

MARVELS OF CREATION AND SCIENCE

“But now ask the beasts and they will teach you; and the birds of the air, and they will tell you; or speak to the earth, and it will teach you; and the fish of the sea will explain to you. Who among all these does not know that the hand of the Lord has done this. In whose hand is the life of every living thing, and the breath of all mankind? Does not the ear test words and the mouth taste its food? Wisdom is with aged men, and with length of days, understanding. With Him are wisdom and strength, He has counsel and understanding.” Job 12:7-13

There is much in modern technology that is marvelous. However, the incredible complexity and intricacy of God’s Creation is infinitely more marvelous.

Flight

For centuries, men dreamed of flying. However, men do not have muscles powerful enough to lift their own body weight into the air.

In 1781 James Watt invented a steam engine that produced rotary power. In 1876 Nikolaus Otto built an internal combustion engine.

The brothers Wilbur and Orville Wright had wanted to fly ever since they had played with kites as boys. Later they learned engineering skills by building bicycles. They realized that the key challenge of flight was to design a craft that could be controlled. A plane that could not be balanced in the air is as useless as a bicycle that cannot be steered.

Learning from the Birds

Wilbur watched birds in flight and noticed how they bank into a turn, as a cyclist does. He concluded that birds turn and keep balance by twisting their wing tips. He resolved to design a wing that could twist.

In 1900 Wilbur and Orville built an aircraft with twistable wings. They flew it first as a kite and then later as a piloted glider. They discovered that an aircraft needs three basic controls to adjust pitch, roll and side to side movement. However they were frustrated that the wings did not produce enough lift.

The Wright brothers built a wind tunnel and experimented with hundreds of wing shapes until they found the ideal shape, size and angle.

In 1902 with the new design they mastered the art of balancing the aircraft on the wind. Now they needed to mount an engine on it. With the knowledge they had gained with their wind tunnel, they designed a propeller. They also had to build their own engine. Finally, on 17 December, 1903, the Wright brother started the engine, the propellers spun and the aircraft lifted off into the cold wind. This introduced the age of flight.

Learning from Creation

As the brothers became international celebrities they pointed out that God’s Creation taught them all the principles of flight.

The Word of God tells us: *“But now ask ... the birds of the air and they will tell you ... the hand of the Lord has done this ...”* Job 12:7-9

Feathers

It is apparent that everything about birds is designed for flight. The wings of birds are so light, yet very strong. The shafts of wing feathers support a bird's entire weight during flight. How can they be so light, yet so strong? If you cut through the shaft of a feather you will see an engineering master piece. The shafts of feathers have a foam sandwich of cross beams which strengthen the light design. Engineers have studied the shafts of bird feathers and used the foam sandwich theme design in aircraft.

Bones

The bones of birds are hollow and, in many cases, are strengthened by internal struts in a form which engineers call the warren girder. When engineers designed the wings of the space shuttle they incorporated these features that have been observed in the bones of birds.

Control

Pilots balance modern aircraft by adjusting flaps on the wings and tail. The average bird uses some 48 muscles in its wings and shoulders to change the configuration and motion of its wings and individual feathers. Birds can make multiple adjustments several times a second. The eagles and falcons are the example and envy of aircraft designers.

Engine

Flight, especially take off, consumes a lot energy. So birds need a powerful, fast burning engine. A bird's heart beats faster than that of a similar sized mammal and is usually larger and more powerful than the heart of a similar sized mammal. Also, the birds' lungs have a different, one-way flow design that is more efficient than mammals.

Energy

One measure of an aircraft's efficiency is whether it can take off carrying sufficient fuel. When a Boeing 747 takes off for a ten hour flight, roughly one third of its weight is fuel. Similarly a migrating thrush may lose almost half of its body weight on a ten hour flight.

The Swallow

The barn swallow is one of the wonders of God's Creation. At 18g it is one of the smallest migrating birds. The average barn swallow flies 12,000km each year. It leaves Europe during its August/September Autumn each year to spend their summer in the Southern Hemisphere. The barn swallow breeds in Europe, but summers in South Africa. Barn swallows fly up to 50km a day, even when at home, to forage. They serve God and people by controlling the aerial insect populations (including mosquitos). Their migratory journey from KwaZulu/Natal to Germany may take a month. They fly an average of 400km a day. Approximately 3,000,000 barn swallows migrate between South Africa and Germany each year.

Endurance

When a bar-tailed godwit takes off from Alaska, heading for New Zealand, over half its body weight is fat. Astonishingly this bird flies for over 190 hours (eight days) nonstop! No commercial aircraft can do that.

Navigation

Perhaps you have had the problem of finding your way across an unfamiliar town. Even with maps and directions you can get lost. So how do navigators find their way across featureless oceans? Merely having a compass does not help unless the navigator knows what his position is in relation to his destination. Not until the invention of the sextant and the marine chronometer in the 1730s could navigators determine their exact location and plot their course on a map. Each fix required hours of calculation.

Global Positioning System

However, today, motorists in many countries navigate using a Global Positioning System (GPS). Originally designed in the 1960s for military use, to guide, for example, cruise missiles, the GPS was later made available to the public becoming fully operational in 1996. The GPS is a marvel of computer technology. The device can show your exact location on the screen and guide you to the address where you want to go.

Satellite navigation devices depend on about 30 satellites that each broadcast signals indicating the satellite position and the time to an accuracy of a few billionth of a second. Once your GPS has established contact with three satellites, it accurately measures how long a signal takes to travel from the satellite to your receiver. This requires complex calculations. In a few seconds a GPS computes the distance to three satellites, all thousands of kilometers away, travelling in different directions, at speeds of many kilometers per second. Yet the GPS is clearly not the first automatic navigation device.

God's Positioning System

“Even the stork in the heavens knows her appointed times; and a turtle dove, the swift, and the swallow observe the time of their coming. But My people do not know the judgment of the Lord.” Jeremiah 8:7

Jeremiah wrote about the migrating of the storks and swallows over 2500 years ago.

Today people still marvel at creatures that migrate.

Migrations

Consider the salmon which can swim thousands of kilometers in the ocean and return to the stream where they were born. Leather back sea turtles have made incredible journeys. One that nested in the Indonesia was tracked as it migrated 20,000km to the coast of Oregon in the United States.

Leatherback turtles often return to the same area of Indonesia to nest again.

Monarch butterflies from vast areas of North America migrate more than 1,700km to a small area of Mexico. Even though they have never been to Mexico before, they find a way, often to the same trees where their great grandparents roosted the previous year. Just how they do it still baffles researchers.

Pigeons have been transported more than 150km to unfamiliar places, while under deep anesthesia, or in rotating drums, yet, after circling a few times, they have calculated their position and turned accurately towards home. As researchers have even gone so far as to force these pigeons to wear frosted eyeglasses, they believe that pigeons calculate their position in relation to home by detecting the directions by which they receive important navigational information.

Scientists took 18 albatross by plane from a small island in the center of the Pacific Ocean to several locations, thousands of kilometers away and released them. Some were taken to the Western rim of the Pacific Ocean, others to the Eastern rim. Yet within a few weeks, most of the albatross had returned to their small island in the center of the Pacific!

Whereas our automatic navigation devices may depend totally on satellites, many animals seem to be able to use various navigational methods – from observing landmarks and the sun to detecting magnetic fields, distinctive smells and even sounds.

Over Engineered

Biology professor James Gould wrote: "Animals whose lives depend on accurate navigation are uniformly over engineered ... they usually come equipped with alternate strategies – a whole series of backups, between which they switch depending on which is provided and most reliable information." The sophistication of animal navigation continues to confound scientific investigators.

Cell Phones

In 1973 Doctor Martin Cooper was the first to demonstrate a hand held cellular telephone. It had a battery, a radio and a microprocessor (a mini computer).

New Yorkers were stunned to see Cooper making a phone call on the street. This invention was only made possible because of previous inventions. The invention of a reliable battery by 1800, the development of the telephone by 1876, the radio by 1895 and the computer by 1946. The invention of the microprocessor in 1971 made cell phones possible.

Voice

However, communication with sophisticated devices was not actually that new. Since the dawn of Creation a communication device which has often been taken for granted is the human voice. Over half of the billions of neurons in the motor cortex of your brain are involved in controlling your speech organs. About 100 muscles operate the complex mechanisms of your jaw, throat, lips, tongue and chest to enable you to speak.

Hearing

Of course, the human voice would be of no benefit without the ear. The ear is also part of the same communication system. The ear converts sound into electrical impulses that the brain can process. Your brain analyzes sounds so that you can recognize people by the timbre of their voice. Your brain also measures how many millionth of a second one ear hears before the other and thus calculates precisely in which direction and roughly what distance a sound comes from. These are just two of the features that enable you to listen to one person at a time even though several others may be speaking in the background. So, sophisticated wireless communication with caller recognition is not that new. It is first found in how God created us.

Television

Soon after men learned to broadcast sound, inventors wondered if they could also transmit live pictures. To appreciate the challenge, consider how television works. First a TV camera focuses a scene onto a target device that reads the picture. Instead of reading lines of letters on a page, as we read books, the Television scans lines of spots, or pixels, in the picture. It converts these pixels into an electronic video signal that can be transmitted to another place. A receiver then converts this electronic signal back into a live picture. John Logie Baird, from Scotland, has been credited as the inventor of Television.

When poor health caused him to give up his job as an electrical engineer, he devoted his time to a subject which had fascinated him since he was a teenager – how to build a machine that could transport live images.

Baird's television camera used a hatbox, perforated by 30 holes, as a disc. As the disc spun the holes scanned successive lines of the picture and they allowed light to fall onto a photoelectric cell. The cell produced a video signal that was transmitted to a receiver. In the receiver the signal was amplified to illuminate a variable light behind a similar spinning disc to reproduce the picture. The challenge was to synchronize the disc. To support himself while working on this

project, Baird raised funds by polishing shoes. On the 2nd October, 1925, Baird transmitted the first television picture from one end of his attic to other. The first person ever to appear on television was a frightened office boy from downstairs. He was paid half a crown for his services. In 1928 Baird broadcast the first television pictures across the Atlantic.

Eyes

However, this was not the first time that live pictures were ever transmitted. ***“The hearing ear and the seeing eye the Lord has made them both.”*** Proverbs 20:12

Your eyes are like tiny television cameras. They convert images into electrical signals and transmit these signals along the optic nerve to the back of your brain, where the actual seeing takes place. The eye is a magnificent marvel in miniature. Just 24mm in diameter and 7.5g in weight, the eye is ingeniously engineered. For example, it has separate systems for dim and bright lighting. 30 minutes after entering a dark room your eyes may become 10,000 times more sensitive to light. Your eye has over 100 times more light sensitive cells (pixels) than most video cameras. A large portion of those cells are packed into a small spot at the center of the retina called the fovea, which provides the sharpest vision. Electrical signals from the light sensitive cells pass from one nerve cell to another towards the optic nerve. But the nerve cells do far more than just pass the signals on. They process the images, enhancing vital information and suppressing unneeded details.

The visual cortex of your brain is like a sophisticated video receiver. It sharpens images by enhancing edges and compares the signals from cells sensitive to primary colours so that you can distinguish literally millions of shades of colour. Your brain also compares the tiny dissimilarities between what your two eyes see, so that you can perceive distance and depth.

Consider how your eyes can recognise faces in a distant crowd and send electronic impulses to your brain, which then transforms the signals into clear images.

Consider how subtle details of these faces are compared with one's in your memory, so that you instantly recognise your friend. Is that process not awe inspiring?

“Oh Lord, how many fold are Your works! In wisdom You have made them all. The earth is full of Your possessions.” Psalm 104:24

Purpose

Frequently, one reads in secular humanist scientific journals, which report to believe in Evolution, statements such as this: Of all the body coverings nature has designed, feathers are the most various and the most mysterious. According to the Oxford dictionary, to design means to “plan something with a specific purpose or intention in mind”

Intelligent Design

Secular humanists who believe in Evolution frequently refer to “Nature” designing things. Although they may claim that they believe Nature is a mere force, they attribute intelligent design to it. Can an impersonal force design things? What many Evolutionists refer to as nature, we know to be Creation. And the Creator does have a name.

“For I am not ashamed of the Gospel of Christ, for it is the power of God to Salvation for everyone who believes ... for the wrath of God is revealed from Heaven against all ungodliness and unrighteousness of men who suppressed the truth in unrighteousness, because what may be known of God in manifest in them, for God has shown it to them. For since the Creation of the world, His invisible attributes are clearly seen, being

understood by the things that are made, even His eternal power and Godhead, so that they are without excuse.” Romans 1:16-20

The Wisdom of God

From nature we learn that God’s wisdom is superior to ours. If God can design things better than inventors can, does it not stand to reason that He can advise us better than human councilors can?

Two Books

As Francis Bacon, the father of the Scientific method once put it: “There are two books laid before us to study; to prevent us falling into error; first the volume of the Scriptures, which reveal the Will of God, then the volume of the Creators, which express His power.”

Celestial Mechanics

The great Astronomer, Johannes Kepler (1571-1630), is the founder of Celestial Mechanics. He was described as a “Brilliant mathematician and astronomer, he contributed to the Scientific Revolution with his work on the planetary orbits, laws of motion and the Scientific method. Kepler’s accomplishments formed the foundation of modern theoretical astronomy.” Kepler viewed all science as man attempting to “think God’s thoughts after Him”.

The Works of God

Sir Isaac Newton, (1642 – 1727) the father of calculus and dynamics was a scientific genius and a dedicated Christian. Newton formulated the theory of gravitation and the laws of motion. He made vital contributions to mathematics, astronomy, and physics. Newton maintained that there were two key sources of knowledge – one revealed in the Bible and the other revealed in nature. Newton believed that in order to “truly know the Creator, one must study the natural order of things.” Newton dedicated his life to know the Word of God (the Bible), and to know the works of God (Creation).

What Hath God Wrought

Samuel F. B. Morse, (1791 – 1872) was the man responsible for the development of the modern telegraph and the Morse code. This was one of the greatest innovations in the world of communication. Samuel deeply absorbed his families Calvinism, which he eventually translator and applied to all his Scientific work. In 1844, Samuel Morse astonished the US Congress, gathered in the Supreme Court chamber, by sending the words from Numbers 23:23 “What hath God wrought!”

The first intercity telegraph line in the world communicated these words of Scripture to inaugurate the great invention. Morse laid the foundations for the development of modern communications.

Communication

The designer of our organs for communication obviously wants to communicate with us. If we find learning about inventors interesting, we will find that learning about the Creator is far more fascinating. Whether they acknowledge it or not, Scientists have learned design from our Creator God. God speaks to us through general revelation in creation and through special revelation in the Bible. When we study His works in the light of His Word we come to understand the God of Creation ***“God, who at various times and in various ways spoke in time past to the fathers by the prophets, has in these last days spoken to us by His Son ... ”*** Hebrews 1:1-2

“All Scripture is given by inspiration of God, and is profitable for doctrine, for reproof, for correction, for instruction in righteousness, that the man of God may be complete, thoroughly equipped for every good work.” 2 Timothy 3:16-17

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