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## Primary types in the collection of molluscs in the KwaZulu-Natal Museum: Scaphopoda and Cephalopoda

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### ABSTRACT

All primary types of Scaphopoda and Cephalopoda deposited in the KwaZulu-Natal Museum are presented. The reference to the original publication, including the original generic position, the type locality, the collector and the size of the type specimen(s), is provided for each type, followed by information on the type in the NMSA collection (catalogue number, size of the type specimen, type locality and collector), other types mentioned in most recent publication(s) with the reference(s) to such publication(s), brief remarks and colour photographs. A lectotype is designated for *Sepia (Rhombosepion) acuminata* Smith, 1916.

KEY WORDS: Mollusca, Scaphopoda, Cephalopoda, primary types, KwaZulu-Natal Museum.

### INTRODUCTION

The collection of molluscs in the KwaZulu-Natal Museum came into being due to the enthusiasm and dedication of an amateur collector of molluscs and books, Henry Clifden Burnup, who became honorary curator of the mollusc collection until his death in 1928. The collection comprises mostly marine and terrestrial species, with a small holding of freshwater molluscs.

The collection has steadily grown over time through donations, purchases and exchanges and, more recently, through extensive fieldwork programmes including the museum's dredging programme undertaken between 1981 and 1997. In addition, in 1978 and 1980 the important mollusc collections of the Transvaal Museum (Pretoria) and the Albany Museum (Grahamstown) were acquired. These additions greatly enhanced the historical importance of the collection, adding a number of types. Other important collections, namely those of Rodney Wood (Seychelles specimens) and Kurt Grosch (northern Mozambique) were also added, together with the largely South African collection of Clarice Connolly.

The collection is now by far the largest in Africa and one of the largest in the southern hemisphere. In terms of its southern African holdings, it is the largest in the world. The type collection alone contains 3008 type lots, including 520 holotypes, 12 neotypes, 11 lectotypes and 173 syntype lots. There is an increasing number of requests for photographs of types, and 27 types were photographed as a result of these requests in 2010 alone. This shows a significant demand for a well-illustrated catalogue of the types housed in the KwaZulu-Natal Museum.

Previous attempts to publish information on the molluscan types in the collection of the KwaZulu-Natal Museum resulted in one paper by R.N. Kilburn (1973), which contains (amongst other data) extensive remarks on the validity, current status and essential characters for 24 types of South African Bivalvia but unfortunately does not have any illustrations.

The type material of Cephalopoda deposited in the KwaZulu-Natal Museum apparently has been "rediscovered" here. To our surprise, we did not find any references to this material in any publication after 1962 (Anonymous 1962) despite the fact that Marek R. Lipinski and Martina A.C. Roeleveld both were working in Cape Town when

they published two papers on types of Cephalopoda (Lipinski *et al.* 1998, 2000). In fact, the last time shells of *Sepia* from the KwaZulu-Natal Museum were examined for taxonomic purposes was in 1968 when Roeleveld received five shells of *Sepia incerta* Smith, 1916 (not from the type series) on loan for her publication on Sepiidae of Southern Africa (Roeleveld 1972: 214, pl. 38a, b).

Previously Massy (1925: 202) examined some *Sepia* shells from the KwaZulu-Natal Museum but did not indicate whether this material was from type series.

In the same publication Massy (1925: 212) described *Sepia natalensis*, which was later synonymised with *S. simoniana* Thiele, 1920 by Voss (1962: 250–251). Massy (1925: 202, 212) indicated that the description of *S. natalensis* was based on four females received from the KwaZulu-Natal Museum, of which “No. 7” was selected “as the type-specimen”. There are three alcohol-preserved specimens labelled “*Sepia natalensis* Massy” in the collection of the KwaZulu-Natal Museum. All three are from the type localities. One dissected specimen is the paratype “No. 3” with its shell missing. The other two specimens with their labels matching paratype “No. 10” are not dissected, so both of them could be paratype “No. 10” (it is not possible to determine which one, if either) and neither of them can be the holotype because “the type-specimen (No. 7)” was dissected by Massy. Since Anne L. Massy was working in the Ministry of Fisheries in Dublin when she described this species, it was possible that part of the type material could have been deposited in the collection of the National Museum of Ireland. Unfortunately, the Natural History Division of the National Museum of Ireland holds only a single not-dissected alcohol-preserved specimen of *S. vermiculata* “No. 17, Durban, H. W. Bell Marley, 1917 - one ♂” (Massy 1925: 209) sent there by Massy in 1924 as a reference specimen to her 1925 publication (Mark Holmes, pers. comm.). Thus, we were unable to locate the holotype of *Sepia natalensis* Massy, 1925 and it is not included into the list below.

All the primary types of Scaphopoda and Cephalopoda deposited in the KwaZulu-Natal Museum were collected from the South African coast near Port Shepstone (prior to 1903) and Tongaat (in 1909) by Henry Burnup. These shells were sent to E.A. Smith, who described respective species based on Burnup’s material (as well as material from the Natural History Museum in London). Presumably after their return, all these types were mounted on the same kind of buff, 1.5 mm-thick stiff cardboard, often with Burnup’s handwriting, and were labelled as “co-type” (or “co-types” if more than one shell was mounted on a board). There is a number of Cephalopoda shells clearly collected by Burnup from the type localities in 1909, mounted and labelled in the same way but without a “co-type” indication on the boards. Thus, we assume that not all the cephalopod material collected by Burnup was sent to Smith and only those shells labelled as “co-types” belong to the type series.

The detailed history of studies of cephalopods of Southern Africa can be found in Voss (1962) and additional recent references in Jereb and Roper (2005).

For the current status of each species, we rely here on the most recent comprehensive publication we found and do not give the complete synonymy.

The following acronyms and abbreviations are used: NHMUK – the Natural History Museum, London, UK (formerly known as BNHM and BMNH); NMSA – the KwaZulu-Natal Museum (formerly known as the Natal Museum). All shell sizes are given as  $l \times w$ , where  $l$  is length and  $w$  is greater width.

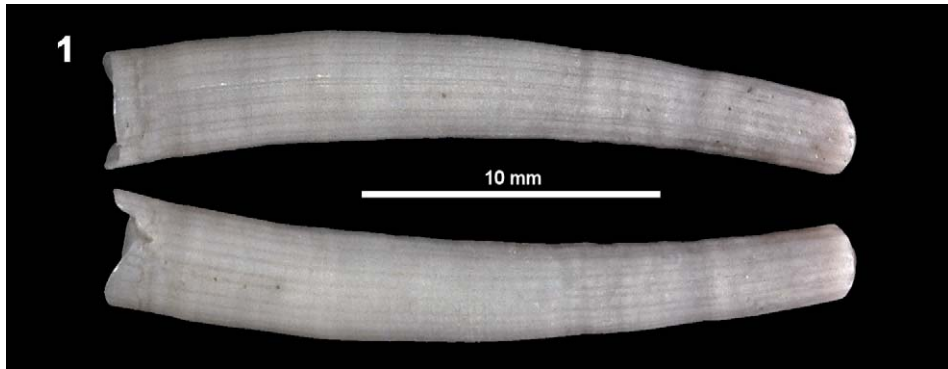


Fig. 1. *Dentalium regulare*, syntype NMSA 2575/T687, 25.2×4.0 mm.

#### LIST OF PRIMARY TYPES

##### Scaphopoda

*regulare* E.A. Smith, 1903: 393, pl. XV, fig. 2 [*Dentalium*, Port Shepstone (H.C. Burnup): ~38×4 mm].

Syntype NMSA: 2575/T687 (25.2×4.0 mm; Fig. 1). SOUTH AFRICA: *KwaZulu-Natal*: Port Shepstone, H.C. Burnup.

Syntypes NHMUK: 1903.9.9.24; 1903.7.26, 29–32 (Steiner & Kabat 2004: 638). SOUTH AFRICA: *KwaZulu-Natal*: Port Shepstone.

Current status: *Dentalium regulare* Smith, 1903 (Steiner & Kabat 2004: 638).

Remarks: The length of the specimen illustrated in the original publication calculated from the figure proportions (29.7/5.3) should be 22.4 mm (assuming that diameter of the illustrated shell is 4 mm), not “*circiter* 38 ... mm” as stated in the original description. The line next to the original figure apparently indicating the original size is 21.5 mm.

##### Cephalopoda

*acuminata* E.A. Smith, 1916: 21, pl. II, figs 3, 4 [*Sepia*, Port Elizabeth (J.H. Ponsoyby & H.A. Spencer): 103×36×9 mm; Tongaat Beach, Natal (H.C. Burnup): 46×? mm].

Lectotype (designated here): NHMUK 1890.9.22.332 (102×37 mm; Fig. 2) (Adam & Rees 1966: 53, pl. 16, figs 91, 92; Khromov *et al.* 1998: 82; Lipinski *et al.* 1998: 157; 2000: 102). SOUTH AFRICA: *Eastern Cape*: Port Elizabeth.

Paralectotype NHMUK: 1890.9.22.333 (97×34 mm) (Khromov *et al.* 1998: 82; Lipinski *et al.* 1998: 157; 2000: 102). SOUTH AFRICA: *Eastern Cape*: Port Elizabeth.

Paralectotypes NMSA: 3200/T474 (48.6×21.7 mm; Fig. 4; and 4 juveniles: 22.4×11.7, 19.8×12.0, 18.0×9.0, 13.0×9.5 mm). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat.

Paralectotype NMSA: 3201/T474 (46.7×21.2 mm; Fig. 3; = *hieronis* Robson, 1924 (Roeleveld 1972: 208, 209; 1975: 240). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat.

Current status: *Sepia (Rhombosepion) acuminata* Smith, 1916 (Sweeney & Roper 1998: 566).

Remarks: 3201/T474 (Fig. 3) is illustrated in the original publication (Smith 1916, fig. 4) as “abnormal”, “46 mm in length” and according to Roeleveld (1972: 208, 209; 1975: 240) is in fact *Sepia hieronis* (Robson, 1924). Since that “abnormal” specimen



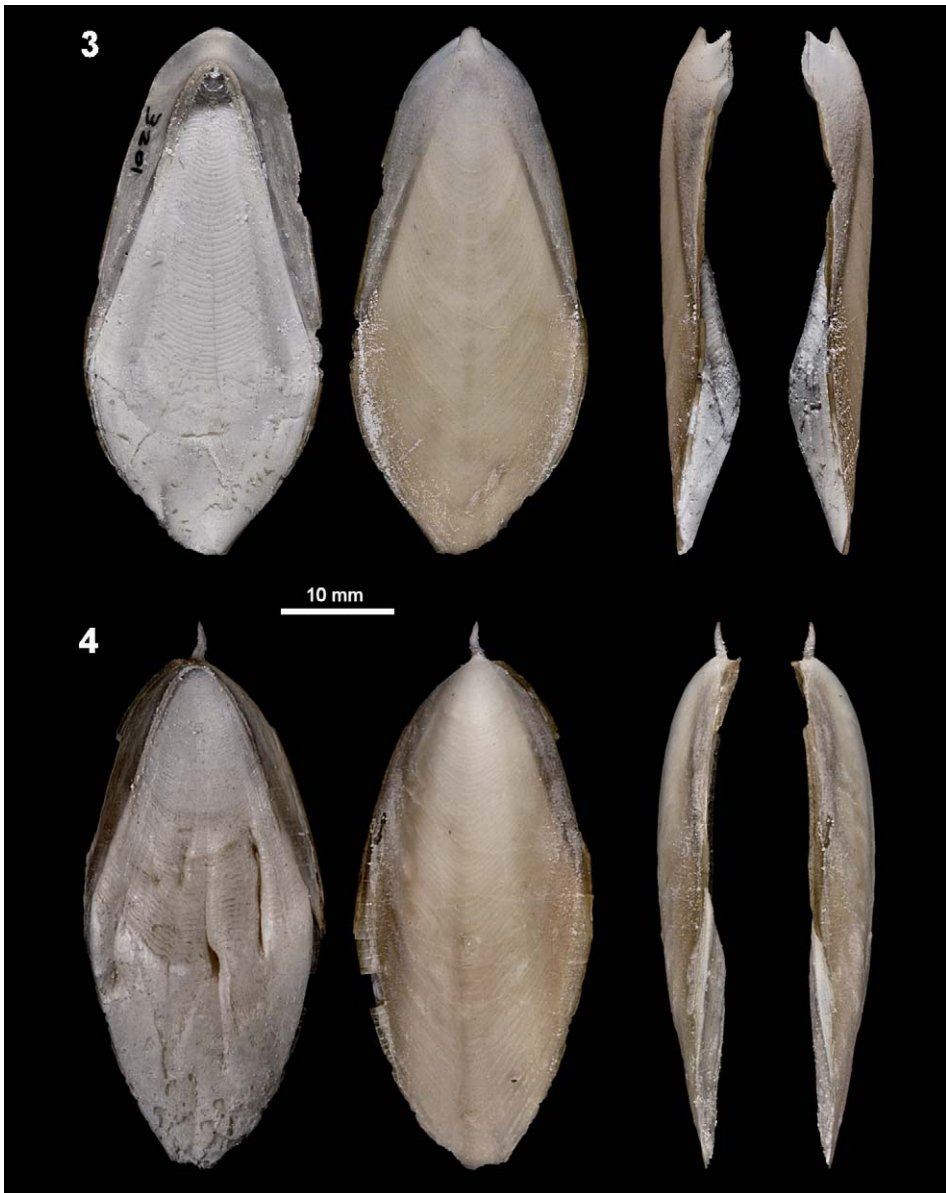
Fig. 2. *Sepia acuminata*, lectotype NHMUK 1890.9.22.332 (102×37 mm).

clearly represents a second species in the type series, the lectotype designation for *Sepia acuminata* Smith, 1916 was necessary to stabilize the application of the name *acuminata* Smith, 1916. Therefore, we have designated the specimen described from Port Elizabeth in the original publication (Smith 1916: 21, fig. 3) as the lectotype (see above) and have illustrated it here in Fig. 2. There were “other examples of the same size” mentioned in the original description of *acuminata* in comparison with the “abnormal” one. There is only one similarly-sized shell of *acuminata* in the NMSA collection and all five shells of that lot were given the status of “co-type” from Tongaat with the same handwritten label as the “abnormal” shell. The larger paralectotype from that lot is illustrated here in Fig. 4 to show the differences mentioned by Smith (1916: 21). *confusa* E.A. Smith, 1916: 24, pl. II, figs 7, 8 [*Sepia*, Tongaat Beach, Natal (H.C. Burnup); Port Elizabeth, Cape Colony (H.H. Spencer in Brit. Mus.): 130×19 mm “largest, if perfect”].

Syntype NMSA: 3212/T475 (juvenile: 42.2×9.1 mm; Fig. 5). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat. Syntypes NHMUK: 1890.12.14.42, 1920.3.23.1 (Adam & Rees, 1966: 65; Khromov *et al.* 1998: 92; Lipinski *et al.* 1998: 157; 2000: 103). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat Beach.

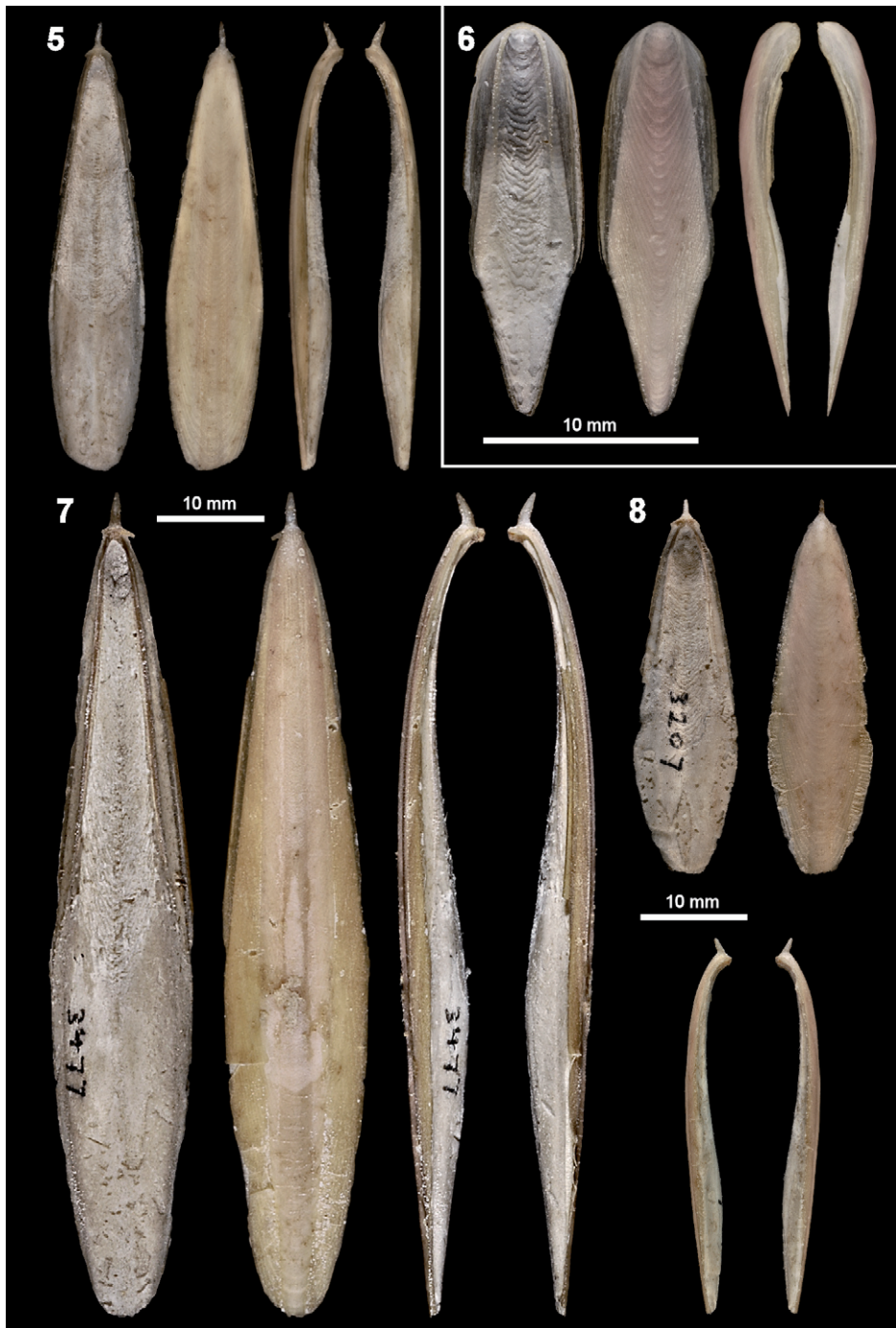
Current status: *Sepia (Doratosepion) confusa* Smith, 1916 (Sweeney & Roper 1998: 565).

Remarks: There are five shells of *confusa* collected by Burnup in the NMSA collection, all from Tongaat and the smallest shell is mounted on separate board with a “co-type” indication in the same handwriting as mentioned above for the “abnormal” paralectotype of *acuminata*. The other four shells (NMSA 3206) apparently are not types. We were unable to locate any type material from Port Elizabeth in the NMSA and NHMUK collections.



Figs 3, 4. *Sepia acuminata*, paralectotypes NMSA: (3) 3201/T474, 46.7×21.2 mm [= *Sepia hieronis* (Robson, 1924)]; (4) 3200/T474, 48.6×21.7 mm.

Khromov *et al.* (1998: 92) and Lipinski *et al.* (2000: 103) erroneously referred to the NHMUK 1890.12.14.42 specimen as “paratype”. Adam & Rees (1966: 65), Khromov *et al.* (1998: 92) and Lipinski *et al.* (1998: 157; 2000: 103) erroneously referred to the NHMUK 1920.3.23.1 specimen as “holotype”. However, the original description does not contain the word “type” in any form, clearly indicates two localities and includes the phrases “... towards posterior end of the largest specimen examined ...”



Figs 5–8. (5) *Sepia confusa*, syntype NMSA 3212/T475, 42.2×9.1 mm; (6) *S. insignis*, syntype NMSA 3210/T476, 18.4×5.8 mm; (7) *S. incerta*, syntype NMSA 3477/T477, 77.9×13.8 mm; (8) *S. incerta*, syntype NMSA 3207/T477, 35.1×9.8 mm.

and “Largest specimen, if perfect, would measure 130 mm. in length and 19 in width.” (Smith 1916: 24), all of which by no means indicate that the description was based on a single shell. The use of the term “holotype” does not constitute a valid lectotype designation in this particular case (ICZN 1999, Art. 74.5).



Fig. 9. *Sepia incerta*, syntype NMSA 3477/T477, 112.1×18.2 mm.



*incerta* E.A. Smith, 1916: 23, pl. II, fig. 6 [*Sepia*, Tongaat Beach, Natal (H.C. Burnup); Port Elizabeth, Cape Colony (H.H. Spencer in Brit. Mus.): 134×19.5 mm “largest, if perfect”; 77×14 mm].

Syntypes NMSA (Figs 7–9): 3477/T477 (112.1×18.2 and 77.9×13.8 mm), 3207/T477 (35.1×9.8 mm). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat, H.C. Burnup.

Syntypes NHMUK: 1890.12.14.43–44 (Adam & Rees, 1966: 67, pl. 19, figs 114, 115; Khromov *et al.* 1998: 100; Lipinski *et al.* 1998: 157; 2000: 103). SOUTH AFRICA: *Eastern Cape*: Port Elizabeth.

Current status: *Sepia (Doratosepion) incerta* Smith, 1916 (Sweeney & Roper 1998: 565).

Remarks: The smaller of the two shells from the 3477/T477 type lot (Fig. 7) is mentioned in the original publication as “Another example...” (Smith 1916: 24). There are five other shells of *incerta* (NMSA 3206) collected by Burnup from Tongaat in 1909 but without a “co-type” indication.

*insignis* E.A. Smith, 1916: 25, pl. II, fig. 10 [*Sepia*, Tongaat Beach, Natal (H.C. Burnup): 26×8 mm].

Syntype NMSA: 3210/T476 (18.4×5.8 mm; Fig. 6). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat, H.C. Burnup.

Syntype NHMUK: 1920.3.23.5 (Adam & Rees, 1966: 114, pl. 31, figs 189–191; Khromov *et al.* 1998: 100; Lipinski *et al.* 1998: 157; 2000: 103). SOUTH AFRICA: *KwaZulu-Natal*: Tongaat Beach.

Current status: *Sepia (Sepia) insignis* Smith, 1916 (Sweeney & Roper 1998: 565).

Remarks: There is only one shell of this species in the NMSA collection (Fig. 6). It was mounted on a small board with a “co-type” indication and the short note, both in Burnup’s handwriting: “*Sepia*. Collected by H.C. Burnup Named by E. A. Smith while describing the type which is a larger shell – 26 mm, against 19 mm. – in 1915”.

Khromov *et al.* (1998: 100) indicate that the “second syntype [was] apparently lost” despite the fact that Smith (1916: 20) started his paper with the phrase “Some time ago a collection of Mollusca from South Africa was sent [to] me for determination by Mr. H. C. Burnup, of Maritzburg, Natal”, which was clear indication where to look for it. Adam & Rees (1966: 114) erroneously referred to the NHMUK 1920.3.23.5 specimen as “holotype” (see ICZN 74.5 for an explanation as to why the use of the term “holotype” does not constitute a valid lectotype designation in this particular case). Surprisingly, Lipinski *et al.* (2000: 103) made the same mistake (contrary to their own opinion in 1998) when in fact the original description does not contain the word “type” in any form and clearly indicates that two specimens were examined.

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