

## A VARIETY OF PICRITE (SCYELITE) IN SARK.

SIR,—Rather more than two years since (Dec. III. Vol. VI. p. 109) I wrote a description of a variety of Picrite which I had found in boulders at Port du Moulin, Sark, stating that I published it, as there was “no probability of my returning to Sark for years, if ever,” in the hope some one would trace this interesting rock to its home. But the unexpected often happens: last summer’s work among the hornblende schists of the Lizard determined Mr. Hill and myself to re-examine those of Sark, and in the process of this the picrite was not forgotten. After a careful search along the rocks at low water we found a dyke of this rock at the foot of the cliffs between Port du Moulin and Saignie Bay, nearly opposite to (perhaps rather to the south of) the Grand Autelet. It is at the base of a little spur from the cliff of banded gneiss, into which it is intrusive, but it only shows for a foot or so above the shingle, in two or three humps, running seawards. In this direction, about fifteen yards off among the boulders, is another boss. I have examined the rock under the microscope. The olivine is not so well preserved, there is rather less mica and more hornblende than in the specimen described in 1889; it is not quite so obviously connected with the serpentines, but I have no doubt that the boulder came from some part of this dyke. We searched the cliffs very carefully up to the further side of Saignie Bay on the north, and for some distance to the south of Port du Moulin without finding any other dyke. We now think it very improbable that Ansted, in speaking of a dyke of serpentine as crossing the island, referred to this rock. We reserve further particulars for a paper in which we hope to communicate to the Geological Society the result of our work in Sark.

T. G. BONNEY.

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 OBITUARY.
 

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## PETER MARTIN DUNCAN,

M.B. (LOND.), F.R.S., F.G.S., F.L.S., ETC.

BORN, 20TH APRIL, 1824. DIED, 28TH MAY, 1891.

PETER MARTIN DUNCAN was born at Twickenham in 1824, and received most of his early education in the Grammar School there. After leaving this he lived for a short time in a school in Switzerland, and on his return to England entered the Medical Department of King’s College, in September, 1842. He there received the whole of his formal scientific training; he passed the preliminary M.B. examination with honours in Anatomy and Physiology in 1844, and obtained the full degree in 1846; he was elected an Associate of his College in 1849. Upon the conclusion of his medical studies, he acted for a time as assistant to a doctor at Rochester, whence he removed to Colchester, where a practice had been purchased for him. Here he remained for many years, and it was during this period that he published his first scientific essay, which consisted of “Observations on the Pollen tube, its growth, histology and physiology” (1856). But he did not at Colchester secure much time for original research, for most of that which was left him by his profession was occupied

by work in connexion with the municipal politics of the borough, in which he seems to have played a prominent part. The fact that he served as Mayor shows that he had won the confidence of his fellow-townsmen, while the admirable arrangement of the local Museum, which under his direction was reorganized upon lines far in advance of the time, is a sign of his interest in the educational institutions of the town. After his return to London to a practice at Blackheath, he was able to spare more time for scientific work, specializing upon the Corals; and as his interest deepened in the problems which these presented him, he was led to abandon lucrative prospects in his profession and devote himself entirely to original research. In this he was no doubt encouraged by the reception accorded to his first palæontological papers, which were read in 1863; they at once gained him recognition as one of the ablest of British palæontologists; he was in the following year appointed one of the Honorary Secretaries of the Geological Society, and two years later he was elected F.R.S.

After leaving Blackheath he settled near Regent's Park, but he was not long allowed to remain in retirement, as in 1870 he was called to the chair of Geology at King's College, and a Fellowship followed in the next year. Shortly afterwards he accepted also the Professorship of Geology at Cooper's Hill, and he held both appointments till his death. He resigned the Secretaryship of the Geological Society in 1870 after a seven years' tenure of office through a period in which the change of apartments had made the duties more than usually onerous. In 1872 he was elected one of the Vice-Presidents, an office which he held till his promotion to the Presidency in 1876 and 1877. In 1881 he was awarded the Wollaston Medal, the highest honour which the Geological Society can bestow. Though it was the Geological Society with which he was most closely connected, he was an influential member of other scientific bodies; he served on the Council of the Royal Society from 1876 to 1878, was President of the Geological Section of the British Association in 1879, and of the Microscopical Society from 1881 till 1883. By his resignation of this post he terminated an official career of no ordinary usefulness, and retired to Gunnersbury, where he passed the remaining years of his life.

On turning to Prof. Duncan's scientific work, one is impressed by the enormous amount he accomplished and the wide range of his interests and influence. As has been previously remarked, his first paper (1856) was botanical, and he long retained his interest in the subject, his last paper on vegetable physiology being published in 1874; while still later he worked out the parasitic algæ which he discovered in some of his Silurian Corals. His first important work was the series of five memoirs on the Fossil Corals of the West Indies, a subject which he took up, as at that time he failed to get the necessary facilities for the study of the recent forms. The subject was full of difficulty; the living Corals of the area were but little known, so that the materials for the comparison of the recent and fossil faunas were quite insufficient. But Prof. Duncan attacked the subject with characteristic energy, and his sound

common sense enabled him to avoid many a pitfall; his memoir was certainly a most valuable addition to the knowledge of the later Tertiary Corals. This work was followed by a long list of papers and monographs in which he described the Coral faunas (especially the Cainozoic) of England, Australia, Tasmania, India, Java, Arabia, and Malta. His "British Fossil Corals" is probably one of the finest contributions to English Palæontology ever published by the Palæontographical Society; it was so much more modern in its methods and more thorough in its treatment than the less painstaking work to which it was issued as a Supplement.

But though Prof. Duncan's interests were probably at first rather zoological than geological, he soon became absorbed in the line of work which he had been led by circumstances to select. He early realized that the description of the anatomical structure and the determination of the systematic position of a fossil did not constitute the sole duties of a palæontologist. With him these were but preliminary to the consideration of the affinities of faunas and their bearing on the physical geography of the past. He was a palæontologist in the truest sense of the word,—not a morphologist who happened to study extinct forms, but a geologist who used fossils as a petrologist uses minerals. Hence his early work on the West Indian Corals commenced by a detailed study of their conditions of fossilization and closed by a discussion of their evidence as to the Cainozoic physiography of the Caribbean region; similarly his later studies of the European Corals led to his striking paper on "The Physical Geography of Western Europe during the Mesozoic and Cainozoic periods elucidated by their Coral Faunas."

It was probably his desire to check the conclusions yielded by the Corals that led him to take up also the study of the Echinoidea, and as work with these is more definite than with the former, it yielded him some of his most interesting conclusions. He commenced with the Echinoids of beds, the Corals of which he had already studied; among the most remarkable were the collections from South Australia, which he described in a series of papers dating from 1864 to 1887. It was apparently his interest in the origin of this fauna, with its mixture of Cretaceous and Cainozoic genera, that led him to turn with such zest to the Indian Echinoids, which, in conjunction with Mr. Sladen, he monographed with great detail and care.

Of the Mesozoic Echinoidea he studied with especial interest those of the Cenomanian, and by the aid of the small collections of the Rev. W. F. Holland, in Sinai, and Dr. Carter, in South Arabia, he gradually built up the connexion of the European fauna with that of Northern India. And then, by his comparison of those of the Peninsular and Extra-Peninsular areas, he demonstrated the existence of the land barrier that stretched across India and away to the southwest, of which such important use has been made in recent controversy. His views on geographical distribution were original and had been carefully matured; his lecture on "The Formation of the Main Land Masses" showed that he did not accept the view of the

permanence of oceans and continents, a subject upon which his opinion was of especial value. Another of his contributions to chorology was his paper on the fauna of the Alpine Lakes, perhaps the most serious blow ever struck at the theory of the Glacial origin of the Swiss lake-basins.

But though Professor Duncan did not regard morphology as the highest end, he did not by any means neglect it; thus our knowledge of the perignathic girdle of the Echinoids and its value in classification we owe mainly to him; while his remarkably suggestive and original essay on the structure of the ambulacra of the regular Echinoidea, perhaps his most masterly piece of work, has gained the highest praise from men prejudiced against him.

But in addition to his contributions to palæontology he has done much in zoology: he wrote a series of papers on the anatomy of the *Temnopleuridæ*, *Saleniidæ*, and other groups of the Echinoidea, and described, amongst others, the *Madreporaria* of the *Porcupine Expedition*, the *Ophiuroids* and *Corals* of Mergui, and in conjunction with his constant collaborator, Mr. Sladen, the *Echinodermata* from Greenland. It was probably his close study of the recent forms that made his judgment usually so sound, while the knowledge gained was indispensable for the preparation of his two invaluable works "The Revision of the *Madreporaria*" and his "Revision of the Genera and Great Groups of the Echinoidea." The former was issued in 1885, and consisted of diagnoses of every genus of *Corals* (excluding *Rugosa*) and of a classification which has not yet been supplanted. His *Revision of the Echinoidea* was perhaps still finer, and made a great advance in our knowledge of every order. The application of his own discoveries on the ambulacral structure enabled him to bring the *Palechinoidea* from chaos into order, and to replace the artificial arrangement of the *Diadematidæ* by a natural classification; his previous detection of the fundamental differences between the pits of *Temnopleurus* and the fossettes of *Temnechinus* gave him the clue to the arrangement of that group; and his substitution of positive for comparative diagnoses in many recent genera has greatly aided the comparison of the fossil and deep-sea types. But his use of the perignathic girdles in another order was less successful, while his acceptance of Lovén's results brought him into conflict with some continental palæontologists regarding the classification of the *Spatangoidea*. By these two *Revisions* alone Prof. Duncan has earned the gratitude of every palæontologist and zoologist; they precisely formulated the best current thought of their time, and have given a firm basis for future work. They must be indispensable works of reference to every student of these groups, till in years to come the progress which they have so largely aided has rendered necessary a new revision, and until some one is then ready and able to undertake the enormous labour such a task involves.

But in addition to the *Corals* and *Echinodermata*, Prof. Duncan made some contributions to the study of the *Protozoa* and *Sponges*, while his clearness as a teacher led him to undertake a good deal

of lecturing and popular literary work; thus he edited the six volumes of "Cassell's Natural History," and amongst others wrote a primer of physical geography, a volume of biographies of the "Heroes of Science," a paper on Voltaire's attitude to geology, and edited recent issues of Lyell's "Students' Elements."

In the course of so much, and such widely different work, it was but natural that Professor Duncan should at times have come into conflict with his fellow-workers, however much he himself detested controversy. On the one hand, his passionate love of justice led him to accept the names of the pioneers of systematic zoology, and thus his nomenclature has been in places rejected by the younger school. On the other hand, his work has been severely criticized by men who, caring for none of the physiographical problems Prof. Duncan set himself to solve, expected him always to unite the detailed precision of an histologist with the grasp of a palæontologist. But at the time of his work on the West Indian Corals, for example, such investigations would not have aided him in his comparison of the recent and fossil faunas; and later opinion seems far more in agreement with his work than with that of the elaborate monographs of Michelotti and Duchassaing that immediately followed his. But it is to be regretted that he did not adopt some modern methods quite as early as he might have done, especially as his work on the *Temnopleuridæ* shows how well he knew how to use them. Another source of trouble was that he had a somewhat aggravating way of giving wrong references, which brought down upon him the censures of those who seem to think that it is a mere matter of detail whether the species be rightly identified so long as the reference be correctly cited. But, loathing controversy as he did, he ignored criticism as far as possible, and perhaps the only time when he was really roused to wrath was by the neglect by some recent Echinologists of the results of the work of his great Swedish friend; the vigour of his onslaught on this occasion puzzled those who did not understand his devotion to the man to whom he often referred with modest reverence as "my master Lovén."

To his first love, the Corals, he proposed to return on the conclusion of his revision of the Echinoidea; he commenced work upon a large Indian collection, and planned a supplement to his Revision of the Madreporaria in which he intended to discuss recent criticism and incorporate subsequent progress. But it was not to be: he was smitten with disease, and after a long and painful illness quietly passed away on the early morning of the 28th of May.

The fine keen sense of humour which remained unblunted almost to the last, the genial kindness with which he was ever ready with help especially to younger men, united with the recognition of his sterling worth and sound judgment, gained for him wide popularity and esteem. And now that Prof. Duncan has passed to his well-earned rest not only is the world the poorer by the loss of a great palæontologist and of a strong and original intellect, but a wide circle of his fellow-workers have to mourn the departure of a trusted friend.

J. W. G.