

The Mabou Mines section: Implications of fossil plant collections

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The Mabou Mines section of Cape Breton Island represents the land-based portion of a supposedly large off-shore coalfield (Mabou Coalfield). This section contains an abundant, unoriented phyllocenosis in which the neuropterids (pteridosperms) predominate. Of the phytostratigraphically important macrofossil forms (alethopterids, pecopterids, foropterids and sphenophylls) that were instrumental in determining a Westphalian D plant age, certain forms

of the *neuropteris* - *Linopteris* complex are additionally interesting. Four reasons are cited. First, transitional phases in the development of *Linopteris münsteri* (loose and meshing venation), *i.e.*, *Neuropteris obliqua* (highly flexuous venation) and *Neuropteris semireticulata* (venation between that of *L. münsteria* and *N. obliqua*), are recorded in the sedimentary rocks; secondly, in some specimens *Linopteris obliqua* characteristics (anastomosis, or cross-over

of veins) are clearly shown; thirdly, much of this material is cutinized allowing epidermal investigations; and fourthly, this mode of preservation allows a more accurate determination of mesh formation than it is possible with compression/impression material (which may eventually contribute in defining natural species). Moreover, the (thick) cutin and the vein-mesh formation in certain pteridosperms of Upper Carboniferous time can be explained by physiological and paleoecological factors (amount of sunshine, height of plant, soil moisture, strength of pinnules).

The present paper is primarily con-

cerned with illustrating the transitional aspects of the *Neuropteris-Linopteris* forms. On evidence collected, it is also interesting to note that both floras and faunas of the Mabou section are of low diversity (as compared with the Sydney Coalfield) and that lacustrine conditions appear to have had a higher frequency at Mabou than at Sydney.

Not enough stratigraphic specimens have been examined to broach the question of gradualism versus punctuated equilibrium as it relates to the evolution of the *Neuropteris obliqua* - *Neuropteris semireticulata* - *Linopteris münsteri* complex.