CHAPTER 2.

NATURE'S LAWS.

So much for Nature, red in tooth and claw, as it is said to be. What about the world of logic, of the beauty of music, of the refinement of language, of the possibility of mutual trust between humans, and animals to a lesser extent. What are we to make of the world of instinct, which animals possess supremely, and which humans have largely lost? What are we to make of the opinion of Major Jim Corbett about tigers, whose habits he knew intimately, having shot many man-eaters of incredible cunning. Having described how at the age of 10 years, he inadvertently disturbed a full grown male tiger asleep in a bush, and how the tiger got up, gave the little boy a withering look, and then sauntered somewhat contemptuously away, he expresses his lifelong opinion that the male tiger is a great-hearted gentleman! What are we to make of the entire spiritual world, in the broadest sense of that expression? My opinion is that this world too was created at the beginning, when space, time, and matter were all created too.

There is much debate between amateur philosophers as to whether mathematics is invented, discovered, or created by mathematicians. Is the equation 2 + 2 = 4 an eternal truth, or is it a convenient definition, first thought of by the chap who invented Arabic numerals? That is a question I do not feel competent to answer with any confidence. I prefer to say that I believe that in eternity, the equation has no meaning, and that the possibility of the equation was created at the beginning, along with everything else; although for some considerable time there was nobody who wanted to think of or use the equation.

But is God the great mathematician, when so many of the Laws of Nature seem to have simple mathematical proportions? The prime example is Newton's inverse square law as regards the gravitational forces, that appear to account for the movement of bodies, both large and small. The gravitational force between the earth and an apple appears to account for the way the apple falls off the tree.

The same analysis was applied to mechanics, and even to the theory of heat. It only proved inadequate when dealing with electro-magnetism, and radiation. But Newton never said he believed such a force existed; he was too great a thinker to assume that his equations had plumbed the reality of what he had studied. Ever since his day the bogey of a mechanistic determinism has raised its head in science, particularly nowadays among biologists; but the only thing that demonstrates is that modern scientists are nothing like as profound thinkers as Newton was. Atomic physicists are at last discovering this. When you find that little electrons or even smaller protons sometimes show the properties of particles, and sometimes show the properties of waves, you are left wondering what the real "thing" is like, assuming that these are "things"? And my best answer is that their reality is a mystery, which in all probability will never be solved. It is only sensible to try to describe how they behave.

Sir Arthur Eddington at the beginning of his book, The Nature of the Physical World, describes two tables on which he is writing; a solid wooden table with legs, mortise joints and a flat top, and the atomic table of the same shape, but which is largely space. He concludes that the atomic table is the real one. He was as wrong as anyone could be; the wooden table is the real one, the atomic table is an abstraction, and abstractions always leave out of account some features of experience, so as to try to make sense of the remaining features that one is trying desperately to understand. Abstractions all have a measure of falsehood built into them, however useful they are in practice. Probably it would be best to say that the real table was the bundle of sense perceptions in my mind, which my experience told me meant there was a wooden table just in front of me on which I could safely write. This is what Max Plank urges in his little book, The Universe in the Light of Modern Physics. And maybe Professor Eddington would say this was what he was doing too. But his atomic table is still a good deal more abstract than mine.

And actually an atomic table is not largely space. Salt and sugar both have cubic crystals. And in crystallography one finds that the ions that make up these crystals are not only arranged in a cubic lattice, but also that although very slightly elastic they are virtually impenetrable. They do not behave at all like the empty spaces that Eddington dreamed about. It all depends on how you look at things. Long ago people thought of mountains as horrid places filled with hob-goblins and dragons; then in about 1540, Conrad Gesner climbed a mountain just for the fun of it, and was so charmed he told a friend he intended to climb a few mountains every year from then on. It depends how you look at things!

The mistake that Professor Eddington made was to think that the world, with which he had become familiar, was the real world; in other words was the uncreated world, in other words he equated his atomic particles with God, who alone is uncreated. His was an idolatry similar to the worship of wooden and stone idols by the Canaanites of old, or of the Israelites and the golden calf. He would not have acknowledged this; he was a professing Quaker; but that is what he was doing, whether he knew it or not. Atoms and molecules only exist in the world of space, time and matter; and one day that world will come to an end. The significant end may well be the Day of Judgement; but the physical end is likely to be when all matter has been changed to radiation, and entropy has increased so much that no radiation is of use any more. It will be a waste-land, ripe for extinction.

There is no insight into eternity, if it exists outside space and time, and can be none, unless you are an immortal person, and live an immortal life at least in a poetic sense. Atoms, molecules, the so-called Laws of Science (which describe in fact the way things work), the laws of logic, the beauty of musical harmony, and all the rest of the spiritual world, only came into existence when space, time and matter were created; and it is meaningless to ask what existed before. Just as it is meaningless to ask if your plan of battle is blue or green?