James Lovelock on **Environmental Ethics**

1. **Who** is James Lovelock and what are his key ideas on environmental ethics?

James Lovelock (b. 1919) is a British scientist and member of the environmental movement. He has enjoyed an incredibly varied career, working for institutions including the National Aeronautics and Space Administration (NASA) and Shell. He is most famous for developing the Gaia hypothesis, which he introduced and explained in his book of the same name, Gaia: A New Look at Life on Earth (published in 1979). Although it was ridiculed by some scientists at the time, it has since become a fundamental assumption of ecology science. Three of the key ideas that James Lovelock introduced in Gaia are outlined below. He used them to support his view that human beings should be cautious and discerning when damaging or destroying the environment, because it could have significant consequences for the survival of human beings and other living things.

Earth's atmosphere and biosphere comprise a single interconnected organism (Gaia): Earth's atmosphere and biosphere (i.e. living things), as well as oceans and soils, form a single super organism: Gaia. Living things expel a reactive mixture of gas molecules into the atmosphere, which make Earth's atmosphere more volatile than those of other planets (e.g. Mars, and Venus).

Gaia is cybernetic and regulates Earth's conditions to keep it inhabitable: Gaia appears to regulate the relatively volatile mixture of molecules in the atmosphere, oceans, and soils. Using various mechanisms (e.g. maintaining a narrow temperature range, and maintaining a neutral pH), Gaia appears to keep Earth inhabitable for living things.

Gaia is vulnerable and Earth could become uninhabitable if it is damaged: it may be possible to change, damage or destroy Gaia's cybernetic system. If human beings manage to do this, then Gaia may be unable to maintain a narrow temperature range or neutral pH. Consequently, Earth (or parts of it) may become uninhabitable for human beings and other living things.

2. **How** do James Lovelock's key ideas on environmental ethics work?

James Lovelock

James Lovelock's key ideas support his view that human beings should be cautious and discerning when damaging or destroying the environment, because it could have significant consequences for the survival of human beings and other living things. Taken together his ideas form a tentative ethical argument that supports the following conclusion: Gaia maintains the existence of all living things on Earth, and human beings should not disrupt this process through thoughtlessness.

Earth's atmosphere and biosphere comprise a single interconnected organism (Gaia): this key idea is the Gaia hypothesis. James Lovelock argues that the unlikely molecular mixture of the atmosphere (and the oceans and soils) suggests it is an extension of the biosphere (i.e. living things). The atmospheres of lifeless planets (e.g. Mars, and Venus) are inert; however, the atmosphere of Earth is volatile. This volatility is only possible because living things expel a reactive mixture of gas molecules into the atmosphere, where they are then reused by other organisms. Earth's surface operates like a single super organism (named Gaia).

Gaia is cybernetic and regulates Earth's conditions to keep it inhabitable: this key idea is an argument in itself. James Lovelock claims that despite the molecular volatility of the atmosphere and oceans, Earth is regulated by Gaia to keep it inhabitable. For instance, there is enough oxygen in the atmosphere to support aerobic organisms (21 percent), but not so much that Earth's rainforests spontaneously combust and burn uncontrollably (anything above 25 percent). Likewise, Earth has maintained a constant temperature over billions of years despite considerable variation in solar output. James Lovelock compares Gaia to a thermostatic oven: a cybernetic (i.e. self-regulating) system that operates by maintaining a desired state of temperature. However, unlike a thermostatic oven, Gaia maintains desired states of pH, ocean salinity, and countless other molecular mixtures. Ultimately, Gaia's cybernetic systems ensure that a diverse range of living organisms can survive on Earth's surface.

Gaia is vulnerable and Earth could become uninhabitable if it is damaged: this key idea is also an argument in itself, and is where James Lovelock tentatively introduces his ethical agenda. Ultimately, his agenda is tentatively introduced because he generally attempts to stick to the science; however, his understanding of Earth makes him concerned about human activities that harm the environment, so he does provide some loose guidance on how human beings should behave. In brief, James Lovelock argues that human activity could change, damage or destroy Gaia's cybernetic systems, especially if important ecosystems like rainforests and continental shelves (i.e. shallow seas) are affected. Consequently, he concludes that human beings should act cautiously and discerningly when damaging or destroying the environment, because it could make Earth uninhabitable for human beings and other living things.

3. **Why** are James Lovelock's key ideas on environmental ethics important?

James Lovelock's key ideas are important for several reasons, and three of the most significant are outlined below. In brief, they are responsibility-conferring, revelatory, and revolutionary. They have changed the way that scientists and ordinary citizens understand the relationship between human beings and the environment.

Gaia: a Roman sculpture of Tellus (Gaia in Greek) flanked by the spirits of air and sea.

They confer human beings with responsibility for Gaia: James Lovelock's ideas significantly strengthened the environmental movement, by demonstrating that human beings have a big impact on the natural world and conferring them with responsibility for it.

They reveal previously unknown truths about the way the world works: James Lovelock suggests that the Gaia hypothesis was intuitively understood by citizens of the Greek and Roman empires, who worked closely with the natural world, but it was rejected by the scientific community of the 1970s because it did not conform to preexisting models. As such, James Lovelock's key ideas reveal truths about Earth that were previously unknown to science.

They revolutionised ecology by dismissing previous theories about the environment: James Lovelock's key ideas are important because they were revolutionary. Prior to the publication of Gaia, scientists assumed that human beings had a negligible impact on the composition of the atmosphere. James Lovelock demonstrated that the opposite was true, which radically changed most of the assumptions that underpin ecology.

George Thinks

James Lovelock is a fascinating character, because he marches to the beat of his own drum. He's an independent scientist, which means that he's not attached to any academic institution (e.g. a university); instead he has enjoyed a career working on varied scientific problems from cryonics (i.e. storing frozen human corpses for future resuscitation) to the detection of life on Mars. It appears that he has always followed his own nose, which led him to develop the Gaia hypothesis despite resistance and ridicule from much of the scientific community at the time.

Notwithstanding this, it seems to me that James Lovelock is not entirely sure how human beings should act in response to the Gaia hypothesis. When Gaia was published in 1979, he seemed to advocate caution and discernment when damaging or destroying the environment. But in recent years, he has suggested that environmental disaster is inevitable, so human being should behave as they wish. Although James Lovelock thinks technological solutions are possible, he believes the near future is bleak (and this may influence his advice).

Acknowledgements: George Teaches Limited would like to thank the following for permission to use their photographs: Bruno Comby/Association of Environmentalists For Nuclear Energy; Tetraktys/Wikimedia Commons; and KeyFame/Shutterstock.