.]

1973. The content of myoglobin in the gastropod mollusks of the Black Sea, *Rapana thomasiana* and *Nassa reticulata*. Z. Evolut. biokhimii i fiziol. 9 (2): 130 - 133 (ES)

[The content of myoglobin in the radular muscles of *Rapana* averages 354mg% (from 100 to 640mg%) higher in the male than in the female. The concentration of myoglobin in *Nassa* consists on the average of 37mg% (from 24 to 53mg%). The difference is apparently due to dissimilarity of food.]

BEER, S. A. & V. M. MAKEEVA

1972. A comparative analysis of myogens of some species of *Bithynia* (Mollusca, Gastropoda) by means of disc electrophoresis in polyacrilamide gel. ZZ 51 (11): 1734 - 1736 (ES)

[*Bithynia inflata* and *B. sibirica* do not differ, while *B. tentaculata* is markedly distinct.]

DREGOL'SKAYA, I. N.

1972. Heat stability of the cells of mussels from the Adriatic and Black Seas. Tsitologiya 14 (10): 1239 - 1244 (ES)

DZYUBA, S. M.

1971. The histophysiology of the sexual glands of the littoral pectens in different seasons. Nauch. soobshch. In-ta biol. morya AN SSSR Dal'nevost. nauch. tsentr 2: 68 - 71

[According to the time of deposition, the eggs of *Pecten* in Shamora Cove of Peter the Great Bay, can be divided into 4 groups: June to mid-September; the 2<sup>nd</sup> half of September to October; November to the first half of January; the end of April to the beginning of June. Each group is characterized by changes in the sexual glands of the depositor. This regularity of change can be utilized in the artificial breeding of the littoral *Pecten* in the Far East.]

KOPYLOV, A. G.

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[13 species of mollusks belonging to the Polyplacophora, Gastropoda, and Bivalvia were studied.]

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[Histological examination has shown that host mollusks oppose infection of *Fasciola* miracidia by developing protective cells leading to incapsulation and gradual destruction of the invader.]

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[17 amino acids appear in the acid hydrolizates of watersoluble albumines of hemolymphs of *Lymnaea*. Juvenile specimens had a lower content of such amino acids than gerontic individuals.]

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1972. On a biochemical study of the shells of Recent freshwater mollusks. Elmi eserler Azerb. univ. Keol.-chofr., Uch. zap. Azerb. un-t. Ser. geol.-geogr. n. No. 6, 45 - 50

[The various layers contain about 0.01% of strontium and magnesium, which is lower than in the mollusks of the Caspian Sea (0.1%). The strontium content of the inner layer of *Corbicula* is 2 times higher than in the outer layer; in *Anodonta* it is the same.]

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## On Some West American Species of *Calliostoma*

BY

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AT THE CONFERENCE of the Western Society of Malacologists in June, 1974, James Carlton made a plea for more records of field observations on living West Coast mollusks. Returning home from the meeting I found a letter with just that kind of material, from Robert G. Sellers, Jr., graduate student at Hopkins Marine Station. His observations on morphology and habits, especially of *Calliostoma gloriosum* Dall, 1871, should be put on record. He has graciously delegated the privilege to me, suggesting that I combine his notes with any others I might have. Therefore, I am condensing and slightly paraphrasing his two letters in June and July, 1974. I know of no other similar observations except one (unpublished) by Dr. Eugene Coan, who saw a *Calliostoma* in an aquarium devouring a limpet — an act that, unless confirmed by field evidence, might be dismissed as an effect of artificial conditions on an otherwise herbivorous animal.

Mr. Sellers reports that his first specimen of *Calliostoma gloriosum* was from a kelp bed along the wall of Carmel Submarine Canyon at San Jose Creek Beach, on a vertical rock face in 9m of water. It was among other gastropods, mostly *Tegula pulligo* (Gmelin, 1791) and *T. montereyi* (Kiener, 1850). The snail was conspicuous because the shell was covered with a layer of mucus, which blurred many features of its surface. This layer, he thinks, may help prevent incrustation by other organisms because he has seen no *Calliostomas* with a "dirty" shell. A second specimen was in a kelp bed off Cannery Row in about 13½ m of water. Again, the snail was crawling around on a large rock, with a cloudy layer of mucus covering the surface of the shell; two holdfasts of the kelp *Macrocystis* were anchored to the rock. The snail was on a horizontal surface, and there were several *C. ligatum* (Gould, 1849) and *C. annulatum* [Lightfoot, 1786] in its immediate vicinity. The largest populations of *Calliostoma* he saw in two years of diving in the Monterey area were on rocky surfaces within kelp beds. While diving he often saw *C. canaliculatum* [Lightfoot, 1786] on kelp fronds, presumably scraping off the diatom film commonly attached to the kelp. The lower limit of kelp growth in the Monterey

## Research Request

If you have been stung by a cone shell of any variety, or know of someone who has, please write to me with full details. All responses will be gratefully acknowledged.

Gary Cummins

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Honolulu, HI 96816





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