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THE GRAND DESIGN OF A GECKO

Have you ever seen a lizard run along the floor, up the wall, scurry across a window, climb along the ceiling, and stop? Clinging to the ceiling, he looks you in the eye. If you have, you were probably looking at a Gecko, one of God's marvelously designed creatures.

The first thing you might notice about some Geckos is their eyes. Unlike most other lizards, Geckos are active mainly at night, so their eyes are designed to be able to make the most of the little light that is present. Their eyes are much larger than most lizards that are active during the day.

The shape of the pupil makes Geckos eyes unusual. They have a variety of long, vertical pupils. Some of the Gecko's pupils are smooth-sided (like a cat) while others are long, and scalloped (wiggly). The scalloped-shaped pupils are very interesting. When closed, the scallops form a line of four tiny pinholes. Each pinhole sends its own image to the retina at the back of the eye, where the different images fall on top of one another. Instead of just seeing one of you, the Gecko can see four of you! In the darkness of night, a single image may not be bright enough for the retina to pick up, but a combination of four images provides enough light to be visible.

Have you ever wondered how the Gecko can climb a smooth surface (even glass and ceilings)? Scientists have wondered the same thing for a long time. Before the invention of the microscope, man looked at the Gecko and noticed that he had large, overlapping, ribbed pads (*lamellae*) on the bottom of his feet. These pads did not explain how the Gecko could stick to a ceiling. When the microscope was invented, scientists took another look at the pads. They discovered very tiny

hairlike bristles (*setae*) on the pads. That was very interesting, but it still didn't explain how the Gecko could walk across glass. The question was still unanswered until the electron scanning microscope was invented. By magnifying the bristles up to 35,000 times, scientists were able to see tiny spatula-shaped prongs, which act like little suction cups. When the Gecko climbs, the tiny hairs are brought in close contact with the surface, and weak forces between

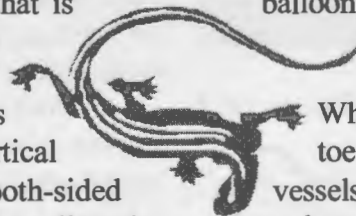
the molecules form a temporary bond. In other words, the spatula sticks. One hair has little holding power, but there may be more than a million tiny bristles per toe (half a billion per foot), resulting in remarkable holding power. Some people have even claimed to have sneaked up on a Gecko stuck to a glass window, and tried to snatch him off. The glass broke!

To make sure the hairlike bristles makes good contact with the surface, the Geckos have a complex internal mechanism in the toe. A pad (*lamella*) is the most outside portion of a design called a *scansor*. Inside the scansor is a large maze of blood vessels. These are connected to a *sinus*, a small blood reservoir (like a balloon) beneath the bones of the toe. The Gecko can shut off the blood in the toe from the rest of the body by a series of valves.

When the Gecko pushes onto the bones of the toe above the sinus, it pressurizes the maze of vessels, causing them to expand. He puffs up his pads using blood pressure! In this way as many bristles as possible are able to touch the surface and stick. The Gecko has muscles and tendons in each toe that allow him to stick each toe independently of others.

The way the Gecko's feet stick to surfaces poses a special problem when he is walking. In order to lift a foot a Gecko must depressurize its blood sinus and the maze of blood vessels and break the weak bonds that hold the hairs to the surface. It rolls the toes up from the tip toward the base, thus forcing blood back toward the foot and peeling the hairs away from the surface. Try that sometime! The Gecko's toes are designed so that the joints bend or curl upward. All this happens with every single step the gecko takes!

Could any of these special designs of the Gecko have happened by chance and accident? Did the Gecko evolve just a couple of bristles with tiny suction cups, and over millions of years add more? Until he had millions per toe, those bristles would have been useless, so why did



he evolve them in the first place? Without the special valve system and sinus in the toes, the tiny hairs and pads would not work properly. The valve system is useless without the sinus, which is useless without the hairs, which is useless without . . . Understand the problem? The only answer that seems to make any sense, is that it is a design that was created to work together. A design created by God!

they get this way? Especially hundreds of years ago. We found so many odd things. If humans do not change with time, how did the skulls get this way?

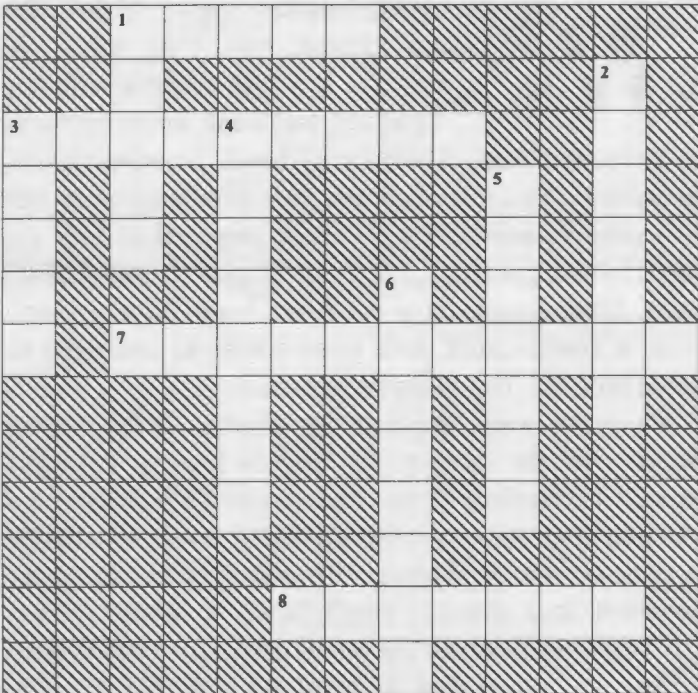
LeeAnna Tallman (11 yrs.).

Dear LeeAnna: The shape of a skull can be caused several ways. The first would be genetically. If the genes that you receive from your parents when you are conceived are altered in some way, your skull might be elongated. If you look at people today you will notice that there are a lot of different skull shapes (and body features). Some skulls are deformed by disease. Hydrocephalus (water in the head) can expand the skull size. A student in England with hydrocephalus had his head scanned. He had virtually no brain at all! Yet he had an IQ of 126, which meant he was smarter than the average person! Sometimes skulls can be deliberately deformed. A South American tribe used to bind the heads of royal babies to reshape their skulls to be like cones. The "coneheads" were the ruling class. In North America, some Native Americans used to bind a board to the back of an infant's head. You could tell what tribe a "flathead" belonged to just by his skull shape.



Perfectly round stones have also been found in Costa Rica. Some are 7 feet in diameter, weigh about 12-tons, and are carved in solid granite. Whoever carved them were skilled craftsmen.

We find ancient civilizations in Egypt, China, Crete, Greece, Mexico, Mesopotamia, Italy, South America, and many other locations. These civilizations were highly advanced. These ancient civilizations are a real problem for evolution. If we evolved from primitive man, where did all this ancient technology come from? Watch for a future Kids Think and Believe Too on ancient civilizations. Love Ya, Eugene



GECKOS (all words are from *The Grand Design Of A Gecko*. Answers at end of page)



ACROSS

- 1 Well designed lizard
- 3 Another word for wiggly
- 7 Number of hairs on each foot of Gecko
- 8 Tiny little hole

DOWN

- 1 What you see through in windows
- 2 Pads are outside of this design
- 3 Reservoir for blood
- 4 Pads on Geckos feet
- 5 Lid of a room
- 6 Number of hairlike bristles on each toe of Gecko

ASK EUGENE

Dear Eugene: I believe that God made us but I have a question. In ancient Egypt some of the skulls we found were shaped like this. We also found some giant boulders that were perfectly round. How did



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ANSWERS
 Down: 1.glass 2.scansor 3.sinus 4.larnellae
 5.ceiling 6.millions
 Across: 1.gecko 3.scalloped 7.halfbillion 8.pinhole

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