

# The material of the Pola Red Sea expeditions (1895-1898) in the collections of the Natural History Museum in Vienna

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**Abstract:** The material collected during the expeditions to the Red Sea by the vessel "Pola" (1895-1898) has been stored in the Natural History Museum in Vienna. A brief survey of the scientific results and of the marine zoological material stored in the different collections is presented. Nearly all the material is still available and in good condition. The importance of museum collections in faunistic studies is outlined.

## Introduction

The roots of the collections in the "Naturhistorisches Museum in Wien" (NHMW) were set in the mid-18<sup>th</sup> century. Influenced by the ideas of the Age of Enlightenment, these collections of aristocratic luxury and oddities developed into scientifically motivated institutions. They served as important databases storing voucher material for biosystematical research and applied sciences. The rate of new acquisitions increased dramatically in the course of the 19<sup>th</sup> century. Especially the second half of the 19<sup>th</sup> century was characterised by scientific enthusiasm and subsequent wealth of research activities. The fact that the Hapsburg monarchy did not become a member of the colonizing powers and that it was not constantly engaged in overseas wars was a positive factor for the fleet's utilization for other purposes (HAMANN 1980). Ships of the Imperial Austrian Navy continued to sail through all the oceans and to all continents up until the First World War. Almost all the natural objects collected by the staff of the various expeditions have been stored in the NHMW. The expeditions with the vessel "Pola" between 1890 and 1898 to the Eastern Mediterranean, to the Adriatic, and to the Red Sea belonged to the highlights of that time.

This paper deals with quantitative and qualitative aspects of the marine zoological material collected during the "Pola" expeditions to the Red Sea.

## Materials and Methods

The method of investigation for this paper is that used by historians. Data on the collections were obtained from books of acquisitions, inventories, register cards, and from publications on the material (see below). The zoological collections are organized zoosystematically. Only a small part has been entered into electronic databases. Nonetheless, the greater part is covered by card registers and ordered in a systematical manner. This means that the material was split into several parts and stored in different collections and departments within the NHMW. In many cases we had to go through the collections in order to retrieve or verify information from labels and objects in the jars. The material is kept dry or preserved in 75 % ethanol.

## Results

### Involved scientists

An extensive treatise on the several expeditions carried out by the "Pola" between 1890 and 1898 as well as on the history of oceanography was published by SCHEFBECK (1991). He also provided detailed information on the scientific results along with the personal background of all scientists involved in the study of the material obtained by these expeditions. Here, we compile only a brief survey of the scientists who studied the marine fauna of the Red Sea. In addition, the newly described species of marine animals collected during the "Pola" expedition to the Red Sea are presented in Tab. 1.

After the "Pola" had returned in 1898, not all the Red Sea material could be examined and published by curators of the k.u.k. Hofmuseum. Franz STEINDACHNER was available as a specialist for fishes, but published only two papers based on the expedition's material (STEINDACHNER 1898a, b). Rudolf STURANY worked on the gastropods (STURANY 1900a, b, 1904) and bivalves (STURANY 1901). Theodor WEINDL, a young volunteer in the Mollusc Collection, studied the cephalopods (WEINDL 1912). Emil von MARENZELLER identified the corals, polychaetes, and echinoderms. Whereas three publications appeared on the corals (MARENZELLER 1907a, b, c), the results of the other two groups were never published.

Therefore, a list of the species of polychaetes and echinoderms identified by MARENZELLER is presented in Tab. 2 and Tab. 3, respectively. Beyond the species already known at that time, MARENZELLER indicated several new taxa and assigned names to them on labels in the jars and entries in the catalogue. To avoid the creation of *nomina nuda*, these taxa are listed in the tables as n.g., n.sp., or n.var. only.

Eduard GRÄFFE, head of the Zoological Station in Trieste, examined mud samples for radiolarians, foraminiferans, heteropods, and pteropods (GRÄFFE 1897). Plankton specimens and the Sapphirinidae (copepods) were identified by Adolf STEUER at the University of Vienna and presented in one paper (STEUER 1897). Claus GROBBEN, also professor at the University of Vienna, published two papers on the morphology and anatomy of Red Sea bivalves (GROBBEN 1898, 1901).

A part of the material was sent to foreign specialists. In Breslau, Wilhelm KÜKENTHAL examined the Alcyonaria (KÜKENTHAL 1908, 1914), in Berlin Franz Eilhard SCHULZE the hexactinellids (SCHULZE 1900), and in Hamburg Wilhelm MICHAELSEN the tunicates (MICHAELSEN 1918, 1921). The undetermined decapods and stomatopods were delivered to Franz DOFLEIN in Munich, who forwarded the lots to his assistant Heinrich BALSS. He published his results in six papers (BALSS 1914a, b, 1915, 1916, 1922, 1929). The material was returned in 1924 and 1929 to the NHMW.

After 1922, further studies on the Red Sea collections of the "Pola" were initiated. Hermann SPANDL, assistant at the Crustacean Collection at the NHMW, examined the euphausiids and the amphipods, but only several papers dealing with the latter group were published (SPANDL 1923a, b, c, d). He died at a very early age in 1926.

Herbert GRAF, also assistant at the Crustacean Collection, studied the cyprinids (Ostracoda) (GRAF 1930). In 1940, Otto PESTA, curator of the Crustacean Collection, started with the identification of the great number of lots of copepods. He was only able to complete a small part of his project (PESTA 1941, 1943). His studies were interrupted by the Second World War; after the war he retired in 1947.

## The collections

The "Pola" Red Sea material includes around 72 species of protozoans, only 7 lots of sponges (two species, one new), one lot of Hydrozoa, but far more than 700 lots of Anthozoa. The latter collection contains more than 80 species of stony corals (8 of them new) and 73 species of Alcyonacea (5 of them new). The amount of hard corals, mostly dry material, was so impressive that around the year 1900 a separate exhibition of all this "Pola"-material was presented in the vestibule on the second floor of the NHMW.

Tab. 1: List of new species, variations, and forms described from the material collected during the "Pola" expeditions to the Red Sea

group	species	Reference
Porifera	<i>Tretocalyx polae</i>	SCHULZE 1900
Madreporaria	<i>Dasmosmilia valida</i>	MARENZELLER 1906b
	<i>Madracis interjecta</i>	MARENZELLER 1906b
	<i>Acropora eminensis</i>	MARENZELLER 1906c
	<i>Montipora erythraea</i>	MARENZELLER 1906c
	<i>Montipora densa</i>	MARENZELLER 1906c
	<i>Turbinaria tenuis</i>	MARENZELLER 1906c
	<i>Stylopora erythraea</i>	MARENZELLER 1906c
	<i>Fungia doederleini</i>	MARENZELLER 1906c
Alcyonacea	<i>Acabaria biserialis</i>	KÜKENTHAL 1908
	<i>Paralemmalia eburnea</i>	KÜKENTHAL 1914
	<i>Nephtheya laevis</i>	KÜKENTHAL 1914
	<i>Scirpearia erythraea</i>	KÜKENTHAL 1914
	<i>Muricella erythraea</i>	KÜKENTHAL 1914
Gastropoda	<i>Fusus bifrons</i>	STURANY 1900a
	<i>Nassa thaumasia</i>	STURANY 1900a
	<i>Nassa steindachneri</i>	STURANY 1900a
	<i>Nassa xesta</i>	STURANY 1900a
	<i>Nassa munda</i>	STURANY 1900a
	<i>Nassa sporadica</i>	STURANY 1900a
	<i>Nassa stiphra</i>	STURANY 1900a
	<i>Nassa lathraia</i>	STURANY 1900a
	<i>Columbella (Mitrella) erythraeensis</i>	STURANY 1900b
	<i>Columbella (Mitrella) nomanensis</i>	STURANY 1900b
	<i>Pleurotoma (Drillia) potti</i>	STURANY 1900b
	<i>Pleurotoma (?Drillia) inchoata</i>	STURANY 1900b
	<i>Pleurotoma (Clavus) siebenrocki</i>	STURANY 1900b
	<i>Pleurotoma (Surcula) nannodes</i>	STURANY 1900b
	<i>Solariella illustris</i>	STURANY 1900b
	<i>Mitra (?Thala) gonatophora</i>	STURANY 1903
	<i>Conus aculeiformis forma torensis</i>	STURANY 1904
	<i>Conus planiliratus var. batheon</i>	STURANY 1904
	<i>Mangilia pertubulata</i>	STURANY 1904
	? <i>Pleurotoma beblammema</i>	STURANY 1904
	<i>Emarginula harmilensis</i>	STURANY 1904
	<i>Atys (Roxania) lithensis</i>	STURANY 1904
	<i>Mitra tenuis forma minor</i>	STURANY 1904
	<i>Mangilia (Glyphostoma) epicharis</i>	STURANY 1904
	<i>Clathurella dichroma</i>	STURANY 1904
	<i>Capulus camaranensis</i>	STURANY 1904
	<i>Eulima muelleriae</i>	STURANY 1904
	<i>Eulima orthophyes</i>	STURANY 1904
	<i>Stylifer thielei</i>	STURANY 1904
	<i>Syrnola trivittata</i>	STURANY 1904
	<i>Elusa halaibensis</i>	STURANY 1904
	<i>Triforis (?Viriola) senafirensis</i>	STURANY 1904
	<i>Euchelus erythraeensis</i>	STURANY 1904

group	species	Reference
Bivalvia	<i>Solecurtus subcandidus</i>	STURANY 1901
	<i>Lyonsia intracta</i>	STURANY 1901
	<i>Cuspidaria steindachneri</i>	STURANY 1901
	<i>Cuspidaria dissociata</i>	STURANY 1901
	<i>Cuspidaria brachyrhynchus</i>	STURANY 1901
	<i>Cuspidaria (Cardiomya) potti</i>	STURANY 1901
	<i>Pseudoneaera thaumasia</i>	STURANY 1901
	<i>Ræta bracheon</i>	STURANY 1901
	<i>Cardita akabana</i>	STURANY 1901
	<i>Limopsis elachista</i>	STURANY 1901
	<i>Amussium steindachneri</i>	STURANY 1901
	<i>Amussium siebenrocki</i>	STURANY 1901
	<i>Gastrochaena deshayesi</i>	STURANY 1901
	<i>Gastrochaena pexiphora</i>	STURANY 1901
	<i>Gastrochaena weinkauffi</i>	STURANY 1901
	<i>Tellina siebenrocki</i>	STURANY 1901
	<i>Chione hypopta</i>	STURANY 1901
	<i>Diplodonta raveyensis</i>	STURANY 1901
	<i>Scintilla sulphurea</i>	STURANY 1901
	<i>Scintilla variabilis</i>	STURANY 1901
Cephalopoda	<i>Abralia steindachneri</i>	WEINDL 1902
Decapoda	<i>Parapandalus adensameri</i>	BALSS 1914a
	<i>Haliporus steindachneri</i>	BALSS 1914a
	<i>Bathymunida polae</i>	BALSS 1914a
	<i>Paratypton siebenrocki</i>	BALSS 1914b
	<i>Cestopagurus helleri</i>	BALSS 1916
	<i>Ebalia nobili</i>	BALSS 1916
	<i>Nursia dimorpha</i>	BALSS 1916
	<i>Achaeus erythraeus</i>	BALSS 1929
	<i>Menaethiops dubia</i>	BALSS 1929
	<i>Eurynome verhoeffi</i>	BALSS 1929
Copepoda	<i>Candacia samassae</i>	PESTA 1941
Ostracoda	<i>Cypridina dorsocurvata</i>	GRAF 1930
	<i>Philomedes polae</i>	GRAF 1930
	<i>Asterope arabica</i>	GRAF 1930
Amphipoda	<i>Synopia variabilis</i>	SPANDL 1923a
	<i>Dexaminoidea orientalis</i>	SPANDL 1923b
	<i>Urothoe pestai</i>	SPANDL 1923b
	<i>Sphaerophthalmus grobbeni</i>	SPANDL 1923c
	<i>Lycaea gracilis</i>	SPANDL 1923d
	<i>Oxycephalus notabilis</i>	SPANDL 1923d
	<i>Paratyphis spinosus</i>	SPANDL 1923d
	<i>Amphiithyrus glaber</i>	SPANDL 1923d
	<i>Elasmopus buchneri</i>	SPANDL 1923d
Asciidiacea	<i>Pyura momus forma kyamanensis</i>	MICHAELSEN 1918
	<i>Pyura momus forma polana</i>	MICHAELSEN 1918
	<i>Polycarpa steindachneri</i>	MICHAELSEN 1918
	<i>Amaroucium savignyi</i>	MICHAELSEN 1921
	<i>Amaroucium erythraeum</i>	MICHAELSEN 1921
Pisces	<i>Kuhlia sterneckii</i>	STEINDACHNER 1898a
	<i>Torpedo suessi</i>	STEINDACHNER 1898b
	<i>Lepidotrigla bispinosa</i>	STEINDACHNER 1898b
	<i>Equula klunzingeri</i>	STEINDACHNER 1898b
	<i>Labrichthys caudovittatus</i>	STEINDACHNER 1898b

Tab. 2: List of Polychaeta collected between 1895 and 1898 in the Red Sea by the "Pola" expedition, identified by MARENZELLER. Species names are ordered alphabetically, genus names and short forms of authors are given as listed in the old inventory book by MARENZELLER. Names given by MARENZELLER for species which he supposed to be new (catalogue names) are given as sp.n. or n.g.

<i>aegyptica</i> Sav	SAVIGNY 1820	<i>Ceraionereis</i>	Dschidda
<i>albiceps</i> Gr	GRUBE 1870	<i>Eucarphus</i>	St. 96, 34°47'E 29°13'N
<i>allicollis</i> Gr	GRUBE 1868	<i>Hypsicomus</i>	Berenice
<i>amboinensis</i> M Int	MCINTOSH 1885	<i>Glycera</i>	Johns Insel
<i>amphistoma</i> Sav	SAVIGNY 1818	<i>Euclymene</i>	Ravejya, Dschidda
<i>anomala</i> Gravier	GRAVIER 1902	<i>Pseudonereis</i>	Berenice, Rhas Garib
<i>antennata</i> Sav	SAVIGNY 1820	<i>Eunice</i>	Suez, several localities
<i>aphroditoides</i> Pall	PALLAS 1788	<i>Eunice</i>	Ras Abu Somer, several localities
<i>auricapillus</i> Gr	EHRENBURG in GRUBE 1870	<i>Cirratulus</i>	Shadwan
<i>bicolor</i>	GRUBE 1875	<i>Hermione</i>	Tor, Berenice
<i>caducus</i> Gr	GRUBE 1846	<i>Dasybranchus</i>	Shadwan
<i>collaris</i> Gr	GRUBE 1870	<i>Eunice</i>	Berenice, several localities
<i>collaris</i> Gr	GRUBE 1870	<i>Lysidice</i>	Ras Abu Somer
<i>complanata</i> Pall	PALLAS 1766	<i>Eurytoe</i>	Tor, several localities
<i>crisatus</i> Gr	GRUBE 1862	<i>Spirobranchus</i>	Habban, several localities
<i>cupreus</i> Gr	GRUBE 1878	<i>Lepidonotus</i>	Berenice, several localities
<i>cruciger</i> Gr	GRUBE 1862	<i>Spirobranchus</i>	Habban, several localities
<i>cupreus</i> Gr	GRUBE 1878	<i>Leocrates</i>	Ras Abu Somer
<i>glandigera</i> Gravier	GRAVIER 1908	<i>Vermiliopsis</i>	St. 106, 38°41'E 21°02'N
<i>grubei</i> Gravier	GRAVIER 1900	<i>Eunice</i>	Mersa Sheikh
<i>hemprichi</i> Gr	GRUBE 1873	<i>Ceratonereis</i>	Mamuret el Harnidije
<i>jukesii</i> Baird	BAIRD 1865	<i>Thormora</i>	Kunfuda
<i>lucida</i> Sav	SAVIGNY 1818	<i>Oenone</i>	Dahab, several localities
<i>luctuosa</i> Gr	GRUBE 1870	<i>Dasychone</i>	Mersa Halaib, Shadwan
<i>marenzelleri</i> Gravier	GRAVIER 1900	<i>Eunice</i>	Ras Abu Somer
<i>medusa</i> Sav	SAVIGNY 1818	<i>Loimia</i>	Berenice, Dschidda, Shadwan, Kameran
<i>muricata</i> Sav	SAVIGNY 1818	<i>Ipione?</i>	Tor, several localities
<i>murrayi</i> M Int	MCINTOSH 1885	<i>Eunice</i>	Dschidda
<i>ocellata</i> Gr	GRUBE 1878	<i>Lumbrinereis</i>	Dschidda
<i>phaetotaenia</i>	SCHMARDIA 1861	<i>Hypsicomus</i>	Berenice
Schmarda			
<i>reticulata</i> Marenzeller	MARENZELLER 1879	<i>Hesione</i>	Mersa Sheikh, Berenice, Dschidda, several localities
<i>richardii</i> Gravier	GRAVIER 1900	<i>Syllis</i>	Dahab, Dschidda
<i>siciliensis</i> Gr	GRUBE 1840	<i>Eunice</i>	Tor, several localities
sp.		<i>Heterocirrus</i>	Rotes Meer
sp.		<i>Hydrorides</i>	Ismailia
sp.		<i>Eupolynnia</i>	Ras Abu Somer, Mersa Sheikh
<i>torquata</i> Qfg	QUATREFAGES 1865	<i>Eunice</i>	Ras Abu Somer, several localities
<i>versicolor</i> Gr	GRUBE 1878	<i>Drilonereis</i>	Dschidda
n.sp.		<i>Euclymene</i>	Mersa Dhiba
n.sp.		<i>Onuphis</i>	Sts. 59, 36°10'E 25°43'N; 106, 38°41'E 21°02'N; 113, 38°22'E 20°04'N
n.sp.		<i>Onuphis</i>	St. 38, 38°29'E 22°42'N
n.sp.		<i>Ophelina</i>	St.135, 39°14'E 17°26'N
n.sp.		<i>Aricia</i>	Berenice
n.sp.		n.g. (Serpulidae ?)	St. 96, 34°47'E 29°13'N

The collection of polychaetes harbours about 50 lots (for the species see Tab. 2), that of the echinoderms about 80 lots (for the species see Tab. 3). In the inventory of the Mollusc Collection, around 1300 lots of gastropods (294

species, 33 of them new) and bivalves (145 species, 20 of them new) are registered. The crustacean material is rather voluminous: 35 lots of Cypridinidae (Ostracoda) with 8 species, three of them new; 43 lots of stomatopods (10 species); 15 lots of euphausiaceans (yet unidentified); "Natantia" more than 400 (around 70 species, 3 of them new); Palinura 6 lots (2 species); Thalassinidea 5 lots (4 species); Anomura around 150 lots (29 species, two of them new); Brachyura more than 800 lots (around 150 species, 5 of them new); mysidaceans 49 (two species); and amphipods 200 (38 species, 9 of them new). Virtually countless are the lots of copepods and the collection of plankton samples. The Fish Collection in the NHMW is also very rich in "Pola"-material; it contains more than 10 000 individuals (SCHEFBECK 1991).

The Department of Geology and Paleontology of the NHMW harbours samples of coccoliths, deep-sea sediments, and residues of chemical analyses. The Department of Mineralogy owns petrological samples.

## Discussion

The animals collected during the "Pola" expeditions to the Red Sea contributed essentially to the collections deposited in the NHMW, both quantitatively and qualitatively. It was one of the first opportunities in which numerous samples - collected in a systematic manner with detailed information on the sampling locations - were added to the museum's collections. Numerous new species were described and - at least as far as the decapods are concerned - are still valid today (TÜRKAY 1986). Together with the species already known at that time, the studies on the material collected during the "Pola" expeditions built up a solid basis of our knowledge of the Red Sea fauna (TÜRKAY 1996).

After 100 years, nearly all of the "Pola"-material is still available. Besides the type material, the published material, and the identified material, there are still undetermined samples, some of them not even roughly sorted. All this material offers a good opportunity to compare the results of this historical research with today's investigations (see also TÜRKAY 1996).

Such comparisons demonstrate once again the basic important role of natural history museums in many fields of biological sciences, a fact which is unfortunately not evident to the public. Collections of natural history have to be protected, maintained, and further extended for use in the present and future.

Tab. 3: List of Echinodermata collected between 1895 and 1898 in the Red Sea by the "Pola" expedition, identified by MARENZELLER. Species names are ordered alphabetically, genus names and short forms of authors are given like in the old inventory book by MARENZELLER. Names given by MARENZELLER for taxa which he supposed to be new (catalogue names) are marked as Genus sp.n. or var.n.

<b>Astroidea</b>			
<i>aegyptiaca</i> Gray	GRAY	<i>Scyaster</i>	Sherm Habban
<i>capella</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Ogmaster</i>	N 96: 34°47'E 29°13'N
<i>carinifera</i> Lm	LAMARCK 1816	<i>Gymnasteria</i>	Dschidda, Lidth, Massana, Zabayir
<i>cepheus</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Asterina</i>	Berenice, several localities
<i>ehrenbergi</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Linckia</i>	Halaib
<i>equestris</i> (Rets) M.T.	RETZIUS 1805	<i>Stellaster</i>	Suez
<i>hemprichi</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Astropecten</i>	Abayil, Suez, Kunfuda
<i>mammilatus</i> Audoin..	AUDOIN 1826	<i>Pentaceros</i>	Koseir
<i>pustulatus</i> Marts	MARTENS 1866	<i>Ophidiaster</i>	Massawa
var.n.of <i>monacanthus</i> sp. n.	SLADEN 1889	<i>Astropecten</i>	Guleifaka Rotes Meer, N 168: 35°34'E 26°40'N; 179: 34°14'E 26°14'N
sp. n.		<i>Astropecten</i>	Ras Turfa
<b>Echinoidea</b>		<i>Ogmaster</i>	
<i>bicolor</i> Ag	AGGASSIZ 1841	<i>Salmacis</i>	Perim
<i>gibberulus</i> Ag	AGGASSIZ 1847	<i>Schizaster</i>	Ras Turfa
<i>gratilla</i> L.	LINNE 1758	<i>Hipponoe</i>	Mersa Dhiba, Koseir
<i>indica</i> Död.	DÖDERLEIN 1901	<i>Stereocidaris</i>	Kamerau
<i>lucunter</i> L	LESKE 1778	<i>Echinometra</i>	Dschidda, several localities
<i>luzonica</i> Gr.	GRAY 1851	<i>Brissopsis</i>	N 87: 32°56'E 29°07'N; 145: 41°13'E 16°02'N; 179: 34°14'E 26°34'N
<i>rosaceus</i> L.	LINNE 1758	<i>Clypeaster</i>	Ras Turfa, Kunfuda
<i>saxatilis</i> L.	LINNE 1758	<i>Diadema</i>	Dschidda
<i>scutiformis</i> Gray	LAMARCK 1816	<i>Clypeaster</i>	Golf v. Akaba
<b>Ophiuroidea</b>			
<i>cincta</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Ophiolepis</i>	Berenice, several localities
<i>clavatum</i> Lym.	LYMAN 1862	<i>Astrophyton</i>	Suez
<i>dubia</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Ophionereis</i>	Kamaran, Dahab, Shadwan, Berenice
<i>elegans</i> Leach	LEACH 1815	<i>Amphipholis</i>	Shadwan
<i>exigua</i> Lym.	LYMAN 1874	<i>Ophiothrix</i>	Berenice, several localities
<i>hirsuta</i> M.T.	MÜLLER & TROSCHEL 1842	<i>Ophiothrix</i>	Dahab, several localities
<i>laevis</i> Lym.	LYMAN 1874	<i>Amphipholis</i>	St.87: 32°56'E 29°07'N
<i>lepidus</i> Loriol	LORIOL 1893	<i>Ophiothrix</i>	N 95: 34°47'E 29°12'N
<i>propingua</i> Lym.	LYMAN 1862	<i>Ophiothrix</i>	Dschidda, several localities
<i>venosa</i> Ptrs.	PETERS 1851	<i>Ophiomastix</i>	Berenice, Dahab, Koseir, Lidth

<b>Holothurioidea</b> <i>albiventer</i> Semper <i>atra</i> W.F.Jäg.  <i>maxima</i> Forsk ( <i>echinates</i> Jaeger) <i>godeffroyi</i> Semp. <i>impatiens</i> Forskal <i>keferstein(ii)</i> Sel. <i>maculata</i> Brdt <i>maculata</i> Cham. Eisenhardt <i>maculata</i> Brandt <i>mauritiana</i> Qu.S.	SEMPER 1868 JAEGER 1833  JAEGER 1833 SEMPER 1868 FORSKAL 1775 SELENKA 1867 BRANDT 1835 CHAMISSO & EISENHARDT 1821 BRANDT 1835 QUOI & GAIMARD 1833	<i>Holothuria</i> <i>Holothuria</i>  <i>Mülleria</i>  <i>Euopta</i> <i>Holothuria</i> <i>Polyplectana</i> <i>Holothuria</i> <i>Synapta</i>  <i>Mülleria</i> <i>Mülleria</i>	Akabah, Mersa Haleib Dschidda, Habban, Schadwan, Rawaiya Dahab, Dschidda  Dschidda, Ras Abu Somer Berenice, several localities Mersa Sheikh, Iamb Senafir, Shadwan, Ras Baril Habban, Ras Turfa, Dschidda  Habban, Dschidda Dschidda
<b>Holothurioidea</b> <i>miliaris</i> Qu.S. <i>nigra</i> Semper  <i>pardalis</i> Sel <i>parvula</i> Sel <i>pseudo-digitata</i> Semper <i>rigida</i> Sel <i>scabra</i> <i>variegatus</i> Semp	QUOI & GAIMARD 1833 SEMPER 1868  SELENKA 1867 SELENKA 1867 SEMPER 1868  SELENKA 1867 JÄGER 1833 SEMPER 1868	<i>Mülleria</i> <i>Synoptula</i>  <i>Holothuria</i> <i>Actinopyga</i> <i>Protanryra</i>  <i>Holothuria</i> <i>Holothuria</i> <i>Stichopus</i>	Habban, Dschidda Berenice, Dschidda, Mersa Halaib Dahab, several localities Berenice, several localities St. 87: 32°56'E 29°07'N; 88: 33°35'E 28°09'N Lidh Perim Dahab
<b>Crinoidea</b> <i>carinata</i> Lm <i>palmata</i> J.Müll  <i>savignyi</i> J.Müll n.sp. n.sp.	LAMARCK 1816 MÜLLER 1841  MÜLLER 1841	<i>Antedon</i> <i>Antedon</i>  <i>Antedon</i> <i>Antedon (Himerometra)</i> <i>Antedon</i>	Dschidda Abu Somer, Dschidda, several localities Suez St. 95: 34°47'E 29°12'N St. 95: 34°47'E 29°12'N

Scientists are invited to use the historical material in their research. And scientists are also invited to deposit objects of their systematical or ecological research in international museums such as this one in Vienna. Their colleagues 100 years hence will be thankful.

## Acknowledgements

For help in obtaining information about the "Pola" material in the different collections of the museum we are grateful to A. ESCHNER, R. ESBERGER, E. PRIBIL, H. OGNAR (Invertebrate Zoology), E. MIKSCHI (Fish Collection), F. RÖGL (Paleontology), and G. NIEDERMAYR (Mineralogy).

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Jahr/Year: 1996

Band/Volume: [11](#)

Autor(en)/Author(s): Stagl Verena, Sattmann Helmut, Dworschak Peter C.

Artikel/Article: [On the pathways of the "Pola" expeditions. The material of the Pola Red Sea expeditions \(1895-1898\) in the collections of the Natural History Museum in Vienna. In: Deep Sea and Extreme Shallow-water Habitats: Affinities and Adaptations. 29-41](#)