

## IX THE INDIAN SPECIES OF THE GENUS *TRICULA*, BENSON.

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In a recent paper<sup>1</sup> I discussed at length the systematic position of the genus *Tricula*, Benson, and further notes on the same subject were added by Dr. Annandale and myself<sup>2</sup> in our revision of the Indian genera of the family Hydrobiidae. In this paper I propose giving a revised description of the shell of *T. montana*, Benson—the type-species of the genus, together with an account of a new species which was discovered by Dr. F. H. Gravely in the Nerbudda River in the Central Provinces. A reference to this second species was made by Dr. Annandale in his recent paper.<sup>3</sup>

The two species may be distinguished by the help of the following key:—

1. Shell conico-ovate, twice as long as broad; with very fine ribs; whorls not greatly swollen body-whorl in dorsal view subtrigonal, only a little longer than broad; mouth nearly  $\frac{3}{4}$  the height of the body-whorl, acutely pointed above and with the columellar callus of unequal width ... *T. montana*.
2. Shell elongate-ovate, not more than  $1\frac{2}{3}$  as long as broad; smooth; whorls very tumid; body-whorl in dorsal view band-shaped, about twice as long as broad; mouth only a little more than  $\frac{1}{2}$  the height of the body-whorl, narrowly rounded above and with a columellar callus of about the same width in its entire length ... .. *T. gravelyi*.

I am unable to add any notes on the var. *curta* of Nevill,<sup>4</sup> a variety of *T. montana* based by Nevill on two specimens from the Jhiri valley at an altitude of 3,000 feet in North Cachar, collected by Colonel H. H. Godwin-Austen, as I have not succeeded in tracing the specimens in the Indian Museum collection.

### *Tricula montana*, Benson.

1843. *Tricula montana*, Benson, *Calcutta Journ. Nat. Hist.*, III, p. 467.  
1862. *Tricula montana*, id., *Ann. Mag. Nat. Hist.* (3)X, pp. 415, 416.  
1876. *Tricula montana*, Hanley and Theobald, *Conch. Ind.*, pp. xvii and 62, pl. clv, fig. 5.  
1885. *Tricula montana*, Nevill, *op. cit.*, p. 64.  
1915. *Tricula montana*, Preston, *Faun. Brit. Ind. Freshw. Moll.*, p. 68.

Nothing is known about this interesting mollusc beyond the original descriptions of Benson and the poor figure of the ventral

<sup>1</sup> Prashad, *Rec. Ind. Mus.*, XVIII, pp. 221, 222 (1921).

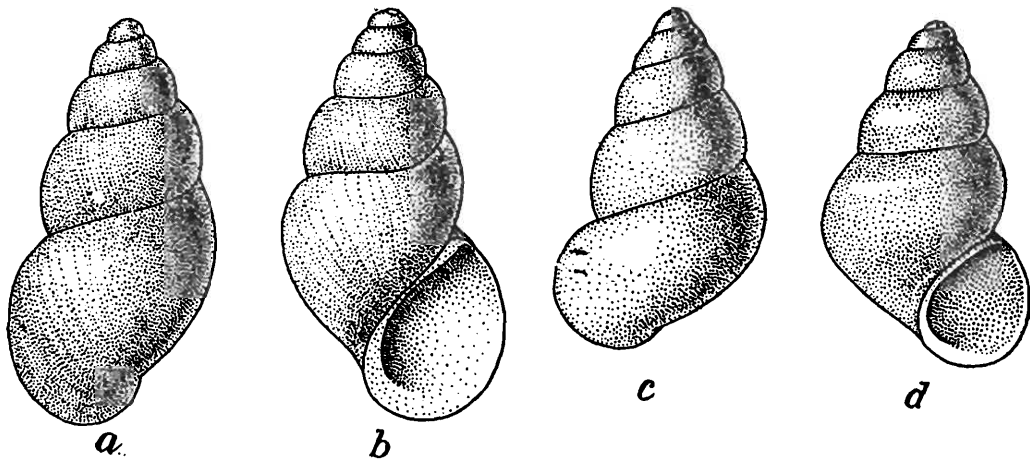
<sup>2</sup> Annandale and Prashad, *Rec. Ind. Mus.*, XXII, p. 3 (1921).

<sup>3</sup> Annandale, *Ind. Journ. Med. Research*, VIII, p. 103 (1920).

<sup>4</sup> Nevill *Hand List Moll. Ind. Mus.*, II, p. 64 (1885).

view of the shell published by Hanley and Theobald. Fortunately, however, some of Benson's co-types are preserved in the Indian Museum, and I have, therefore, thought it desirable to give a complete description and accurate figures of a full-grown shell. It may also be mentioned here that I failed to discover any more specimens of the species in the type-locality at Bhim Tal in August, 1920, whence Benson's specimens were obtained, nor did I find any in the tanks at Moradabad, where Benson introduced living specimens.

The shell of this species is conico-ovate, twice as long as broad; with an obtuse apex, sometimes decollate; consisting of  $5\frac{1}{2}$ –6 whorls and of a light olive colour. The whorls increase somewhat irregularly and are not very tumid. The suture is oblique, curved and somewhat canaliculate, the whorls themselves being a little flattened just next to it. The first whorl is



Text-fig. 1.—Shells of *Tricula*, x 12.

- (a) Dorsal view of *T. montana*, Benson.
- (b) Ventral view of the same.
- (c) Dorsal view of *T. graveleyi*, Prashad.
- (d) Ventral view of the same.

minute, the penultimate whorl is band-shaped and comparatively more swollen than the other whorls; the body-whorl, which is not very tumid, is  $2\frac{1}{2}$  times as broad as the penultimate whorl, it is roughly trigonal or subtrigonal in both dorsal and ventral views. Its upper surface is somewhat flattened but not angulate, the inner margin is regularly arched and ends in a short projecting lobe corresponding to the inner angle of the mouth, the outer margin is sharply curved and is continued with the regularly curved ventral margin to form the lobe noted already. The mouth is large, oblique, ovoid pointed above and has a part of the peristome curved over its angle. The peristome is continuous, but the columellar callus is narrow and of unequal width, the outer and lower margins of the mouth are only slightly re-curved. The shell is subumbilicate.

*Distribution.*—The original series of specimens was found attached to the stems and leaves of an aquatic plant in a stream

flowing through a marsh at the head of the Bhim Tal Lake in the United Provinces. Besides these there are a few specimens in the Indian Museum collection from Naini Tal.

***Tricula gravelyi*, sp. nov.**

The shell of this species is elongate-ovate, not more than  $1\frac{2}{3}$  as long as broad, with an obtuse apex consisting of  $5\frac{1}{2}$ - $6\frac{1}{2}$  whorls and of a pale yellowish colour. The whorls increase regularly and are evenly swollen. The suture is oblique, deeply impressed but not canaliculate. The first two whorls are minute, but the others increase regularly and evenly in size; the body-whorl is fairly tumid, narrow, about twice as broad as the penultimate whorl and band-shaped in dorsal view. The lobe corresponding to the anterior angle of the mouth seen in dorsal view and described for *T montana* is present, but is not so deep, both the inner and outer margins are sharply curved. The mouth is oblique, rather smaller than in *T montana*, ovate and narrowly rounded above. The peristome is continuous and the columellar lip is of the same thickness throughout, the outer margin is only narrowly recurved backwards. The shell is sub-umbilicate or even umbilicate.

I give below the measurements of three specimens of each species for comparison.

*Measurements (in millimetres).*

	<i>T. gravelyi</i> .			<i>T montana</i> .				
Length of shell	...	...	3	2.4	2.5	3.6	3.8	3.5
Breadth of shell	...	...	1.6	1.4	1.5	1.8	1.8	1.7
Length of aperture	...	...	1.4	1.3	1.4	1.6	1.7	1.6
Breadth of aperture	...	...	1.1	1.1	1.1	1.2	1.3	1.15

*Type series*.—No. M 11895/2 in the registers of the Zoological Survey of India (Indian Museum).

*Habitat*.—Specimens of this interesting form were collected by Dr. F. H. Gravely in still creeks amongst small islands in the bed of the Nerbudda River at Hoshangabad in the Central Provinces of India in March 1919, attached to weeds.