

Beauty is a gift from GOD

Consider the lilies of the field. They toil not neither do they spin. Yet even Solomon in all his glory was not arrayed like one of these.

No doubt everyone has stories of times when they saw beautiful plants or animals which quite took their breath away.

Flowers are particularly good examples of this phenomenon. In the prairies of Saskatchewan and by roadsides there in June, the beautiful Western Red Lily (*Lilium philadelphicum*) is guaranteed to claim your attention. No wonder it is the provincial flower of that prairie province in Canada.

Continued on page 2



by
Moxie



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The miracle of OWLS

The Bird that Should Not Exist

Owls, although birds, are unique compared to other airborne avians. Called the greatest hunters, they are one of the rare bird species that regularly hunt at night. They also have eyes that face forward rather than being located on the sides of their head like most other birds. Also,

unlike most other birds, when not flying, owls sit straight up supported by their two legs. Many of the bones that are separated in mammals are fused together in owls, making them strong enough to support their weight when on the ground. They also have large, broad heads surrounded by a collection of feathers around the eyes. Called a “facial disc”, it functions like a satellite dish to amplify sound. The facial disc is their distinctive trait, possessed by all owls but by no other bird. Also, in contrast to most birds, they do quite well in very diverse habitats, from deserts to forests and even in locations near the arctic, where they are appropriately named snowy owls. They are also critically important in keeping the rodent population, especially rats, under control.

Their incredible vision

Owls have one of the sharpest known visual acuities of any known

animal. They possess large, forward-facing eyes set behind their hawk-like beaks. The perfect and precise distance between their eyes was specially designed to achieve the excellent depth perception required for their carnivorous diet. Their vision is over ten times better than humans, so that potentially they could make out letters on a newspaper 100 yards away. Owls’ superior binocular vision was specially created to allow them to hunt at night. Even on nights lacking moonlight, an owl can easily spot a mouse 50 feet away.

Besides their regular eyelid they have an elastic transparent nictitating membrane that functions like the window wiper blades of an automobile. It has brush-like cells that ensure the eye surface is moist, free of dirt, and protected against microorganisms.

Many design innovations contribute to their superior vision. In most owl species, their eyes are five percent of the birds’ total body weight. If this proportion was applied to human beings, we would have eyes the size of large grapefruits.

Continued on page 4



by
Jerry
Bergman

Beauty is a gift from GOD

Continued from page 1

Flowers definitely turn our attention to the designer and creator of beauty. One could reflect forever on the beauty of flowers! Spring bulbs, tulips and daffodils in their blazing colours, cannot fail to give joy to the viewer. Then too, one could write books on the intricacies and amazing designs of orchids. The Boreal Forest in Canada boasts some beautiful wild species such as the calypso orchid of open pine forests, the large yellow lady slipper in open spaces of aspen stands, and the showy (pink) lady slipper of pine and spruce stands. For spectacular diversity in wild orchids however, there is no better place for viewing them than in South Western Australia. Of course, or-



chid breeders have taken these expressions of exotic beauty to entirely new levels!

Even non-flowering plants display beauty, although it is more subtle. As a teenager, I was very taken with the ferns of south eastern Quebec. Their life cycles were so interesting and so were those of the mosses, liverworts and club mosses. I transplanted some liverwort plants to a moist spot near our cottage. Every spring those liverworts duly produced lovely and delicate reproductive structures. I once persuaded a young man to place some of these plants under a plant propagating mist system. The liverworts did so well that it was impossible to get rid of them. Oops!

Of course, most people consider that

if an organism moves, it is much more interesting than one that stays still. So yes, animals are an important part of everyone's life list of beautiful life forms. I remember as a teenager standing on a large dock projecting into the sea at St. Andrew's, New Brunswick. The water was deep and within it, pulsating by the hundreds, were *Aurelia* jellyfish, each about 6 inches (15 cm) in diameter, according to my recollection. We may not like jellyfish, but these were definitely beautiful!

At first sight, a region like the western prairie in North America may not appear promising for beautiful wildlife, but look again. Among the water birds on ponds and marshes, there are ducks, swans, pelicans and shore birds, enough to keep birding enthusiasts and hunters looking for more. In our own backyard in the city, there are beautiful small birds like chickadees, and a whole host of other feathered friends including grey partridges in the spring, ring necked doves native to Eurasia but resident locally year round, and fierce but exotically coloured predators like sharp shinned hawks. Their salmon coloured breast feathers are quite amazing!

My special joy is a large aquarium full of local pond creatures. There may be white hydra which are built sort of like a sea anemone or upside-down jellyfish. About 1 cm long and 1 mm in diameter, it is easy to see them attached to the glass walls, dangling their tentacles in hopes of catching a water flea. There also may be mosquito wrigglers, crane fly larvae which hover motionless some distance down in the water, and on surfaces there may be dragon fly larvae, damsel fly larvae and so much more.

How could we not give glory to God who designed and sustains these organisms? It is time to give credit where credit is due. God has provided beauty throughout nature and our response must be heartfelt gratitude.

by
Moxie

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headSTART

New Online Tool for Science Students

HeadStart is a completely new tool available for high school students and their teachers (and postsecondary students). Written and developed by the Creation Science Association of Alberta, this tool is free and easily accessed. Check it out at www.create.ab.ca/headstart

Many people recognize that it is a privilege to learn about God, the Creator and his Creation. That is why, besides observing the natural environment in which we find ourselves, it is a pleasure to go beyond mere observations to discover how things work and why. Most young people undertake to study some science, at least at the high school level. But there is a problem, most programs of study include a lot of evolutionary concepts that point away from God and his work. Even seemingly innocent terms like microevolution, convergence, nucleus, fossil record and plant biology are loaded with evolutionary concepts. However, these phenomena themselves actually point overwhelmingly to the work of God, the Creator as described in Genesis and throughout the Bible. It was to communicate this message, that HeadStart was developed.

With the modern student in mind, HeadStart was written to provide online definitions and significance of key terms and concepts in science. This tool, which is cellphone

and tablet compatible, provides online, concise, downloadable, and printable information. The student and all interested users will be astonished at the ways in which the totality of life on earth, from entire organisms to biochemical features, structure and function of even the smallest component parts of organisms all testify to God's choices in the Creation.

This website includes terms arranged under four themes: Impact of Worldviews, Design, Cell Biology, and Investigate Further.

As students explore the Impact of Worldviews section of HeadStart they will discover that while the Christian worldview centres on God, the secular worldview is based on the idea that matter and processes were all that was needed to bring about the entire universe. Within this

Worldviews theme, basic origins terms and Christian treatments of origins issues are provided.

The topics under the Design theme answer the question where the beauty and amazing complexity of information in living creatures came from. The only possible answer is that it came from our awesome intelligent designer, the Creator of heaven and earth and all that are in them. The topics under this theme deal mainly with information and functionality.

Under the Cell Biology theme, topics dealing with the complexity of the cell are discussed. It does not take us long to realize that the living cell cries out that it was created.

Under Investigate Further, some topics dealing with the fossil record are included as well as the biology and design of many celled organisms and their ecological relationships. The bottom line is that all nature displays the wonder and majesty and character of God through the things that he has made.

In order to make this tool user friendly, there is a search engine as well as the listing of related terms under each discussion. There are also related resources listed for some of the topics. These include links to illustrated articles which are available elsewhere online, as well as links to videos that

bring the subject matter to life. Some of these articles are little known such as Dr. Steven Austin's 1996 article on dating the lava dome at Mount St. Helens (within the radiometric dating discussion). Also, the link to an item from *Nature* on the diamond jubilee of the discovery of DNA structure is available under the ENCODE project. This referenced article declares that "we don't fully understand how evolution works at the molecular level." The arti-

cle goes on and on in this vein. The video clips come from a variety of sources, creation, intelligent design, secular and commercial. All are excellent. Most are brief, which is ideal.

For the interested, and curious, and for the student, the HeadStart resource provides a rich source of information and inspiration.

www.create.ab.ca/headstart



The miracle of OWLS

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Continued from page 1

by
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Bergman



The larger the eyes, the more light they can take in. Furthermore, owls also have very large pupils, which let even more light in to strike the retina. Owl eyes also have a higher proportion of rod cells than many animals. Their rods are very sensitive to light, allowing them to see superbly in darkness.

In contrast to most animals, their eyes are located at the front of their heads, allowing them to zero in on their prey. However, owls cannot move their eyeballs as can most mammals, so in order to see their side visual field, they can rotate their heads up to 270 degrees, enough to see behind themselves. This design produces a very wide field of vision, wider than most life forms. They can also turn their neck almost completely upside down! And when tired they can rest their large head on their shoulders in order to sleep.

To achieve these feats owls have specially designed neck vertebrae that are strong and flexible. Their 14 neck vertebrae (compared to 7 in humans) allow them to twist and turn their necks in just about any direction. To turn their head to see behind them, they have neck blood vessels designed to allow turning this far without causing damage. To achieve this feat owls have a special jugular vein arrangement with associated bypass connector blood vessels to ensure that their blood supply (and return) is not impeded as the neck is rotated. In contrast to humans, owls have only one occipital articulation with the cervical vertebrae. This design allows an owl to pivot its head on its vertebral column - comparable to a human pivoting on one foot. Their muscle structure is designed to allow this movement as well.

Their extraordinary hearing ability

Owls have “one of the most extraordinary capacities for hearing in the animal kingdom.” The ear design includes the placement of the ear canals. The left ear is about one inch higher than the right, but points downward while the lower right ear points upward. The result of this design is that the left ear is more sensitive to sound.

Animal life with two ears, one on each side of

the head, (as is true of owls), requires comparing the different information received from each of the two ears. This is achieved in their brain which combines the two signals into one signal. Otherwise, the sound information would be like an echo chamber. Differences in sound arrival time, intensity, loudness, and force all must be fused by the brain into one harmonious whole.

Owls' binaural fusion is so good that they can hear a mouse under two feet of snow! They also can determine the exact location of their rodent prey. Owls achieve this by a second processing system. One processing system fuses the two sounds from both ears, (which is the information message as described above). The other system uses differences in arrival time, intensity, loudness, and force to accurately determine the location of the sound source. Owls do this so accurately that they can pinpoint their rodent prey location to within a few centimeters. This allows them to catch a mouse in complete darkness by relying solely on acoustical information.

Feathers designed for silent flight

Bird wing flapping is noisy, and would make catching mice very difficult. To deal with this problem each feather is bordered by a fringe made of tiny comb-like serrations at both the leading and trailing edge of their wings that break up the air currents which cause flight noise. This is important because their prey, such as mice, also have excellent hearing that allows them to hear the slightest sound. Their comb-like serrations design has inspired engineers to design quieter fan blades in computers, drones and other devices.

Evolution

Owls and all birds are believed by the majority of scientific workers to have “evolved from one group of dinosaurs (Theropoda) possibly during the Jurassic Period. Unfortunately, as so often happens, the fossil record is incomplete and one cannot trace all the steps between birds and their reptilian ancestors.” Evolutionists cannot trace their evolution because it never occurred. Because owl skulls are very distinct due to their telescoping eye sockets, if they evolved, their change from their bird ancestor should be easy to document in the fossil record.

The fact is “owls are well represented in the fossil record. ... New fossil discoveries are rare, and only over time will they either corroborate or refute the ever-changing proposed evolutionary relationships.” One problem is, when an owl fossil is found, it often consists of only small fragments. One well-known owl fossil was later confirmed to be a small dinosaur.

Actually, the claim that the bird fossil record is incomplete is an understatement. Indeed, evolutionists have no meaningful evidence for the evolution of owls from some pre-owl bird. As Burton admits “Bones of the earliest owls are good owl bones, but not halfway stages between owls and some other ancestral groups.” This is a problem because, as this review documents, the contrast between owls and all other birds is enormous.

The oldest known owl fossils are not links to theropods, nor even to non-owl birds, but simply extinct owl species. The most well-known example, *Primopteryx poliotaurus*, is an extinct owl that lived in Wyoming and is believed by evolutionists to have lived during the Eocene epoch around

55 million years ago close to the time when evolutionists believed the dinosaurs lived. Although missing its head, this fossil was largely complete. It was discovered in North America, causing Darwinists to conclude that owls must have first evolved in North America. So far, all owl fossils found only show variation within the Genesis kind.

Summary

We are indeed grateful that these exceptional predators exist. No wonder we are excited whenever we have the opportunity to observe an owl however large or small. The more we learn about these birds, the greater our appreciation of God, their creator, becomes.

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Canada's Beaver

Internationally Celebrated

Most Canadians are rightly proud of the beaver, their iconic national emblem. Indeed, the beaver is a remarkable animal with exceptional talents! Its lifestyle is made possible not only through the wonderful design of its body, but also through in-built skills. The fact is that beavers are the only animals anywhere which can change the landscape to suit their own needs and desires.

The skill of beavers at dam building is legendary wherever they live. Prior to 2010, a beaver dam in Montana (USA) was the largest such structure known. It was 652 m (2140 ft) long, 4.3 m (14 ft) tall and 7 m (23 ft) thick at its largest extent. The Montana beavers' claim to fame however ended when scientists looking for evidence of climate change, scanned satellite images of Canada's far north lands. These scientists were not looking for beaver dams. Such a thing had never been visible from space. But now they observed a beaver dam in Wood Buffalo National Park in Alberta. First visible (in retrospect) in a Landsat 7 image from 1990, in a 2004 image, the beaver dam appeared to be 850 m (2790 ft) long.

Jean Thie, a remote sensing specialist, first noted the artifact in a satellite

image taken in July 2004, but he did not make his identification until 2007. Eventually, in 2009, Parks Canada was informed of the situation. Thus, it was not until 2010 that Parks Canada released a statement to the world. The terrain is so boggy that nobody can access the site, but aerial reconnaissance has confirmed its existence. The dam must be about 35 years old, built and maintained by generations of beavers.

Beavers are engineers and builders. With only their teeth and front paws, they change landscapes so that a safe home can be built and enough food harvested and stored for winter. The lodges/homes are large and conspicuous, often about 5 m in diameter and 2 m high. Animals as large and tasty as beavers would surely be a popular meal for predators if all the hunter had to do was wait by the lodge until the beaver came home. Obviously, hidden entrances are essential to survival. What the beavers do is to locate the lodge in the centre of a body of water. Then the entrances are hidden under water, well shielded from the view of predators like wolves. Since the beavers are active throughout the year, they must be able to come and go from their lodge even in winter. Since most small bodies of water freeze at

that time, the beavers need to find ponds and streams deep enough so that some liquid water remains below the ice. Since such deep locations are hard to find, the beavers instead change shallow bodies of water into deeper locations. This is where the amazing dam building skills of the beaver are called into play.

First of all, the beavers must select a suitable location for their dam. It is the sound of trickling water which stimulates the beaver to plug the flow. The point that the beavers typically choose is where the noise of moving water is the greatest and the flow rate is fastest. Beavers are not committed to any one style of dam. They build whatever it takes to block the flow of water. A sluggish flow of water calls for a very wide dam, as we see in Wood Buffalo National Park. When the current is strong however, the dam is built with a convex curve in the upstream direction so that it best resists the pressure of the water. The beavers instinctively know how to compensate for

stress and strains of the water pushing against the structure. These animals even build outlet sluices for disposal of overflow water. The construction, after all, must not flood the lodge during times of higher-than-normal rainfall. The beavers always make the right engineering choices.

The beaver are certainly unique in their water management capabilities. These animals do not learn their building skills from their elders. They just know them. In Europe, for example, beavers were hounded almost to extinction and for generations had no opportunities to use their talents, but now, once again they are displaying their full architectural expertise. Moreover, in parts of the American West such as Washington, Oregon and Utah, beavers are increasingly being deployed as effective, low cost agents to restore watersheds. Beaver

dams and ponds restore complexity to the landscape, slowing the flow of water and sediment and restoring fish habitat.

Besides brain-power, each beaver needs the physical ability to actually build dams.

These large animals, distinctly rotund in shape, weigh between 16-32 kg as adults. They look awkward on land but quite the opposite in water. Their fully webbed hind feet, transparent membranes that protect their eyes and special valves in the nostrils and ears all facilitate under water activities. The oxygen holding capacity of their red blood cells also must be impressive since they are able to spend as much as 15 minutes submerged. So don't hold your breath waiting for a diving beaver to re-appear!

The beavers' front paws are small and delicate, without webs. They function almost like hands. They are able to carry objects such as sticks, stones or mud in their hands and they manipulate these into place in the course of their building activities. The beaver begins his dam by laying sticks and rocks in the streambed at the desired location. Lots of timber is required for this project. Here too the beaver is appropriately equipped for his task. His front teeth are hardened with a dark orange enamel (not pretty, but effective). The teeth grow continuously and the outer tips grind against each other. This keeps the cutting edges chisel-sharp. With these

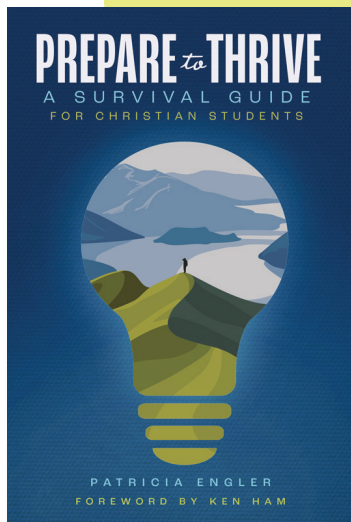
tools, beaver can easily fell trees 30 cm or even twice that (1 or two feet) in diameter. The trees are used in building operations, and as sources of twigs, bark and leaves for food.

Another interesting feature of beaver mouths is the fact that their lips can be closed *behind* their front teeth. Thus, while submerged, they can chew without choking on sawdust or water. This gives a whole new meaning to the expression "My lips are sealed"!

So, people pursue their agendas and beavers fell trees and flood the landscape. We may find beaver activities expensive and annoying at times. On other occasions we greatly appreciate their work. Wherever they are, we must admit they are beautiful animals. Canada's national emblem is characterized by skill, initiative and lots of energy. It's fun to watch them in action. We do not always realize that God confers on some animals amazing behaviour patterns which enable them to follow unique lifestyles. Such is the beaver. All peoples, near or far from Canada, who appreciate wonderful design, will surely see the hand of God in the creation of *Castor canadensis*.

by
Margaret
Helder





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Prepare to Thrive: a survival guide for Christian students

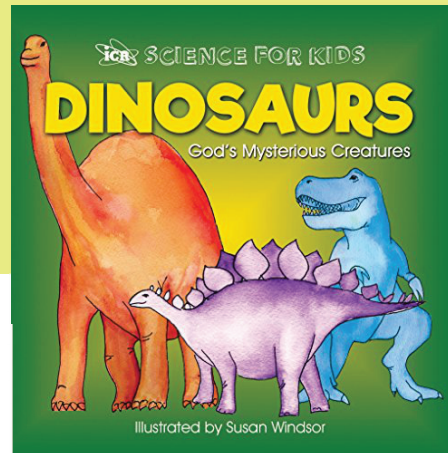
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