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EDUCATIONAL MATTERS.

Professor Whiting's Address Upon the Subject—Alfred Russell Wallace and His Relation to Modern Thought. —Method of Teaching Botany.

Below we present a synopsis of the lecture delivered before the B. Y. academy students at Provo, March 15, by Prof. C. A. Whiting of the Utah University: The advancement of the world is accounted for on the basis of two different theories. One theory can be called the great man theory, the other may be called the growth or development theory. The supporters of the first idea believe that every progressive movement originates in the mind of some man, who becomes the leader, and whose leadership is necessary for the success of the movement. They believe that Luther was the cause of the Reformation, and that his life was necessary for its successful termination. They believe that American independence was the work of George Washington and a few of his illustrious contemporaries; believe that had it not been for Lincoln, Grant, and a few other names inseparably connected with theirs, African slavery would still disgrace our nation. The other classes of thinkers believe that human progress is a growth, which takes place entirely independent of individuals; that just as a tree, independently of his own volition, passes from infancy to age, and in each intermediate stage has ideas suited to his time of life, so a nation or a people progresses by an internal and irresistible force, and this force is the result, not of a few great minds, but of the general intellect of the people. Had Luther never been born or had he died in his cradle, the Reformation would not have been materially delayed. Europe was ready for it. Had Washington been killed instead of Bradock in 1755, American independence would have resulted from the courage and devotion of some other man. Had Lincoln been murdered in 1861 instead of 1865, African slavery would have been a thing of the past before 1870. In other words, when the world grows to a certain point it is ready for a change and if one man dies not make himself the exponent of his times another will. All honor to the great men who have been the world's leaders, but let us not forget that they were enabled to act as leaders because the world was ready for the march. The great man is the leader, the index of his times. Show me today where the leaders stand, tell me today what they think, and I will show you where the masses will stand tomorrow, and I will show you when.

I have made this preface in the nature of the evening lecture, I wish to show to inquire that I regard the work of Mr. Alfred Russell Wallace as absolutely essential to the scientific thought of today. He has done, is doing, a grand work, but he is only one of a number who are working in the same direction, and after the workers simply voice the thought of our age. And they live among the middle ages, instead of being the honored intellectual leaders they would have swelled the number of names of those who, unfortunately for themselves, lived before the world was ready for them, and therefore would turn them to go them out of the way.

Alfred Russell Wallace was born at Usk, Monmouthshire, England, in the year 1823. Personally he is rather above the medium height, slender, with a slight stoop of the shoulders. His head is another long for short, and his face is rather coarse. His forehead is furrowed by the base from at the summit, and prominent eyebrows overhang eyes which have a vacant twinkle. The mouth is large and sensuous, and is surrounded by a full beard. The complexion is pale and the expression is a combination of good humor and eyes sincerity of character. Mr. Wallace was fortunate in inheriting an amiable disposition, and was still more fortunate in possessing such a character that he was not ruined by his fortune. In his own inimitable manner, speaking of being a passport to a life of idleness and dissipation, was the cause of his being able to devote his life to science and the advancement of human society.

In 1848 Mr. Wallace visited the Amazon valley, remaining there for four years. During the greater part of the time he was the companion of Henry Walter Bates, a man a little younger than Wallace in years, but who had had more scientific training. While on this trip they made extensive zoological collections, but unfortunately they were destroyed by the burning of the ship which was carrying them to England. He published two books on the result of the four years' work. One was a popular and highly entertaining account of his travels, the other was a scientific description of the plants of the Amazon valley. In 1854 Mr. Wallace visited the Malay archipelago, where he remained eight years. The collections and observations which he made during this separation gave him occupation for many years after his return. His collections of birds and insects were especially valuable, and his observations brought to light many new facts in the life-history of animals of an inferior type. Living amid the wonderful forms of animal and vegetable life which characterize tropical countries, it soon became evident that the question of the origin of species presented itself to him, and that it should receive from him the most earnest and patient thought. The question was not a new one.

Greek philosophy had attempted its solution a thousand years or more before Christ, and in the light of today we are compelled to admit how more than one philosopher of antiquity was at least suitable in his conclusions. In the early part of the present century and in the latter part of the preceding century, the same subject received the attention of many of the ablest naturalists. Prior to the question presented itself to Wallace's mind, he already knew of the works of Buffon, St. Hilaire, Oken, Erasmus Darwin, LaMarck and a number of others, some of whom had contributed a little to the stock of observations or thought to which Wallace, Darwin, Asa Gray, Lyell and others added bulk. Wallace began his study of the great problem, the mystery (problem which the human mind has yet failed to solve, while in the Malay archipelago. While he was working at this problem and the problem of improper life, Charles Darwin was striving to solve the same problem in England, living at Down house, near London. Both came to the same conclusion, although by different roads. Mr. Wallace's first statement of his views was contained in a letter to Mr. Darwin written in 1858. Up to that time neither knew of the work the other was doing. At a meeting of the Linnean society held in August, 1858, the paper sent by Mr. Wallace was publicly read, and the first edition of Mr. Darwin's new famous work, "The Origin of Species," was read at the same meeting. Dr. Wallace's paper endeavors to demonstrate the evolution of species in ordinary manner by the action of two factors. First, that species tend naturally to produce variations or variations of character; and second, that if any of these variations or variations present a certain advantage in the struggle for existence, such variations will be preserved, and in this manner, or rather the latter, thus accumulating the information of a new form or species in place of the old one. He cites among his various illustrations the following: The flying squirrel, one of the many animals, especially those so closely resembling the soil or the leaves or the trunks on which they habitually reside, are organized on the same principle, for instance in the course of new variations of many this may have occurred, yet those more having colors best adapted for concealment from their enemies would inevitably survive the longer." While Mr. Wallace, as will be learned from the foregoing, places especial emphasis on the principle of adaptation, Mr. Darwin emphasizing the importance of natural selection or the struggle for existence in the formation of species. In the light of today we consider these as only two of the numerous factors of organic evolution. Mr. Wallace's work as a naturalist has not been confined to the consideration of the philosophy of evolution. He has made important contributions to our knowledge of the distribution of animals and plants. It may be said safely that a science of distribution of life is in some sense an outgrowth of the theory is a science of creation. If Mr. Darwin's views of creation were true, if each animal and plant has descended from an ancestor who spring into life at first from the earth,

The lecture concluded next week.

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[illegible] Wallace's views are to be accepted we must then it is idle to attempt any solution of the question of the distribution of life. Regarding these views, Mr. Wallace appreciates the great problem from the standpoint of evolution. He has gone further in the same field and has attempted to explain why certain groups of animals are found in certain localities, thus attempting to place our knowledge of the distribution of life upon a scientific basis. Regarding these views as to the distribution of animals as well as to their general structure. In his work on "Island Life" Mr. Wallace discusses the various factors influencing the distribution of life in a masterly manner. The peculiar plants and animals of Madagascar, Australia, and other islands all receive careful identification, and in most cases satisfactory explanation. The distribution of the species is so interesting that I will endeavor to speak of them. I refer to the tuatara and the ring tailed lemur of the Pacific coast. In the one the "link" they seem to have grown almost all over the earth, but during the continents could perhaps at periods except those which were the anomalies of the animal kingdom, and now the tuatara still lies in Canterbury. The lemur now known to humans as the ground pigeons, while the relatives have gone under the Mayan temples. The lost cause appears to be [illegible] the [illegible] at Ayer's Cherokee Indian born about 1750 and dying about 1840. Mr. Ayer invested an elegant and tastefully [illegible] of the [illegible] of the Indian land they [illegible] which is place in the mouth are invented by the remarkable [illegible]. There was a Roman [illegible] the great [illegible] the [illegible] of the good Pick man.

Mr. Wallace is a firm believer in the immortality of the human soul. If [illegible] years he no longer [illegible] a religious [illegible]. I am [illegible] [illegible] Mr. Wallace [illegible] of his phenomena that [illegible] [illegible] [illegible]