

**ON THE DEVELOPMENT OF  
VETERINARY HELMINTHOLOGY IN ESTONIA  
VETERINÄRÄS HELMINTOLOGIJAS  
ATTĪSTĪBA IGAUNIJĀ**

**Järvis Toivo**

Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences,  
Estonia

[toivo.jarvis@emu.ee](mailto:toivo.jarvis@emu.ee)

**ABSTRACT**

Early development of veterinary helminthology in Estonia is inseparable from the activities of Tartu Veterinary Higher Schools: Tartu Veterinary School, Tartu Veterinary Institute and the Veterinary Faculty of Tartu University. K. I. Skryabin, a world famous helminthologist, developed an interest in parasitology during his studies in Tartu Veterinary Institute. On his initiative the period of rapid development of veterinary helminthology started in the second half of 1950s. A considerable number of dissertations (PhD) on a broad spectrum of helminthology were defended during a couple of decades by researchers of the Estonian Agricultural Academy and the Estonian Research Institute of Animal Breeding and Veterinary Science. Research investigations were successfully carried on at the Estonian Agricultural University over the last decade. Numerous text- and handbooks written by the professors of parasitology of the Estonian Agricultural Academy and the Estonian Agricultural University have an important role in the development of helminthology in Estonia.

**KEY WORDS:** veterinary helminthology, scientific activity, teaching, Tartu Veterinary Higher Schools.

**INTRODUCTION**

Parasitism is widely spread in the animal kingdom. A number of flatworms, 3000 species of the class of flukes (*Trematoda*) and 1500 species of the class of tapeworms (*Cestoda*), are parasitic to both animals and humans. 3000 out of 8000 species of the class of roundworms (*Nematoda*) are parasites. All 300 species of the thorny-headed worms are parasites (5).

The aim of veterinary helminthology is to minimize or avoid the hazard presented by helminths to animal health and production as well as public welfare. This objective can be achieved only by progress in collecting new knowledge of helminth morphology, biology,

distribution, pathogenic effect on the host, control measures, etc. The accumulated knowledge is rendered to students and practising veterinarians.

This paper gives an overview of the teaching and research activities carried out in the field of veterinary helminthology in Estonia.

### Research activities

Helminths and helminth-induced diseases were not thoroughly studied at Tartu Veterinary School (TVS, 1848—1873) and Tartu Veterinary Institute (TVI, 1873—1918). Alexander M. Unterberger (1827—1875) investigated the morphology and biology of ascarides occurring in doves (1868), Professor Eižens Zimmers (1843—1906) was the first to diagnose trichinellosis in cats (1868) and he also described syngamiosis in the domestic hen (1870). Since 1908, Leon J. B. Gogiel (1869—1937) studied filarioid nematodes in the Caucasus and elsewhere in Russia, establishing a valuable collection of filariae.

In 1871, Karl K. Blumberg (1850—1897), supervised by Professor Ludwig Stieda of Tartu University, defended the first master's degree in veterinary helminthology in Russia, whereas the thesis was dealing with morphology of *Paramphistomum cervi* (1). Undoubtedly, the most famous alumnus of TVI is academician Konstantin I. Skryabin (1878—1972). In spring 1900 he was admitted to Tartu (Jurjev/Yuryev) Veterinary Institute. K. I. Skryabin was also an auditor at the Department of Biology of Tartu University, where he studied general biology and zoology. For the first time he learned about the parasites attending the lectures given by Professor Johann R. Waldmann (1856—1922). At that time some of the parasites were discussed as pathogenic organisms in the subject course of pathological anatomy. The variety of parasitic diseases aroused great interest in K. I. Skryabin. In 1905 he graduated *cum laude* Tartu Veterinary Institute, becoming a learned veterinary surgeon. In 1916, K. I. Skryabin successfully defended his thesis on "Description of helminthofauna of domestic animals of Turkestan" at Tartu Veterinary Institute and he was conferred a master's degree in veterinary science. In his thesis K. I. Skryabin proposed that departments of parasitology and parasitic diseases should be established at veterinary and medicine colleges in Russia (3).

On 28 April 1917, K. I. Skryabin was elected an assistant professor of the Chair of Pathological Anatomy, Forensic Veterinary Science and Meat Examination of Tartu Veterinary Institute. However, on 2 May 1917 he actually started his career as the first professor at the newly-established Department of Parasitology and Parasitic Diseases at Novocheerkassk Veterinary Institute.

One of the most distinguished scientists of the Faculty of Veterinary Medicine (1919—1951) at Tartu University (TU) was Michael Hobmaier (1886—1969), who has published a large number of research papers on parasitology. He achieved world fame in 1929, ascertaining the life cycle of the lungworm (*Metastrongylus*) in swine. Under his supervision Elmar Redlich (b.1898) defended his doctoral degree on the life cycle of *Diphyllobothrium latum* (1926) (8). The theme of his dissertation was "*Diaptomus graciloides* (Lilljeborg) as the first new intermediate host of *Dibothriocephalus latus*, and some remarks on the experimental development of the proceroid of this cestode".

The history of helminthology, as a branch of science, is closely related to the name of academician K. I. Skryabin, incl. Estonia. There were no specialized research institutions for studying helminthological problems in Russia before 1917. Helminthology was neither taught as a subject at universities, nor was it a subject of scientific research aimed at solving problems related to national economy or health care. K. I. Skryabin was the first to combine all the aspects of this subject into one complex, as well as the first to understand the practical importance of helminthology. K. I. Skryabin laid the new foundation to helminthology as a branch of science, and established the tasks of nationwide importance. In 1932, on the initiative of K. I. Skryabin, the world's first institute specialized in helminthology (VIGIS)

was founded on a basis of the All-Union Institute of Experimental Veterinary Medicine (VIEV) (6).

On 1 December 1932, academician K. I. Skryabin, Professor at the Moscow Veterinary Institute, was awarded an honorary Doctor of Tartu University.

In 1951, K. I. Skryabin paid a visit to Estonia to eliminate the backlog in parasitology. His mission was to offer professional assistance in training specialists in the field of helminthology.

In the years 1954—1957, Jüri Patune (since 1958 Parre, (1928—1996)) studied at Moscow Veterinary Academy as a postgraduate student of parasitology. His thesis was supervised by K. I. Skryabin personally.

In the late 1950s cooperation was established with the researchers of Latvia and Lithuania. Coordinating meetings were organized, moreover, Baltic conferences on parasitology were held every 2 to 3 years in each country, alternately. The Commission for Parasitological Problems was established in Estonia in 1967, the primary task of which was to coordinate the research work between the educational institutions and research establishments as well as to organize international joint conferences on parasitology together with specialists from Latvia and Lithuania. At that time, the Estonian parasitologists also had close contacts with the members of the All-Union Society of Helminthologists.

In 1955, a Latvian researcher Kapitolina Lesinš (b. 1924) defended the degree of Candidate of Veterinary Science on "Investigation into Farm Animal Helminthofauna and Seasonal Dynamics of More Important Helminthoses in South-Eastern Estonia", supervised by V. Ridala (1906—1985) at the Estonian Agricultural Academy. In 1958, the degree of Candidate of Veterinary Science was conferred to Linda Veldemann (b. 1922) for her thesis on "Helminthofauna and major helminthoses in domestic ducks in the Estonian SSR" (supervisor V. Ridala).

In the same year (1958) Jüri Parre defended the degree of Candidate of Veterinary Science at the Moscow Veterinary Academy for the thesis titled "Treatment for canine echinococcosis and its connection with devastation of both human and animal echinococcosis in the USSR". After his return to the Estonian Agricultural Academy, Jüri Parre has investigated swine gastrointestinal helminthoses, bovine paramfistomatidoses and other parasitoses.

Besides the above mentioned researchers, the degree of Candidate of Veterinary Science has been conferred to the following Estonian veterinary parasitologists (helminthologists): Arvid Kaarma (1933—2002) for the thesis on "Epizootiology and developing control measures for swine metastrongylosis in the conditions of the Estonian SSR" in 1962 (supervisor Oskar Plaan), Vambola Vilson (b. 1929) for the thesis on "Distribution of strongyloidosis and other parasitoses of swine digestive tract in the Estonian SSR and improvement of dehelminthisation measures" in 1968 (supervisor V. Ridala), Heino Laidvee (b. 1934) for the thesis on "Studies on epizootiology of dictyocaulosis in sheep and improvement of its control measures in the Estonian SSR" in 1969 (supervisor O. Plaan), Jüri Kasesalu (b. 1936) for the thesis on "Ichthyoparasitological situation and fish diseases on pond farms of the Estonian SSR" in 1972 (supervisor V. Ridala) (7). Toivo Järvis (b. 1944) defended the degree of Candidate of Veterinary Science on "Helminths and helminthoses control of roe-deer in the Estonian SSR" (supervisors J. Parre and senior researcher Niina S. Nazarova) at the K. I. Skryabin All-Union Institute of Helminthology. For this investigation Toivo Järvis was awarded the K. I. Skryabin medal of honour and an accompanying certificate in 1983 (2). The degree of Candidate of Science in Biology was conferred to Vilma-Silvia Jõgis (1932-1981) for the thesis on "Ecofaunistical investigation of nematodes in a bird population of the Baltics" in 1969, and to Harda Tell (Tünder) (1921—1998) for the thesis on "Parasitofauna of fish in Lake Võrtsjärv" in 1955 (supervisor I. Bõhovskaja).

In the event to commemorate the 100th birth anniversary of academician K. I. Skryabin (1978), a memorial plaque was fixed to the wall of the *Theatrum Zootomicum* building of the Faculty of Veterinary Medicine at the Estonian Agricultural Academy, in recognition for his distinguished contribution to the development of parasitological research.

The degree of Doctor of Veterinary Science in parasitology was granted to A. Kaarma for the dissertation titled "Swine oesophagostomosis: agent pathogenicity, effect on productivity, epizootiology and prophylactic measures" (The K. I. Skryabin All-Union Institute of Helminthology, 1979), to J. Parre for "A parasitology textbook in veterinary medicine and its supplementing study aids" (EAU, 1992), to T. Järvis — "Helminths of wild artiodactyls in Estonia and helminthoses control" (EAU, 1993), to Erika Mägi (b. 1943) — "Biological fundamentals of prevention of some parasitoses" (EAU, 1997) and to Illa Miller (b. 1935) — "Trichinellosis in Estonia: epidemiology, diagnosis and control" (EAU, 2003, supervisor T. Järvis).

The degree of Doctor of Philosophy in Biological Sciences was conferred to Heli Talvik in 1998 in Tartu for the dissertation titled "Species composition and prepatent periods of *Oesophagostomum* spp. populations in Estonia and Denmark" (supervisors T. Järvis and Charlotte M. Christensen). In 2003, Liina Laaneoja defended the degree of Master of Veterinary Science "On diagnosis and control of parasite infection in dogs and cats of Tartu region" (supervisor T. Järvis).

Besides the above mentioned parasitologists, the results of the studies in the field of veterinary helminthology have been published by other researchers such as V. Ridala (fish, swine and bird parasites), K. Liik (slaughter animal parasites), M. Sikkut (strongyloidosis), A. Paabo (equine digestive tract helminths), J. Kaarde (swine and bovine parasites), O. Plaan (chicken, bovine, swine and sheep parasites), E.-A. Valdmann (sheep moniezirosis), H. Reek (fasciolosis), E. Peebsen (trichinellosis), I. Arro (corynosomosis), E. Veske (corynosomosis), M. Tikk (swine helminthoses), A. Villemson (roundworm infections in horses) a.o.

Over the past decade research topics of Estonian veterinary helminthologists, all working at the Estonian Agricultural University, have mostly been focused on trichinellosis, swine and sheep parasitic diseases and ethnoveterinary medicine. Close cooperation has been developed with the Danish Centre for Experimental Parasitology at the Royal Veterinary and Agricultural University of Denmark (an Honorary Doctor of EAU Peter Nansen, Christian Kapel, and others), but also with the International Trichinella Reference Centre (Edoardo Pozio), and other cooperation partners.

Until recently, Estonian parasitologists were the members of the Baltic Society for Parasitology. In 2003, however, a joint Baltic-Scandinavian Society of Parasitologists was established, the first scientific conference of which was held in Vilnius in 2005.

### **Teaching**

The development of every particular field of study is inseparably associated with the quality and profoundness of teaching of the corresponding subject. Neither at TVS nor at TVI, parasitology was taught as an independent discipline. Helminths were shortly discussed within the course of pathological anatomy by Professor Friedrich A. Brauell (1807—1882), Professor E. Zimmers (1843—1906), Professor J. R. Waldmann (1856—1922) and Professor Ernests Paukulis (1872—1941)).

Since 1927, besides a course in pathological anatomy, M. Hobmaier started lecturing parasitology as well. From 1931 to 1932 parasitology was taught by Alar G. Undritz (b. 1905), and from 1933 to 1985 by V. Ridala (4).

Parasitology, as a separate discipline, has been taught in the Faculty of Veterinary Medicine of Tartu University since 1940 (two lecture hours and one practical work hour a week for one semester).

During the years 1941—1943 the parasitology lecture course was given by Albert Paabo (1907—1985). Lectures rendered by V. Ridala during years 1944 to 1961 (since 1951 at the Estonian Agricultural Academy), covered all aspects of parasitology. Since 1961, J. Parre started lecturing the course in general parasitology and helminthology as well as supervising parasitology practicums (Järvis, 1998). Jaan Praks (b. 1938) replaced J. Parre as a lecturer during the latter's doctoral studies (1969—1970). Laboratory practices in parasitology were supervised by T. Järvis since 1982 (since 1991 at the Estonian Agricultural University). Since 1994, when J. Parre became emeritus, his responsibility to lecture the parasitology course passed on to T. Järvis, who also continued supervising laboratory practices. Supervisors of laboratory work in parasitology have also been I. Miller (from 1976 to 2000) and E. Mägi (from 2000 to 2003). Since 2003 the course of parasitology and parasitic diseases is rendered to students by T. Järvis.

In the academic year 1993/94 the volume of subject course for students had increased up to 260 hours, however, it was significantly reduced by the academic year 2003/2004 — down to only 120 hours. Today, there is a need for a greater proportion of curricular hours, as, it is impossible to profoundly study the broad range of topics e.g. general parasitology, protozoology, helminthology, acarology and entomology. Teaching quality as well as the interest of students in parasitological issues could be raised in case articles and surveys were published in the Estonian language. Any books covering these issues would also act as a highly valuable source of information for practicing veterinarians and other people interested in human and animal parasitic diseases.

The textbook for veterinary technical schools "A short course in domestic animal parasitology", edited and co-authored by K. I. Skryabin in 1934, was translated into Estonian by Johannes Kaarde (1896—1976). V. Ridala edited and supplemented this book, published in Estonian in 1954, with the descriptions of seven major parasitic diseases in Estonia (1). V. Ridala has also been a co-author of several handbooks and reference books on health, animal welfare, etc.

The most productive writer of textbooks was J. Parre. His voluminous and highly recommended publications include "Parasitic diseases of animals" (1964, co-author O. Plaan (1910—1993)), "Veterinary parasitology" (1985), "Swine parasitoses" (1990) and "Bovine parasitoses" (1992). Moreover, he published several brochures on parasitology while he was also a co-author of numerous handbooks. For his textbook of veterinary parasitology J. Parre was awarded the State Prize of the Estonian SSR in 1987.

T. Järvis has written the following significant text- and handbooks: "Gastrointestinal parasites of ruminants" (1992), "Parasitic diseases in farm fur animals" (1994), "Systematics of parasites and nomenclature of parasitoses" (1997), "Canine parasitoses" (1998), "Laboratory diagnosis of parasitic diseases. Animal parasitofaunas" (2002), "Parasitic zoonoses" (2004), and "Food-borne parasitic and viral diseases" (2005, co-author M. Lillenberg).

Abundant supplies of parasite preparations as well as preparations of the organs infected with parasites, collected over decades, contribute to teaching efficiency.

## CONCLUSIONS

1. Helminths have been dealt only briefly within the course of pathological anatomy taught at Tartu Veterinary School (1848—1873) and Tartu Veterinary Institute (1873—1918).
2. In 1871 Karl K. Blumberg (1850—1897) defended the first academic (master's) degree in veterinary helminthology in Russia.
3. The most famous alumnus of the Tartu Veterinary Institute is academician Konstantin I. Skryabin (1878—1972), who obtained a master's degree in veterinary science at TVI in 1916.

4. Michael Hobmaier (1886—1969) from the Faculty of Veterinary Medicine at Tartu University (1919—1951) gained world reputation in 1929, clearing up the life cycle of the pig lungworm (*Metastrongylus*).
5. At Tartu Veterinary School and Tartu Veterinary Institute parasitology was not taught as a separate discipline.
6. Only since 1940 parasitology has been taught as an independent discipline in the Faculty of Veterinary Medicine of Tartu University.
7. The history of helminthology as a branch of research is inseparable from the K. I. Skryabin's name. Through his intensive organisatory and scientific activity a period of rapid development of helminthology in Estonia began.
8. Up to now many candidate's (PhD), doctor's and master's theses have been defended by the researchers of the Estonian Agricultural Academy (since 1991 Estonian Agricultural University) and Estonian Research Institute of Animal Breeding and Veterinary Science.
9. The development of parasitology, including helminthology, is supported by numerous text- and handbooks in the Estonian language.

## REFERENCES

1. Eesti Põllumajandusülikooli loomaarstiteaduskond 1848—1998 / Koost. E. Ernits. — Tartu: Tallinna Raamatutrükikoda, 1998. — 256 lk.
2. Järvis, T. Parasitoloogiaalaseset õppe- ja teadustööst Tartus. — Eesti Loomaarstlik Ringvaade, 1998, 3: 103—104.
3. Konstantin Ivanovič Skryabin. Žizn' i dejatel'nost' / Redakcionnaja kollegija: K. M. Rõžikov i dr. — Moskva: Nauka, 1976. — 255 s.
4. Kõrgema veterinaarhariduse ajaloost Tartus 1848—1973 / Toimet. J. Tehver ja J. Parre. — Tallinn: Valgus, 1973. — 128 lk.
5. Parre, J. Veterinaarparasitoloogia. — Tallinn: Valgus, 1985. — 438 lk.
6. Skryabin, K. I. Moja žizn' v nauke. — Moskva: Izd-vo polit. lit., 1969. — 463 s.
7. Valdmann, E., Karelson, M., Kees, H., Kuiv, M., Pettai, E. Eesti Loomakasvatuse ja Veterinaaria Teadusliku Uurimise Instituudi teaduskoosseisu biobibliograafia 1947—1990. — Tallinn: PMIK, 1992. — 139 lk.
8. Veterinarnyi fakul'tet ESHA 1848—1983 / Redakcionnaja kollegija: Y. Simovart, Y. Tehver, E. Ernits. — Tartu: Rotaprint ESHA, 1984. — 157 s.