

call "living", may have evolved in Nature's laboratory from what we call "not-living," and adds that "this is the trend to which evolutionist thinking certainly attracts us." He is not prepared to say that abiogenesis may not have occurred in the past, or may not occur in the future, and adds that the dictum *omne vivum e. vivo* is a statement of empirical fact, and not a dogmatic closing of the question. M. Kuckuck, in 1907, in an essay on experimental biogenesis—I quote from Prof. Thomson's Bible of Nature—points out that "if we add barium chloride, or a salt of radium, or a salt of nuclein to a gelatin-peptone, glycerine sea-water mixture, we may get little corpuscles which feed, grow, segment, move, and in fact do most things except live" and Prof. Thomson adds that such experiments may help us to get on the track of Nature's synthesis.

I will mention but one more authority on this great question of the "origin of life"—namely, Prof. Lloyd Morgan. He says—and again I quote from The Bible of Nature, "that those who would single out from among the multitudinous differentiations of an evolving universe the genesis of protoplasm for a special intervention, would seem to do little honour to the divinity they profess to serve." In a recent lecture delivered here, he spoke of evolution as "mind using matter," and suggested one single driving power behind the whole universe.

The attempts to produce living organisms by artificial means, and so to prove the theory of spontaneous generation, have certainly failed; and it hardly seems likely that further attempts in this di-

rection will succeed; though in the light of the modern achievements of science we must be prepared for anything that the future may have in store. But though artificial generation must for the present be dismissed, the general weight of opinion among the scientists I have quoted, is certainly in the direction of life at some period in the earth's history, been generated in the great laboratory of Nature, and that it appeared without any special intervention, or interference with natural forces, and without the conveyance hither, by meteorites or otherwise, of the seeds of life from elsewhere. Assuming then that this is so, and that life did begin, it seems very difficult to believe that, at some particular moment in the past, life appeared, never to appear again; and that all living organisms, animal and vegetable, are descended from that once-started life. It is more reasonable to suppose, as indeed some of the authorities I have quoted seem not unwilling to allow, that the operations of nature have continued, and are still continuing, their life-producing work.

Let us now consider what state the earth was in, and what was the condition of nature's laboratory in these very early days when the spirit was first moving upon the face of the deep, and life first began.

The earth then at first was sterile, as we understand life, for it had been born of the sun in great heat.

As the ages passed its day became longer from the sometime day of only four hours, of which Sir Robert Ball speaks, and it gradually cooled. The watery va-