

## Book Review

SANDOR BABOS: DIE ZECKENFAUNA MITTELEUROPAS, *Akadémiai Kiadó, Budapest 1964, 410 pages, 304 figures, 7 plates*

This monograph, as the title indicates, is concerned with the tick fauna in Central Europe and attempts to compile the present knowledge on ticks in this region.

The volume is divided into two parts. The first one (pp. 13—162) deals with general questions and includes eight chapters on morphology, anatomy and biology of ticks, teratology, harmfulness of ticks, their control, collecting, culturing and laboratory examination of the tick material. The second part (pp. 163 to 376) concerns taxonomic questions involving classification of ticks in the animal realm, their systematic groups and descriptions of Central European species. The book is attractively produced and printed on paper of high quality.

On closer scrutiny the taxonomic section unfortunately includes a number of inaccuracies and errors which decrease the value of this useful publication. Some incorrect names are used in nomenclature. The correct name for *Ixodes plumbeus* Leach, 1815 is *Ixodes lividus* Koch, 1844 (p. 256). *Dermacentorites* Olenev, 1931 is a synonym of *Dermacentor* Koch 1844. *D. pictus* Hermann, 1804 is a synonym of *D. reticulatus* Fahr., 1794, which is a typical species of the genus *Dermacentor* as stated in the international zoological list of 1958 (p. 345). The subgenus *Hyalommina* Schulze, 1919, should be correctly named *Delpyiella* Travassos Dias, 1955 (p. 368). The name *Hyalomma savignyi* (Gerv., 1844) cannot be used for reasons which were in detail explained by

Feldman—Muhsam (1954). The mentioned synonymy of this species cannot be accepted for the same reasons (p. 370). It must be added that the correct name of *Haemaphysalis otophila* Schulze, 1918 is *H. parva* (Neumann, 1897), as is evident from Morel's paper which appeared after the publication of Babos' monograph. There are some misspellings of valid names. *Ixodes dryadis* Schulze is repeatedly spelled *I. dryalis* throughout the text. *I. laguri americanus* is used for *I. laguri armeniacus* (p. 207). *Haemaphysalis aponomoides* should be correctly spelled with double m (p. 311). *Acarus hispanum* is used for *A. hispanus* and *H. exuls* for *H. exsul* (p. 370).

The surveys are incomplete in the enumeration of taxonomic classification of genera and species. *Lepidixodes* Schulze, 1935, *Coxixodes* Schulze, 1941, *Xiphixodes* Schulze, 1941 and *Arthuriella* Travassos Dias, 1958 are missing in the genus *Ixodes* (p. 174). Apart from the three mentioned subspecies *I. laguri slovacicus* Černý, 1960 was also described (p. 207). While the manuscript was in preparation *Allophysalis* Hoogstraal, 1959 and *Sharifiella* Travassos Dias, 1958 were known to be the subgenera of the genus *Haemaphysalis* (p. 307). Besides the mentioned five subgenera of the genus *Rhipicephalus*, other subgenera such as *Rhipicephalinus* Zumpt, 1950, *Zumptielinus* Travassos Dias, 1955 and *Pomerantzevia* Travassos Dias, 1959 were described (p. 352). The subgenus *Hyalommata* Schulze, 1930 is

not mentioned with the genus *Hyalomma* (p. 368). Incorrect taxonomic classification is often stated. *Ixodes ovatus* Neum., 1899 is not a synonym of *I. ricinus*, but a separate species (p. 180). *I. scupularis*, *I. affinis*, *I. ovatus* and *I. californicus* are considered to be separate species today (p. 190). *I. redikorzevi* Pomerantsev, 1946 is incorrectly indicated as a synonym of *I. laguri* Oleney (p. 200). *I. theodori* is now considered to be a subspecies of *I. redikorzevi* (Arthur) or a separate species (Morel), but not a synonym (p. 207). *I. heroldi* belongs to the subgenus *Endopalpiger* and not to *Exopalpiger* (p. 302). *Haemaphysalis sulcata* Can. and Fanz., 1877 is a separate species and not a synonym of *H. punctata* (p. 310). *H. punctata* var. *cinnabarina* listed by Neumann 1905 is the American form described by Koch in 1844 which is listed today under the name *H. chordeilis* (Packard, 1869) and it is unnecessary to discuss it in the Central European fauna (p. 315). *Haemaphysalis aponomoides* is now listed as a separate species (p. 331). *Argas respertilionis* belongs to the subgenus *Carios* Latr., 1796 which is considered by some authors to be a valid genus (p. 372).

There is an incomplete enumeration of synonyms. *I. apronatus* Kirscheublatt, 1934 and *I. sigalasi* Lamontellerie, 1954 are omitted as synonyms of *I. frontalis* (p. 215), the genus *Haemaphysalis* lacks *Herpetobia* Can., 1890 and *Prosopodon* Can., 1897 as synonyms and no synonymy is mentioned with the genus *Dermacentor* (p. 335). The synonymy of the genus *Rhipicephalus* and of the species *R. sanguineus* is also incomplete (pp. 351 and 360). Some names of authors associated with the descriptions are misspelled or stated incorrectly: Schulzer for Sulzer (p. 335), Herman for Hermann (pp. 335 and 345), Schulze for Schulze and Schlottke (p. 259). Wrong data are also stated in connection with the names of species, for example *I. pari* 1813 instead of 1815 (p. 215), *I. heroldi* 1953 instead of 1943 (p. 302), *Pancticentor* and *Indocentor* 1934 instead of 1932 and 1933 (p. 335).

Inaccurate distribution of some species is stated. The species of the subgenus *Pholeoixodes* are distributed not only in Europe, but also in Asia, America and Africa (p. 177). *I. laguri* is well known in the territory of Czechoslovakia, Bulgaria, Rumania, Greece and Turkey (p. 207).

*I. redikorzevi* is occurring in Tajikistan, Afghanistan, Egypt, Bulgaria (p. 211). Besides the countries mentioned *I. apronophorus* is reported from Denmark, Czechoslovakia and Poland (p. 214), *I. frontalis* from Algeria, Egypt, Bulgaria, Greece, Italy, Yugoslavia and Czechoslovakia. The circle of its hosts is much wider than stated by the author (p. 220). *I. respertilionis* is reported from Israel, Turkey, Afghanistan, Armenia, Turkmenia and Japan (p. 228). *Haemaphysalis punctata* is also distributed in the Asian part of the USSR, but its occurrence in Japan is doubtful (p. 316). *H. otophila* (= *H. parva*) is occurring in a number of Asian regions of the USSR (p. 324). *H. aponomoides* is known from Nepal and Taiwan, while its occurrence in India and Japan is not proved (p. 331). The distribution of *Dermacentor pictus* (= *D. reticulatus*) is much wider than stated by the author who also omitted to mention its distribution in Czechoslovakia, although he refers to a publication from that territory in the text (p. 350). The data on the distribution of *Rhipicephalus bursa* in the East Africa are incorrect (p. 359). *Argas respertilionis* is distributed in Africa more to the south than stated by the author, while in Australia it is represented by a related species (p. 372). The statement that in the warm zones the genus *Ixodes* is represented by a few species only is wrong. For example Theiler (1962) reports 45 species from Africa only (p. 178). There are no data on the geographical distribution of *I. persuleatus* which leaves the reader with the erroneous impression that it is a normal member of the Central European *Ixodes* fauna. The statement that Schulze did not know the host of *I. rugicollis* is wrong. The author of the description indicates pine marten as a host of this species (p. 294). The two main distribution areas of *Haemaphysalis concinna* are West and East Eurasia, not Europe. This species is also quite abundant in Czechoslovakia. Its developmental cycle in some parts of Central Europe, for example in Czechoslovakia, lasts 3 years under natural conditions (p. 322). According to other authors the feeding of larvae of the genus *Argas* lasts longer than 2-4 days (p. 371). The systematic inclusion of ticks in the corresponding order is omitted (p. 163). In the chapter on the systematic

relation of ticks (p. 164) no mention is made about the paper by Pomerantsev (1947), although it is mentioned on p. 30. The typical species of the subgenus *Pholeoixodes* is not stated (p. 176). It is not clear, why non-European subgenera *Sternalixodes* and *Endopalpiger* are mentioned in the book, while other subgenera, for example *Scaphixodes* to which *I. frontalis* and *I. caledonicus* belong, are omitted. The subgenus *Eschatocephalus* is discussed on pages 174 and 220, *Pholeoixodes* on pages 176 and 236 and *Exopalpiger* on pages 176 and 302. They could be included in one coherent text.

The key of females of the genus *Ixodes* does not include *I. laguri*. The relevant text is to be found in the key of males (p. 179). The developmental cycle of *I. ricinus* can last as long as 7 years according to Kheisin (1954). *Parus major* is not woodpecker, but great tit (p. 264), *Mustela nivalis* is not marten, but weasel (p. 273). Pospelova—Strom is the name of one author and not of two authors (p. 308). The key of the genus *Dermacentor* does not include the date connected with the author of the description of *D. pictus* (p. 335). The distribution of *Dermacentor marginatus* is not mentioned and the description of larva and nymph of *D. pictus* (= *D. reticulatus*) is omitted. In the systematic classification of the genus *Hyalomma* the author refers to classical papers of Delphy and omits latest studies of Feldman—Muhsam, Hoogstraal and others. The number of species and subspecies of this genus exceeds 20. Some references to figures are erroneous, for example Fig. 34 instead of 134 (p. 256), the reference to Fig. 133a which is missing (p. 140). The statements about "eine Adanalplatte" on the venter of males (p. 173) or about the fact that even larvae can change into adults (p. 369) are inaccurate. Sometimes no difference is made in writing the name of the species' author in parentheses. The names of the species in the text often fail to be italicized.

A special critical attention should be paid to that part of the monograph which is devoted to systematic classification of the subgenus *Pholeoixodes*. The author rightly says that features referred to this group in Schulze's papers do not help to indicate correct determination and that insufficiently described species should be considered as "nomina nuda"

(p. 239). He himself, however, is not consistent in this resolve. For example he considers as "nomen nudum" *I. vulpicola* Schulze, 1937 but not *I. dryadis* Schulze and Schlottke, 1929. He states in the key and describes in the text all species and subspecies of the bird *Pholeoixodes* recognized by Schulze, while e.g. the study of variability proved that all subspecies of *I. arborecola*, *I. passericola*, *I. strigicola* and *I. dryadis* are synonyms of the first species (Haarlov 1962). Similar variability exists in the ticks of this subgenus which parasitize carnivores. Only experimental study of various features on material obtained by culturing can clarify these complicated problems. The reviewer therefore is not convinced about the validity of all forms, especially subspecies mentioned in this monograph. He also points out the inaccuracy of the statement that *Ixodes vulpis* Pagenst., 1861, considered to be a separate species on p. 283, is listed as the synonym of *I. hexagonus* on p. 246.

A number of comments could be made upon the general section of the book. For example the survey of vectors of infectious diseases on page 145 is incomplete as admitted by the author himself and it is therefore unnecessary to mention the species *H. leachi*, *D. silvarum* and *R. appendiculatus* which do not live in the neighbouring countries anyhow. It is likewise unnecessary to mention with a question mark *H. aegyptium* which parasitizes tortoises as a vector of infections occurring in swine and cattle. *Margaropus annulatus* is an incorrect name. It is not clear why all rickettsiae are mentioned by their species names, but *Coxiella burnetii* as the causative agent of Q fever ("Erreger des Q-Fiebers"). The survey includes causative agents without any differentiation whether the transmission of infection occurs in nature or under experimental conditions.

The monograph is illustrated with many good drawings and photographs. However, I do not consider it suitable to depict the denticles of the hypostome in the dorsal view of the capitulum. In Fig. 64 the internal spur on coxa I is depicted too short. Figures on final plates are considerably schematic. The chaetotaxy of the body of a larva depicted in Tab. I and II is not in accord with reality. Neither is the punctation on the alloscutum of

females in Tab. III and V. In Table V, no spur which is typical for the species is depicted on palpi (compare with Fig. 271). Likewise the bifurcation of tarsi depicted in Tab. VII is exaggerated.

18 pages containing a list of references accompany the text. However, the arrangement of the list was given inadequate attention. The names of some authors are distorted (for example Blagoveschinsk, Campagna-Rouget, Lototzkoskii). Some Soviet publications are cited in the Latin, others in the Cyrillic alphabet, even with the same author (Serdjukova). The title of a Soviet paper is quoted in English while the name of the Soviet journal is written in German (Khizhinsky). Sometimes only the title of the paper is quoted (Kirschenblatt) or vice versa the title is missing (Lees and Beament). A number of references are incomplete. Some publications are quoted twice (Markov and Goussev, Pospelova-Strom, Schulze, Schulze and Schlottke). Some papers referred to in the text are not included in the list (e.g. Enigk and Grittner, p. 97). While publications of some authors are listed in detail (Schulze), not a single reference to other very important publications (e.g. Balashov) is included, or if so, they are referred to very scarcely (e.g.

publications of Czechoslovak authors). A 6-page index is appended at the end of the book. 96

This presentation on Central European tick fauna could be welcomed, but in the reviewer's opinion the volume is not fully up to the standards expected in a monograph. Apart from the shortcomings mentioned above, too much space is devoted to anatomy and morphology in comparison with bionomy of individual species under the conditions of Central Europe. The author, however, does not state, which region he considers to be the territory of Central Europe. The monograph would be improved by the inclusion of maps showing the known distribution of species at least in the Central European region. In Central Europe, especially in Czechoslovakia, many papers have been published concerning taxonomy, but mainly bionomy of ticks. These publications are apparently unknown to the author since he neither mentions them in the text nor does he include them in the list of references. A monograph devoted to the Central European fauna of ticks should amply use such sources and should include all possible data from the territory investigated. The Babos's monograph is lacking this information and therefore only partly fulfills its objective.

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