

May 28, 1839.

The **PRESIDENT** in the Chair.

Diving
Bell.

Colonel Pasley stated the result of some experiments which he had made with a diving bell in the Thames and in the Medway. The common rectangular diving bell, suspended from a vessel in a very strong tide, was completely swept under the boat, and in some other cases it swung round half and half, or was twisted considerably out of its proper position. He attached boat-shaped ends, and on descending at the half ebb of a strong flood tide the bell was perfectly steady. He should think a bell fitted in this manner would be exceedingly advantageous for going alongside of wrecks. He should recommend the ends to be moveable, and if the wreck were athwart the tide he should have only one end put on, and bring the bluff end against the vessel. An experienced diver had informed him, that in the current of the Danube, running seven knots an hour, the bell vibrated tremendously. Since this arrangement had occurred to him, he discovered that a similar one had been proposed to the "then Navy Board," about twenty years ago, by Mr. W. S. Smith, who had been employed under Mr. Rennie, but it does not appear to have been tried. Colonel Pasley promised the Institution a more detailed account of his experience on this important subject.

Coke and
Peat.

Mr. Parkes stated, that he would take this opportunity of the presence of Mr. Williams to lay before the meeting some specimens of French Peat, which had been alluded to on a previous occasion.* One of the specimens was that obtained by allowing the particles to come within the influence of the natural forces to which the atoms are subject. The slutch as dredged up from the bottom of the streams, in a state of great comminution, was put into moulds, and, contracting as it dried, acquired considerable density. This was an instance of density due to gradual drying; the density became doubled by this process. Mr. Parkes presented a specimen of coke from compressed peat; this Mr. Williams would explain, as he had taken up the subject where every one else had left off, and had succeeded in producing density by mechanical means, at a moderate cost, and, by carbonizing the mass, in getting rid of the volatile

Minutes, Jan. 8, 1839.

particles, which are injurious as a fuel; he thus produced an extremely valuable coke.

Another specimen was of the incrustation on the interior of a gas retort; it was a coke of extreme density and of great value for some purposes, but for what was a secret. This deposition accumulates until the interior of the retort is almost filled up, leaving no available space for the charge. The retorts are bought for the sake of this coke, which is a perfect carbon. A thin coating of carbonaceous matter, which would otherwise be carried off in the gas, is deposited each charge.

Mr. Lowe was not aware of the uses to which this coke could be applied; but it was of extreme disuse to the gas-makers; he believed, however, that it was used to produce an intense heat. It is sometimes stated to be a carburet of iron, but a portion from the centre of the mass shews, on being tested, not the least trace of iron. It arises naturally in the process of gas-making, and the rate of its deposition depends on the temperature; as in those retorts which have a tendency to become too hot the deposition goes on exceedingly fast. There were many curious facts connected with its deposition; that in a horizontal part is stratified in concentric layers. The upper portions will be perfectly sectile and form admirable crayons, that at the lower part will scratch glass; it decreases in density from the bottom; a portion of the sides partakes of both qualities. He suspected, that a large quantity was sold as black lead.

Mr. Williams remarked, that there were two kinds of peat, the one having a density due to impurities; this is useless for all purposes of metallurgy. But for the purest carbon, the upper surface of the moss must be used, and an artificial density must be communicated to it; it is only in this manner that a dense and pure coke can be obtained. The peat having this artificial density is carbonized, by which all the volatile matter useless in combustion is driven off, ground, and then being mixed with a bituminous matter the operation of nature in the production of various species of coal may be closely imitated.