

the idea of igneous agency, except where they are traversed by whin-dykes.

The question concerning the vegetable origin of coal will be farther considered in treating of the vegetable remains which so peculiarly characterise it. The great chemical argument appears to be, that the coal exhibits exactly the same results as the most decided lignites, the process being however still further advanced.

The slate-clay of the coal-measures differs from clay-slate by its less solid and indurated state; it is known in different collieries by the names of *black or blue metal, shale, clunch, cleft, bind, &c.*

The sandstones of the coal measures are usually gritty, micaceous, and tender; they afford freestones for buildings, whetstones, grindstones, &c.; some varieties of a large schistose structure are raised as flag-stones for paving; others, more finely laminated, as roofing slates: *Plate, Post, Pennant*, are names locally applied to these sandstones.

(b) *Mineral contents.* Besides these strata, *Clay-iron-stone*, either in the form of continuous beds, or courses of nodules, is of common occurrence in the coal-fields. These yield on an average about 30 per cent. of metal; they are provincially termed *Mine*, and *Pins*. The occurrence of this most useful of metals in immediate connection with the fuel requisite for its reduction, and the limestone which facilitates that reduction, is an instance of arrangement so happily suited to the purposes of human industry, that it can hardly be considered as recurring unnecessarily to final causes, if we conceive that this distribution of the rude materials of the earth, was determined with a view to the convenience of its inhabitants.

Iron pyrites is often abundantly disseminated among the coal.

Associated with the ironstone, small quantities of galena, and more rarely of blende, are sometimes observed.

Petroleum sometimes occurs, as might naturally be expected, among the coal.

(c) *Organic remains.\** From the greater abundance and importance of the remains which the vegetable kingdom has

\* The references in this article are to

Parkinson's organic remains, vol. 1.

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