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‘Is Mars Habitable?’¹

Is Mars Habitable? A Critical Examination of Professor Percival Lowell’s book “Mars and Its Canals,” with an alternative explanation. By Alfred Russel Wallace, F.R.S. (Macmillan. 2s. 6d.)

The existence of straight markings on Mars called canals, first noted by Schiaparelli in 1877, and the interpretation of them advocated by Professor Percival Lowell—that they represent irrigation works, carried out by intelligent and highly civilized beings, for the conveyance of water from the polar snow-caps to the arid general surface of the planet—are by this time well known. Professor Lowell has stated his case in two fascinating books—“Mars,” which appeared in 1895, and “Mars and Its Canals,” published in 1906. The latter work, a review of which appeared in these columns on April 5 last, is described in the little book before us as “a challenge, not so much to astronomers as to the educated world at large, to investigate the evidence for so portentous a conclusion.”

This phrase comes a little oddly from Dr. Wallace, who has himself put forward an infinitely more portentous conclusion. Professor Lowell deals with one small planet and pleads for signs of life upon it. Dr. Wallace, in his book “Man’s Place in the Universe,” surveys the whole universe and denies the possibility of life on any single member of it except the Earth: he includes not merely all the planets of our own solar system, but those of the countless myriads of suns we see scattered over the sky. Naturally he is not slow to take up Professor Lowell’s challenge. His reply is a small book of 110 pages only; but the importance of the issue, and the personality of the author, endow it with an interest out of all proportion to its size. Indeed the personalities of both the parties to the conflict are striking. On the one hand we have a man of wealth and leisure who has devoted the energies of his life to accumulating observations bearing on the habitability of Mars; who has established in a remote and carefully selected spot a large observatory, with skilled assistants maintained at his own expense, for the study of that special problem; who himself shares their labours and their comparative exile when Mars is visible; and who gives us the results of these labours not only in the deservedly popular works above mentioned, but also in splendid volumes of scientific researches. On the other hand we have Dr. Alfred Russel Wallace, who claims that to deal with the main contention “requires only care and judgment in drawing conclusions from admitted facts”; and whose capacity for drawing such conclusions was proved triumphantly to the world alongside that of Charles Darwin. Not often is there so fine a fight to be seen and understood; and the longer it lasts the more are we likely to learn and to enjoy.

Dr. Wallace’s main contentions at present are that the polar caps on Mars are not ice and snow, but something else; that even if they were ice and snow, they would not yield nearly enough water for irrigating the general surface; and that, moreover, the climate of Mars is far too cold for such an interpretation of what is seen. These arguments are not altogether new. The polar caps were long ago declared to be solid carbonic acid; to which Professor Lowell retorts that if they were, they would evaporate without melting, whereas he sees at the appropriate season a “blue ribbon” bordering the caps, which must be the melting of the snow. Dr. Wallace rejoins that water is not blue under such conditions.

The argument that the melted polar snows would be insufficient in quantity for the general irrigation of the planet is due to the late Miss Agnes Clerke; but her form of statement supposes an irrigation of the whole surface of the planet, and would no longer apply if the irrigation is confined to thin strips. As regards the temperature of Mars, Dr. Wallace quotes the influential opinion of Dr. J. H. Poynting that “it is impossible to raise the temperature of Mars to anything like the value obtained by Professor Lowell, unless we assume some quality in his atmosphere entirely different from any found in our own atmosphere.” But of course the sting in Dr. Poynting’s cautious words lies in the qualification. Why should there not be some (as yet) unknown and unsuspected quality in the Martian atmosphere? A few years ago we did not know that argon, helium, and a whole series of other gases existed in our own atmosphere: and to-morrow we may learn of some new “quality” of it which may change the direction of our thoughts entirely. If our sympathies are due to the man with the hardest task, they must inevitably go to Dr. Wallace; for he has set himself to prove a negative, or at any rate to “render it extremely probable.” It will avail him little to slay Professor Lowell, for countless other opponents await him. It is even no gain to him to show that Mars is too cold for life now: to prove his real point he must show that it was always too cold to support life, otherwise the pre-eminence of the Earth and of Man is a mere accident of the moment. And we feel a genuine admiration when we find that he does actually try to review the past history of Mars to this effect: he advances the speculation that “the planet grew as a solid and cold mass, compacted together by the impact of the incoming matter as well as by

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its slowly increasing gravitative force.” For the development of this view we must refer our readers to the book itself: they are not likely to repent either the half-crown spent in buying or the hour or two spent in reading it. As regards its conclusions—well, fortunately salt is cheap.

¹ The Publishers of this book decline to supply *The Times Book Club* with copies on ordinary trade terms, and subscribers who would co-operate with *The Times* to defeat the Publisher’s Trust may effectively do so by refraining from ordering the book so far as possible until it is included in *The Times Monthly Catalogue*. [On p. 363]

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The Alfred Russel Wallace Page, Charles H. Smith, 2015.