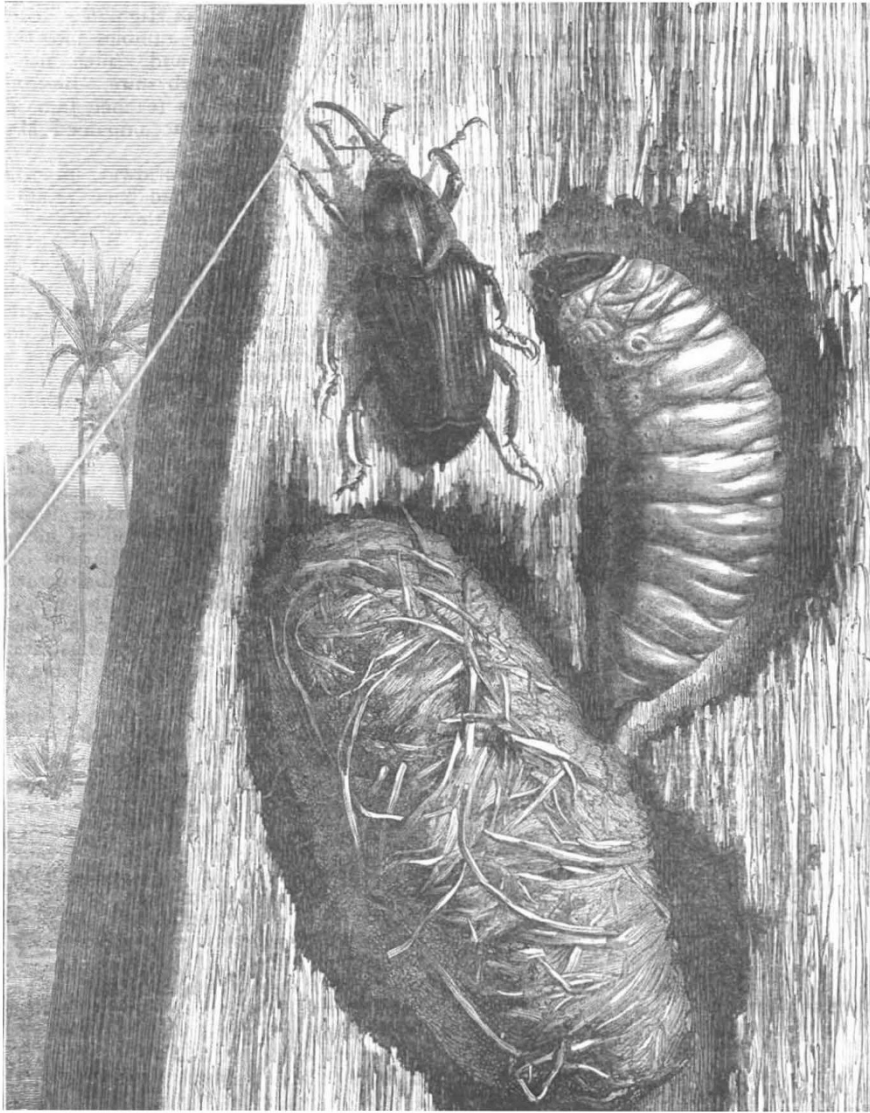


We give, through the courtesy of the publishers, another illustration taken from the chapter on Weevils. It is of a weevil known as *Rhyncophorus palmarum*. Its fat grubs live on the stems of palm-trees, and are often

very destructive. Several of the species are very injurious to the sugar-cane. One found in sugar-plantations in Guiana contain in their intestines lumps of a sweet waxy substance—the altered saccharine food on which they



The Palm Weevil.

live—and for this they are boiled and eaten by the natives. The fine fat larva and the pupal condition, as well as the full-grown weevil, are to be seen in the engraving.

The account of the immense and important order of the Hymenoptera is written by Mr. Dallas; but only the history of the Aculeata is here given, and the other sections are reserved until the succeeding volume

AMI BOUÉ

THE decade which closes this year will remain a memorable one in the annals of geology for the great names which appear in its obituary. Not a few of the early leaders, to whom it was possible to master fully every department of the infant science and to strike out into new untrodden paths in almost any direction, have lived on to witness the vast development of the studies which they did so much to foster. In this country we have lost only lately Murchison, Sedgwick, Lyell, Phillips, Scrope,

whom we early learnt to reverence as demi-gods of the heroic age. And now to these names another falls to be added which, though not that of a Briton, has long been a household word among the geologists of this country. The veteran Ami Boué has just passed away. Ripe in years and universally honoured, he has remained perched on his beloved mountain slopes like a boulder stranded above the reach of the all-devouring sea. But the tide of mortality has at last swept him away, and has thus broken one of the most interesting ties that bound us to the early days of geology. Having for many years enjoyed

the privilege of his friendship and having heard from his own lips many of the incidents of his life, I am able to give here a few personal reminiscences which may be of general interest at the present time, without at present attempting to offer any summary or review of the scientific work of his life. It is much to be desired that his own notices of his life should be published. His early wandering years were especially eventful, and their history is intimately bound up with that of the science which he cultivated with so much ardour.

Ami Boué was born, so far as I can make out, on March 16, 1794, so that he had reached the eighty-eighth year of his age. He was descended of an old French family, and could trace his pedigree back for some four centuries. In the time of Louis XIV., when so large a part of the Protestant population fled on the Revocation of the Edict of Nantes, his ancestor escaped from Bordeaux in a barrel. The family went first to Amsterdam, and finally settled at Hamburg. His mother's family belonged to an Alsatian stock, by name Roth-Hut, which, when they came to Geneva, was changed into Chapeaurouge. She was the daughter of a rich merchant who had established himself at Hamburg, but she was sent at an early age to her relatives in Geneva. Hence French became her early, and to the end of life her natural, language, for though she returned to Hamburg and married there, she never acquired fluency in German, and French was the language in which she always talked to her children. Thus, though born in Hamburg, Boué spoke and wrote French, and not German, as the language of his boyhood. Both his father and mother appear to have died when he was still very young. He was accordingly sent to the care of his uncles in Geneva to be educated. It was intended that he should enter the mercantile life, in which most of his relatives were engaged. But at that time the French were menacing Hamburg, and the state of Europe was so unquiet that his guardians, deeming him safer in Geneva, kept him there studying jurisprudence. His tastes were already, however, strongly turned towards natural science, and he threw himself heartily into the pursuit of mineralogy and botany. He was accordingly allowed to prosecute these studies, in which he made considerable progress. The political horizon continuing still ominously dark, Boué's future was somewhat uncertain. There was family property enough in Hamburg to secure a small competence for himself and his brothers; but it consisted of property and stock which might be destroyed by the French, as had happened already to one of his uncles. So his guardians determined that he ought to have some profession to fall back upon in case of the destruction of the Hamburg property. He chose medicine as the career that promised most facilities for prosecuting natural history studies. Britain offering at that time the only safe retreat for him, he was sent to the medical school of Edinburgh University. As he used to say himself, "I really went to Scotland to escape from Napoleon." Coming with good introductions from Prevost of Geneva and others to Dugald Stewart and other eminent men, he found a welcome in the most cultivated society of Edinburgh. For three months he employed himself principally in acquiring English, which he eventually mastered sufficiently to be able to read it fluently, and with less success to speak and write it. To the end of his long life he was glad of every opportunity of using his knowledge of English. His letters to me were always in English, closely written, without spectacles, in an almost microscopic handwriting, and not seldom sealed with a thistle and "Dinna forget," which he cherished as one of the souvenirs of his student days in Scotland. He studied chemistry under Hope, and took voluminous notes in French, which he had carefully preserved. He knew more botany, he used to say, than his professor, and profited nothing by that class. But the natural history class

under Jameson greatly stimulated his mineralogical and geological zeal. In the fortnight between the winter and summer sessions he would always rush off for an excursion into some part of the country with hammer, bag, or vasculum. The long autumn vacation, too, was put to a similar use. In this way he made himself personally familiar with much of the Scottish Highlands, including Mull and Arran. He extended his rambles into the basaltic tracts of the north of Ireland, and visited also the Lake District and part of Derbyshire. Besides receiving the friendly assistance of his teacher, Jameson, he was intimate with Playfair, and accompanied MacCulloch in his yacht round Arran.

Meanwhile events of worldwide importance and of the utmost interest to Boué had been rapidly passing on the Continent. The final disaster at Waterloo, by shattering Napoleon's power, had freed Boué's Hamburg property from all risk of attack, and left him at liberty regarding his future career. He resolved to complete his medical education, and accordingly took his degree at Edinburgh in 1816. During the course of his medical work he had made many researches and experiments with the view of offering as his graduation thesis a treatise, *De Urina*. But finding he could not afford to publish so voluminous a mass of materials as he had collected, he chose another subject to which he had likewise given much attention—the causes of the present geographical distribution of plants. He was at that time much impressed by the writings of Humboldt on kindred topics, and in the course of his rambles over Scotland he had been in the habit of noting carefully the relations between the flora of each district and its geological structure. Accordingly he duly presented to the Senatus a Latin thesis, "*De Methodo Floram regionis cujusdam conducendi, exemplis e florâ Scoticâ &c., ductis, illustrata.*" It was characteristically and gratefully dedicated to his maternal uncles and guardians.

Having graduated as a doctor of medicine at Edinburgh, he left Scotland immediately thereafter, and went to Paris to prosecute his studies in physics and chemistry. While thus engaged he brought together the large collection of notes he had made in Scottish geology, and elaborated them into his well-known "*Essai Géologique sur l'Écosse*" a work which will always rank as one of the early classics of the science. Unfortunately for the book he left Paris on his travels before it had passed through the press. He placed the revision of the proofs in the hands of a friend, and hence many errors crept both into the text and the plates.

Being now free to move about as he chose, he devoted himself with all the ardour of his enthusiastic nature to the prosecution of geology. He personally visited most of the more interesting tracts of France and Central Europe, but finally devoted himself to the eastern regions, as being those about which least was known. At the age of thirty-two he married a lady six years younger than himself, who accompanied him in many of his journeys, and who now survives him. The best evidence of his constant industry is furnished by the list of papers and memoirs, some 200 in number, which during his long life he published in the scientific journals of Europe. Some of his best work was done in Turkey, of which country indeed he was the first great geological explorer. The volumes in which he embodied the results of his researches there show at once his skill as an observer and the quiet indomitable courage with which he must have faced every kind of privation and even danger. On one occasion, as he told me, he was poisoned by his servant—a nobleman, who leaving him for dead, made off with the carriage and everything belonging to the poor traveller except his watch, which, being only of silver, was not considered worth stealing.

After some years spent in field-work he published at Paris (1835) his excellent "*Guide du Géologue-Voyageur,*"

in which he gives the sum of his own practical experience, with a digest of what had been done by others. Though much of these two little pocket volumes has been superseded by the progress of science, they remain as an admirable summary of the geology of their time, while many of their sound practical directions may be usefully read and remembered in all time coming. The closing sentences of the preface may be quoted here for their personal reference. "Thrown from my earliest days on the highways of the world, as most of my kin have been, having spent my life among seven capitals of Europe, and having near relatives in a dozen cities of the north-west and centre of this continent, my travelling disposition may be easily understood, and my irresistible tendency to a vagabond life. I was left an orphan at eleven years, and became entirely master of my own movements at twenty. This want of a fixed residence, this facility of moving about and making myself at home everywhere, adopting the customs and language of each country, must naturally have taught me to travel, and may to some extent excuse my pretension to say more on these matters than others. I have traversed a good part of Europe, and have been able to examine in detail all the formations of this continent. In spite of trying adventures, it is no mere invalid who now speaks and bids adieu to an active life, but one who, having seen much during a period of twenty years, believes that he may usefully recapitulate his observations for the benefit of his fellows, before again starting on the wandering life to which fate seems to have condemned him. The West flees from me, the East summons me; my grave shall be where heaven may please." During one of his sojourns in Paris he and a few others founded the present distinguished Geological Society of France. In a letter which I had from him at the time of the jubilee of the Society last year, he writes: "The Geological Society of France was created in my library room, April 1, 1830; present were Brongniart (Alex.), Cordier, Férussac, Blainville, Constant Prevost, Jobert—all dead. [This is not quite correctly remembered; for the meeting took place on March 17, 1830, in the rooms of the Philomathic Society of Paris, Boué himself in the chair.] They wish I should preside at this solemn meeting, but at eighty-six years of age, with my infirmities, it was impossible." He was one of the early presidents of the Society, and through life continued to take a paternal interest in its welfare.

Some forty years ago or more, after many wanderings in Austria and the adjacent countries, Boué obtained a piece of land at Vöslau, on the last spurs of the Eastern Alps, looking over the great plain which stretches eastwards to the Carpathian mountains. There were at the time few or no houses about the place, and the three or four acres acquired by Boué were a free gift from the proprietor to encourage building there. Now it is a fashionable watering-place for the Viennese, with numerous villas and hotels gathered round a copious hot spring, the water from which is caught in a swimming basin. I visited the veteran there in 1869, and found him established for the summer among his vineyards and his orchard well stocked with quinces, almonds, peaches, and apples. He had no children, but had adopted as a daughter a relative of his wife. It was charming to see the enthusiasm with which he threw himself into everything that he did. In spite of severe suffering and numerous operations of lithotomy he still retained, for an old man of seventy-five, an extraordinary vigour and vivacity. He made wine enough not only to supply his own needs, but to sell to the dealers, and looked after every detail of the process as if wine-making had all along been the only occupation of his life. He took me with him on some interesting excursions in the neighbourhood, and warm though the weather was, he walked at a pace to which even young geologists are not accustomed in this country.

It was delightful, too, to listen to his reminiscences of old times. He had known most of the geologists of note of the century, and had corresponded with all of them. He had amusing little personal recollections to give, mostly in English, which he would now and then, when the words failed him, exchange for German. He remembered down to the minutest details his life at Edinburgh and his rambles in Scotland. Now and then in a pause of our talk, as his memory drifted back again into the old student days, his face would lighten up with a sudden gleam of satisfaction as he would question me as to some quarry or brook-section he had visited more than half a century before, and which stood out as distinctly as if it were again in front of him. At his town house in Vienna, whither he used to return for the winter, he showed me his tabulated geological indices, in which he said that every geological work or memoir published in his time in every language was catalogued. It is much to be desired that these indices, which were carefully written out by himself, should be promptly published. They are particularly full, I believe, in the department of physical geology. Up to the last he retained his interest in the progress of the science, and communicated thoughtful papers on the work of others when no longer able to make original researches himself. The many long letters he wrote to me were always full of gossip as to the doings of his friends in Vienna, and shrewd remarks on passing events, scientific or otherwise. They were always in English, as I have said, but often with such strange idioms and spelling as occasionally made their meaning not very clear. I am tempted to give a quotation from one which I received from him in November, 1870, during the time of the Franco-German war:—"I was retain to late in the country this year by bad weather. My vintage did protract itself so late in October that we are hardly established comfortably now in town. Besides, the dreadful war preoccupations did take me all time from thinking at scientific matter, and now perhaps that distress will approach till nearer our abode. When you will know that I have very good and near parents in both armies and you perceive the possibility of parents killing themselves without recognising themselves, nor having the opportunity to do so, you will understand that I have often headach when I ride the newspapers or hear from the quite useless slaughters which have been prevented only by those men at the head of the human Society. I have parents in Paris, other exiled in Spain in England in Switzerland. The country houses of some by Paris are German hospitals or barracks. . . . As descending from Frenchmen I fill myself quite happy to be a German and to have remain such my whole life on."

With the regret that accompanies the severance of a tie that links us with so many interesting associations of the past there mingles in no common measure the feeling of personal bereavement. Retired for so many years in his Austrian retreat, Boué kept up the freshness of his youthful sympathy with progress and the kindliness of his hearty exuberant nature. May the dust lie light on his honoured head! To have even seen his round, good-natured face and sparkling eye was something to remember with satisfaction; but to have been privileged with his friendship was an honour the recollection of which will be more than ever precious to those from whom it has now been for ever withdrawn.

ARCH. GEIKIE

NOTES

THE International Exhibition of Smoke-abating Appliances at South Kensington was opened yesterday with great *éclat*. The opening meeting was held in the Albert Hall, the Lord Mayor in the chair, supported by the Marquess and Marchioness of Lorne, Doctors Siemens and Frankland, Captain Galton,