READING 3

The Relation Between Things

4. The Earth

> On a certain morning I went out to walk. The fields were green, the birds sang, the dew glistened, the smoke was rising, here and there a man appeared, a light of transfiguration lay on all things. It was only a little bit of earth; it was only one moment of her existence; and yet as my look embraced her more and more it seemed to me not only so beautiful an idea, but so true and clear a fact, that she is an angel, an angel – carrying me along with her into heaven...
>
> (Fechner, quoted by William James in *A Pluralistic Universe*.)

1. To understand the Earth, one must understand her time. Suppose the Earth's 'breath' is the period of her orbit, i.e. a year, then this will be a 'moment of her existence' – a moment for the Earth will be a year. And in the order of things her time will be proportionate. An hour in her life will be about 1,200 years; and a day and a night will be of the order of 30,000 years. Perhaps the 'Great Year' of 25,800 years is her day and night – the period of equinoctial precession, in which the fixed stars change their places, moving through the twelve signs of the Zodiac. Or perhaps it is the rather longer period of the ice ages – the period in which Nature lives and dies. It is a period of about this length, during which the Sun's vital influence ebbs and flows, quickening organic life like a great breath.

2. So the Earth's breath is a year, and in this period living creatures and plants are quickened, live and die; but the period in which the whole of Nature is quickened – the period of the ice ages – is a day and a night for the Earth, and it is connected with her 'digestive cycle' – with the storing of physical energy within her. For the living and dying of Nature provides 'food' for the Earth, in the form of mineral deposits and other substances, some of which are stored and some of which are used to provide energy of various kinds. The Earth actually eats organic life, just as we eat cells.

3. And then the Earth's lifetime will be proportionate, too. It should be of the order of 30,000 'days and nights' – which means for the Earth about 30,000 ice ages, or some 900 to 1,000 million years. How do we know if this is right? We said that the lifetime of everything in the Universe is proportionate to its size – how does this work out for the Earth?

4. Roughly speaking, the Earth's diameter is 13,000,000 metres. Her size is therefore 13,000,000 times larger than the size of a man; suppose we say that man lives for 80 years, then it would be reasonable to expect the Earth to live for 13,000,000 times 80 years. This would be just over 1,000 million years, which is the figure we arrived at before.

5. So the Earth's breath, her digestive cycle and her lifetime are in the same proportion to her size as our breath, our digestive cycle and our lifetime are to our size. It follows that the movements connected with these processes are the same for the Earth as they are for us – they have the same speed. The movements connected with breathing, for instance – the movement of Spring across the face of the Earth, as it passes northwards like a great wind, bringing the green leaves and the new shoots – this movement has just about the same speed as the movement of the air we breathe, as it passes over our lungs and is carried in the form of vital energy through the arteries. The actual speed of movement is the same.

6. And then there are the movements associated with the Earth's digestive processes – slow movements of the same order as that of the blood in our veins – movements which continue for many thousands of years; perhaps the seepage of moisture in the Earth's crust, or the gradual falling of organic matter onto the ocean beds, or the movement of glaciers – it is not so easy to follow these. Even more difficult is it to know how the Earth grows. We know that the speed of her growth will be of the same order as ours, and yet it may well continue for millions of years. Even in a thousand years her diameter would only increase by forty or fifty feet, so no wonder we have not heard about it!

7. The movements connected with the Earth's psychic life – with her nerve impulses and impressions, her thoughts and her dreams – will be of a very different order. A typical nerve impulse in man lasts for 1/100th of a second or less. For the Earth this would be a period of about twenty-four hours. A thought or an idea might last for several years; but the velocity of these processes would be the same – they would move with the same speed as they do in us, a speed approaching that of sound waves. What could the Earth's thoughts be like? Are they made of the same stuff as ours? Are they perhaps *our* thoughts – the sum of all man's thoughts, put together into some great whole? And is her nervous and psychic energy stored in the nervous system, the minds of all her living creatures?

> Fechner (says Prof. William James) likens our individual persons on the earth unto so many sense-organs of the earth-soul. We add to its perceptive life... It absorbs our perceptions into its larger sphere of knowledge, and combines them with the other data there.

8. The idea that the Earth might be directly aware of impressions which we only know of indirectly is also expressed by James:

> ... the only objects external to her (the earth) are the other stars. To these her whole mass reacts by most exquisite alterations in its total gait, and by still more exquisite vibratory responses in its substance. Her ocean reflects the lights of heaven as on a mighty mirror, her atmosphere refracts them like a monstrous lens, the clouds and snow-fields combine them into white, the woods and flowers disperse them into colours. Polarisation, interference, absorption, awaken sensibilities in matter of which our senses are too coarse to take any note.

9. Impressions of this kind would certainly be different from our ordinary impressions. But we know that the quality of impressions can vary; and we know that the measure of their quality is connected with their speed. Impressions of this order would be nearer the level of creative energy, which in the case of the Earth would be associated with molecules and atoms, and would have a velocity approaching the speed of light.

10. But when we try to visualise the Earth we usually forget, or fail to understand, how different her viewpoint is from ours. Her own rotation would hardly perhaps be known to her – remembering that her present moment, her breath, her orbit round the Sun, is about a year of man's time, then the frequency of her rotation – 365 per year – would appear to her like a frequency of a hundred or more rotations per second would appear to us, and her orbit around the Sun would seem to take place every two or three seconds. Probably the Sun appears to her as a halo, which

encircles her with its radiance, not as a separately moving body at all. So we know very little about the true nature of the Earth. The Earth as a planet – what in fact *are* the planets? What are they for, and what relation has the Earth to the other planets and to the Sun?

11. To understand the planets we have to realise that there are not only the nine planets of the solar system. There are planets everywhere, just as there are electrons everywhere. The ones we know about are held within the Sun's influence at this particular moment; in another moment things will change. Other planets may come within the Sun's influence, these planets will change their positions, and so on. It only seems otherwise because of time. Just as there is a typical period in which the electron remains in its place within the atom, in the same way a typical planet may be expected to remain for a certain time. In the case of the electron the period is a hundred millionth of a second; in the case of a planet the period is of the order of 70,000 million years. No wonder we know so little about it! Yet for the world of stars – the world outside our solar system – this period would only be a moment; and on the time scale of the whole Universe it would once again be like no more than a hundred millionth of a second is for us, for a planet stands in the same relation to the whole Universe as an electron stands to us.

12. So the meaning of the planets will be different for each entity in the cosmic scale. To the nearest entity – the Sun, or the solar system to which they belong – they will be associated with physical energy, with 'food'. The Sun 'eats' planets, or planetary matter, just as we eat cells. It is difficult to understand this, because the time scale is so enormous – over vast aeons of time the Sun must absorb planets. i.e. matter consisting of planets, in much the same way as a cell absorbs molecular substances. And then to the next entity – the stars within a galaxy – planets will be associated with vital energy. This means that star clusters and clouds of stars in the Milky Way actually 'breathe' planets, i.e. the matter of which they are composed is quickened by the action of planets. In the same way, perhaps, molecular matter is 'quickened' by the action of electrons.

13. For the galaxy as a whole, for spiral nebulae and other galaxies than ours, a planet is very small indeed. It is no larger than an atom; and is probably associated with the same order of energy – with the energy that Nature uses when she dreams and imagines, the energy that forms the basis of our own psychology. And beyond the galaxies, what is there? Only, as far as we know, the whole Universe. What is a planet to the Universe? A planet, seen from this viewpoint, will be no larger than an electron; and it will appear to move with the same velocity, the velocity of light. It will be connected with creative energy; in fact, planets in some way we cannot understand are connected with the creation of worlds.

14. Our picture of the Earth is very simple. The further out we move into the world of stars, the smaller she becomes. And at the same time her purpose changes, for as we move outwards her lifetime alters its meaning, becoming associated with higher and higher levels of energy, as its frequency in the cosmic scale increases. And as the level of energy changes, we find that the velocity of movement also increases, reaching its maximum at the extreme limits of the Universe, with the velocity of light. To us on the Earth, this increasing velocity of movement appears to belong to the stars and galaxies; to the stars and galaxies – who knows, perhaps the converse is true.

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