

**Professor Victor P. Tyshchenko (1937–1986)
and his contribution to Russian arachnology**

**Профессор Виктор Петрович Тыщенко (1937–1986)
и его вклад в русскую арахнологию**

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Victor Petrovich Tyshchenko, the famous Russian biologist and former professor of the Leningrad (now St.-Petersburg) State University, was an entomologist of immense erudition and various scientific interests. One of V.P. Tyshchenko's indubitable services was initiating Russian arachnology in the last third of the twentieth century. However, amongst entomologists he is better remembered as an ecologist, physiologist and talented researcher who devoted a lot of his time to studying the mechanisms of photoperiodic adaptations of insects to the seasonality of climate. He began these investigations under the guidance of his mentor, Prof. Alexander Sergeevich Danilevskii, who is acknowledged as one of the 'founder-members' of the theory of photoperiodicity in insects.

V.P. Tyshchenko was born in Ulan-Ude (Buryatia) on 15 January 1937. His father Petr Antonovich Tyshchenko was a building engineer for hydro-electric power stations. This often necessitated moving his family from place to place as his work dictated: from Arkhangel'sk and Leningrad in the north, to Baikal in the east and Chardzhou town (Turkmenistan) in the south. In 1954 V.P. Tyshchenko enrolled at the Faculty of Biology and Soil Sciences of the Leningrad State University, and for the remain-

der of his life had close connections with the Department of Entomology. He commenced his doctoral dissertation in 1959 and after being awarded his PhD in 1963 was appointed as a lecturer and researcher; in 1969 he was promoted to Head of the Department of Entomology.

His immense acquired knowledge and versatile scientific capabilities made it possible for him to lecture in a variety of disciplines, such as "Physiology of Insects" to entomology students and "Soil Zoology" to students of soil sciences, and towards the end of his life, he was asked to lecture on the "Theory of Evolution". Prof. Tyshchenko is the sole author of text books and manuals on the physiology of insects, among which is a monumental, two-volume monograph; he was also the editor for a "Guide on Student Summer Courses", which contained his original field keys for spiders and harvestmen. He died suddenly on 24 May 1986 at the age of 49.

V.P. Tyshchenko seriously commenced studying spider systematics whilst he was still an undergraduate. In 1957, as a third-year student, he took part in a complex expedition of the Zoological and Botanical Institutes of the Russian Academy of Sciences to northern Kazakhstan. He collected spiders in the hilly area of



Fig. 1. Prof. V.P. Tyshchenko chairing MSc thesis defense by students of the Faculty of Biology and Soil Sciences of the Leningrad State University (the 1980s).

Рис. 1. Проф. В.П. Тыщенко руководит защитой дипломов студентов Биолого-Почвенного факультета Ленинградского Государственного Университета (1980-е годы).

Kokshetau in Akmola area and in the mountains of Kent in Karaganda area. He also treated his colleagues' spider collections from other mountain regions of Kazakhstan. The results of this expedition were included in his MSc thesis and subsequently, his descriptions of new species from Kazakhstan were published as a separate paper [Tyshchenko, 1965].

In subsequent years V.P. Tyshchenko collected spiders in Tajikistan, Kirghizia, Armenia, Bashkiria, Ukraine and other regions of the ex-USSR. A total of 25 new species and three genera (see below) from the mountain regions of Kazakhstan and Tajikistan were described either by him, or in collaboration with his PhD student Ms E.M. Andreeva [Tyshchenko, 1965; Andreeva & Tyshchenko, 1968, 1869, 1970]. It is worth mentioning that Prof. V.P. Tyshchenko was a gifted artist and all his taxonomic (re)descriptions were accompanied by excellent figures.

Among the species described was the myrmecophilous spider *Zodarion asiaticum* Tyshchen-

ko, 1970 from the Almaatinskii Reserve (Kazakhstan, Zailiiskii Alatau Mt. Range), followed by a detailed account of its biology [Marikovskii & Tyshchenko, 1970]. Another interesting record was the black widow spider *Latrodectus dahli dahli* Levi, 1959 collected by N. Ergashev in Karshinskaya Steppe (Uzbekistan). This species was described by H. Levi in 1959 from a single female, and prior to V.P. Tyshchenko's study it had only been recorded from southern Iran and Sokotra Isl. in the Arabian Sea. Two co-authored papers with N. Ergashev [Tyshchenko & Ergashev, 1974, 1983] provided a refined morphological description of *L. dahli dahli*, including the first description of the male, and a key for both sexes to the three *Latrodectus* species known from Middle Asia. Based on data regarding ontogenetic changes in body colouration of *L. dahli dahli* this species was considered to be closer phylogenetically to *L. pallidus* than *L. tredecimguttatus*.

In 1971 the original "Identification Guide to the Spiders of the European part of the USSR"



Fig. 2. Prof. V.P. Tyshchenko (third from left) amongst the participants of the first All-Union coordinated arachnological meeting, the Zoological Institute AS USSR, Leningrad (22 November 1984).

Рис. 2. Проф. В.П. Тыщенко (третий слева) среди участников Первого Всесоюзного Координационного совещания по изучению пауков, Зоологический институт АН СССР, Ленинград (22 ноября 1984 г.).

compiled by V.P. Tyshchenko was published. This was and still remains the first and the only complete key to all the spider families of this territory, a real milestone for that time. The key contained 928 species, of which 250 were recorded from neighboring regions. The catalogue of the spiders of Russia by the famous Russian arachnologist D.E. Kharitonov [1932] lists a similar number of species (1 068), but those records encompassed the whole territory of the USSR. The appearance of this identification guide stimulated new faunistic and taxonomic studies in the ex-USSR; it is not unreasonable to suggest that most, if not all current Russian arachnologists commenced their arachnological careers using this substantial book as their major benchmark.

Since his student days V.P. Tyshchenko was keen on ethological problems, particularly those relating to Hymenoptera (Aculeata) and spiders. Therefore, it is hardly surprising that his first scientific work [Tyshchenko, 1961]

carried out as an undergraduate was an experimental study of mimicry. The origins of crypsis and mimicry in insects are usually linked to vertebrate, particularly bird predator avoidance in natural environments. The role of invertebrate predators in the evolution of Mullerian mimicry is not usually considered. V.P. Tyshchenko analyzed spider behaviour when exposed to Diptera that mimic Hymenoptera. Two typical ambush predators were chosen for his experiments, the crab spiders *Misumena vatia* and *Xysticus ulmi* (Thomisidae). They do not build webs, but wait at flowers for insects to visit. Only spiders that initially lacked a defensive reflex towards the Hymenoptera mimics were used. Each spider was presented with the Aculeata/sawflies (the model) and then their Diptera mimics in different sequences. It was demonstrated that spiders that normally fed on the hover-fly *Eristalis nemorum* refused it after five minutes exposure to a honey-bee, and a stable negative reflex to the complex of mor-



Fig. 3. Prof. V.P. Tyshchenko giving a paper at the Congress of the All-Union Entomological Society in Leningrad (1979).
Рис. 3. Проф. В.П. Тыщенко выступает на съезде Всесоюзного энтомологического общества в Ленинграде (1979).



Fig. 4. Prof. V.P. Tyshchenko during an entomological excursion in the park of the Biological Institute of the Leningrad University (the 1960s).

Рис. 4. Проф. В.П. Тыщенко на энтомологической экскурсии в парке Биологического института Ленинградского университета (60-е годы).

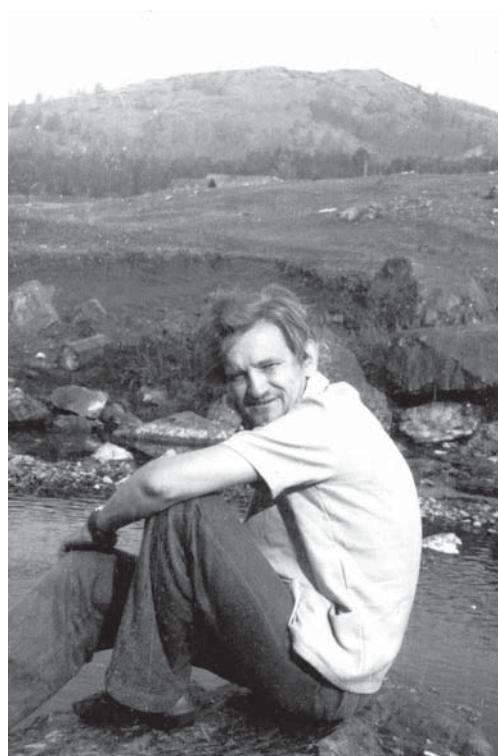


Fig. 5. Prof. V.P. Tyshchenko in the Bashkirskii State Reserve (1980 or 1981).

Рис. 5. Проф. В.П. Тыщенко в Башкирском Госзаповеднике (1980 или 1981 г.).



Fig. 6. Prof. V.P. Tyshchenko (centre) at the defence of a diploma project by S.V. Mironov (left), a student of the Department of Entomology of the Leningrad University, May 1978.

Рис. 6. Проф. В.П. Тыщенко (в центре) на защите дипломного проекта студента кафедры энтомологии Ленинградского университета С.В. Миронова (слева), май 1978 г.

phological characters of the model and its mimics appeared in all cases. Subsequent experiments using different ‘predator–prey’ pairs showed similar results. Furthermore, the extent of the negative reflex was shown to correlate with the degree of similarity of the mimic to its model; the better the mimic, the stronger and more stable the negative reflex of the spider and *vice versa*, poor mimics caused only a slight and unstable negative reflex. In addition, spiders generated an independent negative reflex towards each of the three groups of models tested (wasps, bees and sawflies) and their mimics. Thus, V.P. Tyshchenko clearly demonstrated the importance of considering invertebrate predators, such as entomophagous insects and spiders when investigating the origins of Mullerian mimicry.

During the final years of his life, Prof. V.P. Tyshchenko published a series of papers devoted to the structure of orb webs [Tyshchenko, 1983b, 1984, 1985, 1986; Tyshchenko & Marusik, 1985; Tyshchenko, Marusik & Tarabaev, 1985]. At the beginning of the twentieth century araneid orb webs were shown to be species-specific, but their taxonomic usefulness was underestimated due to a high degree of intraspecific web variation. To overcome this

difficulty V.P. Tyshchenko defined ‘standard capture webs’, providing a diagrammatic scheme and a formal diagnosis. These were based on statistical analyses of measurements taken from 10–20 individual orb webs of the same species from the same geographic population. In the opinion of V.P. Tyshchenko, standard webs can be reliable taxonomic criteria for tackling systematic and phylogenetic problems at different taxonomic levels. The latter statement can be exemplified by some of his subsequent studies. Firstly, using the method of standard capture webs allowed him to provide diagnoses for species of the genera *Araneus* (*s.str.*) and *Larinioides*. Secondly, it was possible to determine distinct differences between the superficially similar orb webs of the cribellate family Uloboridae (Deinopoidea) and the ecribellate families Araneidae and Tetragnathidae (Araneoidea) and to further demonstrate their convergent origin [Tyshchenko, 1985]. In the studied ecribellate orb webs, the numbers of radii and sticky threads are directly proportional, whereas those in the uloborid webs are fairly independent parameters.

Through his versatile scientific abilities and all-round educational activities, Prof. V.P. Ty-

shchenko has beyond any doubts, stimulated further arachnological research in the USSR. These were pioneered during the first half of the twentieth century by the founders of Russian arachnology D.E. Kharitonov and S.A. Spassky. Prof. V.P. Tyshchenko supervised a great number of MSc and PhD projects undertaken in the Department of Entomology of the Leningrad State University. Amongst his students the following researchers can be named: Dr. E.M. Andreeva (a keen researcher and the author of the only monograph on the spiders of Tajikistan), Dr. S.L. Savelyeva (she undertook a number of pioneering faunistic studies in east Kazakhstan), Dr. V.A. Krivokhatskii (a researcher who carried out a number of complex biocenology studies in Middle Asia, in which spiders were widely involved), Dr. A.A. Zyuzin (a specialist on Palaearctic wolf spiders), Dr. V.I. Ovtsharenko (one of the leading specialists on Gnaphosidae), Dr. C.K. Tarabaev (a late arachnologist, whose energy and enthusiasm helped him to organize a working arachnological laboratory in the Institute of Zoology in Alma-Ata), Dr. Yu.M. Marusik (a gifted taxonomist and spider collector, a specialist in many spider groups and currently the leading arachnologist as far as the Siberian and Far East spider faunas are concerned), Dr. D.V. Logunov (one of the leading specialists in certain spider families, especially the Salticidae). Prof. V.P. Tyshchenko was always helpful, not only to scientists who visited him and with whom he collaborated, but also to youngsters who wrote for help or came along with queries. Any student who ever had cause to come to Prof. Tyshchenko's door with a query, will surely remember his encouragement, willingness to help and his immense knowledge, which he willingly and easily shared. In recent years, colleagues and students of Prof. V.P. Tyshchenko, as well as a new generation of young systematists, have been successfully studying the spider fauna of Russia and neighbouring territories. There is little doubt that present Russian arachnologists make up a noticeable part of the international arachnological community; yet the basis for the current flourishing of arachnological studies in Russia was set up by the arachnologists of the twentieth century, of whom Prof. V.P. Tyshchenko heads the list. He was also the

first president of the Section of Arachnology organized within the All-Union Entomological Society of the ex-USSR in 1985.

During the preparation of this essay I greatly appreciate the help kindly given by Prof. Tyshchenko's students: Dr. D.V. Logunov (Manchester, UK) and Dr. V.A. Krivokhatskii (St.-Petersburg, Russia). Dr. K.G. Mikhailov (Moscow, Russia) is thanked for his help with relevant literature. Dr. D. Penney (Manchester, UK) is thanked for his linguistic help.

List of arachnological publications by Prof. V.P. Tyshchenko

(all papers are in Russian, their titles are given in chronological order)

- Тыщенко В.П. [Tyshchenko V.P.] 1961. Об отношении некоторых пауков семейства Thomisidae к мимикрирующим насекомым и их моделям [On the relation of some spiders of the family Thomisidae on mimetic insects and their models] // Вестн. Ленингр. Универ. № 3 (Сер. Биол.). Вып.1. С.133–139.
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- Андреева Е.М. & Тыщенко В.П. [Andreeva E.M. & Tyshchenko V.P.] 1968. Материалы по фауне пауков Таджикистана. II. Zodariidae [Materials on the spider fauna of Tajikistan. II. Zodariidae] // Зоол. журн. Т.45. Вып.5. С.684–689.
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- Мариковский П.И. & Тыщенко В.П. [Marikovskii P.I. & Tyshchenko V.P.] 1970. Паук-мирмекофил (*Zodariion asiaticum* Tysts. sp.n.) и некоторые черты его

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A list of the spider taxa described by Prof. V.P. Tyshchenko

(in case of a current synonymy or a different combination relevant comments are given)

Family Dictynidae

Altella tenella Tyshchenko, 1965: 696, f. 1 (D♀). Kazakhstan: Kokshetau Mts. Transferred to *Devade* Simon, 1884 by Esyunin & Marusik [2001].

Lathys spasskyi Andreeva et Tyshchenko, 1969: 378, f. 4c–d (D♀). Tajikistan: Gandzhina and Khazratisho. Synonymized with *L. stigmatisata* (Menge, 1869) by Ovtchinnikov [1988: sub *L. puta*].

Momius Andreeva et Tyshchenko, 1969: 380; type *M. hispidus* Andreeva et Tyshchenko, 1969. Described originally in the Amaurobiidae, transferred to the Dictynidae and synonymized with *Devade* Simon, 1884 by Marusik [1989].

Momius hispidus Andreeva et Tyshchenko, 1969: 380, f. 5 (D♂). Synonymized with *Altella tenella* Tyshchenko, 1965 [Ovtsharenko & Fet, 1980: sub *Momius*]; transferred to *Devade* Simon, 1884 by Esyunin & Marusik [2001].

Family Filistatidae

Filistata martynovae Andreeva et Tyshchenko, 1969: 374, fig. 1 (D♀). Tajikistan: Gandzhina, Kondara. Transferred to *Zaitunia* Lehtinen, 1967 by Zonstein [1990]. The species honors E.F. Martynova, the famous expert on springtails, a senior research scientist of the Leningrad University.

Filistata beshkentica Andreeva et Tyshchenko, 1969: 376, f. 1 (D♀). Tajikistan: Beshkent Valley and Chiluchor-Chashma. Transferred to *Zaitunia* Lehtinen, 1967 by Zonstein [1990].

Family Gnaphosidae

Gnaphosa aborigena Tyshchenko, 1965: 697, f. 2 (D♀). Kazakhstan: Kokshetau Mts.

Micariolepis similis Tyshchenko, 1965: 701, f. 8 (D♀). Kazakhstan: Kokshetau Mts. Preoccupied name in *Micaria* by Bösenberg, 1902, a replacement name *Micaria tyshchenkoi* was proposed by Brignoli [1983]; synonymized with *M. dives* (Lucas, 1846) by Mikhailov [1988]. *Micariolepis* Simon, 1879 was synonymized with *Micaria* Westring, 1851 by Wunderlich [1979].

Family Linyphiidae

Alioranus avanturus Andreeva et Tyshchenko, 1970: 38, f. 1 (D♂♀). Tajikistan: Varzob canyon.

Erigone charitonovi Andreeva et Tyshchenko, 1970: 41, f. 2 (D♂♀). Uzbekistan, Tajikistan. *Nomen dubium*; see Mikhailov [1997].

Thyreosthenius (?) *asiaticus* Andreeva et Tyshchenko, 1970: 40, f. 1 (D♀). Tajikistan. Transferred from *Thyreosthenius* and synonymized with *Styloctetor romanus* (O. Pickard-Cambridge, 1872) by Tanasevitch [1983: sub *Ceratinopsis*].

Family Oecobiidae

Oecobius tadzhikus Andreeva et Tyshchenko, 1969: 376, f. 3 (D♂♀). Tajikistan: Chiluchor-Chashma and Gandzhina.

Family Oxyopidae

Oxyopes takobius Andreeva et Tyshchenko, 1969: 383, f. 7b–c, e (D♂♀). Tajikistan: Gissar and Khozratisho Mt. Ranges, Muminabad.

Family Philodromidae

Thanatus pallidus Tyshchenko, 1965: 698, f. 3 (D♀). Kazakhstan: Kent. Synonymized with *T. atratus* Simon, 1875 by Logunov [1996].

Family Thomisidae

Heriaeus horridus Tyshchenko, 1965: 698, f. 4 (D♂♀). Kazakhstan: Kokshetau Mts., Tengiz.

Xysticus crassus Tyshchenko, 1965: 699, f. 5 (D♀). Kazakhstan: Kokshetau Mts. Synonymized with *Xysticus pseudobliteus* (Simon, 1880) by Marusik & Logunov [1995: sub *Ozyptila*].

Xysticus dzhungaricus Tyshchenko, 1965: 700, f. 6 (D♂♀). Kazakhstan: Dzhungarskii Alatau Mt. Range.

Xysticus pygmaeus Tyshchenko, 1965: 700, f. 7 (D♂). Kazakhstan: Kent.

Family Salticidae

Evarcha albopilosa Tyshchenko, 1965: 701, f. 9 (D♂♀?). Kazakhstan: Kokshetau Mts. Transferred to *Pellenes* by Logunov *et al.* [1999].

Melioranus Tyshchenko, 1965: 702; type *M. lutosus* Tyshchenko, 1965. Synonymized with *Aelurillus* Simon, 1884 by Prószyński [1979].

Melioranus lutosus Tyshchenko, 1965: 703, f. 10 (D♀). Kazakhstan: Kokshetau Mts. Transferred to *Aelurillus* Simon, 1884 by Prószyński [1979].

Marpissa salsophila Tyshchenko, 1965: 704, f. 11 (D♂). Kazakhstan: Kokshetau Mts. Synonymized with *Mendoza canestrinii* (Ninni, 1868) by Wesolowska [1981: sub *Marpissa tschekiangensis*].

Family Zodariidae

Zodariellum Andreeva et Tyshchenko, 1968: 688; type *Z. surprisum* Andreeva et Tyshchenko, 1968.

Zodariellum surprisum Andreeva et Tyshchenko, 1968: 688, f. 7–8 (D♂). The type species of the genus. Tajikistan: Muminabad.

Zodarium martynovae Andreeva et Tyshchenko, 1968: 684, f. 1–2 (D♀). Tajikistan: Dzharkurgan. The species honors E.F. Martynova, the famous expert on springtails, a senior research scientist of the Leningrad University.

Zodarium tadzhikum Andreeva et Tyshchenko, 1968: 686, f. 3 (D♀). Tajikistan: Gandzhina.

Zodarium continentalis Andreeva et Tyshchenko, 1968: 687, f. 5 (D♂). Tajikistan: Dzharkurgan.

Zodarium asiaticum Tyshchenko in Marikovskii & Tyshchenko, 1970: 199, f. 1 (D♂♀). Kazakhstan: Almaatinskii Reserve (Zailiiskii Mt. Range); the spiders were collected by the famous Russian zoologist and entomologist, P.I. Marikovskii. Transferred to *Zodariellum* by Marusik & Koponen [2001].

List of the spider species dedicated to Prof. V.P. Tyshchenko**Family Dictynidae**

Dictyna tyshchenkoi Marusik, 1988: 1471, f. 3.1–2 (D♂♀). Russia: north-east Siberia.

Dictyna tyshchenkoi wrangeliana Marusik, 1988: 1474, f. 3.3–5 (D♂♀). Russia: Wrangel Is.

Family Dysderidae

Dysdera tyshchenkoi Dunin, 1989: 867, f. 1–4 (D♂♀). Turkmenistan.

Family Filistatidae

Microfilistata tyshchenkoi Zonstein, 1990: 51, f. 1–6 (D♂). Tajikistan. The type species of the genus.

Family Gnaphosidae

Micaria tyshchenkoi Brignoli, 1983: 583 (replacement name for *Micariolepis similis*). Synonymized with *M. dives* (Lucas, 1846) by Mikhailov [1988].

Parasyrisca tyshchenkoi Ovtsharenko, Platnick et Marusik, 1995: 11, f. 26–30 (D♂♀). Russia: north-east Siberia and mountains of south Siberia.

Family Linyphiidae

Walckenaeria tyshchenkoi Eskov et Marusik, 1994: 66, f. 111–115 (D♂♀). Russia: north-east Siberia and Sakhalin.

Family Lycosidae

Pardosa tyshchenkoi Zyuzin et Marusik, 1989: 432, f. 1–13 (D♂♀). Russia: central, south and north-east Siberia.

Family Salticidae

Eolinus tystschenkoi Prószyński et Żabka, 1980: 219, f. 21–26 (D♂). Fossil, in Baltic amber (Oligocene).

Family Thomisidae

Xysticus tyshchenkoi Marusik et Logunov, 1995: 150, f. 34–39 (D♂♀). Middle Asia.

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