

BULLETIN

DU

Musée royal d'Histoire  
naturelle de Belgique

Tome XIII, n° 26.

Bruxelles, juin 1937.

MEDEDEELINGEN

VAN HET

Koninklijk Natuurhistorisch  
Museum van België

Deel XIII, n° 26.

Brussel, Juni 1937.

---

NOTES ON SOME GASTROPODS OF HUNAN PROVINCE,

by TENG-CHIEN YEN (Nanking)\*.

**Introduction.**

This enumeration of gastropod species is based on a collection made in the western central part of Hunan Province by Mr. T. Y. Liu, geologist to the Geological Survey of that province. Through the kindness of the collector, this series of material were submitted to me for study.

The gastropods of Hunan had been repeatedly studied by early conchologists, notably such as Gredler, Heude, Möllendorf, etc., and through whose contributions, we have acquired a fundamental knowledge of the habitat and distribution of these animals in the province. It is unfortunately that the early collections as well as the present one on which the present paper being based are rather incidental and apparently they are incomplete, especially of the western part where is believed to be highly hopeful for more malacological discoveries. A more thorough and exhaustive investigation that we are looking for is awaiting for further endeavouring.

However, the present collection is very interesting. It comprises several series of matured individuals of some known species which enable me to give some commentary notes on these

\* Associate Research Fellow of Research Institute of Geology, Academia Sinica, Nanking; Honorary Keeper of Conchology, the Museum of Royal Asiatic Society, Shanghai; Collaborateur du Musée royal d'Histoire naturelle de Belgique, Bruxelles.

species to the original works in which these forms were described, and moreover, some of these examples exhibiting a range of local variations as well as individual plasticity which are usually important for comparison. There are two species found to be new to science, namely, *Rivularia liuiana* (sp. nov.) and *Plectopylis straeleni* (sp. nov.), and a few others add some new records of distribution in this province.

For the convenience of comparison, I have given a list of the known species that had been described and recorded from this province, about 122 species and subspecies in number which are not represented in the present collection, and among which



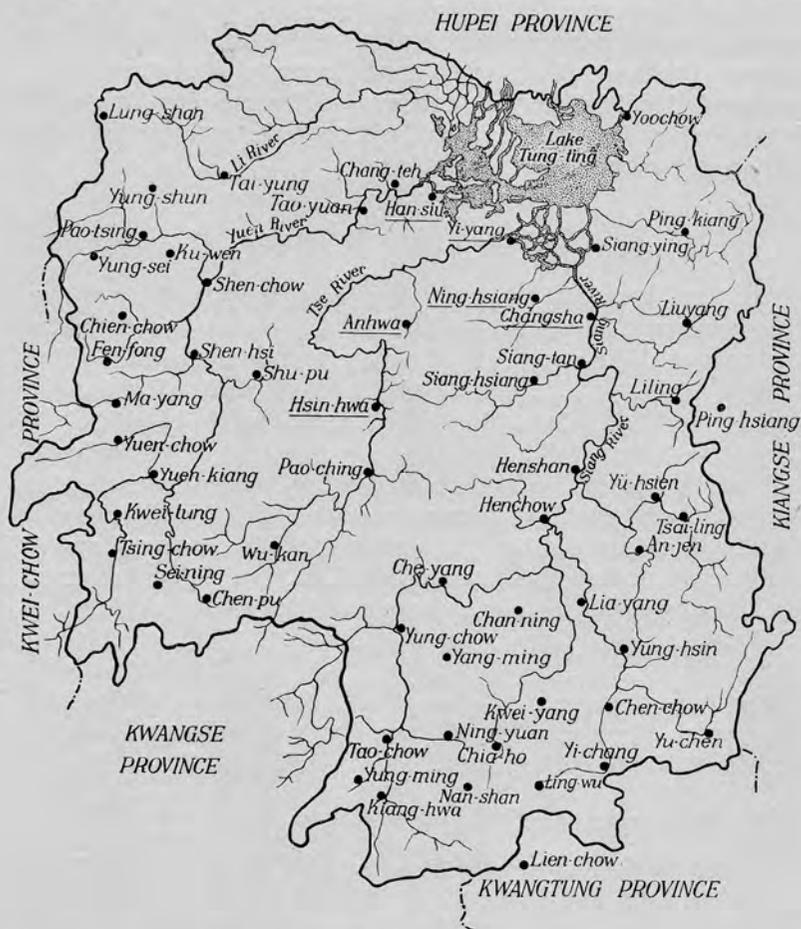
The map of China.

91 forms were described from this province, and 31 from other parts of this country or its adjoint states, and for the latter, I have indicated with an asterisk mark.

It is apparently that many of the species comprised in this list are only synonyms to some other known species described from this country within or without, for instance, *Viviparus wingatei* Smith 1900 is very probably identical with *Viviparus chinensis fluminialis* Heude 1890, but it is impossible to ascertain without examining the original material on which these forms being

described. Even some alternations of the generic positions that I have made are also provisional, and no claim being attempted whatsoever.

It is indeed a great regret that a number of the type-localities are very ambiguous as often only the name of the province as « Hou-nan », etc. being given, and in some cases the variable



The map of Hunan Province.

romanization of some of the local names such as « Yin-tschou-fu », « Hen-kiou-fu », etc. is also a puzzle for detail records of distribution of this province. These have been unable

to be rectified for the time being although I have illustrated with two maps in accompanying this work.

In conclusion, I have to acknowledge Mr. T. Y. Liu, the collector of these specimens for his great kindness and generosity to let me have the privilege studying his collection. I have also to express my gratitude to Prof. Dr. V. Van Straelen and Dr. E. Leloup of Musée royal d'Histoire naturelle de Belgique for their courtesy and kindness extending to me during my visit to the Museum for my malacological investigations. And above all, I am much indebted to the Members of Commission Sino-Belge d'Instruction for their financial aid to make my research plan being possibly carried on.

### Review of early Records.

The first records of the molluskan fauna reported from Hunan Province were obtained by Richthofen during his travelling throughout this country, and these forms were described by Martens in 1875 which include « *Paludina* » *auriculata*, *Unio retortus*, *U. richthofeni* from Siang River, and *Modiola lacustris* from Tung-ting Lake; and in the following year, the author redescribed and illustrated his species in Band IV of *Novitates Conchologicae*. Subsequently his work was followed by Möllendorff, Gredler, Heude and others, hence considerable number of species had been described and recorded by them, especially the contributions of Gredler, as a great amount of his 19 parts « *Zur Conchylienfauna von China* » were dealing with forms of this province.

For the convenience of comparison, I am giving in the following pages a tentative list of those forms so far known from the Province though not represented in the collection.

#### Family **Cyclophoridae**.

*Lagochilus glabratus* Möllendorf 1886, J. D. M. G., XIII, p. 163, Taf. 5, fig. 2.

Type-locality: Yo-lo-shan, Changsha, Hunan.

*Pterocyclus liuanus* Gredler 1885, J. D. M. G., XII, p. 226, Taf. 6, fig. 5.

Type-locality: Lai-yang (Loei-jan-shien), Hunan.

*Pterocyclus cycloteus* Gredler 1885, Ibidem, p. 228, Taf. 6, fig. 6.

Type-locality: Pao-ching, Hunan.

- Pterocyclus hensanensis* Gredler 1886, Malak. Blät. N. F., IX, p. 11.  
Type-locality: Hen-shan, Hunan.
- Cyclotus stenomphalus* Heude 1882, Mem. d'Hist. Nat. l'Emp. Chin., p. 5, Pl. 19, fig. 1.  
Type-locality: South Hunan.
- \**Cyclotus complanulatus* Martens 1865, Gredler, J.D.M.G., VIII, p. 31, 1881 (recorded from Yüing-Chow, Hunan).  
Type-locality: Yokohama, Japan.
- Cyclotus hunanus* Gredler 1881, J. D. M. G., VIII, p. 113.  
Type-locality: Yüing-chow, Hunan.
- Pupina ephippium* Gredler 1881, J. D. M. G., VIII, p. 28.  
Type-locality: Yüing-chow, Hunan.
- Pupina fuchsi* Gredler 1885, Zur Conchy. von China, VIII, p. 9.  
Type-locality: Hen-shan, Hunan.
- \**Pseudopomatias amoenus* Möllendorff 1885; Gredler 1885, Ibidem, p. 16 (recorded from Henshan, Hunan).  
Type-locality: « Pa-daung », Hupei.
- Realia nivea* Heude 1882, Mem., p. 9, Pl. 19, fig. 4.  
Type-locality: « provinciae Hou-nan ».
- Realia bachmani* Gredler 1881, J. D. M. G., VIII, p. 114, Taf. 6, fig. 2.  
Type-locality: Hen-shan, Hunan.
- \**Alycaeus sinensis* Heude 1882, Gredler 1885, Zur Conchy. von China, VIII, p. 16 (recorded from Henshan, hunan).  
Type-locality: Tung-liu, Anhwei.
- \**Alycaeus rathouisianus* Heude 1882, Gredler 1884, Arch. Naturges. 1/50, p. 259 (recorded from Hen-chow, Hunan).  
Type-locality: Sung-kiang, Kiangsu.
- Alycaeus nanus* Möllendorff 1886, J. D. M. G., XIII, p. 170, Taf. 5, fig. 8.  
Type-locality: Kwei-yang, Hunan.
- Alycaeus inflatus* Möllendorff 1886, Ibidem, p. 168, Taf. 5, fig. 7.  
Type-locality: Tao-chow, Hunan.

*Alycaeus cristatus* Möllendorff 1886, Ibidem, p. 168, Taf. 5, fig. 6.

Type-locality: Southern Hunan.

*Alycaeus plicilabris* Möllendorff 1886, Ibidem, p. 167, Taf. 5, fig. 5.

Type-locality: Hunan.

*Alycaeus hellicoides* Gredler 1887, Ibidem, XIV, p. 365.

Type-locality: Pei-shan, Hunan.

*Diplommatina paxilla* Gredler 1881, J. D. M. G., VIII, p. 29.

Type-locality: Yüing-chow, Hunan.

*Diplommatina paxilla lissa* Gredler 1884, Arch. Naturges., 1/50, p. 260.

Type-locality: Shan-ying (south of Hen-shan), Hunan.

*Diplommatina consularis* Gredler 1886, Malak. Bl. N. F., IX, p. 13.

Type-locality: Pei-shan, Hunan.

#### Family **Viviparidae**.

*Viviparus wingatei* Smith 1900, Jour. Malac., VII, p. 158.

Type-locality: Hunan.

\**Viviparus ventricosa* Heude 1890, Haas 1922, Abb. Ber. Mus. Magdeburg, III/IV, p. 2 (recorded from Ping-hsiang et near).

Type-locality: Kwei-chow Province.

\**Viviparus diminuta* Heude 1890, Haas 1922, Ibidem, p. 2 (recorded from Ping-hsiang et near).

Type-locality: Kwang-teh, Anhwei.

*Rivularia auriculata bicarinata* Kobelt 1909, Haas, Ibidem, p. 2 (recorded from Ping-hsiang and near).

Type-locality: Hunan.

*Rivularia auriculata elongata* Heude 1890, Mem., p. 179, Pl. 41, fig. 3.

Type-locality: Tsi-yang-ho, Hunan.

*Rivularia auriculata calacrata* Kobelt 1909, Conchy. Cab. von Martini u. Chemn., p. 180, Taf. 35, fig. 17, 18.

Type-locality: Pao-ching, Hunan.

*Rivularia ovum* Heude 1890, Mem., p. 179, Pl. 41, fig. 1.

Type-locality: Tung-tin Lake, Hunan.

*Rivularia minutiusculus* Gredler 1885, J. D. M. G., XII,  
p. 232, Taf. 6, fig. 8.

Type-locality: Hunan ?

*Rivularia hilberi* Gredler 1886, Malak. Blätter N. F., IX,  
p. 286, Taf. 11, fig. 10, 11 (illustrated in XI stück, 1867).

Type-locality: Hen-shan, Hunan.

#### Family **Hydrobiidae.**

*Bulimus paeteli* Gredler 1885, Zur Conchylienfauna von  
China, VIII, Bozen, p. 13.

Type-locality: Siang-hsiang, Hunan.

*Bulimus minutoides* Gredler 1885, Ibidem, p. 14.

Type-locality: Hen-shan, Hunan.

*Bulimus minutoides fuchsi* Gredler 1887, Nach.-Bl. D. M. G.,  
p. 174.

Type-locality: Hunan.

*Bulimus critica* Gredler 1889, Ibidem, p. 160.

Type-locality: Henshan, Hunan.

\**Parafossarulus subangulatus* Martens 1875, Gredler 1885,  
Zur Conchy. von China, VIII, Bozen, p. 16 (recorded  
from Hen-shan, Hunan).

Type-locality: Kiu-kiang, Kiangse.

*Lithoglyphus viridulus* Möllendorff 1888, Malak. Bl. N. F.,  
X, p. 140, Taf. 4, fig. 6.

Type-locality: Hunan.

*Lithoglyphus fuchsiana* Möllendorff 1885, Nach.-Bl. D. M.  
G., p. 169.

Type-locality: Siang-tan, Hunan.

*Lithoglyphus modestus* Gredler 1886, Malak. Bl. N. F., IX,  
p. 17.

Type-locality: « Tschang-tschia-kaio », Pei-shan, Hunan.

#### Family **Thiaridae.**

\**Melanoides cancellata* Benson 1842, Gredler 1881, J. D. M.  
G., VIII, p. 119 (recorded from Tung-ting Lake, Hunan).

Type-locality: Chow-shan, Chekiang.

*Melanoides gredleri* Boettger 1886, J. D. M. G., XIII, p. 20.

Type-locality: « Hen-kiou-fu » 30 li from Hen-chow, Hu-  
nan (for *Melania turmida* Gredler 1884).

*Melanoides praenotata* Gredler 1884, Archiv für Naturges., 1/50, p. 278, Taf. 19, fig. 10.

Type-locality: Shan-ying, Hunan.

*Melanoides diminuta* Gredler 1887, Ann. k. k. Naturhist. Hofmus., II, p. 288, Taf. 11, fig. 31.

Type-locality: « Thie-kuan-pu », Hunan.

\**Melanoides henriettae* Gray 1834, Smith 1900 (*Melania bacata* Gould), Jour. Malac., VII, p. 159 (recorded from Tao-yuan), Hunan).

Type-locality: ? China (Reeve 1861).

*Melanoides schmackeri* Boettger 1886, J. D. M. G., XIII, p. 3.

Type-locality: Hunan.

\**Melanoides sinensis* Reeve 1859, Haas 1922, Abh. Ber. Mus. Magdeburg, III/IV, p. 2 (recorded from Ping-hsiang and near).

Type-locality: China.

#### Family **Lymnaeidae**.

\**Radix swinhoei* H. Adams 1866, Haas 1922, Ibidem, p. 2 (recorded from Ping-hsiang and near).

Type-locality: Takow, Formosa.

#### Family **Planorbidae**.

*Diplodiscus hunanensis* Gredler 1882, J. D. M. G., IX, p. 47.

Type-locality: Yüing-chow, Hunan.

*Gyraulus membranaceus* Gredler 1884, Ibidem, XI, p. 153.

Type-locality: « Fu-tschia-zung », Hunan.

\**Hippeutis schmackeri* Clessin 1886, Haas 1922, Abh. Ber. Mus. Magdeburg, III/4, p. 2 (recorded from Ping-hsiang and near).

Type-locality: Canton, Kwangtung.

\**Segmentina nitidellus* Martens 1877, Gredler 1882, J. D. M. G., IX, p. 46 (recorded from « Pan-lun-schü », Hunan).

Type-locality: ? Yokohama, Japan.

#### Family **Succinidae**.

\**Succinea rubella* Heude 1882, Gredler 1884, Arch. für Naturges. 1/50, p. 263 (recorded from Nan-yo, Hen-shan, Hunan).

Type-locality: Shanghai, Kiangsu.

Family **Pupillidae**.

*Boysidia hunana* Gredler 1881, J. D. M. G., VIII, p. 23.

Type-locality: Yüing-chow, Hunan.

*Boysidia angulina* Gredler 1885, Zur Conchy. von China, VIII, p. 7.

Type-locality: Hunan ?

Family **Enidae**.

\**Ena cantori* Philippi 1844, Gredler 1884, J. D. M. G., XI, p. 137 (recorded from « Yin-tscheu-fu » Hunan).

Type-locality: Nanking, Kiangsu.

*Ena fuchsiana* Heude 1882, Mem., p. 53, Pl. 20, fig. 21.

Type-locality: South Hunan.

*Ena hunancola* Gredler 1882, J. D. M. G., IX, p. 44.

Type-locality: Yüing-chow, Hunan.

\**Ena subminuta* Heude 1882, Gredler 1884, Ibidem, XI, p. 139 (recorded from Pao-ching, Hunan).

Type-locality: Ning-kuo-fu, Anhwei.

Family **Clausiliidae**.

*Phaedusa pallidocincta* Möllendorff 1886, Ibidem, XIII, p. 198, Taf. 6, fig. 7.

Type-locality: Tao-chow, Hunan.

\**Euphaedusa aculus insularis* Heude 1882, Gredler 1884, Ibidem, XI, p. 138 (recorded from « Yin-tscheu-fu », Hunan).

Type-locality: Chiao-shan, Chen-kiang, Kiangsu.

*Euphaedusa tau hunanensis* Gredler 1881, Ibidem, VIII, p. 25.

Type-locality: Yüing-chow, Hunan.

*Euphaedusa gemina* Gredler 1881, Ibidem, p. 26.

Type-locality: Yüing-chow, Hunan.

*Euphaedusa simiola* Gredler 1884, Ibidem, XI, p. 151.

Type-locality: « Fu-tschia-zung », Hunan.

*Euphaedusa principalis* Gredler 1881, J. D. M. G., VIII, p. 24.

Type-locality: Yüing-chow, Hunan.

*Euphaedusa ridicula* Gredler 1882, Ibidem, IX, p. 45.

Type-locality: Hunan.

*Fuchsiana paradoxa* Gredler 1884, Ibidem, XI, p. 150,  
Taf. 3, fig. 5.

Type-locality: « Yin-tscheu-fu », Hunan.

*Formosana semprinii* Gredler 1884, Arch. für Naturges.,  
1/50, p. 273, Taf. 19, fig. 3.

Type-locality: « Jen-tscheu » near Hen-chow, Hunan.

*Formosana pacifica siantanensis* Gredler 1885, J. D. M. G.,  
XII, p. 225.

Type-locality: Siang-tan, Hunan.

« *Clausilia* » *lyra* Gredler 1887, Nach.-Bl. D. M. G., p. 169.

Type-locality: Hen-shan, Hunan.

« *Clausilia* » *julii* Gredler 1887, J. D. M. G., XIV, p. 355.

Type-locality: Hunan.

#### Family **Subulinidae.**

*Tortaxis superbus* Möllendorff 1888, Nach.-Bl. D. M. G.,  
p. 44.

Type-locality: Hen-shan, Hunan.

\**Tortaxis chinensis* Pfeiffer 1854, Gredler 1882, J. D. M. G.,  
IX, p. 46 (recorded from Hen-shan, Hunan).

Type-locality: Shanghai, Kiangsu.

*Tortaxis mirus* Gredler 1884, Ibidem, XI, p. 146, Taf. 3,  
fig. 3.

Type-locality: « Yin-tscheu-fu », Hunan.

*Curvella boettgeri* Gredler 1884, Arch. für Naturges. 1/50,  
p. 270, Taf. 19, fig. 2.

Type-locality: « Li-uan », Hunan.

*Opeas gracilior* Gredler 1881, Ibidem, VIII, p. 117.

Type-locality: Hunan.

*Opeas pachygyra* Gredler 1885, Zur Conchy. von China,  
VIII, p. 9.

Type-locality: Hen-shan, Hunan.

*Opeas fauveliana* Heude 1885, Mem., p. 117, Pl. 30, fig. 21.

Type-locality: Yoo-chow, Hunan.

*Opeas hunanensis* Gredler 1884, Arch. für Naturges., 1/50,  
p. 271, Taf. 19, fig. 3.

Type-locality: Hunan.

\**Opeas subula* Pfeiffer 1841, Gredler 1884, Arch. fur Naturges., 1/50, p. 261 (recorded from Siang-tan, Hunan).

Type-locality: Cuba.

*Opeas pellita* Gredler 1884, J. D. M. G., XI, p. 147.

Type-locality: Yüing-chow, Hunan.

*Opeas nina* Gredler 1884, Ibidem, p. 146, Taf. 3, fig. 3.

Type-locality: « Yin-tscheu-fu », Hunan.

*Opeas turgidum* Gredler 1881, Ibidem, VIII, p. 21.

Type-locality: Yüing-chow, Hunan.

#### Family **Endodontidae.**

« *Patula* » *atoma* Gredler 1892, Zur Conchy. von China, XVII, Wien, p. 2.

Type-locality: Hunan.

#### Family **Polygyridae.**

*Möllendorffia hensanensis* Gredler 1885, Zur Conchy. von China, VIII, p. 4.

Type-locality: Hen-shan, Hunan.

#### Family **Corillidae.**

\**Plectopylis fimbriosa* Martens 1875, Gredler 1881, J. D. M. G., VIII, p. 15 (recorded from Yüing-chow, Hunan).

Type-locality: Kiu-Kiang, Kiangsi.

*Plectopylis multispira* Möllendorff 1883, Ibidem, XI, p. 378, Taf. 12, fig. 10.

Type-locality: Hunan.

*Plectopylis schistotypchia* Möllendorff 1886, Ibidem, XIII, p. 185, Taf. 6, fig. 2.

Type-locality: Hunan.

*Plectopylis emoriens* Gredler 1881, Ibidem, VIII, p. 15.

Type-locality: Yüing-chow, Hunan.

*Plectopylis emoriens nana* Möllendorff 1886, Ibidem, XIII, p. 187.

Type-locality: South Hunan.

#### Family **Zonitidae.**

*Oxychilus mamillaris* Heude 1882, Mem., p. 15, Pl. 19, fig. 6.

Type-locality: South Hunan.

*Oxychilus scrobiculatus* Gredler 1885, J. D. M. G., XII, p. 220, Taf. 6, fig. 2.

Type-locality: Hen-shan, Hunan.

*Oxychilus crystalloides* Gredler 1885, Zur Conchy. von China, VIII, Bozen, p. 1.

Type-locality: Hen-shan, Hunan.

*Zonitoides loana* Gredler 1882, J. D. M. G., IX, p. 40.

Type-locality: Hunan.

#### Family Ariophantidae.

*Kaliella franciscana* Gredler 1881, J. D. M. G., VIII, p. 13.

Type-locality: Yüing-chow, Hunan.

*Kaliella franciscana planula* Gredler 1884, Ibidem, XI, p. 137.

Type-locality: Pao-ching, Hunan.

*Kaliella spiriplana* Gredler 1882, Ibidem, IX, p. 39.

Type-locality: « Fu-tschiao-zung », Hunan.

*Kaliella rupicola grandior* Gredler 1885, Zur Conchy. von China, VIII, p. 4.

Type-locality: Hen-chow, Hunan.

\**Microcystis columbeliana* Heude 1882, Gredler 1884, Arch. fur Naturges., 1/50, p. 26 (recorded from Shan-ying, Hunan).

Type-locality: Ihing, Kiangsu.

\**Microcystis rejecta* Pfeiffer 1859, Gredler 1881, J. D. M. G., VIII, p. 12 (recorded from Yüing-chow, Hunan).

Type-locality: North China.

*Microcystis planata* Heude 1882, Mem., p. 15, pl. 19, fig. 9.

Type-locality: South Hunan.

\**Macrochlamys sinensis* Heude 1882, Gredler 1884, Arch. fur Naturg., 1/50, p. 261 (recorded from Siang-tan, Hunan).

Type-locality: Ning-kuo-fu, Anhwei.

\**Macrochlamys davidi* Deshayes 1874, Gredler 1884, Ibidem, p. 262 (recorded from Siang-tan and Nan-yo, Henshan, Hunan).

Type-locality: Peiping, Hopei.

\**Macrochlamys cincta* Möllendorff 1882, Gredler 1884, Ibidem, p. 262 (recorded from Nan-yo, Henshan, Hunan).

Type-locality: Hai-fang, Hai-nan Island, Kwangtung.

*Hemiplecta fuchsiana* Heude 1882, Mem., p. 12, Pl. 19, fig. 6.  
Type-locality: Hen-chow, Hunan.

Family **Pleurodontidae.**

*Camaena vulpis* Gredler 1887, J. D. M. G., XIV, p. 352.  
Type-locality: Hen-shan, Hunan.

*Ganesella squamulina* Gredler 1884, Arch. fur Naturges.,  
1/50, p. 268.  
Type-locality: Siang-tan, Hunan.

Family **Bradybaenidae.**

\**Bradybaena tourannensis* Souleyet 1842, Gredler 1884, Ibi-  
dem, p. 261 (recorded from Siang-tan, Hunan).  
Type-locality: Touranne, Cochinchina.

*Bradybaena miliaria* Gredler 1881, J. D. M. G., VIII, p. 14.  
Type-locality: Yüing-chow, Hunan.

\**Cathaica fasciola* Draparnaud 1801, Gredler 1884 (*C. pyrro-  
hozona* Philippi), Arch. fur Naturges., 1/50, p. 261 (re-  
corded from Siang-tan, Hunan).  
Type-locality: (Regue de la Rochella) China ?

*Cathaica sempriniana* Heude 1882, Mem., p. 43, Pl. 20,  
fig. 16.  
Type-locality: South Hunan.

\**Cathaica subsimilis* Deshayes 1874, Gredler 1884, Arch. fur  
Naturges., 1/50, p. 260 (recorded from Shan-ying, Hu-  
nan).  
Type-locality: Moupin, Tibet.

*Chalepataxis infantilis* Gredler 1884, J. D. M. G., XI, p.143,  
Taf. 3, fig. 2.  
Type-locality: Hunan ?

\**Aegista accrescens* Heude 1882, Gredler, Arch. fur Natur-  
ges., 1/50, p. 261 (recorded Siang-tan, Hunan).  
Type-locality: Wuchang, Hupei.

\**Aegista chinensis minor* Gredler 1881, Gredler 1885, Zur  
Conchy. von China, VIII, Bozen, p. 15 (recorded from  
Hen-shan, Hunan).  
Type-locality: Wuchang, Hupei.

*Plectotropis gerlachi hunancola* Gredler 1886, Malak. Bl.  
N. F., IX, p. 3.  
Type-locality: Hunan.

*Euhadra casparyi* Möllendorff 1884, J. D. M. G., XI, p. 381,  
Taf. 9, fig. 1, 2.

Type-locality: Yüing-chow, Hunan.

Family **Streptaxidae**.

*Ennea strophiodes* Gredler 1881,, Ibidem, VIII, p. 118,  
Taf. 6, fig. 4.

Type-locality: Hunan.

\**Ennea larvula* Heude 1882, Gredler 1884, Ibidem, XI,  
p. 139 (recorded from Pao-ching, Hunan).

Type-locality: Ning-kuo-fu, Anhwei.

*Ennea micropleuris* Möllendorff 1887, Gredler 1887, Nach-  
Bl. D. M. G., p. 178 (recorded from Hunan).

Type-locality: Hen-shan, Hunan.

*Ennea sinensis* Möllendorff 1886, J. D. M. G., XIII, p. 179,  
Taf. 5, fig. 12.

Type-locality: Tao-chow, Hunan.

*Streptaxis fuchsianus* Gredler 1881, Ibidem, VIII, p. 16.

Type-locality: Yüing-chow, Hunan.

*Streptaxis cavicola* Gredler 1881, Ibidem, p. 19.

Type-locality: Yüing-chow, Hunan.

**SYSTEMATIC ACCOUNT OF SPECIES.**

## Family CYCLOPHORIDÆ.

Genus *Cyclophorus* MONTFORT 1810.*Cyclophorus punctatus* (Grateloup 1841).

1841. *Cyclostoma punctata*, Grateloup, Actes de la Société Linné Bordeaux, XI, p. 440, Taf. 3, fig. 10.
1832. *Cyclophorus punctatus*, Möllendorff, Jahr. Deut. Malak. Gesells., IX, p. 268, Taf. 9, fig. 4.
1936. *Cyclophorus punctatus*, Yen, Bull. Geol. Soc. China, XV, p. 338.

The specimens in this collection are well identical with the species described from Ceylon (not from South China as I have stated in my former paper cited above), but they seem to have lower spire and being obtusely angulated at the ambital region of the first half of the body whorl. The size of these examples are larger than the typical forms as the greatest specimen here yields 29.5 in width 27.0 in altitude; and the smallest specimen being 23.6 in width and 27.0 in altitude; while the measurements given by Grateloup is 18-20 mill. in height and 22-23 mill. for diameter of the base.

Locality: Anhwa, Hunan.

*Cyclophorus martensianus* Möllendorff 1874.

1874. *Cyclophorus martensianus* Möllendorff, Jahr. Deut. Malak. Gesells., I, p. 78.
1875. *Cyclophorus martensianus*, Möllendorff, Ibidem, II, p.120, Taf. 3, fig. 3.
1881. *Cyclophorus martensianus*, Gredler, Ibidem, VIII, p. 32.
1882. *Cyclophorus martensianus*, Heude, Mém. d'Hist. Nat. de l'Emp. Chinois, p. 1, Pl. 12, fig. 1, 5.
1936. *Cyclophorus martensianus*, Yen, The China Journal, XXIV, N° 1, p. 45.

It differs from the preceding species by its more trochoid in outline, smaller in size, very obscure tendency of being angulated at the ambital region, and having a more descending aperture. The perfect specimen in this collection gives the following

measurements: altitude 19.0, width 19.8; aperture, height 10.0, width 10.0.

This species was described from Kiukiang of Kiangse Province, and it seems to have a wide distribution along Yangtze Valley. The color patterns exhibit a range of variation which is not dependable for specific differentiation, and the forms *nankingensis* and *pallens* both being described\* by Heude are identical with this species, and *C. Ngankingensis* Heude also different only by smaller in size.

Locality: Anhwa, Hunan.

Genus **Pterocyclus** BENSON 1832.

*Pterocyclus lienense* (Gredler 1882).

(Text fig. 1.)

1881. *Pterocyclos planorbulus*, Gredler (non Sowerby), Jahr. Deut. Malak. Gesells., VIII, p. 128.  
 1882. *Pterocyclos lienensis*, Gredler, Ibidem, IX, p. 43.  
 1882. *Pterocyclos Gerlachi*, Möllendorff, Ibidem, IX, p. 180.  
 1885. *Myxostome Lienense*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 93.

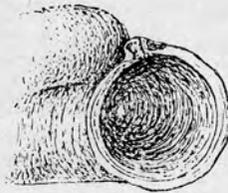


Fig. 1. — *Pterocyclus lienense* (Gredler).

The specimens in this collection are somewhat higher than the typical forms, the larger example yielding 11.0 in altitude, 16.5 in width, and 6.1 in diameter of aperture; while a smaller one giving only 9.0 in altitude, 14.0 in width, and 5.5 in diameter of aperture. They are however identical in other features.

This species was described from Lien-chow of Kwangtung Province, and afterwards Heude recorded it from Yoochow of Hunan with its operculum which was found to be the normal type of *Myxostome* by him.

Locality: Anhwa, Hunan.

Genus **Cyclotus** SWAINSON 1840.**Cyclotus tubæformis** Möllendorff 1882.

1882. *Cyclotus tubæformis*, Möllendorff, Jahr. Deut. Malak. Gesellschafts., IX, p. 179.

1882. *Cyclotus tubæformis*, Möllendorff, Ibidem, IX, p. 252, Taf. 9, fig. 1.

This species was described from Lo-fou-shan of Kwangtung Province, and the two specimens in the present collection are identical well with it except the size being slightly higher in altitude. The measurements are as follows: altitude 12.0, width 17.0, diameter of aperture 7.5; another example, altitude 9.5, width 14.0, diameter of aperture 6.5.

This species is evidently very close to *C. companulatus* Martens which had been recorded by Gredler from Yüing-chow of Hunan, further south from the present site.

Locality: Anhwa, Hunan.

## Family VIVIPARIDÆ.

Genus **Viviparus** MONTFORT 1810.**Viviparus chinensis** (Gray 1834).

1834. *Paludina chinensis*, Gray in Griffith's Animal Kingdom, Pl. 1, fig. 5.

This is rather common species occurring usually in the rice field of this country. In the original publication by Gray, it was very briefly defined as « olive green, mouth with black edge » on page 599 in the index, and fortunately his figure illustrates the form of being recognizable.

The greatest specimen in this collection gives the following measurements: altitude 58.5, width 42.0; aperture, height 32.0, width 23.0.

Localities: Ning-hsiang, and Anhwa, Hunan.

**Viviparus chinensis fluminalis** (Heude 1890).

1890. *Paludina fluminalis*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 174, Pl. 39, fig. 3, 8.

1936. *Viviparus chinensis fluminalis*, Yen, The China Journal, XXIV, N° 1, p. 45.

This species is essentially similar to the preceding one, but with less elevated spire, and early whorls being usually biangular. It is also a common species along Yangtze Valley, and extending as far as to North China.

The present lot consists of a few specimens of younger stages, and the greatest one measures 44.5 in altitude, 35.0 in width; 26.0 in height of aperture, and 18.2 in its width. The immature form is always angular at the ambitus of body whorl, more conspicuously appearing on the very young forms.

Localities: Ning-hsiang, and Yi-yang, Hunan.

### *Viviparus quadrata* (Benson 1842).

1842. *Paludina quadrata*, Benson, Ann. et Mag. Nat. Hist., Ser. I, IX, p. 487.

1936. *Viviparus quadrata*, Yen, The China Journal, XXIV, N° 1, p. 45.

This species was described from Chow-shan (Chusan) of Chekiang Province, and it has been found to be commonly existing in North and South China as well as Yangtze Valley. It is recognized by its oblong in outline, flatly convex whorl-surfaces, and angular at the ambitus of the body whorl.

Localities: Hsin-hwa, Anhwa, and Yi-yang, Hunan.

### *Viviparus quadrata heudei* (Deutzenberg et Fischer 1905).

1905. *Paludina quadrata* var. *heudei*, Deutzenberg et Fischer, Jour. de Conchy., XXXIII, p. 161.

This differs from the preceding form by having 4 prominent spirals, and the specimens in the present lot exhibit well these distinct sculptures though of smaller size, apparently representing of younger stage.

Locality: Changsha, Hunan.

### *Viviparus quadrata lithophaga* (Heude 1889).

1889. *Paludina lithophaga*, Heude, Jour. de Conchy., XXXVII, p. 49.

1890. *Paludina lithophaga*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 177, Pl. 40, fig. 13.

1909. *Vivipara quadrata* var. *lithophaga*, Kobelt in Conchy. Cab. von Martini u. Chemn., p. 125, Taf. 25, fig. 12, 13.

It is recognized by its shorter spire, rather ovate in outline, slightly shouldered, and very obtusely angulated at the periphery. It was described from Ning-kuo Hsien of Anhwei Province, and being represented from several localities in the present collection.

Individuals comprised here are mostly less matured forms, and one adult form measures as 26.0 in altitude, 19.0 in width, 15.5 in height of aperture, 11.5 in its width, and having about 5 whorls; which is apparently smaller than the typical form found in Anhwei.

Localities: Anhwa, Ning-hsiang, and Yi-yang, Hunan.

*Viviparus quadrata aeruginosa* (Reeve 1864).

1864. *Paludina aeruginosa*, Reeve, Conch. Icon., sp. 41.

1909. *Vivipara quadrata* var. *aeruginosa*, Kobelt in Conchy. Cab. von Martini u. Chemn., p. 123, Taf. 21, fig. 1-3, 10, 11, 18.

It is recognized by its elongate outline, more convex whorl-surfaces, obscure spirals, and obtusely angulated at the periphery of the body whorl. The greatest specimen measures as follows: altitude 28.5, width 18.5, aperture height 14.0, width 10.3. Locality: Yi-yang, Hunan.

Genus *Rivularia* HEUDE 1890.

*Rivularia auriculata* (Martens 1875).

(Pl. I, fig. 1-1c.)

1875. *Paludina (Melancho) auriculata*, Martens, Sitz. Ges. Naturf. Freunde zu Berlin, p. 2.

1875. *Paludina (Melancho) auriculata*, Martens, Malak. Blätter, XXII, p. 185.

1876. *Paludina auriculata*, Martens in Pfeiffer's Novitates Conchologicae, IV, p. 155, Taf. 135, fig. 4-6.

1890. *Rivularia auricularis*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 178, Pl. 40, fig. 16.

1909. *Rivularia auriculata*, Kobelt in Conchy. Cab. von Martini u. Chemn., p. 178, Taf. 35, fig. 1-7, 12-16.

This species was described from Siang River of Hunan, and the specimens in the present lot consisting of both banding and non-banding forms, they are however apparently of the same species.

The size for these examples is generally smaller than the typical form, and the greatest one gives only 21.5 in altitude, 15.0 in width, 13.5 in aperture height, 10.0 in width, and having but 4 whorls.

Localities: Han-su, and Ning-hsiang, Hunan.

*Rivularia liuiana* Yen (sp. nov.).

(Pl. I, fig. 2-2a.)

Shell naticoid in outline but just slightly perforate, rather solid and thick, having a subconically elevated spire and ventricose body whorl, the former is smaller than the latter. Whorls 5, rapidly increasing in width and embracing to the ambitus. The exposed surfaces of the whorls are considerably convex, and slightly shouldered near the suture, early ones appearing to be dark bluish, while the last one being milky white and bearing 3 brown bands with its uppermost one being rather diffused into a dark bluish zone near the suture. The sculptures consist of coarse growth lines in decussation with spiral striæ, but these usually appear to be obscure under worn condition. Suture canalicate and also well impressed by the convex whorl-surfaces. The aperture is subpyriform in outline with its peristome well continuous and thickly callous at columella. The umbilicus is narrowly perforate.

Measurements	Holotype	Paratype	<i>R. rusiostoma</i>
Altitude of Shell ... ..	18.0	15.8	25.0
Width of Shell... ..	16.0	14.1	20.0
Height of Aperture ... ..	12.0	11.2	—
Width of Aperture ... ..	9.0	8.0	—
Number of Whorls... ..	5.0	4.3/4	4.1/4-4.1/2

Locality: Anhwa, Hunan; Holotype in the author's collection, Paratype in Musée royal d'Hist. Nat. de Belgique.

This species resembles « *Paludomus* » *rusiostoma* Gredler (Jahr. Deut. Malak. Gesells., XII, p. 231, Taf. 6, fig. 7, 1885), a form described from « Tschin-chi » of Kwei-chow Province, but differing from that by its smaller size, more elevated spire, roundly inflated body whorl, and shouldered near the suture.

I take pleasure to name this species after its collector, Mr. T. Y. Liu, geologist to Hunan Geological Survey, for his kindness in letting me have the present collection for my study.

## Family HYDROBIIDÆ.

Genus **Bulimus** SCOPOLI 1777.**Bulimus fuschiana** (Möllendorff 1888).

(Pl. I, fig. 3-3a.)

1888. *Bythinia fuchsiana*, Möllendorff, Malak. Blätter N. F., X, p. 134, Taf. IV, fig. 2 et 2a-2b.

1890. *Bithynia fuchsiana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 170, Pl. 42, fig. 3.

This species was described from South Hunan, and Heude recorded it from Ichang of Hupei and Yoochow of Hunan. This lot consists of 3 specimens which are somewhat smaller than the typical form, and the greatest one measures 10.1 in altitude, 7.1 in width, 5.5 in aperture height, 4.0 in width, and having 5 and 1/2 whorls.

Locality: Ning-hsiang, Hunan.

**Bulimus misella** (Gredler 1888).

(Pl. I, fig. 4-4a.)

1884. *Bithynia misella*, Gredler, Archiv für Naturgeschichte, 1/50, p. 276, Taf. 19, fig. 8.

1885. *Bithynia misella*, Gredler, Zur Conchylien-Fauna von China, VIII, Bozen, p. 16.

1886. *Bithynia misella*, Gredler, Malak. Blätter, N. F., IX, p. 160.

1888. *Bythinia misella*, Möllendorff, Ibidem, X, p. 160.

1902. *Bythinia misella*, Möllendorff, Ann. Mus. Zool. Acad. Sc. Imp. St-Pétersbourg, p. 398.

This species seems to be commonly distributing in Hunan, and had been recorded from South, West as well as central parts of the province. Gredler's figure was poorly illustrated and I have here given the photograph of a better preserved specimen in the collection.

Locality: Anhwa, Hunan.

Genus **Parafossarulus** ANNANDALE 1924.**Parafossarulus striatulus** (Benson 1842).

1842. *Bithynia striatula*, Benson, Ann. et Mag. Nat. Hist., London, Ser. I, IX, p. 488.

1936. *Bulimus striatulus*, Yen, The China Journal, XXIV, N° 1, p. 45.

This is a common and easily recognizable species although its shell features exhibit considerable range of variation. It was described from Chow-shan (Chusan) of Chekiang, but practically existing everywhere throughout this country.

Locality: Ning-hsiang, Hunan.

*Parafossarulus longicornis* (Benson 1842).

1842. *Bithynia longicornis*, Benson, Ann. et Mag. Nat. Hist., London, Ser. I, IX, p. 488.
1936. *Bulimus longicornis*, Yen, The China Journal, XXIV, N° 1, p. 45.

Another species that Benson described from Chow-shan of Chekiang. It is less variable in conchial features and also less widely distributing although it is often to be found in association with the preceding species.

Locality: Ning-hsiang, Hunan.

*Parafossarulus eximius* (Frauenfeld 1864).

1864. *Vivipara eximia*, Frauenfeld, Verhandlungen der K. K. Zoologisch-botanischen Gesellschaft in Wien, XIV, p. 149, Taf. 5, fig. 2.
1864. *Paludina eximia*, Frauenfeld Ibidem, XIV, p. 604.
1881. *Paludina eximia*, Möllendorff, Jahr. Deut. Malak. Gesells., VIII, p. 43.
1936. *Bulimus eximius*, Yen, The China Journal, XXIV, N° 1, p. 45.

This species was described from North China, and the examples in the present lot as well as those I have found elsewhere of Yangtze Valley are quite typically identical with Frauenfeld's species. The conchial features exhibit less variation, and the spiral sculptures are always prominently appearing.

Localities: Changsha, Ning-hsiang, Yi-yang, Hunan.

## Family ASSIMINEIDÆ.

Genus **Acmella** BLANFORD 1869.**Acmella scalaris** (Heude 1882).

1882. *Assimineea (Solenomphala) scalaris*, Heude, Mém. d'Hist. Nat. de l'Emp. Chinois, p. 83, Pl. 21. fig. 5.
1918. *Assimineea scalaris*, Annandale, Mem. Asiatic Soc. Bengal, VI, Part 5, p. 312.
1936. *Acmella (Solenomphala) scalaris*, Yen, The China Journal, XXIV, N° 1, p. 47.

This is a common amphibious species existing in Yangtze Valley, but the examples in the present lot are smaller in size than those found in East China. The greatest specimen measures only 3.5 in altitude, 4.0 in width, 2.2 and 1.9 in height and width of aperture, and having about 7 whorls.

Locality: Changsha, Hunan.

## Family THIARIDÆ.

Genus **Melanoides** OLIVIER 1804.**Melanoides gredleri cinnamornea** (Gredler 1885).

1885. *Melania tumida* (non Tristram) var. *cinnamornea*, Gredler, Jahr. Deut. Malak. Gesells., XII, p. 233.
1886. *Melania (Melanoides) Gredleri* var. *cinnamornea*, Boettger, Ibidem, XIII, p. 10.
1887. *Melania Gredleri* var. *cinnamornea*, Gredler, Ann. K. K. Naturhistorischen Hofmuseum, II, p. 287, Taf. XI, fig. 27.
1890. *Melania Gredleri*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 167, Pl. 41, fig. 30, 32.

This species was described from Kwei-yang-chow of South Hunan, and Heude recorded it from Changsha of the same province and also Ning-kuo-hsien of Anhwei. The ribs are only well developed on the early whorls and being very obscurely appearing, or nearly destitute, on the last one or two whorls.

Localities: Ning-hsiang, and Yi-yang, Hunan.

*Melanoides jacquetiana* (Heude 1890).

1890. *Melania jacquetiana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 163, Pl. 41, fig. 7-9; Pl. 43, fig. 5.

This species was described from Ning-kuo-hsien of Anhwei Province, and the examples in this collection are well identical with Heude's species and its variety *costata*. The ribs of fully matured individuals are well developed on the early whorls, and being destitute on the last two, but that of younger specimens are more prominent and obscurely appearing only on the final half of the body whorl.

Locality: Yi-yang, Hunan.

Family LYMNAEIDÆ.

Genus *Lymnaea* LAMARCK 1799.

*Lymnaea* sp.

(Pl. I, fig. 5-5a.)

Single specimen in the present lot resembling a form of *Lymnaea stagnalis* (Linné), but having its latter whorls more convex. The shell is subovate in outline with a highly exerted spire and ventricose body whorl, the former is only slightly smaller than the latter. It has 5 whorls, the early 3 are rather flatly convex while the last 2 rather roundly convex, and its surfaces bear distinct growth lines and spiral striae, in malleated appearance on the larger whorls. The aperture is ovate in form, and rather strongly twisted at columella. The outer lip is slightly injured.

Measurements : 29.2 in altitude, 17.0 in width, 18.3 in aperture height, 12.1 in its width.

The identification is rather difficult to be ascertained with this single individual, and it is probably a form of *Lymnaea stagnalis* which had been recorded from various parts of Central and North Asia as well as districts of India. Further material will ascertain its specific identity.

Locality: Anhwa, Hunan.

Genus **Radix** MONTFORT 1810.**Radix auricularia** (Linné 1758).

1758. *Helix auricularia*, Linné, Syst. Nat., Ed. X, p. 774.

This species is more common in Northern provinces of this country, but less frequently occurring along Yangtze Valley.

The specimen comprised in the present lot measures only 15.8 in altitude, 11.8 in width, 12.8 in aperture height, 9.0 in width and having 3 and 1/3 whorls; which is much smaller than the forms found in the North.

Locality: Anhwa, Hunan.

**Radix lagotis costulata** (Martens 1874).

1874. *Limnaca lagotis* var. *costulata*, Martens in Fedtschenko's Reise in Turkestan, p. 26, Taf. II, fig. 22.

This species was described from Turkestan but had been recorded from various districts of this country as well as from India. Its occurrence in our country seems to be rather common, and usually to be recognizable by its long and exerted spire.

The greatest specimen measures as 22.8 in altitude, 15.2 in width, 17.0 in aperture height, 12.0 in its width, and having 4 and 1/3 whorls.

Locality: Anhwa, Hunan.

**Radix plicatula** (Benson 1842).

1842. *Limnaea plicatula*, Benson, Ann. et Mag. Nat. Hist., London, Ser. I, IX, p. 487.

This species was described from Chow-shan of Chekiang, and it is very common along Yangtze Valley, also other parts of this country. The examples in this collection are smaller in size than those found elsewhere, and the largest one measures only 15.5 in altitude, 9.0 in width, 11.5 in aperture height, 7.0 in its width, having 4 whorls.

Locality: Anhwa, Hunan.

Genus **Galba** SCHRANK 1803.**Galba pervia** (Martens 1867).

1867. *Limnaeus pervius*, Martens, Malak. Blätter, XIV, p. 221.  
 1936. *Limnaea pervia*, Yen, The China Journal, XXIV, N° 1,  
 p. 46.

This species has a wide range of distribution along Yangtze Valley, but it is replaced by *Galba andersoniana* Nevill in the southwestern part of China.

The specimens in this collection are generally of smaller size, and the greatest one measures only 9.0 in altitude, 5.1 in width, 5.5 in aperture height, 3 in width, and having 5 whorls.

Locality: Yi-yang, Hunan.

**Galba subperegra** (Gredler 1894).

1894. *Limnaea subperegra*, Gredler, Ann. K. K. Naturhistorischen Hofmus., Wien, IX, p. 423.

Single specimen with its apical part injured but with its other conchial features well identical with the species that being described from west of Hupei Province. It measures 14.2 in altitude, 8.5 in width, 9.0 in aperture height, 5.5 in width.

Locality: Ning-hsiang, Hunan.

## Family PLANORBIDÆ.

Genus **Tropidiscus** STEIN 1850.**Tropidiscus vorticinus** (Gredler 1887).

1887. *Planorbis vorticinus*, Gredler, Ann. K. K. Naturhistorischen Hofmus., Wien, II, p. 289, Taf. II, fig. 32, 33.

The specimens in this lot are of smaller size than the typical form described from this province, and a few of them apparently representing of younger stages.

Localities: Anhwa, and Ning-hsiang, Hunan.

Genus **Gyraulus** CHARPENTIER 1837.**Gyraulus filaris** (Gredler 1885).

1885. *Planorbis filaris*, Gredler, Jah. Deut. Malak. Gesells., XII, p. 225.

The specimens in this lot agree well with this species described from Hunan, and the size also approaches near the typical form, one of the series measures 2.0 in altitude, 6.0 in width, and having about 4 whorls.

Localities: Anhwa, and Ning-hsiang, Hunan.

Genus **Hippeutis** CHARPENTIER 1837**Hippeutis distinctus** (Gredler 1886).

1886. *Planorbis (Hippeutis) distinctus*, Gredler, Malak. Blätter N. F., IX, p. 15.

Several specimens in two lots are identical with this species that Gredler described from this province. It evidently approaches very closely to *Hippeutis schmackeri* Clessin 1886 and also to *Hippeutis umbilicalis* Benson 1836, as both of these species have a rather wide range of distribution along Yangtze Valley as well as in South China.

Localities: Hsin-hwa, and Anhwa, Hunan.

Genus **Segmentina** FLEMING 1817.**Segmentina succinea** (Gredler 1884).

1884. *Planorbis (Segmentina) succineus*, Gredler, Archiv für Naturgeschichte, 1/50, p. 275.

Specimens from two localities of this province agreeing with this species described from Shan-ying, south of Hen-chow. The greatest one measures 3.0 in altitude, 8.0 in width, and 1.9 in diameter of umbilicus which appears to be higher than the typical form.

Localities: Hsin-hwa, and Anhwa, Hunan.

## Family ENIDÆ.

Genus **Ena** LEACH 1831.**Ena fuchsiana** (Heude 1882).

1882. *Buliminus fuchsiana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 53, Pl. 20, fig. 21.
1936. *Ena fuchsiana*, Yen, Bull. Geol. Soc. China, XV, N° 3, p. 337.

The specimens in this lot agree well with the species described from this province, and the size also approaches the typical form. It has been recently redescribed with some quaternary material of Eastern Szechwan Province.

Locality: Anhwa, Hunan.

## Family CLAUSILIIDÆ.

Genus **Euphaedusa** BOETTGER 1877.**Euphaedusa aculus** (Benson 1842).

1842. *Calusilia aculus*, Benson, Ann. et Mag. Nat. Hist., London, Ser. I, IX, p. 487.
1855. *Clausilia aculus*, Benson, Jour. Asiatic Soc. Bengal, p. 5.
1879. *Clausilia aculus*, Boettger, Jahr. Deut. Malak. Gesells., VI, p. 108.
1882. *Clausilia aculus*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 67, Pl. 18, fig. 8.
1883. *Clausilia aculus*, Möllendorff, Jahr. Deut. Malak. Gesells., X, p. 235.
1885. *Clausilia aculus*, Gredler, Zur Conchylienfauna von China, VIII, Bozen, p. 16.
1936. *Phaedusa aculus*, Yen, The China Journal, XXIV, N° 1, p. 47.

This is a very common form existing in Eastern China, and has been recorded from various localities of Yangtze Valley. The specimens of the present lot are very identical with the this species described from Chow-shan of Chekiang, and one of the better preserved examples measures 16.0 in altitude, 3.6 in width, and having about 11 whorls.

Locality: West of Hunan.

Genus **Formosana** BOETTGER 1877.**Formosana gigas** (Möllendorff 1885).  
(Text fig. 2.)

1885. *Clausilia (Macrophaedusa) gigas*, Möllendorff, Nach.-Bl. Deut. Malak. Gesells., p. 168.
1886. *Clausilia (Macrophaedusa) gigas*, Möllendorff, Jahr. Deut. Malak. Gesells., XIII, p. 200, Taf. 6, fig. 8.
1886. *Clausilia indurata*, Heude, Jour. de Conchy., p. 299.
1890. *Clausilia indurata*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 156, Pl. 34, fig. 11, 16.
1894. *Clausilia (Formosana) gigas*, Boettger et Schmacker, Proc. Malac. Soc. London, p. 109.

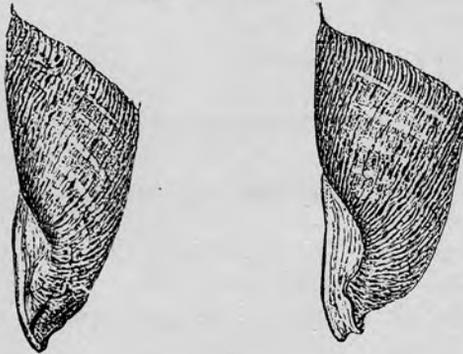
Two specimens in this lot are identical with the species, the size seems to be slightly variable, one well preserved specimen measures only 40.0 in altitude, 8.0 in width, 8.1 in aperture height, and 5.2 in width, having about 14 whorls.

The number of palatal folds seems also variable as Möllendorff has allowed in his description from 4-6, and the present examples have only 5 in each, with the uppermost one sometimes indistinct.

Locality: Anhwa, Hunan.

**Formosana purpurascens** (Möllendorff 1885).  
(Text fig. 3.)

1885. *Clausilia purpurascens*, Möllendorff, Nach.-Bl. Deut. Malak. Gesellschaft, p. 168.



2

3

Fig. 2. — *Formosana gigas* (Möllendorff).

Fig. 3. — *Formosana purpurascens* (Möllendorff).

1886. *Clausilia purpurascens*, Möllendorff, Jahr. Deut. Malak. Gesells., XIII, p. 201, Taf. 6, fig. 9.

This species was described from « Pa-daung » of Hupei Province, and two examples here are identical with it. The size varies slightly from the typical form, one of them measures 31.0 in altitude, 9.0 in width, 8.0 in aperture height, 6.0 in its width, and having 11 and 1/2 whorls.

Locality: Yi-yang, Hunan.

Family SUBULINIDÆ.

Genus **Tortaxis** PILSBRY 1906.

*Tortaxis fuchsianus* (Heude 1890).  
(Pl. I, fig. 6-6e.)

1890. *Stenogyra fuchsiana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 117, Pl. 30, fig. 16.  
1906. *Tortaxis mirus* var. *fuchsianus*, Pilsbry, Man. Conch. Ser. II, XVIII, p. 9, Pl. 2, figs. 19-22.

This species was described from Pao-ching of this province, further south from the present locality. Heude's description and illustrations were apparently from a less matured specimen hence the apertural margin shows less thickened, having only 8 whorls, 27.0 in altitude, and 9.0 in width.

There is a series of well preserved specimens representing various stages in development, the fully matured example measures 33.0 in altitude, 10.0 in width, 8.5 in aperture height, and 5.8 in its width, having 10 whorls.

Locality: Anhwa, Hunan.

Genus **Opeas** ALBERS 1850.

*Opeas gracile* (Hutton 1834).

1834. *Bulimus gracilis*, Hutton, Jour. Asiatic Soc. Bengal, III, p. 93.  
1890. *Opeas gracilis*, Boettger, Nach.-Bl. Deut. Malak. Gesells., p. 89.  
1891. *Opeas gracilis*, Schmacker et Boettger, Ibidem, p. 178.  
1903. *Opeas gracile*, Blanford, Proc. Malac. Soc. London, V, p. 280.

1906. *Opeas gracile*, Pilsbry, Man. Conch., Ser. II, XVIII, p. 125, Pl. 18, fig. 3-6.

This species was described from India but has a wide range of distribution in Asia. Its occurrence in Hunan seems not uncommon as Gredler had recorded from several places of the Southern part and also of Kwangsi Province.

Locality: Anhwa, Hunan.

*Opeas mauritianum* (Pfeiffer 1852).

1852. *Bulimus mauritanus*, Pfeiffer, Proc. Zool. Soc., London, p. 150.  
1906. *Opeas mauritianum*, Pilsbry, Man. Conch., Ser. II, XVIII, p. 133, Pl. 17, fig. 92-96.

Two specimens in this lot agree with this species described from Mauritius Island. It seems not uncommon along Yangtze Valley, and I have noticed that considerable number of individuals has been found in various parts of Eastern China.

Locality: Anhwa, Hunan.

*Opeas vestitum* (Heude 1882).

1882. *Stenogyra vestita*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 55, Pl. 17, fig. 26.  
1906. *Opeas vestitum*, Pilsbry, Man. Conch., Ser. II, XVIII, p. 165, Pl. 20, fig. 34, 35.

Single specimen in this lot provisionally identified with this species, it measures 12.0 in altitude, 3.5 in width, 3.0 in aperture height, 1.5 in its width, and having 8 whorls. There is a translucent margin occurring below the suture which seems not to be mentioned from the typical form.

This is probably a variety of the preceding species as being different from that only by larger size and more swollen in outline.

Locality: Anhwa, Hunan.

## Family CORILLIDÆ.

Genus *Plectopylis* BENSON 1860.*Plectopylis straeleni* Yen (sp. nov.).

(Pl. II, fig. 1-1c; text fig. 4, 5, 6.)

Shell dextral, opaque but not thick, with a very low conical spire which being nearly depressed. Whorls 3 and 1/3, gradually increasing in width, and embracing to the ambital region. The apex is obtuse and prominent which being followed by 1 and 1/2 whorls bearing very fine, sparse but distinct lines of growth which are differentiated though not clearly marked off from its subsequent whorls by having considerably prominent sculptures present on the latter surfaces. Beginning from the final half of third whorl, the spiral lines appear in decussating with the prominent growth lines. These sculptures are continuously present till the last whorl where they are traceable only above the angular periphery with but fine growth striæ on the basal surface. The aperture is somewhat oblique, sublunate in outline, with its outer lip well thickened and slightly reflected, and inner lip thin but well defined. In breaking half volution of the body whorl, there is a series of five transversal plicæ appearing on the outer wall, and one strong vertical lamina which being terminated with a less prominent horizontal one at each extremity on the parietal wall. The umbilicus is widely perspective and in moderate depth, with its external edge being obtusely angulated.

Measurements	Holotype	Paratype
Altitude of Shell ... ..	3.9	3.8
Width of Shell ... ..	7.5	7.3
Height of Aperture ... ..	2.4	2.5
Width of Aperture ... ..	2.0	2.0
Diameter of Umbilicus ... ..	3.0	3.0
Number of Whorls... ..	5.1/3	5.1/4

Locality: Ning-hsiang (near Shun-kiang-kou), Hunan, Holotype preserved in the author's collection; Paratypes preserved in Musée roy. d'Hist. nat. Belgique.

This species is evidently very close to *Plectopylis schistoptyl-*

*chia* that being described by Möllendorff from the same province (Jahr. Deut. Malak. Gesells., XIII, p. 185, Taf. 6, fig. 2, 1886) but differs from that by having only a single series of plicæ on the outer wall, distinctly striated on the basal surface, beside the size of the shell being greater but consisting only a little more 5 whorls. Moreover, it resembles *P. cultisculpta*, a form described by Möllendorff from Fukien Province (Jahr. Deut. Malak. Gesells., X, p. 382, Taf. 12, fig. 12, 1883), and it is readily recognized from that by the presence of a vertical lamina on the parietal wall which being crossed by a shorter transversal one at each extremity, the periphery and umbilical edge being well angulated, and bearing more prominent sculptures on the exposed surfaces.

As I have mentioned in the preceding pages that a number of other forms belonging to this genus had been described or recorded from this province, namely *P. fimbriosa* Martens from Yüng-

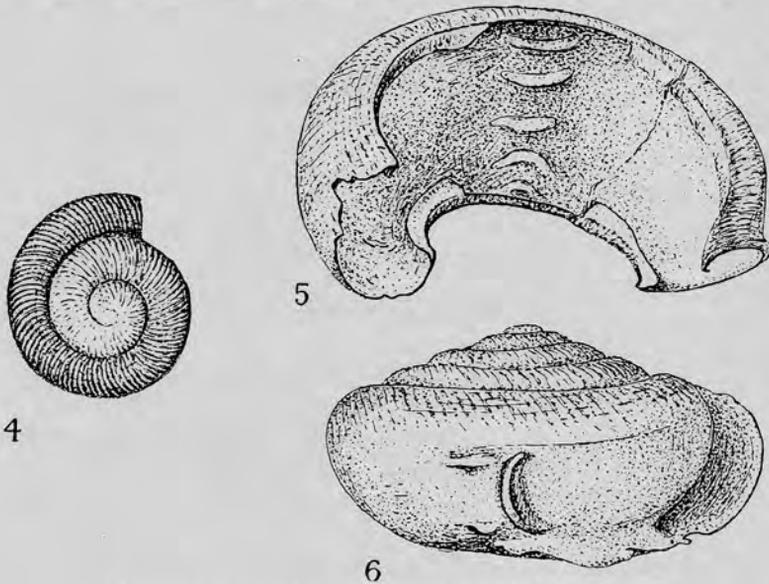


Fig. 4, 5, 6. — *Plectopylis straeleni* Yen (sp. nov.).

chow, *P. multispira* Möllendorff from Tao-Chow, and *P. emoriens* Gredler, and its variety *nana* Möllendorff from south and central parts of the province. But, nevertheless, the present species is distinctly separated from them by barrier structures, sculptures, or great difference in size and general contour.

I take pleasure to name this species in honour of Prof. Dr. V. Van Straelen, Director of Musée royal d'Histoire naturelle de Belgique, for his great kindness and courtesy extended to me during my visit to the Museum for carrying a series of malacological investigations.

Family ARIOPHANTIDÆ.

Genus **Kaliella** BLANFORD 1863.

*Kaliella franciscana gredleriana* (Heude 1882).

1882. *Hyalina gredleriana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 19, Pl. 19, fig. 11.  
 1886. *Nanina (Kaliella) franciscana* var. *gredleriana*, Tryon, Man. Conch., Ser. II, II, p. 68, Pl. 28, fig. 98.  
 1887. *Kaliella franciscana* var. *gredleriana*, Gredler, Malak. Blätter. N. F., IX, p. 126.

Single specimen in this lot identical with the species and its size also approaches near the typical form. It measures 3.2 in altitude, 3.6 in width.

Locality: Anhwa, Hunan.

Family PLEURODONTIDÆ.

Genus **Ganesella** BLANFORD 1863.

*Ganesella trochacea* (Gredler 1885).

1885. *Helix (Fructicotrochus) trochacea*, Gredler, Zur Conchylienfauna von China, VIII, Bozen, p. 6.  
 1886. *Helix (Fructicotrochus) trochacea*, Gredler, Malak. Blätter N. F., IX, p. 132.  
 1887. *Helix (Fructicotrochus) trochacea*, Gredler, Ann. K. K. Naturhistorischen Hofmuseum, II, p. 284, Taf. 11, fig. 18, 19.  
 1894. *Ganesella trochacea*, Pilsbry, Man. Conch., Ser. II, IX, p. 170.

Two specimens in the collection apparently of less matured forms of this species, and having one volution less than the ty-

pical form which being described from Hen-shan of Hunan. A larger one measures 7.4 in altitude, 9.8 in width, 3.8 in aperture height, 4.5 in width, 2.3 in umbilical diameter, and having but 6 and 1/4 whorls.

Locality: Anhwa, Hunan.

*Ganesella phyllophaga* (Heude 1882).

(Pl. II, fig. 2-2b.)

1882. *Helix phyllophaga*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 45, Pl. 18, fig. 2.  
 1884. *Helix (Fruticotrochus) phyllophaga*, Möllendorff, Jahr. Deut. Malak. Gesells., XI, p. 328.  
 1886. *Helix (Fruticotrochus) phyllophaga*, Gredler, Malak. Blätter N. F., IX, p. 132.  
 1887. *Helix (Satsuma) phyllophaga*, Tryon, Man. Conch., Ser. II, III, p. 221, Pl. 52, fig. 8-10.  
 1894. *Ganesella phyllophaga*, Pilsbry, Ibidem, IX, p. 170.

Single specimen in this lot agrees with the species described from Nanking, Lower Yangtze Valley, but slightly lower in altitude. It measures 5.0 in altitude, 5.5 in width, 2.8 in aperture height, 3.0 in its width, and having 5 whorls.

Family BRADYBAENIDÆ.

Genus *Bradybaena* BECK 1837.

*Bradybaena rivada* (Benson 1842).

1842. *Helix rorida*, Benson, Ann. et Mag. Nat. Hist., London, Ser. I, IX, p. 486.  
 1934. *Bradynaena rorida*, Pilsbry, Proc. Acad. Nat. Sc. Philadelphia, LXXXVI, p. 7.  
 1935. *Eulota rorida*, Yen, The Non-Marine Gastropods of North China, Part I, p. 17, Pl. 1, fig. 10-10b.

This is a very common species existing in various parts of this country, and some of them yields much greater size than the largest example in this lot which measures only 29.0 in altitude, 30.0 in width, 18.8 in aperture height, 18.0 in its width, 6.0 in diameter of umbilicus, and having about 6 whorls.

Locality: Anhwa, Hunan.

*Bradybaena fortunei* (Pfeiffer 1850).

1850. *Helix fortunei*, Pfeiffer, Zeitschrift für Malakozoologie, VII, p. 73.
1867. *Helix fortunei*, Martens, Die Preussische Expedition nach Ostasien, die Landschnecken, p. 44.
1882. *Helix fortunei*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 41, Pl. 16, fig. 9.
1884. *Helix fortunei*, Möllendorff, Jahr. Deut. Malak. Gesells., XI, p. 325.
1884. *Helix fortunei*, Gredler, Archiv für Naturgeschichte, 1/50, p. 261.
1885. *Helix fortunei*, Gredler, Zur Conchylienfauna von China, VII, Bozen, p. 15.
1887. *Helix (Dorcasia) fortunei*, Tryon, Man. Conch., Ser. II, III, p. 208, Pl. 47, fig. 50, 51.
1894. *Eulota (Eulota) fortunei*, Pilsbry, Ibidem, IX, p. 204.

This is a rather common species along Yangtze Valley especially in various parts of East China. The specimens in this collection are well identical with the form except somewhat greater in size, having about  $1/4$  to  $1/2$  of a volution more, and spire higher than the typical form.

The average-sized specimen measures 13.5 in altitude, 20.0 in width, 8.8 in aperture height, 10.0 in its width, 4.2 in umbilical diameter, and having 5 whorls.

Locality: Anhwa, Hunan.

*Bradybaena straminea* (Heude 1882).

(Pl. II, fig. 3-3b.)

1882. *Helix straminea*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 42, Pl. 16, fig. 5.
1884. *Helix (Fructicicola) straminea*, Möllendorff, Jahr. Deut. Malak. Gesells., X, p. 325.
1887. *Helix (Dorcasia) straminea*, Tryon, Man. Conch., Ser. II, III, p. 207, pl. 47, fig. 48, 49.
1894. *Eulota (Eulota) straminea*, Pilsbry, Ibidem, IX, p. 205.

These specimens are essentially identical with the species but slightly variable in size, the greatest one measures 14.2 in alti-

tude, 19.4 in width, 8.5 in aperture height, 10.0 in width, and having 4 and 4/5 whorls.

The color band is usually present and the peripheral angulation is rather distinct.

Locality: Anhwa, Hunan.

### *Bradybaena similaris* (Ferussac 1821).

1821. *Helix similaris*, Férussac, Tableaux Systématiques des Animaux Mollusques, p. 47.

1934. *Bradybaena similaris*, Pilsbry, Proc. Acad. Nat. Sc. Philadelphia, LXXXVI, p. 8, Pl. 1, fig. 11-14.

1936. *Bradybaena similaris*, Yen, The China Journal, XXIV, N° 1, p. 46.

There are a few specimens in this collection identical with the species described from Timor, but according to Möllendorff that this form was originated in China, and in fact it has very wide range of distribution from North to South parts of this country.

There are two bandless examples among the five, and the greatest one measures 11.0 in altitude, 14.6 in width, 7.1 in aperture height, 7.2 in width, and having 5 and 1/2 whorls.

Locality: Anhwa, Hunan.

### *Bradybaena franciscanorum* (Gredler 1886).

(Pl. II, fig. 4-4b.)

1886. *Helix franciscanorum*, Gredler, Malak. Blätter N. F., IX, p. 2.

1887. *Helix franciscanorum*, Gredler, Ann. K. K. Naturhistorischen Hofmuseum, II, p. 284, Taf. 11, fig. 7-9.

1892. *Helix (Eulota) franciscanorum*, Pilsbry, Man. Conch., Ser. II, VIII, p. 217, Pl. 54, fig. 97-99.

1894. *Chlorites (Trichochlorites) franciscanorum*, Pilsbry, Ibidem, IX, p. 124.

Gredler's description and illustration were apparently based on an immature specimen, and his « Anfr. 5 and 2/3 - 6 » is probably inaccurate. As judging from his illustration, it seems not showing so many whorls on that example. Moreover, the upper part of the outer lip is non-reflected and rather thin.

The specimen comprised in this lot is evidently fully matured,

it measures 17.0 in altitude, 30.0 in width, 13.8 in aperture height, 15.2 in its width, 7.2 in umbilical diameter, and having 5 and  $\frac{1}{3}$  whorls. The outer lip is well thickened and somewhat reflected while the inner lip is very attenuated.

I have illustrated the present specimen for comparison.

Locality: Anhwa, Hunan.

Genus **Aegista** ALBERS 1850.

**Aegista aubryana** (Heude).

1882. *Helix aubryana*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 33, Pl. 20, fig. 19a.  
 1886. *Helix (Aegista) aubryana*, Gredler, Malak. Blätter N. F., IX, p. 135.  
 1888. *Helix (Aegista) aubryana*, Tryon, Man. Conch., Ser. II, IV, p. 60, Pl. 13, fig. 45-47.  
 1894. *Eulota (Aegista) aubryana*, Pilsbry, Ibidem, IX, p. 210.

There is a series of specimens in this collection identical with this species described from Kwei-chow Province, and the size also approaches near the typical form. I am giving the measurements of a few examples as follows:

Altitude of Shell ... ..	12.0	11.8	11.5	10.2
Width of Shell ... ..	20.0	19.8	19.5	19.0
Height of Aperture ...	7.2	7.2	7.5	6.6
Width of Aperture ...	7.8	7.8	7.8	7.0
Diameter of Umbilicus.	7.8	7.5	7.5	7.5
Number of Whorls ...	7.1/2	7.1/3	7.1/3	7.0

**Aegista accrescens initialis** (Heude 1882).

1882. *Helix initialis*, Heude, Mém. d'Hist. Nat. l'Emp. Chinois, p. 31, Pl. 15, fig. 3.  
 1884. *Helix initialis*, Gredler, Jahr. Deut. Malak. Gesells., XI, p. 138.  
 1884. *Helix (Aegista) initialis*, Möllendorff, Ibidem, p. 356.  
 1885. *Helix initialis*, Gredler, Zur Conchylienfauna von China, VIII, Bozen, p. 15.  
 1887. *Helix (Aegista) initialis*, Gredler, Malak. Blätter N. F., IX, p. 136.

1888. *Helix (Aegista) initialis*, Tryon, Man. Conch., Ser. II, IV, p. 62, Pl. 13, fig. 41-43.
1894. *Eulota (Aegista) accendens* ? var. *initialis*, Pilsbry, Ibidem, IX, p. 211.

Four specimens in this lot are identical with this species described from Tung-liu of Anhwei Province. The adult example measures 5.3 in altitude, 9.5 in width, 3.5 in aperture height, 3.0 in width, 3.7 in umbilical diameter, and having 5 and  $\frac{2}{3}$  whorl. This apparently slightly smaller than the typical form.

Locality: Anhwa, Hunan.

Genus **Plectotropis** MARTENS 1860.

*Plectotropis gerlachi* (Martens 1881).  
(Pl. II, fig. 5-5b.)

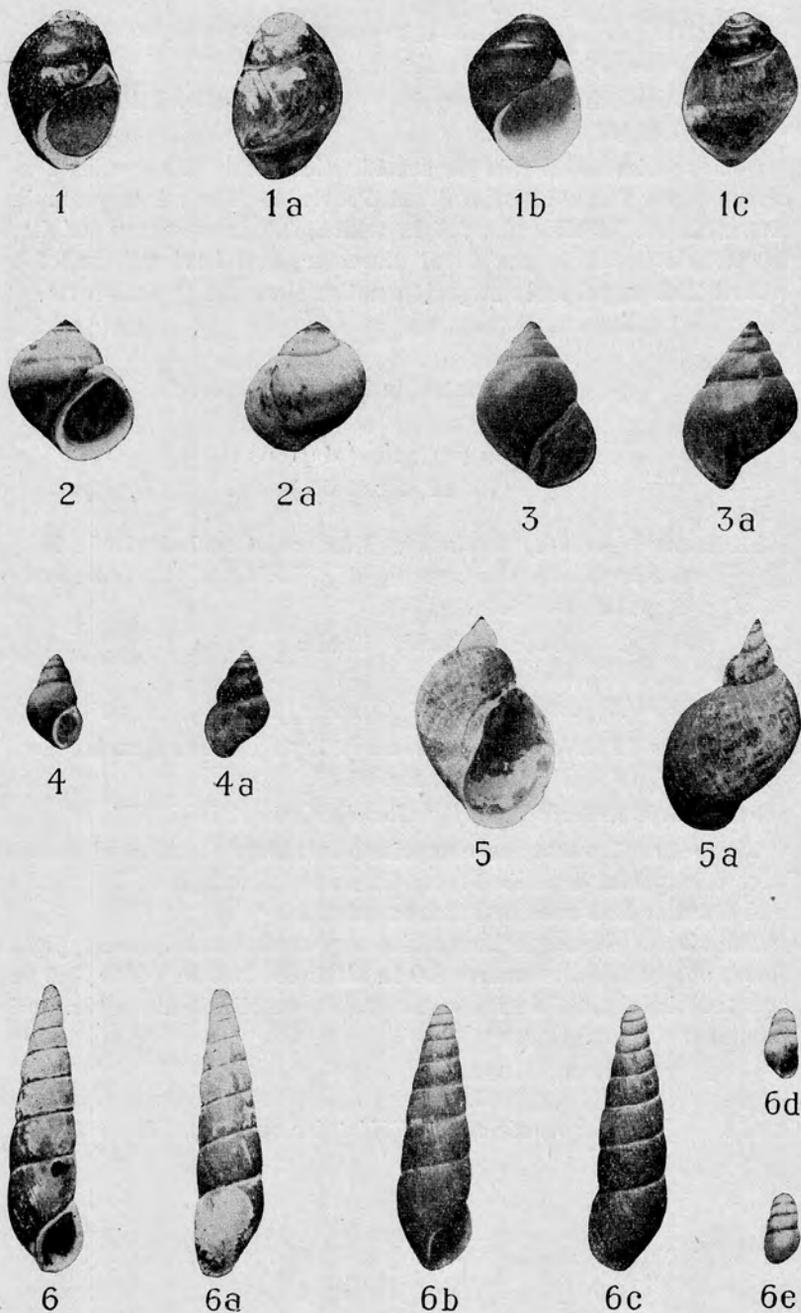
1881. *Helix (Aegista) Gerlachi*, Martens, Conchologische Mitteilungen als Fortsetzung der Novitates conchologicae, I, p. 96, Taf. 18, fig. 1-7.
1882. *Helix (Aegista) Gerlachi*, Gredler, Jahr. Deut. Malak. Gesells., IX, p. 41.
1884. *Helix (Aegista) Gerlachi*, Gredler, Ibidem, XI, p. 137.
1888. *Helix (Plectotropis) Gerlachi*, Tryon, Man. Conch., Ser. II, IV, p. 52, Pl. 11, fig. 35-37.
1894. *Eulota (Plectotropis) gerlachi*, Pilsbry, Ibid., IX, p. 209.

There are 3 examples comprised in this collection identical with the species described from Canton of Kwangtung Province, and Gredler had recorded it from Hunan.

The size of these specimens also approaches nearly the typical form, one of them measures 8.0 in altitude, 21.0 in width, 8.0 in aperture height, 8.5 in its width, 7.0 in umbilical diameter, and having 6 whorls.

Locality: Anhwa, Hunan.

*Musée royal d'Histoire naturelle, Bruxelles.*



## PLATE I.

- Fig. 1-1c. — *Rivularia auriculata* (Martens).  
 Fig. 2-2a. — *Rivularia liuiana* Yen (sp. nov.).  
 Fig. 3-3a. — *Bulimus fuchsiana* (Möllendorff) × 2.  
 Fig. 4-4a. — *Bulimus misella* (Gredler) × 2.  
 Fig. 5-5a. — *Lymnaea* sp.  
 Fig. 6-6e. — *Tortaxis fuchsianus* (Heude).

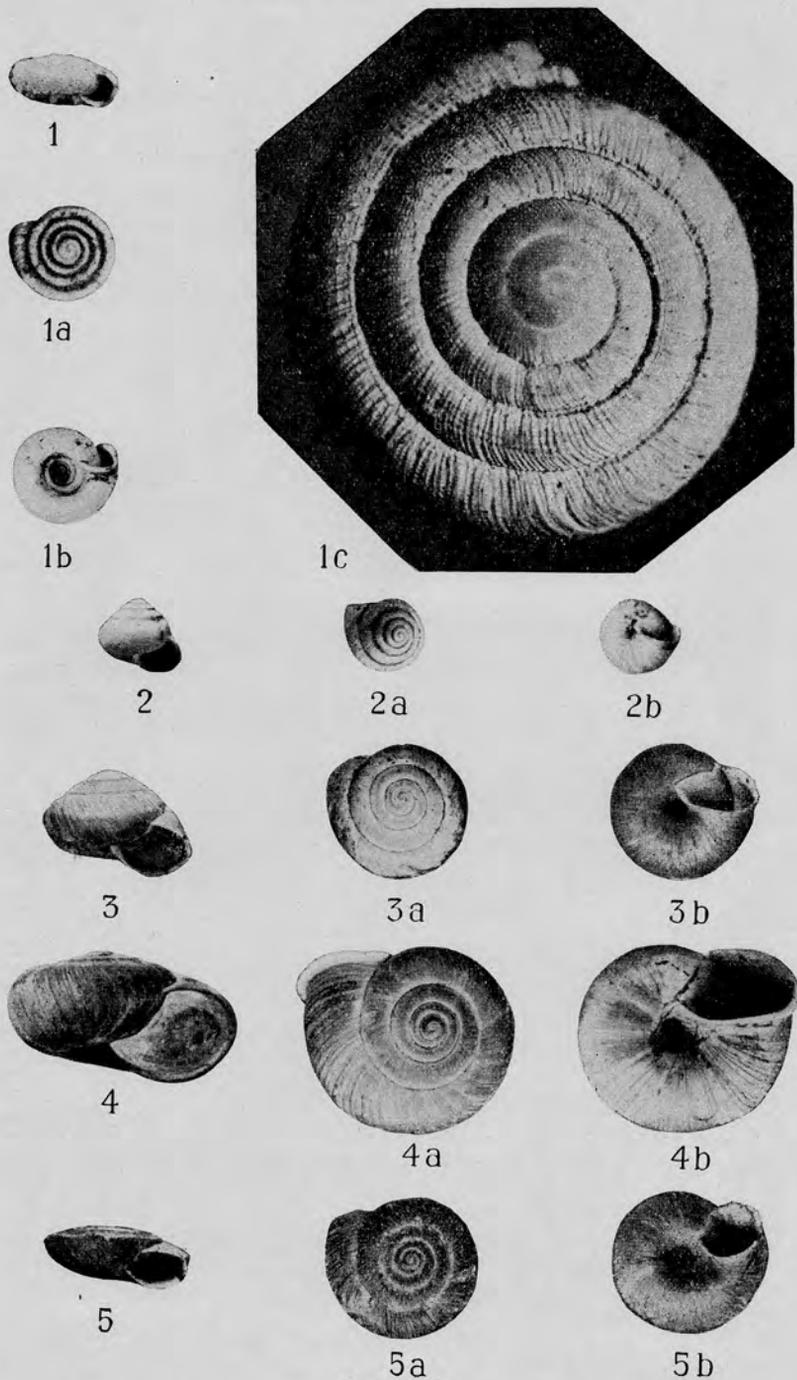


PLATE II.

- Fig. 1-1c. — *Plectopylis straeleni* Yen (sp. nov.)  $\times 2$  et  $\times 10$ .  
 Fig. 2-2b. — *Ganesella phyllophaga* (Heude)  $\times 2$ .  
 Fig. 3-3b. — *Bradybaena straminea* (Heude).  
 Fig. 4-4b. — *Bradybaena franciscanorum* (Gredler).  
 Fig. 5-5b. — *Plectotropis gerlachi* (Möllendorff).





GOEMAERE, Imprimeur du Roi, Bruxelles.