

An intricate, black and white decorative border surrounds the text. It features a variety of animals: a bird at the top, a monkey on the left, a mouse on the right, a lizard on the left, a frog on the left, a snake on the left, and a large eagle at the bottom. The animals are intertwined with ornate floral and vine motifs.

**LEOPOLD
FITZINGER**

**NEUE CLASSIFICATION
DER REPTILIEN**

**ENTWURF EINER SYSTEMATISCHEN
ANORDNUNG DER SCHILDKRÖTEN**

INTRODUCTION BY ROBERT MERTENS

**SOCIETY FOR THE STUDY OF
AMPHIBIANS AND REPTILES**

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EDITOR'S NOTE

In 1973, the Society reprinted Fitzinger's book, "Systema Reptilium" (1843), with an introduction by the late Robert Mertens. To commemorate the Third World Congress of Herpetology in Prague, 2–10 August 1997, the first to be held in Central Europe, we issue this volume which includes Fitzinger's other major herpetological titles. Since Mertens's biographical introduction to "Systema Reptilium" dealt with all of Fitzinger's works, it seems appropriate to republish his introduction here. We do so with permission of the director of the Senckenberg Naturmuseum and Research Institute.

The "Neue Classification" was apparently published sometime in June or July of 1826. Fitzinger's preface is dated 4 June. The book was included in a list of new books *received* ("Eingegangen . . . An Büchern") that was printed on the unpaginated table of contents located on the outside rear wrapper of part 9 of *Isis von Oken*, Jena, volume 19 (volume 2 for 1826). This part of the *Isis* probably was issued in August 1826, since the latest dated references therein are in late July (a list of books from the publisher F. A. Brockhaus, dated 21 July, on the reverse side of the contents page, and a letter in column 944, on the last page of the part, dated Königsberg, 23 July). The correct citation for the "Anordnung der Schildkröten" is *Annalen des Wiener Museums der Naturgeschichte*, Vienna, volume 1, part 1, pages 103–128, 1835. Although the title page of this volume of the *Annalen* is dated 1836, the part containing Fitzinger's article apparently came out in 1835, according to both Wiegmann (*Archiv für Naturgeschichte*, Berlin, volume 2, part 2, page 258, 1836) and Engelmann (*Bibliotheca Historico-Naturalis*, volume 1. W. Engelmann, Leipzig, page 46, 1846).

The decorative border used on the title page reflects Fitzinger's varied interests in vertebrates but especially in reptiles, birds, and mammals. It was originally printed in 1873 by F. A. Brockhaus, a publisher in Leipzig, Berlin, and Vienna.

The Society is indebted to Marinus S. Hoogmoed, Josef Eiselt, and Franz Tiedemann for their assistance with this reprint. The librarians at Cornell University's Olin Library have given much aid and advice.

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Leopold Fitzinger: His Life and Herpetological Work

by Robert Mertens^{*,**}

THERE ARE ABOUT 70 GENERIC NAMES, IN COMMON use in herpetology today, originating from Leopold Fitzinger. Many of these names are known, not only to herpetologists, but to nearly everyone who has ever worked with amphibians and reptiles. Among the frogs we find such names as *Gastrotheca*, *Leptodactylus*, and *Pseudacris*; a salamander, *Salamandrina*, and the caecilian, *Ichthyophis*; several turtles, *Chelodina*, *Eretmochelys*, *Geochelone*, *Lepidochelys*, and *Psammobates*; and a large number of lizards, *Conolophus*, *Gonatotodes*, *Mabuya*, *Psammodromus*, and *Stenodactylus*, and the snakes *Boiga*, *Chironius*, *Drymarchon*, *Elaphe*, *Lampropeltis*, *Malpolon*, *Psammophis*, and *Thamnophis*. Being such a productive author, the following brief account of Fitzinger's life and work is provided to give a fuller view of his achievements.

FITZINGER'S LIFE

Leopold Joseph Franz Johann Fitzinger was one of the most active Austrian zoologists of the 19th century. Besides his great contributions to the systematics of amphibians and reptiles, he considerably furthered our knowledge of the other vertebrates, especially mammals and birds, and even did some work on invertebrates.

Fitzinger was born on 13 April 1802 in Vienna, the youngest son of an administrative official. His brother Franz, who was two years older, was a well-known poet. Leopold Fitzinger became interested in natural history at an early age. During his school years he started a collection of insects and shells, and became deeply interested in plants. At the age of 14 he became an apprentice in pharmacy and soon after began his studies at the Uni-

versity of Vienna in mineralogy, chemistry, zoology, and botany, the latter two subjects under J. F. von Jacquin, the describer of the well-known *Lacerta vivipara* which is widespread in the Palearctic region. Through Jacquin, Fitzinger became acquainted with his son-in-law, Carl



FIGURE 1. Portrait and signature of Leopold Fitzinger (from Koch, 1886).

* Naturmuseum und Forschungsinstitut Senckenberg, 60325 Frankfurt am Main, Germany.

** Deceased 23 August 1975. Published with modifications by permission of the director of the Naturmuseum und Forschungsinstitut Senckenberg, Prof. Dr. D. St. Peters.

vided the reptiles into two classes, Monopnoa and Dipnoa, the latter including the amphibians (Dipnoa, double breathers) with the exception of the Gymnophiona, in which gill openings were not discovered until 1833 and by Fitzinger himself. This work, in which he erected nearly 20 valid specific names, drew a great deal of criticism from his colleagues. His vigorous reply to this criticism contains some interesting information regarding the original wording of the book. By the way, it should be mentioned that many of the innovations in the "Neue Classification" were not Fitzinger's, but belonged to his friend F. W. Hemprich (1796–1825) who had died at Massaua while still young and who had willed his literary estate to Fitzinger for "collective publication" (Mertens, 1969).

In the following years, Fitzinger published, aside from some critical reviews, mostly short papers in the field of herpetology; as for example that on sea snakes (1827), on the cultural significance of crocodiles in Egypt and the first paper describing a male copulatory organ in the caecilians (1834). He also published an essay on the vertebrates of the Vienna region and a more extensive work on turtle systematics (1836, published 1835 [here reprinted]), in which some new genera were described. In this period, as well, he published a contribution on "*Elaphe Parreysii*" (according to present nomenclature, *Elaphe quatuorlineata sauromates*) in J. G. Wagler's extensively illustrated book (1833).

He also assisted the author of the famous "Iconografia della Fauna Italica" (1832–1841), Charles Lucien Bonaparte, and aided the well-known traveler to Brazil, Johann Natterer, with the production of his treatise on the caimans (1839). In the classic work of A. M. C. Duméril and Gabriel Bibron (1844: 60) Fitzinger's "Conspicua Systematis Ophidiorum" appeared. That Fitzinger was also interested in paleontology is shown in his paper on "*Palaeosaurus*" (1839), a name which has since been shown to be twice preoccupied.

Fitzinger's most important herpetological work, however, was his "Systema Reptilium," first published in 1843 and available in reprint by the Society for the Study of Amphibians and Reptiles (1973). Unfortunately, this work remained incomplete because he published only the first part of it. This treats only the "Amblyglossae" group of lizards, which Fitzinger divided into three parts, the Dendrobatae (according to present classification, the families Chamaeleonidae, Agamidae [part.], Iguanidae [part.]), Humivagae (Iguanidae [part.] and Agamidae [part.]), and Ascalabotae (Gekkonidae). Of course, these lizards, though extensively treated, are only a small portion of all reptiles and amphibians, but Fitzinger gives in his introductory "Schema Systematis" a 21-page overview of his interpretations of the taxonomic structure of

the entire Class Reptilia, which he divides into five parallel groups or "Serien."

In this respect it is remarkable that he also groups the fishes, birds, and mammals in the same way, dividing them first into five "Serien," each of which he then divides into three "Ordnungen." This stubborn clinging to the numbers five and three, respectively, probably dates back to the influence of some of his contemporaries who were adherents of "Naturphilosophie," an unusual philosophical view of nature. For example, J. J. Kaup of Darmstadt, whose system of mammals and birds is a peculiar flight of fancy, developed a classification in which the foundation is always the number five, corresponding to the five human senses. To Fitzinger, Kaup's opinions were ingenious, yet he has given priority to the number three in his own classification of the "Evertabrata."

For the study of reptiles and amphibians Fitzinger's work is of tremendous significance, not so much because of the nearly 100 new generic and subgeneric names proposed, but because he always cites generic type species or "generotypes" (genotypes in the old sense). Even if the diagnoses are sometimes missing, these generic names are still valid apart from homonyms and younger synonyms. The last part of the book presents an overview of the geographical distribution of the "Amblyglossae."

At about the same time Fitzinger published some popular works, of which the best-known was his "Bilder-Atlas," which contains 200 color pictures of well-known sorts of animals. Of the scientific papers which he published, his study of the olm, *Proteus anguinus*, deserves mention (1850). It was based on research using not less than 479 specimens, of which 140 were alive and originated from 11 different localities. Fitzinger grouped them into seven species, of which some shall very likely be proven valid subspecies in future revisions.

The last of his herpetological works was the description of the first frog known from New Zealand, the endemic *Leiopelma hochstetteri* (1861) which was found by the "Novara" expedition of 1860. He named it after his museum colleague in geology, the famous explorer of New Zealand, Ferdinand von Hochstetter.

The realm of herpetology constituted only a small part of the scientific activity of Fitzinger. The limited space does not allow us here to delve in detail into his amazing versatility as a zoologist. He also studied Darwinism but became its opponent. During his years with the Vienna museum he worked on many other animal groups including rainworms and mollusks. He even published an admirably complete molluscan fauna of Austria covering 152 species which is still useful today. With his successor as curator of ichthyology, Joseph Heckel, he

worked on the systematics of the sturgeons (*Acipenser*); he also was interested in the different types of carp, and described the well-known South American lungfish, *Lepidosiren paradoxus*, which was discovered by Natterer. He was also very interested in birds and mammals and their fossil history, and published a multi-volume popular work in the later years of his life on the natural histories of these creatures. All sorts of problems with domestic animals fascinated him, as did also the historical displays he set up at the museum and the zoological gardens. And valuable biographical studies, which he dedicated to his teachers, colleagues, and friends, constitute important components of his literary legacy.

FITZINGER'S HONORS AND PUBLICATIONS

Leopold Fitzinger was awarded many distinctions by academic and scientific organizations as well as by investiture of several orders and medals. Suffice it to say that he was awarded the honorary title of a doctor of medicine by the University of Königsberg in 1833 and received an honorary doctor of philosophy degree from the University of Halle in 1834. One can find complete listings of Fitzinger's publications in the "Almanach der Kaiserlichen Akademie der Wissenschaften für das Jahr 1851" (Vienna), in the "Bibliographia Zoologiae et Geologiae" by Louis Agassiz (London, 1850), in the "Bibliotheca Historica Naturalis" by W. Engelmann (Leipzig, 1846), in the "Bibliotheca Zoologica" by J. V. Carus and W. Engelmann (Leipzig, 1861) and in both editions of the "Catalogue of Scientific Papers" published by the Royal Society of London (vol. 2, 1868; vol. 7, 1877).

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