Wonderfully Made

EVOLUTION OR CREATION?

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CHAPTER 1

THE SCHOOLBOY SCIENTIST

The minutes clicked slowly by on the classroom clock. The voice of the biology teacher droned on, fading as he turned to write on the board. A butterfly clapped its peacock wings, floating over the purple foam of a drooping buddleia outside the window. The summer swallows sprayed black zig zags across the sky. It was supposed to be obvious enough, that progression from microbe to fish, from sea creature to mammal, from fern to flowering plant. Yet when he looked at the diagram of the evolutionary tree, it occurred to the youngster's enquiring mind that there were big gaps in the story. What about the microbes right at the bottom of the tree - where did they come from? He knew from cytology, the study of cells, that the tiniest microscopic unit of life, once magnified, instantly becomes a whole globe full of intricate, specialised parts. He had learnt about the cell membrane, that fabulous elastic skin through which oxygen and carbon dioxide can pass, and the mitochondrion, the cell motor releasing energy for movement and growth. He had marvelled at the incredible spiral gene code helix, so neatly coiled that 1 metre's length would fit into the tiny nucleus of the cell, yet encrypting every characteristic of an animal, from form and colour right down to the position of the brown freckles on its back. How did the microbe evolve? Chance combinations of atoms of nitrogen, hydrogen and carbon in the presence of electricity and heat? To produce such complexity? And where did the atoms come from? Even an atom is itself an ordered world of enormous power, with many component parts - mesons, protons, quarks, and electrons, spinning round in tight orbits held in place by charges so strong that, burst apart, the energy released from a few kilograms could flatten a city and destroy a million people. How did the energy become locked so neatly into the atom?

Every time he asked a question, another popped up to baffle him even more. There were enormous problems at the top end of the diagram too. If life progressed steadily from simple forms to complex ones, where are the intermediate stages now? Why cannot their remains be founa in the fossil rocks? How is it that fossil bees, preserved in resin and claimed by the scientists to be many millions of years old, are recognisable as close relatives of our honey makers today? A squid-like nautiloid dug up in the making of the Channel Tunnel was said to

have been more or less unchanged for 500 million years! Why no appreciable change over such a long period? And the butterfly, sipping the nectar of the buddleia in the sunshine, transferring the pollen unwittingly as it flitted from flower to flower - how did it cope before its proboscis tongue was long enough to reach into the deep florets? Those aerobatic swallows, due to migrate south to Africa in a few weeks' time, would find their way, even this year's brood, over thousands of miles without ever having been before. Where did the programme come from that compelled them to set off to find another land to feed? They would skim down aerial highways like satellites in orbit with a precision that would bring them back to the identical nest site next Spring; yet no human being had pre-set the computer in their brain.

Are the evolutionists right? Is there no better explanation for the mystery of life than the theory of evolution with all its flaws? Sometimes the healthy scepticism of the young confounds the wisdom of the ancients. We need to ask questions, and not take everything for granted just because the text book says so. It can take courage to challenge the status quo, especially when the alternative to evolution is an intelligent, all powerful Creator. We find the super-natural uncomfortable. The idea of a God out there who has the right to tell us what to do, is not popular today. But if we shut our minds to the possibility of a Creator God, we are missing the chance to know a Being who is not just a brilliant Designer, but a God who loves the people he has made, a God who is willing to find us a place with his only Son in a new world He promises, where paradise will go on for ever. He invites us now to prepare for his Kingdom, but leaves it to us to heed or ignore the call. He wants volunteers, not conscripts, to run his Kingdom.

To believe in a Creator takes faith, for we cannot see his face, only the things he has made. But when you get down to it, it takes just as much faith to believe in evolution. No scientist saw the beginning of human life. All the conflicting explanations for the origin of species are no more than theories, possible explanations, to be weighed against the evidence. And there are many, many areas where the claim that a Creator designed living creatures to suit their environment, is more compelling than an explanation that depends on random mutations, chance, or natural selection. In fact, the evolutionist is often driven to speak of Nature as a designer, as if nature were some intelligent being. The biology teacher refers to the excellent 'design' of the feather, or the eye, and draws comparisons with human inventions like aeroplanes and cameras. Yet if evolution is true, there was no designer. The evolutionist's sense of logic demands a designer, but the humanist streak inside him rebels at believing in a God.

There is no room for compromise between the two approaches. 'Theistic Evolution', the concept that evolution took place, but God guided it, contradicts what he has written in the Bible. It also introduces a string of inconsistencies. For example, the creation of Adam from the dust is a clear Bible doctrine, referred to repeatedly in both Testaments. Adam is not compatible with apemen. And if God was powerful enough to fill the earth with living creatures over millions of years, he could do it just as well in days, for he says many times

that time has no meaning for him. ‘A thousand years is as one day’ writes Peter the apostle. No, the choice is clear. Either the Bible is right, and God spoke, and it was done, or God is a fiction, and we are here only to live, and die for ever. We hope, in the chapters that follow, to show that there is no shame in believing in Creation. Indeed, compared with the great mass of humankind down through the ages, you would be in a clear majority if you accepted there is a supreme being in charge of the world. Only in the last century has Evolution, like some new religion, drawn people away from believing in God. You can still feel perfectly justified, like the apostle of old, in taking this simple line ‘by faith we understand that the world was created by the Word of God, so that what is seen was not made out of things which do appear’ (Hebrews 11:3). We cannot see God, we do not understand the mechanics by which he bonded together invisible energy to make visible atoms, and molecules, and men. But we can have every confidence that our faith in him will not go unrewarded.

CHAPTER 2

SALT TEARS AND COMMON SENSE

Because Evolution attempts to explain events that took place long before scientists were around to make observations, it is incapable of proof. In chemistry or physics, you can go back to the beginning and repeat an experiment to see if it gives a consistent result. The origin of life and the formation of the variety of species that fill the globe was different. It was a one off, a unique event long before our time. And so far as is known, no other planet in the vast universe has living things like ours. So Evolution can only ever be a theory, a possible explanation for the finished result. We have to decide for ourselves whether it is reasonable; whether it fits the facts.

Unfortunately, there are a number of flaws in the theory. Some of them are so damning, that if we were lawyers at a criminal trial, we would protest that the conviction of our client was unsafe. One of these difficulties we hinted at in the first chapter, and it is time to develop the point more fully. It has to do with the very long time span the evolutionist claims for the development and refining of the special features that distinguish one species from another.

It is a maxim of everyday experience that like begets like. As Jesus once said, you do not gather figs from thorns, or pick grapes from a bramble bush. All living things have only a limited scope for change from one generation to another, because the genetic code spiral replicates itself during reproduction with extraordinary precision. In fact, the biology teacher would insist the only possibility for a fundamental change to take place between one generation and another, is when the process of replication goes wrong. There has to be some form of damage, a chemical change in the sequence of codes which arises by accident, and which survives being divided and re-assembled during cell division. Only then, can a change be passed on into succeeding generations. These changes, called mutations, are random, and unpredictable. Most known mutations that have survived are harmful. In humans, the well

known ones cause unpleasant defects such as colour blindness and haemophilia (persistent bleeding). The Evolutionist, however, claims that some mutations, occasional ones here and there, are actually beneficial, and result in an animal or plant better fitted to its environment. Since the mechanism of reproduction is geared to preventing accidental errors, the scope for change in species like humans which have a long interval between generations, is extremely limited. It is for this reason that the Evolutionist needs to call up long time scales to allow time for development to take place, frequently of the order of millions of years.

Although at first glance extending the time period for development appears to make evolution more plausible, this is not always the case. In fact, for some of Nature's inventions, a long time scale would be a positive hindrance. We have chosen an example from that most remarkable of all Nature's machines, the human body. The spotlight will play in this chapter on a humble but essential device which is vital to our health and comfort, indeed essential to our survival, but where the possibility of a gradual development defies all logic, and where Creation is the only satisfactory explanation.

The human eye is a superb instrument. It has auto focus, instant adjustment of the aperture, full colour perception, and a range of sensitivity to light beyond the most expensive camera. Yet it functions continuously for 18 hours a day over more than 70 years, with only gradual deterioration in efficiency. But we will leave on one side how such a fantastic camera could come into being through nothing but natural selection. Concentrate instead on human tears.

We are unaware of our tears, most of the time. Only when we are upset and they begin to overflow, do they become a nuisance. Most of the time the salty, antiseptic secretion of the tear glands carries out its vital role of lubricating and cleaning the delicate but exposed surface of the eye, the conjunctiva, with impressive efficiency. But what happens to our tears when we are not crying? Why do they not spill over our lower lid and run down our cheeks all the time, getting in the way? The answer is that in the inner corners of the eyes are two tiny tubes, about 1 cm long, the tear canals, which drain away the surplus liquid. You can find the entrance to the lower one if you stand in a good light with a mirror, and gently pull down your lower lid. It can be seen as a small pinhole in the rim of the eye lid. The canal runs downwards through the thickness of the eyelid itself, and drains the tears into a collecting sac, which then discharges the moisture via a long channel in the bone of the skull to an exit hole on the inside of the nose. That is why the bride's mother always blows her nose at the wedding; as the tears well up in her eyes, the tear ducts bear them away into the nose. Sometimes you can taste the salt, if you sniff when you have been crying.

Now, the question is, how did these tiny tubes evolve? How would a tear canal begin? Did a depression arise on the inside of the eyelid of an early mammal; and then generations later, a tube begins to extend away from this depression? Bear in mind that such a proto-tube would serve no useful purpose, and should theoretically have been eliminated at once by natural selection. Assume that it survives, and after a few hundred thousand years has begun to meander down through the thickness of the eyelid. We now have to imagine a channel

opening up for it through the bony ridges surrounding the top of the nose. If there was no way through, the embryonic tube would reach a dead end as it struck the bone, like an oil rig drill meeting impenetrable rock. Even if there was an unused channel already there, it would be pure coincidence if the tube developed towards it. Subject purely to random mutations, it has no reason to aim downwards and inwards. In fact, we might have to postulate dozens of tiny tubes springing up in different parts of the eyelid in turn, some near the outer corner, some in the middle, until at last, after millions of years, one tube on the inner corner coincided with a channel that had independently developed in the bone, and broke through the inner lining of the nasal cavity, somehow forming a neat, unblocked exit hole. Now, at last, the tear duct would be able to serve a useful purpose. Fluid could finally flow from eyeball to nose and throat, like the water did on the day they completed the Bridgwater Canal. Through all those long millennia, early mammal would have blundered along, their vision blurred by the tears their eyes must have to keep them clean, and their cheeks permanently wet with an irritating overspill.

You see how full of holes the theory of evolution is when you apply it to a practical example. A child would immediately declare that there is only one explanation for the tear duct - an intelligent Designer, who, having perfected a remarkably sophisticated living camera with a built-in lubricating and cleansing system, saw the need for a drain, and put one in, discharging tidily into the nose.

Observe, too, that extending the time scale to increase the probability only makes things worse. Right up to the point of final breakthrough, the tear duct would serve no useful function, and the animal would still be condemned to a fuzzy view of his world. “Understand, O dullest of the people!”, wrote the Psalmist. “Fools, when will you be wise? He who plants the ear, does he not hear? He who formed the eye, does he not see?” (Psalm 94:8-9). Can we not say “Amen” to that?

CHAPTER 3

RED ALERT

Have you ever cut your finger? Of course you have. Everybody does, many times in a lifetime. Yet you have survived these accidents, or you would not be reading these notes. Have you ever considered what would have happened if your cut finger had not stopped bleeding? Inevitably, you would have died. Your blood pressure would have dropped slowly down, until your heart stopped beating. Cuts and grazes are survivable only because the body has a built-in repair system, standing by like St. John’s Ambulance at a football match, ready to cope with the emergency.

We take this remarkable mechanism for granted. We cut our finger, and unless we are unfortunate enough to be a haemophiliac, we put on a plaster and forget about it. But when you stop and ask how this body defence system came into existence in the first place, the

argument for Creation becomes overwhelming. Put the other way round, simple logic rules out Evolution as a satisfactory explanation.

Let us review, for a moment, what happens when we cut ourselves. Suppose you scratch your leg on a thorn. Quickly, you apply your handkerchief. Within a minute or two, the bright red beads of liquid have begun to dry up and turn dark. By next morning, a protective lid or crust will have covered the wound, and a week later, all that is left is a faint scar. What actually happens during those first vital minutes?

Blood is the transport system of the body. Oxygen and sugar for the muscles, hormones for growth and reproduction, waste products en route for the kidneys - truly, as the Law of Moses says, 'the life of the flesh is in the blood thereof'. The human body has around 2 litres (9 pints) of blood, pumped round under pressure by the heart like the cooling pump which sends water from the radiator to the 2 engine of a car. Because the blood is under pressure, it leaks rapidly if a hole appears in the skin, especially if the tiny tubes or capillaries are severed in quantity. When a car radiator springs a leak, the water does not stop running. After a few miles it will empty the whole tank on to the road, and the car will grind to a halt with the engine seized. But human blood is different. It automatically plugs the hole in the skin as soon as it begins to leak out, sealing the wound with a mat of tough protein fibres that bind together and form a plug.

What makes blood clot? The fibrous mat comes from a protein in the blood called fibrinogen. Normally fibrinogen is liquid, but when it is activated by the presence of another agent, thrombin, the fibrinogen forms strings, called fibrin. Thrombin itself has to be switched from an inactive form called prothombin before it can do its work. When the skin and the tiny blood vessels are torn, fragments of bone marrow cells called platelets accumulate at the damaged ends, and their presence precipitates the complicated unlocking process of converting prothombin to thrombin, and fibrinogen to fibrin, in that order.

Why do we need a multistage process to start off a blood clot? The answer is simple. If the blood was to clot accidentally inside the body, a lump of fibrin would soon get stuck in a major artery (distribution pipe), and we would die from a stroke. The multistage unlocking procedure is a vital safety device. It is just like drawing money from a cash machine at the bank. It would not do to have one simple number as the code. It would be too easy for a stranger to guess the number and walk away with £50 from your account. The machine insists that two keys are present together, both exactly correct. One is the invisible, magnetic number on your cash card, and the other your unique PIN, which you have to enter from memory before the machine will open up and pay out. So it is with blood clotting; only when prothrombin has turned to thrombin, can fibrinogen go ahead and make the clot.

Now, the point is, how could a complex mechanism like this develop. It is mind baffling to insist in the first place that a remarkable protein arose spontaneously in the blood which is capable of forming strings fast enough and strong enough to close off a hole in the skin.

Years of automobile engineering have failed to produce a reliable radiator coolant that will automatically seal a leak, without forming a sludge in other parts of the engine. To imagine a second, separate interlock mechanism also arising spontaneously in the blood, stretches imagination to the limit.

As we have seen, every human being experiences cuts and grazes. The same is true for other animals. The very first creature with a blood system would have needed the blood sealing mechanism for survival. Where are the circumstances for blood clotting to develop? If the first creature with a functioning blood system lacked fibrinogen, it would have bled to death. It would have had no descendants. There is no room for Evolution to manoeuvre. Even if we postulate that after thousands of false starts, a primitive blood sealing mechanism did arise allowing a perilous form of life to continue, how did the locking mechanism develop? There could not be a gradual elaboration of prothombin and its activator enzyme. Its effect has to be all or nothing. Either you have a locking mechanism, or you don't. There can be no halfway stage. If fibrinogen only partly turns to fibrin, you bleed to death. There would have to be a set point, one particular generation, in which fibrinogen refused to change to fibrin unless thrombin was present. It all sounds pretty unlikely.

In the end, you arrive at a position where you say to yourself - it makes more sense to believe in an intelligent Designer who, foreseeing the vulnerability of animal skin, built into the blood a sealant mechanism, and an anti-coagulant safety lock. The Bible tells us God, who loves his creation, treats life as a very precious thing. 'The life of the flesh is in the blood', God said (Leviticus 17:11). When an ox or sheep was slaughtered for food, the Law of Moses insisted the blood must first be poured out on the ground and covered with dust, in recognition of the Creator's prior claim to the life of the beast. (Deuteronomy 12:15,16).

CHAPTER 4

THE BONES OF AN ARGUMENT

The defence mechanisms of the human body are so challenging to the concept of evolution that we must spend a little more time considering the implications. We saw in the last chapter that the failsafe interlocking system that prevents blood from clotting inside the body, could not have developed gradually over many generations. It had to be there, ready to go, on Day One.

The argument is even more pressing in the case of a broken bone. It is surprising how many people break a bone. Ask an audience, and the great majority will admit to having been to hospital with a fracture at some point in their life. Broken bones are extremely painful. They are also potentially lethal. For a time, until the fracture heals, the limb is incapacitated. If an arm or leg breaks, it means 6 weeks off work.

Imagine, then, the horrific consequences if the bone did not mend. Suppose a broken leg stayed broken. You would be unlikely to survive; certainly not in the tough, competitive world of hunting and food gathering to which evolution consigns our ancestors. Unable to walk, unable to flee, you would fall prey to the first sabre toothed tiger that snarled passed by.

It is an amazing fact that a broken bone does repair itself, in around 6 weeks, and so effectively, that after a year or two only an expert could identify the position of the original break, so fine is the hairline left after the new bone has formed.

Immediately after a fracture, tiny bone-making cells called osteoblasts move into the area of the break. Taking calcium salts from the blood stream, they arrange themselves in rings or columns, and secrete hard, shells of calcium phosphate which bind the ends together. A solid lump of new bone, called a callus, swells out and tapers away on either side of the fracture, like the neck of an ostrich that has swallowed a potato. At this point, the bone cells switch off and stop multiplying. In time, as blood vessels and fibres settle down in the repair, special bone-eating cells, called osteoclasts, move in and slim down the callus until, for a straightforward fracture, the bone is back to the original shape and strength.

What an incredibly efficient system! If only a motorcar repaired itself automatically every time it was involved in an accident! Yet our skeletons mend themselves, just like that. The bone cells move in, multiply, stop multiplying, then slim down the repair, without us even thinking about it.

Now, ask yourself, how could such a system arise by Evolution? The very first vertebrate that breaks a big bone is fatally incapacitated unless the repair system is already there and working. Yet the system cannot develop without the mandatory evolutionary period of millions of years. An incomplete system is useless. If bone cells started growing randomly anywhere in the body, this would be fatal. If they happen to burrow into recent fractures, they could hardly be expected in the early days to join up the ends thoroughly enough to bear a load. Yet a wobbly mend would have no evolutionary advantage over no mend at all. The animal would be unable to move about. And even if a repair started in the right place at the right time, if it did not switch off immediately the gap was sealed, the callus would go on growing bigger and bigger until the animal died of cancer.

All told, it is simpler to believe in Creation. Simpler to assume that the Designer, having put together a framework for the body, which was light, strong, reinforced with fibres for shock resistance, and crafted from minerals readily available in the diet, foresaw that from time to time a sudden overload would cause a break, and built in an automatic repair system to prevent wholesale loss of life. Can we not echo, once again, the Psalmist, who wrote “I am fearfully and wonderfully made”? (Psalm139:14)

CHAPTER 5

THE WITNESS OF THE TREES

There is no more pleasant place in England than woodland in Spring. The fresh green fingers of new leaves, the sweet smell of blossom, the silvery orchestra of birds unleashed from the silence of winter, make us feel glad to be alive. Yet the same scene in Autumn is also full of colour and warmth - red haws, sugary blackberries, dripping bunches of gleaming elderberries on which the noisy starlings gorge - a picture of endless bounty, a last feast, before Winter shivers draughtily round the door.

Ecology, the study of living creatures in their world, is an exciting and satisfying topic to pursue. The inter-relationship between species, particularly between animals and plants, is fascinating. It also provides some thought provoking questions for the schoolroom scientist. How did the bonds between, say, birds, insects and trees, develop in the first place?

Take, for example, the hawthorn or elderberry - common British hedgerow trees or bushes. Hawthorns and elders, like all trees, have a problem. They are unable to move from place to place, yet it is important that when they reproduce, the next generation springs up in soil as far away as possible from the parent plant. How can they ensure their seeds are scattered over a wide area?

Both plants achieve this aim by entering into a contract with woodland birds. The vital seed containing the genetic package for next year is surrounded by a hard stone, then a layer of thick starchy granules, then by a bright and shiny outer skin. Each part is essential to the success of the enterprise. The bright colour makes the fruit visible to the birds. The starchy layer provides a tasty, fat-forming food supply for hungry avians with winter looming ahead. The hard stone ensures that, when gobbled down by our feathered friends, the seed within is unaffected by the digestive juices of the bird.

Now, suppose we have some Premium Bonds. Let us assume the chance of a Bond being selected by the random number generator “Ernie” is, say, one in a million, and we have three Premium Bonds. The chances of all three winning a prize at the same time are not, as you might suppose, one in one million, plus one million, plus one million. No, the mathematicians will tell you the chances are one in (one million times one million times one million) i.e. one in 1,000,000,000,000,000,000. Let’s suppose our hapless tree takes one million years to develop any one of the three characteristics we have been studying, and each survives the carving knife of natural selection, even though during development it serves no useful purpose. For all three characteristics to coincide in the same tree at the same time would take an enormous length of time. It would be longer than the history of the universe before the first starling could eat its Autumn dinner, and the first seed be scattered. How would the tree manage in the meantime, hanging on, like some penurious inventor waiting for the breakthrough that will make his fortune?

There we go again, likening a plant to an inventor. But a plant has no brains, and is the product only of inanimate forces, which have unaided produced such perfection! Or have they? Once again, is it not more reasonable to suppose that an all wise Creator, foreseeing the needs of plants for seed dispersal, and of birds for winter food, brought them together in this neat and efficient way, treating us mortals at the same time to the beauty of the Autumn woodland?

In actual fact, we have only heard half the story. We have left something out, that is even more devastating to Evolutionary theory. For efficient seed dispersal, excellent for the tree though it is, through reduced over-crowding and competition, now leaves the next generation's plants growing up far away from each other. Before they can begin to form next Autumn's seeds, pollen from the male part of a hawthorn or elderberry flower must settle in Spring on the stigma or female receptor of a second flower, for fertilisation to take place. How is the pollen to travel, perhaps miles, from tree to tree? The answer, of course, is that such trees use insects to carry the pollen, rewarding them, like the birds and the berries, with a sweet sip of sugary nectar. So our "successful inventor" tree, having perfected its seed dispel by birds, must have a completely separate Spring time system, using flowers with bright colours, sweet smells and nectar, to attract insects that will carry pollen from plant to plant. And only when both seed dispersal by birds and fertilisation by insects have been perfected at the same time, can the tree survive and prosper. Again, we multiply together the probabilities of each "event" to find the likelihood of both systems being perfected at the same time. A million, million, million times a million, million, million? The most compulsive gambler would give up against such astronomical odds. Yet the trees are there, in all their glory, and both bees and blackbirds flit happily from branch to branch, linked together in that beautiful balance we call ecology. It points like a giant finger post to the existence of a Creator God.

"For the invisible things of him", wrote Paul, "from the Creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse" (Romans 1:20).

CHAPTER 6

DESERT ISLAND SPACE CAPSULE

In the last chapter, we considered the probability argument against evolution - the incredibly small chance that two complex systems, each having three component parts, and both essential to the survival of the species, could develop independently and be ready for use at the same time in the hawthorn and elderberry tree.

This is so powerful an argument that it is worth taking another perfectly fascinating example from the world of trees to reinforce the point. This time our trees are to be found far from the English countryside. We are going to travel to the sparkling blue waters of the South Sea

Islands to observe that most useful of species, the coconut palm. There are many kinds of palm, including the date palms we see on Mediterranean holidays, but the coconut is one of the most valuable. The leaves provide shade and building materials for the islanders, and the nuts give them food, drink, oil and a tough durable fibre for matting. However, the true purpose of the nut is to propagate the next generation of coconut trees, and it is on the admirably efficient way it carries out this function we must now concentrate.

Like elders and hawthorns, palms need to spread themselves around, to avoid overcrowding and the risk of being wiped out by disease or storms. The problem is that, for the coconut, the nearest land onto which it can spread may be an island 50 or 100 miles away. How did the first coconuts manage to disperse their seeds? Unlike British trees, they could not use birds or animals as carriers, because of the distances involved. The solution was to employ a ‘space capsule’ that would float by sea, and wash up safely on a foreign shore.

The design of the coconut is incredibly ingenious. We are used to buying coconuts from the greengrocery department of the supermarket - brown, bristly spheres we take home and crack open for the white kernel inside. However, what we know as the coconut is only half the real thing. When it first thuds heavily onto the coral island sand, the coconut is much larger. In fact, our ‘coconut’ is only the stone from the middle of the fruit. Around it there was originally a dense, matted fuzz of tough bristles. Only a few tufts remain on the British coconut - the rest has been shaved off to be used in making doormats and brushes. The fibre sheath was surrounded in turn by a thick layer of oily rind with a strong outer skin, the whole assembly resembling a smooth, green, Rugby football.

Each of the component parts of the coconut is essential to the success of the propagation exercise. The outer rind, for example, and its waterproof skin, provide the buoyancy needed for the long journey across the ocean. What about the fibrous wrapping, and the wood-like spherical stone inside it? The function of these two items is to preserve the delicate seed within from destruction as the capsule approaches its destination. They resemble the heat shield that protects a true space capsule from burning up as it re-enters the earth’s atmosphere. For the traditional South Sea Island has a deadly obstacle around its fringe, the coral reef, nightmare grave of many a sturdy ship. As the nut floats in the ocean currents towards the sandy shore, it must first cross over this raised, jagged, razor-sharp outer ring on to which the rollers boom in a long frenzy of white foam. Only the most resilient shock absorbent packaging and the toughest inner case could survive such a pounding without disintegration. The bristle layer and the hard shell underneath provide just the protection required.

Once over the reef, and floated by gentler waves high up the beach to the tide line, the coconut now lies exposed to a fierce sun on a sterile sandy beach with no moisture but the salt sea. That is where the contents of the nut come into their own. The white, starchy copra and the watery milk provide the nourishment that enables the seed to sprout and put down

roots, unfurling green leaves that will soon create sugars from nothing but air and water. Those vital early weeks are fuelled by the food supply packed neatly inside the capsule.

How does the germinating seed break out of its wooden case, so tough we usually need to fetch out a hammer to break it apart? The answer is that 3 soft depressions, the ‘eyes’, are built into one end of the shell, like the knockout circles in an electrical junction box. It is through one of these weakened zones that the first green shoot emerges, and soon hydraulic pressure from the expanding roots forces the halves of the shell apart.

The germinating plant is sometimes on offer in British florists at Christmas time as an exotic but expensive house plant, displayed in a wicker basket. To the South Sea beachcomber, it is an every day thing, part of the scenery. But for anyone with eyes to see, the coconut is a remarkable invention, perfectly suited to the dangerous mission it sets out to accomplish.

It is time now to consider how such a device could evolve without outside help, tooled solely by natural selection and aeons of time. Once again, an extended time period is more an embarrassment than a help. Until the travelling capsule is complete and ready to work, the parent trees must stop on their original island. A half developed coconut would be useless. Only when it can successfully cross hundreds of sea miles and survive, would the species be able to spread and prosper. Through the whole of that time, the original population would be vulnerable to storm, disease and predators. When you add up the subsystems which need simultaneously to be in a state of readiness, the task begins to resemble the launch of an American space shuttle. It would be no use, for example, perfecting the starchy rind and the liquid for rapid germination without bringing along in parallel the hard, shock resistant shell and the fibre padding to combat the coral reef. And even then, the enterprise would fail without a buoyant, waterproof outer coat that will resist salt water for weeks without deterioration. On its earth shuttle development programme, the American NASA organisation funded millions of dollars worth of salaries for the top scientific brains to design a capsule that would loop a handful of people from earth to space and back again. A project co-ordinator bullied along the various teams concerned with propulsion, life support, communications, and so on, to make sure they kept pace with each other. Even then, they tragically overlooked an important but vital detail. The soft sealing material between the segments of the booster rocket was not suitable for freezing conditions, and one wintertime mission ended in disaster.

Can you ‘feel comfortable’, to borrow a phrase, with the theory that such a brilliant design as the coconut had not even one brain behind it, but went through those millennia of development and testing, propelled solely by the need to survive? It is a very tall order. For many of us, it is intellectually more convincing to suppose that the Creator, with his angelic assistants, drew up the blue prints for the ‘the herb yielding seed of his kind, and the tree yielding fruit, whose seed was in itself, after his kind, and God saw that it was good’ (Genesis 1:12).

CHAPTER 7

ARTIST OF THE HEDGEROWS

We have looked in this book at a number of remarkable devices from the world of nature which demand the existence of an intelligent Creator. The tiny drainage tubes of the eye; the clotting of blood and the repair of broken bones; the inter-dependence of trees, birds and insects; the brilliant space capsule of the coconut - in each case, the theory of Evolution leaves us with severe problems of logic, and it is easier to accept the idea of a Designer who foresaw the needs of his creatures and provided for them. We have time only for one more study, but one typical of a whole group of similar cases, where the evolutionist is left without an explanation, indeed where, pressed to its conclusion, the received wisdom of science would deny the possibility that what we see with our eyes could actually have happened.

Our last creature is a common inhabitant of the British garden, and the architect of one of the most beautiful objects in our September hedgerows. We refer to the spider's web. For most of the year this delicate, sticky net is invisible, carrying out its deadly task of trapping the unsuspecting insects on which the spider feeds. The diamond drops of autumn dew which light up the structure in the rising sun, may enchant us with its gossamer beauty, but they leave the spider hungry, for once we can see the web, the fly can too!

How does the spider construct its transparent, elastic net, seemingly out of nothing? The answer is to be found at the rear end of its abdomen, which carries an apparatus to manufacture what is truly a super glue.

Imagine a human rock climber scaling a difficult face. As he makes his way up, he shoulders a heavy coil of terylene rope and bundles of pegs, which he drives into cracks in the rock as he ascends. He hitches a length of rope to each peg, and pays it out behind him so that if he should accidentally slip, it would arrest his fall.

Compare the rock expert with the spider. The silk glands in its abdomen extrude a liquid protein which sets at once on exposure to air, and which is instantly strong enough to bear his weight. It adheres easily to any firm surface without pegs. It will stretch up to 20% of its length without breaking, and has a tensile strength greater than steel of the same diameter. And at the end of a climb, for economy, the spider simply eats the silk, so re-cycling the material for another time.

The construction of the web follows a set procedure from which the spider never deviates. Firstly, it pays out a single, slender strand of silk which it flies, kite like, in the wind until it snags on a nearby bush. It then sets out across the gap, eating the silk as it goes along, and

paying out more line behind it, until it hangs down like a locket on a chain, between the two anchorage points. It now drops to the ground on a third strand, forming a 'Y' shape, but pulling the lower leg forward a little before attaching it to a suitable projection, to ensure the final web is not vertical but slopes slightly forwards at the base. Using the 'Y' shape as a framework, the spider now runs out extra threads radially from the fork like spokes from the hub of a wheel. It then starts from the centre of the web, and walks round in a spiral, attaching a new line to the spokes of each cross-over point, and ending up at the outer circumference.

At this point it begins to construct the sticky web proper. The initial spiral was only a scaffolding. It now has to be replaced with silk from a second gland in the end of the abdomen, which not only extrudes a fibre, but coats it with tiny, sticky globules, close spaced like pearls in a necklace. Feeling with its foot along the temporary spiral, the spider eats this up as it goes along, and replaces it with the adhesive silk, instead. Having completed the network, the hungry arachnid now conceals itself under a leaf, with a foot on the taut silk, ready to respond to the vibrations of a hapless insect 3 colliding with the web.

Within seconds of sensing its prey, the spider rushes out, its body hanging below the sloping surface of the web to avoid being trapped itself, and bundles the victim in a fast rolled net of fibre. Once immobile, it then plunges sharp jaws through the body of the fly, and pours in a powerful toxin that rapidly poisons the insect and leaves it conveniently pre-packed for the spider's dinner.

We must now ask questions about the spider's web, to see whether Evolution can provide a satisfactory explanation for this amazing piece of animal architecture. Firstly, we have the familiar problem of the origin of the silk glands, and especially of the sticky silk. Where did the chemistry come from, to produce out of raw materials in the spider's blood this instant setting, elastic, superstrong rope? 100 years of industrial research has given us nylon, terylene, and polyester, all remarkable fibres with valuable properties for clothing, carpets and cords, but each dependent on complex factories using catalysts to refine and distil petroleum products and extrude them at high temperature into serviceable yarns. What a contrast with the compact, lightweight apparatus on the spider's abdomen that produces endless quantities of silk at body temperature without effort, and recycles the waste! Do chemicals like this arise purely as a result of random mutations? And what about the sticky type of silk? The web would be useless unless the threads were sticky. The target prey otherwise would bounce off the web like a gymnast on a trampoline! How did the spider manage all those years before the glue glands came on stream?

These questions are hard to answer without involving a Creator. But the real problem comes when we ask how the spider knows how to make a web. At a first approach, you might assume that it learns this skill from its mother, like fox cubs following the vixen as she hunts for rabbits along the hedgerow. Unfortunately, this explanation will not suffice, because the

infant spider hatches from eggs laid the previous autumn, and the mother spider dies during the winter. There is no contact between the two generations.

The fact is, the spider makes the web by following a pre-determined pattern which is encoded in the genetic material passed to the offspring via the egg. The two single cells, one from each parent, which fuse to create the fertilised egg, house, in addition to a full set of codes for constructing a baby spider, a detailed programme for guiding that spider through the series of actions needed to construct a web.

We are used to computer programmes. Every Thursday at the factory where I work, the computer runs through a wages programme. It checks how many hours each employee has put in, whether they had sick leave or holidays, how much tax needs deducting, and whether they have earned any bonuses. It then instructs the cashier how many notes and coins to put into each pay packet. Some factories have computer programmes which control automatic lathes that create elaborately shaped objects from lumps of metal or plastic. A series of cutting tools move round in turn and press upon the rotating raw material, to form ledges, drill holes, and turn threads, without human intervention. The programmes themselves are written in computer language by experts, and are encrypted on to spinning discs as a series of ‘words’ made up of binary code - strings of short or long pulses, something like the Morse Code used for signalling years ago, but read at incredible speed. Once written and tested, the programme can be copied many times, and will work repeatedly without error. However, it is quite inflexible. It cannot be altered without paying a programmer a handsome sum to ‘customise’ the programme for your special requirements.

The spider’s programme is just like that. It is encoded as a string of ‘words’ made up from combinations of not two (long/short) but four alternative organic basis, arranged in sequence along the densely coiled helix of the 4omosome. The choice of four alternative symbols to make up words gives the genetic code a much more powerful vocabulary for describing things, and explains the amazing compactness of the programme. The helical coil containing the information to construct and operate a spider is far too small to be seen with the naked eye, indeed with anything but an electron microscope. Yet it functions with superb accuracy, and has been copied without error every year for each new generation of spiders, for thousands of years.

To illustrate the entirely ‘mechanical’ nature of the web making programme, we could play a trick on the spider by waiting until it has completed the scaffolding web, and is replacing this with the sticky thread. If at this point we snip away the scaffolding thread ahead of the spider, using fine scissors, it will become utterly confused. Unable to follow the line of the scaffold thread with its foot, it becomes hopelessly lost. It has no capacity to perceive that the missing thread can still be found a segment or two further on. It abandons the web and starts another one.

The question is, who wrote the programme? It would be tempting to suggest that thousands of years ago a brainy spider learned how to make a little web, found it caught a fly, and passed on the secret to the next generation, which then refined and improved the technique. After all, we expect human inventions such as motor cars to go on getting better and better with the passage of time. However, this is only possible because human beings can communicate ideas to each other. Living craftsmen can teach their sons. University researchers publish their discoveries in scientific journals for others to read. Car manufacturers maintain archives of test data for new employees to study and build upon. The spider has no way of transmitting such information. The mother dies without seeing her offspring, and there is no written language to preserve a discovery. If a spider did learn a new technique, it would die out with the individual. And nothing we learn in life can be passed on to our offspring through our genes. It is a dogma of biology that acquired characteristics cannot be inherited.

So who imprinted the web-making programme into the spider's genes? Once more, we are forced to conclude that the most reasonable explanation is that a brilliant Creator God, having crafted 'everything that creepeth upon the earth' (Genesis 1:25), gave the fledgling spider the means to feed itself, and at the same time play an essential part in the balance of hunter and hunted that we call ecology.

CHAPTER 8

THIS IS THE FINGER OF GOD

It is time to draw our review to a close, with an appeal. We have studied a range of topics from the plant and animal world, each of which points to intelligence rather than natural selection as its 'raison d'etre'. There is an endless supply of similar examples, each just as powerful as those we have described. We could look at the echo-sounding of the whale; the fly trap of the cuckoo-pint; the parachute of the dandelion, or the hatching of a chicken from an egg. We could question the origins of the bile duct, or human heart valves, or hormone control of reproduction. Wherever we look, we are surrounded by living miracles. Why is it, then, that Evolution is so generally accepted, and Creationists despised?

In the Book of Exodus the Israelites were delivered from slavery in Egypt as the result of a series of 'plagues' or calamities which ruined Pharaoh's economy. In each case, the plagues started when the aged Moses held out the rod of God in his hand, and the power of the Lord fell at once from heaven. Frogs filled their houses, lice tickled their scalps, lightning and hail lacerated their corn. At first, Pharaoh's magicians were able to imitate Moses' miracles with their tricks, but eventually they were out-performed, and informed their royal master 'this is the finger of God' (Exodus 8:19). But despite the evidence of his eyes, Pharaoh was unconvinced. 'His heart was hardened', says the record, 'and he hearkened not unto them'.

It is quite possible for people to see miracles, and be unimpressed. In the New Testament, John describes in detail 7 great miracles that Jesus performed. He calls them ‘signs’. Yet at the end of his gospel he records ‘though he had done so many miracles before them, yet they believed not on him’ (John 17:37). We only believe what we want to believe. Accepting the world as the work of God means accepting we are not masters of our own destiny, but subject to His laws and plans.

Rebellious as Pharaoh, we cling to the notion that because we cannot see God, he cannot exist, even while the evidence of His handiwork is staring us in the face.

And somehow, the more educated men are, the harder they find it to humble themselves before a Creator God. The Apostle Paul wrote to the believers at Corinth ‘ye see your calling, brethren, how that not many wise men after the flesh, not many mighty, not many noble, are called’ (1 Corinthians 1:26). It is not that believers are gullible. Rather the pride of the learned hinders them from perceiving the truth.

Jesus spent much of his ministry battling with the Scribes, Jewish lawyers with minds as sharp as chisels. These men could sit round in a circle and watch him restore the withered hand of a cripple, then instantly dismiss Jesus as an imposter because he healed men on the Sabbath day. It was from such hard faced unbelievers that Jesus turned with relief to little children. “Suffer the little children to come unto me’, he said, ‘for of such is the kingdom of God’. (Luke 5:16). He did not mean that no grown-ups will enter the kingdom of God. This was a ‘saying’ of Jesus. He implied that the simplicity and unquestioning love of the children who came to him without doubt or reservations, as their friend, was the hallmark of those, young or old, who will inherit God’s kingdom.

When we are very small we never question our parents wisdom or doubt their word. Such cynicism only develops as we grow older. God seeks for His kingdom people who are prepared to put their hand in His, marvelling at His greatness, and confident in His love. He can lead people like that all the way to eternity.

Standing in the open air lecture theatre of Athens, the city of philosophers and wise men, the Apostle Paul once spoke of the God he worshipped, the God who made everything, including all the nations of men. And why had He made them? ‘That they should seek the Lord’, he said, ‘if haply they might feel after him and find him’ (Acts 17:27). God created us, to seek after Him. He does not force himself upon us. He leaves us to live our lives by faith, in hope of His kingdom. ‘He that comes to God must believe that He is’, he wrote in another place, ‘and that He is a rewarder of them that diligently seek Him’ (Hebrews 11:6).

So, please, do not listen unquestioningly to the voice of the experts. The Bible is not a collection of fables. It is the only record God has given us of His great work ‘in the beginning’, and of the day he has planned, when the beauty and perfection of that Creation, marred now by the crimes and greed of man, will be restored; when the world will be ruled

by Jesus and his immortal followers; when God's will will be done on earth, as it is now in heaven. 'For behold', he says, 'I make all things new' (Revelation 21:5).

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