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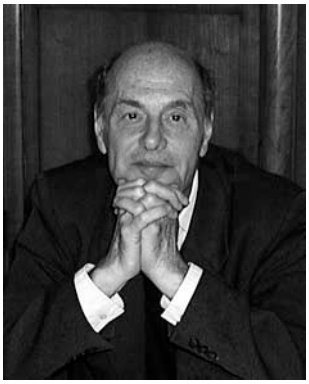
KIR NAZIMOVICH NESIS: A LIFE IN SCIENCE

(9 January 1934 – 8 January 2003)



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Kir was born on 9 January 1934 in Moscow. He was raised in an intellectual family; his father was an architect and his mother a specialist in economic geography and also a professional interpreter. From his parents, Kir inherited irrepressible curiosity, clarity of thinking, and excellent linguistic abilities. Early in his childhood he experienced a tragic event. His father was arrested in 1938 and subsequently executed by the Soviet state security, as were millions of Soviet people. His mother dedicated the rest of her life to her only son and raised him in an atmosphere of love to be a sensitive, decent and diligent person. Life was very difficult as Kir was officially labeled as the "son of an enemy of the nation" and consequently many opportunities were closed to him. For example, in school he dreamed about studying astronomy, and he even won an All-Union Competition in astronomy among schoolchildren. In spite of his scholarly abilities it was not possible for the "son of an enemy of the nation" to study astronomy in the prestigious Moscow State University.

Eventually he decided to dedicate his life to marine biology. In 1951, Kir successfully passed exams to enter the Moscow Technical Institute for Fisheries and Fishery Management, Department of Hydrobiology. Because this Institute was not top ranked children of "enemies of the nation" were allowed to enter.

Upon graduation Kir obtained a position in Murmansk at the Laboratory of Marine Biology in the Polar Research Institute of Marine Fisheries and Oceanography. Kir initially worked there from 1956 to 1960, and then again from 1963 to 1966. Starting as a Junior Researcher, he eventually was promoted to be Chief of the Laboratory. During these years, he engaged in research on the bottom fauna of the North Atlantic and Arctic oceans, with special emphasis on the taxonomy and ecology of various groups of marine benthic animals.

During the years 1960 to 1963, Kir moved to Leningrad where he was enrolled as a post-graduate student at the Zoological Institute of the USSR Academy of Sciences. His PhD thesis was entitled "*The Bottom Fauna of Commercial Fishery Areas of the North Atlantic and the Atlantic sector of the Arctic as an Indicator of Productivity and Water Regime*". By the mid-1960s he was widely regarded as one of the foremost experts in benthic ecology in the Soviet Union.

In 1966 Kir returned to his native Moscow. For a short time Kir held a position in the Scientific Council on Hydrobiology and Ichthyology. In 1967 he moved to the P.P. Shirshov Institute of Oceanology of the USSR Academy of Sciences. Kir worked until his death in the Department of Nekton as the Senior, Principal and then Leading Scientist. Beginning in the mid-1960s, the primary focus of his research investigations was cephalopods, mainly their taxonomy, zoogeography, ecology, and evolution. In 1986, he received the degree of Doctor of Science for his work entitled "*Oceanic Cephalopods: Distribution, Ecology, and Evolution*".

By the mid-1970s Kir emerged as one of the world's leading researchers on cephalopods. He began studying cephalopods when he was over 30 years old as a mature marine biologist, that is why he quickly became one of the most highly regarded experts on this group of mollusks.

Kir was amazingly productive for one individual. During 46 years of scientific work, 36 of which were devoted to cephalopods, he published about 460 scientific and popular publications and reviews including 6 books and 225 papers on benthic ecology, cephalopod biology, marine zoogeography, ecology and evolutionary theory. He wrote 43 papers on the ecology of bottom fauna. A total of 274 publications, including all of his books, 142 voluminous scientific papers and 45 popular articles, were dedicated to the study of cephalopods. In these papers he described 29 new cephalopod taxa, including a new family and numerous new genera, subgenera, species, and subspecies, and 25 taxa are valid now.

Throughout his scientific career, Kir was also a prolific free-lance writer, and he authored about 125 popular articles on biology in many Soviet and Russian popular scientific magazines. Furthermore, for 36 years he was the leading biology abstract specialist for the Soviet/Russian Abstracts magazine of the Institute of Scientific Information. In total, he published over 30,500 abstracts that summarized articles and books on ecology, zoology and fishery biology. On an average he wrote 70 abstracts per month! His ability to understand and distill complex scientific information was extremely high and often one would understand more from reading Kir's abstract than from reading the original scientific article.

Kir served as Editor-in-Chief of *Ruthenica*, the Russian Malacological Journal that he was instrumental in founding. In addition, he also sat on the editorial boards of several other professional scientific journals.

Kir delighted in going to sea on oceanographic and fishery expeditions. He participated in over 30 research expeditions in the seas off Russia and oceans in all parts of the world. In total, he spent almost 10 years of his life at sea. During these expeditions he not only collected and studied cephalopods and other animals but also had time to formulate new ideas and impressions. After every cruise he published a benchmark contribution that served to advance basic knowledge on the biology, taxonomy and faunal diversity of cephalopods of the given study area.

A vast personal knowledge, examination of numerous specimens collected on Soviet expeditions carried out around the world, plus an extensive literature database allowed Kir to produce the first identification guide to the cephalopods of the world. The book, first published in Russian in 1982, was translated into English in 1987. This book was one of Kir's principal accomplishments in a career filled with many scientific achievements. At the same time, he created a field guide to cephalopod larvae that treated 182 species. As a result of his encyclopaedic taxonomic and ecological works, another remarkable book entitled "*Oceanic Cephalopods: Distribution, Life Forms and Evolution*" was published in 1985. The content of this book is much broader than its title, and together with his identification guides they constitute the principal reference sources for information on the biology and identification of cephalopods. Unfortunately this book, published in Russian, is not yet translated into English for the use of cephalopod researchers around the world.

Below Kir's main results of cephalopod investigations are listed briefly:

- a macrosystem of the recent cephalopods;
- an ecological classification (based on life form) of recent cephalopods;
- a scheme of cephalopod zoogeographical zonality in the World Ocean, centers of speciation, faunistic regions and provinces, history of formation of recent ranges of some important cephalopod groups based upon paleogeographical and paleoclimatic data;
- a scheme of the vertical distribution of pelagic cephalopods and the classification of their daily and ontogenetic vertical migrations;
- a picture of distribution of the relative abundance of the oceanic cephalopods and assessment of their total biomass and annual production;
- a description of the larval stages of many squid and octopod species, main types of larval development of cephalopods;
- a description of the main ways of adaptive radiations of cephalopods, ecological mechanisms of cephalopod evolution, morphological convergencies and parallelisms and formulation of the hypothesis on the mode of cephalopod progressive evolution;

- monographic descriptions and reviews of biology for the following important groups of cephalopods: Sepiidae and Loliginidae, Argonautidae, Gonatidae, Enoploteuthidae, Ommastrephidae, Thysanoteuthidae, Architeuthidae, Onychoteuthidae, Mastigoteuthidae, Lepidoteuthidae, Walvisteuthidae, Chiroteuthidae and some other species;
- some generalizations on the population structure of abundant ommastrephid and gonatid species;
- a series of fundamental papers based mainly on his own data on fauna, zoogeography and general ecology of cephalopods in some areas of the World Ocean: North Western Pacific, South Eastern Pacific, Australia and New Zealand, Indian Ocean, South Western and South Eastern Atlantic and the system of main underwater ridges and mountains of the open Ocean.

Here the following has to be stressed. During the life of one generation from the end of 1960s to the end of 1990s the accelerated formation of a cephalopods' biology paradigm had taken place. Thanks to the efforts of the numerous international groups of investigators, the biology of cephalopods in 1990s proceeded from a preparadigm condition to a paradigm condition. It is important to state this fact and to note the prominent role of Kir Nesis in this paradigm formation. His role in paradigm construction (along with 8-10 other investigators) is the key one.

In amassing such an enormous body of scientific information, Kir accomplished an unsurpassed scientific feat. Kir will forever continue to communicate with all of us through his books, publications and his spirit of true Science. It is not possible to understand how so much could have been accomplished in the lifetime of one man. He obviously lived in another system of coordinates with different velocities of the flow of information.

Kir's remarkable achievements and his encyclopaedic knowledge in science were based on numerous personality traits, in particular his iron-like self discipline, an amazing ability to absorb and process both verbal and visual information, the ability to focus or concentrate all his attention on a subject or problem at hand, and a voluminous memory. He respected people and their interests and generously shared his knowledge with anyone who was interested. Kir often was called a "walking encyclopaedia" and among colleagues the phrase "Kir knows everything" became a common saying.

But Kir also was a marvellous human being and in any company he was notable. He was kind, gentle, tolerant, and democratic. He was a person upon whom you could always depend and who was always ready to help a friend particularly when they encountered a personal misfortune in life. One of the defining traits of Kir's personality was his modesty which is often seen in the many group photos where only his head is seen peeking out from the back row.

People often commented that Kir was a "cosmopolitan" man. This is only partly correct. Kir had a deep and profound love for his homeland, Russia and Moscow, for his Institute and Lab, for his many friends and especially for his family! Once being married 40 years ago, he had spent all his life with his beloved wife, Tatiana Semenova, and his daughter Anna.

Kir was always on the move. Death caught him suddenly as he was on his way home from work, while he was full of plans for future activities and research.

Chingis Nigmatullin
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SUPPLEMENT: KIR NESIS'S BOOKS AND MOST IMPORTANT PAPERS*

Books:

1. Zuev GV, Nesis KN (1971) Squids (Biology and Fisheries). Pischevaya Promyshlennost' Publ, Moscow (in Russian)
2. Nesis KN (1982) Abridged Manual for Identification of Cephalopods of the World Oceans. Legkaya i Pischevaya Promyshlennost' Publ, Moscow (in Russian)
3. Nesis KN (1984) Cephalopods: Field Manual of the Plankton. Vol. 3. Zoological Institute of the Academy of Sciences of USSR, Leningrad (in Russian)
4. Nesis KN (1985) Oceanic Cephalopods: Distribution, Living Forms, and Evolution. Nauka Publ, Moscow (in Russian)
5. Nesis KN (1987) Cephalopods of the World. TFH Publications, Inc, Neptune City, New Jersey (in English)
6. Nesis KN (1990) Evolutionary Progress. What Does It Say About Cephalopods and Other Animals? Znaniye Publ, Moscow (in Russian)
7. Nesis KN (2004, in press). Cephalopods: Clever and Rash. History from the Private and Family Life of Squids, Cuttlefishes and Octopuses, as well as *Nautilus pompilius*. Octopus Publ, Moscow (in Russian)

Papers:

1. Nesis KN (1965) Some questions on trophic structure of marine biocoenosis. Okeanologiya 5(4): 701-714 (in Russian)
2. Nesis KN (1972) Taxonomy, phylogeny and evolution of squids of the family Gonatidae. Zhoologicheskij Zhurnal 52(11): 1626-1639 (in Russian, English summary)
3. Nesis KN (1973) Ecological classification (life forms) of cephalopods. In: "Itogi nauki i tehniki. Zoologija bespozvonochnyh, Vol. 2. Promyslovye molljuski" (= Résumé of science and techniques. Invertebrate Zoology, Vol. 2. Commercial molluscs). VINITI Publ, Moscow pp 8-59 (in Russian)
4. Nesis KN (1974) The system of Recent Cephalopoda. Byulletin Moskovskogo Obschestva Ispytatelej Prirody, Otdel Biologicheskij 79(5): 81-93 (in Russian, English summary)
5. Nesis KN (1975) Evolution of life forms in recent cephalopods. Trudy Instituta Okeanologii AN SSSR 101: 124-142 (in Russian, English summary)
6. Zuev GV, Nesis KN, Nigmatullin ChM (1975) Systematics and evolution of the genera *Ommastrephes* and *Symplectotheuthis* (Cephalopoda, Ommastrephidae). Zoologicheskij Zhurnal 54(10): 1468-1479 (in Russian, English summary)
7. Nesis KN (1977) Vertical distribution of pelagic cephalopods. Zhurnal Obschej Biologii 38(4): 547-558 (in Russian, English summary)
8. Parin NV, Nesis KN (1977) Quantitative distribution of life in the ocean. Macroplankton and nekton. In: Vinogradov ME (ed.) Oceanology. Biology of the Ocean. Vol. 1. Biological Structure of the Ocean. Nauka Publ, Moscow, pp 69-77 (in Russian)
9. Parin NV, Nesis KN, Kashkin NI (1977) Vertical distribution of life in the ocean. Pelagic realm. Macroplankton and nekton. In: Vinogradov ME (ed.) Oceanology. Biology of the Ocean. Vol. 1. Biological Structure of the Ocean. Nauka Publ, Moscow, pp 159-173 (in Russian)
10. Nesis KN (1977) General ecological notions in application to the marine communities. The community as continuum. In: Vinogradov ME (ed.) Oceanology. Biology of ocean. Vol. 2. Biological productivity of the Ocean. Nauka Publ, Moscow, pp 5-13 (in Russian)

11. Nesis KN (1978) Evolutionary history of nekton. Zhurnal Obschej Biologii 39(1): 53-65 (in Russian, English summary)
12. Nesis KN (1979) The larvae of cephalopods. Biologiya Morya 4:26-37 (in Russian, English summary) [English translation in: Soviet Journal of Marine Biology 5(4): 267-275]
13. Nesis KN (1982) Principles of systematics of recent cephalopods. Byulletin Moskovskogo Obschestva Ispytatelej Prirody, Otdel Geologicheskij 57(4): 99-112 (in Russian)
14. Nesis KN (1983) A hypothesis of the origin of western and eastern Arctic ranges of marine bottom animals. Biologiya Morya, 5: 3-13 (in Russian, English summary)
15. Nesis KN (1985) Biomass of pelagic cephalopods and their distribution in the World Ocean In: Moiseev PA (ed.) Biological Resources of the Ocean. Agropromizdat Publ, Moscow, pp 145-153 (in Russian)
16. Nesis KN (1985) What happened with ammonites? Nauka i Zhizn' 6: 69-73 (in Russian)
17. Nesis KN (1986) On feeding and reasons for the extinction of some heteromorphic ammonites. Paleontologicheskij Zhurnal 1: 8-15 (in Russian)
18. Nesis KN (1993) Cephalopods of seamounts and submarine ridges. In: Okutani T, O'Dor RK, Kubodera T (eds) Recent Advances in Cephalopod Fisheries Biology. Tokai Univ Press, Tokyo, pp 365-373 (in English)
19. Nesis KN (1993) Population structure of oceanic ommastrephids, with particular reference to *Sthenoteuthis oualaniensis*: A review. In: Okutani T, O'Dor RK, Kubodera T (eds) Recent Advances in Cephalopod Fisheries Biology. Tokai Univ Press, Tokyo, pp 375-383 (in English)
20. Nesis KN (1996) The system of recent cephalopods. A critical analysis of recently proposed improvements based on the structure of reproductive organs. Zoologicheskij Zhurnal 75(3): 335-349 (in Russian, English summary)
21. Nesis KN (1996) Mating, spawning and death in oceanic cephalopods: a review. Ruthenica 6(1): 23-64 (in English)
22. Nesis KN (1997) Gonatid squids in the subarctic north Pacific: ecology, biogeography, niche diversity and role in the ecosystem. Adv Mar Biol 32: 243-324 (In English)
23. Nesis KN (1998) Biodiversity and systematics in cephalopods: unresolved problems require an integrated approach. S Afr J mar Sci 20: 165-173 (in English)
24. Voss NA, Nesis KN, Rodhouse PG (1998) Systematics, biology and biogeography of the cephalopod family Histioteuthidae (Oegopsida). In Voss NA, Vecchione M, Toll RB, Sweeney MJ (eds) Systematics and biogeography of cephalopods. Smiths Contr Zool 586(2): 293-372 (in English).
25. Nesis KN (1999) Cephalopoda. In: Boltovskoy D (ed.) South Atlantic Zooplankton Vol. 1. Backhuys, Leiden, pp. 707-795 (in English)
26. Nesis KN (2000) Squids of the family Onychoteuthidae: phylogeny, biogeography, and mode of life. Zoologicheskij Zhurnal 79(3): 272-281 (in Russian, English summary)
27. Nesis KN (2001) West-Arctic and East-Arctic distributional ranges of cephalopods. Sarsia 86(1): 1-11 (in English)
28. Nesis KN (2002) Life style strategies of recent cephalopods: a review. Bull Mar Sci 71(2): 561-579 (In English)
29. Zuyev G, Nigmatullin Ch, Chesalin M, Nesis K (2002) Main results of long-term worldwide studies of tropical nektonic oceanic squid genus *Sthenoteuthis*: An overview of the Soviet investigations. Bull Mar Sci 71(2): 1019-1060 (in English)
30. Nesis KN, Nigmatullin ChM (2003) Life form and the possibilities of using this notion to analyze life cycles and evolutionary strategies. Zhurnal Obschej Biologii 64(3): 227-237 (in Russian, English summary)
31. Nesis KN (2003) Distribution of Recent Cephalopoda and implications for Plio-Pleistocene events. In: Warnke K, Keupp H, Boletzky Sv (eds) Coleoid cephalopods through time. Berliner Paläobiol Abh 3: 199-224 (in English)

* The complete list of K.N. Nesis' publications have been published in: Ruthenica (Russian Malacological Journal), 2003, 13(1): 13-32 (in Russian and English in parallel)