

# THE CEPHALOPOD COLLECTION IN THE SOUTH AUSTRALIAN MUSEUM

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## Introduction

The aim of this paper is to provide a general account of the South Australian Museum cephalopod collection and to indicate the current range of the South Australian fauna.

The bulk of the South Australian Museum (SAM) mollusc collection was collected by Sir Joseph Verco during the years 1890-1912, most of it was dredged or beach collected. Verco was a dedicated conchologist who took little interest in the animals of the shells he studied; therefore it is not surprising that he described only one new cephalopod—*Sepia braggi* (Verco, 1907) from a cuttlebone washed up on a metropolitan beach. Because both Verco and his successor, B. C. Cotton, were conchologists the collection of cephalopods in SAM is unrepresentative of the State's fauna. The collection consists of about 300 lots of spirit specimens and 22 drawers of dry cuttlebones, mainly representing a few common species. Recent additions have improved the collection, but these have been limited as there have never been any experimental trawling operations in S.A. like those of C.S.I.R.O., Fisheries Departments and others which have occurred in Western Australia and the eastern States. However, there is currently an intensive effort by the author, with the help of the S.A. Fisheries Department and others, to add to the collection and make it available to interested specialists.

## RESUME OF SAM COLLECTION

There are currently 28 species of cephalopods known to occur in South Australian waters, a small number that reflects limited collecting efforts. Most are inadequately known because of the lack of specimens and the lack of taxonomic background in cephalopods by earlier researchers. These workers seemed to copy each other, often without checking the literature or comparing specimens. For example much of

Cotton and Godfrey (1940) is taken directly from Berry (1918; 1921) and others.

Many of the sepioidea are known only from a few specimens and in the Sepiidae the animal often is unknown. Frequently descriptions and illustrations are inadequate or inaccurate and the range of specific variation rarely was discussed. Iredale's (1920) new genera based only on cuttlebones and subsequent authors only added to the confusion. A revision of Australian Sepioidea therefore is urgently needed. The SAM collection of Sepioidea is not very large and consists of 22 drawers of dry cuttlebones and about 150 lots of spirit specimens. The cuttlebones are generally in poor condition and represent mainly *Sepia apama*, *S. novaehollandiae* and some *S. braggi* with a selection of eastern and northern Australian species. The spirit specimens consist mainly of *S. apama*, *Sepioloidea lineolata* and *Euprymna tasmanica* but there are also a few lots of *S. braggi*, *S. novaehollandiae* and *Idiosepius notoides*. Other southern Australian species such as *Sepia chirotrema*, *S. jaenschii* and *Rossia australis* are represented by only one or two lots. There are no spirit specimens of *Spirula*; only a few shells found washed up on metropolitan and South-East beaches. *Sepia dannevigii* Berry 1918, *S. hedleyi* Berry 1918 and *Sepiadarium austrinum* Berry 1921, originally described from S.A. are not represented in the SAM collection.

In southern Australia the Teuthoidea are well represented by *Sepioteuthis australis* although SAM has few well preserved specimens but the oceanic squid (Oegopsida) are not well known because little sampling has been done. Clarke (1966) reviewed the group and indicated the lack of knowledge of Australian species by the many blank spaces on his distribution maps. Most Australian records are by Berry (1918) and Allan (1945). Only three species,

*Nototodarus gouldi*, *Ommastrephes bartrami* and *Taningia danae* are known from S.A. and these are known only from recent collections. Adequate collecting will surely reveal the presence of many more species, as they occur in Australian waters in general. The SAM collections of Teuthoidea, some 50 lots, consist mainly of *S. australis* and *N. gouldi* with a few *O. bartrami* and two specimens of *T. danae* (Zeidler, 1981).

The octopods also have been a neglected group in Australia. Robson (1929; 1931) reviewed the Australian octopods, but no thorough study has been made since. Most of the known species need verification and many new species await description. The SAM collection of octopods, about 100 lots, consists of mainly unidentified specimens although *Hepalochlaena maculosa*, *Octopus pallida* and *O. flindersi* are well represented. There are also a few interesting specimens such as *Ocythoe tuberculata* (1 ♀ and 1 ♂), *Grimpella thaumastocheir* (♂) and *Opisthoteuthis* sp. (two specimens).

The majority of the small collection of cephalopods collected by the BANZ Antarctic Research Expedition, 1929-1931 (Dell, 1959) is also housed in SAM.

#### HISTORICAL BACKGROUND TO SPECIES RECORDED FROM S.A.

The first records of cephalopods from S.A. are by Angas (1865) who noted two species, *Argonauta nodosa* (listed as *A. oryzata*) and *Spirula spirula* (listed as *Ammonia laevis*). These two species are rarely found on South Australian beaches. Angas made no mention of cuttlebones, even though numerous specimens occur on the beaches. Brazier (1892) added four more species to the South Australian fauna; one octopus, *Hapalochlaena maculosa* (listed as *Octopus pictus*), and three sepiids, *Sepioloidea lineolata*, *Sepia apama* and *S. novaehollandiae* (listed as *S. australis*). Verco (1907) described only one new cephalopod, *Sepia braggi*. Riddle (1920) recorded the first *Nautilus* from South Australia, *N. repertus* (as *N. pompilius*); this remains the only record. However, Berry (1918; 1921) made the most notable additions to the cephalopod fauna of

Australia adding seven new species to the South Australian fauna—*Sepia hedleyi*, *S. dannevigii*, *S. chirotrema*, *Opisthoteuthis pluto*, *O. persephone*, *Sepiadarium austrinum* and *Idiosepius notoides*.

Verco and Cotton (1928) produced the first comprehensive list of South Australian cephalopods, a total of 20 species, three of which were included because they were found in adjacent waters and probably occurred in South Australia: *Rossia australis* verified by Cotton (1938), *Octopus pallidus* (listed as *Polypus variolatus*) verified by Cotton (1932), and *Nototodarus gouldi* verified only recently by a specimen caught 0.5 km off Hallett Cove, St Vincent Gulf in 1964 (unpublished record). Another two, *Sepioteuthis australis* and *Euprymna tasmanica*, were new records. Surprisingly *S. australis*, probably the most common cephalopod in South Australian inshore waters, was not recorded earlier. Cotton described two more new species; *Sepia jaenschii* (1931) and *Octopus flindersi* (1932) before combining with Godfrey to produce their 1940 monograph of South Australian molluscs in which they erroneously include 13 species, some of which do not even belong to the Australian fauna. Their publication should be used therefore with extreme caution. Only one cephalopod, *Octopus australis*, was a new record for the State. Since 1940 no one has worked on South Australian cephalopods and only three species of note have been added to the collections: *Ocythoe tuberculata* washed up at Port MacDonnell, the first record of this species in Australia (Roper & Sweeney, 1975), *Taningia ?danae* found floating offshore near Port Lincoln in 1980, the first record of a complete specimen from Australia (Zeidler, 1981) and *Ommastrephes bartrami* a photo of which Cotton (1960) mistook for a large specimen of *Nototodarus gouldi*.

#### LIST OF CEPHALOPOD TYPES IN SAM

A more detailed list is given by Zeidler and Macphail (1978). The Sepiidae are represented only by cuttlebones.

*Crumenasepia ursulae* Cotton, 1929. *J. Proc. R. Soc. W. Aust.*, 15: 90-91, pl. 15, figs. 3, 4. HOLOTYPE and three PARATYPES.

= *Sepia pharaonis* according to Adam & Rees (1966).

*Decorisepia cottesloensis* Cotton, 1929. *J. Proc. R. Soc. W. Aust.*, **15**: 90, pl. 16, figs. 1, 2.

HOLOTYPE only.

= ?*Sepia rex* according to Adam (1979).

*Decorisepia jaenschi* Cotton, 1931. *S. Aust. Nat.*, **12**(3): 41, figs. 5, 6.

HOLOTYPE only.

= *Sepia jaenschi* according to Adam & Rees (1966).

*Sepia braggi* Verco, 1907. *Trans. Roy. Soc. S. Aust.*, **31**: 213, pl. 27, figs. 6a-d.

HOLOTYPE and four PARATYPES.

*Solitosepia glauerti* Cotton, 1929. *J. Proc. R. Soc. W. Aust.*, **15**: 87, pl. 14, figs. 3, 4.

HOLOTYPE only.

*Solitosepia hendryae* Cotton, 1929. *J. Proc. R. Soc. W. Aust.*, **15**: 87-88, pl. 15, figs. 1, 2.

HOLOTYPE only.

*Solitosepia occidua* Cotton, 1929. *J. Proc. R. Soc. W. Aust.*, **15**: 88, pl. 14, figs. 1, 2.

HOLOTYPE only.

*Tenuisepia mira* Cotton, 1932. *Rec. S. Aust. Mus.*, **4**(4): 546-547, figs. 7-9.

HOLOTYPE only.

= *Sepia mira* according to Adam & Rees (1966).

*Octopus flindersi* Cotton, 1932. *Rec. S. Aust. Mus.*, **4**(4): 543-544, fig. 6.

HOLOTYPE only—Cotton believed this to be a female as the hectocotylus is not evident but upon dissection the type proved to be a male (Boletzky, pers. comm.).

Editor's note: The "Bibliography" section of this article is incorporated with "Bibliography of Cephalopod Biology of the Australian-New Zealand Region". See Roper (1983), pages 23-27, this volume.