

parish of St. Keverne: he stated that it was taken from a stream of water which ran near his house, and that any quantity of the sand in question might be obtained, if required. Its external characters were sufficient to convince me of its nature. I nevertheless submitted it to experiment, and immediately proved that it was the ore of titanium, in which Mr. William Gregor first detected the existence of that metal, and to which the name of *menacchanite* has been given. Collectors will be glad to hear of this discovery, for specimens of the mineral were becoming scarce, from the exhaustion of the original stream at Tregonwell Mill, which has hitherto, I believe, been its only Cornish *habitat*.

JOHN AYRTON PARIS.

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V.—FORMATION OF A SUBSTANCE, RESEMBLING GNEISS, TAKEN FROM A STEAM BOILER at HUEL ALFRED.

The specimen which I am about to describe was given me by Captain John Davy, a zealous and intelligent associate of the Society; it was broken from the interior of the large boiler of the steam engine, erected on Huel Alfred. From its structure and appearance it is impossible to infer its artificial origin, and several of my

geological friends have been puzzled to know to what class of rocks it should be referred. It resembles gneiss more nearly than any other, and in one specimen, metallic veins may be actually seen penetrating its substance.

The formation of this substance is to be explained in the following manner. The water which fed the boiler was derived from the deepest part of the mine, and contained many mineral substances, both in solution and mechanical suspension; by gradual evaporation the former bodies were deposited, as a crust in the interior of a kettle, entangling with them fragments of *mica*, and of other substances which were floating in the water of the boiler. In this manner the formation of the earthy crust may be easily comprehended—but how can the appearance of metallic veins be explained? with equal ease and truth. After the deposition of the stony matter, the working of the engine was suspended for several months, during which interval the crust dried, and of course cracked; upon its being again set to work, the water was derived from a different part of the mine, and contained pyritical and other metallic impurities, which were deposited in the fissures, and upon the surface of the former crust. I have another specimen which was presented by Captain Hodge, a duplicate of which is in the cabinet of the Society; in this the fissures are filled with crystals of *sul-*

*phate of lime.* I have already noticed it in my paper upon a "*Recent Formation of Sandstone.*"

JOHN AYRTON PARIS.

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VI.—A NEW SUBSTANCE, FOUND ACCOMPANYING  
"WELSH CULM."

The species of coal known by the name of culm, "*Glanz Kohle,*" is imported on account of its purity, for the purpose of smelting tin. Mr. William Gregor informed me, shortly before his death, that he had observed amongst the heaps of this coal, lumps of a much more dense texture, and which were perfectly un-inflammable. In order to decompose it, he powdered it, and added twice its weight of *nitrate of barytes*, and subjected it to heat in a platina crucible; when, to his great astonishment, a violent detonation took place, accompanied with a copious evolution of *prussic acid* vapours, and upon examination he found the residue in the crucible to consist of the *prussiate*, and *carbonate of barytes*. Since Mr. Gregor's death, I have examined his chemical memoranda, and am thereby enabled to extract the following facts. From different experiments, the specific gravity of this substance appears to be 1,627. Fifty grains of the coal were mixed with 200 of *nitrate of barytes*,