

LAND MOLLUSCS OF TEIREI RIVER VALLEY
PROJECT, DARLAK (MIZORAM, INDIA)

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INTRODUCTION

During the course of Environmental Impact Assessment Survey of the Teirei river valley Project, Darlak (Mizoram) in February 1984, a team from the Zoological Survey of India, under the leadership of Dr. S. Biswas, collected a small lot of land molluscs. The collection proved very significant as all the species turned out to be first records from Mizoram. This has prompted the authors to present an account of these molluscs.

The total area under the Teirei river valley project is approximately 5,000 hectares. It comprises of two villages viz. Darlak and Naljal, situated in the valley of the river Teirei. It is more or less 3 kms. wide on an average, with a broken contour, which is caused by the drainage pattern and the soil deposition brought by the erosion in the upper reaches.

Darlak is a small village on the bank of the Teirei Lui, situated about 40 kms, as the crow flies, from Aizwal, but 125 kms by road passing through undulating countries. The climate is tropical, temperature and humidity fluctuate inversely during day and night. Natural vegetation is moist tropical evergreen in most parts but in certain sections it is moist tropical deciduous and montane subtropical. Soil is acidic with the pH varying between 5.50 to 6.50.

Mizoram constitutes a part of north-eastern India, which with its by and large wet evergreen vegetations, ample rainfall and forest-clad hill tracts, account for nearly one third of the

total Indian species of land molluscs (Dey *et al.*, 1985). A report on terrestrial molluscs of Mizoram is totally lacking. Our knowledge of land molluscs of north-east India in general, is derived chiefly from a few reports by Godwin-Austen (1876), Ghosh (1913), and Gude (1915), in addition to the Fauna of British India, mollusca series by Blanford and Godwin-Austen (1908) and Gude (1914, 1921).

The present paper deals with 23 species of land molluscs under 17 genera and 9 families. While most of the collections were made on grounds among low wild vegetations, or under foliage etc., the specimens of *Girasia* were collected from inside petioles of banana plants at a height of approximately one meter from ground. Obviously, these slug-like molluscs take shelter in such places for humidity, shade and moisture.

SYSTEMATIC ACCOUNT

Key to the families

- | | | |
|---|-----|------------------|
| 1. Shell with an operculum | ... | (2) |
| Shell without an operculum | ... | (3) |
| 2. Shell turreted, with irregularly coiled spire, higher than broad | ... | Cochlostomatidae |
| Shell flat or low conical, with regularly coiled spire, broader than high | ... | Cyclophoridae |
| 3. Shell imperforate, columella abruptly truncate below | ... | Glessulidae |
| Shell perforate, columella not truncate below | ... | (4) |
| 4. Shell with reflected peristome | ... | (5) |
| Shell with simple peristome | ... | (8) |
| 5. Shell with eccentric bodywhorl and a well developed parietal lamella | ... | Streptaxidae |
| Shell with regular bodywhorl, without parietal lamella | ... | (6) |
| 6. Shell smooth, polished, bodywhorl not descending near the aperture | ... | Camaenidae |
| Shell regularly sculptured, bodywhorl descending near the aperture | ... | (7) |

7. Shell sinistral, with spiral sculpture ... Corillidae
 Shell dextral, without spiral sculpture ... Bradybaenidae
8. Shell flat, widely umbilicate, aperture depressedly subquadrate. Extremity of foot without overhanging lobe ... Trochomorphidae
 Shell low conical, narrowly umbilicate, aperture lunate, (except in *Austeria* and *Girasia* where it is partly internal). Extremity of foot with overhanging lobe ... Ariophantidae

Class : GASTROPODA

Order : MESOGASTROPODA

Family : CYCLOPHORIDAE

Key to the genera

1. Shell discoidal, convex above, concave below, with an incision at the peristome ... *Pterocyclus* Benson
 Shell globosely conoid, without an incision at the peristome ... (2)
2. Shell small never above 10 mm in diameter, with a sutural tube ... *Alycaeus* Gray
 Shell moderately large, never below 10 mm in diameter, without a sutural tube ... *Cyclophorus* Montfort

Genus : *Alycaeus* Gray, 1850

1. *Alycaeus burti* Godwin-Austen

(Fig. 1 & 2)

Alycaeus burti Godwin-Austen, 1874. *J. Asiat. Soc, Beng.*, 43 (2) : 149, pl. 3, fig. 9.

Alycaeus burti : Gude, 1921. *Fauna of British India, Mollusca*, 3 : 206.

Material examined : 25 exs., Darlak.

Measurements (in mm) :

Height of the shell	Width of the shell	Height of the aperture
2.90-4.25	4.70-6.50	1.70-2.00

Distribution : India : Arunachal Pradesh, Assam, Mizoram.
Elsewhere : Bhutan.

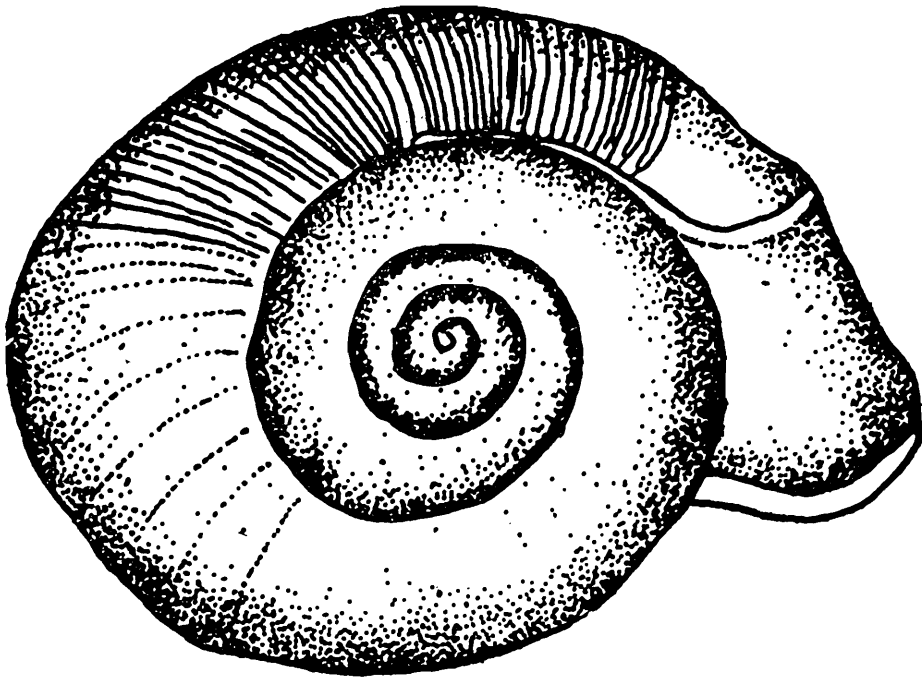


Fig. 1. *Alycaeus burti* Godwin-Austen (Dorsal view)

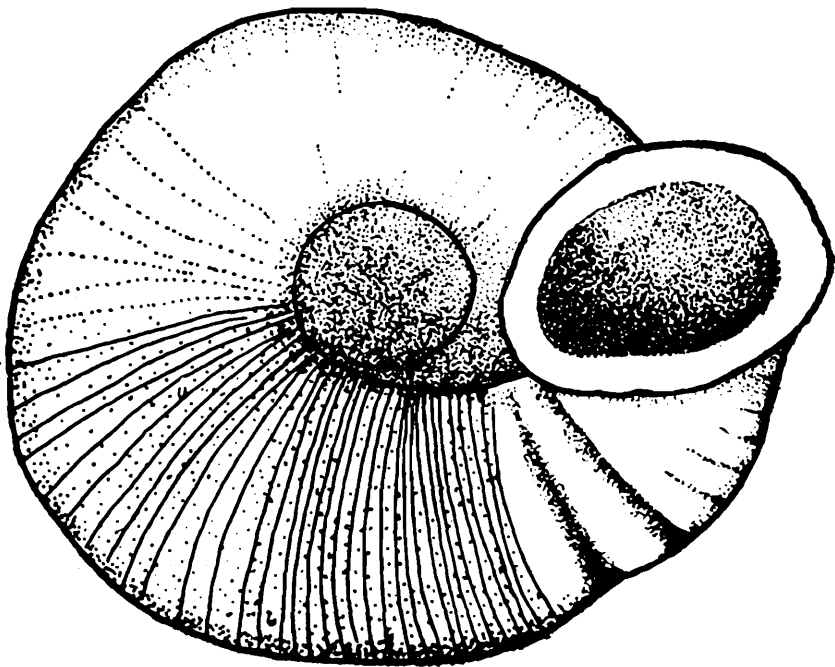


Fig. 2. *Alycaeus burti* Godwin Austen (Ventral view)

Genus : **Cyclophorus** Montfort, 1810*Key to the species*

- Shell with zig-zag marking towards the apex, bodywhorl subangulate, umbilical cavity wide ... *C. theobaldianus* Benson
- Shell with zig-zag marking throughout, bodywhorl sharply carinate, umbilical opening contracted ... *C. zebrinus* (Benson)

2. **Cyclophorus theobaldianus** (Benson)

(Pl. II, figs. 1 & 2)

Cyclophorus theobaldianus Benson, 1857. *Ann. Mag. nat. Hist. Soc.*, (2) 19 : 206.*Cyclophorus theobaldianus* ; Gude, 1921. *Fauna of British India, Mollusca*, 3 : 86.*Material examined* : 22 exs., Darlak.*Measurements* (in mm) :

Height of the shell	Width of the shell	Height of the aperture
15.50-26.65	26.30-50.70	15.40-22.40

Distribution : *India* : Assam, Mizoram.*Elsewhere* : Burma, Bangladesh.3. **Cyclophorus zebrinus** (Benson)

(Pl. II, figs. 6 & 7)

Cyclostoma zebrinus Benson, 1836. *J. Asiat. Soc. Beng.*, 5 : 355.*Cyclophorus zebrinus* : Gude, 1921. *Fauna of British India, Mollusca*, 3 : 86.*Material examined* : 4 exs., Darlak.*Measurements* (in mm) :

Height of the shell	Width of the shell	Height of the aperture
21.55	23.80	11.00

Distribution : *India* : Arunachal Pradesh, Manipur, Maghalaya, Mizoram.*Elsewhere* : Burma, China and Mergui Archipelago.

Genus : **Pterocyclus** Benson, 1832

4. **Pterocyclus parvus** (Pearson)

(Pl. V, figs. 1 & 2)

Spiraculum parvus Pearson, 1833. *J. Asiat. Soc. Beng.*, 2 : 392, pl. 20, fig. 7.

Pterocyclus parvus : Gude, 1921. *Fauna of British India, Mollusca*, 3 : 108.

Material examined : 3 exs., Darlak.

Measurements (in mm) :

Height of the shell	Width of the shell	Height of the aperture
3.80-8.35	7.60-28.28	2.60-9.95

Distribution : *India* : Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland.

Elsewhere : Bangladesh, Burma.

Family : COCHLOSTOMATIDAE

Genus : **Diplommatina** Benson, 1849

5. **Diplommatina butleri** Godwin-Austem

(Figs. 3 a & b)

Diplommatina butleri Godwin Austen, 1892. *Proc. zool. Soc. Lond.*, p. 512.

Diplommatina butleri : Gude, 1921. *Fauna of British India, Mollusca*, 3 : 305.

Material examined : 12 exs., Darlak.

Measurements (in mm) :

Length of the shell	Width of the shell	Height of the aperture
4.65-6.10	2.65-3.65	1.00-1.40

Distribution : *India* : Manipur, Mizoram

Elsewhere ; Burma.

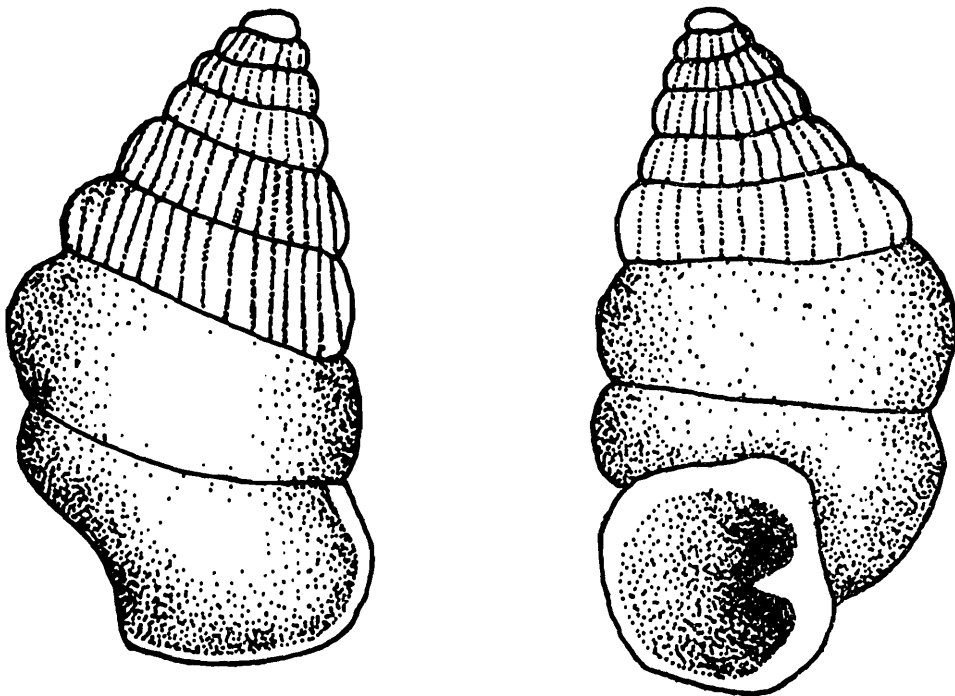
Family : CORILLIDAE

Genus : **Plectopylis** Benson, 1860

Key to the species

Bodywhorl with four rows of hairs, not placed on raised ridges ; parietal armature without horizontal fold ... *P. affinis* Gude

Bodywhorl with five rows of hairs, placed on raised ridges ; parietal armature with horizontal fold ... *P. plectostoma* Benson



2 MM

Fig. 3. *Diplommatina butleri* Godwin-Austen (Dorsal & Ventral view)

6. **Plectopylis affinis** Gude

(Pl. II, figs. 3 & 4)

Plectopylis affinis Gude, 1897. *Science Gossip.*, N. S. 3 ; 276, fig. 41.

Plectopylis affinis : Gude, 1914. *Fauna of British India, Mollusca*, 2 : 84.

Material examined : 10 exs. Darlak.

Measurements (in mm) ;

Height of the shell	Width of the shell	Height of the aperture
4.25-5.66	7.68-9.25	2.55-3.20

Distribution : India : Arunachal Pradesh, Meghalaya, Mizoram. Endemic to north-eastern India.

7. **Plectopylis plectostoma** (Benson)

(Pl. II, figs. 8 & 9)

Helix plectostoma Benson, 1836. *J. Asiat. Soc. Beng.*, 5 : 351.*Plectopylis plectostoma* : Gude, 1914. *Fauna of British India. Mollusca.* 2 : 81.*Material examined* : 8 exs., Darlak.*Measurements* (in mm) :

Height of the shell	Width of the shell	Height of the aperture
4.15-4.60	7.53-8.30	2.70-3.10.

Distribution : India : Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Sikkim, West Bengal (Darjeeling).

Elsewhere : Bangladesh, Burma.

Family : BRADYBAENIDAE

Genus : **Plectotropis** Martens, 1860.

Following Solem (1966) this genus is tentatively placed under Bradybaenidae.

8. **Plectotropis tapeina** (Benson)

(Pl. III, figs. 1 & 2)

Helix tapoina Benson, 1836. *J. Asiat. Soc. Beng.*, 5 : 352.*Plectotrepis tapeina* : Gude, 1914. *Fauna of British India, Mollusca.* 2 : 214.*Material examined* : 5 exs., Darlak.*Measurements* (in mm) :

Height of the shell	Width of the shell	Height of the aperture
6.80-7.60	12-15-15.85	4.00-4.30

Disrribution : India : Arunachal Pradesh, Assam, Meghalaya, Mizoram.

Elsewhere : Bangladesh, Burma.

Family : TROCHOMORPHIDAE

Genus : *Sivella* Blanford, 1863

9. *Sivella castra* (Benson)

(Pl. III. figs. 3 & 4)

Helix castra Benson, 1852. *Ann. Mag. nat. Hist.*, (2) 10 : 349.

Trochomorpha (Sivella) castra : Gude, 1914. *Fauna of British India, Mollusca*. 2 : 3.

Sivella castra : Solem, 1966. *Spolia zool. Mus. haun.*, 24 : 29.

Material examined : 3 exs., Darlak.

Measurements (in mm.) :

Height of the shell	Width of the shell	Height of the aperture
4.25-5.78	10.20-11.38	3.10-3.40

Distttribution : India : Arunachal Pradesh, Assam, Meghalaya, Mizoram.

Elsewhere : Burma, Malayasia, Malay Penninsula, Thailand.

Family : ARIOPHANTIDAE

Key to the genera

- Shell partly internal, body not enclosed by the shell ... (2)
Shell external, body enclosed by the shell ... (3)
- Shell ear shaped with distinct coiling ... *Austenia* Nevil
Shell ovate, without coiling ... *Girasia* Gray
- Shell with keeled pheriphery, distinctly sculptured above ... (4)
Shell with rounded pheriphery, without distinct sculpture ... (5)
- Shell with decussating sculpture above, smooth below ... *Sesara* Albers

- Shell without decussating sculpture above,
costulate below ... *Khasiella* Godwin-
Austen
5. Caudal gland at the extremity of foot
absent, peripodial groove with a single
margin. Dart sac large, cylindrical ... *Staffordia* Godwin-
Austen
- Caudal gland at the extrmity of foot
present, peripodial groove with double
margin. Dart sac small, globose ... *Macrochlamys* Benson

Genus : *Austenia* Nevill, 1878

10. *Austenia* sp.

The single shell collected was unfortunately damaged during the journey and could not be identified upto the species.

Genus : *Girasia* Gray, 1855

Key to the species

- Smaller in size, usually not exceeding
40 mm in length ; shell horny, dull white
in colour ... *G. burtii* (Godwin-
Austen)
- Bigger in size, usually above 40 mm in
length ; shell membranaceous, greenish in
colour ... *G. radha* (Godwin-
Austen)

11. *Girasia burtii* (Godwin-Austen)

(Pl. III, fig. 9)

Helicarion (Hoplites) burtii Godwin-Austen, 1876. *J. Asiat. Soc. Beng.*,
45 (2) : 314, pl. 8, fig. 6.

Girasia burtii : Blanford and Godwin-Austen, 1908. *Fauna of British
India, Mollusca (Testacellidae and Zonitidae)* p. 202.

Material examined : 3 exs., Bangwa.

Measurements (in mm) :

Length of the shell
27.14-32.00

Width of the shell
6.50-12.05

Distribution : Assam.

12. **Girasia radha** (Godwin-Austen)

(Pl. V, fig. 7)

Helicarion (*Hoplites*) *radha* Godwin-Austen, 1876, *J. Asiat. Soc. Beng.*, 45 (2) : 314, pl. 8, fig. 4, (type locality, Bank of radha Pokri, near Narainpur, Darrang, Assam).

Girasia radha : Blanford and Godwin-Austen, 1908. *Fauna of British India. Mollusca* (Testacellidae & Zonitidae) p. 201.

Material examined : 5 exs., Darlak.

<i>Measurements</i> (in mm) :	Length of the shell	Width of the shell
	60.75-65.20	17.50-17.74

Distribution : Assam, Mizoram.

Genus : **Khasiella** Godwin-Austen, 1899

13. **Khasiella climacterica** (Benson)

(Pl. III, figs. 5 & 6)

Hellx climacterica Benson, 1836. *J. Asiat. Soc. Beng.*, 5 : 352.

Khasiella climacterica ; Blanford & Godwin-Austen, 1908. *Fauna of British India. Mollusca* (Testacellidae and Zonitidae), p. 160.

Material examined : 6 exs., 4 kms east of Darlak.

Measurements (in mm) :

Height of the Shell	Width of the shell	Height of the aperture
7.00-8.60	12-20-15.35	7.70-7.80

Distribution : INDIA : Arunachal Pradesh, Assam, Meghalaya, Mizoram.

Elsewhere : Burma

Genus : **Macrochlamys** Benson, 1832

Key to the species

shell depressed, bodywhorl scarcely wider than the penultimate : smaller in size (usually upto 10 mm in diameter) ... *M. petasus* (Benson)

Shell depressedly globose, bodywhorl much wider than the penultimate ; bigger in size (usually more than 10 mm in diameter) ... *M. vesica* Godwin-Austen

14. **Macrochlamys petasus** (Benson)

(Pl. V. figs. 4 & 5)

Helix petasus Benson, 1859. *Ann. Mag. nat. Hist.*, (3) 3 : 388.*Macrochlamys petasus* : Blanford & Godwin-Austen, 1908. *Fauna of British India, Mollusca* (Testacellidae and Zonitidae) p. 115.*Material examined* : (i) 5 exs., 4 kms east of Darlak
(ii) 12 exs., Darlak (iii) 5 exs., Naljal.*Measurements* (in mm) :

Height of the shell	Width of the shell	Height of the aperture
3.7-4.80	6.75-8.70	3.00-4.00

Distribution : India : Mizoram*Elswhere* : Burmu.

Remarks : This species is recorded for the first time from India. Shells recorded earlier from Assam and Darjeeling by Nevill (1878) were wrongly assigned to this species (Blanford & Godwin-Austen, 1908).

15. **Macrochlamys vesica** Godwin-Austen

(Pl. III, figs 7&8)

Macrochlamys vesica Godwin-Austen, 1910, *Land and Freshwater Mollusca of India*. Supplement to Theobald and Hanley, *Conch, Indica*, 2 : 248, pl. 118, figs, 2-2c.*Material examined* : 14 exs., 4 kms east of Darlak.*Measurements* (in mm)

Height of the shell	Width of the shell	Height of the aperture
5.50-9.95	11.18-14.45	5.70-7.25

Distribution : India : Arunachal Pradesh, Assam, Meghalaya, Mizoram.*Elswhere* : Bangladesh.Genus : **Sesara** Albers, 1860

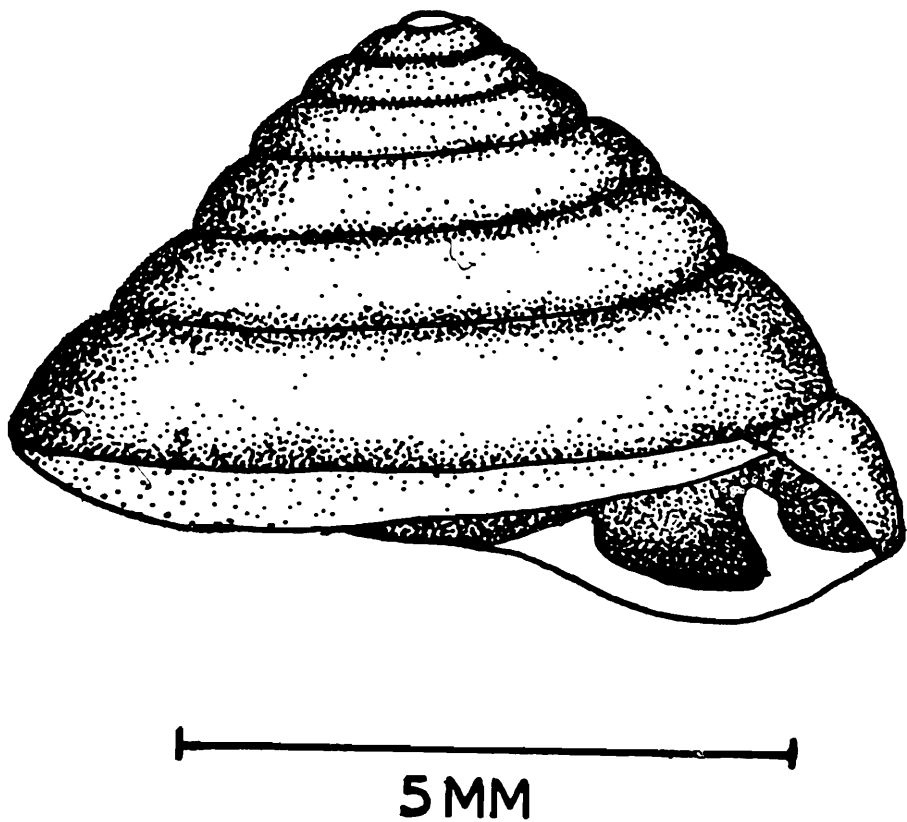
Both the species *S. diplodon* and *S. galea* were included under *Sesara* by Blanford & Godwin-Austen-(1908) with some doubt. Following Solem (1966) these are retained under the same genus.

Key to the species

Shell with teeth in the aperture	...	<i>S. diplodon</i> (Benson)
Shell without teeth in the aperture	...	<i>S. galea</i> (Benson)

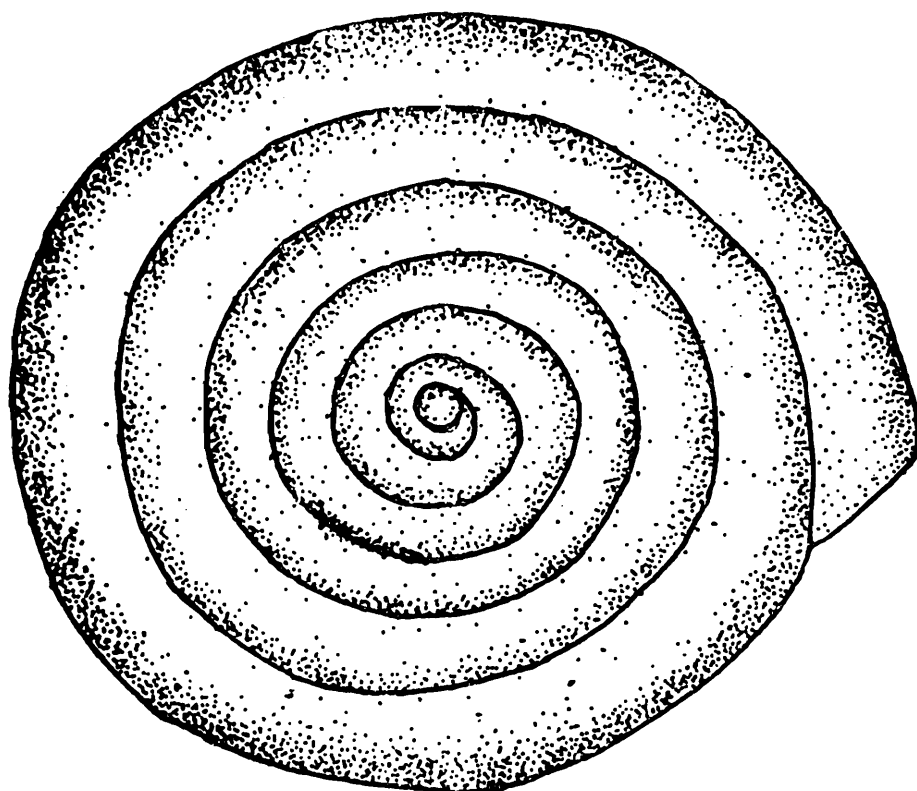
16. *Sesara diplodon* (Benson)

(Figs. 4-6)

Helix diplodon Benson, 1859, *Ann. Mag. nat. Hist.*, (3) 3 : 187.*Sesara ? diplodon* : Blanford and Godwin-Austen, 1908. *Fauna of British India, Mollusca* (Testacellidae and Zonitidae), p. 247.Fig. 4. *Sesara diploden* (Benson) (Lateral view)*Material examined* : 3 exs., Darlak.*Measurements* (in mm) :

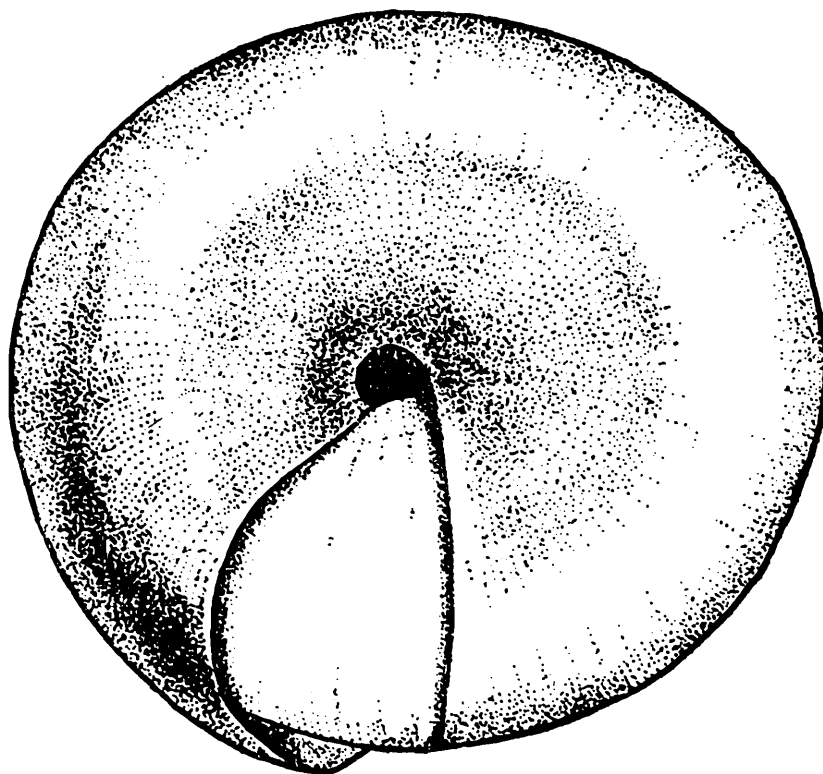
Height of the shell	Width of the shell	Height of the aperture
4.35-4.45	6.70-6.80	2.50-2.95

Distribution : INDIA : Arunachal Pradesh, Assam, Mizoram.*Elsewhere* : Bangladesh, Burma, Pakistan.



5 MM

Fig. 5. *Sesara diploden* (Benson) (View from apex)



5 MM

Fig. 6. *Sesara diploden* (Benson) (Ventral view)

17. *Sesara galea* (Benson)

(Figs. 7, 8 & 9)

Helix galea Benson, 1859, *Ann. Mag. nat. Hist.*, (3) 3 : 388,

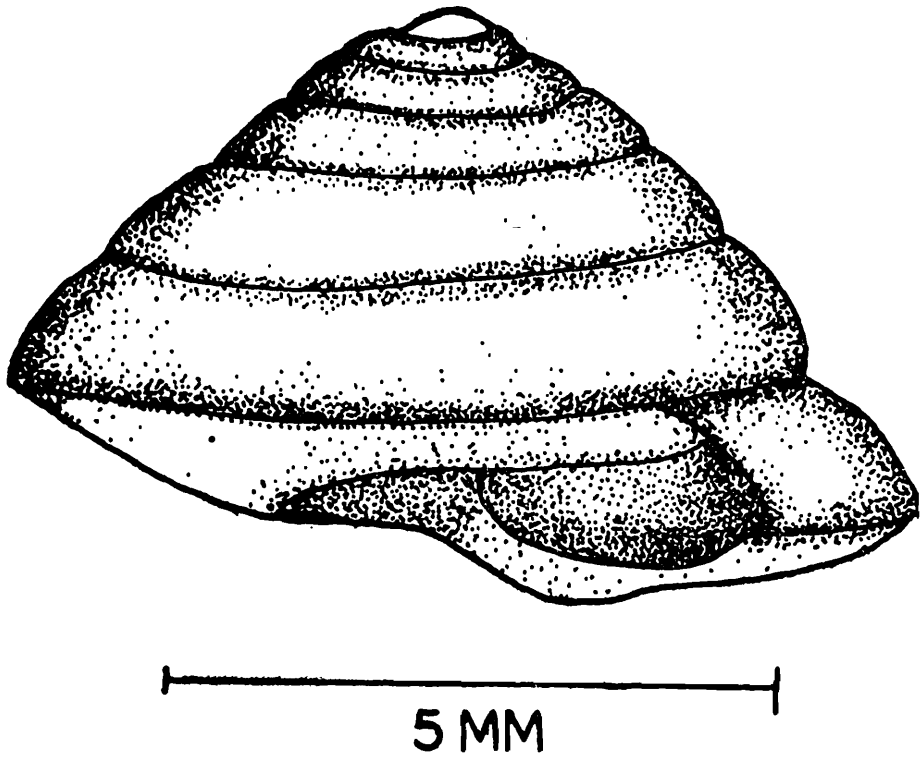


Fig. 7. *Sesara galea* (Benson) (Lateral view)

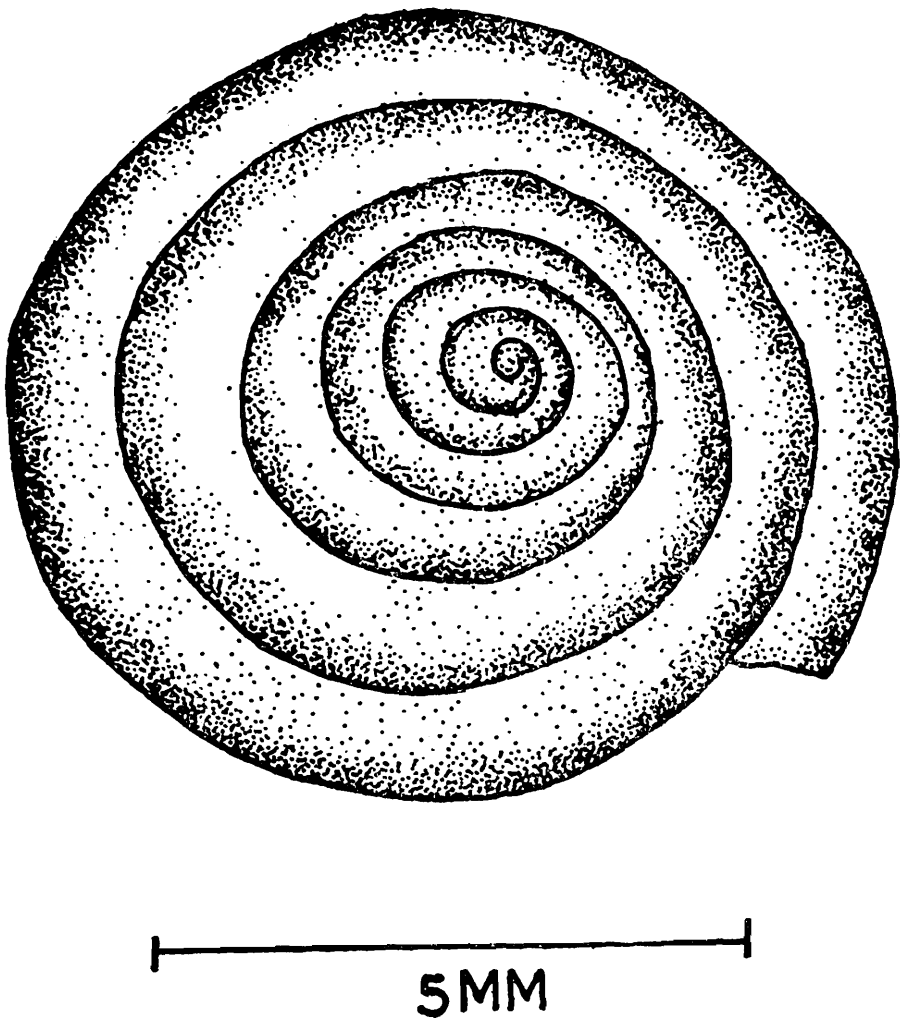


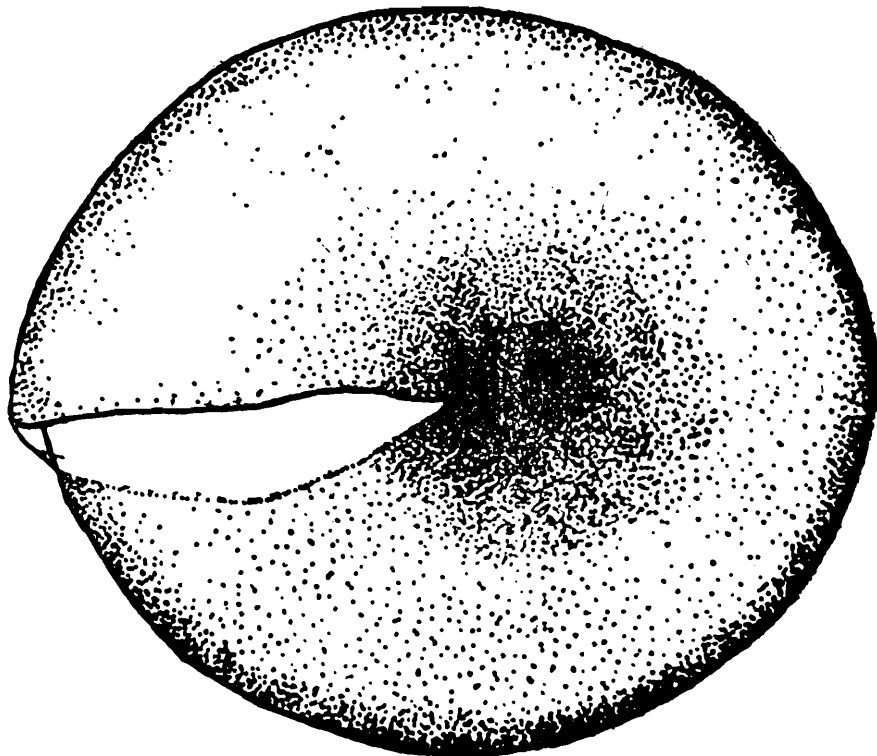
Fig. 8. *Sesara galea* (Benson) (View from apex)

Sesara ? galea : Blanford & Godwin-Austen, 1908, *Fauna of British India. Mollusca* (Testacellidae and Zonitidae), p. 249.

Material examined : 2 exs. Darlak.

Measurements (in mm) :

Height of the shell	Width of the shell	Height of the aperture
4.35-4.45	6.70-6.80	2.50-2.95



5MM

Fig. 9. *Sesara galea* (Benson) (Ventral view)

Distribution : Assam, Meghalaya, Mizoram.

Genus : **Staffordia** Godwin-Austen, 1907

18. **Staffordia daflaensis** Godwin-Austen

(Pl. IV. figs. 1 & 2)

Helix lubrica Bs. ? Godwin-Austen, 1876, *J. Asiat. Soc. Beng.*, 45 (2) : 311, pl. 8, fig. 9.

Macrochlamys daflaensis : Godwin-Austen, 1907, *Moll. India*, 2 : 185. pl. 113. figs. 1-11.

Staffordia daftaensis : Blanford and Godwin-Austen, 1908. *Fauna of British India, Mollusca* (Testacellidae and Zonitidae), p. 296.

Material examined : 2 exs. Darlak.

Measurements (in mm) :

Height of the shell	Width of the shell	Height of the aperture
9.60	28.55	10.20

Distribution : Arunachal Pradesh, Mizoram.

Family : CAMAENIDAE

Key to the genera

Shell higher than broad, aperture ovate ...	<i>Amphidromus</i> Albers
Shell broader than high, aperture lunate...	<i>Chloritis</i> Beck.

19. *Amphidromus sylheticus* (Reeve)

(Pl. IV, figs. 3 & 4)

Bulimus sylheticus Reeve, 1849. *Conch. Icon.*, pl. 77, fig. 564.

Amphidromus sylheticus : Gude, 1914. *Fauna of British India, Mollusca*, 2 : 180.

Material examined : 4 exs., Darlak.

Measurements (in mm) :

Length of the shell	Width of the shell	Height of the aperture
28.50-29.85	15.65-16.15	13.40-14.10

Distribution : INDIA : Meghalaya, Mizoram.

Elsewhere : Bangladesh,

Genus : *Chloritis* Beck, 1838

20. *Chloritis delibrata* var. *fasciata* (Godwin-Austen)

(Pl. IV, figs. 5 & 6)

Helix delibrata var. *fasciata* Godwin-Austen, 1875. *J. Asiat. Soc. Beng.*, 44 : 1, pl. fig. 1.

Chloritis var. *fasciata* : Gude, 1914. *Fauna of British India, Mollusca* : 2 : 173.

Material examined : 1 ex., Naljal.

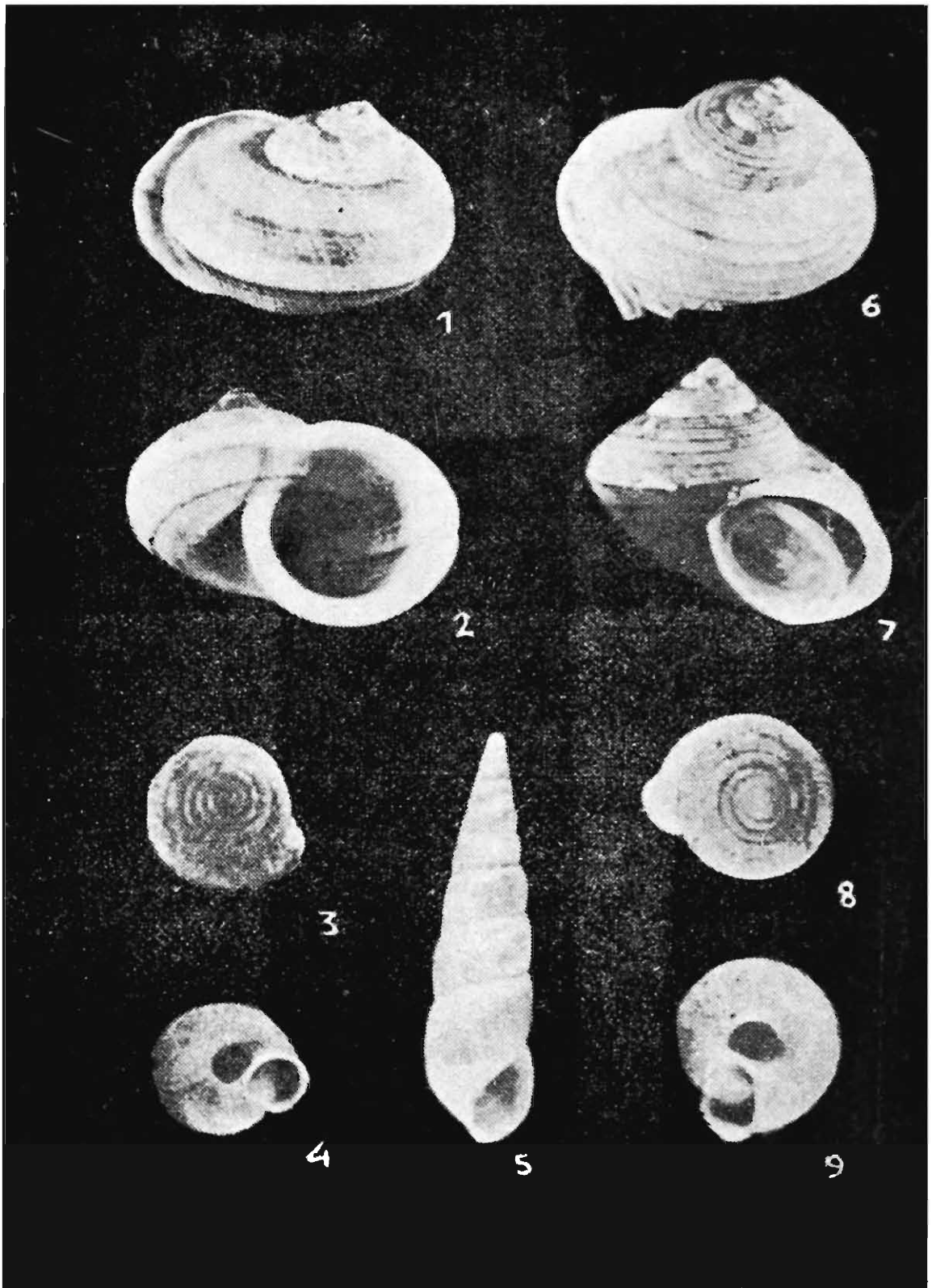


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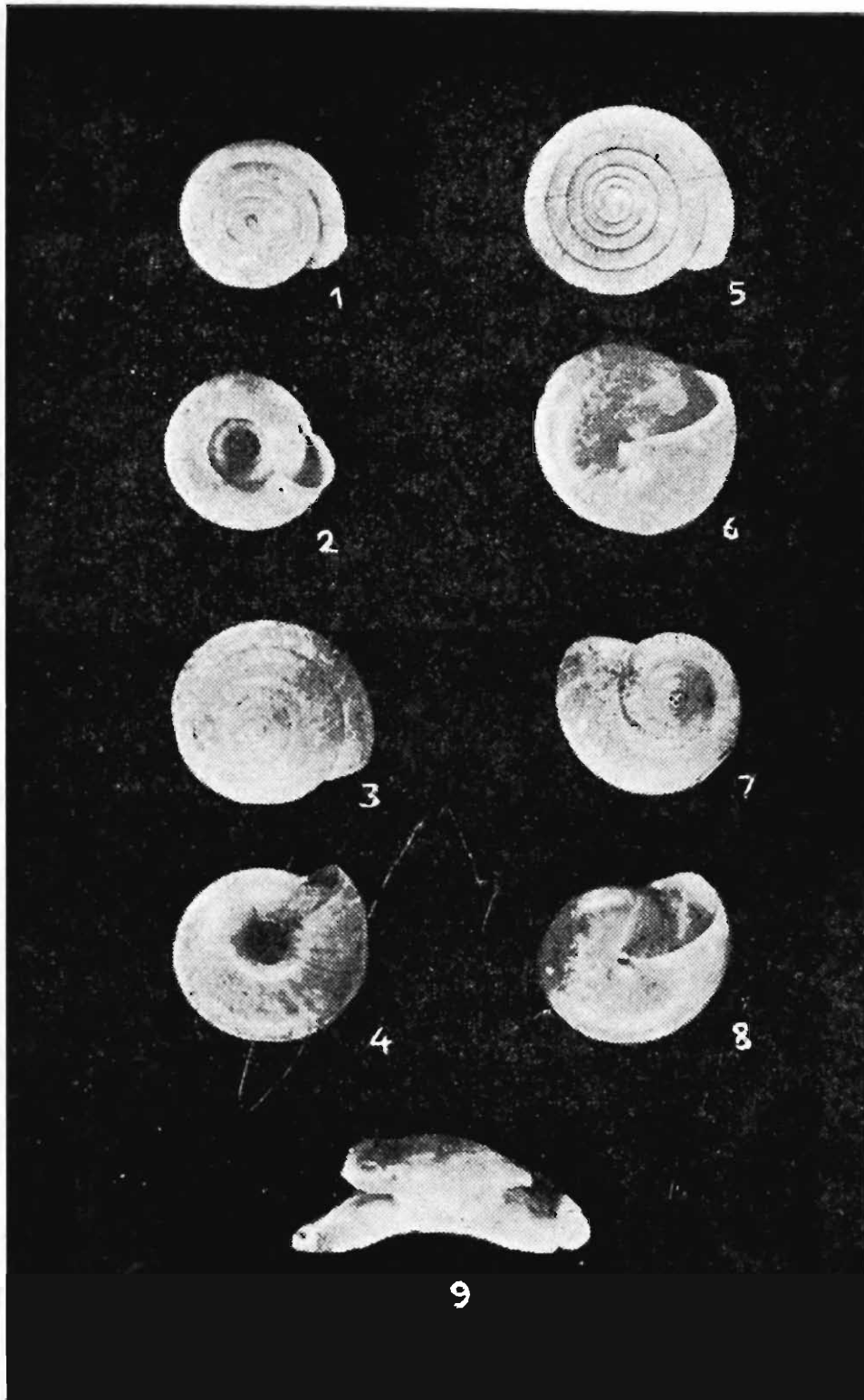


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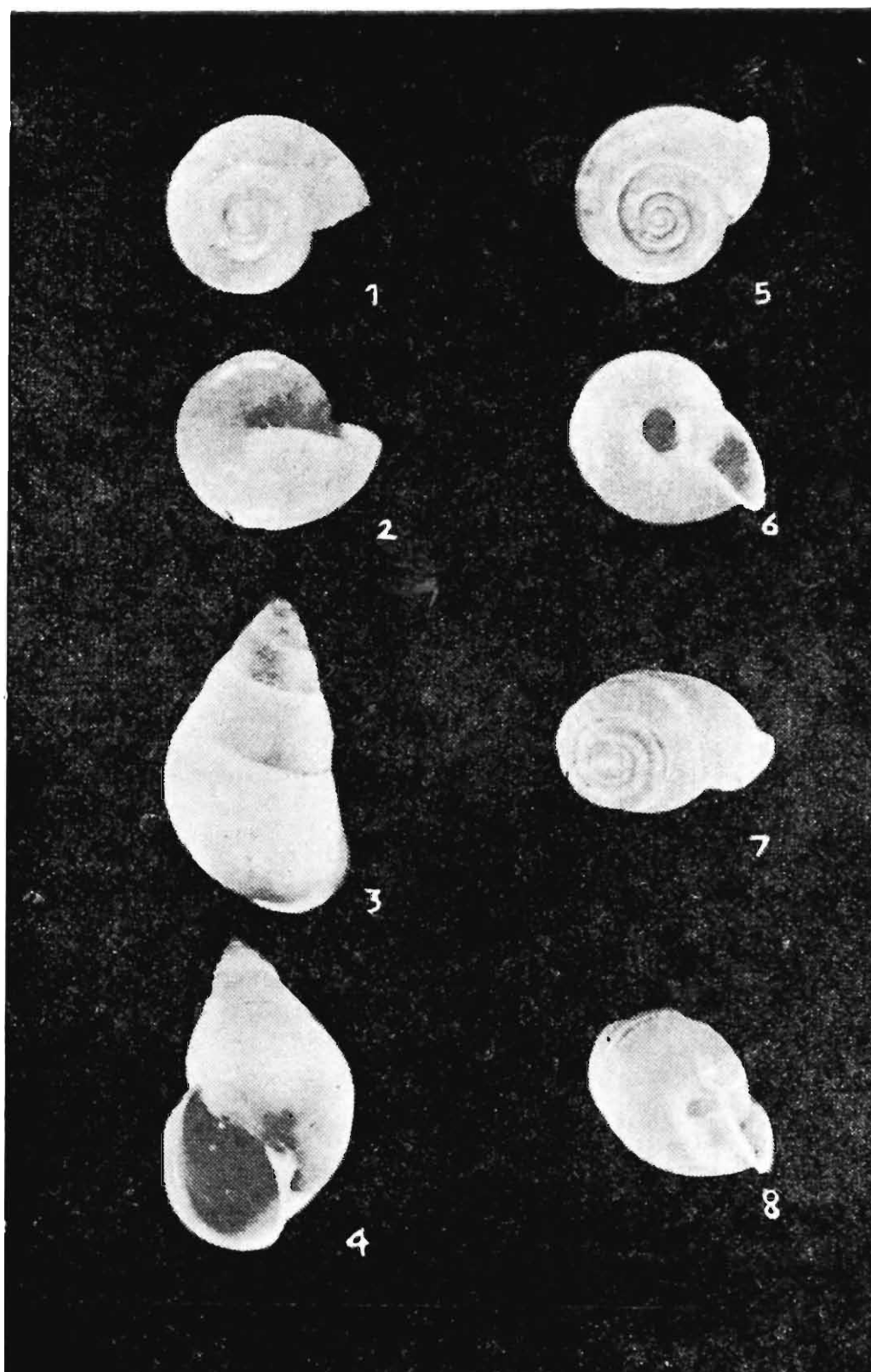
Figs. 1 & 2. Showing general ecology of Darlak (Mizoram)



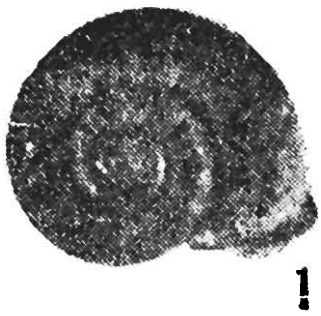
Name of species	View	Height of the shell
1. <i>Cyclophorus theobaldia</i> Benson	Dorsal	25.10 mm
2. <i>Cyclophorus theobaldia</i> Benson	Ventral	25.10 mm
3. <i>Plectopylis affinis</i> Gude	Dorsal	5.66 mm
4. <i>Plectopylis affinis</i> Gude	Ventral	5.66 mm
5. <i>Glessula tenuispira</i> (Benson)	Ventral	23.00 mm
6. <i>Cyclophorus zebrinus</i> (Benson)	Dorsal	21.55 mm
7. <i>Cyclophorus zebrinus</i> (Benson)	Ventral	21.55 mm
8. <i>Plectopylis plectostoma</i> (Benson)	Dorsal	4.60 mm
9. <i>Plectopylis plectostoma</i> (Benson)	Ventral	4.60 mm



Name	View	Height of the Shell
1. <i>Plectotropis tapeina</i> (Benson)	Dorsal	7.60 mm
2. <i>Plectotropis tapeina</i> (Benson)	Ventral	7.60 mm
3. <i>Sivella castra</i> (Benson)	Dorsal	4.45 mm
4. <i>Sivella castra</i> (Benson)	Ventral	4.45 mm
5. <i>Khasiella climacterica</i> (Benson)	Dorsal	8.75 mm
6. <i>Khasiella climacterica</i> (Benson)	Ventral	8.75 mm
7. <i>Macrochlamys vesica</i> Godwin-Austen	Dorsal	8.60 mm
8. <i>Macrochlamys vesica</i> Godwin-Austen	Ventral	8.60 mm
9. <i>Girasia burtii</i> (Godwin-Austen)	Lateral	33.00 mm



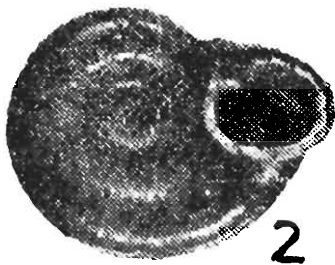
Name	View	Height of the Shell
1. <i>Staffordia daflaensis</i> Godwin-Austen	Dorsal	2.95 mm
2. <i>Staffordia daflaensis</i> Godwin-Austen	Ventral	2.95 mm
3. <i>Amphidromus sylheticus</i> (Reeve)	Dorsal	31.50 mm
4. <i>Amphidromus sylheticus</i> (Reeve)	Ventral	31.50 mm
5. <i>Chloritis delibrata</i> var. <i>fasciata</i> (Godwin-Austen)	Dorsal	4.50 mm
6. <i>Chloritis delibrata</i> var. <i>fasciata</i> (Godwin-Austen)	Ventral	4.50 mm
7. <i>Haploptychius burmanicus</i> (Blanford)	Dorsal	4.40 mm
8. <i>Haploptychius burmanicus</i> (Blanford)	Ventral	4.40 mm



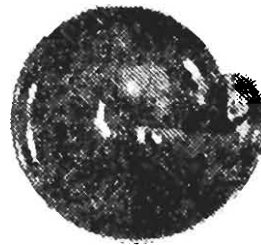
1



4



2



5



3



6



7

Name	View	Height of the Shell
1. <i>Pterocyclus parvus</i> (Pearson)	Dorsal	8.35 mm
2. <i>Pterocyclus parvus</i> (Pearson)	Ventral	8.35 mm
3. <i>Glessula gemma</i> (Reeve)	Dorsal	7.60 mm
4. <i>Macrochlamys petasus</i> (Benson)	Dorsal	4.80 mm
5. <i>Macrochlamys petasus</i> (Benson)	Ventral	4.80 mm
6. <i>Glessula gemma</i> (Reeve)	Ventral	7.60 mm
7. <i>Girasia radha</i> (Godwin-Austen)	Lateral	65.20 mm

Measurements (in mm) :

Height of the shell	Width of the shell	Height of the aperture
4.50	19.30	8.20

Distribution : Assam, Meghalaya, Mizoram.

Family : GLESSULIDAE

Key to the genera

Shell ovately conical, with 5-6 whorls, smaller in size (usually upto 7 mm in length) ... *G. gemma* (Reeve)

Shell turreted, with 10-11 whorls, bigger in size (usually above 7 mm in length) ... *G. tenuispira* (Benson)

Genus : **Glessula** Martens, 1860

As suggested by Godwin-Austen (1920) the genus *Glessula* is placed under the family Glessulidae.

21. **Glessula gemma** (Reeve)

(Pl. V, figs. 3, 6 & Fig. 10)

Achatina gemma Reeve, 1850. *Conch. Icon.*, 5, pl. 22, fig. 123.

Glessula gemma : Godwin-Austen, 1920. *Land and Freshwater Mollusca of India*, 3 : 22.

Glessula gemma : Gude, 1914. *Fauna of British India, Mollusca*, 2 : 428.

Material examined : 3 exs., 4 kms east of Darlak.

Measurements (in mm) :

Length of the shell	Width of the shell	Height of the aperture
7.60-10.20	3.80-4.86	2.50-3.55

Distribution : Mizoram, West Bengal

22. **Glessula tenuispira** (Benson)

(Pl. II, fig. 5)

Achatina tenuispira Benson, 1836. *J. Asiat. Soc. Beng.*, 5 : 353.

Glessula tenuispira : Godwin-Austen, 1920. *Land and Freshwater Mollusca of India*, 3 : 31.

Material examined : 4 exs., Darlak.

Measurements (in mm) :

Length of the shell	Width of the shell	Height of the aperture
15.62-23.00	5.10-6.08	4.20-5.20

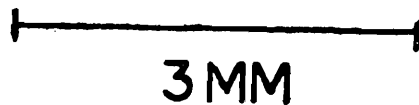
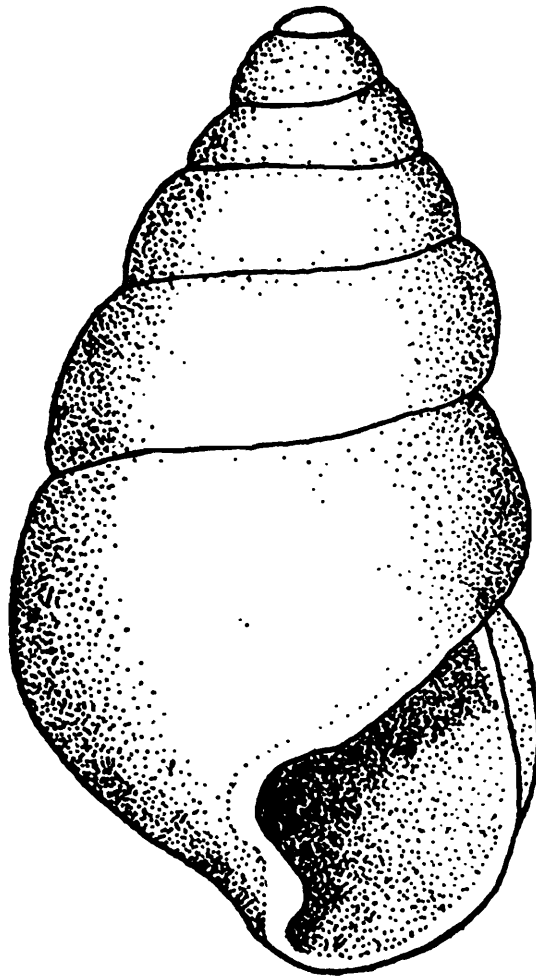


Fig. 10. *Glessula gemma* (Reeve) (Ventral view)

Distribution : INDIA : Meghalaya, Mizoram, West Bengal.
Elsewhere : Burma.

Family : STREPTAXIDAE

Genus : *Haploptychius* Von Mollendorff, 1906

22. *Haploptychius burmanicus* (Blanford)

(Pl. IV, figs. 7 & 8)

Streptaxis burmanicus Blanford, 1864. *J. Asiat. Soc. Beng.*, 33 : 245.

Streptaxis burmanicus : Blanford and Godwin-Austen, 1908. *Fauna of British India, Mollusca* (Testacellidae and Zonitidae), p. 6.

Material examined : 1 ex., Darlak.

Measurements (in mm) :

Height of the Shell	Width of the shell	Height of the aperture
4.40	7.75	2.00

Remarks : This species is for the first time recorded from India.

Distribution : India : Mizoram.

Elsewhere : Burma

SUMMARY

Twenty three species of land molluscs under 17 genera and 9 families are recorded in this paper. While all the 23 species are new records from Mizoram, two species *Macrochlamys petasus* (Benson) and *Haploptychius burmanicus* (Blanford) are new records from India, being hitherto known from Burma. Five species viz. *Plectopylis affinis* Gude, *Girasia burti* Godwin-Austen, *G. radha* Godwin-Austen, *Staffordia daflaensis* Godwin-Austen and *Chloritis delibrata* var. *fasciata* (Godwin-Austen) are endemic to north-eastern region of the country.

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