

***A note on the Upper Carboniferous bivalve Curvirimula Corvosa
Rogers from Chimney Corner, Nova Scotia, Canada***

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The type specimens of *Naiadites mytiloides* Dawson and *Curvirimula corvosa* Rogers from the Riversdale Group of Chimney Corner have been re-examined. Both morphospecies can not be referred unequivocally to the genus *Curvirimula* Weir. The holotype of *Naiadites mytiloides* is so poorly preserved as to make this morphospecies almost undefinable, however, the types of *Curvirimula corvosa* are well preserved.

On a réexamié les spécimens - types de *Naiadites mytiloides* Dawson et *Curvirimula corvosa* Rogers provenant du Groupe de Riversdale à Chimney Corner. On peut maintenant attribuer hors de tout doute ces deux espèces au genre *Curvirimula* Weir. La pitoyable préservation de l'holotype de *Naiadites mytiloides* rend cette espèce morphologique presque indéfinissable; par contre, les types de *Curvirimula corvosa* sont tous bien préservés.

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INTRODUCTION

Dawson (1894) described *Naiadites mytiloides* from Riversdale strata (Westphalian A) at Chimney Corner situated on the western shore of Cape Breton Island, Nova Scotia (Fig. 1). In Roger's (1965) revision of all of Dawson's non-marine bivalve genera and species, the type specimen was relocated, described and figured. In addition, *Curvirimula corvosa* Rogers was also described from the same locality. Rogers (1965) expressed doubts as to the generic affinities of both these morphospecies, but questioningly referred them to *Naiadites* and *Curvirimula*.

Much of the material examined by Rogers was deposited in museum collections; very few specimens were located that were referable to *Naiadites mytiloides* or indeed, *Curvirimula corvosa*, though Dawson (1894, p. 125) stated that *Naiadites mytiloides* was abundant at the type locality.

The author has examined the types of *Curvirimula corvosa* and the type of *Naiadites mytiloides* as well as a large assemblage of shells from the type locality and from Nova Scotia Department of Mines & Energy Boreholes DDNSCC-1 and DDNSCC-3.

PRESERVATION

At the type locality (Fig. 1), the shells occur in a medium- to dark-grey (Nl.5-

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2.5 grey value on the U.S. National Research Council Rock-Color chart (1965) silty shale of about 1.2m thickness overlying a thin coal seam (probably the #5 seam). The fauna appears to be limited to *Curvirimula* spp., *Spirorbis* sp., *Carbonita* spp., *Pygocephalus* sp.?, and there is a conspicuous absence of *Naiadites* on this horizon. Over 100 specimens of *Curvirimula* have been examined from the type locality and a horizon in the cores that, on the basis of its lithology, fauna and stratigraphic position, is considered to be the type horizon. The type horizon varies in thickness laterally, being 3.4m thick in core DDNSCC-1 and 1.8m thick in core DDNSCC-3.

The holotypes of *Naiadites mytiloides* and *Curvirimula corvosa* both occur on the same slab of dark-grey silty shale (termed a sandy mudstone by Rogers (1965)) amongst much *Curvirimula* debris. The holotype of *Naiadites mytiloides* is poorly preserved with much of the anterior end, all of the ventral margin and part of the posterior end missing (Plate 1c). The remaining part of the shell displays distinct curved, radial cracks (plate 1d) and is therefore, unquestionably referable to *Curvirimula* Weir (1960)

SYSTEMATIC DESCRIPTION

?Family MYALINIDAE Frech, 1891
emend. Newell, 1942
Genus CURVIRIMULA Weir, 1960

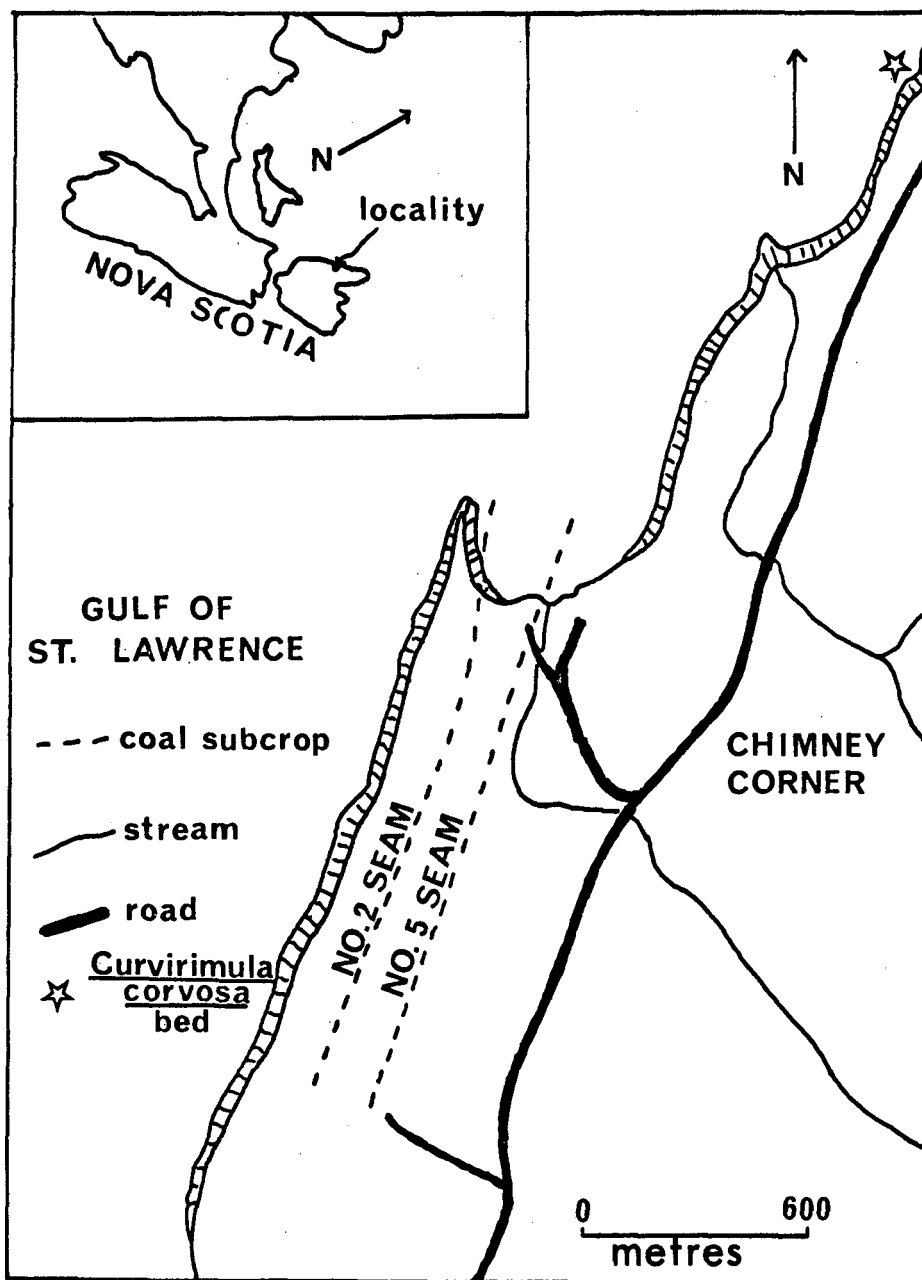


Fig. 1 - Sketch map of Chimney Corner and its geographic setting.

Curvirimula corvosa Rogers
Plate 1a, 1b

Curvirimula? *corvosa* Rogers 1965, p. 680,
Pl. 84, figures 29 and 30.

Diagnosis: shell small, subovate, thin and displaying short, curved radial cracks; umbo broadly inflated, on a level with the near straight dorsal margin; anterior end short, curving without angulation into the slightly convex ventral margin; angle γ low, β angle moderate; a faint

umbonal swelling runs towards the posteroventral extremity, broadening and fading at about half height.

H/L - 85-90%; DM/L - 65-70%; A/L - 18-25%; β - 120; γ - 55.

(see Figure 2 for explanation of dimensions).

Type material and locality - RM 21163b (Redpath Museum, McGill University, Montreal) was designated the holotype and BM 4779510 (British Museum, London)

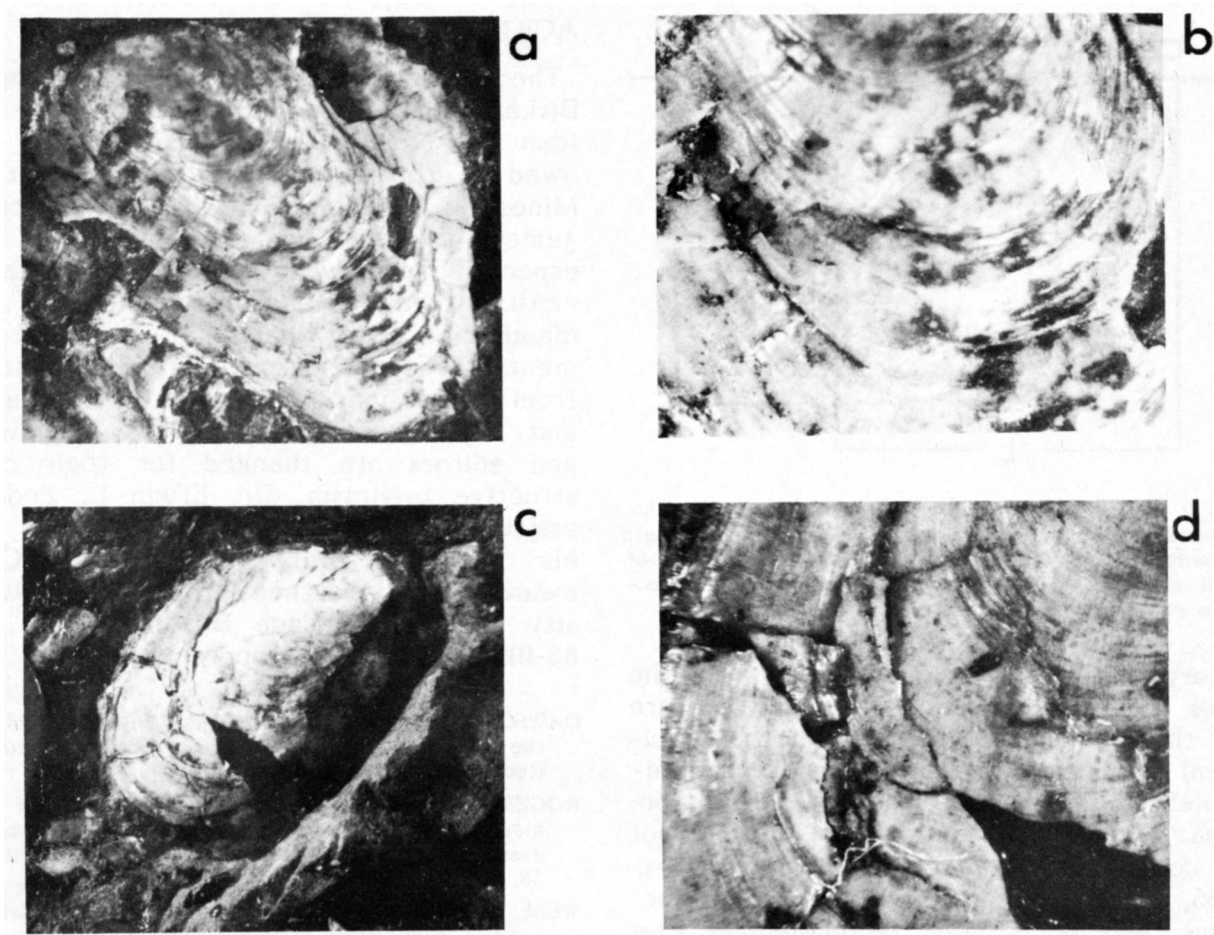


PLATE 1

- a) *Curvirimula? corvosa* Rogers. Holotype, RM21163b, X8. Specimen is on the same slab of shale as Plate 1c.
 b) Enlargement of valve surface to show radial, curved cracks. Specimen as above. X16.
 c) *Naiadites mytiloides* Dawson. Holotype, RM21163a, X4.5. Note the incomplete nature of the ventral and posterior margins and anterior end.
 d) Enlargement of valve surface to show radial, curved cracks. Specimen is as Plate 1c. X16.

the paratype by Rogers (1965). The type locality is Chimney Corner, Cape Breton Island, Nova Scotia (Riversdale Group - Westphalian A).

DISCUSSION

The holotype is slightly crushed along the upper ventral margin and also in the lower posterior region. Some growth lines are raised as curved nodes and this presumably represents the beginnings of more general crushing.

Rogers (1965) was in some doubt as to whether the species *corvosa* was referable to the genus *Curvirimula* Weir, but

in all aspects of external form this species should indeed be referred to that genus; because *Naiadites mytiloides* is in all preserved aspects of external form referable to *Curvirimula*, it is here also assigned to that genus.

All species of *Curvirimula* from Nova Scotia display an external shell structure of radially aligned prisms between growth lines and, after some crushing, these are seen to produce the curved, radial cracks characteristic of this genus (Weir 1960). Both *Curvirimula corvosa* and *C. mytiloides* display this shell structure which is absent in other Nova Scotian Myalinid genera.

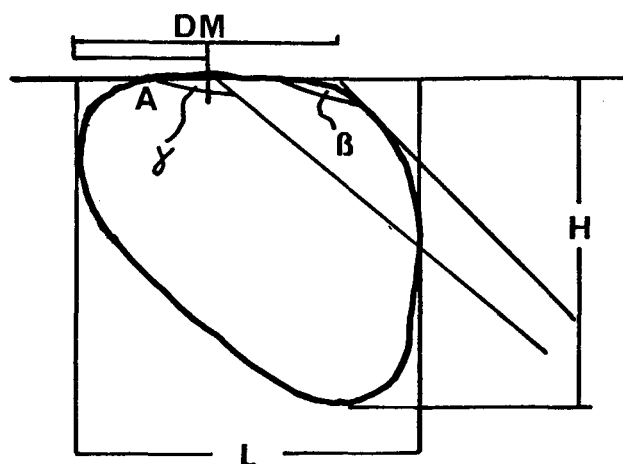


Fig. 2 - Explanation of measured dimensions on a bivalve shell; Angles α and β are indicated. A = length of anterior end, L = length of shell, H = height of shell and DM = length of the dorsal margin. Directions of measurement are shown above.

Curvirimula mytiloides, owing to the poor preservation and incomplete nature of the holotype (and only known specimen) is herein regarded as unrecognizable; it may be a synonym of *C. corvosa*. At the present time, this cannot be conclusively demonstrated (see Rogers, 1965, Pl. 32 for one possible reconstruction), and it is here recommended that the name *C. mytiloides* be restricted to the holotype. The type specimens of *C. corvosa* are excellently preserved.

Owing to the distinct nature of the fauna and lithology, the *Curvirimula corvosa* horizon is easily traceable as a stratigraphic unit. Work is in progress on the detailed palaeontology of the *Curvirimula corvosa* bed and the shell shape variation within *Curvirimula*.

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