OBITUARY NOTICES.

CHARLES DARWIN. By Professor Cossar Ewart.

Charles Robert Darwin, who was the son of Dr. R. W. Darwin, and grandson of the distinguished Dr. Erasmus Darwin, was born at Shrewsbury on February 12, 1809. His mother was a daughter of Josiah Wedgwood. Of his early life little is at present known. For a time he attended the school at Shrewsbury, of which Dr. Butler, afterwards Bishop of Lichfield, was master. It having been decided that he should study medicine, he was at the age of sixteen (1825) sent to the University of Edinburgh. After two sessions at Edinburgh, he gave up the study of medicine, and entered Christ's College, Cambridge, to study for the Church. While in Edinburgh Mr. Darwin seems to have directed his attention chiefly to botany and natural history. During his second session (1826–27) he became a member of the University Plinean Society, and, as the MS. records testify, took part in its discussions, and read before it at least two papers. One of these papers referred to the ova of *Flustra*, the other pointed out *that the small black globular body hitherto mistaken for the Fucus lor was in reality the ovum of the Pontobdella muricata.* These papers probably contained the results of Mr. Darwin's earliest scientific observations. At a subsequent meeting of the Society he presented "specimens of *Pontobdella muricata* ova and young."

After the usual course at Cambridge, Mr. Darwin obtained the B.A. degree in 1831, and in 1837 he was promoted to the degree of M.A. Already an entomologist, on entering Cambridge he soon became acquainted with the distinguished naturalist Professor Henslow. Judging from letters published, Professor Henslow seems

more than any other to have been instrumental in leading Mr. Darwin to take a deep interest in natural science; and not only to have ably assisted and advised him in his pursuits, but to have gained his life-long admiration and esteem. Further, we are indebted to Professor Henslow for urging Mr. Darwin (notwithstanding the objections offered that it might unsettle him for the Church) to accompany Captain Fitzroy in the "Beagle,"—a voyage in which we cannot but feel great interest, not only because of the enormous work Mr. Darwin accomplished single-handed, but more especially because it was during this voyage that the great generalisations occurred to him which will ever be associated with his name, and which mark a new epoch in biology, and have had a more profound influence on science than any other doctrines ever published.

Three years after returning from his voyage round the world, Mr. Darwin married, and in 1842 settled at Down, in Kent, where he remained living the quiet life of a country gentleman until his death on the 19th of April last.

Mr. Darwin was elected an Honorary Fellow of the Society in 1865.

Of Mr. Darwin's work, the influence it has already had, and the influence it is likely to have in time to come, it is almost impossible to form any estimate, and still more difficult is it for us to realise his personal character, and the loss we have sustained in his death; for however great he was as a worker, he was still greater as a man. We have only to be reminded of the wonderful manifestations of reverence and regard which followed the announcement of his death, to understand how universal has been his influence, and how keenly his work has been everywhere appreciated. As has been well said, in the "memorial notices," his wholly irreparable loss is "not merely because of his wonderfully genial, simple, and generous nature, his cheerful and animated conversation, and the infinite variety and accuracy of his information, but because the more one knew of him, the more he seemed the incorporated ideal of a man of science;" and that it was not his great reasoning powers, vast knowledge, and tenacious industry "which impressed those who were admitted to his intimacy with involuntary veneration, but a certain intense almost passionate honesty by which all his thoughts and actions were irradiated as by a central fire;"

and again, that his "character was chiefly marked by a certain grand and cheerful simplicity, strangely and beautifully united with a deep and thoughtful wisdom, which, together with his illimitable kindness to others, and complete forgetfulness of himself, made a combination as loveable as it was venerable."

When we consider Mr. Darwin's work, we are led to regard him as one of the most fortunate and successful observers of natural phenomena, and as the greatest generaliser in the whole history of biology; and further, we are impressed with the great influence his generalisations have had on all other sciences.

What, in a few words, may be said to be Mr. Darwin's great work? It is not that he first propounded the theory of *evolution*, nor so much that, taking into consideration heredity, the struggle for existence, and the survival of the fittest, he hit upon the idea of *natural selection*, as that by undertaking elaborate investigations, by collecting facts from every possible source, and by pondering over and testing his conclusions again and again, he was able, after many years of patient industry, to publish an all but complete *proof* of evolution. He has thus not only increased our knowledge, but, by establishing a new principle, has completely revolutionised biology, introduced order where there was confusion, and laid new foundations on which naturalists are raising a fair and comely edifice, which will form the best and most lasting monument of the great philosopher of the nineteenth century.

So familiar are we all with Mr. Darwin's writings, that it is scarcely necessary to do more than mention some of the more important ones. First of all, one naturally thinks of that mine of wealth to the naturalist, the *Origin of Species*, in which we have condensed into an exceedingly small compass facts enough for a dozen volumes; yet notwithstanding the great condensation manifested throughout this book, the reasoning is evident from beginning to end, and the conclusions stand unassailable. It reads as if it were the epitome of a whole series of works which the author had intended to write, and for which material had been collected, rather than as an introduction; an epitome, however, so complete and suggestive in itself that, like a picked army, it was able to fight its way so effectively, that it was found to be practically unnecessary to fall back upon the vast

reserves which had been accumulated in order to support by detailed evidence the new doctrines. Hence, after publishing *The Variations of Plants and Animals under Domestication*, Mr. Darwin was again able to turn to Nature, not so much now for evidence of his theory, as by applying the principle of natural selection to point out how hitherto obscure problems might be explained.

In the *Variation of Animals and Plants*, and in the *Expression of the Emotions in Man and Animals*, we have further evidence of Mr. Darwin's enormous power of work, his faculty for collecting and arranging facts, and of the remarkable ability he possessed of drawing from them conclusions which indicated a wonderful insight into the secrets of nature. Further, in all of these works, as also in the *Origin of Species*, we have numerous observations of great importance and interest, which mark out Mr. Darwin at once as an able and careful investigator; but his fitness for pure zoological work is still more evident when we turn to the *Naturalist's Voyage Round the World*, and to the *Monographs on the Cirripedia*. Those familiar with the elaborate memoirs on the *Cirripedia*, must feel that Mr. Darwin was as capable of prosecuting purely morphological work as he was in performing physiological experiments, or of working out philosophical problems, and that although his zoological investigations are thrown into the background by his profound generalisations, they are of themselves of sufficient importance to entitle him to rank with the greatest biologists of any age.

What has been said of Mr. Darwin as a zoologist, may almost with equal propriety be said of him as a botanist and geologist. To quote again from the "memorial notices :"—"It is not too much to say that each of his botanical investigations, taken on its own merits, would alone have made the reputation of any ordinary botanist." Most of his investigations on plants were communicated to the Linnean Society, and then published in a collected form. A volume on *The Effects of Cross and Self-Fertilisation in the Vegetable Kingdom*, was published in 1876, and in the following year appeared the results of his work *On the Different Forms of Flowers on Plants of the same Species;* and in addition to these we have the memoirs *On the Various Contrivances by which Orchids are Fertilised by Insects; The Movements and Habits of Climbing*

Plants; and also the well-known treatise on *Insectivorous Plants.* We perhaps learn best the influence of Mr. Darwin's work on botanical science when we compare the ideas held as to the distribution of plants before and after the publication of the *Origin of Species.* Previously, it was generally believed that the different species and genera were special creations, and that the regions in which the same forms occurred being similar, had led to the creation of similar plants. This theory entirely failed to account for the appearance of similar plants in regions which had nothing in common in their physical conditions, and for their absence from places where the conditions were similar; whereas, as pointed out by Sir Joseph Hooker, by adopting Mr. Darwin's theory, "The theory of the modification of species after migration and isolation, their appearance in distant localities is only a question of time and changed physical conditions."

Mr. Darwin's geological work was chiefly the outcome of his voyage in the "Beagle." The most important of these is the masterly treatise *On the Structure and Distribution of Coral Reefs.* As with zoology and botany, however, his generalisations have had more influence than his special investigations. About the time when advanced geologists were beginning to feel that the old notions about fossils utterly failed to account for the distribution of organisms in the rocks, they were startled with the announcement of the theory of natural selection, and soon deeply impressed with the fact insisted on by Mr. Darwin, that the geological record was still very imperfect. Just as this theory has hurried on by leaps and bounds the study of embryology, so it has given a mighty impulse to palæontology. Having no longer to battle over what is, or what is not, a species, palæontologists are now vieing with embryologists in working out the ancestral history of organisms. The work of Professor Marsh alone amply testifies as to the success of these investigations. Not the least important of Mr. Darwin's works, from a geological point of view, is his treatise on *Vegetable Mould and Earthworms.* A paper "On the Formation of Mould" was read at the Geological Society in 1840. After more than forty years, during which period he made numerous additional observations and experiments, his book on *Earthworms* made its appearance—this, with the exception of two papers, read

before the Linnean Society shortly before his death, being his last work.

We might now indicate what influence Mr. Darwin has had on mental and other sciences: how that, through his general nobility of character, and his moral attributes rising pre-eminently above his intellect, he has been able to effect the greatest revolution of modern times without creating more than a passing show of strife and bitterness: and how all his work was accomplished under physical difficulties which an ordinary man would have considered excuse enough to regard himself as a confirmed and helpless invalid; but feeling intensely how difficult it is to express in words what one feels regarding Mr. Darwin, we shall refrain from saying more. Those who knew the chaotic condition to which Biology had been reduced before the appearance of the *Origin of Species* in the memorable year of 1859, and who have had the opportunity of observing order take the place of confusion, and light that of darkness, can best testify to the mighty influence of Mr. Darwin and to the loss the cause of science has sustained in his death. As we lament our loss, let us however remember that, in one sense, the hero so many of us worshipped is still with us, and that he lived to see his great life-work completed and justly appreciated in all parts of the civilised world.

J. Cossar Ewart.

Emile Plantamour. By the Astronomer Royal for Scotland.

On September 7th of the present year, at the age of 67, died our Foreign Associate, Emile Plantamour, director of the Observatory of Geneva, and professor of both astronomy and physical geography in the university of the same city.

Victim at last to a sudden accession of consumptive disease, he died in full possession of his admirable mental faculties, and as universally regretted as he had lived generally respected, not only in his own, but in every other country where science is known and civilisation appreciated; for well had he exhibited throughout his whole career how much of kindly goodness, as well as intellectual ability, does so often characterise those who are snatched out of this world immaturely by that insatiable malady of the lungs.