

JOINT HAECKEL and EHRENBERG PROJECT:

Reexamination of the Haeckel and Ehrenberg Microfossil Collections as a Historical and Scientific Legacy

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PREFACE

The Ehrenberg and Haeckel Collections are typical of major microfossil and microalgal collections of active researchers in the 19th century. The Ehrenberg Collection is the scientific legacy of Christian Gottfried Ehrenberg (1795–1876), German naturalist, biologist, geologist, and microscopist, who is considered to be a founder of micropaleontology. He described thousands of microscopic organisms and fossils including radiolarians, diatoms, coccolithophores, silicoflagellates, foraminifers, sponge spicules, and parts of multicellular organisms, and his collections are housed in the Museum für Naturkunde at Humboldt University in Berlin. The collection contains 40,000 microscope preparations, 5,000 raw samples, 3,000 drawings, and 800 letters of correspondence and other documents, including the type specimens for several hundred radiolarian species and a thousand diatom species that were newly described in his famous monograph *Mikrogeologie* published in 1854.

Ernst Heinrich Haeckel (1834–1919), German zoologist, evolutionist, and artist, was a pioneer of recent and Cenozoic radiolarian study. After 10 years of extensive study, his most famous and comprehensive taxonomic work on Radiolaria was published in 1887 from the plankton tows and sediment materials collected by the H.M.S. *Challenger* Expedition during the years 1873–1876. The monograph on Radiolaria from the *Challenger* materials reported more than 4,300 species belonging to 700 genera, of which about 3,500 were new species. The Haeckel Radiolaria Collection, housed in the Natural History Museum (NHM) in London, consists of radiolarian teaching slide sets prepared by him and the Challenger plankton slides, which he worked on in his research. In addition to the *Challenger* Expedition-related collections, Haeckel's radiolarian preparations from Messina are housed in the Ernst-Haeckel Haus in Jena, Germany. Both the *Challenger* and Messina collections are the scientific legacies of E. H. Haeckel.

Conte Francesco Castracane degli Antelminelli (1817–1899), Italian naturalist, described 259 new diatom species and varieties from the mud and plankton materials collected during the voyage of the H.M.S. *Challenger*, and his collection is also partly housed in the NHM.

Mainly for the precise usage of taxonomic names of diatoms and radiolarians in ongoing scientific research such as natural history studies, geological age assignments, and reconstruction of paleoceanographic environments, this project, *Taxonomic reexamination of the Ehrenberg and Haeckel microfossil collections and reconstruction of the taxonomic image database of type specimens*, was conducted for 2 years during fiscal years 2004 and 2005. Consequently, we have provided an open database of the Ehrenberg and Haeckel types of diatom and radiolarian taxa and Castracane diatoms.

We acknowledge Clive Jones for providing full access to the Haeckel Radiolaria Collection and their inventory list in the Palaeontology Department, NHM, London. We are grateful to Michael Rumsey of the Mineralogy Department for assistance in taking 27 subsamples from the original *Challenger* Station materials in the Wandsworth storage facility, London. As an activity of the Micropaleontological Reference Centers, this project was accomplished by the financial support of the Museum Director General's grant of the National Museum of Nature and Science.

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