The Ecology of Mycobacteria

J. Kazda

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Contents of the book:

Tuberculosis of humans and animals remains among the most important diseases with serious health, economic and social consequences not only in many less economically well-developed countries but also in economically successful countries. Many books and publications, both scientific and popular, have been written about the mycobacterial agents of the infection in humans and animals. Numerous publications and documentary films frequently make clear the importance of human tuberculosis to the specialist and non-specialist public. Less attention is, however, devoted to the results of the study of mycobacteria in the environment. Nowadays, sophisticated methods of molecular biology are available to demonstrate the causal agents of human tuberculosis, that is to say of all the representatives of the *Mycobacterium tuberculosis* complex. Thanks to them it is possible to show the presence of the DNA of *M. tuberculosis* even in archaeological material thousands years old and their presence in the environment, and to observe the vectors of their transfer.

For the treatment of tuberculosis in humans, therapeutic methods are used which normally lead to the people affected being cured. However, a reliable treatment for leprosy has not yet been found, people are threatened by resistant strains of *M. tuberculosis* and for patients suffering from AIDS, infections associated with mycobacteria are often fatal. With certain exceptions, mycobacterial infections are not treated in animals. The control of bovine tuberculosis is based on the elimination of infected animals, which is a costly and lengthy process that has, however, led in many countries to the total eradication of this disease. Perfecting diagnosis, maintaining the principles of prevention and expanding information about the survival and spread of mycobacteria in the environment are, however, a constant requirement for protecting humans and animals against mycobacterial diseases. In certain economically developed countries, following the eradication of bovine tuberculosis in herds of cattle, previously unknown reservoirs of bovine tuberculosis appeared in the wild (e.g. badgers in Great Britain, or the possum, a marsupial, in New Zealand) leading to the re-infection of cattle and great economic losses. A similar situation is found with avian tuberculosis, which occurs both in domestic birds and mammals and in wild birds and small vertebrates and threatens herds of pigs. A particularly important mycobacterial infection is paratuberculosis of ruminants, for which the risk has not yet been ruled out that the same causal agent may contribute to the occurrence of Crohn's disease in people.

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Apart from through contact with sick people and animals, mycobacteria can also be spread through water, food, feed and air. Invertebrates and probably also plants may also contribute to the spread of mycobacteria. J. Kazda's book: The ecology of mycobacteria does not only describe the incidence of mycobacteria in tuberculous humans and animals and their close surroundings, but contains an overview of the occurrence of mycobacteria in the environment. The conditions for survival and multiplication of mycobacteria are analysed and distinctions made between the environments such sphagnum bogs where mycobacteria can multiply and others that can be regarded only as vectors for their spread. One of the merits of the author is the discovery that sphagnum vegetation contains favourable conditions for the growth of mycobacteria. From sphagnum biotopes originated also five new species which the author described between 1979 and 1993: *M. komossense* (1979), *M. sphagni* (1980), *M. cookii* (1990), *M. madagascariense* (1992) and *M. hiberniae* (1993).

The successful isolation of the leprosy bacillus from the environment, indicated that this organism could survive outside the host. On the more positive side, saprophytic mycobacteria can serve as nutrients for dragonflies larvae. References to certain original ideas of Robert Koch and other researchers with their exact citations further increase the importance of the book and makes it more interesting. It is a pity that the book does not have an index which would simplify orientation in the text and that some of the citations do not have the names of all their authors.

This interesting and excellent book may be recommended to all workers involved in researching mycobacteria. It should be held in the library of any workplace where mycobacteria and mycobacterial diseases are studied. The author recently celebrated an important anniversary. Prof. Jindrich Kazda was born on April 7th 1927 in Czechoslovakia, from 1962 to 1968 he was involved in the study of mycobacteria at the Veterinary Research Institute in Brno (Czech Republic) and from 1969 to 1993 at the Institute of Experimental Biology and Medicine in Borstel (Ger-many). He habilitated and was made a professor at the Faculty of Mathematics and Science at the University of Kiel in Germany. He worked in field locations in New Zealand, Norway, Madagascar and many other areas of the world. He has maintained a warm relationship with the Czech Republic and we are grateful to him for the many times when he has given us help.

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