

The slate clay, or shale, called by the miners shivers and black metal, frequently forms nearly three fourths of the mass constituting the coal measures. The sandstone of this series is used, when hard, for grindstones, while the softer varieties are employed for filtering. Another bed frequently associated with the coal measures is clay iron-stone, so called because of the large quantity of iron that is obtained from it. Next to the coal, it is the most important bed of the coal measures. At the Merthyr Tydvil works, in Wales, there are sixteen strata of iron-stone intermixed with numerous strata of coal. In the years 1805 and 1806, 26,253 tons of iron were obtained from the iron-stone at this place, and nearly three times as much is produced at the present time.

The coal measures abound in vegetable remains, and the coal itself is now very generally considered to have had a vegetable origin. The great abundance of vegetable remains in the alternating beds of this formation, is a strong reason in favour of the vegetable origin of coal ; and the state in which they are found, the woody parts being usually converted into coal, or a substance having nearly the same chymical composition, strengthens the argument considerably.

Another reason for this opinion may be gathered from the consecutive train of varying substances, from vegetation to perfect coal. It is well known, that in many parts of England accumulations of wood and plants are found, which, although now mingled with the mineral deposits, at no very distant period were growing on the spot where they are now buried. These vegetable deposits are found in different states ; sometimes the wood is so perfect that the character and species of the tree may be readily determined, while at other times it is much decayed, and has suffered so great a chymical change from humidity and pressure, that its vegetable origin can scarcely be recognised. That substance called **peat**, and used as fuel by the lower classes in many parts of this and other countries, is a vegetable remain of the latter kind.

At other times we find vegetables changed into that well-known substance, jet, of which boxes and other trinkets are frequently formed. Of the vegetable origin of jet there cannot be the slightest doubt, for instances have occurred in which one half of the trunk of a tree has retained its natural character, while the other half has been converted into