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'Are There Martians?'

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. London, Macmillan, 2s. 6d.

Whether Mr. Alfred Russel Wallace is engaged in opening up for us new fields of thought in the debatable world of Spiritualism or demolishing the romantic structures of astronomers, he is never tedious. A little while ago he set forth with much logical acumen reasons for assuming that the earth is, after all, at the centre of the visible universe. Now here he is accumulating evidence to prove that Mars is not only uninhabited, but uninhabitable; and in the process he attacks the cherished nebular hypothesis. Popular belief in the habitability of our neighbour planet has been vastly stimulated, not only by the romances of the Vernes and the Wellses, but by the reasoned conclusions of cold, calculating scientific observers like Mr. Lowell.

WHEN GREEKS MEET.

To the mere layman the spectacle of two savants, equally well informed, equally eager to arrive at truth, and yet on the same admitted facts reaching totally different conclusions, must be a source of embarrassment and bewilderment. Mr. Lowell has argued with brilliance and eloquence that the canals, with the oases which intersect them all over the surface of Mars, indicate the existence of intelligent beings. Mr. Wallace comes along armed at all points to show that the very facts upon which the American astronomer depends prove the precise contrary. He is ready to show that the "lines," instead of being non-natural, can be explained on the meteoritic hypothesis of the origin of plants, and that even on our own earth these straight lines have a place:

In our own country we have the Tyneside and Craven faults in the North of England, which are thirty miles long and often twenty yards wide; but even more striking is the great Cleveland Dyke—a wall of volcanic rock dipping slightly towards the south, but sometimes being almost vertical, and stretching across the country, over hill and dale, in an almost straight line from a point on the coast ten miles north of Scarborough, in a west by north direction, passing about two miles south of Stockton, and terminating about six miles north by east of Barnard Castle, a distance of about sixty miles. The great fault between the highlands and lowlands of Scotland extends across the country from Stonehaven to near Helensburgh, a distance of 120 miles, and there are many more of less importance.

"CRACKS" AND TEMPERATURE.

On the Continent he points to still more extensive "straight lines," as on the Upper Rhine, while in the valley of the Jordan we have a vast geological depression or fracture extending for 400 miles. He then suggests a natural method for the formation of these great cracks on Mars—a method which the book must be permitted to explain in detail.

But the strongest argument against the Lowell theory rests upon temperature, which Mr. Wallace maintains must be at least 70 or 80 degrees below the freezing point. The error which he claims to have

found in Mr. Lowell's argument is the over emphasis of the assumption that the scanty atmosphere of Mars allows more sun heat to reach the surface. The American is accused of forgetting the enormously increased loss of heat by direct radiation, as well as by the diminution of air radiation.

Mr. Wallace's conclusions for believing Mars uninhabitable, and the canals the result of action caused by the cracking of the surface while hardening on a cold solid sub-layer, may be briefly summed up in the following propositions:

The canals run for thousands of miles across waterless deserts, losing enormously in the process by evaporation, if we assume them to contain water.

The mere attempt to use open canals for irrigation purposes would argue ignorance and stupidity. Long before half of them were completed their failure to be of any use would have led any rational being to cease constructing them.

The temperature of Mars is prohibitive of any animal life such as is known to the earth.

Stimulating indeed is this series of speculations on the part of the veteran co-discoverer of the doctrine of evolution, who at the age of 84 has not lost the eager, questioning spirit that gave us "Darwinism" and "Man's Place in the Universe."

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