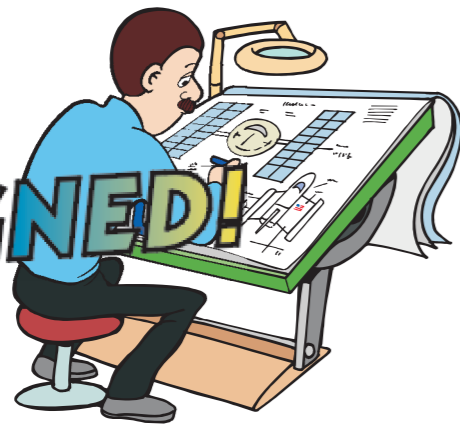


WELL DESIGNED!



Backswimmers

BACKSWIMMERS are the scuba divers of the insect world. They carry a bubble of air attached to their abdomen, and swim upside-down below the water, using a pair of extra-long legs as oars. They can remain below water for up to 6 hours, but can also come to the surface and fly away. Like human scuba divers they also have a "buoyancy vest" which they use to regulate their depth, unlike other diving insects, which can only stay underwater by clinging to submerged objects. Backswimmers aren't the only creatures which use an air bubble to breathe underwater (water spiders do also), but they are unique in that they carry oxygen in their haemoglobin, just as we do. Very few insects have haemoglobin, and backswimmers are the only ones known to possess throughout



A human scuba diver carries oxygen



A Backswimmer

Photo from Wikipedia

their whole lives. As the air in the bubble shrinks, and they sink deeper in the water, they release oxygen carried in their haemoglobin into the bubble to maintain buoyancy. This special ability was only discovered in 2006, and reported in the science journal *Nature* (Vol. 441, p. 171).

Another unusual thing about backswimmers — which are only 12 mm. (½ inch) long — is that their body colouring is opposite to most other animals. Instead of being dark-coloured on top and light-coloured underneath, they are darker on the bottom than on the top. Since they swim upside-down this provides a camouflage to protect them from underwater predators like water scorpions, giant water bugs and diving beetles.

Backswimmers possess a number of unique features which suggest they were designed by a wise, intelligent Creator, rather than having evolved over a long period of time through chance mutations.

"A desirable, detached residence"

Before buying a house, you would want to see it to find out what facilities it had. These could include central heating, hot and cold water, double-glazed windows and air-conditioning. In other words, the house would have been specially designed for human habitation and comfort. Estate agents often use the phrase "a desirable detached residence" to describe a house.



No-one would suggest that a house, with all its facilities, was just a fluke — the result, maybe, of an exploding pile of bricks, metal and timber. Planet earth is "a desirable detached residence" too, ideally suited for life in so many ways. The Bible tells us that "every house is built by someone, but God is the builder of everything." (*Hebrews 3: 4*). Why would anyone agree with the first part of that sentence but not the second part?

The Bible also tells us: "He who fashioned and made the earth, he founded it; he did not create it to be empty, but formed it to be inhabited." (*Isaiah 43: 18*) — unlike other planets, e.g. Mars. This means that the earth is not ours to do with as we please. It belongs to God; we are only tenants. Yet ever since the beginning human beings have been harming the planet and its finely-tuned environment. This is all part of our sinful rebellion against our Creator. In spite of this, "God so loved the world that he gave his one and only Son, that whoever believes in him shall not perish but have eternal life." (*John 3: 16*). God cares about the whole world and its life, but humans matter to him most. He wants us to have a relationship with Him, and this is possible when we come to Him through Jesus. There is no greater incentive to care for the planet than when we love its Owner and Creator!



Mars and earth

Have a laugh

Two cows are standing in a field. One says to the other, "Are you worried about Mad Cow Disease?"

"No," the other one says, "It doesn't worry me, I'm a horse!"

Pupil: "Would you punish me for something I didn't do?"

Teacher: "Of course not."

Pupil: "Good, because I haven't done my homework."

Why don't oysters give to charity?

Because they're shellfish.

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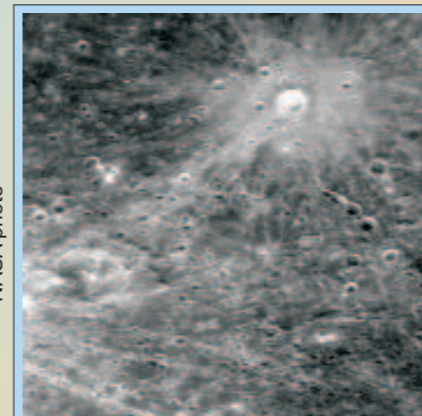
No. 55

'FINELY TUNED'



..SO WHO TUNED IT?

In this issue:
No place like home!
Lucky fluke or grand design?
Unanswered questions about origins
Destroying our planet's lungs
Well Designed: Backswimmers

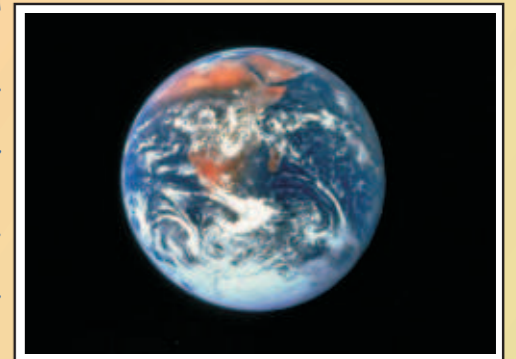


NASA photo

The surface of the planet Mercury (above) is scarred with meteorite craters. Many other bodies in the solar system are also. But meteorites hardly ever hit the earth's surface because they burn up in our atmosphere before they reach the ground. Is it just by accident that our planet has this protective shield?

Do we take Planet Earth for granted? Or do we ever stop to consider just how wonderfully unique it is?

Despite all the speculation about 'extra-terrestrial life' these days, the fact is that very special conditions make life on earth possible — conditions which are not known to exist anywhere else in the entire universe! Scientists sometimes say that conditions on earth are "finely tuned". So is this just a fluke — a lucky accident — or did some supreme intelligence finely tune it for our benefit? See the next page to learn about some of the things that make earth unique, then consider what is the most logical explanation for this.



GEN & EV



Drawing by Michael Higgins

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NO PLACE LIKE HOME!

Did you know that if the earth's size varied 10% either way, life would be impossible? The earth's diameter is 8,000 miles; if it were only 7,200 miles, its magnetic field would be weaker, allowing the "solar wind" to strip away our atmosphere, and the earth would become a cold, barren waste. On the other hand, a diameter of 8,800 miles would double the weight of the atmosphere, increasing the total amount of water, and the whole planet would probably be flooded.

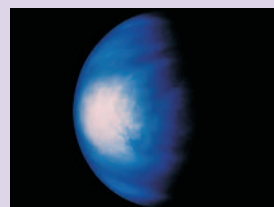
ORBIT AND ROTATION

The earth orbits the sun every 365¼ days, and the axial tilt of 23½° gives us our four seasons. The length of our year allows time for crops to be planted and harvested, but is not so long that we cannot exist until the next harvest. Imagine what it would be like if the earth took 84 years to orbit the sun, like the planet Uranus! Or if it were only 88 days, as is the case with Mercury? The earth's rotation every 24 hours is very convenient, too; a longer period would cause excessive heat during the day, but temperatures would



The length of our year allows time for crops to be planted and harvested

then plunge to life-destroying levels during the prolonged hours of darkness. Most of the other planets in our solar system have much longer or shorter periods of rotation, ranging from 10 hours for Saturn to 243 days for Venus (right).

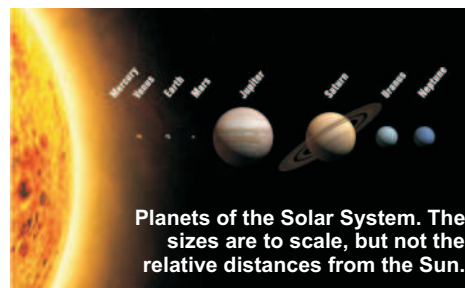


ATMOSPHERE

The other planets in the solar system have atmospheres made up mainly of poisonous gases, with only traces of oxygen, but earth's atmosphere has 21% oxygen. This appears to be an ideal percentage. A greater amount — say 50% — would make our planet highly inflammable, and a single lightning strike could set a whole forest aflame. But with only 10% oxygen fire would not burn at all! Oxygen also helps maintain the vital ozone layer 40 miles above the earth, which acts as a 'buffer' to deflect deadly ultraviolet rays from the sun. If the ozone layer disappeared, all life on earth would perish within minutes. There really is no place like home!



OUR SPECIAL PLACE IN THE SUN'S FAMILY

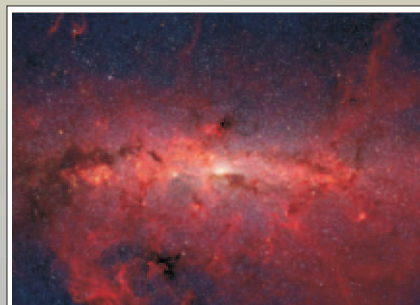
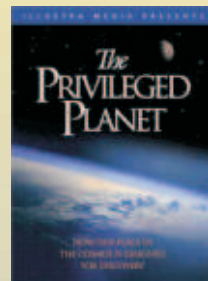


Planets of the Solar System. The sizes are to scale, but not the relative distances from the Sun.

Earth's average distance from the sun is 93 million miles (150 m. km). This is within a narrow band where liquid water can exist — astronomers call it "the goldilocks zone". Earth's average temperature is 15° C, compared with the average of 470° C. for Venus and -50C. for Mars. Many scientists are urging us to cut carbon emissions, fearing a dangerous rise in earth's temperature, which could cause serious problems.

Lucky fluke or grand design?

NOT only is our planet specially suited for life to exist, it is also ideally suited as a home for intelligent beings who have a desire to learn more about the universe itself. That's the view of astronomer Guillermo Gonzalez who with fellow-scientist Jay Richards in 2006 co-authored *The Privileged Planet* — since made into an excellent documentary film.¹ As well as describing the "rare and finely-tuned array of factors" that make earth suitable for complex life, they explain that our position in the Milky Way galaxy itself is also crucial. We are in what they call the "Galactic Habitable Zone" — "the best overall location to be a successful astronomer and cosmologist." Gonzalez and Richards point out: "Even though we're near the mid-plane, there's very little in the way of dust in our neighbourhood to absorb light from nearby stars and distant galaxies. We're far enough from the Galactic center and the disk is flat enough that it doesn't excessively obscure our view of the distant universe. We have access to a striking diversity of nearby stars and other Galactic structures, as well as a clear view of distant galaxies."²

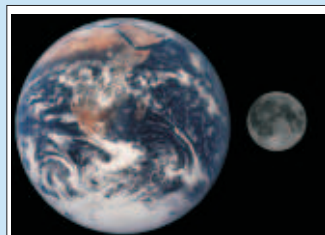


Infra-red photo of the core of the Milky Way galaxy by NASA's Spitzer Space Telescope

In the film, Jay Richards says: "I think you have to ask yourself, 'What if this convergence of factors didn't come about as the result of simply a cosmic lottery...or a mere fluke or luck? But, what if it's the result of some larger underlying purpose or design?'"

1. Price £13 + £1 P & P. from our online shop or by post (address on back page).
2. *The American Spectator*, May 1, 2004

Many moons — but only one is right for us!



The moon's diameter is just over a quarter of the earth's

There are lots of moons in our solar system — the planet Jupiter has more than 60 of its own! However, our moon's large size compared with our planet makes it unique. Although it is 384,000 km. (238,900 miles) from us, the pull of its gravity keeps the earth from wobbling as it orbits the sun. It also stops the earth spinning too fast — without the moon, a day would only last 8 hours! The moon also causes our twice-daily tides which oxygenate the water in seas and harbours. Without this many plants and animals which inhabit coastal waters would perish. Of course, if the moon were much larger, or closer to us, huge tidal waves would sweep over the continents twice a day. Scientists tell us that if the moon didn't exist neither would we! Our unique earth-moon system certainly seems to be finely tuned for our benefit.

IN THE NEWS

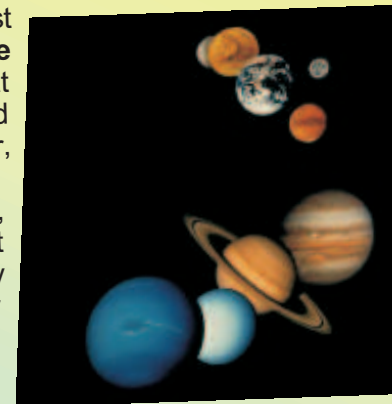
How did it all begin? 'We don't know,' say scientists!



Most people could be forgiven for thinking that science has all the answers to questions about the universe, the earth and life itself, and may be surprised that many scientists admit there is a lot they still don't know. According to *LiveScience.com* (13th March 2008), "As space shuttles zip into orbit and telescopes peer out at other worlds, Earth itself remains a mystery in many basic ways." The article continued: "In an attempt to remedy that, a panel of geologists and planetary scientists announced this week the top 10 questions about our planet that linger today, which have strangely baffled humanity and researchers for hundreds of years and longer." Two of the ten questions were: **How did Earth and other planets form? How did life begin?**

This followed a similar article on 12th August 2007 entitled "The Greatest Mysteries in Science." One of these mysteries was: **How did the universe come to be?** Followed by the comment: "It is perhaps the greatest Great Mystery, and the root of all the others. The rest of humanity's grand questions—How did life begin? What is consciousness? What is dark matter, dark energy, gravity?—stem from it."

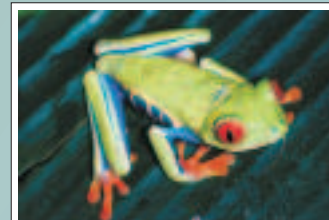
But haven't we been told many times that the universe began with a 'big bang', that the solar system formed from a condensing cloud of dust and gas, and that life began in a 'primeval soup'? Scientists who rule out special creation may have no answer, but there are thousands of other scientists who claim that they do know how it all began, and that the Bible has the answer to these mysteries. They believe that the universe, solar system, earth, and the life on it were created "by the word of the Lord," who "spoke and it came to be." (*Psalms* 33: 6 & 9).



Destroying our planet's lungs

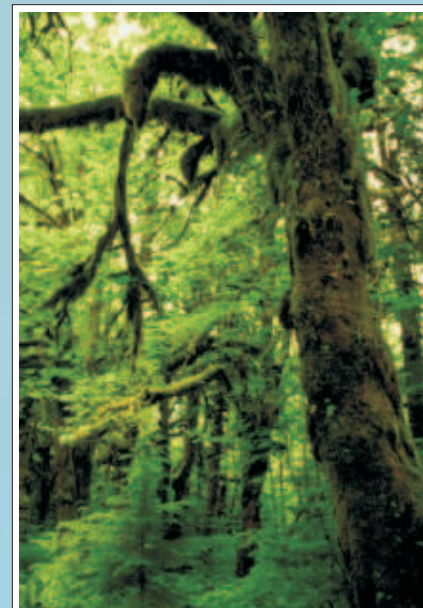
Why cutting down the rain-forests destroys the natural balance of our planet

Tree and other plants play an important part in maintaining life on earth. Through photosynthesis, they convert the Sun's energy into nutrients. Trees are like "lungs" which help the earth to breathe, because they absorb carbon dioxide and produce oxygen. So when forests disappear more carbon is added to the atmosphere. Without green plants we'd all be doomed, yet in the past 500 years, almost half the earth's vegetation has been destroyed. Of particular concern is the depletion of tropical rain-forests which are being destroyed at the rate of 6000 acres an hour — that's an area the size of 4000 football pitches! The trees are often cleared in order to ranch cattle, or grow food crops. However, this is very short-sighted, since removing the forests is having a serious effect on our planet's natural balance. It changes the climate, too, because the forests increase rainfall and prevent soil being washed away. Destroying forests increases the area of desert. Rainforests are also home to up to 50% of the world species of plants and animals — many of them quite rare — and destroying their natural habitat may result in their extinction.



The Red-eyed Tree-frog is just one unique rain-forest creature

The destruction of the rain-forests cannot be allowed to continue at the present rate. This doesn't mean that trees should never be cut down, but when they are they should be replaced with new plantings. Otherwise the finely tuned and well-designed balance of nature is being upset. Thankfully, many people are now realising how serious this problem is, and are campaigning to halt the destruction.



Tropical rain-forests are home to a rich variety of life, and destroying the forests threatens their survival. But trees are important to us too, since they have a positive affect on our climate as well as absorbing carbon dioxide.