FOLIA PARASITOLOGICA (PRAHA) 27: 193—196, 1980.

35 TH ANNIVERSARY OF THE LIBERATION OF CZECHOSLOVAKIA AND ADVANCEMENT OF CZECHOSLOVAK PARASITOLOGY

The year 1980 marks an important anniversary in our history, when we have commemorated the glorious May uprising of the Czech people at the end of World War II and the complete liberation of our country by the Soviet army from the fascist occupation. On this occasion we have not only commemorated those historical moments, but have also evaluated all successes achieved under the guidance of the Communist Party of Czechoslovakia in the building of our new social system and have set up new objectives and targets for the future. In the broad torrent of changes in our society after World War II an unprecedented development of our science also played an important part, primarily due to the foundation of the Czechoslovak and Slovak Academies of Science. The Czechoslovak parasitology also greatly contributed to this advancement of science. After the foundation of the Institute of Parasitology, the Czechoslovak Academy of Sciences, of the Helminthological Institute, Slovak Academy of Sciences and of many other research centres affiliated to universities and to the Ministry of Health and the Ministry of Agriculture, a solid base was created for a complex research in this field. In this anniversary year, therefore, we would like to recapitulate the most important achievements of parasitology gained in its different branches over the past 35 years.

The work of Czechoslovak parasitologists completed in the period of socialism has fully demonstrated the importance of parasitology for the conditions of the moderate zone, which was previously underestimated. The importance of a number of new parasitic diseases of man and animals was elucidated and principles of prevention and therapy for most of them were laid down. The resulting improvement in human and animal health condition and economic effects soon became evident. Ecological investigations laid the foundations for the possibility of control of some parasitoses in general. Parasitology has become an integral part of our socialist health system and veterinary service.

The application of E. N. Pavlovsky's theory of natural focality of diseases to the conditions of highly cultivated landscape in Czechoslovakia, and Central Europe in general, showed that natural foci of diseases posing health risks to man and food-producing animals may occur even in a densely populated territory changed by various human activities. Apart from tick-borne encephalitis, this fact is primarily concerning arboviruses transmitted by mosquitoes, hemorrhagic nephroso-nephritis, tularemia, leptospirosis and rabies. An important incentive for a complex biological research in which specialists of different scientific disciplines took part, was the Rožňava epidemic of tick-borne encephalitis. It was elucidated by the joint efforts of epidemiologists, parasitologists, virologists, entomologists, theriologists and other specialists. In recognition of this work the responsible team of Czech and Slovak physicians and biologists was awarded the Klement Gottwald State Prize in 1955. Moreover, many theoretical problems of natural focality such as the importance of points of contact between ectoparasites and their hosts, synanthropy, spatial structure of natural foci, their geobotanic indicators etc. were elaborated. For these priority results B. Rosický was awarded a State Prize in 1954.

The discovery of the Ťahyňa virus both in mosquito vectors and in humans, in whom it causes a clinically manifest disease, has been another evidence that even in a moderate zone health problems arise which can be solved only by the cooperation of medical and parasitological experts. The isolation of the Ťahyňa virus from mosquitoes, the first isolation of an arbovirus from mosquitoes in Europe, inspired and prompted further research of mosquitoes as potential vectors of viruses in this country and in Europe. The viruses Čalovo and Lednice were isolated in Czechoslovakia.

The studies on natural foci of leptospirosis resulted not only in the detection of serotypes new to science (*sorex-jalna*, *bratislava*, *jalna*) and in the analysis of their antigenic structure, but also in the mapping of the leptospirosis occurrence in the territory of Czechoslovakia and indicated the outlines of its prevention and therapy.

The studies of Czechoslovak mycoparasitologists are both of theoretical and practical importance. The natural focality of mycoses was successfully studied in the case of adiaspiromycosis; its epizootology, natural focality, pathogeny, histological changes were thoroughly investigated, serving as a basis for the knowledge about this disease in man, in whom it was detected in 1969. For this work the responsible staff members of the Institute of Parasitology, Czechoslovak Academy of Sciences (J. Dvořák, M. Otčenášek, J. Prokopič and B. Rosický) were awarded the Klement Gottwald State Prize in 1972.

O. Jírovec's and J. Vaněk's discovery of *Pneumocystis carinii* as the causative agent of plasmacelullar intersticial pneumonia in infants was awarded a State Prize in 1953. Since that time the zoonotic character of this disease and its occurrence was demonstrated in different small mammals and domestic animals.

Due to the efforts of Czechoslovak parasitologists engaged in the field of protozoology the importance of toxoplasmosis was acknowledged for our population as one of the most serious human parasitoses. Improved diagnostic methods were introduced into clinical practice and the role of *Toxoplasma gondii* was assessed in the etiology of different diseases. For the research in the field of toxoplasmosis G. Čatár was awarded a National Prize of the Slovak Socialist Republic in 1976. Likewise, diagnostics, therapy and prevention of vaginal trichomoniasis were successfully introduced into practice.

Of priority importance is the complex analysis of human brain amoebiasis caused by amoebas of the limax group, which elucidated a number of basic aspects carrying weight in the epidemiology of this lethal disease.

The studies on coccidioses yielded major results valuable both for theory and practice. On one hand, they were carried out by veterinary parasitologists, mainly in the research of chemotherapy and epizootology of coccidioses in domestic animals, and on the other, by biologists who cultivated coccidia in vitro in tissue cultures and chick embryos. New possibilities were thus gained for the study of the effectiveness of anticoccidia drugs.

The Institute of Parasitology and Institute of Entomology of Czechoslovak Academy of Sciences have become centres of complex research on microsporidia of both the invertebrates and vertebrates. Of priority are the findings concerning the possibilities of their application in the biological control of pests, in the knowledge of their ultrastructure and developmental cycle. For the results obtained in the research of insect diseases, including microsporidioses, J. Weiser was awarded the Klement Gottwald State Prize in 1969.

Our helminthology has won an important position in many respects. The discovery of many new species, the mapping of the occurrence of helminths in different host groups from various zoogeographical regions and the theory of the reservoir habitationalism (B. Ryšavý) shedding a new light on the problems of the circulation of causative agents of helminthoses in nature greatly contributed to the basic research. Of practical

importance was the application of the natural focality theory to the conditions of large-scale poultry farms in the prevention of nematodoses, the measures taken for the pasture control of helminths in domestic animals, the elucidation of the life cycle of *Fascioloides magna* and the epizootology of the disease caused by this species, the solution of problems concerning the lung verminosis in cattle and elucidation of the mechanism by which anthelmintics are effective. For his contribution to the development of helminthology in Czechoslovakia J. Hovorka was awarded the Klement Gottwald State Prize in 1965 and the National Prize of the Slovak Socialist Republic in 1979. Of no less importance were the studies on the morphology, histopathology and diagnostics of larval stages of helminths invading man.

The studies on fish parasites were carried out on a wide basis which facilitated the compilation of a first Czech book on the determination of agents causing parasitoses of fishes in Czechoslovakia. The proposed preventive measures have found practical application in the fishery.

The Czechoslovak parasitologists studying ultrastructures of different parasite groups and particularly the functions of cell organelles during the invasive process, achieved world priority in many lines of relevant research.

Of paramount importance in Czechoslovak parasitology was the research of major disease vectors — the ticks. This research gave an impetus to further studies not only on their distribution, life cycle and ecology, but also on their role as vectors of diseases afflicting man and domestic animals. Exact investigations were also started of ecological factors using computer technique which facilitates the prognosis of tick occurrence, area control of ticks and the possibilities for their complete liquidation. In the process Czechoslovak acarological school was formed and successes achieved inspired similar studies in a number of adjoining European countries. Some little known or new arboviruses (Uukuniemi, Tribeč, Lipovník etc.) were isolated from ticks.

Some branches of Czechoslovak arachnoentomology received a high international appraisal from the professional public primarily due to the monographic treatment of the material concerning most orders of arthropods from Czechoslovakia and other zoogeographic regions. Considerable achievements were made in the control of cattle hypodermatosis using newly developed insecticidal preparations. Valuable results were also obtained in the control measures against mass occurrence of mosquitoes and in laboratory and field testing of insecticides and acaricides. For the remarkable results in acarology M. Mrciak was awarded the National Prize of the Slovak Socialist Republic in 1973.

The publication activities in the field of parasitology provided not only textbooks for all branches of parasitology and its disciplines (protozoology, helminthology, medical arachnoentomology, mycoparasitology), but also some important monographs and manuals. The periodicals Československá Parasitologie, Folia parasitologica and Helminthologia have won a wide international recognition.

After the second world war malaria was definitively liquidated in the Czechoslovak territory, mainly in eastern Slovakia where thousands of cases occurred.

In our Socialist state parasitology was applied in the preventive hygiene and epidemiologic service. The system of this service including parasitological departments, such as was organized in the North Moravian region, may be an example for the Public Health Service in other regions of our Republic.

Czechoslovak parasitology deserves much credit for the present knowledge of parasites of game animals and for the prevention of parasitoses in these animals in Czechoslovakia. Investigated were the parasites of almost all types of game animals.

Czechoslovak parasitologists developed a wide cooperation with the Socialist countries in southern Europe, where the parasitological research, primarily in arachnoentomology

and natural focality, was stimulated and where schools and trends of their own arose due to these contacts. Notable results were attained by Czechoslovak parasitology in cooperation with the Cuban scientists, with some developing countries, mainly the Arab Republic of Egypt. It also contributed to the knowledge of parasite fauna in some regions of the high altitude mountains in Asia.

The past period, therefore, may be positively evaluated. However, parasitology will yet find further wide application in view of many urgent tasks which must be solved at the present stage of research. These tasks concern primarily problems of parasitic diseases in large-scale units of food-producing animals, problems of natural focality in urbanized and industrial regions, as well as problems of environmental parasitology. Their solution will yield not only important information of theoretical character, but will greatly contribute to the use of scientific results in everyday practice.

The Editors