

Literature

Man's Place in the Universe

THE veteran naturalist, Dr. A. R. Wallace, as our readers doubtless remember, published last year in *THE INDEPENDENT*, and also in the *Fortnightly Review*, a most interesting and suggestive article in which he attempted to show that the earth alone is the abode of intelligent beings, and that the human race is therefore unique in the universe. The article excited a great deal of discussion and criticism, and in the handsome volume* before us the author develops at length his argument and marshals the consideration upon which it is founded, making, however, some slight modifications of his original positions in deference to criticism.

It is obvious, and admitted, that the motive which has led him to this train of reasoning is the same which actuated Whewell in his famous work on "The Plurality of Worlds"—viz., the feeling that the doctrines of the Incarnation and Redemption accepted by the Christian Church demand the belief that the human race is thus unique.

It may be said at the outset that this sentiment seems to have no real logical force. If, in fact, there be "other worlds than ours," why is it hard to believe that the same benevolent Deity who has provided for our redemption would in some wise and effective way interpose in their behalf if the entrance of sin should call for help. The acceptance of one such wonderful miracle ought to make it easier rather than more difficult to admit the possibility of others more or less like it under similar conditions.

But one is reminded of our Saviour's words, "What is that to thee? follow thou me."

The propositions which Dr. Wallace endeavors to establish in support of his main conclusion are summarized by him as follows:

(1) "That the [our] stellar universe forms one connected whole; and tho of enormous extent is yet finite, and its extent [perhaps] determinable."

(2) "That the solar system is situated [approximately] in the plane of the Milky Way, and not far removed from the center of that plane. The earth is therefore nearly in the center of the [our] stellar universe."

(3) "That this universe consists throughout of the same kind of matter, and is [probably] subjected to the same physical and chemical laws."

The words in brackets have been inserted by the present writer. By "universe" the author means simply the assemblage of stars and nebulae, visible or otherwise, recognizable by our means of observation. He distinctly admits the possible, even probable, existence of other universes quite beyond our ken.

In (2) the words "approximately," "not far" and "nearly," are to be interpreted with reference to the dimensions of the universe.

Dr. Wallace would not deny that, for all we know, our system may be many "light-years" distant from the exact center of the universe, possibly as much as a hundred light-years, the light-year being the distance which light travels in a year. This is no less than sixty-three thousand times the distance of the earth from the sun, or nearly six thousand millions of millions of miles (586,000,000,000,000 miles). In his original article he insisted upon a much more exact centering of the solar system, and he now makes the change as a concession to the practically unanimous criticism of astronomers.

It may be at once admitted that this conclusion as to the position of the sun is irrefutable, in the sense that it cannot be disproved from the facts now known; we have no absolute knowledge that the sun is not so situated—no unquestionable data are inconsistent with it.

And yet our data are capable of quite a different interpretation. It is certain that interstellar space is not perfectly transparent, but is inhabited by countless my-

* MAN'S PLACE IN NATURE. By Alfred R. Wallace. New York: McClure, Phillips & Co. \$2.50 net.

riads of meteoric particles, of which not less than twenty millions daily fall upon the earth in the form of shooting stars. There are also unknown numbers of larger masses; and of immense dark stars also, a few of which have already been detected by their effects upon their neighbors. It is a question whether they do not actually outnumber the stars that shine. The space around us is therefore "hazy," so to speak, and our telescopic vision can only penetrate, to a limited distance, about the same in all directions. However far the "universe" may extend beyond our power of seeing, we must be not far from the middle of that part of it within our sight.

But passing over this, we know that within a hundred light-years' distance from the exact center of the finite universe accepted by the author there must be hundreds, and probably thousands, of other stars as "favorably situated" as our sun. Not one of those whose parallax we have thus far been able to measure is more than fifty light-years distant from the sun.

Nor are the special advantages which the author insists upon as connected with a central position in the universe, of such importance as he seems to imagine. So far as can be made out at present, the influences received from the stars, through their light and heat or otherwise, amount to practically nothing. We should be as well off anywhere else, unless perhaps in, or close to, the Milky Way, or too near some great blazing star.

The author brings out very clearly the unquestionable fact that upon no one of the planets of our system but the earth (Mars possibly, tho not probably, excepted) could life as we know it here exist, and he exhibits in a masterly manner the wonderful process of evolution which has culminated in the human race—a process which he argues could have been possible only upon a globe like our earth, similarly situated in a planetary system like our own, and that system nearly central in its universe.

This may, perhaps, be, in the main, admitted. But it is by no means certain that there may not be many such globes and systems. It is true that no planetary attendants of the stars have yet been discovered; but it is easy to show that if

they exist, it would require something far beyond our present telescopic power to make them visible; it is more natural to suppose that such systems are numerous than that there is only one.

Dr. Wallace dwells upon the unquestionable and important fact that so far as we can ascertain (and our knowledge has gained an extensive range within the past half century), the same substances and physical laws appear to prevail throughout the entire universe. This gives a certain plausibility to the assumption that intelligent life could originate only under conditions like those under which our own humanity has come to its high estate.

And yet this is far from certain. We do not know, and it is not safe to assume, that embodied consciousness, intelligence, the moral sense—"mind and soul," in short—can exist only in a physical organization similar to our own. "Without phosphorus no thought," is at least a doubtful dictum. For aught we know there may be in space countless races of intelligent moral beings peopling unseen worlds. We do not assert that it is, or is not, probable; opinions may differ as to that, and very likely it will be debated no less vigorously than if there were some certain knowledge on which opinion could logically be founded.

To sum up the whole matter—the arguments for and against the plurality of worlds and of races of intelligent beings are at present simply from ignorance to ignorance. The question is substantially in the same condition as that relating to the inhabitants of Mars, as to which Professor Newcomb sententiously says: "The reader knows just as much about the subject as I do, and that is nothing at all." We can only surmise and imagine. Whether the future will bring knowledge we cannot tell.

But while the author fails in our judgment to establish his conclusion, the book is well worth reading and full of suggestion and information.

A word of caution is, however, needed as to the accuracy of its astronomical statements. There are numerous inaccuracies and inconsistencies, of no special importance in relation to the argument, but sufficient to render it unsafe for the reader to accept the work as in any sense an astronomical authority.