

December 11, 1862.

Major-General SABINE, President, in the Chair.

The President announced that he had appointed the following Members of the Council to be Vice-Presidents :—

The Treasurer.

Dr. Carpenter.

Sir Philip de M. Grey Egerton, Bart.

Professor Wheatstone.

The Rev. Professor Willis.

Dr. Rolleston and Mr. Henry Bristow were admitted into the Society.

The following communications were read :—

- I. "Observations on several Mineral Substances, including their Analysis, &c." By Dr. T. L. PHIPSON, F.C.S. Communicated by Dr. STENHOUSE. Received November 3, 1862.

(Abstract.)

In this paper the author gives an account of a series of mineral substances more or less recently discovered, and several of which have been lately imported into England to be utilized in various arts and manufactures. Fourteen of these substances have been submitted to careful analysis by the author, and their chemical composition and properties determined. The minerals described include—

1. Sombrierite, a phosphate of alumina and lime from the Antilles.
2. A fossil phosphate from the Isle of Wight, a most perfect description of wood fossilized by apatite and fluorine.
3. A phosphate from the West Indies, derived from the decomposition of guano.
4. Bicarbonate of ammonia from the Chinca Isles, off the coast of Peru, for specimens of which the author is indebted to Capt. Marcus Lowther, R.N., and which appears never to have been completely analysed before.
5. Tinkalite, a hydrous borate of lime and soda from Peru, already utilized in the arts as a substitute for borax.
6. Stibiconise, from Borneo, a hydrated antimonious acid, which

has been lately imported into England in notable quantities. 7. A modern limestone rock, forming on the coast of Flanders. 8. The Limon de la Hesboye, a loam which covers a large portion of Belgium and part of France, and which is extremely remarkable for its fertility: although it contains upwards of 90 per cent. of sand, its analysis shows that it possesses all the chemical ingredients necessary to form a fertile soil. 9. Vitriolite, or natural sulphate of iron, recently discovered in Turkey, and which has been analysed by M. Pisani and the author; it is remarkable from the fact that part of the iron is replaced by copper, without changing the crystalline form or the percentage of water. 10. An oolitic hematite from Namur (Belgium), remarkable for its peculiar structure, which may have been caused by the incrustation of insects' eggs (*Notonecta*), as we see is the case with the oolitic limestone of the Mexican lakes. 11. The argentiferous quartz or gossan of Cornwall, in which the author finds that the silver is contained as Fahlerz (grey copper): when the grey copper is freely disseminated through the rock, the percentage of silver (metallic) averages about 0.2 per cent.; but in the ordinary yellow and brown gossan, where the grey copper is not visible, the silver averages about 0.04 per cent., or $14\frac{1}{3}$ oz. to the ton. 12. The iserine sands of Australia and Bourbon Isle. 13. A bituminous conglomerate from Australia, remarkable as containing nearly 40 per cent. of petroleum and bitumen, with carbonate of lime, sand, and mica, &c.; it exudes from a tertiary limestone on the river Murray. 14. The arseniferous sulphur of Naples, which, according to the author's analysis, contains, besides 11.162 per cent. of arsenic, about 0.264 of selenium, which can be easily extracted from it in a pure state.

Of each of these substances the author gives in the present paper a detailed description and a complete analysis, believing that such researches are not devoid of utility. As most of the substances alluded to are applicable in some way or other to the wants of man, the author is continuing these investigations as opportunity offers, by submitting to careful analysis the different new or little-known minerals which happen to come under his notice.