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[p. 4a]

‘Mars and Men.’

“Is Mars Habitable?” By Dr. Alfred Russel Wallace, F.R.S. Macmillan and Co., Ltd. London. Price 2s. 6d. net.

The question of the inhabitation of Mars is a supremely interesting one, and the brilliant work of Professor Percival Lowell, combined with the onslaught of his critics, is rapidly clearing up many obscure points. The question is by no means definitely settled, but Dr. Wallace’s critical survey of Lowell’s “Mars and Its Canals” in the book before us is so destructive of some of the American astronomers’ conclusions that the verdict as to Mars’ habitability must, for the present, be “not proven.”

Save for Venus, Mars is our nearest planetary neighbour. He has been closely observed by many astronomers, although few are possessed of the best means of observation. We know what Mars is further from the sun than ourselves, and that, therefore, he receives much less light and heat from the sun than we do. We know also that Mars is much smaller and much “lighter” than the earth. So small is the force of gravity upon Mars, so slight the pull to its centre, that an earthly pound weight would on its surface “weigh” but about six ounces, while the average human would feel literally a light as a feather. Mr. G. K. Chesterton transported to Mars would find that even the Martian harebell would raise its head after his footstep’s airy tread. If animals exist on Mars they are probably very much more bulky than those on the Earth, while their organs of sight would have much larger apertures to compensate for the small amount of sunlight received. Other certain points are that Martian day is about the same length as our own, and that the seasons are much of the same character as on Earth save that the year is much longer. Altogether there is no difficulty in conceiving the inhabitants of Mars granted that the necessary conditions of heat and moisture exist there. Do those conditions exist?

Snow Caps and Canals.

Some 250 years ago the polar snow caps of Mars were discovered, and towards the end of the eighteenth century Sir William Herschell proved that these snow caps increased and decreased alternately. Thirty years ago Schiaparelli made his famous discovery of a network of dark lines on the surface of Mars. In 1881 Schiaparelli found that some of the lines were double. Astronomers, however, very wisely distrust their eyes, and it was not until this discovery had been confirmed by other observers that it was accepted beyond the possibilities of doubt. Whatever the “canals” are there is no doubt whatever that some of them coexist of two parallel lines equally distinct. In 1892 Mr. W. H. Pickering noticed that at the intersection of some of the lines there were small dark spots. The geometrical appearance of the lines, the fact that some of them are double, and the circular spots at their intersections have so artificial a character that the idea they were the work of intelligent beings gained ground, and Mr. Lowell made the startling suggestion that the “canals” were great irrigation works of gifted beings. Dr. Wallace does not impugn the accuracy of the Lowell observations. He accepts them unreservedly, and confines himself to pointing out his disbelief in the accuracy of the Lowell deductions.

Is There Water?

As to moisture, Dr. Wallace quotes that able writer, the late Miss Agnes Clerke, in order to show that there is not enough water upon Mars to justify the cutting of canals by intelligent beings. One argument for scarcity of water is that the polar caps are quickly formed and as quickly melted. Taking a liberal estimate, Miss Clerke thought that there was no possibility of the existence of water sufficient to feed the arid deserts of the planet, and that, therefore, no enormous irrigation works could exist. Dr. Wallace, indeed, goes further, and holds that Mars is not heavy enough—has not pull enough, that is—to retain watery vapour upon its surface. The evidence of the spectroscope as to the presence of water is negative.

Is There Heat Enough?

Then there is the question of temperature. The distance of Mars leads to his receiving much less heat than we do, and Dr. Wallace argues that if there is not a dense vapour-laden atmosphere to help to retain it the temperature must be too low to sustain life. With us the solar heat that penetrates our vapour-laden and cloudy atmosphere is shut in by that same atmosphere. Here it seems to us that Mr. Lowell's argument must be held to fail. He says: "Could our earth but get rid of its oceans, we, too, might have temperate regions stretching to the poles." In this, as Dr. Wallace says, he runs counter to the best established laws of terrestrial climatology, and altogether neglects the great part played on Earth by our atmosphere as a storehouse and distributor of heat.

But while Dr. Wallace undoubtedly gives Professor Lowell much to answer, he himself offers us no satisfactory explanation of the network of lines on Mars. He is inclined to attribute them to surface cracks, while he regards the snow caps as consisting not of frozen water, but of frozen carbonic acid. It is difficult, however, after an examination of the accepted observations of the single and double dark lines on Mars to conceive them as being due to cracks radiating from craters.

As we need hardly say, Dr. Wallace's book is a model of controversy, and we look forward with interest to Professor Lowell's rejoinder.

The Alfred Russel Wallace Page, Charles H. Smith, 2017.