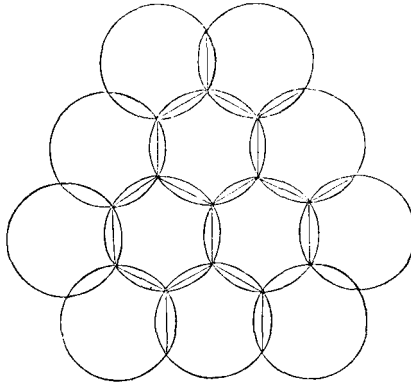


by lava in its consolidation is fully discussed. In a lava when cooling there are centres of attraction more or less affecting all the crystalline particles; and in a uniform mass cooling throughout alike, these centres would be equidistant and the contractile force equal. "In this case all the spheres of attraction would be equally similar in size and form, and would arrange themselves as closely as possible, that is, in the manner of the cells in a honeycomb, or as the circles in the figure below.



"The fissures of retreat produced by the contractile force of all the spheres, acting contemporaneously, must evidently therefore divide the consolidated layer into hexagons, each straight fissure being tangential to the opposite spheres of attraction between which it is formed."

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 CORRESPONDENCE.

*On the Composition of a peculiar Substance from the Wallabies' Holes, River Murray.*

SIR.—In a recent number of 'The Geologist' (February, 1862) appeared the description and a sketch of a Tertiary limestone on the River Murray, in Australia. In this limestone are a series of holes or warrens, inhabited by hosts of wallabies, kangaroo-rats, etc., and from these cavities there exudes a peculiar dark brown, sticky, odoriferous matter, in considerable quantities. This substance has been handed to me by Mr. Rupert Jones, F.G.S., for chemical examination. The result of my analysis is as follows:—

Bitumen and petroleum, with débris of mosses .....	40·57
Sand and white mica .....	22·49
Phosphate of alumina, with a little oxide of iron and phosphate of lime	6·42
Carbonate of lime .....	30·52

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No uric acid, nor any other organic matter besides those named, is present. When treated with soda a slight trace of ammonia is evolved, which comes probably from the remains of mosses. The latter, whose weight may amount to about 4 or 5 per cent. of the whole, are in so perfect a state of preservation that the teeth of the seed-caps and indentations of the leaves, as well as the internal tissue of the same, are most distinctly seen under the microscope.

The bitumen belongs to the species known to mineralogists as *Malthé*. It dissolves in alcohol and in caustic soda, but is insoluble in water. When the whole mass is submitted to heat it swells and gives out much smoke, which has rather an agreeable odour. It is impregnated with a small quantity of petroleum, which causes it to stain paper like oil.

The mineral matter, which amounts to nearly 60 per cent., is cemented together by the bitumen.

It will be seen by what precedes that this peculiar substance is made up of natural hydrocarbons, which have cemented together a certain amount of mineral matter. It has nothing to do with the animals which infest the warrens, except perhaps that by boring into the rock they have given it a means of exit.

Yours, etc.,

T. L. PHIPSON.

## PROCEEDINGS OF GEOLOGICAL SOCIETIES.

GEOLOGICAL SOCIETY OF LONDON.—*February 21.*—Annual General Meeting.—Sir R. I. Murchison, V.P.G.S., in the chair. The Secretary read the Reports of the Council, of the Museum and Library Committee, and of the Auditors. The Society was shown to be in a satisfactory state, as to finances and the number of Fellows. The Wollaston Gold Medal was awarded to Mr. Robert A. C. Godwin-Austen, F.R.S., F.G.S., for his long-continued and valuable researches in Geology, particularly into the ancient geographical and hydrographical conditions of the Western European area in the Palæozoic, Mesozoic, and Cænozoic periods; and also for his acute and judicious elaboration of the theory of the presence of Carboniferous rocks at a moderate depth beneath the south-east of England. The Wollaston Donation-fund was given to Professor Oswald Heer, of Zurich, in recognition of his valuable labours in the elucidation of the Fossil Plants and Insects of the Tertiary strata of Switzerland and Croatia, and especially of the Fossil Flora of Bovey-Tracey, in Devonshire.

The Chairman next, having read a letter from the President, regretting his unavoidable absence in Italy, expressed his sense of the great services rendered to the Society since its foundation by Mr. Leonard Horner. He then proceeded to read an obituary notice of the late Dr. Fitton. Mr. W. W. Smyth, secretary, read obituary notices of the late Rev. J. S. Henslow, Mr. J. MacAdam, Mr. Eaton Hodgkinson, Sir C. Fellows, Prof. Necker, and others. Finally, Prof. Huxley, secretary, read an Address, the principal objects of which were—to urge upon Geologists and Palæontologists the necessity of reconsidering the logical basis of several of their most generally accepted conceptions, such as the doctrine of Geological Contemporaneity, and the assumption that the fossiliferous rocks are coeval with the existence of life on the earth,—and to test the ordinary hypotheses of the progressive modification of living forms in time by positive evidence.