

As the stars are being formed, the particles coming together clash, and their arrested motion is transformed into light and heat. The earth we live on, a small satellite of the sun, has lost by radiation much of the heat thus originally caused by its concentration. As it cooled, its constituents took on forms which did not exist at its pristine temperature, such as rock, which we call solid, water, which we call fluid, and there were gases left which we call air. Life, then, as now, the result of a chemical process, took different shapes, crystalline or mineral, vegetable and animal, gradually changing as the surface heat diminished and as their environment required. The slow creation ultimately reached man. While there may be other forms of humanity hereafter evolved, it seems that the cooling of the world is not favourable to rapid change, and the "progress of the race" may be an illusory term. We have not formed any estimate of the age of the sun or the planets. It has been calculated that some fifty million years have elapsed since the earth's surface became solid, but most geologists and students of nature multiply that period by ten.

The sun, and doubtless the other stars, rotate, as do the planets, some of which have near them smaller planets or moons, also rotating, which circle around them according to the laws of gravity, as they themselves do around the sun, whose heat, still being radiated, is the main-spring of all the life-movements on their surfaces. The forms of the stellar systems are numerous and, to our understanding, complicated, stars of both equal and unequal sizes and light-giving powers whirling about each other in periods varying from a few days to hundreds of years.

Thus the views of mankind as to the formation of the universe have themselves been subject to evolution.

The tenets of many religious beliefs, among them Christianity and Mahommedanism, are dualist, but science is monist; it convinces one of a single Great First cause, one law pervading all space and all time, matter being indestructible though mutable, the law of its existence and of its change enduring from everlasting to everlasting — and this we hold, whatever be the nature of matter.¹ Science hesitates when the question of soul or spirit is approached. "We cannot give ourselves souls without giving them to our dogs, perhaps to plants. It is still clearer that a belief in posthumous existence naturally implies 'a belief in pre-existence,'" writes Sir Leslie Stephen,² and "why,"

¹ Radio-activity, the great discovery of Becquerel, is possibly only the effect of the decay of atoms. Of the construction of atoms from the universal and fundamental diffused material we are still profoundly ignorant.

² An agnostic's apology.