

Science.

An Impossible Task.

SOME months ago Dr. Alfred Russel Wallace set himself the task of proving that the planet on which we live is unique, in that it alone, in all the Universe, is a possible theatre for the play of life. In a former article, suggested by his paper, I tried to show, whilst dismissing his argument as "worthless," that it is possible to think otherwise than Dr. Wallace, without the least loss of the sense of self-respect or race-respect. My object was to show that to us, human life, its origin and its destiny, is the most important thing in the Universe, whether or not there are other worlds like ours. If you are as valid and significant an object to yourself, believing in the known and familiar truths of modern astronomy, as you would have been had you lived at any time between Ptolemy, Eusebius, and such like clumsy destroyers of Greek science, on the one hand, and the publication of Copernicus' masterpiece on the other, then you will agree with me that there is a logical flaw in Dr. Wallace's mind, which impelled him to assert the importance of human life as proved by a uniqueness supposed to pertain thereto. This flaw is further demonstrated by the extraordinary history which reveals in Dr. Wallace, the famous co-discoverer with Darwin of the principle of natural selection, in turn Spiritualist of the most credulous type, anti-vaccinator of the blindest, and now would-be subverter of half the fundamental truths of modern science. There would be no occasion for this paper, but for the fact that Dr. Wallace has a reply to his critics in the current number of the "Fortnightly Review," and has been spending the last three months in the preparation of a book wherein it will be abundantly demonstrated "that our earth is the only inhabited planet in the whole Stellar Universe." Obviously this could only be shown by evidence which would prove that our earth is the only *inhabitable* planet in the Universe: and it is apparent that Dr. Wallace has therefore practically set himself the stupendous task of attempting to prove a "universal negative." It needs not ten seconds consideration to show that the task is logically impossible: but on what slender evidence Dr. Wallace thinks he has achieved it would astound anyone who fancies that emotional prepossessions are not often sufficient utterly to destroy the logical faculty in the minds of those whom they obsess.

You may say that Dr. Wallace is not an astronomer, and that his book will therefore be ignored. Not at all. It is a notorious popular fallacy that the man who is distinguished in one branch of activity is therefore to be listened to and accepted, on whatever topic he opens his mouth. When Lord Salisbury, in 1894, delivered himself of his criticism of evolution, crusted over with paralogisms and misplaced satire, which would have made the British Association ridiculous, had that been possible, there was a chorus of rejoicing from the opponents of the greatest and most hopeful truth that has ever been given to the world. Lord Salisbury, the resident of the British Association,

had spoken. There are myriads of examples in every sphere; nor can one decide whether to be more astonished at the *obiter dicta* of these distinguished people on matters of which they know nothing, or at the numberless dupes who might almost as well listen to my views on the ethics of publishing—a question urgently raised in such a case as that under discussion—because, let us say, I was reputed to "play a fairly straight bat" at school. And another fallacy, upon which Spencer has insisted, is the idea that the man who observes facts can therefore argue about them, whereas the truth is rather the reverse, and many contemporary instances might be adduced of men who are patient, honest, accurate and acute observers, but have rarely made a deduction or an induction that would hold water. Similarly your logician may even be in error as to the number of buttons on his coat.

It seems hardly worth while to enumerate the individual items of Dr. Wallace's failure, but here are a few. Misled by a popular work of Prof. Newcomb's—a work which should never have been published, containing, as it did, many unproved statements, since disproved—Dr. Wallace starts out to show, first of all, that the Starry Universe is finite. Supposing that task accomplished, let him now follow his American mentor, who, in a subsequent book, also written for the public, describes an imaginary flight through an indefinite number of finite starry universes, of which ours is one. It is true that there is no more proof of the existence of these other "universes" than there is of the finiteness of ours; but Dr. Wallace has to prove that they do not exist before he need go any further. There follows the argument about the number of the stars—the bright stars, that is to say—whilst the writer forgets that there are numberless dark stars. "As well," said Sir Robert Ball the other day, "might you count all the *red-hot* horse-shoes in England, and say 'these are all there are'!" Similarly the recent discovery of dark nebulae, explaining certain of the apparent rifts in the milky way, is ignored. That the habitableness of the satellites of any stars at the supposed "confines" of the Universe might be discounted, Dr. Wallace had to suggest that possibly gravitation might act but irregularly there, so that no evolution of life would be possible. This supposition he now retracts—offering no other in its place—and observes that the former article was written in a hurry. What possible excuse there could be for writing such an article "somewhat hastily" I cannot imagine. The motion of the entire Solar System—some twelve miles a second—having been pointed out to him, he disposes of it by saying that there is no proof of this motion being in a straight line, and that the Solar System may be revolving round the supposed centre. So it may, but that is for him to prove. I may be standing on my head at this moment, but it surely remains for Dr. Wallace to prove it so before he proceeds to draw any deductions from the assertion.

Far otherwise is the probable truth of this stupendous question. The spectroscope has taught us that what we still call the "elements" go to compose the sun, the comets, the nebulae, the furthest star, as they do you and me. Everything goes to prove that law is universal. The gravitation that swings a sun determines the occasional coldness of your feet, or the shape chosen by the designer of the Great Pyramid. Neither "time" nor "space" affects the eternal and omnipresent reign of law: these are but the forms in which we think—unfounded inferences from the nature of our own sensations. The great probability is that every planet of every sun becomes in its turn the seat of organic life, which develops from the dust of a satellite of Sirius by the operation of the law which determined its production here. As it is now, so it was æons ago, and will be in æons yet to come. The inhabited period may well be but a brief span in the youth of a planet. It is a matter of temperature. The chances may be, as has been suggested, that at any given time it is

four hundred to one that any given planet—of our system or any other—is not inhabited. We used to hear of creatures different from ourselves: life without oxygen, and so forth. Ere we knew that one and the same stuff, modifiable under universal laws, is the raw material of everything, such speculation was legitimate. But now we must rather conceive of man as inevitably produced by the evolutionary changes which have occurred in the solar nebula: we recognise that nebula to have been, in all probability, similar to countless such; and we must contemplate the production of beings, such as ourselves, in the planets formed, in all parts of the infinite universe, therefrom. So far is this earth from being unique that it is rather infinitely common, as part of a Universe which is infinite not only in extent but in unity and conformity and in its obedience to laws which admit of no exception, and of which neither "time" nor "space" can disturb the uniform and irrefragable sway.

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