Czechoslovak and Soviet Parasitology: History, Interrelations and Work

The friendly relations of Czechs and Slovaks with the nations of the Soviet Union are not associated with present time only. Already since the period of the National Revival in the first half of the last century our people have gazed with hope and admiration towards the great men of the Russian nation.

Likewise, the mutual relations in the field of parasitology have not been of recent date either. In the second half of the 19th century, when parasitology along with other sciences began gradually to take form as an independent scientific field, two prominent representatives of parasitological trends worked in Russia.

The first of them was Dušan Lambl, the discoverer of an important parasitic flagellate. Born in 1824, a native from Letiny in Bohemia, he graduated from the Czech Medical Faculty of Charles University in Prague and qualified to become university lecturer in pathological anatomy. During his stay in Prague he described from the small intestine of man a flagellate which he named *Cercomonas intestinalis* and which was later in his honour designated by the generic name *Lamblia*. His scientific career culminated in Kharkov, where he was head of the Department of Pathological Anatomy at the local university.

The other scientist, F. A. Kolenati, was one of the first medical entomologists and acarologists of the last century and worked directly in the centre of the Russian science, Petersburg, where he published his basic scientific work "Beiträge zur Kenntnis der Phthirio-Myiarien" (Horae Soc. Ent. Rossicae 2: 9—109, 1863). Kolenati's lively relations with Russian scientists influenced his work on ectoparasites of bats and other mammals and undoubtedly contributed to his scientific efforts later on in Brno, then a provincial town considerably remote from main scientific activities. However, many sides in the rich life of this scientist remain vague, including his tragic death in the Jeseníky mountains in northern Moravia.

Further relations between the parasitologists of both countries may be traced as late as in the thirties of this century. At this period K. Rašín of the Veterinary

College in Brno worked as parasitologist at the veterinary school in Saratov and the result of his stay there was his excellent work on some fish trematodes and their developmental cycles.

But it was only in the fifties that the relations between Czechoslovak and Soviet parasitologists became more intensive. As the scientific progress received full support by the socialist system in this country, new scientific fields began to develop systematically at that time, including modern branches of biology which had never been studied in Czechoslovakia. In the light of causal historic connection the results achieved by the Czechoslovak science are dependent upon and closely associated with the victory of the Soviet people who won their first victorious socialist revolution 50 years ago. This memorable anniversary falls on November 7, 1967 and will be celebrated by the whole progressive world.

Like in other biological sciences in Czechoslovakia before the Second World War the parasitological achievements were sporadic and disconnected. There were no suitable conditions for developing parasitology as a science, there was no tradition and many parasitological branches important both in theory and practical application did not exist, as there was no preliminary fundamental research until then. This situation was a sad historical fact, although on the other hand there had been such personalities in the past as A. Mrázek, J. Janků, J. Drbohlav, V. Breindl, J. Lukeš etc. who have made great contributions to parasitology in this country.

The development of biological sciences in the fifties, prompted by and associated with the personality of I. Málek, brought along a new progress in parasitology, mainly in its fundamental branches — protozoology, helminthology and arachnoentomology. In the latter branch mainly the problems connected with the localization of some zoonoses in nature, summarized by E. N. Pavlovsky in his theory of natural foci of infections, were widely studied.

The development of helminthology, arachnoentomology and the research of natural foci of infections is the most characteristic feature of Czechoslovak parasitology in the fifties. Up to that time these scientific branches were neglected, with the exception of protozoology, with which O. Jírovec occupied himself since pre-war years. He achieved a number of valuable results and was the first to propagate parasitology as a modern scientific field in Czechoslovakia.

When we were about to decide which way Czechoslovak parasitology should go, we decided to follow the path already paved by the Soviet parasitology, which represented several scientific schools. The enormous material amassed by the Soviet parasitologists and its theoretical evaluation greatly attracted our beginners in research. They soon concluded that without the knowledge of the parasite fauna of our own territory no foundation could be laid for either the diagnostics or a successful therapy of parasitic diseases of man, domestic and other production animals. Without bionomical-faunistical analyses it was impossible to carry out on a broad basis a thorough ecological research, important in its application to biological prevention of parasitic or other diseases transmitted by parasitic arthropods. Only on these foundations a serious research of parasitism as one of the basic

manifestations of live matter was feasible. In its final results this research necessarily demonstrated that parasitology as a scientific field is fully justified even under conditions of temperate climate, while its significance in the subtropics and tropics is well known.

The spontaneous and creative interest of the leading Czechoslovak parasitologists in the achievements of the Soviet parasitological schools, the application of some Soviet methods to the new environment and the energetic activity developed by them in this direction without any initial personal acquaintance with their Soviet colleagues, have evoked a mutual respect and friendship between the Czechoslovak and Soviet parasitologists. Later on plenty of opportunities offered themselves for a mutual collaboration, which bore informal character, but developed successfully, because it originated from deep creative interests and enthusiasm. As soon as the difficulties in the Czechoslovak research of parasites and parasitic diseases were overcome, both sides began to influence favourably one another in a number of sections and main directions of research. In my opinion this is one of the most valuable results yielded by the mutual collaboration, which has given much pleasure to the teachers and aroused respect in their pupils.

The foundation of Czechoslovak helminthology was laid after the great example of the work of Skrjabin and his disciples. As early as 1950 a small working team was formed at the Central Institute of Biology in Prague, who undertook the task of studying the helminths of domestic and wild animals. This basic research has been later continued in the Department of Experimental Helminthology of the Institute of Parasitology, Czechoslovak Academy of Sciences, which developed the systematic helminthology, presented a survey of the helminth fauna of domestic and wild animals in Czechoslovakia and began to study the developmental cycles of helminths, their ecology and elaborated an original theory of reservoir habitationism. Under the direct influence of K. I. Skrjabin the Helminthological Laboratory of the Slovak Academy of Sciences was established in Košice and was later changed into the Helminthological Institute of the Slovak Academy of Sciences. This institute is chiefly engaged in general research of helminths and helminthoses of man, animals and plants, in the study of their morphology, biology, physiology, epidemiology, epizootology and possible therapy. Contacts have been established with the Soviet workers K. M. Ryzhikov, A. A. Spassky, A. N. Boev, R. S. Shulz etc. and with appropriate institutions.

The work of our helminthologists, particularly of those from Prague, has been greatly influenced by that of Dogel' and his school, mainly the work concerning the host specificity of helminths due to ecological factors such as the influence of nutrition and localization of parasites in their hosts. In this section of work several remarkable publications have resulted lately. Dogel's basic concepts on parasitism of ectoparasites also considerably contributed to the elucidation of their specificity in the first papers concerned with fleas and lice.

Dogel's work also considerably influenced another branch of parasitology, the ichthyoparasitology, studied in Brno, Prague and Košice. A cooperation in the re-

search of Monogenoidea has been lately developed with the Soviet scientist B. E. Bykhovsky and his associates.

In medical and veterinary arachnoentomology contributions began to appear as early as 1945, taking as a model the classical works of the Soviet parasitological-arachnoentomological school, represented by E. N. Pavlovsky and his disciples P. A. Petrishcheva, I. G. Galuzo, B. I. Pomerantsev, A. S. Monchadsky and last but not least also I. G. Ioff. The arachnoentomological research programme has been concerned with studies of most important groups of blood-sucking arthropods and with modern experimental ecological investigations on a number of these ectoparasites. The work of our medical arachnoentomologists, mainly the investigations on mosquitoes, synanthropic flies, the evaluation of some degrees of parasitism and the problems of a large scale tick control, has also been inspired by the school of V. N. Beklemishev.

If we assess the development of our medical and veterinary arachnoentomology after a certain period, we cannot help noticing the role it has played in the elucidation and application of the theory of natural foci of infections, as formulated and further expanded by E. N. Pavlovsky, his associates and followers (besides the above mentioned scientists also N. P. Naumov, N. G. Olsufjev, V. V. Kucheruk etc.). In its complexity the research of natural foci of infections, however, exceeds the framework of parasitology proper, although parasitology plays a leading role in it. The Czechoslovak researchers were the first to apply this theory spontaneously and with initiative outside the territory of the USSR to the conditions of the cultivated landscape and nature considerably changed by activities of man. There is no doubt that in this field the Czechoslovak scientists, mainly the workers of the Institute of Parasitology, Czechoslovak Academy of Sciences in Prague, of the Institute of Vertebrate Zoology, Czechoslovak Academy of Sciences in Brno, of the Institute of Virology, Czechoslovak Academy of Sciences, of the Research Institute of Epidemiology and Microbiology in Bratislava and of some other smaller institutions, achieved a number of excellent results which have world priority. The progress of this kind of research in Czechoslovakia was due to the fact that since the very beginning a highly competent expert teams of various scientific branches could be formed. A collective assessment of the results obtained later prompted further successful cooperation.

The investigations of natural foci of infections in Czechoslovakia were started in 1950 and first extensive expeditions were carried out in 1952 with the purpose of solving the problems of Central European tick-borne encephalitis. During the past 15 years the Czechoslovak scientists published about 1000 scientific or other special papers on this subject, not only from our territory, but also from Yugoslavia, Bulgaria, Albania and the USSR.

Very many valuable contacts have also been established in protozoology, mainly in the studies on protozoans of fishes and other water organisms (G. I. Polyansky), and the structure of some protozoans (E. M. Kheisin). An intensive collaboration has been also started lately in the research of toxoplasmosis (D. N. Zasukhin).

The joint Czechoslovak-Soviet expeditions organized with the purpose of

investigating the parasites of fishes living in the basin of the river Tisa and the natural focus of tick-borne encephalitis in the district of the town Kemerovo in Siberia must be mentioned because of the remarkable results achieved. Especially the astonishing results of the latter expedition led to the discovery of a new virus transmitted to man by ticks and gave an impulse to further research of ticks as vectors of arboviruses belonging to other groups than the tick-borne encephalitis group.

At present the Czechoslovak scientific centres are cooperating with the corresponding Soviet scientific organizations in several joint themes in helminthology, arachnoentomology, ichthyoparasitology and in the research of natural foci of infections. In the coordination of these investigations a leading role has been played by the Institute of Zoology, the USSR Academy of Sciences in Leningrad, which in 1958 organized a symposium on possible coordination of zoological problems, where the basic parasitological problems were first stated. These problems are now being solved by joint coordinated research.

The lively relations are also reflected in the joint Soviet-Czechoslovak efforts in the research of the fauna and flora of the Carpathians, including parasitological problems. The historical aspects of this research and the participation of Czechoslovak scientific workers in the research of the Ukrainian section of the Carpathians have been comprehensively evaluated by A. P. Markevich.

Since the beginning of the development of parasitology in our territory the Czechoslovak parasitologists have been trying to confront their results with those achieved elsewhere. Congresses, symposia and conferences arranged by the Czechoslovak parasitologists have always marked a closer contact with the Soviet colleagues. In the ensuing discussions new working methods were verified and many personal friendships established. The first of such events was the conference on natural foci of infections held in autumn 1954 in Bratislava, where the Czechoslovak results achieved in this field of research were for the first time discussed with the Soviet parasitologists at international level. The next very important step in the Czechoslovak-Soviet relations was the First Congress of Czechoslovak parasitologists held in 1957, where the questions concerning all parasitological branches and the proposal to publish an international helminthological journal Helminthologia were dealt with. The questions on the control of parasitoses afflicting animals on pastures were discussed at another symposium held in Prague in 1961. The international symposium entitled "Parasitic Worms and Aquatic Conditions", held in 1962 in Prague, gave a new impetus to the joint coordinated research and further promoted our contacts in the studies on developmental cycles of some helminths parasitic in birds. The international symposium "Theoretical Questions of Natural Foci of Diseases", organized in Prague in 1963 by the Institute of Parasitology, Czechoslovak Academy of Sciences, in cooperation with the Gamaleya Institute of Epidemology and Microbiology, Moscow, represented a milestone in the development of this scientific field. At the Symposium on the Specificity of Helminths, held in Tatranská Lomnica in 1965, a remarkable outline was given of the original

Czechoslovak and Soviet results which were obtained in the research of specificity of helminths based on the theoretical ecological papers of Soviet authors.

The historical fiftieth anniversary of the Great October Socialist Revolution will be celebrated in November 1967. The past fifty years mark an extraordinary political, economic, scientific and cultural progress in the first socialist state, the Soviet Union. The valuable contribution of the Soviet Union to the world science has influenced a number of its basic fields, including parasitology. The achievements of the Soviet parasitology have given a basic impulse and a permanent inflow of information to the post-war development of parasitology in socialist Czechoslovakia and assisted the Czechoslovak parasitology, together with its own achievements, in demonstrating the significance of this science with all its branches under conditions of the temperate zone.

The methods and results of the Soviet parasitological schools have shown us the correct application of parasitology in the service of man, the use of all its achievements for the benefit of the whole population regardless of social differences and have indicated that planning, being one of the basic features of socialist science, should be employed in a purposeful struggle for the health of man and of domestic and other useful animals reared by him. They have also shown us how to undertake large and complex scientific tasks for the benefit of mankind.

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