

The Cannington Park Limestone.

BY MR. W. BAKER.

THE Limestone of Cannington Park has always been a geological puzzle ; and, long since geology has become a science worthy the attention of learned men, it has been considered nonfossiliferous.

Nearly forty years ago, the well known Geologist, Leonard Horner, explored Cannington Park very carefully, and his observations on it are published in one of the early numbers of the Geological Transactions, in a paper entitled, "Sketch of the Geology of the Western part of Somersetshire."

In this interesting and valuable report, Mr. Horner says: "I examined this Limestone with very great care, in order to discover whether it contained any organic remains, and particularly at the decomposed surfaces, and at those places where the stone was bruised by the blow of the hammer, but I could not find the slightest trace ; and some of the quarry men, who had worked there for several years, told me they had never found anything of the kind." Notwithstanding Mr. Horner failed to discover fossils in this rock, he records the following opinion, in the paper above quoted: "It is very probable that by a more

minute examination, madripores and shells will be found in this Limestone, for there are laminae of calcareous spar dispersed through it, which are strong indications of organic remains."

In 1837, the late Rev. D. Williams read a paper, to the Geological Section of the British Association at Liverpool, on the Geology of parts of Cornwall, Devon, and West Somerset, wherein he says: "The Exmoor and Quantock group is of such perfectly simple structure, as to be briefly explained by a series of emergencies, the key to unlocking it being found in the fact that the lowest and most ancient emerged at, and towards, the north-east; thus, in the ascending order, the Cannington Park Limestone, near Bridgwater, is the lowest rock of all." In a subsequent part of this paper, Mr. Williams intimates that he had found organic remains in this rock, but he does not particularize any.

In 1839 the Report of the Ordnance Survey of Cornwall, Devon, and West Somerset, was published under the direction of Sir Henry De la Beche, and I copy the following remarks from p. 55 of this important work: "To determine the place which the Cannington Park Limestone, near Bridgwater, occupies in the Grauwacke series of North Devon and West Somerset, is difficult. The Limestone is so surrounded by Red Sandstone, that its near connection with the rocks of the Quantock Hills cannot be traced satisfactorily."

Soon after the publication of Mr. Horner's paper, when I was a young geologist, my attention was called to the author's prediction—that madripores and corals would be found in the Cannington Park rock. I commenced a keen search for them on the old walls that bound the park, and I was soon rewarded with many good examples of weather-

worn corals, and fragments of encrinites; and subsequently, the loose stones, formerly the defences of the hill, and the quarries, also furnished me with many good specimens. At the first general meeting of this society, I had the pleasure of exhibiting several large and handsome polished slabs, full of corals; and some of them are still in our Museum. No discovery of a fossil shell was made known until within the last three or four months; indeed this is the first public notice of such a discovery.

In October last, Mr. J. H. Payne, one of our early members, in searching for corals and madripores on Cannington Park, cracked a stone containing a beautiful valve of a bivalve shell. The external surface only is exposed, and one side of the beak is concealed; the other side is slightly winged, and the whole shell is marked with fine, but well defined, longitudinal ridges—it is much like *Cardium Aliforme*. I had the pleasure of showing this interesting specimen to our Vice-President, the Earl of Cavan, and his lordship took an early opportunity of going to the hill in search of fossil shells, and succeeded in finding three distinct species, different from Mr. Payne's, viz., a large *Productus*, an *Orthis*, and a *Terebratula*.

On the 17th of November I met his lordship on the hill by appointment, and spent, in diligent research, a cold but bright and cheerful morning, on its sheltered southern side. We found a large *Productus*, and several other species of bivalves, which I believe agree with fossils in the Mountain Limestone of Mendip. When Dr. Pring, Mr. Moore, and myself, examined the Williams' Collection, at Bleadon, at the request of this society, we were surprised, at finding in one of the cabinets two or three imperfect bivalves, labelled Cannington Park. These fossils were no doubt found by the late Mr. Williams,

after he had read his paper to the British Association, in 1837, and are probably recorded in his manuscript book, which is now the property of the society.

It might be asked, how was it that fossils in the Cannington Park Limestone were so long hid from the observation of good geologists? I answer, the highly crystalline nature of the stone was the cause. The organic remains are unusually concealed in these beds; but now the eye has detected these objects, although they are so obscure, we shall in future find them abundant. The crystalline character of the stone, is no doubt to be attributed to the volcanic action which uplifted the rock, for trappean Red Stone fills up many fissures in the hill; and volcanic cinders, connecting trap and altered Limestone, are not uncommon on different parts of the hill.

Cannington Park has been marked on one or two geological maps as Mountain Limestone, but without fossil evidence; and for many years it has been doubtful in what series of strata it should be arranged. In different parts of the Quantock Hills are beds of Limestone, almost composed of madripores, corals, and encrinital fragments; but hitherto no moluscos shells are recorded to have been found in these beds; therefore they may be of a very different geological age, perhaps much older than the Cannington Park Limestone.

Humboldt in his great work, "The Cosmos," says: "Some strata furnish only the impression of a shell, but if it be one of a characteristic kind, we are able on its production, to recognize the formation in which it was found, and to state other organic remains which were buried with it. Thus the shell brought home by the distant traveller, acquaints us with the geological character of the country which he has visited."

We now know more than one characteristic shell; we have many shells, corals, etc., from Cannington Park, agreeing with fossils common in the Mountain Limestone of Mendip, to guide us, besides the oolitic structure and general resemblance of the stones. Is it not likely therefore that the Cannington Limestone is an outlyer of the Mendip strata, the southwest side of which dips towards the Quantocks, and probably passes deep under the intervening valley, and is uplifted at this eastern branch of the Grauwacke Hills?

Since I had the pleasure of reading the above short paper at our conversazione, in March, I have met with some observations on the Cannington Park Limestone, in the late Rev. D. Williams's manuscript work, from which I make the following extracts:—

“The fact of the Cannington Limestone being an outlying mass, and altogether insulated in the New Red Sandstone, caused me for a time some doubt and embarrassment, as to its true position and relations. On a review of all its circumstances, however, I entertain little doubt that it is a purer variety of the Withycombe, Doddington, and Stowey Limestones, or, inversely, that the latter indicate the Cannington Limestone to be passing out to the westward, among the Old Red Sandstone, by a less pure — by coarse arenaceous and carbonaceous beds. It is on the direct roll of the Old Red, from the Quantocks towards the Mendips. . . . It commonly exhibits a very minute, concretionary-looking structure, consisting of little pale grey oviform and spheroidal granules, closely packed together. . . . Organic remains are at times abundant in this Limestone, but usually so minute, almost microscopic, that most of them, I believe, have hitherto eluded observation. They consist of minute plates and

facets of plates of encrinites, and, on a close inspection of the weathered surfaces, I procured several remarkably small and delicate spines, papillæ and plates of an Echinus, a little turbinated univalve, and several fine corals. The late Mr. Anstice, of Bridgwater, informed me that a trusty agent brought him a Productus from this Limestone, and Mr. Baker, of that town, obligingly showed me some beautiful corals, which he had found in it."

In a note to the above, Mr. Williams mentions that Mr. Anstice had accompanied Professor Buckland and Mr. Conybeare in the survey of this Limestone, and supposes that he was urged by these gentlemen to search it diligently for fossils, in future. He also informs us that Mountain Limestone was, about that time, shipped from Brean Down to Bridgwater, for the repair of roads, and suggests the probability that the Productus was found in these stones, not in Cannington Park stone, and brought by the "trusty agent" to Mr. Anstice, for reward. It appears that when Mr. Williams wrote the above, he not only did not know of any fossils in the Cannington stone, except corals, fragments of very minute encrinites, and echini, and a little turbinated univalve, but doubted the discovery of the Productus in it; therefore it appears likely that the two or three bivalves seen by Dr. Pring, Mr. Moore, and myself, in the cabinet at Bleadon, must have been found after the above remarks were written. I have not the slightest thought that Mr. Anstice was imposed upon by the "trusty agent."

Since I read my paper at Taunton, and the discovery of molluscus shells in this Limestone has been otherwise mentioned, the Rev. W. A. Jones, of Taunton, and Mr. Moore, of Ilminster, in a brief search amongst some heaps of this stone, by the roadside near Bridgwater, cracked out three

or four tolerably good specimens of distinct species of bivalve shells. Mr. Morle, of Cannington Park Farm, who is alive to the interest that geologists take in the strata close to his door, and is competent to explore them, has met with others; and Mr. W. Tucker, of Cannington, a good practical naturalist, has brought me dozens of specimens, and many different species.

I fear that I have lengthened this paper to a tedious extent; but I have trespassed so far, because I am desirous of making use of the information which I have obtained on this subject, believing that a knowledge of the geological position of the Cannington rock will elucidate much that is obscure in our geological views of the Quantocks, and the strata westward; and that this obscurity will, before long, occasion another survey from the Ordnance Staff, in the western district, as they contain views different from those quoted from the Paper read to the Geological section of the British Association.
