LIFE ON OTHER WORLDS.

The recent utterances of the venerable Dr. A. R. Wallace, fellow-discoverer with Darwin of the origin of species, tending to show that our earth is the only body in the known creation suited for life such as we find it here upon the globe, has awakened a wide interest among progressive scientists. It is recognized by all who keep up with the thought of the age that evolutionists are not so sweeping in their claims now as they were a quarter of a century ago, when the Darwinian theory was new.

Dr. Wallace is now a very old man, and like Lord Kelvin, he seems to find a Providential design in the arrangement of the material universe. It is perhaps true that the very greatest and best-balanced minds of all ages have inclined to such beliefs, and yet in recent years the progress of applied science has been so sweeping and her voice so omnipotent that many persons have shared Tyndall's views of testing the efficacy of progress by experiment. The difficulty is that such tests could never be carried out satisfactorily.

Now, when Dr. Wallace asserts that our earth is the sole abode of life in the universe, a renewed interest springs up among scientists. One school claims that he is old and in his dotage; the other, that he has become wise in his old age.

Astronomers can see with a great modern telescope at least 100,000,000 stars in the entire universe. The question arises, "How many other bodies like our earth exist in space?" Prof. T. J. J. See, of the United States navy, claims that the study of the double stars rather supports Dr. Wallace's contention. In 1896, Dr. See published a work on the orbits of all the double stars which could be determined at that time, and he found the double stars so different from the solar system that he says no other system like that to which the earth belongs is known to exist in the heavens. The double stars revolve in orbits of high eccentricity, and the two members of a system are usually equal or comparable in mass; while our planets move in very circular orbits, and have masses which are infinitely small compared to that of the sun, about which they revolve. The result is that our planetary system affords equable conditions of heat and light, such as organic life requires, while the system of the double stars would furnish such great changes of light and heat that life could not survive on a planet attached to a member of a double, such as Sirius or Procyon.

The sun has a mass 746 times greater than all the planets combined, and this makes him an autocrat over the planets, whose motions he dominates absolutely. The double stars are in reality systems of double suns, and mathematicians claim that a planet could not move safely and quietly in such a system—that it would sooner or later come into collision with one of the stars, or be driven from the system never to return, in either case destroying the chances of organic life. The number of dark bodies in the heavens is immense, and, of course, it is possible that some of these may afford conditions suitable for organic life; but up to this time, astronomers are unable to point to a single body of this kind outside of our solar system. This in a measure supports the contention of Dr. Wallace.

Speaking of dark planets attending the stars, Dr. See writes in a recent publication as follows: "If such inconsiderable companions as our sun possesses attend the fixed stars, they would neither be visible nor could they be discovered by any perturbations which they might produce. It is, therefore, impossible to determine whether the stellar system includes such bodies as the planets, and we are thus unaware of the existence of any other system like our own. On the other hand, the heavens present to our consideration an infinite number of double systems, each of which is divided into comparable masses. These double systems stand in direct contrast to the planetary system, where the central body has 746 times the mass of all the other bodies combined.

In binary stars, the mass distribution is essentially double, while in the solar system it is essentially single; whether observation will ever disclose any other system of such complexity, regularity, and harmony as our own is an interesting question for the future of astronomy.

It thus appears that so far as telescopic research has yet extended, we know of no other world suited for life outside the solar system. For some reason, our system appears to be absolutely unique in the known creation; but of course astronomers are too conserva-

tive to say that no other like it will ever be discovered.

But they seem to think that our earth is very much the best abode for life ever discovered by astronomers. Mars is the only other heavenly body yet known, with conditions approximately adapted to the maintenance of life such as we know it upon the earth; and it is probable that if a strong, healthy man could be suddenly transported to our sister planet, he would be able to breathe and live there for a time. It has a rare atmosphere, water, snow, and ice, day and night, and seasons very much like those upon the earth. But, of course, it is not possible to say that man could flourish on a planet like Mars any more than he can flourish on the tops of the highest peaks of the Andes or Himalayas.