

of the characteristic and abundant New Scotland fossil, *Spirifer macropleura*, was found in these chert-bearing beds and that *Gypidula galeata* continues very abundant, it was thought better to place this in the Coeymans than in the New Scotland division.

For detailed discussion of this horizon, see sections C, D and F.

New Scotland beds

The New Scotland beds represent an alternation of dense, dark blue, compact limestone with dark gray shales and thin-bedded sandstones. The limestone is at times very full of chert bands which in places make up almost half of the rock mass. These chert bands, like many of those in the upper Coeymans are, when weathered, one mass of fossils. This is a specially good place for the collection of the more delicate organisms. The arenaceous limestone beds at times exhibit a succession of light and dark laminae of paperlike thickness, as at K 15, L 2, and L 3. These thin beds contain either very few or no fossils except in the very lowest band. An exceedingly rapid change from a comparatively clear to a very black muddy water condition appears to have made it impossible for life to exist. Changes of current are also indicated by the appearance of pockets of coarsely grained limestone in the finely grained at L 3.

This formation is divided into an upper and a lower horizon. The division is based primarily on the great abundance of *Spirifer cyclopterus* in the upper 125 feet; this is exceedingly rare in the lower 45 feet. *Spirifer macropleura* is the diagnostic fossil of the New Scotland and is abundant throughout its whole extent. To the lower New Scotland are apparently confined such forms as *Favosites sphaericus* and many bryozoa, e. g. *Orthopora rhombifera*, *O. regularis* and *Monotrypella? abrupta*. Fragments of *Lingula* and *Orbiculoidea* occur frequently in calcareous, phosphatic, clay nodules; no manganese could be detected in these nodules.¹

¹In the upper New Scotland of western Maryland, Schuchert notes the occurrence of manganese-phosphatic nodules similar to those dredged from the present deep seas, but he does not think these indicate a deep water condition here, for the "stratigraphic evidence denotes a shallow sea before and after New Scotland times." U. S. Nat. Mus. Proc. 26:420.