law of European population, as may be seen in a memoir inserted in the *Journal de la Société Asiatique*.*

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On the Organic remains in the Coal Formation at Wardie, Scotland. By
ROBT. PATERSON, M. D.

It is now almost universally admitted, that coal has resulted from the distribution of vegetable remains over areas of greater or less extent upon a previously deposited surface of sand, or argillaceous silt, and that after the entombment of this mass of vegetable matter, other layers of mud and clays were deposited on it; and this operation must have continued for a considerable length of time, during which it is more than probable that an abundant vegetation existed at no great distance from the spot where this process was taking place.

These changes are most likely to have gone on in estuaries or indentations of the land, into which this mass of vegetable matter was brought by rivers, while the sea made occasional, or in some instances continuous, incursions. In this manner we can easily see how, by accidental circumstances, the productions of the land or sea in greater or less abundance are occasionally met with in the strata of the carboniferous series, and how in one coal district an examination of its organic remains may afford one individual reason to believe, that the strata were chiefly deposited in salt water; a second, from the examination of a different locality, that they are entirely fluvial, or probably he may imagine them lacustrine; while a third may see the same organic remains which have given rise to the two former opinions so mixed up and incorporated together in another place, as to leave no doubt on his mind that the two former cases were only extreme degrees of what he had noticed.

Ibid.

“An account of a Well at Beaumont Green in the County of Hereford fifteen miles from London, about a mile to the west of the road to Ware;”
by J. MITCHELL, LL. D., F. G. S.

This well was dug in 1833, in the premises of Mr. Munt, a magistrate of the county, and the information respecting it obtained from two gentlemen accustomed to collect evidence with the strictest scrutiny.

The strata passed through, were one foot vegetable mould, 15 feet gravel, one foot sand with flints, 83 feet gravel clay, 15 feet blue sand with black pebbles, 10 feet blue clay, 1½ feet fine soft white sand, or 126½ feet down to the chalk, which was penetrated for 40 feet, when a spring was met with; but the digging continued 17 feet lower to form a reservoir of water, and this was favoured by making the excavation in the chalk of a bell shape, but above this the well was 4½ feet in diameter.

When the well was dug the weather was dry, but on this becoming very wet the 15 feet stratum of blue sand and black pebbles began to emit foul air, by which one of the well-diggers was suffocated in descending. A hawk flying over the well fell into it, and a similar fate befell smaller birds, also wasps, bees and flies. On closing up the mouth of the well, with the exception of an orifice an inch in diameter, so powerful was the force of the issuing current of foul air that it raised a weight of twelve ounces of lead.

* *Memoire sur la population de la Chine et ses Variations, depuis l'an. 2400 avant l'ère Chrétienne, jusqu'au 13e Siècle après; par Edouard Biot.*

In fine weather there was on the contrary a strong draft down into the well.

Eight months afterwards the well was again entered when the stratum of blue sand and black pebbles appeared forming into plumb-puddling stone. The well was rendered safe by bricking it down to the chalk, and applying a thick coating of compost over the whole. Dr. Mitchell explains the phenomena by observing that the foul air was no doubt sulphuretted hydrogen, produced by the decomposition of water and iron pyrites. After long-continued rain, water penetrating into the bed dislodged the gas accumulated in the interstices where it was formed; while after dry weather had continued for some time, the openings produced in this bed on drying up would draw for a short time a supply of air to fill up the vacuities, and hence the draft observed to pass down into the well. The whole of the neighbouring district, to the extent of four miles, is called by the well-diggers, foul country. Similar phenomena were observed in digging a well on the opposite hill at Applebury, and also in forming some wells in the immediate vicinity of London.

Ibid.

Mechanics' Register.

Plumbago and Black Lead Pencils.

There is only one purpose to which this form of carbon is applied in the solid state, viz., for the manufacture of black lead Pencils, and its adaptation to this end depends on its softness. In the state of a powder, plumbago is used to relieve friction. Its power in this way may be illustrated by rubbing a button first on a plain board, five or six times, and applying it to a bit of phosphorus, the latter will immediately burn. When rubbed on a surface covered with plumbago, double or triple the friction will be required to produce the same effect. One of the most remarkable circumstances connected with plumbago, is the mode in which it is sold. Once a year the mine at Borrowdale is opened, and a sufficient quantity of plumbago is extracted, to supply the market during the ensuing year. It is then closed up, and the product is carried in small fragments of about three or four inches long, to London, where it is exposed to sale, at the black lead market, which is held on the first Monday of every month, at a public-house, in Essex-street, Strand. The buyers, who amount to about seven or eight, examine every piece with a sharp instrument, to ascertain its hardness—those which are too soft being rejected. The individual who has the first choice pays 45s. per pound, the others 30s. But as there is no addition made to the first quantity in the market, during the course of the year, the residual portions are examined over and over again, until they are exhausted. The annual amount of sale is about 30000*l*. There are three kinds of pencils, common, ever-pointed, and plummets. The latter are composed of one-third sulphuret of antimony, and two-thirds plumbago. The first part of the process is sawing out the cedar into long planks, and then into what are technically termed tops and bottoms. The second, sawing out the grooves by means of a fly-wheel. The third scraping the lead on a stone, having been previously made into thin slices, to suit the groove: introducing it into the groove, and scratching the side with a sharp-pointed instrument, so as to break it off exactly above the groove. The fourth, glueing the tops and bottoms together, and turning the cedar cases in a gauge. The *ever-pointed* pencils are first cut into thin slabs, then into