6,000 diamonds have been collected in one district, extending about seven miles along the valley of the Cudgegong river, in latitude 33° south. The view of the diamond having been formed in the Tertiary drift deposits coincides with the view expressed by Dr. Hartt on this subject in his recent work on the Brazils.

Dr. Hunt gave a succinct account of what is known up to the present time with regard to the geological history of the diamond. In India, Brazil, Virginia, North Carolina, Oregon and Europe, diamonds have been found associated with other gems, and with gold in drift deposits. He said that the original matrix of the gem was not clearly ascertained, but that he was inclined to the view that it would be found to be in the oldest geological formations, possibly in veins in granite. He stated that he had carefully examined many samples from the Chaudière gold regions, but failed to detect diamonds in any of them.

The meeting was a good one, and the several papers were listened to with a great deal of interest.—*Montreal Daily Witness*, March 1, 1871.

CORRESPONDENCE.

GEOLOGY OF THE CUMBERLAND LAKES.

Sir,—I wish to enter a protest against the statement of a friend of your correspondent, Mr. Wollaston, that the Cumberland hills resemble "great heaps of rubbish shot out of a cart," for no district in England shows more distinctly, even to the most untrained eye, how valleys have been cut out of pre-existing "plains of marine denudation," by the long-continued agency of running water, which has cut vertically deeper and deeper, until portions of the plain, his "heaps of rubbish," were separated by gorges and valleys often 2,000 feet in depth.

In regard to the glaciation of the district, the question between Mr. Mackintosh and some other geologists, is not whether the Lake country is, or is not moutonnéed, but how it became so, whether by icebergs, as suggested in 1828 by Mr. Maclaren, to account for the glaciation of Scotland, and held by Mr. Mackintosh to have been the glacial agent in the Lake District, or by a cap of land-ice, as suggested by Mr. Croll, universally wrapping over mountain and valley, or by land-ice, in the form of small ice-sheets, and large glaciers, as held by myself, not wholly filling up the valleys, but entirely covering the lowland plains moving from the mountains of Cumberland towards the Solway Firth, and southwards over the Lancashire and Cheshire plains, and over much of what is now sea to the Mountains of Wales. On the glaciated rock surfaces in the plain, rest indiscriminately lower Boulder-clay, sand and gravel, and upper Boulder-clay, proving that all these deposits are of later date than the period of land-ice, which clearly occurred before the submergence, all the above deposits being of marine origin, and roughly corresponding to the "Stratified Drift of Scotland," described by Mr. Geikie, F.R.S.

The Shap Fell boulders occurring in Yorkshire are found in the Purple Clay of Mr. S. V. Wood, jun., and in the upper Boulder-clay of Mr. Mackintosh, both of which deposits I consider to be synchronous with the upper Boulder-clay of Lancashire, in which I have found a few pebbles of this granite as far south as the Mersey. The blocks I believe to have been detached during the middle sand period by the action of breakers, which formed them into a beach on the slope of the Fell, which on the climate becoming colder were floated off by coast-ice, and carried by the *flow tide* eastwards to Yorkshire and southwards to Lancashire. I cannot therefore agree with Mr. Croll, admirable as are his investigations as regards Scotland, that the total ice-wrap theory is applicable to north-western England, and more especially to the transport of Shap Fell boulders.

CHARLES E. DE RANCE, F.G.S.

TERRACES OF NORWAY.

SIR,—As I have had the opportunity of examining several of the terraces of Norway described by Professor Kjerulf (as noticed in the GEOLOGICAL MAGAZINE, p. 74), and agree with his explanation of them, I may, perhaps, be excused for replying to Colonel Greenwood's letter (p. 191). I have never felt satisfied with his explanation of the Fraser River and Himalaya terraces, and I feel convinced that it will not apply to those of Norway. The latter are, I believe, formed as follows:—First a delta has been deposited, when some physical cause has diminished the velocity of a stream which sweeps along detritus; *e.g.* where a river enters a fjord. This delta has, after a time, been raised above the water, and during the period of upheaval and the subsequent pause the stream has cut away a considerable portion of the loose materials of the delta. A further upheaval, with an increase in the velocity or reduction in the volume of the stream, has carved another and lower set of terraces during another pause, and so on. Of course, if local conditions permit, new deltas may form further down the valley in the part which yet remains under water; and these in turn may be subjected to erosion, if the upward movement is resumed. My reasons for differing from Colonel Greenwood are—putting them as briefly as possible—(1) Regular cliffs and grooves, to say nothing of deposits of marine shells, at various heights above the present sea-level, show that Norway has risen during recent epochs, and that there have been pauses in the upheaval. (2) Many valleys (as at the head of the Alten fjord) in the neighbourhood of these signs of upheaval are filled with wide plains of drift, out of which the river has cut a channel, and the fjord face of this plain is regularly terraced. (3) That, as in some of the valleys of the Sogne Fjord (and doubtless in many others), the terraces show similar faces looking both to the fjord and to the river, suggesting the same cause for their formation, viz., the erosion of incoherent materials by water in motion. (4) That in ascending a valley you not unfrequently find sets of terraces rising step above step, not *from* the stream, but *up* the stream; so that in the upper part of the valley the corresponding