

above the Main Coal at Sydney, he has found the scales of different kinds of fishes, as hard and bright as enamel; one tooth, and a number of Coprolites; also the *Cypris* in great abundance, and a *Modiola*."

2. *On the LOWER CARBONIFEROUS ROCKS, or GYPSIFEROUS FORMATION of NOVA SCOTIA.* By JOHN WILLIAM DAWSON, Esq., of Pictou, Nova Scotia.*

THE coal formation of the eastern part of Nova Scotia consists of a great thickness of sandstones, shales, and conglomerates, of various reddish and grey colours, the former being most prevalent. The lower part of the series is distinguished by the presence of limestones with marine shells and gypsum. The central portion is characterised by a greater prevalence of grey and dark colours, and by containing an abundance of vegetable fossils and beds of bituminous coal. The upper portion of these productive coal measures appears to pass into a thick deposit of reddish sandstones and shales, containing few fossils, either animal or vegetable. To examine the structure and relations of the lower, or gypsiferous part of this series, is the object of the present paper: it will, however, be proper in the first place to notice the general disposition of the rocks of the Carboniferous system, in the region more particularly observed, which extends along the shores of the Gulf of St. Lawrence, from Tatmagouche to Antigonish Harbour.

The coast section between these points cuts at acute angles across two great coal troughs, the one beginning at Pictou, and thence stretching to the west along the northern shore of the Basin of Mines; the other beginning at Antigonish, and thence extending westward to the Stewiacke and Shubenacadie Rivers. These two troughs are separated by a hilly range composed of igneous rocks and of disturbed lower-carboniferous and Silurian strata. This range beginning at Cape St. George extends westward to the East River of Pictou; and beyond this it is continued along the outcrops of the oldest carboniferous rocks in the direction of Truro.

The southern boundary of the Antigonish trough is formed by the region of Palaeozoic, metamorphic, and Plutonic rocks which occupy the southern side of the province. A chain of hills, similar in structure to the range of Cape St. George, but of greater elevation, separates the Pictou trough from a region belonging to the coal strata which extends beyond Tatmagouche in a northerly direction.

The chain in question commences at the New Annan Hills, and extends westward through the Cobequid Mountains† to the Bay of

* See the map of Nova Scotia.

† Dr. Gesner, many years since, described the Cobequid chain as forming a ridge separating the coal-formation of the north side of the Basin of Mines from that of Cumberland county. Mr. Logan first noticed the existence of a trough of carboniferous strata between Antigonish and Windsor.