traced and mapped by the Survey over a considerable area, their origin is still involved in great uncertainty. In the uplands of Peeblesshire, beautiful glacier moraines have been found, shewing the existence in these high grounds of a group of valley-glaciers after the re-elevation of the land.* Others, on a still larger scale, occur among the high grounds of the south-west of Ayrshire.

In the course of the explorations of the Survey, proofs of vast denudation have everywhere been met with, leading to the conclusion that the present inequalities of the surface—our hills and valleys, plains and river-gorges, are not directly due to upheaval and subsidence, or to fractures of the earth's crust, but must be attributed mainly to the unequal wearing away of the rocks by the sea, rain, springs, streams, and glacier-ice.

This address was illustrated by an exhibition of all the published maps, sections, and memoirs made by the Geological Survey in Scotland, by a large map, on the scale of one inch to a mile, shewing all the work which has been done, both published and unpublished, and by enlarged sections to explain the structure of the Ochil and Pentland Hills.†

The following Communication was read:—

On a New Bituminous Substance, imported under the name of Coal from Brazil. By T. C. Archer, Esq.

This material was brought from Brazil to Liverpool, for the purpose of ascertaining its commercial value in this country. The importers submitted it to Dr Edwards, who reported that it yields a much larger percentage of oil than even the celebrated coal of Torbane Hill.

The crude oil of the first distillation has a sp. gr. of .859.

On redistillation, a light and heavy oil are obtained from the crude oil.

* They have been carefully examined by Dr Young, who has given an account of them in the Quarterly Journal of the Geological Society for 1864.

† It is not usual to publish the results of the Geological Survey until they appear in the authorised and official form. In the present instance, I am indebted to the courtesy of the director-general, Sir Roderick I. Murchison who at once most cordially gave his sanction to the publication of the above abstract in the Proceedings of the Society.

The sp. gr. of the lighter is .768.

Of the heavier ,, 858.

The lighter oil, when refined, is colourless, and resembles the oils obtained from coal, petroleum, &c.

Its sp. gr. is .753.

The substance itself resembles, in general appearance, dried clay; but it is very light, being extremely buoyant in water. It breaks with a conchoidal fracture, and in some portions there are bands of minute striæ, indicating sedimentary deposition. Thin sections, which I have prepared with difficulty, show no trace of organic structure under the microscope.

No information was received with it as to the exact locality whence it was obtained, but in the Exhibition of 1862 similar substances were shown in the Brazilian collection, under the following titles:—

1. Schistos betuminosos calcareos—from the Serra de Araripe, in the Province of Ceara.
2. Schisto argilo-calcareo betuminoso—from Chapad, in the Province of Maranhão.
3. Schisto betuminoso—from Pirapora, Province of S^{to} Paulo.
4. Schisto betuminoso—from the Morro do Taio, Province of Santa Catherina.
5. Schisto betuminoso—from Camaragibe, Province of Alagoas.

In all probability the specimen before this Society is from one of these localities; and the fact that it is so widely distributed in Brazil will stimulate further inquiry about so valuable a substance.

The following Donations to the Library were announced:—

Transactions of the Botanical Society of Edinburgh. Vol. VII.

Part 1. 8vo.—*From the Society.*

General Index to the first 15 vols. of the Transactions of the Pathological Society of London, 1864. 8vo.—*From the Society.*

Abstracts of the Meteorological Observations made at the Magnetical Observatory, Toronto, C.W., during 1854 to 1859. 4to. Toronto, 1864.—*From the Observatory.*

- Results of the Meteorological Observations made at the Magnetical Observatory, Toronto, C.W., during 1860, 1861, and 1862. 4to. 1864.—*From the Observatory.*
- Philosophical Transactions of the Royal Society of London. Vol. CLIV. Parts 1 and 2. 4to. 1864.—*From the Society.*
- Proceedings of the Royal Society of London. Vol. XIV. No. 71. 8vo.—*From the Society.*
- Astronomical Observations made at the Royal Observatory, Greenwich, 1862. 4to.—*From the Observatory.*
- Die Zeitbestimmung mittelst des Tragbaren, Durchgangsinstrumente im Verticale des Polarsterns, von W. Dollen. 4to. St Petersburg, 1863.—*From the Author.*
- Preussische Statistik herausgegeben in Zwanglosen Heften, vom Königlichen Statistischen Bureau in Berlin, VI. 4to. Berlin 1854.—*From H. W. Dove.*
- Materiaux pour la Carte Geologique de la Suisse, publiés par la Commission Geologique de la Société Helvetique des Sciences Naturelles aux frais de la Confederation, Deuxieme livraison. 4to. Berne, 1864.—*From the Society.*
- Jahrbuch der Kaiserlich-Königlichen Geologischen Reichsanstalt Band XIV. N^o. 2, 3. 8vo. Wien, 1864.—*From the Society.*
- Bulletin de la Société Imperiale des Naturalistes de Moscou, publiés sous la Redaction du Docteur Renard. Nos. III. IV. 1863; No. 1. 1864. Moscow. 8vo.—*From the Society.*
- The Māhābhāṣya of Pantanjali; a Commentary on the Grammatical Aphorisms of Panini, with the Glosses of Kailjāta and Nāgogi Bhatta. Fol.—*From the Author.*