

Methods
employed
in the
investigation.

water having been withdrawn, it was again placed under the receiver of the air-pump, etc. etc.

2. *Determination of the Volatile Matter.*—This was effected at a full red-heat, with careful exclusion of atmospheric air.

3. *Determination of the Ash.*—The incineration of the graphite was effected in a platinum boat, inserted in a platinum tube; the latter being heated in a gas combustion furnace; a gentle current of pure, dry oxygen gas being passed through the tube during the operation.

4. *Preparation of the Ash for analysis.*—This was conducted in the same manner as in the preceding determination, with the exception that a much larger boat was employed, and the platinum tube was replaced by one of porcelain.

5. *Determination of the Relative Combustibility of the Graphites.*—The methods employed for determining this depended upon the difference in loss sustained by the specimen under trial as compared with that of the specimen of Ceylon graphite employed as the standard, when ignited under precisely identical conditions.

In the selection of the various graphites it was sought to bring them into the nearest possible accordance as regarded the percentage of ash, for which reason the purest obtainable specimens were in all cases chosen. The percentage of ash in the graphites employed in these experiments was determined after ignition, and the necessary corrections were made for the same in calculating the results. The samples were all ignited previous to use, in order to expel volatile matter, thereby insuring that loss from this source should not be attributed to loss by carbon. The graphite was, in all instances, reduced to the same state of mechanical division. Equal weights of the standard, and the sample under trial, were, in all cases, taken, and due care was observed that the two presented equal surfaces, whether employed in the form of a powder or compressed to that of a cylinder. Although the temperature, as also the strength of the current of oxygen, was very uniformly maintained throughout the course of the experiments, still, no dependence was placed upon this, for which reason the sample under trial was invariably accompanied by a specimen of the graphite employed as the standard.

A. *The Apparatus.*—This consisted of a platinum boat, divided longitudinally into two equal compartments by a strip of platinum foil soldered up the centre. The contour of the boat coincided exactly with that of the interior of the porcelain tube in which it was placed, so that a uniform and tolerably close contact of the sides and bottom of the