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The Journal.

Man, know thyself. All wisdom centers there;
To none more wisely known, till to man.—Frag.

CHARLES DARWIN, THE EMINENT NATURALIST.

This organization is most strongly pronounced in its leading characteristics; it scarcely needs an experienced physiognomist to read it. The towering crown indicates positiveness, self-reliance, decision, independence. Intellectually, we would regard him as the ready observer, the facile inquirer, the keen investigator. His well-marked reflective organs evince the close and profound analyst rather than the merely speculative thinker; the weigher and adapter of facts rather than the theorist. He is no subtle, plausible reasoner; he has little sympathy for those who spin fine webs of sophistry on mere assumptions; he demands facts before

hypotheses, substantial premises before ratiocination. He must be one of the hardest of men to influence when one would win him over to a baseless theory or a weak cause. In fine, his appreciation of mere probability is very slight; his organ of mere belief is very weak.

We can not give him credit for much Veneration, Hope, or Spirituality, and his lack of these organs tends to the sharpening of his practical and utilitarian views of things. He is an earnest, bold, and steady worker in whatever field of analytical examination his eminently scientific mind may choose to delve in. Be-

sides, his temperamental intensity stimulating his naturally persistent disposition, leads him to dig to the very bottom of, and thoroughly sift, the subject of his consideration. He aims at the basilar facts of a doctrine, and can not be satisfied of its truth without them.

He is ambitious in no small degree, but it is an ambition *sui generis*; he would please himself by acquiring all the knowledge that is to be had, seen, and known on a subject which has excited in him an active interest. Having satisfied himself, having disposed of his many doubts, he fears not the world's



PORTRAIT OF CHARLES DARWIN, THE NATURALIST.

rejection, though he expects its approval of the results he has procured.

His will-power and executive energy are somewhat stronger than his bodily vitality, although there is a good degree of wiry endurance in his physical constitution; therefore he needs to be watchful lest he should break down from excessive mental application. He should appreciate the utility of moderation if he would be successful to the utmost in his attempts to develop the schemes which may command his study and investigation.

In brief, it may be said that this remarkable man owes his fame to the following conditions: first, a tough, wiry, and enduring physiology; second, a large-sized and active brain, well cultivated by severe discipline and thorough education; third, excellent powers of observation; fourth, untiring application; fifth, immense perseverance. There is industry, quickness of perception, will, push, ambition, and thoroughness; hence, a name, fame, success, fortune.

BIOGRAPHY.

CHARLES ROBERT DARWIN, born on the 12th of February, 1809, at Shrewsbury, England, can claim a prominent place among those men of science who have endeavored to solve, though we can not say satisfactorily, the still unsettled question of the origin of species—whether the present vegetable and animal species upon the earth have their origin in as many original types and were created in a manner mysterious in the highest degree, or were gradually developed from a single original individuality or species, whose successive generations gradually assumed new forms and produced more highly developed species. The first view is that generally known as the Biblical one; while the latter, known as the "development theory," has found favor with many modern naturalists. This latter view has been adopted by Darwin, and put forth in several remarkable works; but the theory is not a new one. De Lamarck, in 1809, and Geoffrey St. Hilaire, in 1828, and others, had denied the existence of permanent species, and asserted that organic beings, under the influence of new conditions of life, had gradually merged from one species into another from the earliest geological ages. In illustration, it was said that the neck of an animal, when it was continually necessary to keep it stretched out, would finally become longer; and the result would be, by-and-by, a perfectly new animal species; in such a manner had the giraffe attained to its present long neck, through seeking its sustenance from the branches of the tall palm.

Darwin carried his observations much farther than his predecessors, however; and during a voyage round the world, commenced in 1831,

when he was twenty-two years of age, with Captain Fitzroy, of the "Beagle," he took the opportunity to compare especially the species of vegetable and animal life found on the South Sea islands and on the coast of South America. He brought to the task a thorough scientific education, received in the University of Edinburgh, and subsequently in Christ's College, Cambridge.

Darwin's observations and comparisons during his voyage on the "Beagle" led him to the conclusion, that not only the different flora and fauna stand in a special relation to each other, but that also certain transmutations in animal and vegetable species had taken place in consequence of transplantation and other causes; and that the same process, under similar conditions, must continually be working in other portions of the earth. These phenomena formed the awakening hint for a train of further researches and experiments, in order to endeavor to bring forward proofs for his theory before making it public. It was not until the year 1859 that he considered his system ripe for publication, when "The Origin of Species" made its appearance—a work which created a very general and lasting interest in the public mind. He had corresponded and conferred with naturalists, "fanciers," and breeders, in order to increase his means of observation, and had collected together innumerable facts, upon which he based his reasonings. These were thoroughly elaborated in his work, and the "Darwinian theory" of development at once exerted a powerful influence upon the scientific world. We will give concisely the main points of this theory. They have been already discussed at some length in the published lectures of Dr. Gill, in recent numbers of the JOURNAL.

All living and already extinct organisms, all plants and animals can, according to Darwin's view, be considered as the members of one great family whose branches are connected together by natural descent. He finds the correctness of this view declared in the history of the development of individual organized beings; also in the numerous gaps in the broken series of extinct plants and animals still to be filled out; further, in the peculiar geographical distribution of former and present living related plants and animals in individual portions of our earth; and, finally, in the changes that constantly occur under our own observation among many species of animals and plants, and the so-called "variation process." It is especially in the last relation, through the observations of many naturalists, and through Darwin's more systematically pursued researches, that we are made acquainted with the conditions and influences through which it is asserted nature effects her transformations into ever-new species of plants and animals. And this methodical explanation of the process of transmutation is the essence of the collected theory which, as a whole, is called "Darwinism."

The descendants of a plant or of an animal always differ in individual characteristics as

well from their progenitors as from each other, in a greater or less degree. Such deviations are the more noticeable if these progenitors have been previously transported to new outward conditions of life. Sometimes the change is seen in the form and figure, but first appears in a stronger and sharper degree in the third or a still later generation. On the basis of this phenomenon, descendants with wholly peculiar properties can be produced from seed-plants, according to "selection." If, for example, a plant produces single blossoms which differ from those of the mother-plant in certain peculiarities, it is possible, by using the seeds of such blossoms in transplantation, to produce descendants with exactly the same peculiarities. If we continue this "selection" with plants and animals through a number of generations, we finally produce a variety which differs from its forefathers in essential characteristics. On the continued "selection" from individual species rests, as is well known, the practice of the principle of breeding. From these isolated facts Darwin proceeds to wider observations and results.

The variability of species is a chief assertion of the theory. The deviations from the peculiarities of the organic stem, appearing in plants and animals, have sometimes a special importance for the existence of the new organism; for many deviations give to the cion, under certain relationships, a greater prominence over its parental and related individuals by reason of its existence and capacity for transplantation. For example, a slender frame would serve, under certain outward relations, to reach nourishment-serving booty easier; greater power of rapidity in the feet or wings would aid the flight before enemies; or a special coloring of the surface would render the individual less recognizable by its enemies. In short, the varieties thus made profitable, would, in the "struggle for existence," go through the world much easier; sustain themselves with less trouble; better undergo transplantation, and be better calculated to transmit their profitable characteristics to their progeny in an increased degree over those cions of their progenitors and their generations which have already lost such characteristics. By confining propagation between individuals possessing such peculiarities, those peculiarities may be made permanent, and thus new varieties may be brought into existence. By rejecting or destroying all inferior individuals, and permitting propagation by the superior alone, the offspring attains a higher development. Nature herself chooses the more favored individuals, just as is done in our economy and horticulture by making selection in breeding. Darwin calls this preference of nature "natural selection," and thus expresses it:

"As many more individuals are born than can possibly survive, and as consequently there is a frequently recurring struggle for existence, it follows that any being, if it varies, however slightly, in any manner profitable to itself, under the complex, sometimes varying, conditions of life, will have a better chance of survival."

ing, and thus be naturally selected. From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form."

His theory of the history of living creation may be rendered in the following words: If the outward conditions surrounding an organism be changed, those varieties whose existence are favored by this altered condition, support and extend themselves, while the others pine and disappear. But it is self-evident that an uncommon long period of time is necessary in order to produce, in the descendants, not merely varieties, but perfectly new species through the continual addition of many small deviations from generation to generation. The history of the earth indicates that the period of this development was of vast duration. The influence of the law of transformation upon organic life within this period was exerted in a very gradual way. From the simple groundwork, the cell, the imperfect and lowest organisms of the animal and vegetable kingdom appeared through the changes of posterity. And according to the manifold conditions of life under which these organisms were placed in different localities, by-and-by, the developed form arose. Then, while a greater part of the less favorably formed creatures sank under these changed relations, the more favored, through gradually transforming, descendants proceeded to the highest development. But, Darwin adds, if it has taken hundreds of thousands of years to effect a transformation in species of plants and animals, man must not expect to see the completed work of this law of development in the transmutation of a species effected immediately before his own eyes.

In opposition to this view, Agassiz adduces the fact that the fox and wolf, under all their altered conditions of life, are still the same; and says that the outward circumstances can not therefore be considered as causes of the difference in organized creatures. Many other naturalists oppose Darwin with the theory of the invariability and unchangeability of species.

In order to prove more definitely how far "selection" exerts an influence upon the variation of species, Darwin studied the process by which varieties are produced among domesticated animals and plants. The result of his industry has lately appeared under the title of "The Variation of Animals and Plants under a Condition of Domestication," a work which has created fully as much interest as his earlier one, to which it forms a supplement. If we must concede [it is asserted] that organized beings present varieties in a natural condition; that their organization is, to a certain extent, plastic; and that, as Darwin goes on to prove, many animals and plants have undergone important changes through domestication, and that man himself has developed entirely new, strongly marked, and strictly hereditary races, it must be conceded, further, that *species* can arise also in a natural condition. The question still unsettled, and which Darwin promises to

answer in a future work, is, In what way were these varieties transformed into real species?

Darwin's literary labors, besides his well-known works on species, are quite important. His earlier writings consist of records of his experience, and of the geological and physiological results of his travels and observations. Among these are the "Voyages of a Naturalist," and "Journal of Researches into the Geology and Natural History of the various Countries visited by H. M. S. Beagle," first published, in 1839, as the third part of Fitzroy's account of the voyage around the world made by the "Beagle," and published separately in 1845. In 1840-1845 the geological results of the voyage were published by Owen and others, to which Darwin wrote the Introduction. He wrote numerous papers on the islands of Polynesia and Australia, published in the Proceedings of the London Geological Society. In the sphere of geology he treated of the Formation and Extension of Coral Reefs; then of Examinations on Volcanoes (in 1845), Geological Examinations in South America (1846), and many essays. The results of his most complete experiments and analyses in the botanic sphere are contained in his work on the "Movements of Climbing Plants;" but his work of the most extraordinary scientific ability is his "Monograph of the Family Cirripedia," published 1851-4, by the Royal Society of London.

Since 1842, Mr. Darwin has been prevented from the continuous prosecution of his studies by severe bodily affliction, and has repeatedly been compelled to suspend his literary activity. He now resides at his country-seat near Bromley, Kent, amid happy relationship. He married, in 1839, Miss Emma Wedgwood; and now is a county magistrate. Mr. Darwin's reputation is of course very extended; but his influence is probably strongest in Germany, where he has received many honors from the most influential scientific societies. He has also had distinguishing honors conferred upon him by his own countrymen.

BRIDGING THE GREAT RIVERS.—It is only within a few years that the project of bridging the Mississippi, or any of the larger tributaries, has been thought at all feasible. But the public have lately acquired a passion for bridges. A bridge over the Ohio was completed a little over a year ago, at Steubenville. A bridge at Wheeling, to connect the Baltimore and Ohio and Central Ohio railways, was built some years ago. A third bridge is under way at Parkersburg, to connect the West Virginia and the Marietta and Cincinnati railroads. A fourth bridge has just been completed at Cincinnati, at a cost of \$1,750,000. A fifth bridge is projected, at Louisville. In addition to those built and projected over the Ohio, the largest tributary of the Mississippi, the great "Father of Waters" itself is to be bridged at Dubuque, Galena, and possibly at St. Louis. We live in a fast age. The people can not wait "to be ferried over the stream," but prefer to walk over it hastily and "dry shod."—*Industrial Gazette*.

VANITY vs. PRIDE.

THE difference between pride and vanity consists in this, that the former is an extravagant opinion of our own worthiness; the latter is an inordinate desire that others should share that opinion. When we are proud, we think too much of ourselves; when we are vain, we want our neighbor to think too much of us. Pride is the melancholy mood, vanity the playful craziness of self-love run mad. Pride is feared, but scarcely despised by men; vanity is treated with ridicule and contempt, for in pride there is always something strong, and in vanity something weak. The workings of pride, too, are above the reach of vulgar natures; but vanity is easily detected, and there is nothing that pleases a vain creature so much as the opportunity of laughing at another vainer than himself.

It is not wrong nor improper that we should maintain a decent self-respect, and hold a just and true estimate of our powers and capabilities. In like manner, it is not wrong to have a proper deference to the opinion of other men, and a desire to stand well with those among whom we live. The first Christians were advised so to live that they might have a favorable testimony from those who were outside. The desire to please our superiors, neighbors, and friends is a legitimate stimulus to exertion, and we naturally crave the judgment of bystanders on our performances, so that we may correct our faults, if we have not been entirely successful, or, if successful, we may enjoy the meed of approbation to which we feel that we are honestly entitled.

But if the desire for approbation is not kept within bounds, it runs into vanity, and becomes a source of weakness and unhappiness in the soul. The mind gradually loses sight of God, and of the great motive which should guide and sanctify all our actions, namely—the love of God and our eternal salvation. We get to live on human applause, and we do not feel the inward peace and satisfaction that spring from a consciousness of having fulfilled our duty in a proper manner. We become jealous of the success of others, envious of the praise awarded them, and angry at our failure to gratify and astonish our new masters. In this manner the eccentric little passion of vainglory is gradually converted into a scourge that chafes and vexes us continually, by falling upon the raw place of excited and uneasy self-conceit. There is perhaps no passion that so often punishes its own folly as vanity. The stronger it grows, the more certainly is it doomed to disappointment.

Vanity is sometimes supposed to be confined to women and children, to classes of persons, in fact, from which we do not expect proofs of lofty principle and dignified self-command. And yet men are very often as vain of their appearance, and of the impression they produce upon others, as woman is of her beauty, her accomplishments, or her jewelry and costly dresses. Men of rare gifts and distinguished