

B A S T E R I A

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TIJDSCHRIFT VAN DE NEDERLANDSE
MALACOLOGISCHE VERENIGING

Vol. 33, No. 5-6, pp. 69-116

20-XII-1969

**Notes on a collection of non-marine Mollusca
from the province of Sør Trøndelag, Norway**

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INTRODUCTION AND DESCRIPTION OF THE LOCALITIES

Since 1961 various student's excursions to Norway and Sweden have been organized by the Rijksmuseum van Natuurlijke Historie (Leiden) in collaboration with the Department of Systematic Zoology of the University. I have had the opportunity to participate in the last two of these excursions, viz., from 19 August until 19 September, 1965, and from 12 August until 9 September, 1967. The main purpose of these excursions was to make students familiar with marine biological techniques and to introduce them to the rich marine fauna of these areas. There was, however, also ample opportunity to collect land and freshwater molluscs.

In spite of numerous and extensive accounts on the distribution of non-marine molluscs, for instance by Økland (1922, 1925), comparatively little is known about these vast countries. Publication of our results therefore seemed justified. We made extensive collections in both Norway and Sweden. This paper deals only with results obtained in Norway, however, since the localities we visited in Sweden are the subject of a large scale research project carried out by the museum at Gothenburg.

In Norway we stayed in Hambaara, the field station of the Norske Laererhøgskole at Trondheim. Hambaara is situated near the village of Selva at the entrance to the Trondheimsfjord.

When referring to localities in the systematic list of the species, the italicized part of the name of the following sites where we collected will be used (see map fig. 1).

von der Türkenschanze für anatomische Untersuchungen zu bekommen, vermutete deren Identität mit *H. (H.) striata*.

Mit der Entdeckung von *H. (H.) austriaca* nov. spec. ist es noch schwieriger geworden um kleine stark gestreifte oder gerippte Helicellen nur nach dem Gehäuse sicher zu bestimmen.

Locus typicus. — Sieding bei Ternitz, Niederösterreich.

Vorkommen. — Nur vom Originalfundort, sowie von Brunn am Steinfelde (= Brunn an der Schneebergbahn) bei Wiener Neustadt, Niederösterreich, bekannt.

Holotypus. — RMNH 53305.

Paratypen. — B 1192; K 53818; RMNH 53306 und Genitalpräparat 418; SMF 194136/2.

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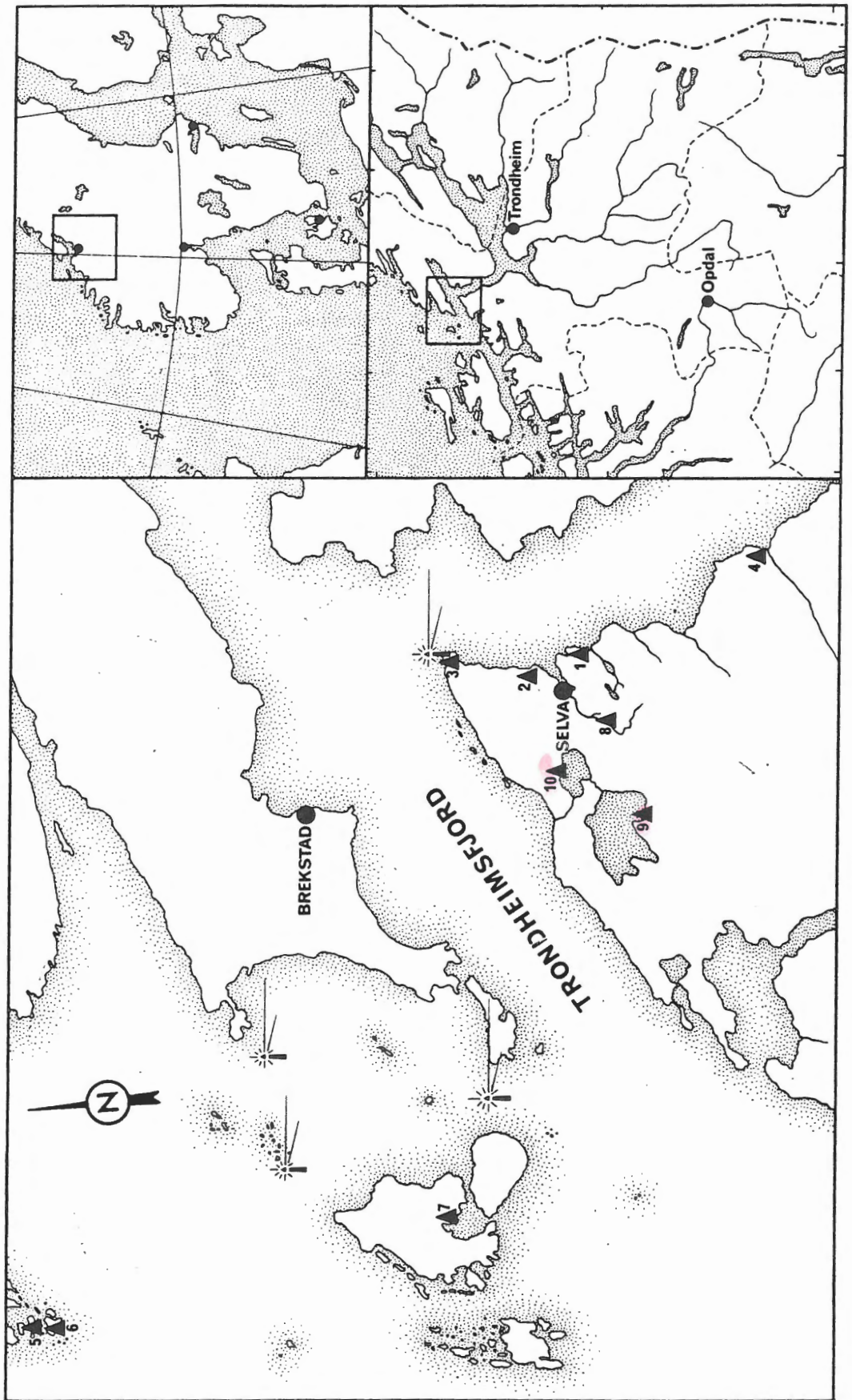


Fig. 1. Collecting localities; see pp. 71-72.

1) *Hambaara*, in the close vicinity of the biological station (see above). The station is situated on the SW. bank of the Trondheimsfjord at the bottom of hills which are not much higher than 200 m (600 feet). These hills, polished by the ice of the ice-age are only partly covered with heath or peat vegetation. The lower parts in particular are occasionally covered with small coniferous or deciduous forests. Land molluscs were especially common in the lower parts. Although most species were found throughout the whole area, the population density was remarkably higher in sites which were directly influenced by man, such as heaps of stones, waste wood, the refuse-dump, etc.

2) *Breivik*, a hamlet NE. of Selva. Here we collected in a forest along the fjord, which is mainly composed of birch, mountain-ash and occasionally juniper, whilst ferns, e.g. oak fern, wild roses, herb paris and heather constituted the major part of the undergrowth.

3) *Agdenes Fyr*. We collected near this light-house at the most northeastern part of the mainland which is represented here by a rather isolated rock. Heather and lichens grew here rather sparsely and at the bottom of this rock there are some mountain-ashes and birches. Most molluscs were found between the remains of a house on the rock and at the bottom of the rock in a cultivated part of the land.

4) *Stördalsören*, ruderal vegetation along the road where branches and other botanical refuse were deposited. Molluscs were found on and under these branches and under stones.

5) *Strandø*, a small island off the entrance to the Trondheimsfjord, partly grazed by sheep. On the higher parts there is a rather dense heath vegetation. We could only collect on this island for a very short time (c. 1½ hours).

6) *Store Gyltingen*, a small island off the entrance to the Trondheimsfjord. This was also grazed by sheep, which kept the vegetation low. We collected here for only two hours.

7) *Storfosna*, a rather large island off the entrance to the Trondheimsfjord. We collected mainly in the surroundings of the harbour where most of the land is cultivated. Most molluscs were found on overgrown rocks and under dead wood.

8) *Holtebekken*, a little stream debouching into the Trondheimsfjord near Selva. We collected along the upper course of the stream, about 50 m (150 feet) above sea level, where it passes through a peat-moor.

9) *Stor Vand*, a lake near Selva with shores partly covered with reeds. Vegetation is absent along many parts of the shore. Extensive

deposits of marine molluscs, dating from the time when the land was still below sea level, are found along the borders of the lake.

10) *Lille Vand*, a small lake, silting up. For the past few years it has been connected with the Stor Vand by a ditch. *Phragmites* and *Equisetum* grow densely along the shore.

SYSTEMATIC REVIEW OF THE SPECIES

All specimens were collected alive, unless otherwise mentioned. A key to the frequency of occurrence is given in the following code:

more than 25 specimens : very common (v.c.)
10-25 specimens : common (c.)
5-10 specimens : rather common (r.c.)
less than 5 specimens : the exact number is given.

The systematic arrangement is mainly in accordance with Zilch & Jaeckel (1962).

GASTROPODA EUTHYNEURA Basommatophora

Family ELLOBIIDAE

Carychium tridentatum (Risso, 1826). Hambaara, very common. So far as we know this is the first record of the species for Norway. The species was expected to occur in Norway, since it had already been recorded from Sweden and Finland (Valovirta, E.J., 1955; Valovirta, I., 1967). Formerly it was sometimes regarded as a variety of *C. minimum* (O.F. Müller, 1774), so that it is possible that literature records of *C. minimum* actually refer to *C. tridentatum*. Schlesch (1929) was the first to report the occurrence of *C. minimum* in one of the provinces of Trøndelag.

Family LYMNAEIDAE

Radix (Radix) peregra (O.F. Müller, 1774). Holtebekken, very common in almost stagnant water on a muddy bottom and on stones in the rapidly flowing water of a waterfall; Stor Vand, common; Lille Vand, common.

Family PLANORBIDAE

Gyraulus acronicus (Férussac, 1807). Holtebekken, common on muddy bottom; Stor Vand, common; Lille Vand, common.

Stylommatophora

Family COCHLICOPIDAE

Cochlicopa lubrica (O.F. Müller, 1774). Hambaara, very common; Breivik, rather common; Stördalsören, rather common; Strandø, common; Store Gyltingen, common; Storfosna, common. The length of the specimens of these populations varies from 4.5-6.2 mm, the width varies from 2.0-2.7 mm

Family VERTIGINIDAE

Columella edentula (Draparnaud, 1805). Hambaara, 3; Breivik, 3; Agdenes Fyr, 1; Store Gyltingen, 4.

Columella aspera Waldén, 1966. Hambaara, rather common; Stördalsören, 1; Storfosna, rather common.

Vertigo (Vertigo) pygmaea (Draparnaud, 1801). Hambaara, 1. So far this species was not known to occur in the province of Sør Trøndelag. Together with Frosta in Nord Trøndelag, situated somewhat more southwards, this locality forms the northern limit of the range of the species in Europe.

Vertigo (Vertigo) substriata (Jeffreys, 1833). Hambaara, 1; Breivik, 1; Strandø, 1; Storfosna, rather common. So far this species was not yet known to occur in the province of Sør Trøndelag.

Vertigo (Vertigo) arctica (Wallenberg, 1858). Hambaara, rather common under decaying wood. This locality is the fourth in Norway south of the Arctic Circle for this species.

Family PUPILLIDAE

Pupilla muscorum (Linnaeus, 1758). Hambaara, very common; Strandø, very common; Store Gyltingen, 4; Storfosna, very common.

Family VALLONIIDAE

Vallonia pulchella (O.F. Müller, 1774). Hambaara, common; Strandø, 3; Store Gyltingen, rather common; Storfosna, common.

Vallonia costata (O.F. Müller, 1774). Hambaara, very common. In the past doubt had been expressed about the occurrence of this species in the province of Sør Trøndelag (see Økland, 1925 : 79).

Family SUCCINEIDAE

Succinea (Oxyloma) elegans (Risso, 1826). Stor Vand and Lille Vand, common on *Phragmites*, *Equisetum* and the like. Since the nomenclature of this group of *Succinea* is rather complicated, it

should be mentioned that our specimens have a short, straight vagina (syn. *S. pfeifferi* Rossmässler, 1835).

Family ENDODONTIDAE

Punctum pygmaeum (Draparnaud, 1801). Hambaara, rather common; Breivik, 2; Storfosna, 2.

Discus ruderatus (Hartmann, 1821). Hambaara, common; Stördalsören, common; Strandø, 1; Store Gyltingen, 1.

Family ARIONIDAE

Arion ater (Linnaeus, 1758). Hambaara, rather common; Agdenes Fyr, 1; Stördalsören, 1; Storfosna, 3.

Arion circumscriptus Johnston, 1828, s.l. Hambaara, 2; Agdenes Fyr, 1; Storfosna, rather common. Because the specimens were not mature, it was impossible to distinguish *A. circumscriptus* s.s. and *A. silvaticus* Lohmander, 1937.

Arion subfuscus (Draparnaud, 1805). Hambaara, 3; Agdenes Fyr, 1; Stördalsören, 2; Strandø, 2; Store Gyltingen, 1; Storfosna, 3.

Arion intermedius Normand, 1852. Hambaara, common; Breivik, 1; Agdenes Fyr, 2; Stördalsören, 1.

Family VITRINIDAE

Vitrea pellucida (O.F. Müller, 1774). Hambaara, common, some specimens were collected alive on a dead trapped mouse; Breivik, common; Agdenes Fyr, common; Stördalsören, 2; Strandø, 2; Store Gyltingen, 1; Storfosna, 4. In August-September only juvenile specimens could be collected alive.

Family ZONITIDAE

Vitrea cristallina (O.F. Müller, 1774). Hambaara, 2. So far this species was not known to occur in the province of Sør Trøndelag.

Nesovitrea (Perpolita) hammonis (Ström, 1765). Hambaara, common; Breivik, common; Agdenes Fyr, 3; Stördalsören, 1; Strandø, 3; Store Gyltingen, common; Storfosna, rather common.

Nesovitrea (Perpolita) petronella (Pfeiffer, 1853). Hambaara, 1; Agdenes Fyr, 1.

Aegopinella pura (Alder, 1830). Hambaara, common; Breivik, 1; Storfosna, 4.

Aegopinella nitidula (Draparnaud, 1805). Hambaara, 3; Agdenes Fyr, 2; Strandø, rather common; Storfosna, 1.

Oxychilus (Ortizius) alliarius (Miller, 1822). Hambaara, 1; Stördalsören, 2.

Family LIMACIDAE

Limax maximus Linnaeus, 1758. Hambaara, 1. So far this species was not known to occur in the province of Sør Trøndelag (see Økland, 1925 : 33). Since the specimen was found on the refuse heap of the biological station, we think it to be certain, that the occurrence of the species in Hambaara is due to human activities.

Limax tenellus O.F. Müller, 1774. Hambaara, 2; Stördalsören, 2.

Lehmannia marginata (O.F. Müller, 1774). Hambaara, 3; Stördalsören, 3; Strandø, 4; Store Gyltingen, 2; Storfosna, 2. Dr. L. Forcart (Basle) was so kind as to inform me, that in these specimens penis and vas deferens were more slender than in specimens from the central Alps.

Deroceras reticulatum (O.F. Müller, 1774). Hambaara, common; Stördalsören, rather common; Storfosna, common.

Deroceras agreste (Linnaeus, 1758). Hambaara, rather common; Strandø, very common; Store Gyltingen, very common; Storfosna, 1.

Deroceras laeve (O.F. Müller, 1774). Storfosna, 2.

Family EUCONULIDAE

Euconulus fulvus (O.F. Müller, 1774). Hambaara, very common; Breivik, rather common; Agdenes Fyr, 2; Stördalsören, common; Strandø, 2; Store Gyltingen, common; Storfosna, rather common. This species is the only one that occurs on the wet heath covered summits of the hills surrounding Hambaara.

Family CLAUSILIIDAE

Cochlodina laminata (Montagu, 1803). Breivik, rather common; Stördalsören, very common.

Clausilia bidentata (Ström, 1765). Hambaara, very common; Breivik, very common; Agdenes Fyr, common; Stördalsören, very common; Strandø, rather common; Store Gyltingen, very common; Storfosna, very common.

Balea perversa (Linnaeus, 1758). Hambaara, rather common; Agdenes Fyr, rather common; Strandø, very common; Store Gyltingen, very common; Storfosna, rather common.

Family HELICIDAE

Trichia (*Trichia*) *hispida* (Linnaeus, 1758). Hambaara, common e.g., on *Rumex* and *Urtica*; Storfosna, very common. For identification of this species the shell as well as the anatomy (especially the

species	locality	1	2	3	4	5	6	7	8	9	10
<i>Carychium tridentatum</i>		v.c.	—	—	—	—	—	—	—	—	—
<i>Radix peregra</i>		—	—	—	—	—	—	—	v.c.	c.	c.
<i>Gyraulus acronicus</i>		—	—	—	—	—	—	—	c.	c.	c.
<i>Cochlicopa lubrica</i>		v.c.	r.c.	—	r.c.	c.	c.	c.	—	—	—
<i>Columella edentula</i>		3	3	1	—	—	4	—	—	—	—
<i>Columella aspera</i>		r.c.	—	—	1	—	—	r.c.	—	—	—
<i>Vertigo pygmaea</i>		1	—	—	—	—	—	—	—	—	—
<i>Vertigo substriata</i>		1	1	—	—	1	—	r.c.	—	—	—
<i>Vertigo arctica</i>		r.c.	—	—	—	—	—	—	—	—	—
<i>Pupilla muscorum</i>		v.c.	—	—	—	v.c.	4	v.c.	—	—	—
<i>Vallonia pulchella</i>		c.	—	—	—	3	r.c.	v.c.	—	—	—
<i>Vallonia costata</i>		v.c.	—	—	—	—	—	—	—	—	—
<i>Succinea elegans</i>		—	—	—	—	—	—	—	—	c.	c.
<i>Punctum pygmaeum</i>		r.c.	2	—	—	—	—	2	—	—	—
<i>Discus ruderatus</i>		c.	—	—	c.	1	1	—	—	—	—
<i>Arion ater</i>		r.c.	—	1	1	—	—	3	—	—	—
<i>Arion circumscriptus</i>		2	—	1	—	—	—	r.c.	—	—	—
<i>Arion subfuscus</i>		3	—	1	2	2	1	3	—	—	—
<i>Arion intermedius</i>		c.	1	2	1	—	—	—	—	—	—
<i>Vitrina pellucida</i>		c.	c.	c.	2	2	1	4	—	—	—
<i>Vitrea cristallina</i>		2	—	—	—	—	—	—	—	—	—
<i>Nesovitrea hammonis</i>		c.	c.	3	1	3	c.	r.c.	—	—	—
<i>Nesovitrea petronella</i>		1	—	1	—	—	—	—	—	—	—

species	locality	1	2	3	4	5	6	7	8	9	10
<i>Aegopinella pura</i>		c.	1	—	—	—	—	4	—	—	—
<i>Aegopinella nitidula</i>		3	—	2	—	r.c.	—	1	—	—	—
<i>Oxychilus alliarius</i>		1	—	—	2	—	—	—	—	—	—
<i>Limax maximus</i>		1	—	—	—	—	—	—	—	—	—
<i>Limax tenellus</i>		2	—	—	2	—	—	—	—	—	—
<i>Lehmannia marginata</i>		3	—	—	3	4	2	2	—	—	—
<i>Deroceras reticulatum</i>		c.	—	—	r.c.	—	—	c.	—	—	—
<i>Deroceras agreste</i>		r.c.	—	—	—	v.c.	v.c.	1	—	—	—
<i>Deroceras laeve</i>		—	—	—	—	—	—	2	—	—	—
<i>Euconulus fulvus</i>		v.c.	r.c.	2	c.	2	c.	r.c.	—	—	—
<i>Cochlodina laminata</i>		—	r.c.	—	v.c.	—	—	—	—	—	—
<i>Clausilia bidentata</i>		v.c.	v.c.	c.	v.c.	r.c.	v.c.	v.c.	—	—	—
<i>Balea perversa</i>		r.c.	—	r.c.	—	v.c.	v.c.	r.c.	—	—	—
<i>Trichia hispida</i>		c.	—	—	—	—	—	v.c.	—	—	—
<i>Helicigona arbustorum</i>		c.	1	—	2	—	2	c.	—	—	—
<i>Cepaea hortensis</i>		v.c.	4	r.c.	c.	—	—	r.c.	—	—	—
<i>Helix pomatia</i>		v.c.	—	—	—	—	—	—	—	—	—
<i>Margaritifera margaritifera</i>		—	—	—	—	—	—	—	—	c.	c.
<i>Pisidium nitidum</i>		—	—	—	—	—	—	—	1	1	—
<i>Pisidium lilljeborgii</i>		—	—	—	—	—	—	—	—	1	—
<i>Pisidium casertanum</i>		—	—	—	—	—	—	—	—	2	1
<i>Pisidium hibernicum</i>		—	—	—	—	—	—	—	—	2	—

flagellum) were studied. Dr. L. Forcart (Basle) was so kind as to confirm the identification.

Helicigona (Arianta) arbustorum (Linnaeus, 1758). Hambaara, common, especially in the direct surroundings of the buildings of the biological station e.g., on *Urtica*. Fragments of a number of shells were collected from a thrush's "anvil" stone. Breivik, 1 shell; Stördalsören, 2; Store Gyltingen, fragments of 2 shells; Storfosna, common, especially in places directly influenced by Man.

Cepaea hortensis (O.F. Müller, 1774). Hambaara, very common (59) especially in the direct surroundings of the buildings of the biological station, e.g., on *Rumex* and *Urtica*. Fragments of a number of shells were collected from a thrush's "anvil" stone. Breivik, 4; Agdenes Fyr, rather common (9); Stördalsören, common (13), some newly hatched specimens were collected under a plank; Storfosna, rather common (9); Selva, 1, in garden. The shells of the population from Agdenes Fyr are all yellow, whereas the specimens belonging to populations from Hambaara, Stördalsören, and Storfosna are either uniformly yellow (about one-third) or show the banding pattern 12345 on a yellow background (about two-third of the specimens: 21-38, 4-9 and 3-6 respectively). The specimen from Selva shows the banding pattern (123) (45).

Økland (1925) already stated that specimens from many Norwegian localities remain small and that the width of the shells is often less than 18 mm. In our material the width of the shells varies as follows:

Hambaara	16.4-19.4 mm, average 18.1
Agdenes Fyr	17.6-20.5 mm, average 19.0
Stördalsören	15.5-18.2 mm, average 16.9
Storfosna	17.4-20.0 mm, average 18.8

Helix (Helix) pomatia (Linnaeus, 1758). Hambaara, very common. In the spring of 1965 fifty specimens of this species were introduced in Hambaara by Norwegian students in order to carry out experiments about acclimatization.

For this reason the species was not collected in 1965. In 1967 only one shell was collected, whereas eight adult and some juvenile specimens were observed alive, so that it seems likely, that the species has established itself successfully.

BIVALVIA EULAMELLIBRANCHIATA

Family MARGARITIFERIDAE

Margaritifera margaritifera (Linnaeus, 1758). Stor Vand, common; Lille Vand, common. In both lakes the species was common in 1965. Because of the vulnerability of populations of this species only a few living specimens were collected in the Stor Vand. Here the species lives in a muddy bottom covered with scattered stones. One of the specimens had a pearl in its shell. In the Lille Vand it was possible in 1965 to collect a large number of shells, since the lake had almost dried out and the water level was extremely low. In 1967 the water level of both lakes was very high following continuous rains, so that only very few dead specimens could be obtained.

Family SPHAERIIDAE

Pisidium (Eupisidium) nitidum Jenyns, 1832. Stor Vand, 1, in muddy bottom; Holtebekken, 1, in muddy bottom.

Pisidium (Eupisidium) lilljeborgii Clessin, 1886. Stor Vand, 1, in muddy bottom.

Pisidium (Eupisidium) casertanum (Poli, 1791). Stor Vand, 2, in muddy bottom; Lille Vand, 1, in muddy bottom.

Pisidium (Eupisidium) hibernicum Westerlund, 1894. Stor Vand, 2, in muddy bottom.

DISCUSSION OF THE RESULTS

The main result of this faunistic study is that we can add seven species to the fauna of Sør Trøndelag. One of these, *Carychium tridentatum*, is new to the fauna of Norway. The other six species are *Columella aspera*, *Vertigo pygmaea*, *Vertigo substriata*, *Vallonia costata*, *Vitrea cristallina*, and *Limax maximus*. Yet another species, *Helix pomatia*, has been introduced on purpose in Sør Trøndelag. Presumably the presence of *Limax maximus* is also due to human activities.

The localities in Sør Trøndelag of *Limax maximus* and *Vertigo pygmaea* constitute the northern border of their distribution area. *Vertigo substriata*, *Vallonia costata* and *Vitrea cristallina* were expected to occur in this province as these species are known from neighbouring provinces, both north and south of Sør Trøndelag.

Our knowledge of the distribution of *Columella aspera* in Norway is very superficial. Waldén (1966) only reported that the species

follows the coast line up to 70° 40'. The material investigated by Waldén possibly contained samples of this species from Sør Trøndelag but he gave no detailed descriptions of the Norwegian localities.

Økland (1925) distinguishes seven types of distribution pattern of the terrestrial molluscs of Norway. Økland's paper is written in German and it is not always easy to find English equivalents for his terminology. Therefore I propose to give the original terms accompanied by summary explanations in English.

1. "Norwegische Westformen" (western species of Norway), i.e., species in Norway confined to the western coastal areas south of the Arctic Circle and absent in SE. Norway.

2. "Norwegische Küstenformen" (coastal species of Norway), i.e., species confined to the coastal areas of the whole of Norway. A few species are known to occur north of the Arctic Circle. Generally these coastal species are to be found only within ten miles from the shores of the Atlantic Ocean.

3. "Norwegische Semitotalformen". This term is hard to translate, but may be defined as encompassing those species which occur over much of Norway with the exception of Finmarken and the central and eastern parts of S. Norway.

4. "Norwegische Totalformen", i.e., species generally distributed over all of Norway.

5. "Hochboreale Formen" (high boreal species), i.e., species found in both S. and N. Norway, but absent in the western coastal areas of S. Norway.

6. "Norwegische Südformen" (southern species of Norway), i.e., species mainly confined to the area south of the Trondheimsfjord and absent in the central parts of the country. These species are also partly absent in the eastern districts.

7. "Norwegische Südostformen" (southeastern species of Norway), i.e., species mainly found around the Oslofjord.

1. "Norwegische Westformen". *Lauria cylindracea*, *Spermodea lamellata*, and *Arion intermedius* are listed by Økland as western forms. We only collected *Arion intermedius* although *Spermodea lamellata* is known to occur in Sør Trøndelag.

2. "Norwegische Küstenformen". The coastal forms are subdivided by Økland into ten native and four anthropochorous species. We collected *Vertigo pygmaea*, *Arion ater*, *Aegopinella pura*, *Aegopinella nitidula*, *Oxychilus alliarius*, *Balea perversa*, and *Cepaea hortensis* (all native), and *Limax maximus* (anthropochorous). The re-

maining coastal forms, *Discus rotundatus*, *Oxychilus cellarius*, *Clausilia dubia*, and the anthropochorous species *Arion hortensis*, *Oxychilus draparnaudi*, and *Cepaea nemoralis* are not known to occur in this province.

3. "Norwegische Semitotalformen". Of the species belonging to this group only *Vertigo substriata*, *Arion circumscriptus*, *Vitrea cristallina*, *Clausilia bidentata*, and *Trichia hispida* were collected. Although known to occur in Sør Trøndelag, *Vertigo lilljeborgi*, *Vertigo pusilla*, *Succinea putris*, and *Limax cinereoniger* were not found by us. *Succinea oblonga* is not known from this province. *Carychium minimum* was first reported from Nord Trøndelag by Schlesch (1929). As we collected *C. tridentatum* and not *C. minimum*, it might be possible that Schlesch's material should in fact be referred to as *C. tridentatum*.

4. "Norwegische Totalformen". All species belonging to this category were collected by us. They are: *Cochlicopa lubrica*, *Columella edentula*, *Pupilla muscorum*, *Vallonia pulchella*, *Vallonia costata*, *Succinea elegans*, *Punctum pygmaeum*, *Arion subfuscus*, *Vitrina pellucida*, *Nesovitrea hammonis*, *Nesovitrea petronella*, *Limax tenellus*, *Lehmannia marginata*, *Deroceras reticulatum*, *Deroceras agreste*, *Deroceras laeve*, *Euconulus fulvus*, and *Helicigona arbustorum*.

5. "Hochboreale Formen". Of the four high boreal forms we collected two, viz., *Vertigo arctica* and *Discus rudtatus*. We were unable to find *Vertigo alpestris* and *Zoogenetes harpa*, both known to occur in Sør Trøndelag.

6. "Norwegische Südformen". *Cochlodina laminata* and *Helicigona lapicida* according to Økland represent the southern species. We could only find *Cochlodina laminata*. This species reaches the northern limits of its distribution at the Trondheimsfjord and has been reported from only one locality north of the Trondheimsfjord.

7. "Norwegische Südostformen". We found no representatives of the species characterized by Økland as southeastern forms, although *Zonitoides nitidus* and *Iphigena plicatula* have been reported from Nord Trøndelag since the publication of Økland's 1925 paper (see Schlesch, 1929). Nothing much can be said about the position of *Carychium tridentatum* and *Columella aspera* in this system of distribution types as the distribution of these species in Norway is so far incompletely known.

¹ In calculating this number, we took into account that Økland (1925:123) has not considered *Deroceras reticulatum*, *Nesovitrea petronella*, and *Vallonia costata* to be distinct species.

In summary, 30 of the 37¹ species of land molluscs known from Sør Trøndelag at the time of Økland and, in addition to this, seven species previously unknown from this province were collected by us (*Helix pomatia* is not considered because we know that this species has been introduced on purpose). The total number of species of land molluscs at present known to occur in Sør Trøndelag is therefore 44.

The material is partly deposited in the Rijksmuseum van Natuurlijke Historie at Leiden and partly in the collection of the author. The *Pisidium* are in the collection of Mr. Kuiper in Paris.

Dr. J. Solem (Trondheim), Dr. A.C. van Bruggen and P. Baas, biol. drs. (both from Leiden), have assisted in collecting. Dr. C.O. van Regteren Altena (Leiden) kindly helped in identifying the slugs and Mr. J.G.J. Kuiper (Paris) has identified the *Pisidium*. Miss M. Gregory (Kew), Dr. A.C. van Bruggen and Mr. P. Baas were kind enough to translate and polish the manuscript. I would like to thank all the above mentioned persons most sincerely for their help. Mr. H. Heyn, illustrator of the Department of Systematic Zoology of Leiden University has kindly prepared the map (fig. 1). Many thanks are also due to the board of governors of Leiden University for generously subsidizing these excursions.

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SAMENVATTING

In 1965 en 1967 werd door de auteur deelgenomen aan excursies naar Noorwegen en Zweden. Tijdens deze excursies werd vooral aandacht geschonken aan de land- en zoetwatermollusken. In dit artikel worden alleen de vondsten in Noorwegen behandeld. Er werd verzameld in een gebied ten westen van Trondheim, waar wij verbleven in het biologisch station "Hambaara", gelegen aan de Trondheimsfjord bij het dorpje Selva (zie de kaart, fig. 1, p. 70). Na de lijst van vindplaatsen wordt een overzicht gegeven van de gevonden soorten. Naast enige soorten zoetwatermollusken werden 37 soorten landslakken verzameld, waarvan er zeven nieuw zijn voor de fauna van de provincie Sør Trøndelag. Deze zeven soorten zijn: *Carychium tridentatum*, *Columella aspera*, *Vertigo pygmaea*, *Vertigo substriata*, *Vallonia costata*, *Vitrea cristallina* en *Limax maximus*. Van deze soorten is *Carychium tridentatum* tevens nieuw voor de fauna van Noorwegen. In totaal zijn nu 44 soorten landslakken van Sør Trøndelag bekend. Bovendien komt in de directe omgeving van het biologisch station *Helix pomatia* voor, doch deze soort is hier uitgezet. De diverse soorten worden besproken in samenhang met de door Økland (1925) voor Noorse landslakken ontworpen verspreidingstypen.