

SOPH DABAR.

A Last Word on Philosophical Problems in Popular Lectures, delivered in the B'nai Yeshurun Temple of Cincinnati, by Isaac M. Wise.

LECTURE XIV.

THE ORIGIN OF SPECIES.

LADIES AND GENTLEMEN, —The earth's surface, as far as emerged from the ocean, is covered with the multifarious offspring of Flora, which were misnamed vegetable kingdom. The desert spots and bare rocks are the exceptions, patches on the gorgeous vestment of mother earth, bedecked with all colors and floral shapes. These vegetables take out of the atmosphere the superfluous carbon, and return oxygen in grateful exchange, to sustain animal life. Without the vegetable, not merely as food for the animal but also as the regulator of the atmosphere, animal life could not exist on this globe; for the animal can not subsist on inorganic matter, and not breathe an atmosphere overcharged with carbon. It is on account of the absence of trees and other vegetables in deserts and large cities, that many diseases prevail. In the course of creation, the vegetables (*algae*) preceded the lowest forms of animals (*radiates, mollusks and articulates*). The next higher class of vegetables (*acrogens*) preceded the fishes. The conifers made their appearance before the reptiles and birds, the cycads before the mammals, the dicotyls and palms before man. The table was spread and the house well perfumed before nature invited her guests to the sumptuous meal.

When, during the carboniferous age, the carbon in vast quantities separating from the atmosphere sustained a profusion of gigantic vegetation on the young earth, i. e. creation's third day of cosmic light, the vertebrates began to appear on earth, beginning with amphibies, other reptiles and birds, progressing to the mammals, and from them to man, exactly as the Bible has it, in a regular chain of succession, in which no link is missing, betraying a preconcerted device of differentiation and development from the lowest to the highest, so that man appears the ultimate and preconceived object; when the first *algae* and *radiates* came into existence.

This point, I believe, hardly admits of any difference of opinion, as far as human knowledge and judgment reach. Whether the device was in the Creator's intelligence, or whether nature herself, in a human sense, as also Mr. Darwin personifies her, works consciously and intelligently or unconsciously and casually, can not change the fact of harmonious progression before us in the fruitful lap of mother earth. It merely effects the nature of the first cause, which we discuss in a future lecture. Here the main question is, how did the numerous species of vegetables and animals come into existence?

Hitherto, only two solutions of this problem have been advanced. The first is this. The vital force has originally been differentiated in various forms of the lowest types, in correspondence to the conditions offered by the earth's surface and atmosphere. The conditions of one geological age being exhausted, a catastrophe, universal, or local,

brought forth new and more favorable conditions for the differentiation of the vital force, more and higher forms of living beings came into existence, without dropping out of existence the former and lower forms. So catastrophes followed one another in regular progression, and with them the improved conditions for the differentiation of the vital force in more and higher forms of life, until the highest forms now living and man at the head of them could be and were brought forth. The types thus brought forth remain intact, although varieties may spring from either, in consequence of external influences and internal freedom.

Lyell's geological theory, which admits local catastrophes only, by no means contradicts the above theory; it merely suggests that the successive creations of organic beings also must have been local. This is well supported by the geographical distribution of vegetables, animals, and also men. The American Flora and Fauna differ as widely from those of the Eastern continent, as do those of Europe, Africa, Asia, Australia, several Islands, not to mention any subdivisions. On the other hand Lyell's theory accounts for the permanency of the types and species in all geological ages.

The next theory is that of Lamarck and Geoffroy, scientifically improved by Mr. Darwin. This second theory agrees with the first in the starting point, viz. that in the beginning only one or a few of the lowest types of life appeared on the globe, corresponding to its condition. Mr. Darwin maintains not, that only one type originally appeared, he only considers it possible. This type or types, here the theories part, bore in themselves the latent capacity for all possible morphotic structures. The original type or types multiplied. As the conditions of the earth's surface and atmosphere changed for the better, by an impulse and means placed within those living beings, as the necessity of adaptation to new conditions, the combat for existence and subsistence, and then by inheritance, they or some of them acquired new organs and lost others, all of which was readjusted in the organism by a so-called law of correlation, which means an inherent force to harmonize the whole organism to correspond with the acquired and inherited habit, instinct, organ or member. In this manner invertebrates changed gradually to vertebrates, fish to birds and reptiles, those to mammals, and so originated the species in each type.

You see, Mr. Darwin expects of us to believe quite a number of hypotheses, some of which I beg leave to analyze. The first hypothesis is unlimited variability. All organisms have the capacity of a perpetual change of form, until a certain type is reached, then by another law of nature the organism is variable no longer. So we have before us two contradictory laws of nature, variability and invariability. The latter is proved in fact by the existing types; what proves the former? The geological facts can not be used in evidence, for the witnesses are dead and dumb. We find imbedded in the rocks, dead remains, petrified forms of organic beings, without the least knowledge of their organisms. We only transpose the process of life as it is now before us into those stones, and think, it must have been then the same precisely. All we can know with any degree of certainty is this: Suppose life then was precisely of the same nature as now, although the outer conditions were quite different; then suppose unlimited variability is or has been at any time an attribute of organic life; next suppose this attribute was not changed by all the changes which this planet did undergo; if that is all so and not otherwise then unlimited variability must have been the attribute of organism in all ages of this earth. You see, the one hypothesis rests upon three others, none of which can be proved.

That variability is not now the attribute of organisms beyond the extent of varieties, hence that types and species are constant, is easily proved and is even admitted by Mr. Darwin. Cuvier, Flourons, Agassiz, Pictet, Humboldt, and others maintain that within the bounds of human knowledge of historic and prehistoric ages, no change of type or species has been noticed. Pictures of animals upon Egyptian obelisks, brought to ancient Rome; animal mummies brought from Egypt, and an investigation by Cuvier concerning the Ibis then and now; as well as the elephants found in Northern ice fields, fully testify, that no change whatever has taken place in those animals. The sheep, goat, ox, ass, and camel were the same domestic animals in the time of Father Abraham as they are now; only in regard to the notorious ass speaking to a prophet a change is recorded, which Mr. Darwin does not mention. Wheat taken out of an Egyptian grave was sown and the same wheat which we possess now was reaped. The same cereals and fruits on which man and beast subsist now are noticed without change through all pages of history. The plants which Pausanias has found in Egyptian graves, as described by Knuth the botanist, are identical with ours, although some varieties have been lost, it appears. Hence within historical ages, there is no trace of unlimited variability, and looking beyond that, Agassiz well remarked, that the polyps building up the reefs of Florida for at least 30,000 years, are still the same polyps precisely; and Hyrtel adds, the drop of water under the microscope reveals a number of species of infusoria, so does the fungus growing from damp walls, I must add, without any possibility of having been subjected to Darwin's factors in the origin of species.

No organism now does not betray the attribute of unlimited variability; yet the organic remains of former ages are supposed, in the process of life, to have been identical with the organism before us; hence Mr. Darwin's variability is without proof in nature. Therefore he resorts to hybridism, and maintains, as well as certain desirable points in animals or vegetables, by human device, are made permanent by propagation, to form at last new varieties or races, nature can certainly do and does the same on her own account without the aid of man. The last part is illegitimate, for what man does by artificial means, nature does not necessarily do, or else dame nature must build railroads, telegraphs, and factories. The first part is inadmissible, because it only proves the possibility of producing momentary varieties, neither types nor species. The numerous races of dogs are still of the same species; and the 150 varieties of pigeons have not lost in any case their pigeon characteristics. So the hypothesis of variability is not founded upon any fact in nature or any legitimate induction. Still for argument's sake let us admit it and analyze the next.

Which is or was the main factor causing living beings to vary? Mr. Darwin without denying internal impulse and external conditions as factors of variation, places the main stress upon the combat for existence and subsistence. In regard to obtaining females, a main point in this combat, Mr. Darwin has overtaxed his imagination. The equal number of male and female births, a universally acknowledged fact, was left out of the account. Evidently this factor must be dropped in the vegetable kingdom and among monogamous animals, as most of them are. Among birds and pigeons especially, the birth of one male and one female of each brood at the time is the rule, and the pair will stay together and propagate, if not separated by violence. Among polygamous animals my observations and experiments have taught me, that those of one breed will keep together in peace, and the males divide the females among themselves by common consent. Combats among animals on this account are very rare, except where the females are destroyed by the hands of men, and also then they are limited to a very short time annually, so that in reality the whole factor amounts to very little.

On the other side, Mr. Darwin appears to imagine this earth, land, and ocean, as rather a small patch, overstocked from the beginning by a vast number of living beings, with scanty provisions of food made for them, so that the combat for subsistence was perpetual. On our real earth, however, after so many thousand years of increase in the animal kingdom, the soil still offers plenty for the support of all, and not one half of it can be used yet. There is an affluence and superabundance in nature, which Mr. Darwin evidently did not take into fair consideration, or else he could not possibly have laid so much stress on the combat for subsistence. All the traceable effect this factor may have produced is, that the weaker members of a race or species may have been thrown back from the original center of the family. This is actually the case among men and undoubtedly also among animals. The earth always was large and rich enough for the animals, for they were not tied down to one spot as man was by agriculture and despotism. The animals migrated freely, hence the combat for subsistence, borrowed from human history, is worthless as a factor in the origin of species.

You see Mr. Darwin's hypotheses demand of us as much implicit faith as any church dogma does. For if we had any good cause to believe the unlimited variability and the combat for existence and subsistence as a factor, we would be expected to believe also the following hypotheses of the creed.

1. The changes of the earth's surface and atmosphere, as also other changes, caused some of the animals to accommodate one or more of their organs to these new conditions.

2. It is in the animal's power, by its own will and desire, and the frequent use thereof not only to acquire new habits and instincts, but also the necessary organs and members of the body; or also by the same cause to lose such habits, instincts, organs, or members of the body.

3. All the useful changes acquired by any animal are perpetuated by propagation, such is the law of nature, according to Mr. Darwin, and all the useless or injurious traits or organs, can not be perpetuated and must die out, so that all which is useful, i. e. wise and benign.

4. The useful changes thus propagated, by a law of correlation, also in Mr. Darwin's physiology, or an internal force of the animal, effect corresponding changes in the whole organism, every part, member or organ thereof, if not in one, certainly in more successive generations. The whole body is re-adjusted by that acquired change, which is thus made permanent. So nature, by the exertions of the animals themselves has produced types, species and varieties.

This is all very poetical, optimistic and beautiful. There is no objection to anybody who feels inclined to believe all these hypotheses; still let him bear in mind, that he believes the Darwinian hypotheses as the orthodox church member believes the dogmas of his creed, on the mere ground of apparent probability, beyond which Mr. Darwin with all his learning and powerful mind proves nothing. It may be, in some instances anyhow, but we have no proof that it is so.

I, on my part, am satisfied at present to know, that Mr. Darwin without my accepting his hypothesis, must support my main principle of biology. He must admit the existence of vital force, for he admits the beginning of life on this globe with functions and manifestations entirely different and distinct from inorganic matter and its forces. He goes far beyond necessity in this point; for while inorganic matter can in no wise change itself into any other thing, the organic beings do perpetually change themselves by their inherent laws, which means inherent force, for which none can give a better name than vital force. He furthermore must admit that vital force is differentiated and individualized in every organism, as each of them independent of all others can acquire new habits, instincts, organs and members of the body, and make another creature of itself, merely by its inherent law or force. Next he must admit that this vital force is psychical and not physical; for it desires, wills, feels, is conscious, intelligent and free, each of which is psychical. Being in perfect harmony with Mr. Darwin in the principle of biology, without his hypothesis, our difference of opinion reduces itself to the question of the origin of species, which is a question of cosmology, not under consideration just now. In cosmogony itself, science has come to hypotheses, suppositions and uncertainties only, as the nature of a science where ideas can not be compared with their realities makes it necessary. Hence I beg leave not to decide the main question here, which after all reduces itself to this: In the origin of species, the vital force was active cosmic and outside of the organism; or in its differentiated state within the organism. Most likely both are right and both are wrong to a certain extent, and one-sidedness is the sin of either. I will discuss this question under another caption. Here I beg leave in conclusion, to call your attention to Mr. Darwin's optimism, all which is, in the organism, is, was, or will be useful; hence he admits will, intelligence, design and proper execution in nature outside of all organisms. Here begins the momentous question of teleology; is there in this universe outside of all organisms will, intelligence, design and proper execution? We have arrived at the inner court of the sanctum of philosophy, duly cleansed of as many prejudices and lawfully prepared to open the sealed book of efficient causes and final causes, first and last cause, on which all questions of religion, moral, government, education, the whole fabric of society depends. I will begin next Friday evening to discuss the question of teleology.
