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'An Auto-Didact. Alfred Russel Wallace's Frank Autobiography—A Natural Philosopher au Naturel.'

Written for the *New York Times Saturday Review of Books* by Joseph Jacobs. Dr. Wallace is in many ways an example of an extinct and extremely interesting type. Much of the best work in natural science in England up to the eighties was done by what the Germans would call "privatgelehrten," men who had no academic training; indeed, no training at all, in the particular lines in which they obtained distinction, and yet managed to advance science more than most of the official representatives of it. In astronomy Dr. Common of Ealing, in numismatics Sir John Evans, in geology Hugh Miller, are examples of the class I mean. Even if they have had academic training, it has not been in the lines in which they made their name, as in the case of Lord Avebury, better known as Sir John Lubbock, and Mr. Francis Galton, my own guide in anthropology. In a measure Darwin himself was one of them. He has explained in his biography how little he learned from his Cambridge course and how much he derived from self-instruction. Herbert Spencer was another example. His priggish autobiography shows how exclusively his knowledge was derived from little instruction from others and much brooding by himself. One might almost say that the typical English men of science of the nineteenth century were auto-didacts.

Judging by results, the method was by no means unsatisfactory. The names I have already quoted are among the foremost in British science, but it is scarcely likely the phenomenon will be repeated, and for a simple reason. Merely material aids to science are nowadays so complicated that it would be almost impossible for a beginner who has not access to a physical or biological laboratory to add appreciably to scientific knowledge. Occasionally a man of means may take up some particular branch as a hobby, as the late Lord Salisbury did with electricity, but in England at least the possession of means implies so much public activity that the all-engrossing application to scientific truth is almost impossible. How hardly shall a rich man enter into the kingdom of science! Dr. Wallace was never a rich man, as he somewhat naïvely explains in his last chapter. He certainly was one of the most successful of English auto-didacts, and his autobiography, like that of Herbert Spencer, is mainly of interest by showing the processes by which a self-taught workman of science could in the old days attain to important scientific results.

It will not be for want of frankness that Dr. Wallace does not explain the secret of his scientific success. Rarely of recent years has there appeared during a man's lifetime so naïve an exposition of all that happened to the man from birth or before it to retirement. Herbert Spencer was minute enough, but after all he mainly confined himself to the points which might throw light upon his rather curious characteristics. Dr. Wallace is rather more rambling, and does not mind pausing in the midst of his personal narrative to discuss such questions as the comparative position of the British workman between 1830 and 1880, the iniquity of inclosures, the validity of phrenology, and the truth of Spiritualism, in which Dr. Wallace is a devout believer. These digressions give somewhat more lively color to his book than Herbert Spencer's strict attention to himself in his autobiography. But, on the other hand, they make it very long-winded, and at times resemble a small-beer chronicle.

And yet, with it all, Dr. Wallace scarcely helps us to that understanding of his success as a scientist which in the first place turns our curiosity to the book. It is true we see his love of natural observation due to the friendship of H. W. Bates; his interest in the problem of the origin of species aroused by Chambers's "Vestiges of Creation," and made definite by Malthus on "Population." But one would be interested to know how far the views of Lamarck, as reproduced by Herbert Spencer as early as 1855, had any effect upon his paper of 1857, which competed with Darwin's essays on the same subject before the Linnaean Society as the foundation of the modern theory of the origin of species, or, rather, natural selection.

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Curiously enough, natural selection has not of recent years received any increased recognition of scientists as the vera causa of species. The pure Darwinists, among whom Dr. Wallace may be reckoned, still cling to it as all-explanatory, but other biologists are searching and finding more specific causes for the differentiation of species. Strangely enough, Dr. Wallace himself has been one of the chief incentives of this more specific kind of work. His views on the coloration of animals and insects have perhaps contributed more by example of method to the more modern researches into species than the general doctrine of natural selection, which, while declaring that the fittest shall survive, scarcely determines why any variation is fittest, and in the end only leaves us with the almost tautologous result that those who survive are the most fit to survive.

There is an interesting reference in the second volume of this biography to the researches of Samuel Butler, the author of "Erewhon," and also of "Life and Habit." He was almost the first to point out the weakness of the Darwinian position, and was certainly the first to point out how largely Darwin had been anticipated by his predecessors, and especially by his grandfather, in determining the true sources of specific variation. It would have been interesting if Dr. Wallace had explained a little bit more clearly the divergences between Butler and himself, but possibly he thought he had sufficiently explained these in the reviews of Butler's books, to which he refers us, and in his works on Darwinism, where the question is discussed to some extent from the pure Darwinian point of view.

That is rather the trouble with the book throughout. Whenever Dr. Wallace comes to any subject on which he has made himself distinguished he has the alternative of repeating what he has said elsewhere, or of simply referring us to those books. Thus he is rather meagre in his account of the journeys to the Amazons and to the Malay Archipelago, referring for detail to his admirable books describing his travels to these regions. He tells us but little of the train of thought which led him to write his epoch-making paper, which anticipated Darwin, and caused the latter to produce his book on "The Origin of Species" much earlier than he had intended. He even leaves us unsatisfied as to the line of reasoning which led him to the curious conclusion that the earth was the centre of the universe, his most recent "discovery" that has attracted very general attention.

To compensate us for this Mr. Wallace goes into much more detail about the minor topics with which his name is associated. For instance, he gives quite a long account of Robert Owen and his system of education and factory organization, which indeed forms one of the most interesting parts of the book, but its relevance may be greatly doubted. Again, on land nationalization Dr. Wallace is tolerably full, and here he gives a complete analysis from his point of view of the effects of inclosure acts on the condition of the English poor. Or again, take phrenology. Dr. Wallace has been by no means convinced by Ferrier's

researches, or by Sir William Hamilton's crushing criticism, that phrenology is merely a pseudo-science. He proves the validity of this "science" to his own satisfaction by quoting two estimates of his own character made by casual phrenologists he met, which agree to some slight extent, but does not discuss the question how far the phrenological results were not derived from physiognomical results. Charles Leland used to say the gypsies "dicker" with the eyes; in other words, study the eyes of the person whose future they were foretelling. It is a question whether phrenologists do not mainly judge by character reading their subject's face.

"Fads" indeed seem to have had an irresistible attraction for Dr. Wallace. He has been phrenologist, vegetarian, anti-vaccinationist, spiritualist, and land nationalist, and thereby betrays the weak spot in the auto-didact. Finding himself capable of hitting upon truths in the line of research, where his native capacity overcomes his want of training, the auto-didact assumes that he has the same capacity in other spheres of activity. It is at once pathetic and amusing to observe that while Dr. Wallace recognizes his incapacity to deal with the higher mathematics, he has no compunction in opposing the views of technical physicists on such questions as the glacial period or the position of the sun as regards the galaxy. He owns he has not the physical and mathematical knowledge to discuss their reasons, but he claims the right to criticise their results and propose alternative theories.

After all we have to go back to Alfred Russel Wallace the man and his surroundings in early life to get the chief interest of this book, and the first volume has naturally much to interest us. The account of his family, which traces up to the Scots "who have with Wallace bled" may be skipped by the judicious, but the account of his own early life and the description of the surroundings of an English family just raised above the working classes (his brother became a carpenter)<sup>2</sup> is as vivid a piece of sociological description as has come in one's way for many a long day. His account of his experience as surveyor recalls those of Herbert Spencer in the same capacity, and he has some interesting reminiscences of Welsh life and scenery illustrated by appropriate photographs and drawings. A curious episode illustrating the naïveté of the narrative gives an account of how he was jilted by Miss L. because, as she alleged, he was so secret about his early life, and therefore must have something to conceal. Dr. Wallace is equally frank about his relations to the leaders of English science, like Sir Charles Lyell, Tyndale, and Huxley, and even gives an account of a tiff with the latter which was made up in a manner honorable to both sides. Altogether the book leaves the impression of a rather crotchety "character," scarcely that of a great intellect.

Joseph Jacobs.

<sup>1</sup>My Life: A Record of Events and Opinions. By Alfred Russel Wallace. In two volumes. Volume I; pp. xii-435. Volume II; pp. vii-464. New York: Dodd, Mead & Co. \$5.

<sup>&</sup>lt;sup>2</sup> [Editor's note: Wallace's brother John later pursued a successful career in the United States as an engineer. The town of Wallace, California is named after him.]