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978-1-108-00417-6 - Other Worlds Than Ours: The Plurality of Worlds Studied  
Under the Light of Recent Scientific Researches

Richard Anthony Proctor

Excerpt

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# OTHER WORLDS THAN OURS.



## INTRODUCTION.

ASTRONOMY and GEOLOGY owe much of their charm to the fact that they suggest thoughts of other forms of life than those with which we are familiar. Geology teaches us of days when this earth was peopled with strange creatures such as now are not found upon its surface. We turn our thoughts to the epochs when those monsters throve and multiplied, and picture to ourselves the appearance which our earth then presented. Strange forms of vegetation clothe the scene which the mind's eye dwells upon. The air is heavily laden with moisture to nourish the abundant flora; hideous reptiles crawl over their slimy domain, battling with each other or with the denizens of the forest; huge bat-like creatures sweep through the dusky twilight which constituted the primeval day; weird monsters pursue their prey amid the ocean depths: and we forget, as we dwell upon the strange forms

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which existed in those long past ages, that the scene now presented by the earth is no less wonderful, and that the records of our time may perhaps seem one day as perplexing as we now find those of the geological eras.

Astronomy has a kindred charm. We cannot indeed examine the actual substance of living creatures existing upon other celestial bodies; we cannot even picture to ourselves their appearance or qualities; and only in a few instances can we even form any conception of the conditions under which they live. But we see proofs on all sides, that besides the world on which we live, other worlds exist as well cared for and as nobly planned. Nay, we see globes by the side of which our earth would seem but as a tiny speck; we trace these globes as they sweep with stately motion on their appointed courses; we watch the return of day on the broad expanse of their surface; and we see systems of satellites which are suspended as lights for their nocturnal skies. We further find that our sun is matched by a thousand thousand suns amid the immeasurable depths of space; and the mind's eye pictures other worlds like those which course around the sun, travelling in stately orbits around his fellow luminaries.

Long, however, before the wonders of modern astronomy had been revealed to us, men of inquiring minds seem to have been led, as by an irresistible instinct, to examine into the resemblance which may exist between our world and other worlds surrounding it on every

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hand. It has not been the mere fanciful theoriser who has discussed such questions, but men of the highest eminence in science. In long past ages Anaximander and Pythagoras studied the subject of other worlds than ours; later, such men as Huyghens, Galileo, and Newton have dwelt upon the same interesting theme; while, in our own day, Whewell and Brewster have employed their scientific and dialectic skill in defending rival theories upon the subject.

Undoubtedly a large share of the interest with which the question of other worlds than ours has been regarded, is due to the fact that, as the science of astronomy has progressed, the subject has continually presented itself under new aspects. The question, in fact, is one of those which are ever new and ever old. It has all the charm belonging to subjects which men in all ages have delighted to discuss, while it is associated in the most intimate manner with the progress of modern science. With what a charm of novelty, for instance, the discussion between Whewell and Brewster invested the subject. No doubt a large portion of that charm was due to the personal qualities of the two disputants. Yet, despite the skill with which each of them presented the arguments belonging to his own side of the controversy, few could have read with any interest a discussion on a subject so well worn, had it not been that the arguments were drawn from the discoveries which had recently been made by astronomers. Nor was it uninteresting to notice how these discoveries at once seemed to acquire

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a new interest when they were associated with the subject of life in other worlds. Facts which had attracted little notice at the time of their discovery, at once assumed importance, when it was seen how they bore on the rival views which Whewell and Brewster were enforcing. The interest with which the public regard many of those discoveries may, indeed, be said to date from the controversy between those eminent men.

No very long interval, if we count by years, has elapsed since the 'Plurality of Worlds,' and 'More Worlds than One' were written. Yet so rapidly has science progressed, that already the subject of life in other worlds has assumed a new aspect. Arguments which were hypothetical thirty years ago have either become certainties or been disproved. Doubtful points have been cleared up; a new meaning has been found even in those facts which were well known to both the disputants; and lastly, a new mode of research has been devised, which has not only revealed a number of surprising facts, but promises to work yet greater marvels in the years which are to come.

One is thus invited to discuss anew a subject which but a few years since seemed thoroughly sifted by the inquiries of the two eminent philosophers I have named. We stand in a position much more favourable for the formation of just views than that from which Whewell and Brewster surveyed the planetary and stellar systems. Never, since men first explored the celestial depths, has a series of more startling dis-

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coveries rewarded the labours of astronomers and physicists than during the past few years. Unhoped-for revelations have been made on every side. Analogies the most interesting have brought the distant orbs of heaven into close relationship with our own earth or with the central luminary of the planetary scheme. And a lesson has been taught us which bears even more significantly on our views respecting the existence of other worlds: we have learned to recognise within the solar system, and within the wondrous galaxy of which our sun is a constituent orb, a variety of structure and a complexity of detail, of which but a few years ago astronomers had formed but the most inadequate conceptions.

My object, then, in the pages which follow, is not solely to establish the thesis that there are other worlds than ours, but to present, in a new and I hope interesting light, the marvellous discoveries which have rewarded recent scientific researches. Judged merely according to their direct significance, these discoveries are well calculated to excite our admiration for the wonderful works of God in his universe, and for the far-reaching scope of the mental powers which He has given to his creature Man. But it is when we consider recent discoveries in their relation to the existence of other worlds, when we attempt to form a conception of the immense varieties of the forms of life corresponding to the innumerable varieties of cosmical structure disclosed by modern researches, that we recognise the full significance of those discoveries. Although the

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growth of our knowledge is ever accompanied by a  
proportional growth of our estimate of the unknown,  
we seem already entitled to say that we have

Come on that which is, and caught  
The deep pulsations of the world,  
Æonian music, measuring out  
The steps of time.

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## CHAPTER I.

## WHAT OUR EARTH TEACHES US.

BEFORE proceeding to consider the various circumstances under which the worlds or systems which surround us appear to subsist, it may be well to inquire how far we have reason to conclude, from the consideration of our own earth and its inhabitants, that the Creator has designed the orbs which exist throughout space for the support of living creatures.

It would not be just to argue directly from the fact that the earth is inhabited to the conclusion that the other planets are inhabited also, nor thence to the conclusion that other stars have, like our sun, their attendant worlds, peopled with various forms of life. An analogy founded on a single instance has no logical force. And it is doubtful whether we have not, in the moon, an instance which would as effectually serve to support a directly opposite conclusion. It seems all but certain, as we shall presently have occasion to show, that no part of the moon's globe is inhabited by living creatures. Certainly she is inhabited by none which bear the least resemblance to those existing on our earth. Thus it might fairly be urged, that since

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one of the two orbs respecting which we know most appears to be uninhabited, there remains no probable argument in favour of the view that other orbs besides our earth are the abode of living creatures.

Yet the earth in reality supplies an argument of great force, when we consider the evidence she presents in another light. The mere fact that this world is inhabited is, as we have seen, little; but we shall find that the way in which life is distributed over the earth's surface is full of significance.

If we range over the earth, from the arctic regions to the torrid zone, we find that none of the peculiarities which mark the several regions of our globe suffice to banish life from its surface. In the bitter cold within the arctic circles, with their strange alternations of long summer days and long winter nights, their frozen seas, perennial ice, and scanty vegetation, life flourishes in a hundred various forms. On the other hand, the torrid zone, with its blazing heat, its long-continued droughts, its strange absence of true seasonal changes, and its trying alternations of oppressive calms and fiercely raging hurricanes, nourishes even more numerous and more various forms of life than either of the great temperate zones. Around mountain summits as in the depths of the most secluded valleys, in mid-ocean as in the arid desert, in the air as beneath the surface of the earth, we find a myriad forms of life.

But this is far from being all. Various as are the physical habitudes which we encounter as we travel over the surface of our globe, we are able to trace the



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existence of other varieties even more remarkable. The geologist has been able to turn back a few leaves of the earth's past history, and though the pages have been defaced and mutilated by Time's unsparing hand, he is yet able to read in them of many strange vicissitudes to which the continents and oceans of our globe have been exposed. But, far back as he can trace the earth's history, and already he counts her age by millions of years,\* he finds no evidence of an epoch when life was absent from her surface. Nay, if he reads aright the mysterious lesson which the blurred letters teach him, he is led to believe that, at the most distant epoch to which his researches have extended, there was the same wonderful variety in the forms of life as at the present day. He can, indeed, find the scattered remains of only a few of those old-world creatures; but he recognises, in those which have been preserved, the clearest evidence that thousands of others must have existed around them. He knows, that of a million creatures now existing, scarcely one will leave to future ages any record of its existence;

\* The results of the recent deep-sea dredging expeditions, though they have an obvious bearing on the question of the relative ages of the various strata of our earth, do not appreciably affect our estimate of the range of time during which this world has been the abode of living creatures. We can no longer assume that adjacent rocks which differ in character are necessarily different in age: but we have enough evidence from superimposed strata, to prove the enormous antiquity of the earlier formations. The researches of Dr. Carpenter and his fellow-workers have a most important bearing, however, on the subject of the present chapter, and supply a more forceful analogy, perhaps, than any dwelt on in the text, in favour of the view that, under the widest varieties of condition, Nature may be most prodigal of life.

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he sees whole races vanishing from the earth, leaving no trace behind them ; and he is thus able to form an estimate of the enormous extent by which the creatures and races of which he can learn *nothing* must have outnumbered those whose scattered remains attest their former existence upon the earth.

Here, then, we have analogies which there is no mistaking. We see, that not only is Nature careful to fill all available space with living forms, but that no time over which our researches extend has found her less prodigal of life. We see that, within very wide limits, she has a singular power of adapting living creatures to the circumstances which surround them. Nor is this lesson affected—like the general lesson drawn from the mere fact of the earth's being inhabited—by anything we can learn from the aspect of our satellite. For the arguments against the presence of living creatures on the moon are founded on the evidence we have that the physical habitudes of that orb are outside the limits—wide as they seem to be—within which Nature can effect the adaptation we have spoken of.

In fact, if we consider rightly, the argument which has been drawn from the moon's presumed unfitness to be the abode of living creatures, is so founded on terrestrial analogies as to leave the contrary argument unaffected. We have to assume that the argument drawn from the analogy of the earth is forceful before we can form any opinion at all respecting the moon's habitability. And in any case, no argument can be