

5

Special session

Jan Koteja (1932-2004) - his life and work

A Dziejicka¹ & E Podsiadło²

¹*Institute of Biology, High Pedagogical School, Podbrzezie 3, 31-054 Cracow, Poland;* ²*Depart. of Zoology, Agricultural University of Warsaw, Ciszewskiego 8, 02-786 Warsaw, Poland.*

Abstract: Professor Jan Koteja was an outstanding coccidologist who worked on scale insects, on topics ranging from their biology, morphology, anatomy, systematics, to faunistics, paleontology and phylogeny. He was active in fostering science, and entomology in particular. He participated in the work of many organizations and scientific associations. He was a man of great knowledge, a gifted university teacher and instructor of young people. He had an exceptional talent for conveying knowledge. He published more than 700 papers including 120 original research articles.

Introduction

Jan Koteja was born on 17 September, 1932, in Siemianowice Śląskie, in Upper Silesia. He went to primary and secondary school in Katowice and took his school-leaving examinations in 1951. During the last year at secondary school he attended a special course for future teachers. As a result, he was obliged to work at a primary school for three years. Only after that compulsory work could he go to university. He studied at the Faculty of Biology and Earth Sciences of the Jagiellonian University in Cracow. After earning a MSc degree in biology in 1959, he was employed at the Department of Zoology at the Zootechnical Faculty of the Agricultural University in Cracow, where he worked until his retirement in 2002. He earned a PhD degree in 1966, a post-doctoral degree (habilitation) in 1975, and the title of Professor in 1983.

Jan always actively participated in the life of the university. For many years, he was deputy for assistants in the Council of the Zootechnical Faculty and in the Senate of the Agricultural University. From 1989 to 1993 he was Director of the Institute of Applied Zoology, and from 1993 to 1994 Head of the Department of Zoology and Ecology. From 1991 to 1994, he was Prorector for student affairs and belonged to many rectorial committees.

He was a member of the trade union "Solidarity", and in 1981 chairman of the School Committee of that organization. He participated in the work of many organizations and scientific associations. He was a member of the following: the Institute of Zoology, Polish Academy of Sciences, Warsaw; the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow; and Museum of Earth, Polish Academy of Sciences, Warsaw.

Jan was active in fostering science and entomology in particular. He was a member of organizing committees of international symposia on scale insects (International Symposium on Scale Insects Studies, ISSIS), and he organized ISSIS VI in Cracow in 1990. He was a member of the Coordination Committee "Fossil Insects" ESF in Strasbourg (1996-1999), the chairman of the Fossil Insect Section of the Polish Entomological Society (1985-2000), a member of Arbeitskreis Bernstein Hamburg (since 1992), the editor-in-chief of "Polskie Pismo Entomologiczne" ("Polish Journal of Entomology") (1984-1991), an editor of the international bulletin "Meganeura" (Barcelona, 1996-1999), and the editor and publisher of the international bulletin "Inclusion - WrosteK" (since 1985). From 1990 to 1996, he edited and published a college paper "Sowizdrza³" ("Scapegrace").

For nearly forty years, Jan Koteja conducted classes in zoology at the Agricultural and Zootechnical Faculties, and supervised many MSc theses. He had an exceptional talent for conveying knowledge.

Jan's interest in scale insects was inspired by Professor Zbigniew Kawecki, the then head of the Department of Zoology, and by Dr Barbara Żak-Ogaza who introduced him to a thorough knowledge of scale insects. The state of scale insect knowledge in Poland was very poor at the time. The Polish cochineal scale, *Porphyrophora polonica*, had been known and utilized since time immemorial and yet other species had not been studied at all. As result of research begun by Kawecki, about 40 species living under natural conditions and in greenhouses had been recorded. It became necessary to study and record new scale insects for the Polish fauna. That was the starting point of the first important direction of future studies. Jan Koteja, together with Dr Żak-Ogaza and with other co-workers later on, carried out research in many regions in southern Poland and also along the Polish part of the Baltic Coast. Due to those studies, the list of Polish species was expanded to about 140 species. Moreover, Jan reported new locations of numerous species, new hosts, new biological data, and species new to science. He was the first coccidologist in Poland to look for scale insects on herbaceous plants, in turf and in undergrowth. Previously, scale insects had been recorded only from trees and shrubs in the country.

Jan identified the species collected and, being observant, noticed numerous discrepancies and inaccuracies in their taxonomy. For instance, some species had been identified on the basis of their hosts. Jan decided to set the taxonomy in order, and this resulted in the second significant direction of his studies. He revised over a dozen genera and certain higher taxa, e.g., the tribe Eriopeltini. In the course of colossal, meticulous work he described over 35 species new to science. All the descriptions were prepared in great detail, perfectly illustrated, with keys for identification.

During his research on scale insects, Jan observed new biological phenomena, such as the presence of males in many species previously considered parthenogenetic. After finding out that the information in the literature on the subject was incomplete, he encouraged his co-workers to study the issue thoroughly. Alas, probably due to the wealth of morphological details and to difficulties connected with shortage of descriptions, there were no volunteers. Thus, as usual, he himself described males belonging to about 20 species, provided precise descriptions and drew excellent figures.

Each new work inspired new ideas. While identifying the species collected, Jan noted a great variability in the structure of the labium in adult females and concluded that the characters may be of taxonomic value. He discovered that in 270 taxonomic papers there was no mention of the labium. Therefore he examined 4500 specimens representing 320 species, on loan from various foreign institutions. He made measurements of the

labium, studied the size and number of its segments, the number of setae, the length of the stylets, the salivary pump and the clypeo-labral shield. The results of his work were published in a few substantial papers on the subject. Koteja demonstrated that the characters of the labium were of taxonomic value. He wrote many reports and papers concerning taxonomic and phylogenetic characters but considered "Comparative studies on the labium in the Coccinea (Homoptera)", 1974, to be one of the most important contributions of his work. Inspired by him, his co-workers carried out, on the same material, comparative studies on the antennae and on the legs of scale insects.

Jan studied the sensory organs on the legs and antennae of scale insects. He examined specimens belonging to 22 families and concluded that the nervous system of the group must be studied. He studied the cuticle in the genus *Saissetia* and the process by which scale insects eliminate honeydew. He published over 700 papers and articles, including 120 original scientific papers. He was the author and co-author of 7 university textbooks. In various original papers, he explained and described the life cycles of many species, underlining the phylogenetic and evolutionary relationships within the Coccinea group. His studies had a great impact on the state of the knowledge of scale insects in the world. Jan had contacts with coccidologists everywhere. He took part in two symposia on scale insects studies; one was ISSIS IV in Budapest in 1983, the other was ISSIS VI in Cracow in 1990, which he organized.

Fossil scale insects constituted the third stage of Jan Koteja's research work. His fascination with amber dated back to 1980 when he received inclusions (from Copenhagen) from Dr Żak-Ogaza, who had relinquished work on them. Jan began his research at zero point because the first and only scale insects from Baltic amber (7 species), described by German researchers in the years 1845-1856, had been lost. There was no comparative material. First, he had to learn the techniques for treatment of amber. A piece of amber must be polished at an angle allowing observation under the microscope. Light must not be reflected. The specimens examined were about 1-2 mm long. Jan studied inclusions in Baltic, Lebanese, Burmese, American and Saxonian amber. During the first period, up to 1984, he examined 117 Baltic inclusions and concluded that 65 of them belonged to the family Matsucoccidae. He described the winged male whose characters might be used in the taxonomy of fossil material. *Pinus succinifera* was probably the host of the fossil Matsucoccidae. By 1990, he already had 350 inclusions on loan from many institutions.

Just as in his studies on the evolution of the labium, he aimed to provide a system of classification of the group on the basis of the newly described characters. He proceeded to work on a catalogue of fossil scale insects and came to the conclusion that scale insects had reached the present state of organization about 130 million years ago and had many characters that predisposed them to be very good material for research into evolutionary processes. Those predispositions were emphasized in many of his papers. A very interesting and bold opinion on the evolution of scale insects was expressed in his paper "Winglessness of females - reason for or result of sedentary life style of scale insects (Homoptera, Coccinea)" (in Polish), Kosmos 1984, pp. 315-324.

Jan Koteja's paleontological achievements include about 100 profound, original papers and articles. Many of these papers relate to the physico-chemical characteristics of amber and to its treatment. He collected scale insect specimens in amber and had about 800 of them, whereas only 1300 are registered in all world collections. Jan established contacts with amber specialists all over the world and published his remarks on amber in "Inclusion-WrosteK", a newsletter in English that he edited, published and distributed. He sent

“Inclusion-Wrostek” to specialists on the subject. The Central Board of the International Amber Association in Gdańsk recognized his merit for popularizing amber and honoured him by presenting him with a statuette and conferring the title of “Bursztynnik roku 2000” (“Amber Personality of the year 2000”). The statuette was handed to him during a ceremony on 17 January 2001. Jan highly appreciated the honour but with his typical modesty confessed: “I thought it was a joke.”

Some topics emerging from Jan Koteja’s studies were taken up by his co-workers, yet all these papers together, even in number, constitute but a fraction of his achievements.

Duties as a prorector (from 1991 to 1994) interfered with Jan’s research work. But his pedagogical and publicist interests thrived once again. He expressed them in articles published mainly in “Sowizdrzał”, created by him and edited for 6 years. These articles (about 400) were of manifold value: cognitive, educational, pedagogical, artistic and even satirical. Koteja had a subtle sense of humour. Many articles were illustrated with his own drawings. This output merits a separate study because it shows Koteja’s attitude towards young people and current affairs, reflects his ethical stance, adds to zoological knowledge, etc. Occasionally, he gave vent to his frustrations and sharply reacted to irregularities. He wrote criticisms, reviews, reports, opinions, accounts, and essays about deceased colleagues. He published his articles in dailies and weeklies, in Polish and in foreign periodicals. He intensely reacted to other people’s articles.

It is extremely difficult to describe in a few words the life, work and interests of such an outstanding person. Jan Koteja was a very modest man, frail in body but great in mind, of Benedictine diligence and wide interests. While analyzing his achievements, one wonders when he managed to do so much. The truth is that, while we were celebrating a nameday or merrymaking, he was working. He spent many a night in his study.

Tinkering, especially carpentering, was his second passion after scientific research. In his small room there were floor-to-ceiling shelves he had made and a couch on which he could rest at night. The sensibly furnished room housed his exhibits, research material and coccidological library. Jan was frequently interrupted in his work because people sought his advice or help not only in scientific work but also in private affairs, occasionally entirely prosaic; he was asked to repair a watch or a camera, to solve a problem with a microscope or computer. Everyone could count on his disinterested help. Jan led an ascetic life. Cigarettes were the only luxury he afforded himself. The Internet greatly facilitated his contacts with other entomologists. In letters to them, he occasionally revealed what irked him. For instance, when the information about his being conferred the title of professor had taken 4 years to reach Cracow, he asked Prof. Schaeffer, “Is it possible that I am a general without knowing about it?” As a Solidarity activist Jan clearly was out of favour with the authorities. However, he was psychically strong and calmly continued his work.

He was always among us, always helping, supportive and it seemed it would be like this forever. Alas, Nature follows its own laws. Jan helped Nature because he avoided doctors, ignored his ailments, and suffered in silence. He was in opposition whenever he knew to be in the right, but he did not oppose Nature.

He was highly respected among coccidologists and the Diploma of Acknowledgement of Merits he received from the participants of ISSIS X in Turkey in 2004 was proof of it. “The Coccid Family” had unwittingly prepared a ceremonial farewell.

Jan Koteja died on 19 August 2004 at his home at Wołowice near Cracow. Death took a man of great knowledge and of extraordinary diligence, a patriot, a gifted university

teacher and instructor of young people. He was a scientist of great caliber. His achievements are immense, undeniable.

Unfortunately, he left no successors. Zootechnical faculties of agricultural academies mould and develop interests of their students in a direction other than that represented by Professor Koteja. Graduates are not prepared to carry out research in the field of entomology, particularly into such a difficult group as scale insects. One must look for future coccidologists among students of biology at other faculties. It is providential that the Professor's collections, research material and library have gone to the Zoological Department of the Silesian University, a vital hemipterological centre which will ensure that research on scale insects in Poland is continued.

Jan Koteja left no student followers but, with them in mind, he had prepared an excellent compendium of knowledge about scale insects. It is a 93-page-long chapter "How to identify scale insects" in the book: "Diagnostics of plant pests and their natural enemies" (*Diagnostyka szkodników roślin i ich wrogów naturalnych*). II. (Edited by J. Boczek) Agricultural University of Warsaw, Warsaw 1994. It is a popularized work in Polish presenting the diversity of the structure and biology of scale insects, advising how and where to find these insects and how to prepare, preserve and identify specimens. To make it easier for non-specialists to identify families, species or groups of species, he presented a few versions of keys based mainly on macroscopic and ecological characters. He gave a systematic list of scale insects recorded from Poland and a list of their host plants. Very good illustrations facilitate recognition of species. His drawings of macroscopic characters adequately render the external habit of the species, whereas his illustrations of microscopic features - the cuticular structures of scale insects - are of basic taxonomic value.

Let's hope that this work will encourage young naturalists, whose entomological interests are as yet not concrete, to choose the group of insects that Professor Koteja studied with such great passion.

Acknowledgement

We are most grateful to Dr Penny Gullan, Department of Entomology, University of California, Davis, CA, USA, for reading the manuscript, for correcting the English language, and for helpful editorial comments.

References

- Kalandy, M. & Simon, E. 2006. Information about Professor Koteja's scale insects collection (Hemiptera: Coccoidea). *Polish Journal of Entomology* 75:161-168.
- Niemczyk, W. & Nowosad, B. 2004. Wspomnienie. Prof. Dr hab. Jan Koteja 17.09.1932-19.08.2004. *Biuletyn Informacyjny AR w Krakowie* 4(37):39-40. [in Polish].
- Schaefer, C.W. 2006. Jan Koteja: an appreciation and some memories. *Polish Journal of Entomology* 75:157-159.
- Wegierek, P. 2005. Prof. Dr hab. Jan Koteja. Obituary. *Polish Journal of Entomology* 74:187-204.