Art. XIX.—*Contributions to the Molluscan Fauna of New Zealand.*

By H. Suter.

[*Read before the Philosophical Institute of Canterbury, 4th November, 1891.*]

Professor F. W. Hutton, in his "Revision of the Land Mollusca of New Zealand" (Trans. N.Z. Inst., vol. xvi.), after having examined the dentition of a large number of our molluscs, was the first to see the necessity of establishing a family for those of our land-shells which represent intermediate forms between the Limacidæ and Patulidæ. This family he called Charopidæ (Trans. N.Z. Inst., vol. xvi., p. 199), including in it the genera *Gerontia*, *Pyrrha*, *Charopa* (*Ch. ida*), *Psyra*, *Therasia*, and *Thalassia*. Now, the type of the group or genus *Charopa*, Albers, is our *Patula coma*, Gray (Albers, Die Heliceen, II. Ausgabe, von E. von Martens, p. 87); and I think we should retain the name of *Charopa* for the group of *P. coma*, Gray, which belongs to the family of the Patulidæ, We therefore have to look for another name for our shells. None of the groups established by Albers or Pfeiffer can be taken into consideration. We have to deal here with evidently very old forms, showing peculiarities in their animals which hardly are met with in the Northern Hemisphere. The flora and fauna of New Zealand are well known for their peculiarities, and our land and fresh-water molluscs form no exception to the rule. How far similar forms are distributed over the Southern Hemisphere remains to be investigated. In my collection I used for several years the name of Pseudohelicidæ for this family; but I have to give it up, as Dr. O. Boettger in 1890 gave the name of *Pseudohelix* to a group of *Vertigo*, and I propose now the name of Phenacohelicidæ.

The genus *Phenacohelix* I substituted for *Fruticicola* (Trans. N.Z. Inst., vol. xvi., p. 194), as Professor F. W. Hutton fully agrees with me that none of our New Zealand shells belongs to *Fruticicola*. It includes *Ph. pilula*, Reeve; *Ph. granum*, Pf.; and *Ph. chordata*, Pf.

The generic name of *Charopa*, given by Professor F. W. Hutton to *Helix ida*, Gray, I propose to change to *Patulopsis*.

The family of the Phenacohelicidæ contains molluscs which are characterized by the heliciform animal possessing a *caudal gland;* the jaw is, with few exceptions, ribbed, stegognath; the marginal teeth show all intermediate forms from aculeate to quadrate, but even in the latter case some of the cutting-points are usually very long. The shell is that of *Helix*, spire

flat or elevated, umbilicated or imperforate; peristome acute; aperture without lamellæ; epidermis smooth or ribbed, seldom hairy.

The genera I include in the family of the Phenacohelicidæ are the following: *Phacussa, Thalassia, Gerontia, Psyra, Pyrrha, Therasia, Phenacohelix, Patulopsis, Amphidoxa,* and *Calymna.* They are in such a succession that *Phacussa* stands nearest to the Limacidæ, and *Amphidoxa,* with *Calymna,* nearest to the Patulidæ.

On examining the dentition of *Diplomphalus subantialba,* mihi, and *D. biconcava,* Pf., I have satisfied myself that I was mistaken when I placed several of our shells in this genus (Trans. N.Z. Inst., vol. xxii., p. 226), as there is a jaw, and consequently the radula is quite different from that of *Diplomphalus.*

With regard to the genus *Hyalina* I am more doubtful than ever. The species *H. microreticulata,* mihi, and *H. allochroida,* mihi (Trans. N.Z. Inst., vol. xxii., p. 227, 228), very likely belong to another genus; but as long as I have not had an opportunity of examining the animal I must defer settling the question.

The examination of the dentition of *Endodonta leimonias, E. pœcilosticta,* and *E. marina* decidedly shows that these shells must be included in *Phrixgnathus,* Hutt., and do not belong to *Endodonta.* The group Laoma was established by Gray in 1849 for *Bul. leimonias,* and I propose to retain it for the shells mentioned, as a subgenus of *Phrixgnathus.* This subgenus includes those species of *Phrixgnathus* which are provided with spiral laminæ and teeth in the aperture.

I wish to give complete lists of the land and fresh-water molluscs I found in two different places of this colony, at each of which I have been collecting occasionally during about one year and a half.

I.—*Molluscan Fauna of the Vicinity of Hastwell, Forty-mile Bush, North Island.*

Class GASTEROPODA. Ord. PULMONATA.

Group STYLOMMATOPHORA.

Sec. AGNATHA.

Fam. **Testacellidæ.**

1. *Elæa coresia,* Gray. Very scarce. Found only one specimen, amongst dead leaves in the bush near Mauriceville.

Sec. GNATHOPHORA. (*a.*) HOLOGNATHA.

Fam. **Limacidæ.**

2. *Amalia marginata,* Hutt.. Rare. Two specimens only were obtained, in the bush near Hastwell.

3. *Hyalina* (?) *allochroida*, Sut. Very scarce. Bush near Mauriceville.

4. *Hyalina* (?) *allochroida*, Sut., var. *sericata*, Sut. Only one specimen, in the bush near Hastwell.

5. *Hyalina* (?) *allochroida*, Sut., var. *lateumbilicata*, Sut. Scarce. Amongst dead leaves and mould, bush near Hastwell.

6. *Hyalina* (?) *microreticulata*, Sut. Very scarce. Bush near Hastwell.

Fam. **Phenacohelicidæ.**

7. *Thalassia neozelanica*, Gray. Not uncommon under pieces of rotten wood and bark in the bush.

Thalassia neozelanica, Gray, forma *pallidula*. Without markings, light-coloured. With the foregoing, but scarcer.

8. *Psyra dimorpha*, Pf. Scarce, as all the other species of the genus. Hiding in the cavities of rotten logs in damp situations in the bush.

9. *Psyra tullia*, Gray. Scarce. Under stones and rotten wood.

10. *Psyra adriana*, Hutt. More frequently found than the other species.

11. *Psyra planulata*, Hutt. Scarce.

12. *Psyra miranda*, Hutt. The rarest of the genus.

13. *Therasia celinde*, Gray. Very rare. Found a few specimens only on pieces of wood in the bush on a steep hill.

14. *Therasia thaisa*, Hutt. Occurs only on a limestone hill near Mauriceville Railway-station.

15. *Phenacohelix pilula*, Reeve. In moist and dark situations in the bush. Rather scarce.

16. *Phenacohelix chordata*, Pf. Very scarce. Only a few specimens found in the bush near Hastwell; somewhat more abundant on the Mauriceville limestone hill. Under dead leaves.

17. *Patulopsis ida*, Gray. Not common, but found throughout the bush under rotten wood in damp and dark places.

18. *Amphidoxa compressivoluta*, Reeve. Scarce. Seems to prefer high situations in the bush. Under pieces of wood and bark.

19. *Amphidoxa zebra*, Le Guillou. Very scarce, mostly hiding in the mould accumulated on rotten logs. It never attains the large size of specimens in the South Island.

20. *Amphidoxa chiron*, Gray. Found only a few specimens under rotten wood in the bush near Hastwell and Mauriceville.

21. *Calymna feredayi*, Sut. Scarce. Under rotten wood in the bush.

Fam. **Patulidæ.**

22. *Patula coma*, Gray. Common everywhere, especially under loose bark on logs.

Patula coma, Gray, forma *globosa*. Near Hastwell I found a number of *P. coma* having the general appearance of *P. lucetta*, but the umbilicus is wider and the ribs more distant than in the latter species. There are all intermediate forms to be found, from the flat normal form, whose height is 0·12in., to the globose form showing a height of 0·16in.

23. *Patula lucetta*, Hutt. Very scarce. One specimen only, near Mauriceville.

24. *Patula buccinella*, Reeve. Not common. Together with *P. bianca*.

25. *Patula corniculum*, Reeve. Scarce, especially adult specimens.

26. *Patula bianca*, Hutt. Under bark on logs, but easily overlooked, because it has almost the same colour as the wood and bark of rimu, on which it is mostly found.

27. *Patula anguicula*, Reeve. Under dead leaves and amongst mould in damp situations in the bush. As it is very minute and dark-coloured, it is difficult to find it. This species is found on both Islands, but seems to be nowhere abundant.

28. *Patula varicosa*, Pf. (= *P. timandra*, Hutt.). Under rotten wood and under bark in damp places. Rather scarce.

29. *Patula tapirina*, Hutt. Next *P. coma* the most common shell of the genus. Under rotten wood and dead leaves.

Patula tapirina, Hutt., forma *albina*. Nearly white. Found in the bush near Hastwell.

30. *Patula infecta*, Reeve. With the foregoing.

31. *Patula infecta*, Reeve, var. *irregularis*, Sut. Very scarce.

32. *Patula sylvia*, Hutt. Through the whole bush, but rather scarce. Darker in colour than specimens I have seen from the South Island.

33. *Patula colensoi*, Sut. Under rotten wood, &c. Scarce.

34. *Patula variecostata*, Sut. In the bush near Mauriceville, under rotten wood. Very scarce.

35. *Patula raricostata*, Sut. Near Mauriceville, on limestone formation, amongst mould in the bush. Rare.

36. *Patula biconcava*, Pf. In dark and damp situations in the bush. Not common.

37. *Patula huttoni*, Sut. Very scarce. Under rotten logs in the bush near Hastwell.

38. *Patula moussoni*, Sut. In the same places. Rare.

39. *Patula subantialba*, Sut. In damp, shady places in the bush near Hastwell and Mauriceville. Scarce.

Fam. **Helicidæ.**

40. *Vitrinoidea dimidiata*, Pf. Under rotten logs; prefers the outskirts of the bush. The animal is almost always found with its tail brought forward to the right side of the head. I am inclined to consider this peculiar form which the animal assumes as mimicry, imitating certain not uncommon outgrowths on logs.

41. *Phrixgnathus maria*, Gray. On rotten wood, &c. Scarce.

42. *Phrixgnathus conella*, Pf. On rotten wood, &c. Scarce, especially alive.

43. *Phrixgnathus regularis*, Pf. On rotten wood, &c. Very rare.

44. *Phrixgnathus celia*, Hutt. On rotten wood, &c. Scarce. Near Mauriceville only.

45. *Laoma marina*, Hutt. (= *L. nerissa*, Hutt.). Amongst dead leaves, on bark, &c. Not uncommon.

46. *Maoriana pseudoleioda*, Sut. Not common. Under rotten wood.

47. *Maoriana wairarapa*, Sut. Not common. Under rotten wood.

48. *Maoriana hectori*, Sut. Under loose bark, together with *P. coma*, *P. bianca*, and *P. buccinella*.

49. *Maoriana microundulata*, Sut. The rarest of the group.

Fam. **Pupidæ.**

50. *Pupa (Isthmia) neozelanica*, Pf. Rather common throughout the bush, though adult specimens are seldom met with. Under bark and pieces of wood.

(*b*.) ELASMOGNATHA.

Fam. **Janellidæ.**

51. *Janella bitentaculata*, Q. and G. Found everywhere, especially under rotten logs.

52. *Janella bitentaculata*, Q. and G., var. *papillata*, Hutt. Rather scarce.

Ord. PROSOBRANCHIATA. Sub-Ord. PECTINIBRANCHIATA.

Group BASOMMATOPHORA.

Sec. TÆNIOGLOSSA.

Fam. **Hydrobiidæ.**

53. *Potamopyrgus antipodum*, Gray. Common in creeks.

54. *Potamopyrgus cumingiana*, Fischer. In the large creek near Hastwell, on stones. The adult specimens deprived of spines. Large specimens are found in the Ruamahanga River, near Mauriceville.

Fam. **Cyclophoridæ.**

55. *Cyclophorus lignarius*, Pf. Found one specimen only, in rotten wood.

Fam. **Cyclostomatidæ.**

56. *Realia egea*, Gray. Scarce near Hastwell; more numerous on the Mauriceville limestone hill, amongst dead leaves.

Realia egea, Gray, forma *albina*. Some specimens found in the last-mentioned locality.

Sub-Ord. SCUTIBRANCHIATA.

Fam. **Hydrocenidæ.**

57. *Hydrocena purchasi*, Pf. Found in one place only, under stones in the bush near Hastwell, by the side of a creek.

Class LAMELLIBRANCHIA.

Fam. **Unionidæ.**

58. *Unio rugatus*, Hutt. In the Kopuaranga River, Hastwell, and Mangamahoe. Some specimens present a short stout form, with the posterior end very high and straight, which resembles somewhat *U. hochstetteri*. Pearly deformations in the interior of the mussels are very common.

II.—*Molluscan Fauna of the Hooker and Tasman Valley, South Island.*

Class GASTEROPODA. Ord. PULMONATA.

Group STYLOMMATOPHORA.

Sec. GNATHOPHORA. (*a.*) HOLOGNATHA.

Fam. **Limacidæ.**

1. *Pitys cryptobidens*, Sut. Amongst mould in the subalpine bush, hiding under dead leaves. Very scarce. White Horse Hill, Hooker Valley.

Fam. **Phenacohelicidæ.**

2. *Phacussa hypopolia*, Pf. Found in all the lower parts of the subalpine bush, under dead leaves and rotten wood. Crawling after warm rain on shrubs with smooth bark, frequently on dead *Panax*.

3. *Psyra tullia*, Gray. Under stones amongst small roots. Sealey Range.

Psyra tullia, Gray, forma *albina*. In the same places. Scarce.

4. *Psyra godeti*, Sut. Together with *P. tullia*. Sealey Range and Black Birch Creek valley.

5. *Therasia decidua*, Pf. In the same places as *Ph. hypopolia*.

6. *Amphidoxa feredayi*, Sut., var. *glacialis*, Sut. Under rotten wood. White Horse Hill, Hooker Valley. Rare.

Fam. **Patulidæ.**

7. *Patula buccinella*, Reeve. In the bush, amongst mould, rotten wood, &c. The most common of the land-shells.

8. *Patula corniculum*, Reeve, var. *maculata*, Sut. Very scarce. Amongst decaying leaves in the subalpine bush, Sealey Range.

9. *Patula bianca*, Hutt. Scarce. In the subalpine bush, Hooker Valley.

10. *Patula bianca*, Hutt., var. *montana*, Sut. Not common. In the subalpine bush, Hooker Valley.

11. *Patula anguicula*, Reeve. Scarce. In the subalpine bush, Hooker Valley.

12. *Patula infecta*, Reeve, var. *alpestris*, Sut. Rare. In the subalpine bush, Hooker Valley.

13. *Patula mutabilis*, Sut. Very scarce. In the subalpine bush, Hooker Valley.

14. *Patula sterkiana*, Sut. Not common. In the subalpine bush, Hooker Valley.

15. *Patula brouni*, Sut. Not common. In the subalpine bush, Hooker Valley.

16. *Patula serpentinula*, Sut. Not common. In the subalpine bush, Hooker Valley.

17. *Patula eremita*, Sut. Very scarce. In the subalpine bush, Hooker Valley.

Fam. **Helicidæ.**

18. *Phrixgnathus acanthinulopsis*, Sut. Scarce. Amongst mould in the bush, Hooker Valley.

19. *Maoriana aorangi*, Sut. Not common. Amongst mould in the bush, Hooker Valley.

(*b.*) ELASMOGNATHA.

Fam. **Janellidæ.**

20. *Janella bitentaculata*, Q. and G. Near Governor's Bush, Hooker Valley.

Group BASOMMATOPHORA.

Fam. **Limnæidæ.**

21. *Limnæa alfredi*, Sut. In a small creek near Governor's Bush, Hooker Valley, and in Birch Hill Lagoon, Tasman Valley.

22. *Amphipeplea ampulla*, Hutt., var. *globosa*, Sut. Common in Birch Hill Lagoon.

Sec. TÆNIOGLOSSA.

Fam. **Hydrobiidæ.**

23. *Potamopyrgus corolla*, Gould. Birch Hill Lagoon and outflowing creek. All the specimens I have seen were deprived of spines.

Class LAMELLIBRANCHIA.

Fam. **Cyrenidæ.**

24. *Sphærium neozelanica*, Desh. Plentiful in Birch Hill Lagoon, Tasman Valley.

III.—*Molluscan Fauna of Some Parts of the Province of Auckland.*

Some time ago Mr. Charles T. Musson, F.L.S., of Richmond, New South Wales, sent me a large number of shells collected by him in the Province of Auckland, at Ohaupo, in conjunction with Dr. Rud. Haeusler, for naming; and I think it worth while to publish a list of the land-shells. The localities are the following, as given to me by Mr. Musson: 1. Heavy bush, Parua Bay, near Whangarei. 2. Whangarei Head, bush on steep hill-sides facing sea. 3. Hillyer's Creek, near Auckland. 4. Mount Wellington lava-fields. 5. Ohaupo. 6. Domain, Auckland.

—	1.	2.	3.	4.	5.	6.
Fam. *Testacellidæ.*						
Elæa coresia, *Gray*	x	..	x	x	..	..
„ jeffreysiana, *Pf.*	..	..	x	..	..	..
Rhytida dunniæ, *Gray*	x	..	..	..	..	..
Fam. *Limacidæ.*						
Hyalina (?) allochroida, *Sut.*, *v.* lateumbilicata	..	..	..	..	x	..
Fam. *Phenacohelicidæ.*						
Thalassia portia, *Gray*	x	..	x	x	..	..
„ neozelanica, *Gray*	..	x	x	x	..	..
Psyra dimorpha, *Pf.*	..	..	..	..	x	..
„ tullia, *Gray*	..	..	..	..	x	..
Therasia celinde, *Gray*	x	x	x	..	x	..
„ tamora, *Hutt.*	x	..	..	..	..	..
„ thaisa, *Hutt.*	x	..	..	..	..	..
Phenacohelix pilula, *Reeve*	x	..	x	x	x	x
„ chordata, *Pf.*	x	..	..	x	..	..
Patulopsis ida, *Gray*	..	x	x	..	x	..
Amphidoxa perdita, *Hutt.*	x	..	..	..	x	..
„ chiron, *Gray*	..	..	..	..	x	..
Calymna costulata, *Hutt.*	..	..	..	..	x	..
„ olivacea, *Sut.*	..	..	x	..	..	..

—	1.	2.	3.	4.	5.	6.
Fam. *Patulidæ.*						
Patula coma, *Gray*	x	..	..	x	x	..
„ varicosa, *Pf.*	x	..	..	x	..	..
„ corniculum, *Reeve*	x	..	..	..	x	..
„ buccinella, *Reeve*	..	..	..	..	x	..
„ sylvia, *Hutt.*	x	..	x	x	..	..
„ infecta, *Reeve*	x	x	..	..	x	..
„ egesta, *Gray*	..	..	..	x	..	..
„ subantialba, *Sut.*	..	..	..	x	..	..
„ caput-spinulæ, *Reeve*	x	..	x	x	x	x
Fam. *Helicidæ.*						
Phrixgnathus maria, *Gray*	x	..	..	..	x	..
„ conella, *Pf.*	..	..	x	x	x	x
„ ariel, *Hutt.*	x	..	..	..	..	..
„ erigone, *Gray*	..	..	..	x	x	x
„ phrynia, *Hutt.*	x	..	..	..	..	..
„ glabriuscula, *Pf.*	x	x	..	x	x	..
„ transitans, *Sut.*	x	..	..	..	..	..
Laoma leimonias, *Gray*	..	..	..	..	x	x
„ pœcilosticta, *Pf.*	x	..	..	x	..	..
„ marina, *Hutt.*	..	..	..	x	..	..
Maoriana hectori, *Sut.*	x	..	..	x	x	..
„ pseudoleioda, *Sut.*	x	..	..	x	x	..
Fam. *Bulimulidæ.*						
Rhabdotus kiwi, *Gray*	x	..	x	..	x	..
Fam. *Helicteridæ.*						
Tornatellina neozelanica, *Pf.*	..	..	..	x	..	..
Fam. *Cyclophoridæ.*						
Cyclophorus cytora, *Gray*	..	..	..	..	x	..
Fam. *Cyclostomatidæ.*						
Realia egea, *Gray*	x	..	x	..	..	..
„ turriculata, *Pf.*	x	x	..	..	..	..
„ carinella, *Pf.*	..	..	..	..	x	..
„ hochstetteri, *Pf.*	..	x	..	..	..	..
Fam. *Hydrocenidæ.*						
Hydrocena purchasi, *Pf.*	x	..	x	..	x	..

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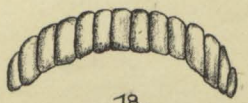
13.


13a. 2/1


13b.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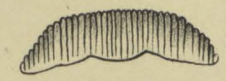
21. 20. 16. 5. 2. 1. c
19. 480/1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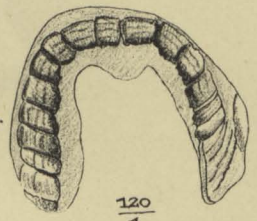
20.


c 1. 5. 9. 10. 11.
21. 720/1


c 1. 4. 8. 9. 12. 18. 19. 23. 24. 25.
15. 480/1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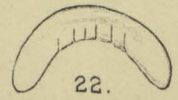
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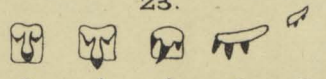
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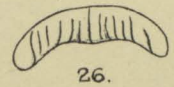
c 1. 5. 8. 11.
480/1.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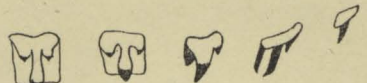
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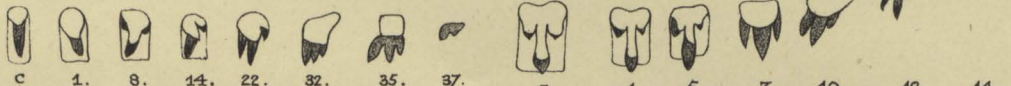
27. 480/1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17. 480/1 25. 480/1

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