exist, and the records are full of remarks as to their non-existence, especially with regard to the Diane, which lay near the main track to Torres Strait from Sydney. They were, however, retained on the charts, with notations as to the doubt in their positions.

At length, in 1884, two reports were made by small trading-vessels from Queensland to New Guinea, one of a small bank in lat. 15° 41′, and long. 149° 43′, the other of a submerged reef in lat. 15° 28′, long. 147° 6′. It was at once observed that the latitudes of these, and their distance apart, agreed with those of Bougainville's discoveries, though they were far to the westward, and it seemed as if the long-lost reefs were at length again found, since it was not at all improbable that the westerly current had caused the reckoning in longitude, uncorrected by chronometers, to be over-run by *La Boudeuse*. Capt. Denham's searches, minute and painstaking, and apparently sufficiently extended as they had been, just fell short of the positions of these new reports, the limit of his examinations passing within ten miles of both of them.

One link, however, was missing to insure certainty in the identification, viz. the second reef of Bougainville.

During the past year H.M.S. *Myrmidon* has been scouring the Coral Sea, and in the course of her cruise made this one object of search. It was, however, unavailing; clear sea was alone seen in the direction of the second reef. But her description both of sand-bank and reef reported in 1884 tallied precisely with Bougainville's detailed accounts. More accurate observations, moreover, showed that the latitudes were in each case almost exactly identical with his, and that the distances apart, as before stated, agreed.

But what of the reef still missing?

A closer examination of Bougainville's journal revealed that the second reef was sighted from aloft at 5.30 p.m., at an estimated distance of five miles. The sun set at 5.35, behind the reef; twilight is short in those latitudes, and it seems improbable that *La Boudeuse* could have been near enough to see the reef clearly before night closed in. It is therefore believed that the delusive appearance of reflection misled the voyagers, and that Bougainville, so accurate in his other reports, was in this instance mistaken.

A further difficulty remains. How could *La Boudeuse* steering the course reported have made the land 100 miles to windward of her direct track? Here, again, the explanation seems to be that later voyagers re-bestowed the name of Orangerie on that one of the numerous bays on the New Guinea coast which corresponded to Bougainville's longitude. These are assumptions; but the other evidence is so complete that it is believed that the mystery of 120 years is cleared up, and that the dangers which have so long been a source of anxiety to the navigator have at length found their true places on the charts.

The three positions these reefs have occupied are as follows:—

	By Bougainville		Bougainville corrected for the position of Espiritu Santo		By *Myrmidon*	
	S.	E.	S.	E.	S.	E.
Diane ...	15° 46′	151° 26′ ...	15° 46′	150° 28′ ...	15° 43′	149° 37′
Bougainville Reefs	15° 35′	149° 8′ ...	15° 35′	148° 6′ ...	15° 33′	147° 12′

W. J. L. WHARTON

THE CROCUS[1]

MANY splendidly printed and illustrated monographs of special genera of flowering plants have been published, but few surpass in merit or interest Mr. Maw's monograph of the species of the genus Crocus. This work, the author tells us, has pleasantly occupied his spare hours for the last eight years. In collecting the material for it, he has travelled far and wide over the crocus region; he has enlisted the services of a whole host of friends, who, on the borders of the Mediterranean, of the great Basin of the Black Sea, and along the shores of the Caspian, have collected the species peculiar to these localities, and forwarded them for culture and description to Mr. Maw. Perhaps never before has a monograph been written so entirely from the study of living plants. At the same time, no information that was to be gleaned from the dried specimens in herbaria has been neglected.

The monograph opens with a chapter on the life-history and physiology of the forms belonging to the genus. As the minute structure of the various parts of the plants has not been made a special study by the author, this portion of the subject leaves a good deal to be done by future workers. The strange phenomenon of dissepiments on the pollen-tube is figured as existing, on the authority of Prof. Martin Duncan. In the chapter on classification and sequence, we find that the author adopts the division of the species indicated by Dean Herbert, into those with, and those without, a basal spathe. These larger divisions are, again, subdivided into sections, characterised by the form assumed by the bundle tissue or the corm tissues, and these, again, into groups arranged according to the period of flowering. The third chapter is a most interesting one, on the geographical distribution of the species. Confined to the Old World, the species of crocus are therein only to be met with in the northern hemisphere, where they reach a northern limit at about 50° N. latitude. Westwards, they reach their limit at the coast of Portugal; southwards, the limit extends to Morocco, though no species appear to be endemic to Africa, and none have been found in the region between Tetuan and the Nile Delta. In Asia, on the borders of Syria, *Crocus hyemalis* has the most southern range of all the species. The eastern limit of the species is at present uncertain, for it seems pretty certain that one or more species have been found in Afghan Turkestan. Of the sixty-nine known species, thirty occur in 40° N. latitude, which is far in advance of any other district as a line of growth, but the metropolis of the genus is a district including Greece, the Greek Archipelago, and Asia Minor, for in these regions it forms a more important feature in the flora than in the outlying countries to which it extends. The genus is also remarkable for the wide range in altitude of the majority of the species, those that are essentially alpine or lowland being comparatively few in number; and Mr. Maw does not know of a single species which is not perfectly hardy, that is to say, capable of enduring any of the extremes of cold or heat to be met with in our climate. There do not appear to be distinct areas for the spring and autumn flowering forms, and Mr. Maw has been unable to detect any instances of wild hybrid forms, notwithstanding the close relationship of some of the species, and the fact that their areas of distribution constantly overlap.

In a fourth chapter the history and literature of the genus are treated of. Two centuries before the days of Linnæus the crocus was known in England as a garden plant, and in Gerarde's "Herball" (1597) eleven forms are figured and described. Most of the famous pre-Linnean writers on plants have added to our knowledge of the species, such as Parkinson in his "Paradisus" (1629), and Ewart in his "Florilegium" (1612); but Linnæus contented himself with making but two species, one *C. vernus*, and the other *C.* (*Bulbocodium*) *bulbocodium*. The first important attempt to classify the genus was made by A. H. Haworth in 1809, followed by Goldbach's monograph in 1817, Gay's in 1827, and Sabine's in 1830. Dean Herbert in 1847 and Baker in 1873 added much to our scientific knowledge of the group, and now in this beautiful monograph

[1] "A Monograph of the Genus Crocus." By George Maw, F.L.S., &c. With an Appendix on the etymology of the words "Crocus" and "Saffron," by C. C. Lacaita, M.A., M.P., F.L.S. (London: Dulau and Co., 1886.)

we have the history of the genus, written in a manner that, except for the anatomical student, will not for very long indeed be surpassed.

Hints on cultivation and on species not yet introduced to cultivation, and remarks on saffron, its cultivation and uses, form Chapters V. and VI. Saffron would appear to have been cultivated in England prior to 1582, and from its importance as an article of commerce gave its name to Saffron Walden. It is very strange that after having been grown as an economic plant in England for three or four centuries its production has died out, and that it is an extremely difficult thing to get the saffron crocus to flower in this country. The author says that saffron was used as a royal dye in the olden time in Ireland, but this is a very doubtful statement.

Into the descriptive portion of this work it is needless that we should enter in detail. All the species and their chief varieties are most carefully described, full synonymic lists are given, and ample details as to the geographical distribution of each and its period of flowering. The description of each species is accompanied by a plate illustrating the corm, flower, leaves, fruit, and structural details; and, as if to add to the attractiveness of this splendid volume, there is a series of very exquisite woodcuts, introduced as head-pieces, of some of the more remarkable districts where the rarer species are found. Some of these are from original sketches, by Mr. Danford, of the remote mountain region of the Taurus and of other parts of Asia Minor, where, with Mrs. Danford, journeys were made in quest of crocuses. The volume is dedicated to Mr. and Mrs. Danford.

The appendix, by Mr. Lacaita, on the etymology of the words crocus and saffron, is of great interest, and tells of the almost world-wide use of the terms.

NOTES

LAST week, Sir William Armstrong paid to the bankers of the Royal Society a cheque for 7800*l.* for the Scientific Relief Fund.

THE Council of the Geological Society have awarded the medals to be given at the anniversary meeting of the Society on February 18, as follows:—The Wollaston Gold Medal to Mr. J. W. Hulke, F.R.S., the Murchison Medal to the Rev. P. B. Brodie, the Lyell Medal to Mr. S. Allport, and the Bigsby Gold Medal to Prof. C. Lapworth. The balances of the Funds at the disposal of the Society are awarded as follows:—The Wollaston Fund to Mr. B. N. Peach, the Murchison Fund to Mr. R. Kidston, and the Lyell Fund to the Rev. Osmond Fisher. We believe that the President's address at the anniversary meeting will deal mainly with the relations between geology and the mineralogical sciences.

THE Geographical Society of Australasia has been authorised by the Queen to prefix the word "Royal" to its title.

THE recent death of General Hazen, the chief of the Army Signal Service in the United States, which is responsible for the meteorology of that country, has raised the question whether or not meteorology should be dealt with by a civil rather than a military bureau. It will be remembered that when the present meteorological system was established in the United States it was connected with the Signal Service, in order to utilise the time of the officers and men during peace. There is no doubt that the work done by the American Signal Service has been done with a thoroughness and vigour which have not been equalled elsewhere; and the eminent men of science who have been associated with the Chief Signal Officer have taken care that the mere forwarding of weather information should not be the whole of their duties. A Committee of the National Academy of Science has already been appointed to consider the matter, and has recommended separation of the work from the War Office. Whatever decision is arrived at, it is to be hoped that the service in its new form (if it is to have one) may not be less efficient than it has been in the past. This question is of course part of the general question now being seriously discussed in the United States, as to whether a purely scientific service should be controlled and directed by scientific men. In the abstract there can be of course but one answer to this question, but it must at the same time be pointed out that to make a man of science responsible for large administrative and executive work is to destroy him utterly as a man of science. This is a good reason for having some one other than a man of science for the carrying out of such work. It is, however, no argument for placing the man of science in a subordinate position to any mere administrator, and it would perhaps be best to intrust such inquiries on a very large scale to a small Committee, one of whom should be the man responsible for the science and the other the man responsible for the administration.

VERY enlightened ideas prevail among the influential classes of India with regard to the manner in which the Queen's Jubilee should be celebrated. On the motion of Dr. Hunter, the Vice-Chancellor of Calcutta University, the Jubilee Committee at Calcutta decided some days ago that the fund which is to be raised in India for a permanent memorial, shall be devoted partly to the Imperial Institute in London, partly to a scheme for the placing of technical education in India on a sound and lasting basis. It is said that the provincial cities are resolved not to be outstripped by the capital. The people of Patna propose to found an industrial school, and the Calcutta Correspondent of the *Times* says their example is likely to be followed in many places. The native princes have also begun to see the importance of technical education, and the Maharajah of Mysore has determined not only to contribute largely to the Imperial Institute in London, but to form an Institute of a similar kind in his own dominions. All this promises well for the material progress of our great dependency, and it should tend to strengthen the movement among ourselves for the establishment of closer relations between science and industry.

NEARLY four years ago we were able to announce that a vote had been passed at Oxford authorising the Curators of the University Chest to spend a sum of 7500*l.* in building an annex to the east side of the University Museum, to contain the splendid anthropological collection which General Pitt-Rivers had most munificently offered to the University, and in providing the requisite cases and fittings. The collection has now been partially arranged in the hall built for it, and is thrown open to visitors. It has been enriched by objects transferred from other University Museums, such as the Ashmolean, and by numerous donations from other sources. The opening of the collection ought to mark an epoch in the history of anthropological study at Oxford. Its importance arises less from the value of the objects (although that, of course, is very great) than from the manner in which they are grouped. The arrangement brings out with astonishing clearness the working of the law of evolution in the development of all kinds of implements and weapons.

IT is proposed that a Medical School shall be formed in connection with University College, Dundee. There can be little doubt that the scheme will be successful, for not only has Dundee an important hospital, but medical students at the new school would have the advantage of being able to take the degrees of the University of St. Andrews. Some time ago Mr. T. H. Cox offered 12,000*l.* as an endowment for a Chair of Anatomy, and now the sons and daughters of the late Mr. J. F. White, of Balruddery, have given 6000*l.* to found a Lectureship or Chair to be associated with their father's name.