

Hedgehog

Then I saw a new heaven and a new earth, for the first heaven and the first earth had passed away, and the sea was no more.

Revelation 21:1

Prologue

The deep ocean is the womb of life and the source of riches.

The ocean is the largest solar energy collector on Earth. Not only does water cover more than 70 percent of our planet's surface, it can also absorb large amounts of heat without a large increase in temperature. This tremendous ability to store and release heat over long periods of time gives the ocean a central role in stabilizing Earth's climate system. This stability had been challenged since man had first discovered how to create fire.

If all organic material and water is removed from a sample of human blood plasma, leaving only the mineral salts, the remaining material will be found to be closely similar to the salts produced by the evaporation of sea water.

One cubic kilometre of seawater contains approximately six kilograms of gold. The average human body contains 0.2mg of gold.

During the Second World War the Germans found that the effort and cost of extracting gold from seawater vastly outweighed the value and worth of the gold unless the project could be completely automated. They did not possess the technology and besides they had discovered easier methods.

Chapter One – The Sea Crunchers

It was the greatest engineering project ever undertaken by humankind and it was the largest crowd-funded project in history. The money enabled the conception and creation of a series of aquatic bio-ingesters, mobile sub marine factories, that would autonomously roam the oceans seeking out and 'eating' the waste of the seas.

Inspired by a pump-priming donation from the Amazon Corporation, the funds initially raised were equivalent to one million Yuan for every man, woman and child on the planet. It had taken the fledgling company Cosmic Twinkle ten years to raise the capital that would fund a totally new technology.

The capital raised had been triggered by the extinction of the Blue Whales. Almost a century of plastic waste dumped into the oceans had eventually killed off an entire species, suffocating their digestive systems.

Cosmic Twinkle had been co-founded by environmental physicist, the long dead Nobel Prize winning eco-activist, Professor Greta Thunberg and Professor Cheng Wei, Founder of Beijing Xiaoju Membrane Technology Institute.

The bio-ingesters were constructed in a synthetic titanium alloy and designed to last 'forever'. They were enormous self-propelled hollow tube-like, flexible cylinders over half a kilometre long and 50 metres in diameter. These cylinders were slightly wider at one end tapering down their length. Their outer skin was covered with indentations like the suckers on an octopus's tentacles.

The inner surface consisted of similar indentations combining solid state impulse pumps acting with the water at a molecular level and providing the thrust which enabled them to move. The slow rotation of the cylinders provided directional stability and added momentum utilising the Venturi principle. They were capable of moving at almost 50 kph, almost twice the greatest burst of speed the Blue Whales had been capable of. It was also this turning motion that distributed the waste on the inner surface where it was digested by the sub-molecular ultra-violet light produced by *Oceanicus*.

Energy expenditure involves heat generation. Because the bio-ingesters used more heat than they produced, their efforts over the first few hundred years resulted in slowing the increasing temperature of the seas and over time temperatures had begun to stabilise. Eventually, the seas had started to cool again.

Designed to operate at all ocean depths the machines were capable of moving along the sea bed crunching any toxic debris they could find. When their energy levels triggered their float responses they would rise to the surface and recharge in warmer water and sunlight.

The brains of these massive machines were bionic neural networks, advanced artificial intelligence able to plan and execute. They had initially been programmed with ocean topography geo-positioning but this proved unnecessary as they evolved their own systems of hunting down ocean waste. Able to communicate with each other across the vast expanses of ocean much as the whales had done, it allowed these great beasts to congregate and graze in pods where food supplies were plentiful.

A by-product of the digested plastic acted as an acid neutraliser when excreted into the oceans. The decline of coral reefs was initially slowed down and eventually arrested. Then, the long progress of regeneration began.

These great machines were the 'Sea Crunchers'

Chapter Two – *Armillaria Ostoyae*

Building had begun.

It was paid for by the unimaginably limitless funds of the Cosmic Twinkle Corporation. It would eventually result in dozens of Sea Crunchers deployed across the world's oceans.

The first Sea Crunchers, known as Tintins in memory of Greta Tintin Thunberg and a joke she once made saying they'd "look like great big tins!" They were trialled in the Great Lakes of North America where they proved their capacity for consuming waste and regenerating eco systems.

The bio-ingesters combined two sources of power.

The first was old technology along the lines of air and ground source heating contained in the heat absorbent skin covering the entire outer and inner surface. The bio-ingesters absorbed more heat than they generated and were capable of responding to warmth from both sea and sun and converting it to electrical energy. It powered the motor functions and allowed the bio-ingesters to operate and travel autonomously providing the means to 'crunch' and 'digest' what they found.

The second source of power and the primary digester was provided by the symbiotic relationship between the synthetic titanium and a mushroom. Somewhere off the coast of Xin Difang in the Greater Chinese Republic, formerly known as Oregon, Tintin was introduced to *Armillaria Ostoyae* and what had initially been an electrolytic digestive process became so much more powerful. Inside the tapering tube the metallic sponge-like latticework provided the perfect environment for *Armillaria*.

Armillaria, known as the Honey Fungus was possibly the largest living entity on earth. A genetically modified variation of this called *Armillaria Ostoyae Oceanicus*, a sponge-like organism that generated deep and near ultraviolet light was grown on the inside surfaces providing the digestive system. *Oceanicus* loved plastic.

Oceanicus and the bio-ingesters worked well together. Not only did they absorb energy but they also created it. The energy resulting from these digestive processes provided the power to move them and operate the bionic computers that were their brains.

Chapter Three - Hedgehog

The surface of the sea began to shimmer and move smoothly like water just coming to the boil. Moments later, the grey cylinder broke the surface. It was

old and its guest *Oceanicus* was hungry. Though the Sea Cruncher was capable of solo operation, plastics were almost non-existent and heat from sun was its main source of energy now that the cold seas provided little warmth. The energy they provided in the past was now barely enough to power the Sea Cruncher.

At more than a kilometre long this Sea Cruncher was massive. It was the largest to have surfaced in the Barents Sea to seek warmth in the waning sunlight. Inside its front opening, what looked like a portion of its own tail had been nestling and now moved slowly out and floated independently alongside. It was short and stubby with a pinkish golden sheen. Where the Sea Cruncher had infundibula over its surface, this smaller one had long, narrow, tapering protrusions. A scientific study of these protrusions would have shown that they were formed of a synthetic alloy of keratin, carbon and gold.

This smaller castaway moved off propelling itself in the same way as its parent by drawing in water at one end and expelling it from the other. It had one particular advantage. By moving its spines like the legs of a centipede it was able to pull itself out of the water.

Hedgehog moved over the shingle and crawled out of the water on to dry land. It was hungry, capable of eating anything. Anything, that is, as long as it contained elements of sodium, potassium, calcium, magnesium, iodine, chlorine, and other trace minerals found in human blood.

Epilogue

Hedgehog moved quickly in the thin air. It rolled sideways exposing all its spines in turn, as if taking enjoyment from warming them in the pale orange midday sun. It shivered and some of the spines were shaken loose, falling like pine cones they too rolled across the ground and then, they began to wriggle.

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