

mode of procuring pure carburetted hydrogen. The early product of the distillation of pit-coal was washed with a solution of chlorine, and afterwards with liquid potash. The residue was then mixed with one fourth its volume of oxygen, and heated to 350° , in contact with the platinum, which converted the carbonic oxide into acid, and the hydrogen into water. The carbonic acid being removed by liquid potash, there remained only the carburetted hydrogen, the redundant oxygen, and a trace of nitrogen.

Dr. Henry concludes this communication by pointing out the best method of applying the facts detailed in the preceding sections to the analysis of mixtures of the combustible gases in unknown proportions.

A Comparison of Barometrical Measurement, with the Trigonometrical Determination of a Height at Spitzbergen. By Captain Edward Sabine, of the Royal Regiment of Artillery, F.R.S. Read May 6, 1824. [*Phil. Trans.* 1824, p. 290.]

The hill selected for this comparative measurement was the highest within convenient distance, of which the ascent was practicable, on the western part of the north coast of Spitzbergen. The summit was less than two miles from the observatory, in a direction nearly due south, the observatory being upon an island rather more than a mile from the main land. In consequence of the extreme inaccuracy of the chart of Fair Haven, published in Captain Phipps's voyage, the author has annexed to this paper a sketch of the harbour and adjacent coast, to show the positions of the hill and observatory. The small bay formed by the shore of the main land, to the north-east end of the hill, being frozen over, afforded a perfectly level base, and corrections for inequality were thus rendered unnecessary. A polished copper cone was fixed upon a staff at the summit of the hill, the apex of which was proposed as the height to be measured: it stood 44 inches above the highest pinnacle of the summit. Captain Sabine then enters into the details of this trigonometrical measurement, from which the altitude of the cone is considered as equal to 1644 feet. The author next proceeds to detail the particulars of the barometrical measurement, and the precautions taken to insure accuracy in the instruments, and in their employment; and the height of the cone thus ascertained was 1640.07 feet.

Captain Sabine concludes this paper with some remarks upon the incorrectness with which the heights of the hills on this coast are set down in Captain Phipps's voyage.