

now give the reasons for our opinion, all details being reserved for a paper in preparation.

W. GUNN.

GEOLOGICAL SOCIETY OF ENGLAND AND WALES.
BARNARD CASTLE, *February 18th, 1877.*

BASE OF THE CARBONIFEROUS ROCKS IN TEESDALE.

SIR,—I have just opened Phillips' Geology of Yorkshire, Part 2, by chance at page 81: and the first words that caught my eye were "Widdybank" and "anomalous breccia."

This is the breccia which, on my visit to Teesdale, last October and November, I suggested to my companions, Messrs. Gunn and Clough, was the *base of the Carboniferous rocks*, for the reasons quoted by me in the *GEOL. MAG.* for February. From the use of the term "anomalous," it is clear that Phillips had noticed the peculiar character of the bed. It is somewhat strange that none of the geologists, as far as I know, who have written about the rocks in Teesdale, should have been struck with the possibility of the breccia being the base of the Carboniferous. They seem to have been too much taken up with the Whin Sill to think about that. Perhaps they did not see the Silurian-like dykes and pencil-beds below Cronkley; but if they did, they must have equally missed their suggestive character.

It is some satisfaction to us youngsters that the older geologists have left us something to discover.

J. R. DAKYNS.

KENDAL, *February 20th, 1877.*

"KAMES" AND DENUDATION.

SIR,—Mr. Mackintosh is quite right. I have not seen either the English or Welsh 'Eskers' he mentions, so that perhaps, as another critic of my paper has said, I am "not entitled to generalize." But at the same time I cannot help expressing my astonishment at being told that there are vast numbers of Kames, or similar gravelly mounds, whose shapes have nothing to do with denudation. Since many of these mounds were first exposed to atmospheric influences, not only have rivers cut their channels to great depths through the most compact rocks, but the hard metamorphic mountains of the Highlands have been so wasted that their flanks are usually draped with débris, which, spreading over the floors of the valleys, bury them deep under masses of angular rock fragments, which are frequently shaped into very good imitations of Kames by the action of streams running along the valleys, aided by torrents from the mountain-sides. I do not suppose that any one would maintain that the shapes of these mountains have nothing to do with denuding agencies. How is it then that the loose gravels of the Kames "sometimes on the summits of hills," as Mr. Mackintosh says, have withstood influences before which the solid hills literally "flow from form to form"?

That the Newport Kames do not enjoy such immunity from the action of the rain-fall, has been demonstrated during the recent excessively wet weather. All the mounds not protected by grass have water-courses cut in their sides, some of them of considerable

size. One stream, after leaping in a cascade from a hollow in a hill-side, has cleared out a channel of from eight to ten feet deep, and in some parts fifteen to eighteen broad. The loose gravelly sides of such channels soon fall in, and beyond a modification of the contour of the slope, all trace of the denuding agent is lost.

JAMES DURHAM.

P.S.—I heartily concur in Mr. Mackintosh's estimate of Mr. H. B. Woodward's admirable Geology of England and Wales, but Mr. Woodward says little about 'Kames' which would not be explained as readily by the Denudation theory as by any other.—J.D.

THE TROPICAL FORESTS OF HAMPSHIRE.

SIR,—Please correct the following *erratum* in the last Number of the *GEOL. MAG.* in my letter, line 3, from top of page 96; for "200 feet" read "2000 feet." That is the thickness of the Eocene beds in section in Hampshire, according to the Geological Survey Memoir by Messrs. Forbes and Bristow. It was written *very plainly* in figures in the MS. of my letter.

MARTLESHAM, NEAR WOODBRIDGE,
February 21st, 1877.

SEARLES V. WOOD, JUN.

OBITUARY.

SARTORIUS VON WALTERSHAUSEN.

BORN 17 DEC., 1809. DIED 16 OCT., 1876.

THE death is announced of Professor Sartorius von Waltershausen, of Göttingen, on the 16th of last October, after a long and painful illness. The loss of a man who has done so much to advance the science of Petrology will be generally felt and deeply regretted. The obituary notice which has appeared in the *Jahrbuch für Mineralogie* is so singularly meagre that we propose to review in somewhat fuller detail his history and scientific labours.

Wolfgang Sartorius von Waltershausen was born on the 17th December, 1809. He was an illustrious son of an illustrious father, Georg Sartorius von Waltershausen, who was Professor of Philosophy in the University of Göttingen. The father was a great friend of Goethe, and was more especially known as the author of the "Geschichte des Hanseatischen Bundes." The son, after having taught for a time in some of the German schools of learning, and having published some memoirs on terrestrial magnetism, devoted several years to travel. From 1834 to 1846 he visited various districts, where the phenomena of volcanic activity could be studied with advantage, and the observations made in the field formed the material for more important memoirs issued in later years. He was for a considerable period in Sicily, returning in 1843, and his "Atlas" of researches on the rocks of Etna appeared three years later. In 1845 he visited Ireland and Scotland, and in 1846 we find him in Norway and Iceland. In the journey to the Danish Island he was accompanied by his friend Bunsen, and the results of the investiga-