

yielded to the coal strata, we shall consider these before we proceed to the scanty animal remains they afford. The remains of the coal-field exhibit the trunks, leaves, and more rarely pericarps of various vegetables, all greatly distinguished from known recent species, but apparently agreeing more nearly with the vegetation of a hot than temperate climate, and with moist rather than dry situations. In considering their original habits, we must, as Count Sternberg observes, transport our thoughts to an epoch when the vast tracts now occupied by more recent marine deposits were still beneath their parent ocean, from which scattered groups of primitive islands alone emerged, covered by the vegetation of which these relics are still preserved. The rivers, which in such a condition of things could have existed only as torrents, would frequently tear up this vegetation, and deposit it along the bottom of the adjacent basins.

The vegetation of a country covered with lakes and marshes consists, along the margin of the waters, in gramina, and particularly arundinaceous and other aquatic plants; and on the hills rising above the level of those waters, but still in their neighbourhood, in various trees, shrubs, ferns, &c. And such is in effect the ancient vegetation which we are now considering. It offers but few genera, and on the largest allowance not more than 400 species. The trunks or stems thus discovered belong principally to arundinaceous plants, approximating to those now known, and to a very peculiar order, distinguished by the cortical part being entirely covered by regular impressious resulting from the petioles of fallen leaves, ranging round them in spiral lines; these have been supposed to belong partly to the Palmaceous order, and partly to anomalous forms, constituting a transition between these and the coniferous plants; such a link has been already established in Professor Sprengel's Natural System. We must observe, however, that so much of their organization is, in their present state, not capable of being ascertained; and so much of what can be ascertained entirely *sui generis*, that any attempts even at assigning the natural class to which they belong must be received with great hesitation.

Other trunks have a fluted character.

Of the leaves which occur in the coal strata, many undoubtedly belong to the order Filices; others have been but perhaps on insufficient ground, referred to *Hippuris Equisetum*, &c.; these we shall specify in the following detail.

To consider these remains more particularly, we shall begin with those of trunks or stems; and here we shall be materially