

almond, peanut and fig was 72, 85, 9, 6, 60, 54, 71 and 30 respectively; and the males counted on the same meals were 48, 35, 13, 9, 60, 66, 49 and 36 respectively. On the above-mentioned meals the sex-ratio, i.e., female to male, is 1.50, 2.42, 0.69, 0.66, 1.00, 0.81, 1.44 and 0.83 respectively. The highest number of females was 85 on cashew and of males 66 on almond. The order of emergence of females to males, from the highest to the lowest on different dry fruits is as follows:

Cashew → groundnut → peanut → coconut →  
fig → almond → dates → raisin.

The foregoing results indicate that among the dry fruits, cashew showed the highest emergence of females and the lowest emergence of males; while almond exhibited maximum emergence of males and minimum emergence of females. On dates, raisin and fig 22, 15 and 66 adults appeared. The female to male ratio on these feeds is 0.69, 0.66 and 0.83 respectively, indicative of that the males on these feeds outnumber the females.

Comparing the sex-ratio of *O. mercator* on cereals with that on dry fruits, it is conclusive that the number of females developed on cashew is greater than that on rice. It is also significant that so far as the sex-ratio is concerned peanut and groundnut are much nearer to rice, wheat and maize. Similarly, gram is closer to dates and almond. The feeds employed in the present experiments, therefore, display a three fold categorisation based on the sex-ratio of the emerged weevils. The first category includes rice, wheat, maize, groundnut, cashew and peanut where the number of emerged females is higher than that of males. The second comprises gram, dates, raisin, almond and fig, where the number of males is greater than that of females. The third contains coconut only where the males and females are equal in number.

The experimental results indicate that on oil rich meals like cashew, coconut and almond, the sex-ratio varies as much as on carbohydrate-rich meals, viz., rice, maize, dates and raisin, which gives a clue to the fact that neither carbohydrate nor oil present in the meal affects the sex-ratio of the weevil. However, it would be interesting to find out the chemical factor responsible for the difference in the sex-ratio on different feeds.

The author is thankful to Dr. S. C. Saxena, Reader in Zoology, University of Rajasthan, Jaipur (India), for his valuable advice and encouragement in studying this problem.

Max Planck Institute  
für Hirnforschung 6 Frankfurt,  
M. Niederrad,  
Deutschordenstrasse-46, February 12, 1974.

G. P. JOSHI.

1. Back, E. A. and Cotton, R. T., *J. Agric. Res.*, 1926, 33, 435.
2. Breese, M. H., *Bull. Ent. Res.*, 1961, 52, 7.
3. Fraenkel, G. and Blewett, M. B., *Tr. R. Ent. Soc. London*, 1943, 93, 457.
4. Howe, R. W., *Ann. Appl. Biol.*, 1956, 44 (2), 341.
5. Haydak, M. H., *J. Econ. Ent.*, 1936, 29, 1026.
6. Tomas, E. L. and Shepard, H. H., *J. Agric. Res.*, 1940, 60, 605.

#### A NEW SPECIES OF *CRESEIS* (GASTROPODA, MOLLUSCA) FROM THE LACCADIVE SEA

THE genus *Creseis* (Fam. Cavoliniidae, Or. Thecosomata, Gastropoda) contains two common species. They are *C. acicula* Rang and *C. virgula* Rang. The former is considered as a monotypic species and the latter a polytypic species with four sub-species, namely, *C. v. virgula* (Rang), *C. v. clava* (Rang), *C. v. conica* (Eschscholtz) and *C. v. constricta* Chen and Bé. Among these four sub-species the first three were treated at the species rank by Rang (1828) and Eschscholtz (1829). Later on, Boas (1886) reduced them to sub-species on the basis of their morphological intergradations. They were considered as intermediate between the forms *C. acicula* and *C. virgula*, mainly on the basis of progressive curvature of the hind part of the shell. Chen and Bé (1964) erected a new sub-species *C. virgula constricta* on the basis of a constriction which separates the juvenile from the adult shell, considering the juvenile part of the shell as one of the major criteria for species identification. As the different size groups from the juvenile to adult stages of each sub-species were available in the International Indian Ocean Expedition collections, it was possible to revise the genus, assigning specific status to the sub-species (Sakthivel, 1972). In this context a new species obtained in the collections is described here.

Subclass	Opisthobranchia
Order	Thecosomata
Suborder	Euthecosomata
Family	Cavoliniidae d'Orbigny, 1888
Genus	<i>Creseis</i> Rang.

*Creseis bulgia* n. sp. (Figs. 1 and 2)

*Type locality*.—Off Kalpeni Island of the Laccadive Sea (10° 04' N, 73° 36' E).

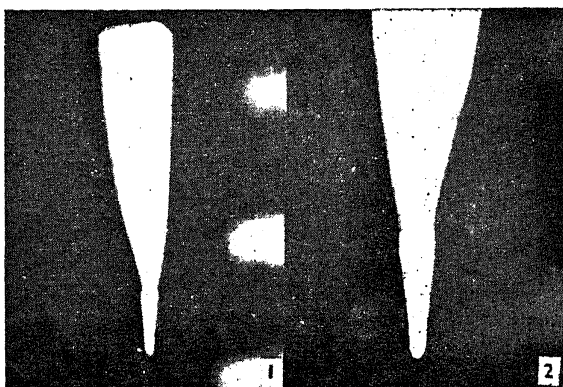
*Dimensions*.—*Holotype*: Entire shell 2.20 mm long and 0.50 mm wide, Juvenile portion 0.45 mm long and 0.12 mm wide. *Holotype* is deposited in the Indian Ocean Biological Centre zooplankton museum (No. 10 BC-0239-06-36).

*Paratypes*:

1. 19° 04' N, 73° 36' E.  
Entire shell 2.0 mm long and 0.50 mm wide.

2. 20° 19' N, 38° 21' E.  
Entire shell 2.00 mm long and 0.50 mm wide.
3. 12° 41' S, 98° 25' E.  
Entire shell 2.1 mm long and 0.5 mm wide.
4. 29° 25' S, 109° 29' E.  
Entire shell 1.7 mm long and 0.45 mm wide.

Type specimens are deposited in the reference collections of Indian Ocean Biological Centre, Cochin.



FIGS. 1-2. Fig. 1. *Creseis bulgia*—Shell—Full view. Fig. 2. *Creseis bulgia*—Shell—Tip enlarged.

**Description.**—Shell is straight, conical and circular in cross-section. The total length of the adult shell is about four times more than the maximum diameter. The juvenile part of the shell has a distinct bulge at the apical end which separates the adult shell from the juvenile portion. Therefore the name *bulgia* is proposed to this new species.

**Remarks.**—*C. bulgia* has some resemblance to other species of *Creseis*, but differs distinctly in the juvenile portion of the adult shell. While the present species has a distinct bulge at the apical end of the juvenile portion with a length and width ratio of 4 : 1, *C. clava* has a spindle-shaped cylindrical juvenile portion with a length and width ratio of 5 to 6 : 1. The juvenile portion of the shell in *C. conica* is cylindrical with a reduced width at the tip. In addition the expansion growth (the increasing width from the juvenile to adult shell) and the length and width ratio (7 : 1) differ remarkably. *C. constricta* differs from *C. bulgia* in the constriction between the juvenile and adult portions of the shell, in the length and width ratio (6 : 1), and in the faint curvature of the hind end. *C. virgula* differs in the distinct curvature of the hind part of the shell.

**Distribution.**—The holotype was first located in the surface waters off the Kalpeni Island in the Laccadive Sea. The examination of the IOE collections revealed that this species has wide

distribution from the Red Sea to the Australian Sea.

The author is indebted to Dr. N. K. Panikkar and Prof. C. V. Kurian for their encouragement in the present work. Mr. D. J. Tranter and Mr. K. K. C. Nair are thanked for making collections from the Laccadive Sea. Sincere thanks are due to Dr. M. J. George for going through the manuscript.

Regional Centre,  
National Institute of  
Oceanography,  
Cochin-18, March 5, 1974.

M. SAKTHIVEL.

1. \* Boas, J. E. V., *K. danske vidensk. selsk.*, 1886, 1, 1.
  2. Chen, ch. and Bé, A. H., *Bull. Mar. Sci. Gulf. and Caribbean*, 1964, 14 (2), 185.
  3. Eschscholtz, F., *Zoologischen Atlas, enthaltend Abbildungen und Beschreibungen neuer Thierarten*, Während des Flottenapitans von Kotzebue Zweiter Reise um die Welt. Reimer, Berlin, 1929, 3, 1, Pls. XII-XV.
  4. Rang, S., *Ann. Sci. Nat.*, 1828, 13, 316.
  5. Sakthivel, M., *Ph.D. Thesis*, Cochin University, Cochin, 1972.
- \* Not referred original.

#### SEASONAL VARIATIONS IN THE SIZE OF THE CAMBIAL INITIALS IN *POLYALTHIA LONGIFOLIA*

*Polyalthia longifolia* Hook. f. & Thoms., common avenue tree of the family Anonaceae, was selected to investigate the seasonal variations in the activity of cambium and changes in the size of the cambial initials. The present investigation like the earlier on *Dalbergia sissoo* (with storied cambial initials; Paliwal and Prasad<sup>2</sup>) is also aimed at determining whether or not the non-storied cambial initials of this tree undergo any seasonal variations in size. It was also intended to find out if any relationship exists between the variations in the size of the initials and the cambial activity.

The material was collected from a tree growing at the Delhi University Campus. Periodic collections were made from January to December, 1968, in the second week of every month. The material was fixed in Craff for 24 hrs. Blocks of 2.0 × 2.5 cm, containing portions of wood and bark, were obtained by using electric saw and single-edged blades. The blocks were sectioned in transverse and longitudinal planes with a Jung Wood Microtome, at 24-30 μ. Sections were stained using the lacmoid staining schedule as outlined by Cheadle *et al.*<sup>1</sup>. After passing the sections through the dehydration series, they were mounted in neutral Canada balsam.