

# TWO PLEISTOCENE MOLLUSCAN FAUNULES FROM HUNTER'S RUN, FAIRFIELD COUNTY, OHIO

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## INTRODUCTION

The two molluscan faunules described in this paper were collected during a routine examination of the glacial deposits of Fairfield County, Ohio. The Mollusca were identified by one of us (La Rocque); the description of the field data by the other (Conley).

The collections are of particular interest because they accompanied material that could be dated by the radiocarbon method (results not yet available) and are of the same geologic age as deposits containing material already dated (see below) by the same method. In addition, the species represented are recorded for the first time in late Tazewell? (Bloomington) deposits in central Ohio and their presence there may throw some light on the Pleistocene migration routes of two interesting species, *Hendersonia occulta* (Say) and *Derocheras* cf. *D. aenigma* Leonard.

## GEOLOGIC SITUATION

The specimens collected came from an artificial cut along the southern bank of Hunter's Run, in the southwestern quarter, section 10, Hocking Township, Fairfield County, two and one-half miles southwest of the town of Lancaster. The stratigraphic section is shown graphically in figure 1 and may be described as follows:

<i>Unit</i>	<i>Description</i>	<i>Thickness (feet)</i>
4	Sand, brown, bedded, oxidized and leached, fossiliferous.....	3.5
3	Sand, gray, bedded, calcareous, unfossiliferous.....	4.0
2	Gravel, gray-brown, bedded, calcareous, unfossiliferous.....	1.0
1	Loam, silty, gray, organic, poorly calcareous, fossiliferous.....	4.5
	Base of section not exposed.	

Unit 1, in addition to Mollusca, contained preserved fragments of moss, grass seeds, and tree roots. It resembles muck soils found in marshy areas along creek banks. Mechanical analysis of the material from this unit showed that it contained 19.6 percent sand, 59.8 percent silt, and 20.6 percent clay.

Units 2, 3, and 4 appear to be river alluvium. Unit 4 contained partially decayed tree roots and nuts of the buckeye and walnut trees, as well as Mollusca.

The locality described is south of the Johnstown-Marcy moraine which can be traced across the central part of Fairfield County. The Wisconsin terminal moraine lies across the southern part of the county. Study of soil profiles and depths of leaching indicate that this terminal moraine contains drift of two ages. The deposits discussed in this paper lie in the area of the younger drift of the terminal moraine.

## POSSIBLE AGE OF THE DEPOSITS

A piece of wood (sample W-88) found in till outside the Johnstown-Marcy moraine at Newark, Licking County, Ohio was dated by the radiocarbon method

at  $21,400 \pm 600$  years (Goldthwait, 1955, p. 58). Another, earlier and less reliable determination (sample C-893) of the same material gave an age of  $16,100 \pm 850$  years. This suggests that the Johnstown-Marcy moraine is of very late Tazewell (Bloomington) age and that the younger tills of the Wisconsin terminal moraine are probably of middle Tazewell (Bloomington) age. Although wood samples taken from the lower gray bog deposit (unit 1) of our section have not yet been dated by radiocarbon, a general date can be inferred for the deposit. Since it is found in the area of the younger (middle Tazewell?) drift of the Wisconsin terminal moraine, the bog must have formed after the retreat of the early and middle Tazewell? ice. The bog probably existed until drainage was again established in the area by Hunter's Run and the deposition of the sands and gravel of the stream above the bog deposit.

TABLE 1  
Composition of Hunter's Run Molluscan Faunules

Unit 1 Species	No.	Unit 4 Species	No.
<i>Deroceras</i> cf. <i>D. aenigma</i> Leonard	28*	<i>Sphaerium simile</i> (Say)	11
<i>Retinella</i> sp. (fragments)	3	<i>Sphaerium</i> sp., undetermined, but not <i>S. simile</i> (Say)	4
<i>Oxyloma</i> cf. <i>O. retusa</i> (Lea)	13	<i>Goniobasis livescens</i> (Menke)	13
<i>Hendersonia occulta</i> (Say)	2	<i>Physa</i> sp., fragment	1

\*In both collections, specimens are too few to justify reduction to percentages.

#### COMPOSITION OF THE MOLLUSCAN FAUNULES

These two collections, separated by only a few feet of sediments, are totally unlike in composition. The lists of species are given in table 1. It is apparent that the assemblage from unit 1 is terrestrial and that from unit 4 is fresh-water.

#### INTERPRETATION OF THE MOLLUSCAN FAUNULES

The molluscan assemblage in unit 1 is one that could be expected along the wet margins of creeks and rivers, in a moist environment, usually under heavy vegetation, probably also with a sparse tree cover. From a climatic standpoint, this appears to be a "cold" fauna rather than a "warm" one but the list is too short to provide firm conclusions. The presence in this assemblage of *Deroceras* cf. *D. aenigma* Leonard and of *Hendersonia occulta* (Say) is noteworthy.

*Deroceras aenigma* Leonard (1950, p. 38) occurs in the Pleistocene of Iowa, Nebraska, Kansas, Oklahoma, and Texas. The type locality is Aftonian according to Leonard (1950, p. 38), Upper Pliocene according to Hibbard (1956, p. 149). The specimens are the internal shells of land slugs (Mollusca: Gastropoda) and they have been separated specifically from the living species of the genus *Deroceras* because of the constantly greater size and thickness of the shell. The Ohio specimens are also thicker than shells of living *Deroceras* but are not as large as those of the mid-continent species. If our specimens are indeed *D. aenigma* Leonard, they represent a new record for the distribution of the species and the first record for the Pleistocene of Ohio. The species is absent from the faunules described by Leonard (1953, p. 372) from the Pleistocene (Sangamon, Farmdale?, and pro-Tazewell) of the Cleveland region.

*Hendersonia occulta* (Say) has been recorded doubtfully as living in Ohio (Sterki, 1907, p. 384) but van der Schalie (1939, p. 4) does not accept the record,

and rightly, since it has never been substantiated by further collecting. Leonard (1953, p. 372) found *H. occulta* in all four samples from the Cleveland area and notes (1953, p. 374) that it is abundant in the Cleveland loess (pro-Tazewell). The Hunter's Run record is, therefore, the second for Ohio and probably the second also for deposits of Tazewell age in the state. Its presence in other Pleistocene deposits in Ohio may be expected.

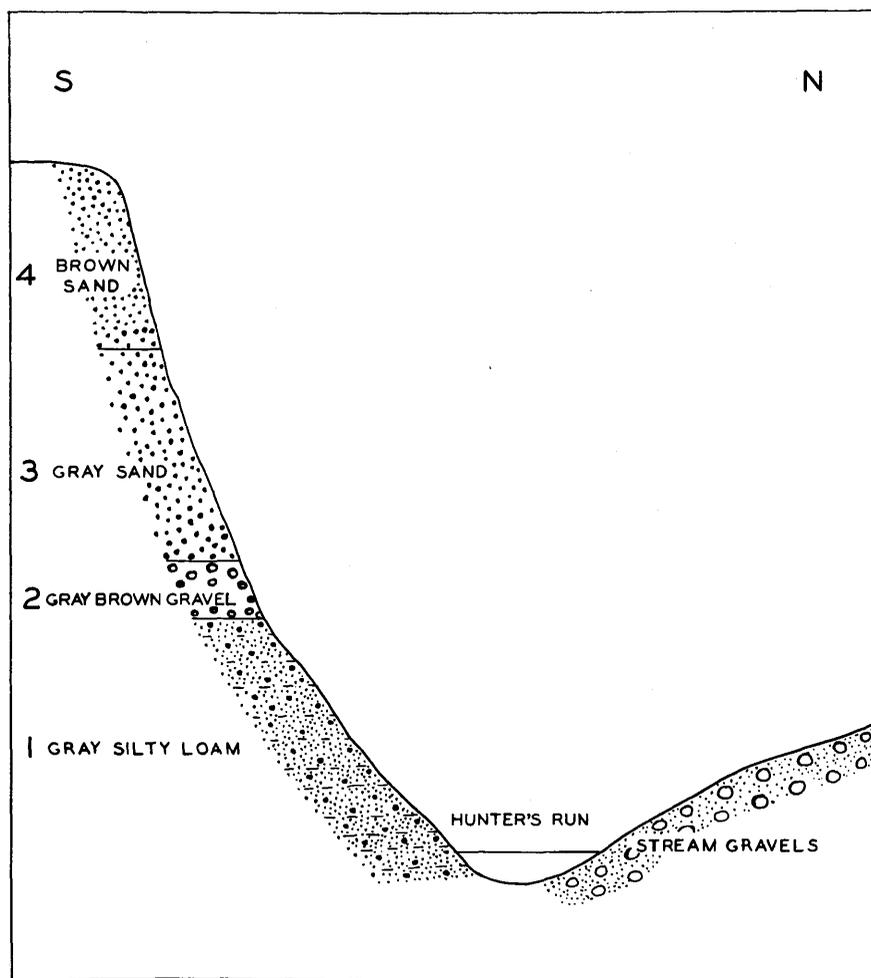


FIGURE 1. Diagrammatic section of the Hunter's Run section. Numbers correspond to the units of the measured section in the text.

The molluscan assemblage of unit 4 is of an entirely different nature. Such an assemblage could be found in creeks and small rivers of Ohio, at least in those whose molluscan fauna has not been wiped out by pollution. The absence of Naiades (freshwater mussels) is noteworthy but not surprising.

Both the nature of the sediments and the molluscan fauna point to the same conclusions concerning environment. At the time when unit 1 was being deposited, the site was probably a moist floodplain, in the vicinity of a stream. Influx of

alluvium with the deposition of units 2 and 3 indicates change in environment, probably connected with glacial events, and either a shifting of the stream existing during the deposition of unit 1 or the development of a new, larger stream. The stream remained devoid of molluscan population for a time, represented by the deposition of units 2 and 3, then was invaded, probably from the south, by a typical small-stream assemblage of Mollusca. The stream in question may have been the present-day Hunter's Run. In any event, this stream has cut down into the Pleistocene deposits to the level of the oldest deposit in the exposed section.

#### ACKNOWLEDGEMENT

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