

This is about all that conjecture at present can arrive at. There would seem indeed to be little hope of determining the question as to the age of the rocks from a study of the island alone, or of all the Channel Islands together by themselves. It can only be by comparison of their geology with that of the neighbouring parts of the Continent—of Normandy and Brittany—that we can expect a solution of the problem.

In addition to the syenites, and the sedimentary and porphyritic rocks above described, there is a very important accumulation of volcanic rocks (trap, porphyry, and amygdaloid), in the immediate neighbourhood of St. Helier's, and which does not seem to have been noticed either by Dr. MacCulloch or Prof. Ansted. Commencing at Gallows Hill, on the west of the town, the series may be traced for about two miles northward, across both branches of the Val des Vaux, to near the Grand Val Mill. It occurs again between the two houses called the Hermitage and Bagatelle, in the quarry east of Victoria College, and at the foot of St. Saviour's Hill. It may be well seen in the quarries at the bottom of Gallows Hill, and on the road up the western branch of the Val des Vaux, where the focus of the eruption seems to have been. There is nothing to indicate the age of these rocks except the alteration of the shale (*e*) in their neighbourhood (as, *e.g.*, on the Trinity Road, and other places) into a claystone porphyry, proving them to be more recent than it. The mention of this altered rock leads to another and final question; namely, what is the cause of metamorphism in the various rocks of Jersey? It is not the syenite: for at, or close to, its junction with the shale (as, *e.g.*, on the ascent by the path from St. Aubin's into the St. Brelade's Road), the latter is quite unaffected.

The volcanic rocks may account for the alteration of the shale (*e*) into claystone-porphyry; but they do not account for the felstone and hornstone-porphyrines (*f*), which exhibit the same character, both in the immediate neighbourhood of the trap (*e.g.* in the quarry N. of Grand Val Mill), and miles away from it (*e.g.* at La Crete Point, in Blanche Pierre Quarry and in Bonnenuit Bay). These would seem to be porphyries belonging properly to the sandstone series (*f*), but whether contemporaneous or intrusive I am unable to say. Here again the study of the geology of Normandy and Brittany is essential to the understanding of that of Jersey and the other Channel Islands.

NOTICES OF MEMOIRS.

ON THE METAMORPHISM OF THE ROCKS OF THE CHANNEL ISLANDS.

By Prof. LIVEING, etc., etc.

A PAPER was recently communicated to the Cambridge Philosophical Society (Oct. 29th, 1877) by Prof. Liveing, in which the author traced the connexion of the rocks in Guernsey, and pointed out the extreme variations in the amount of change these rocks and some of those in the other islands had undergone, from

well stratified gneiss to highly crystalline syenite. He attributed the coarsely crystalline structure of these and other granitic rocks to long-continued variations either of temperature or of the action of some partial decomposition, such as steam or other gases may be supposed to effect, rather than to fusion; and he pointed out that there were granitic veins in the islands which appeared to have originated like ordinary quartz-veins, while others were intrusive, and concluded that the granitic structure was a result of metamorphosis, and that the proof of the igneous origin of a granitic rock must be determined by considerations independent of its crystalline character.

REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.—December 19th, 1877.—
Prof. P. Martin Duncan, M.B., F.R.S., President, in the Chair.

The following communications were read:—

1. "On *Argillornis longipennis*, Owen, a large bird of flight, from the Eocene Clay of Sheppey." By Prof. Owen, C.B., F.R.S., F.G.S., etc.

In this paper the author described some remains of a large bird obtained by Mr. W. H. Shrubsole from the London Clay of Sheppey, consisting of parts of fractured humeri belonging to the right and left sides of the same species or perhaps individual, and including the head of the bone, with portions of the upper and lower parts of the shaft. The texture of the shaft, the thinness of its bony wall, and the large size of the cavity recall the characters of the wing-bones of the large Cretaceous Pterodactyles. The author indicated the characters which led him to regard the remains under consideration as those of a volant bird, most nearly approaching the genera *Pelecanus* and *Diomedea*; and as the evidence derived from the cranium of *Dasornis* would indicate a bird too large to be upborne by wings to which these bones might have belonged, whilst the skull of *Odontopteryx* is far too small to have formed part of a bird with wings as large as those of the Albatross, and *Lithornis* and *Pelargornis* are excluded by the characters of their remains, the author concluded that the bones obtained by Mr. Shrubsole furnished indications of a new genus and species of flying birds, for which he proposed the name of *Argillornis longipennis*. He regarded it as probably a longwinged natatorial bird, most nearly related to *Diomedea*, but considerably exceeding the Albatross (*D. exulans*) in size. The author remarked that the generic name *Megalornis*, proposed by Prof. Seeley for the *Lithornis emuianus*, Bowerb., had been preoccupied by the late Mr. G. R. Gray.

2. "Contributions to the History of the Deer of the European Miocene and Pliocene Strata." By Prof. W. Boyd Dawkins, M.A., F.R.S., F.G.S.

The author commenced by referring to the difficulties attending the study of the European Miocene and Pliocene Deer, and indicated that the majority of the known antlers may be referred to two cate-