



GOD did it FIRST!

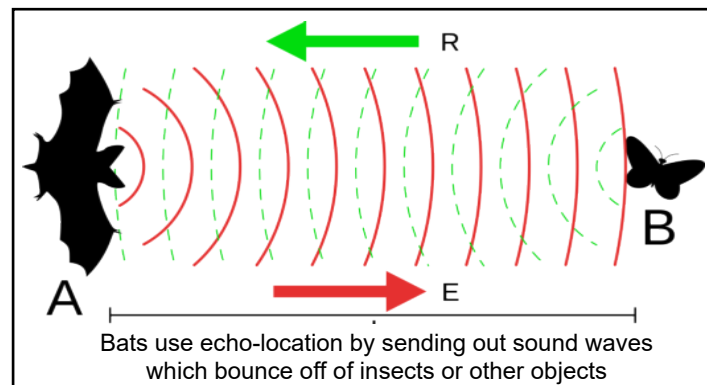
ECHO-LOCATION

SHIPS and submarines use echo-location — also known as **sonar** — to navigate at sea. It helps them find out how deep the water is. Sonar works by sending out sound waves and measuring how long it takes for the echo to bounce back. If the water is shallow, the sound waves return faster than in deep water. Sonar can also be used to detect enemy submarines in times of war.



Sonar has lots of uses. It is even used to enable blind people to “see” using an *Ultracane* (left). This sends out sound waves which bounce off objects so that the person can avoid them as they walk.

Some animals were using sonar long before humans “invented” it. These include bats, dolphins, whales, and some birds.

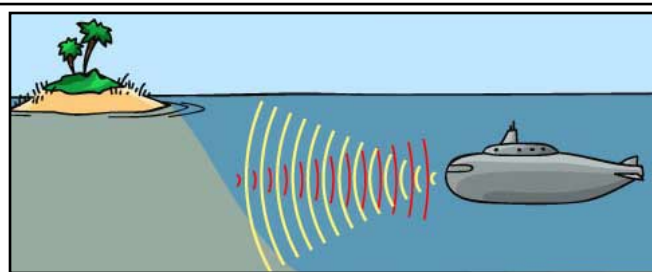


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Bats send out “clicks” 20 to 30 times a second, or even faster, and .can fly in total darkness without bumping into things. These sounds can’t be heard by human ears. The brains, mouths and ears of bats are specially designed to send and receive these signals. The same applies to dolphins and whales.



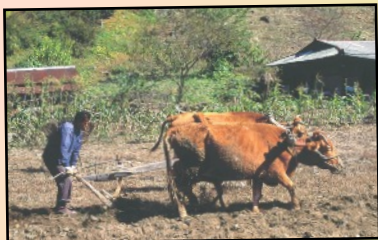
The sonar devices designed by humans, although very clever and useful, took lots of thought and planning, yet they are not as good as those found in nature. So gradual, chance evolution could never have given bats, dolphins and other animals their sonar. It must have been there ever since God created them.



Submarines use echo-location

CREATED TO HELP US!

MOST mammals live in the wild, and most of them keep away from humans. However, some mammals have been tamed and bred to be helpful to us. For thousands of years animals such as horses, donkeys, oxen, camels, and even elephants have been used for work and transport. Machinery does most of this today, but animal power is still used in some parts of the world (left).



Many people keep mammals as pets, including dogs, cats, ponies, guinea pigs, rabbits, hamsters and gerbils. Pets can provide good company for lonely people, and some, such as guide dogs (right) are very helpful. It’s surely no accident



that so many animals are useful to us. God made everything for a purpose, so it’s not surprising that He created some animals for our benefit.

In the beginning, God brought all the animals to Adam, the first man. “The man gave names to all the tame animals, to the birds in the sky, and to all the wild animals.” (*Genesis 2: 20*). Animals can be good friends to us, but they are very different from us. God created us to know Him, and He loves us. Sadly, the wrong things we do have separated us from Him, but “God sent his Son to be the way to take away our sins.” (*1 John 4: 10*). Jesus did this by dying and rising from the dead. We should thank God for creating the animals, but above all, thank Him for sending Jesus, and accept the love and forgiveness He offers.

PUZZLE ANSWERS

So God created human beings in his image. He created them male and female (Genesis 1: 27)

CODED VERSE:

1. Giraffe. 2. Wolf. 3. Leopard.
4. Elephant. 5. Panther.
6. Anteater. 7. Monkey.
8. Porcupine. 9. Kangaroo.
10. Sloth

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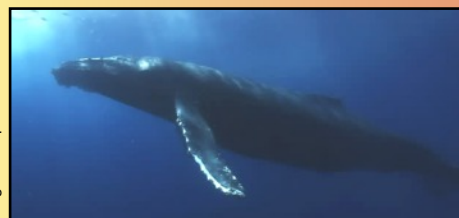
Mammals come in many shapes and sizes. Most live on the land but some live in the sea, and one kind – bats – fly. Did they evolve by chance, or were they created by God?

Little and LARGE



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The world’s smallest mammal, the pygmy shrew, is 85 mm (3.5 inches) long.



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The largest mammals, blue whales, can be up to 30 metres (99 feet) long.

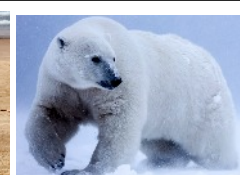
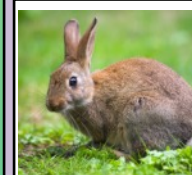
WHAT ARE MAMMALS?

MAMMALS are animals with warm blood, that feed their babies on milk. There are three types: the *monotremes*, which lay eggs (see page three), *placentals* – which give birth to live babies, and *marsupials*, such as kangaroos, wallabies and koalas. Their babies are tiny and only partly developed when they are born. They crawl straight into their mother’s pouch where they stay and drink milk until they are strong enough to live outside.



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A koala and a kangaroo — note the baby in the pouch



These are all *placental* mammals, which give birth to live babies

THE WONDER OF WHALES!

Whales are mammals that live in the sea. Their nostrils are on the top of their head so that they can breath without coming right out of the water. Some whales can dive for up to 2 hours without taking a breath! When baby whales are born, unlike other mammals, they are born *tail* first. This is so that they won’t drown before they can swim to the surface to take their first breath!

Did whales evolve from animals that lived on the land? If they did, they would have had to change a lot, and those who believe this really happened can’t explain which land animals they evolved from. Some say bears, others

say it was something like a hippo, or a wolf, or even a deer. To become a whale, land animals would need to move their nostrils to the top of their head, turn their front legs into fins, lose their back legs, and turn their tail into a “fluke” (left). There are no fossils showing land animals slowly turning into whales. We believe God created whales, and specially designed them to live in the sea.



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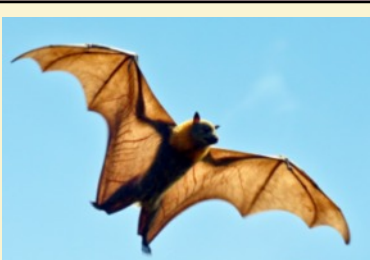
Bats have always been bats!

BATS are the only mammals that fly, and they do it really well. Their extra-long finger bones are covered by thin, light skin which acts as wings, and they have an *echo-location* system which allows them to bounce sounds off of objects to help them navigate in the dark as well as catch insects for food (see back page).

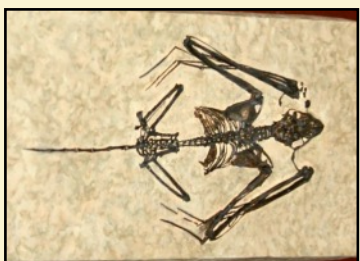
The evolution theory says that bats evolved from mammals such as shrews (left) which lived on the ground, but lots of changes would be needed for that to happen. If the fingers on a shrew's front legs began to grow longer it wouldn't be able to walk properly. Neither would it be able to fly until it had grown complete wings. So it seems impossible that bats could have gradually evolved, because any half-and-half animal (lower left) wouldn't survive! The bats' echo-location system would also have needed to be working properly before they began to fly.



Quite a few fossil bats have been discovered, but none of them are half shrew-half bat. They were just like bats which are alive and flying in the world now. So it looks as though bats have always been bats since God created them!



This bat's skeleton can be seen clearly through its skin



This fossil bat skeleton is just like bats that are living now. There are no fossils showing that they evolved from creatures that couldn't fly.

Credit: David McKellar

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Glenn Edney: www.grida.no/resources/3543



Where did MILK come from? All baby mammals need it.

All newborn mammals, from bats to bears, antelopes to ant-eaters, cats to kangaroos, feed on milk when they are born. This milk comes from their mother's *mammary glands*. This milk contains special things like sugar and vitamins, which help the baby to grow strong and protected from disease. The problem for those who believe in evolution is explaining where those mammary glands came from. Mammals are supposed to have descended from reptiles, but reptiles don't have mammary glands and don't provide milk for their young. One idea is that milk evolved from sweat! This doesn't make sense, because sweat is a waste product – quite different from milk, which is full of goodness.



A baby humpback whale feeding

Like all mammals, whales produce milk for their babies, too. A baby humpback whale can drink 600 litres (130 gallons) of milk in one day! Why don't baby whales swallow lots of water when they suck milk from their mothers under the sea? Because their mother actually *pumps* the milk into their mouth! Another of God's special designs!



ABOVE: a calf drinking milk from its mother. BELOW: This mother pig has lots of babies to feed!



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MONOTREMES – MAMMALS WHICH LAY EGGS!

There are two kinds of mammal which lay eggs — the **echidna** (below) and the platypus. The echidna, which lives in New Guinea and Australia, looks rather like a flattened hedgehog. It licks up insects with a long, sticky tongue. The female lays eggs directly into a pouch on her tummy, where they feed on milk. The **platypus** (right) lives in Australia. It is a strange animal, that swims and dives underwater. It has a bill like a duck, flippers like a seal, and fur like a beaver. When it was first discovered, many scientists thought it was a hoax, and that someone had sewn a duck's bill on to a mammal! When its tiny babies hatch from the egg, they feed on milk which oozes from the mother's fur. Although fossils of both these strange mammals have been found, there are none that suggest they evolved from reptiles.



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NATURE NOTES by the editor

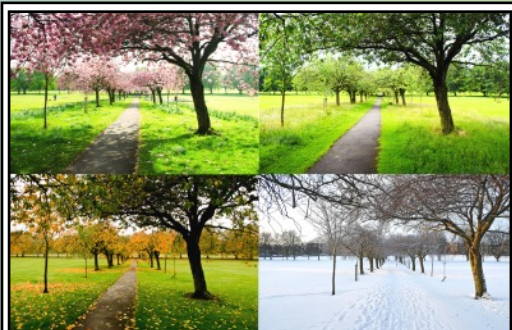
Unless you live near the equator — an imaginary line around the middle of the earth — you will notice that the seasons change through the year. In the summer the days are longer and warmer, and in winter they are shorter and colder. Why is this?



It's because the earth is tilted, like the globe on the left. The earth travels around the sun once every year. When the North Pole is tilted towards the sun the top part of the world (the Northern Hemisphere) gets more sunlight, and is warmer. At the same time, it is winter in countries like Australia because they get less sunlight, which makes for colder, shorter days. In between winter and summer we get spring, when nature comes to life after its winter sleep. Then, between summer and winter we get autumn (fall), when nature begins to slow down, leaves fall from the trees, and the weather gets colder again.

If our planet were not tilted we wouldn't get our seasons, and some parts of the world would be too cold for people to live in and grow food. When Noah came out of the ark after the great flood, God made a promise: "As long as the earth continues, there will be planting and harvest. Cold and hot, summer and winter, day and night will not stop." (*Genesis 8: 22*). God has kept His promise ever since. Another good reason to thank God, our Creator, for designing a planet that's just right for us to live on!

— Geoff Chapman



These photos show the four seasons from spring to winter in the same place

PUZZLE CORNER

CRACK THE CODE!

Use the code below to read the Bible verse



MUDDLED MAMMALS

Can you un-jumble the mammals' names below?

1. AFFERIG
2. FLOW
3. DROPLEA
4. HANTPLEE
5. TRAPHEN
6. ETRANATE
7. NOYMEK
8. PROINPUCE
9. ROONGAAK
10. THOLS

(Answers on the next page)