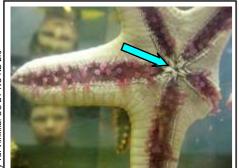


GOD did it FIRST!

Hydraulics

MANY modern machines, such a diggers, cranes and tipper trucks, use a method known as hydraulics. A liquid — usually oil — is pumped through tubes to move a ram. The pressure forces parts, such as the arm of a digger or crane, or the bed of a truck, to move. However, long before humans discovered hydraulic power, many living creatures were using it.

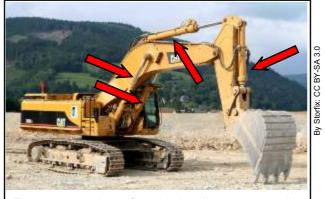


A starfish using its tube feet to cling to the side of a glass tank in Ontario Science Centre, Canada.

One of them is the **starfish**. Under each of its five arms are thousands of tiny tube feet. The

starfish draws water into its body through an opening in the centre (arrowed, left). This water is pumped along tubes in the arms to each of the tiny feet, making them open and close. **Spiders** use hydraulics, too. They pump blood into their legs to extend them. Some spiders can jump as high as 50 times their length!

The hydraulics used in modern machines had to be designed by intelligent people — it was no accident. The hydraulics used by starfish, spiders, and other creatures had to be designed, too. Their Designer is God, the Creator of everything!



The arrows show four hydraulic rams on this digger. They raise and lower the arm, and open and close the grab bucket.



Spiders use hydraulics to extend their legs

PUZZLE ANSWERS

Spot the difference:

1. Missing stars in window
2. Two keyboard colours
3. Screen colour
6. Dog missing antenna
6. Clock hands missing
7. Boy's hair colour
8. Girl's suit colour
9. Boy's ahoe colour
10. Boy's mouth red
11. Boy's mouth red
12. My mouth red
3. Uranus. 4. Nepture.
3. Uranus. 4. Nepture.
5. Mercury. 6. Venus. 7. Mars

ed by CPO Worthing

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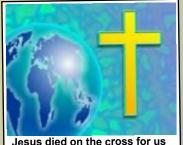
WE ARE NOT ALONE!

Lots of people believe there is life on other planets because they can't believe that we are alone in such a huge universe, with its billions of galaxies and stars. But we're not alone! There is a God who created all those stars, every planet, and all life on earth, including us, and He loves us.

The Bible tells us: "He made heaven and earth. Heaven belongs to the Lord. But he

gave the earth to people." (Psalm 115: 15-16). As the Creator, God had the right to make just one inhabited planet, and the rest of the universe so that we could worship Him for His great power. We don't believe that astronomers will ever find life on other planets, because life can't start by accident, and so many things need to be just right for life to exist. Earth is right for us, because God made it that way.

Our planet is more important than everything else in the universe because God



Himself visited it 2,000 years ago in the Person of Jesus. He died on a cross so that our sins could be forgiven, and rose again so that all who accept Him can live with Him for ever. "God loved the world so much that he gave his only Son so that whoever believes in Him may not be lost, but have eternal life. (The Bible, John 3: 16). There are many bad things in the world now, but Jesus will return some day, and create a new heaven and earth. All who love Him will be part of that!





Our world is just right for us. Is this an accident?





Earth is one of eight planets which travel around the sun in what is called the **solar system.** Earth is in a very special place for life to be possible. If we were nearer the sun it would be too hot, and if we were further away it would be too cold. Earth's average temperature is 15 deg. C (59 deg. F). The average temperature on Venus is around 470 deg. C (880 deg. F) That's twice as hot as an oven on full heat! On far-away Neptune the average temperature is -200 deg. C (-328 deg. F). Brrr! Earth is just the right size, too. If it were 10% smaller, the atmosphere — the air we breathe — would escape into space. But if it were 10% larger, the weight of the atmosphere would double, probably flooding our planet.

Pacific Ocean

No oceans on Venus!

The planet Venus was sometimes called "earth's twin", and some people used to believe that there were oceans beneath the thick clouds that hide its surface, with creatures like sea reptiles and dinosaurs living

there. In 1970 a space craft landed on Venus and took photographs. There are no oceans, and it's baking hot! Earth is the only planet we know of

that has oceans. There can be no life without water, and earth has lots of it — 71% of its surface is covered in water. The photo above shows the massive Pacific Ocean. We should thank God for this water, since without it we wouldn't be able to live here!



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Dung beetles
The Myth of Martians
Earth's special protection
Why we need the Moon
Puzzle Corner
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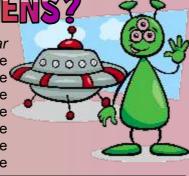
Films and TV programmes about space travel, such as *Star Trek* and *Star Wars*, always have stories about people meeting aliens from other planets. Some people say they've seen *UFOs* (Unidentified Flying Objects), which they believe are alien spacecraft. However, most of them have a simple explanation, e.g. unusual cloud shapes or objects like weather balloons. Yet, many people still believe there are intelligent beings on other planets. For years scientists have

been using radio telescopes like the one on the left, hoping to pick up mes-

sages from outer space, but none have been detected.

There are two main reasons why people believe that there are other inhabited planets. First, they argue that the universe is so big that there "must be" other planets out there with life; earth can't be the only one. However, "must be" is not a good scientific reason for believing it. The second reason is the idea that life will somehow just "happen" if a planet has all the right conditions. Yet no-one has ever been able to explain how life began on earth, since life doesn't come from non-life.

We believe there is life on earth because God created the right conditions, and then created life, in the beginning. The Bible says: "The Lord created the heavens... he made the earth. But he did not want it to be empty. He wanted life to be on the earth." (Isaiah 48: 18)





There are thought to be around a trillion stars in the Andromeda Galaxy. That's 1,000,000,000,000! Many astronomers believe that there must be other stars with planets like our earth. But there is no evidence.

THE WAR OF THE WORLDS

An artist's drawing of how

people might live on Mars

The Myth of Martians!

THE planet Mars is sometimes called the "red planet" because its desert-like surface is red. Mars is smaller than earth and further from the sun, yet for a long time many people have believed there is life there.

In 1898 a man called H G Wells wrote a famous book — *The War of the Worlds*. It was all about the earth being invaded by alien creatures from the planet Mars. Percival Lowell, a 19th-century astronomer, also caused excitement when he said that, when looking at Mars through a telescope, he could see a network of lines. He believed these

were canals that had been built by intelligent beings, and he drew maps of them (below right). However, other people couldn't see any lines, and we now know they were an illusion. There are no canals on Mars, and no "Martians"!

In fact, there is no evidence of any kind of life on Mars, and nothing could live there. It's much too cold, there's no water, no ozone layer around the planet to shield us from the sun's harmful radiation, and the atmosphere is too thin to breathe. It is very likely that people will soon visit Mars, but they will have to build special "pods" to live in, and find a way to create their own atmosphere, since they won't be able to survive outside.



Mars - the "red planet"

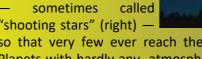


t Percival Lowell's map of Martian "canals"

Earth's special protection

Earth's atmosphere is like a protective blanket. Not only does it enable us to breathe, it burns up

thousands of meteorites
— sometimes called



so that very few ever reach the ground. Planets with hardly any atmosphere, such as Mercury, have no protection. The photo (left) shows Mercury's surface, covered in craters. We really should be grateful to God for our atmosphere!



Life on earth would be impossible without our moon! Other planets have moons, but ours is just the right size for us. The moon's gravity causes the ocean tides, which keep our seas and rivers clean and fresh. It also stops the earth wobbling as we move around the sun.





If you have ever walked across a field where animals had been grazing you will have noticed patches of manure (dung) left by the animals. You may even have stepped in some! Did you know that there are insects which bury and eat manure? They are known as dung beetles.



A dung beetle moving a ball of dung much larger than itself

These insects perform a very useful

service. You could call them nature's "clean-up brigade." They not only eat animal manure, but bury it in the ground, where flies can't breed in it, and where the manure can mix with the soil and feed plants better.

Over 200 years ago, people from Europe took cattle to Australia. As cattle farming spread over the country, there were plagues of bush flies

which fed on the animal manure.
These flies spread diseases and
eye infections to people. There
were already dung beetles which

ate the manure of kangaroos and wombats, but not cow manure. When scientists realised this, they took some of the dung beetles which feed on cow manure to Australia, The beetles multiplied, and eventually buried and ate so much of the cattle manure that the flies which fed on it were no longer a problem.

We may think that the diet of dung beetles is rather horrible, but God created these tiny insects to play an important part in looking after His world!

—Geoff Chapman



These dung beetles are feasting on a pile of horse manure

PUZZLE CORNER

Can you spot the 10 differences between pictures 1 and 2?





Unjumble the names of the planets below:

- 1. PRIETUJ
- 2. TASRUN
- 3. RUNASU
- 4. EPENTUN
- 5. CRUMREY
- 6. SEVUN
- 7. SARM

(Answers on the next page)

