to depend upon. Tho species seem also to have been very variablo,

and they present very different appearances in different states of compression. I may also mention that Dr. Wheelton Hind has been led into

an error in supposing that *Estheria Dawsoni*, described by Prof. T. Rupert Jones, F.R.S., in the Geol. Mag. for 1870, may be the same with my *Naiadites lavis*. These shells are quite distinct in forms, markings, and structure, and occur at very different positions in the Carboniferous. *N. lævis* has been found only in a flattened state: its epidermis is strong and wrinkled, and the shell shows traces of prismatic structure.

The associates of Naiadites in the admirably exposed sections of the Nova Scotian coal-field, at the South Joggins and Sydney, Cape Broton, are various species of minute bivalve crustaceans, Eurypterids. Anthrapalæmon,1 scales and teeth of ganoid fishes, and The beds also hold much carbonaceous matter and Spirorbis. fragments of fossil plants, often with Spirorbis attached. In some cases the beds of Naiadites-shalo form the roofs of small coal-scams. In a few they have been elevated into soils and have been pervaded with Stigmaria-roots, thus resembling underclays. Their whole eonditions point to land-locked ponds or lagoons, or to sluggish creeks. From the continuity of the beds these would appear sometimes to have been extensive, and, in addition to the animals already referred to, they were visited by ganoid fishes of large size, of tho genus Rhizodus, and by small sharks of the genus Diplodus (Oracanthus). They wore also tenanted by the aquatic batrachians of the period.

As the supposition that the shells of *Naiadites* were marine has placed them out of relation with their associates in the Coal Formation of Nova Scotia, it is a source of gratification to me, and an important contribution to the theory of eoal, that their true affinities have now been so ably illustrated by Dr. Wheelton Hind.

APPENDIX.

Through the courtesy and kindness of Sir J. William Dawson I have been favoured with a perusal of his 'Note on the Genus *Naiadites*,' and have carefully examined at his request a series of shells from the South Joggins, as well as a series from the collection of the Geological Survey of Canada, forwarded to me for that purpose.

From an examination of these specimens it is easy to understand Sir William's attitude in considering it impossible to discriminate with any certainty between the different genera of shells in the South Joggins coal-field. They were all more or less erushed in the shale, and therefore showed no interiors, and often the proper external characters were masked. I am quite of the opinion now, from the knowledge I havo obtained by a long familiarity with nearly perfect forms, that the genus *Naiadites* contains three distinct genera, for one of which the name must be retained. These three genera are the same as those which generally occur in our Coal

¹ A. Hilliana, Geol. Mag. 1877, p. 56.