

The Collections of the Zoological Institute

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History and Contents of the Institute Collections

The beginnings of the institute collections date back to 1813, when the university of Vienna obtained a series of zootomic specimens from Prague. The backbone of the collection, however, became the famous comparative series created by the anatomist J. Hyrtl in the mid-19th century and finally left to the University of Vienna in 1874. These series comprise corrosion casts, dissections, skeletons, taxidermal and alcohol-preserved specimens. Recently, Hyrtl's aged dissections have been successfully used for the analysis of mitochondrial DNA because of their good preservation status and their rarity value.

The present collections offer an extensive assortment of morphological and systematic study objects: 5000 vertebrate skeletons, 50 fossils, archaeological material, approx. 90000 alcohol-preserved specimens of all animal phyla, and an insect subcollection including roughly 800 boxes. In addition, the list of rarities is quite long and, consequently, raises the collections to the rank of a remarkable little museum. Particularly noteworthy are the series of wax models of various larvae and diverse developmental stages as well as 145 fragile Blaschka glass models of marine animals.

In the light of the main streams in current biology, keeping a traditional institute collection seems anachronistic or, at least, rather uncommon. Nevertheless, this specificity pays tribute to the continuing significance of the classical disciplines, such as comparative anatomy, morphology, and systematics, in zoology. Renowned names such as Kner, Brühl, Schmarda, Claus, Grobben, Hatschek, Versluys, Marinelli, and Werner are closely associated with the Vienna zoological collections.

Taxidermy

The taxidermist position is currently held by Mrs. C. Bauer. Her main duties are the restoration of collection specimens, to supply student courses with demonstration specimens, and to assist in museological teaching.

Teaching

(A) "Techniques in museology": During the winter semester a museology course is offered (3 hours weekly, max. 15 advanced students; lectures and practicals deal with the principles of zoological nomenclature, basics of exhibition design, preservation and protection of collections, taxidermy, mounting of skeletons, and modelling techniques). (B) "Introductory morphometrics": In the summer semester, a morphometrics course is held (4 hours

weekly, max. 20 advanced students; prerequisites: basic knowledge of univariate statistics; lectures and computer training courses deal with data collection and transformation, diverse multivariate statistical analyses, and the interpretation of morphometric literature).

Research

Specimens of the collections, in particular vertebrate skeletons and snail shells, provide the materials for various morphometric analyses of phenotypic character coupling. Depending on the systematic level, the complex patterns of variation and covariation between characters are morphometrically investigated (keywords: multivariate morphometrics, quantitative morphology, ecomorphology, morphological integration, multivariate statistics, computer aided methods). The current studies have revealed these patterns to be dominated ontogenetically at the infraspecific level but ecologically at the transspecific level.

International Cooperations

We cooperate in the working group 'Arianta' (e.g., B. Baur, Zoological Institute, University of Basel, Switzerland; H. Kothbauer, Zoological Institute, University of Vienna; H. Sattmann, Naturhistorisches Museum, Vienna) to analyse phenotypic coupling of snail shell characters at the population level. We also cooperate in the working group 'adaptive radiation in finches' (R. van den Elzen and H. Brieschke, Ornithological Dept., Museum Alexander Koenig, Bonn, Germany) to investigate coupling patterns of skeletal features in birds at the higher taxonomic levels.

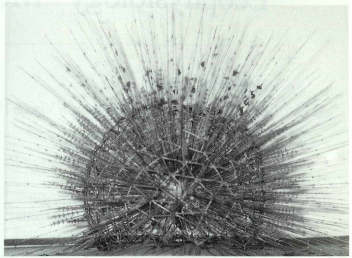


Fig. Blaschka glass model, *Aulosphaera elegantissima*

Selected References

- Nemeschkal HL (1993) Character coupling in land snails (*Arianta*, Helicidae): Does Mantel's test detect equality or similarity? *Zool Anz* 230: 1-17
- Nemeschkal HL, van den Elzen R, Brieschke H (1992) The morphometric extraction of character complexes accomplishing common biological roles: avian skeletons as a case study. *Zool Syst Evolut -forsch* 30: 201-219
- Nemeschkal HL, van den Elzen R (1994) Macro-systematics and infraspecific character coupling - An analysis of morphological integration in avian skeletons. *Zool Jb Syst* 121: 265-302