

EDITORS' TABLE.

EDITORS: A. S. PACKARD, JR., AND E. D. COPE.

— The mortal remains of Charles Darwin lie by the side of those of Sir Isaac Newton, in Westminster Abbey. A great nation in doing homage to the name and fame of the world-renowned naturalist, has thus expressed its judgment of the true place he

should take among those philosophers and students who have done it greatest honor. The feeling thus expressed, that Darwin should rank with Newton, Faraday, and other scientific leaders, is shared by the best judges of the work he has done in remodeling scientific thought, and in originating and completing the revolution in biological methods, which has been effected within the last quarter of a century.

As a physical geographer, as a systematic zoologist, and as an anatomist, as well as palæontologist, whatever Darwin accomplished was of a high order. But it was not in these departments of science, that he excelled. He was most eminent and original in observing the habits of plants and animals, their relations to each other and to their surroundings; he studied the variations of species under domestication and in a state of nature; he studied hybridity, and especially the effects of heredity and growth force. He did little work in comparative anatomy, and almost nothing in embryology, but the influence his ideas exerted upon these difficult fields of research, have stimulated the development of these sciences to a wonderful and unprecedented extent.

Darwin pursued the objective or inductive method. He approached the subject of evolution, rather from the biological point of view, from a study of the living organism, than from the embryological and palæontological side. He was cautious in observing, collating, and arranging his facts, which were proved by experiment and tested again and again. With a broad foundation of facts, he could afford to make brilliant deductions and bold speculations. Some phases of his theory of natural selections may be unproven hypotheses, and his own theory may be emended and greatly extended, but the world remembers Newton's theory of gravitation and forgets his crude theory of light. Darwin showed admirable caution, self-criticism, candor, and an absence of the controversial spirit. He gave credit to those to whom it was due, and the charge of appropriating the work of others has never been breathed in connection with his name.

Moreover, his clear, simple, lucid style, his powers of exposition and rapid generalization, caused his books to be read by the layman as well as by the scientist. His works and views never needed an expounder.

Under all these conditions, Darwin was his own intellectual executor. He gave his theory to the world, and lived to see it become the common intellectual wealth of his own age. Within twenty-two years after the appearance of the "Origin of Species" his opinions gained the mastery of the philosophic and scientific field of thought.

This was mainly the result of his methods, the Baconian or inductive. The *à priori*, purely metaphysical or philosophical methods of Herbert Spencer are not convincing to the most of

naturalists. But the solid array of facts which Darwin marshaled in orderly lines, carried force and conviction to every unprejudiced mind. It was partly for this reason that the views of Goethe, and St. Hilaire as well as Lamarck, did not gain universal sway and that they were temporarily overthrown by Cuvier and his school with their exact analytical methods.

But Darwin appeared in the fullness of time. Biology and geology with their subordinate departments of palæontology, embryology, and histology had, after Lamarck's and Cuvier's death, either originated or immensely developed, and the time had arrived for synthetical methods and speculative views.

Enough was known of the 100,000 species of plants and the nearly half a million species of animals now living, and of their relations to each other and to former worlds, to warrant the naturalist in attempting a solution of the question as to how they all appeared.

The result of such inquiries has already been fruitful and happy. It has been given to the intellect of man to attempt a solution of their questions, and the mere attempt, as the result proves, has elevated and drawn out man's intellectual powers in a new direction. Many have aided in this work, but as the leader and successful originator of the new school of evolutional thought, all will ascribe to Darwin the highest position. His was an epoch-making mind.

Darwinism, as such, *i. e.* the theory of natural selection, expresses the ultimate cause. We have yet to demonstrate the evolutionary laws which originate the tendency to variation from which natural selection takes the start, and naturalists in the future will ascribe more to the effects of the environment upon the organism. But the sterile methods and subjects of study pursued before the year 1860, have been for the most part abandoned. New light has been thrown on old facts, and Darwin has sowed the seed, from which a rich intellectual harvest will be reaped by coming generations.

Charles Robert Darwin, the grandson of Dr. Erasmus Darwin, was born Feb. 12, 1809. After taking his degree at the University of Cambridge in 1831, at the age of twenty-two, he sailed with Captain Fitzroy, of H. M. ship *Beagle*, as volunteer naturalist in the survey of the coast of South America. Returning from his voyage around the world in 1836, he published, in 1839, his "Journal of Researches into the Geology and Natural History of the countries visited during the Voyage of H. M. S. *Beagle* round the World." In 1840-42 appeared his "Zoölogy of the Voyage of the *Beagle*"; and rapidly succeeded his works on "Coral Reefs," (1842), on "Volcanic Islands" (1844), and "Geological Observations" (1846). His most finished systematic work was his "Mono-

graphs on Cirripedia" (1851-53). His anatomical, systematic and palæontological work was all equally thoroughly well-done.

He then matured his views as to the origin of species, suggested by his observations on the South American coast, particularly by "certain facts in the distribution of the organic beings inhabiting South America, and in the geological relations of the present to the past inhabitants of that continent." The "Origin of Species" was issued in November, 1859, and was designed as an abstract of a more extended work.

Then appeared in rapid succession his "Fertilization of the Orchids" (1862), "Habits and Movements of Climbing Plants" (1865), "The Variation of Animals and Plants under Domestication" (1867), "Descent of Man" (1871), "The expression of the Emotions in Man and Animals" (1872), "Insectivorous Plants" (1875), "The Different Forms of Flowers and Plants of the same Species" (1877), "The Effects of Cross and Self-fertilization in the Vegetable Kingdom," and "The Power of Movements in Plants" (1880). His last book was "The formation of Vegetable Mould through the action of Worms, with observations on their habits," which appeared in 1881. He also contributed numerous papers to the scientific journals. His own works may be said to have created a new department of literature.

After his return from his travels, he lived at Down, Kent, where he died. For many years his health had been precarious, and only a strong will, great powers of application, and his rare genius, enabled him to accomplish so vast and varied an amount of work.

Darwin married in 1839, and left five worthy sons and two daughters. His life was a happy and peaceful one. His nature was genial and devoid of the controversial, self-seeking spirit. The great philosopher and naturalist died, though full of years and scientific honors, yet almost prematurely, mourned by the intellectual and scientific world.

— If it be admitted that effort and use lie at the foundation of development, it is important that the stimuli to effort and use should be preserved intact. The first great stimulus, both in importance and in order of time, is hunger. The second great stimulus is the instinct of sex. These two impelling forces lie at the foundation of the activities of man, as well of the inferior animals. A modern school of evolutionists believes that not only the machinery of animals has been built by these forces, but the mind itself has been by them elaborated from these forms of simple consciousness in conjunction with memory.

The mental faculties are divided into the intellectual (including rational) and the affectional classes. It is thought that the rational faculty has been developed by all kinds of experience, into which their necessities have continually forced living beings.

The affectional or emotional qualities have been developed in the same way. The especially beneficial emotion is that of sympathy, or the love of other beings than self, and this it is thought has been evolved from the primitive sexual instinct. Darwin has pointed out how sexual selection has probably effected development of purely bodily perfections, as in the cases of the brilliant plumage and musical voices of birds. He very significantly calls his book on sexual selection, "The Descent of Man."

That the rational faculty cannot be too much developed, goes without saying. It is also evident that the affections or sympathies should be developed sufficiently to produce a desire for the happiness of others, through the pleasure the happiness of others gives us. A lack of sympathy is as great a defect of character as is the lack of rationality.

The question for society then is, what are the best methods of developing the two foundation elements of character, rationality and sympathy. These qualities check each other in practice, and form the two sources of happiness.

If custom imposes on either sex any disability by which its development in any respect is curtailed, the race of both sexes suffers injury. It suffers in two ways:

First, by defective inheritance by children.

Second, through inequality in the sexes themselves, and consequent lack of mutual sympathy and interest.

I. Of course children are more or less influenced in their mental constitution by that of the mother, and we shall never have an ideal race until mothers are developed as much as possible. We speak of mothers because custom does not supply to them the same stimuli to intellectual exercise as it does to men. Some professional men have even permitted themselves to express the idea that the education of girls interferes with their physical development. We are loth to believe that this is a necessary state of things; if it be so in some instances, it is to be hoped that it is a temporary condition of race or family, and one to be remedied by future experience. There is also no doubt a lingering fear in some minds that intellectual women may be less women than are ignorant and thoughtless ones. The supposition that education can make a woman anything but a woman, can only be entertained by persons unskilled in zoölogy. It has been pretty conclusively shown by Broca and others, that a greater divergence or specialization of the sexes is consequent on civilization, as in evolution generally; and it would seem to be entirely within the range of our power to determine whether this diversity shall or shall not include an atrophy of the rational faculty in women.

II. The effect of education of both sexes is to enhance their interest in each other, and the relation is ennobled in direct proportion to the amount of mental sympathy which exists between

them. It is to be doubted whether this field for the increase of happiness is as much as suspected by very many persons. One of the first conditions of the stability and harmony of society is the correct working of the double-headed system on which it has been created. It cannot be denied that the greater the amount of interest invested in this system, the more secure it must become. The stimulus which intelligent people bring to bear on each other is very great, and where this comes from a person in whom the affections are deeply interested, the force is greatly multiplied. It is self-evident that the effects of this force must be seen in the race, and that it is one powerful agent in progressive evolution. It acts especially in times of prosperity, when the pressure of the struggle for physical existence is diminished. It assumes especial importance when the impetus derived from the latter source diminishes, and is the best guarantee of future progress at such a time. Any agency, therefore, which effects the development of one sex, is a blessing to the other.

Is the present constitution of Christian society the best for the maintenance and development of the highest qualities of the mind? It is evident that the monogamic system will be preferred in proportion as the mental constitution of the sexes adapts them best to each other's needs. The rational education of women is not in the interest of polygamy; and the development of the higher affections of men is equally in the direction of monogamy. Monogamy in a community is doubtless in direct proportion to the development of its members in rational and sympathetic qualities. But sexual selection has but imperfect opportunities where there is little to choose from in the poorer classes; and where there are conventional standards of excellence in the richer classes. The problem is, how to secure a just regard for the far-reaching law of sexual selection, consistently with a maintenance of the monogamic relation. General culture will do much towards placing the solution in the hands of every one, and toward producing any modification of existing customs which may be necessary.—C.