TO THE 110-TH ANNIVERSARY OF DOCTOR ALFRED NALEPA

BY

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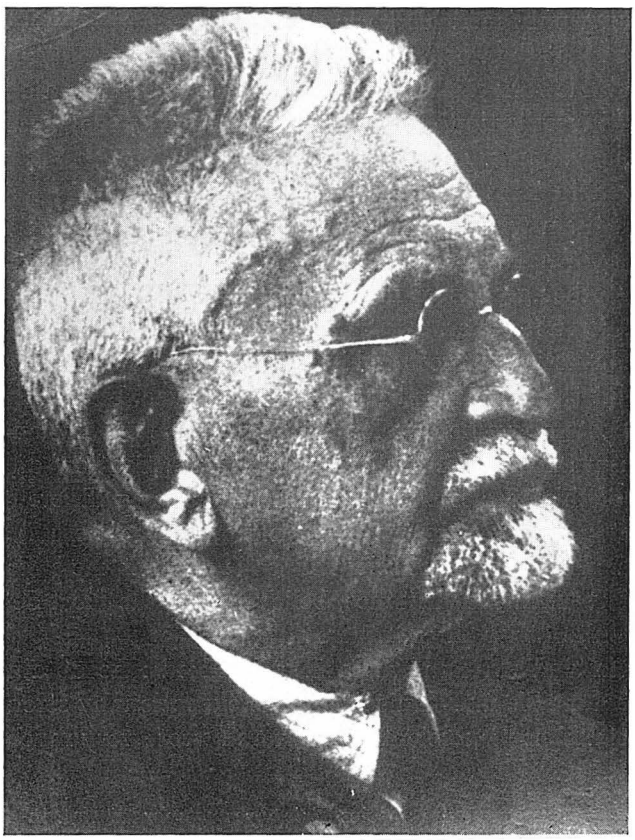
A. NALEPA was born on 19-th December 1856 in Yugo-Slavian town Wrschatz (form. province Banat of Austria-Hungary). His father — August NALEPA, was a professor of an Austrian college. NALEPA was quite a small boy when his family came to Wiener-Neuschtadt and it became his second native town. He graduated



from a secondary school in 1875, entered the University in Vienna and devoted himself to studying natural-history. He took a great interest in Zoology and Botany. NALEPA drew his teacher's — Dr. L. K. SCHMARDA's[1] — attention in classes and on SCHMARDA's suggestion he became an assistant of the zoological chair. He carried out his first scientific work on the anatomy and histology of Mollusca at that time, and a little later received his D. Ph. degree and the right to teach in secondary schools. Two papers on anatomy of Tiroglyphoidea were published at the same time. These papers are interesting even up to the present time.

The carrying out of this work was the foundation of another, more complicated investigation : the four-legged mites anatomy, which he began juste after finishing his work on Tyroglyphoidea in summer 1883.

Unfortunately all his attempts to obtain a teacher's post in Vienna were unsuccessful and he was forced (in 1886) to accept the post of a natural history teacher in Linz. This work secured him a very modest existence. With great difficulties he managed to obtain the necessary literature and instruments. Nevertheless the removal to Linz played a positive role in his life. The environs of this small town which is situated on the Danube shore at the foothills of the Alps gave an excellent possibility to gain material on fourlegged mites.

In 1887 NALEPA published his basic work on the anatomy of fourlegged mites. In spite of the fact that the work was named " Anatomie der Phytopten " its content was beyond the framework of this title. In this work there is a critical observation of the history of investigation of Phytoptidae (Eriophyidae) and some interesting data of their biology, ecology and taxonomy.

NALEPA stayed in Linz for 6 years. During these years he published seven papers and all of them were dedicated to four-legged mites. It is worth stressing that since 1883, when NALEPA began studying Eriophyidae he didn't pay any attention to any other groups of mites. To understand such constancy we must return to NALEPA's first paper.

Even his first investigation resulted in a series of wonderful discoveries. NALEPA finally proved that the four-legged mites are not larvae, but mature animals. The examination of postembryonic development led to the conclusion that these mites have two immature forms. The final careful investigation of one species and the comparison of this species with other mites inducing different galls on plants, gave an excellent perspective in the classification of these small animals. It was very important as the majority of scientists believed that the classification of mites was impossible. GARMAN, for instance, believed that the most detailed description of one species is quite fit for all the others 1883.

In 1892 A. NALEPA's dream was at last realized : he obtained a professorial post in high school on Vienna. In spite of the exceptionally strenuous pedagogical activity he devoted himself to scientific work and wrote very much. At this period

1. Some years later he named the species *Eriophyes schmardai* Nal. in honour of Dr. L. K. SCHMARDA.

A. NALEPA established fruitful contacts with many scientists : F. THOMAS, SCHLECHTENDAL, KIEFFER, Doctors van LEEWEN-REJNVAAN, JAAP and RECHINGER. He received a number of interesting materials from them.

In 1905 A. NALEPA married. His wife Rosalie was not only a woman of a great heart, but she was his faithful assistant in his work. Now NALEPA was not alone in his researches. In the next five years he prepared and published a series of excellent papers. Among them there was the first experimental investigation of reaction of the mites on light, the paper on preparation and conservation of the mites, and at last a fundamental work on the Eriophyidae in " Zoologica ". Already in 1893 he published (the first in the history of science) a Catalog of the four-legged mites.

Simultaneously with the persistent scientific work A. Nalepa wrote some text-books for high-school which had a great success. He was rewarded with a knightly cross of Franz-Joseph and received the title " Regierungsrat " for outstanding public service.

The life full of tireless activity undermined his health and in 1912 (56 years old) he was forced to retire. Now he was free from the burden of teaching. For the first time in his life NALEPA could, at last, devote himself to his beloved scientific work and to his hobbies : drawing, painting and work in his mechanical workshop. NALEPA prepared all the figures for his papers himself. His manner of drawing was very original. He combined the semi-schematic scientific pictures with a careful artistic trimming. In this respect his pictures were like the SCHLECHTENDAL'S illustrations. They as if supplemented each other : one gave wonderful drawings of the galls on plants, and the other gave pictures of culprits of gall formation.

The first World War broke out and destroyed all hopes of a quiet old age. In 1915-1916 NALEPA did not publish any papers. But apparently he continued his work, as already in 1917 he published his great work : " Die Systematik der Eriophyiden, ihre Aufgabe und Arbeitsmethode etc. ».

During next years (1918-1922) NALEPA was developing the idea of a relationship of many mites which were living on allied plants. He made a revision of species attacking such plant families as : Betulaceae, Fagaceae, Tiliaceae. At the same time he continued the description of new species.

After the death of his wife (August 1922) NAPELA lived quite alone in his country cottage in Baden near Vienna. He retired from everyday life and sought oblivion in his work. In 1923 he published a great number of papers. NALEPA devoted all his life to scientific research. There were very few years when he did not publish anything. But the last five-six years of his life were especially rich with very interesting publications. He wrote about the principles of taxonomic work, studied the problem of mites distribution, investigated their phenology and analyzed the variability of some representatives of the genus *Eriophyes*, and lastly he created his swan-song : " Neuer Katalog der bischer beschriebenen Gallmillen, ihrer Gallen und Wirtsflanzen ".

NALEPA died on II-th December 1929 after a short illness as a result of a stupid

unfortunate accident. He was childness and there was nobody to whom he could bequeath all his rich collections and all scientific legacy. And as his collections were lost, a great number of species of gallformations have no types. But his work was not wasted. NALEPA's excellent ideas are alive now, they agitate the imagination of scientists and call to new investigations.

What are the values which NALEPA has left us as an inheritance ? It is really an invaluable buried treasure of ideas, the development of which will demand the labour of many generations of scientists.

NALEPA lived in that epoch, when the great DARWIN's ideas began their victorious way. But towards the end of XIX-th century the main interest of the majority of scientists transferred from the problem of species to the questions of evolution, to the studying of " great phylogeny ". Nevertheless NALEPA was true to his principles and following the logic of scientific cognition concentrated all his attention on the investigation of the problem of species in four-legged mites.

His most valuable contribution to science was the dethronement of the myth of the impossibility of four-legged mites classification. But the ingrained opinion that NAPELA was only a taxonomist is not correct — he was first of all a biologist. And because of this his taxonomical investigations were superior to analogous investigations of his contemporaries. It was characteristic of NALEPA' a taxonomy to use some data on physiology, ecology and phenology of mites for the solut systematical questions.

NALEPA arrived at a conclusion that most of the mites which were living on definite plant families were allied. This conclusion not only allowed the possibility to regulate the taxonomical work, but laid the foundation of a natural system — Eriophyidae.

In his taxonomical investigations NALEPA used the following four empirical rules :

1. The galls which are morphologically similar and situated on not congeneric host-plants are the result of the activity of different species.

2. The equivalent galls on the closely related host-plants are the result of the activity of the same species or its variations.

3. The morphologically different galls on the same host-plant belong to different species of mites or to subspecies.

4. The morphologically different galls on the host-plants not closely related are always the result of the activity of different gall mites.

These rules were subjected to criticism by COTTE (1925). This author believed that NALEPA refused in general to use morphological criterion for taxonomical work. NALEPA defended his point of view and proved that he used this criterion in all his investigations, and besides this he showed the necessity of studying the variability of the four-legged mites. He never disclaimed the role of morphological criterion of a species, but he knew that the possibilities of contemporary science were limited, and it was impossible to subdivide similar species. That is why he formulated his

famous empirical rules. The objective character of these rules was proved during all the development of the classification of Eriophyidae (naturally, they were changed in some parts). Here it is necessary to express a hope that these rules will be developed, because if we have the rules, we shall have to deal with the exceptions too.

It is not an exaggeration to say that NALEPA had planned out all main directions for the future development of investigations of the group of four-legged mites. The excellent base for the development of such investigations are his own papers. We must emphasize one of NALEPA's legacies : he was not tired of repeating in all his papers that only experimental investigations could give us answers to many complicated questions in the field of taxonomy and biology of Eriophyidae. Unfortunately during 37 years since NALEPA's death only a few experimental works were published.

All NALEPA's papers are inspired with a deep passion, sincere love of science, especially his controversial papers. While reading them we are astonished by a number of methods which he used for leading a dispute. Sometimes it seems that you see between the lines a venomous smile of the old scientists. Sometimes it is a sorfowful lamentation in connection with the errors of his opponent, but sometimes... unmerciful criticism, which is armed by facts. But to be more precise it should be noted that under the influence of polemical fervour NALEPA rejected sometimes some important observations. For instance he subjected to criticism Dr. JEGEN's idea about the presence of two forms of females in four-legged mites. Afterwards it was established that this phenomenon really did take place in free-living and gall-making mites (KEIFER, 1942, SHEVTSHENKO, 1957). But in spite of this NALEPA's polemical papers are in many aspects examples of leading a scientific dispute.

NALEPA was a true scientist and he understood very well not only the scientific significance of his papers. He believed that scientific taxonomy must satisfy practical requirements, and he saw his task in elaboration of the simplest dependable criterion for determination of mites for practical purposes.

Thanks to NALEPA's tireless activity both the science and practice made great progress : from almost complete ignorance to a knowledge of a new world of wonderful animals.

The number of scientists who study Eriophyidae increases from year to year. When NALEPA began studying this group the investigation of these mites was carried out only in some countries, but now intensive researches take place in almost the whole world.

On the 110-th anniversary of the birthday of a modest Austrian scientist Alfred NALEPA we pay a tribute of profound respect and gratitude to this man, whose whole life was devoted to discoveries in the name of science.

In honour of A. NALEPA had been called : the subfamily Nalepellinae, genus Nalepella and several species.

The list of *Nalepa*'s scientific papers. [1]

1. Beiträge zur Anatomie der Stylomatophoren, Akad. Wissensch. Wien, Sitzber. **87**, 237 (1883).
2. Die Interzellularräume des Epithels und ihre physiologische Bedeutung, Akad. Wissensch. Wien, Sitzberg. **88**, 1180 (1883).
3. Die Anatomie der Tyroglyphen, I. Abt., Akad. Wissensch. Wien, Sitzber. **90**, 197 (1884).
4. Die Anatomie der Tyroglyphen, 2. Abt., Akad. Wissensch. Wien, Sitzber., **95**, 116 (1885).
5. Die Anatomie der Phytopten, Akad. Wissensch. Wien, Sitzber., **99**, 115 (1887).
6. Beiträge zur Systematik der Phytopten, Akad. Wissensch. Wien, Sitzber., **98**, 112 (1889).
7. Zur Systematik der Phytopten, Akad. Wissensch. Wien, Sitzber., **99**, 40 (1890).
8. Genera und Spezies der Familie Phytoptidae, Akad. Wissench. Wien, Sitzber., **58**, 887 (1891).
9. Neue Gallmilben, Nova Acta Leopoldin. — Carol. Akademie, Halle, **55**, 363 (1891).
10. Neue Arten der Gattung *Phytoptus* Duj. und *Cecidophyes* Nal., Akad. Wissensch. Wien., Denkschr. **59**, 525 (1892).
11. *Tegonotus*, ein neues Phytoptiden-Genus, Zoolog. Jahrbücher, **6**, 327 (1892).
12. Katalog der bischer beschriebenen Gallmilben, ihrer Gallen und Nährpflanzen etc., Zoolog. Jahrbücher, **7**, 247 (1893).
13. Beiträge zur Kenntnis der Phyllokoptiden, Nova Acta Leopoldin. — Carolin. Akademie, Halle, **61**, 291 (1894).
14. Die Naturgeschichte der Gallmilben, 9. Jahresbericht d.k.k. Staatsgymnasiums im 4. Bez. in Wien (1894).
15. Beiträge zur Kenntnis d. Gatt. *Phytoptus* Duj. *Monaulax* Nal., Akad. Wissensch. Wien, Denskhr. **62**, 627 (1895).
16. Zur Kenntnis der Phyllokoptinen, Akad. Wissensch. Wien, Denkschr. **64**, 383 (1896).
17. Zur Kenntnis der Gattung *Trimerus* Nal., Zoolog. Jahrbücher, **11**, 405 (1898).
18. Eriophyiden (Phytoptiden) in " Das Tierreich ", herausgeg. v.d. Deutschen Zoolog. Ges., Verl. Friedländer, Berlin (1898).
19. Zur Kenntnis der Gattung *Eriophyes* Sieb. em Nal., Akad. Wissensch. Wien., Drnkschr. **68**, 201 (1899).
20. Diagnose d'*Eriophyes passerinae* nov. sp. Bull. scientifique de la France et la Belgique, **33** (1900).
21. Beiträge zur Systematik der Eriophyiden, Akad. Wissench. Wien, Denkschr. **77**, 131 (1904).
22. Über zwei neue Eriophyiden von den Fidschiinseln. Journal of Economic Biology, Birmingham, **1**, 147 (1906).
23. Über das Präparieren und Konservieren der Gallmilben, Marcellia **5**, 49 (1906).
24. *Cecidobia* Nathan Banks, ein angeblich neues Eriophyiden-Genus, Marcellia **5**, 124 (1906).

1. The list of literature and dates of NALEPA's biography are cited by the author from the article by Dr. Karl RECHINGER sen., Verh. Zool.-Bot. Ges., Wien, 1930, H. 1-2.

25. Eriophyiden in : Dr. K. Rechinger, Botan. u. zoolog. Ergebnisse einer wissenschaftlichen Forschungrsreise nach den Samoa-Inseln, dem Neuguinea-Archipel und den Salomonsinseln, Akad. Wissensch. Wien, Denkschr. **84**, 523 (1908).
26. Bemerkungen zu H. F. Güssows Arbeit " *Eriophyes-(Phytoptus)*- Knospengallen und Hexenbesen der Birke ", Marcella **5**, 159 (1906).
27. Eine Gallmilbe als Erzeugerin der Blattgallen von *Cinnamomum ceylanicum* Breyn., Marcellia **8**, 3 (1909).
28. Der Erzeuger des *Erineum padinum* Duv., Marcellia **8**, 45 (1909).
29. Der Heliotropismus der Gallmilben und seine biologische Bedeutung, Marcellia **8**, 78 (1909).
30. Die Besiedlung neuer Wirtspflanzen durch die Gallmilben, Marcellia **9**, 105 (1910).
31. Die Milbengallen in den Kronen unserer Waldbäume, Naturwiss. Zietschr. f. Land- und Forstwirtschaft, Stuttgart, **8**, 331 (1910).
32. Eriophyiden, Gallmilben, Zoologica, Stuttgart, Heft, **61**, 169 (1910).
33. Eriophyiden aus Java (I. Beitrag), Marcellia **13**, 51 (1914).
34. Neue Gallmilben aus Dalmatien, Marcellia **13**, 181 (1914).
35. Die Systematik der Eriophyiden, ihre Aufgabe und Arbeits-methode etc., Verh. Zoolog. — Botan. Ges. Wien, **67**, 12 (1917).
36. *Diptilomiopus*, eine neue Eriophyiden-Gattung, Verh. Zoolog. -Botan. Ges. Wien, **67**, 226 (1917).
37. Eriophyiden aus Java (2. Beitrag), Verh. Zoolog.-Botan. Ges. Wien, **68**, 40 (1918).
38. Revision der auf den Betulaceen Mitteleuropas Gallenn erzeugenden *Eriophyes*-Arten, Verh. Zoolog.-Botan. Ges. Wien, **69**, 25 (1919).
39. Revision der auf Fagaceen und Ulmaceen Gallen erzeugenden Eriophyiden, Verh. Zoolog.-Botan. Ges. Wien, **69**, 386 (1919).
40. Die Phytoptocecidien von Tilia und ihre Erzeuger, Verh. Zoolog.-Botan. Ges. Wien, **70**, 49 (1920).
41. Neue und wenig bekannte Gallmilben, Verh. Zoolog.-Botan. Ges. Wien, **70**, 81 (1920).
42. Eriophyiden aus Java (3. Beitrag), Treubia **2**, 146 (1921).
43. *Phyllocoptyches*, eine neue Eriophyiden-Gattung, Marcellia **18**, 190 (1922).
44. Zur Kenntnis der Milbengallen einiger Ahornarten und ihrer Erzeuger. Marcellia **19**, 3 (1922).
45. Die Gallmilbengattung *Oxypleurites* Nal., Verh. Zoolog.-Boton. Ges. Wien, **72**, 14 (1923).
46. Eriophyiden aus Java (4. Beitrag), Treubia **3**, 423 (1923).
47. Index nominum, quae ab anno 1886 Eriophyidarum generibus, speciebus et subspeciebus imposita sunt, conscriptus ab Alfredo Nalepa, Marcellia **20**, 25 (1923).
48. Polymorphe Eriophyiden, Marcellia **20**, 87 (1923).
49. Beiträge zur Kenntnis der Weiden-Gallmilben, Marcellia **21**, 31 (1924).
50. Zwei neue *Phyllokoptes*-Arten, Marcellia **21**, 94 (1924).
51. Die systematische Abgrenzung der Spezies, Subspezies und Varietäten der Eriophyiden, Marcellia **21**, 129 (1924).
52. Zur Kenntniss der auf den einheimischen Pomaceen und Amygdaleen lebenden *Eriophyes*-Arten, Marcellia **22**, 62 (1925).
53. Dr. Jegens Eriophyidenstudien in kritischer Beleuchtung, Marcellia **22**, 120 (1925).

54. Beobachtungen über die Verbreitung der Gallmilben, Marcellia **23**, 89 (1927).
55. Probleme der Eriophyiden Systematik, Marcellia **24**, 3 (1928).
56. Zur Phänologie und Entwicklungsgeschichte der Milbegallen, Marcellia **24**, 87 (1928).
57. Untersuchungen über die Variabilität einiger *Eriophyes*-Arten, Marcellia **25**, 44 (1929).
58. Neuer Katalog der hisher neschriebenen Gallmilben, ihrer Gallen und Wirspflanzen, Marcellia **25**, 67 (1929).
59. 37 Notizen im Anzeiger der Akademie der Wissenschaften, Wien 1891-1928.