

Institution that in presence of uric acid it crystallises in *octahedra*. There are other similar facts: thus alum usually crystallises in *octahedra*; but if sulphate of alumina is present in excess the alum crystallises in *cubes*.]

THE SONGS OF BIRDS.—In Pennant's "British Zoology," vol. ii., Mr. C. C. Starling will find in an appendix a very interesting paper by the Hon. Daines Barrington on the singing of birds. The paper is dated 1773, and published in the *Philosophical Transactions*, vol. lxxiii.—JAMES MACFADZEAN.

DECAISNE AND BAILLON¹

IT is perhaps now time to make a protest against a scandal which has in no small degree excited the disgust of scientific men in various parts of Europe, who, like ourselves, have been favoured with copies of the privately-circulated publication of which the name stands at the foot of this note. That scientific men should quarrel, and quarrel sometimes with singular bitterness, is only to affirm in other terms that they are not exempt from the ordinary frailties of human nature. That they should make blunders in their work, however conscientiously performed, is but another illustration of the same truth. But that a scientific man with any respect for his calling should not merely think it worth while to publish the errors of one who has long laboured, and on the whole laboured not ingloriously, under the same roof as himself, and in the same pursuits, and should persist in the unhandsome enterprise of seeking out and raking together faults, even the most microscopic and frivolous, with all the relish and vindictiveness of gratified spite, is a thing so wholly disgusting that a protest should be made against it in the interest of common decency. Decaisne has spent a laborious life in botanical work of great usefulness and excellence, and his scientific reputation has long been established and acknowledged by his contemporaries, who have been quite capable of estimating the value of what he has done. Baillon, a much younger man, is scarcely less regarded for the industrious profusion and frequent originality of his botanical publications. But he will not materially affect the position of Decaisne by his animadversions, and it is pitiful that any portion of his abounding energy should be devoted to the attempt to discredit writings which, after all, will always be consulted by students on their own merits, and having regard to the state of knowledge at the time they were published. The fact is that no scientific man could undergo with credit such a scathing revision as that to which Baillon has subjected his unfortunate fellow-savant, and we do not say without some reason that the last person who would emerge from the process with anything like satisfaction would be Prof. Baillon himself.

DR. RUDOLF SCHEFFER

IT is with sincere regret that we have to record the sudden death of Dr. Rudolf H. C. Scheffer, the director of the Botanical Gardens, Buitenzorg, Java, which took place at Sindanglaya on March 9. The loss of Dr. Scheffer will be felt by a large circle of botanists throughout the world, for the splendid gardens of which he was superintendent were in communication with every home and colonial botanical institution; but in the Netherlands Indian Colonies, however, it is that his death will be most felt and deplored.

It is now some twelve years since Dr. Scheffer came out from Holland to take the first directorship of the gardens, which had come into high repute by the great number and variety of species collected into it by numerous eminent botanists and by the energy and zeal of its well-known *hortulanus*, J. E. Teysmann, who has by his numerous voyages added so many new species to the

¹ "Errorum Decaisneanorum graviorum vel minus cognitorum centuria quinta, Auctore H. Baillon."

East Indian flora, and on the fiftieth anniversary of whose uninterrupted connection with the gardens Dr. Scheffer took so warm and active a part last January. Soon after his arrival Dr. Scheffer instituted a school for the training of native boys in the science of agriculture; and for their practical instruction he was the means of having an agricultural garden opened at Zjikoemah, close to the school, and some two miles from Buitenzorg. In this school Dr. Scheffer took the very highest interest and pleasure. It was not intended, on its institution, that he should take any active teaching duties, his superintendence was considered to be all that he could well bestow on it; but finding that the teaching staff was insufficient, he squeezed out of his already overburdened time several hours every day to devote to the tuition of these native boys. When on February 9, on his departure on a botanical journey to the south coast of Java, the writer, little thinking he was saying farewell for the last time, took leave of Dr. Scheffer, seemingly in his ordinary health, he received from him, to aid him in his work, a native boy who had lately taken his diploma of proficiency in the agricultural school. This boy was found to be well acquainted with the general flora of the district and with the classification of plants; he could accurately describe their organs and functions and state their economic uses; he had a good idea of the methods of fertilisation and the values of self and cross-breeding. He was fairly grounded in the rudiments of zoology, anatomy, and physiology. Until he had tested this youth the writer did not believe it possible for the Malay mind to so clearly comprehend and so accurately to arrange scientific facts. In this the great power of Dr. Scheffer as a teacher appears, especially when it is remembered that he lectured almost to virgin minds and in a language so devoid of all precise and accurate terms as Malay. I am told by a friend, a competent botanist, who has listened to his lectures, that Dr. Scheffer's power of lucid explanation was very great. "I wish," he said, "I had had as good a course of lectures on botany in Holland."

In addition to the labour and anxiety attaching to this section of his work, Dr. Scheffer had also to give occasional lectures to the *aspirant controlleurs*, the young unplaced civil servants, and to superintend their examinations in agriculture. Over and above this he had the general superintendence of the large botanical gardens on his shoulders, with daily arrivals and despatches of plants to and from all quarters of the globe, on which he had to be consulted daily. If one had entered his small study in the fine building containing the herbarium, one would have found him engaged in his own peculiar work, in which he took so much delight, with his microscope and camera lucida studying the *Hemeleia vastatrix*, a subject to which he had been lately devoting much time; in another corner would be a series of Palms—part of Dr. Beccari's collection, on whose examination and description he was engaged, the sectional coloured drawings being done by one of his own native pupils. If we did not find him here we should see the microscope and pencil conveniently left so as to resume work at the shortest possible notice; and adjourning to his house, near the entrance to the gardens, we should certainly find him in his neat library surrounded by a diverse collection of botanical works, and with the spare corners decorated with the busts and photographs of distinguished botanists, with an enormous pile of correspondence, to which he was writing heads of reply in Dutch, French, English, German, for his amanuensis. Dr. Scheffer told the writer that he wrote more than 3,000 letters a year with his own hand. He corresponded with every country and every botanical garden in the world; he had to give all sorts of advice to agriculturists throughout the Archipelago, on the cultivation of or the diseases affecting coffee, tea, sugar, tobacco, &c., and the many great improvements effected in the production of these valuable products is

due in a great measure to his advice. Need we wonder, then, even with youth in his favour, that at the early age of about thirty-seven, being yoked in such heavy double harness, he has died with it on, leaving a large amount of accomplished valuable work, which was waiting for a spare moment to prepare for the publisher.

For some time Dr. Scheffer had been suffering from defective digestive powers and frequent sleeplessness, but he neglected these warnings and the advice of his friends to take some rest. He was unfortunate in being surrounded by those who, with few exceptions, took little interest in his work, and by none to whom he thought he could entrust the work in which he was so hard and enthusiastic a worker, so he worked on. The fatal affection was inflammation of the liver. The seizure was very acute, and at an early stage danger was imminent; but at length he rallied. His medical attendants considered the crisis past, and recommended his removal to his own estate near Sindanglaya, to reach which a tedious climb of 4,500 feet over the Megameudoeng Pass had to be surmounted. He never reached his destination, expiring, on March 9, at the Sanatorium at Sindanglaya, where he now lies buried.

In his private life he was a man to be loved and esteemed; quiet, unassuming, very kind-hearted, ever ready to give whatever assistance he could, especially to scientific travellers. With him the Netherlands Indian Government has lost a valued public servant, to whom it will not be easy to find a successor, and botanical science has to deplore an earnest worker, a learned disciple, and a great helper.

HENRY O. FORBES

Prcanger, Java

A SCOTTISH CRANNOG¹

BETWEEN geology and history there lies an intermediate sphere in which these sciences dovetail into one another. In this common territory or borderland lies the domain of prehistoric archæology, and to its most recent portion, or that which archæologists have designated the "Late Celtic Period," must be assigned the antiquarian remains I have here the pleasure of describing. During this period it appears that the Celtic races of Scotland and Ireland were in the habit of constructing artificial islands in marshes and shallow lakes to which, in troublous times, they resorted for safety. They were generally formed by the superposition of trunks of trees and brushwood mingled with stones strongly palisaded by stakes, and so situated as to be inaccessible except by means of causeways, or occasionally by a narrow gangway or mole. These island forts, or *crannogs*, as they have been called in the Irish annals, were very numerous in former times, but owing to the gradual rising of the level of the lakes, they appear to have been so completely lost sight of that their very existence was unknown to modern antiquaries, so that their discovery in the present century marks an important epoch in the history of archæology.

In October, 1878, I drew the attention of antiquaries, through the columns of NATURE, to the remains of an ancient lake-dwelling just then discovered on the farm of Lochlee, in the parish of Torbolton, Ayrshire. Since then a series of excavations have been made with the view of ascertaining the exact nature of this structure, in the course of which a large collection of most interesting relics has been made.

In the year 1839, while a small lake on this farm was being artificially dried up for agricultural purposes, the attention of the labourers was directed to a singular mound, in which, on cutting drains through it, they exposed some wrought wood-work; but their observations,

though freely talked of in the neighbourhood at the time, led to no further results till forty years later, when it was found necessary to re-drain the locality, and hence the present investigations. By a curious coincidence the early drainage at Lochlee was made in the same year that Sir W. R. Wilde discovered and examined the first Irish crannog, viz., that of Lagore in County Meath. The Irish discovery, however, owing to a general system of drainage that was then going on, led at once to the most brilliant results, so that it soon became apparent that crannogs existed very generally over the country. Up to the present time over a hundred have been examined, and have furnished the Irish museums with a vast collection of relics. In the year 1854 a great impetus was given to the study of these researches by the discovery of the remains of ancient lake villages in Switzerland, which have now become so famous and well known all over the continent of Europe; but it was not till 1857 that the subject began to attract the attention of Scottish archæologists. In this year Mr. Joseph Robertson read a paper to the Society of Antiquaries of Scotland, and in 1866 Dr. Stuart, who was then Secretary to this Society, collected and published all the scattered notices of Scottish crannogs known up to that date. Since the publication of Dr. Stuart's elaborate paper no further investigations on Scottish crannogs, with the exception of an occasional notice of a fresh discovery of the site of one, have been recorded.

But though traces of these crannogs have been found in almost every county of Scotland, there has been no systematic examination of them worthy of comparison with the investigations that have been made in other countries; nor, with the exception of a few articles found at Dowalton, is there any collection of relics which would enable archæologists to form an opinion with much certainty as to the purpose they served in the social economy of the period they represent; nor can their range in the dim vista of prehistoric times be determined with greater accuracy.

Before the Lochlee Lake was originally drained no one appears to have surmised that a small island (visible only in the summer time) which formed a safe habitation for gulls and other sea-birds during the breeding season, was formerly the residence of man. It was situated near the outlet of the lake-basin, and the nearest land, its southern bank, was about seventy-five yards distant. The general appearance which it presented when the present investigations were commenced was that of a grassy knoll, drier, firmer, and slightly more elevated than the surrounding field. Towards the circumference of this mound the tops of a few piles were observed barely projecting above the grass. Guided by these the workmen dug a deep circular trench, in which they exposed numerous piles and transverse beams having square-cut holes in their ends, through which the former projected about eighteen inches or two feet. In the course of further explorations it became apparent that these piles formed a series of stockades surrounding a somewhat circular space about fifty feet in diameter. Beyond this circle on the south side there were indications of other rows of uprights which appeared to unite into one on the north side. Here, instead of further rows of piles, the corresponding space was occupied by an intricate arrangement of woodwork, consisting of young trees and stout branches, mixed with slanting stakes and logs running in all directions, the whole forming a dense protective barrier. The diameter of the island was about 120 feet. The central area was about three feet lower than the surrounding stockades with their transverses, and had a flooring of prepared logs resembling railway sleepers. Near the centre of this log pavement were found four circular hearths placed one above the other with an interval between each of 18 inches to 2½ feet. These hearths were neatly constructed of flat stones of various

¹ A full report of the Lochlee Crannog is given in vol. xiii. of the *Proceedings of the Society of Antiquaries of Scotland*, and in vol. ii. of the *Collections of the Ayrshire and Wigtonshire Archæological Association*.