

Dialogue

In this issue

- Pg. 2 Books for You
- Pg. 3 Learning a lesson!
- Pg. 4 Captivating Birds
- Pg. 6 Weekend with Wise

EGG-SHAPED ENIGMA IN THE SKY



As Explorer I, the United States' first successful Earth-orbiting satellite was in the planning stages, physicist James Van Allen made an impassioned plea for the satellite to carry a Geiger counter to detect charged particles. The rest of course is history. Because of the Geiger counter, vast belts of charged particles were discovered in 1958.

In order to answer the question what caused the Geiger counter to react, scientists discovered charged particles in space. This was a surprise, that space beyond Earth's atmosphere was not empty. Indeed the space out there was so not empty that it also exhibited a strong magnetic field. In the same way that a flow of electricity through a coil of copper wire produces a magnetic field, so too, something about the earth produces a magnetic field.

Of course the next question to answer was where all those charged particles were coming from. The answer to that question came in 1962 with Mariner 2, the first successful mission to Venus. This American spacecraft discovered the solar wind. That is a constant flow of charged particles emitted from the sun. Now the scientific community realized that the solar system is not largely empty space. Rather it resembles a sphere of charged particles rushing away from the sun. The question next arose how far the solar rain extends. Does it go on forever? Associated with that question is another one, whether the solar

rain moves into something able to provide resistance. In other words is space largely empty beyond the solar system's most distant extent, or not?

It was the trajectories of the early spacecraft which provided us with information about the environments of the planets and beyond. Between 1969 and 1972, six manned American spacecraft in the Apollo series touched down and returned from our nearest neighbour, the moon. Even before that, it was apparent that the moon has no atmosphere and no associated magnetic field. The solar rain therefore impacts directly on the surface. This is the simplest scenario, but it does not apply to the planets. Mariner 2 in 1962 had already approached Venus. With no magnetic field for protection, it was assumed that the solar rain would penetrate to that planet's surface. However the real situation is different. There is an electromagnetic interaction between Venus' atmosphere and the supersonic particles in the solar rain. This interaction results in a shock wave where the speed of the particles from the sun drastically slows down. These particles then are deflected around the atmosphere so that they stream past the planet, not towards it.

A shock wave, by definition is a zone of compression produced by a sudden change in pressure and speed. If the disturbance is small, a loud noise may follow, but the result is much more dramatic (like an explosion) when a big body like a planet is

WONDERFUL WEEKEND WITH DR. WISE

Kurt Wise, who graduated from Harvard University

with a Ph.D. in palaeontology (fossils), and who currently is head of the Center for Theology and Science at Southern Baptist Theological Seminary in Louisville, Kentucky, delighted Alberta audiences with the breadth and depth of his knowledge. He seemed equally at home discussing Scripture, or biology, geology (fossils, hard rock, sedimentary rock, and land form), mathematics, radiometric dating, plate tectonics (motion of earth's continents), flood geology etc. etc. The list goes on and on.

People drove from remote parts of the province to hear Dr. Wise and they were not disappointed in what they heard. Some indeed complained that the question periods were too short. However Dr. Wise generously remained behind in the auditorium to answer questions for up to three



hours after a session ended! It is hard to imagine how he could have done more in a single weekend to share his insights.

Dr. Wise was scheduled to deliver four lectures. The first, which took place in the main lecture theatre at The King's University College, was entitled

by Margaret Helder

Continued on page 6

Continued on page 7

Cool new activity book for youngsters

Tammie Burak, a former elementary school teacher, has written an exciting activity book entitled *Creatures of the Boreal Forest*. The topic is good news for Canadians who sometimes forget the value of this natural community, which is such a prominent component of our landscape. The activity book provides chapters on four creatures: white-tailed deer, common muskrat, black-capped chickadee and bumble bees. Each section begins with a study of Scripture somewhat connected to the challenges which this animal faces and which we face too. Next a brief account of the ecology of each animal is provided including their taxonomic classification (mammal or bird etc). In addition there are vocabulary studies, math problems dealing with population levels, environmental issues, and outdoor activities and a craft.

by Margaret Helder & Tina Bain

This book emphasizes environmental challenges each animal faces and what we can do to help. Besides the recommended activities, work sheets and word games, the book lists websites and other available resources. This book is suitable for home school students, regular classrooms (grades 3-6) and for family enjoyment of nature. This book should be a Canadian best seller!

Tammie Burak. 2008. *Creatures of the Boreal Forest*. So Shine Publications. Paper with coil. Black and white illustrations. 76 pages. \$12.00

Answers for kids

If you've got kids, then you've got kids with questions. With the help of *The Answers Book for Kids*, your youngsters get some concise, Biblically-based answers to questions about the creation

New Books Keep Coming



and the fall (volume 1) as well as dinosaurs and the flood (volume 2). These colourful and attractive books each look at 22 questions which real children, aged 6-12, have asked. For example "Why did God have Adam name the animals?" "The serpent talked to Eve, so why can't snakes talk today?" and "Why aren't there fossils of humans from Noah's flood?" Each answer begins with a Bible verse followed by an easy to understand explanation, with further Scripture references provided. These fun, colourful and kid-friendly books will help children defend their faith in a secular world.

Bedtime reading for adults

There are several books available which detail the background and activities of people whose work includes discussion of the creation model. Few books however contain accounts as interesting and varied as this book edited by Doug Sharp and Jerry Bergman. Many of the names are familiar, but others are completely obscure. Some are professional scientists while others are involved in other ways such as producing and conducting TV interviews, or providing web sites or producing multimedia presentations. Almost all these people were originally strong supporters of the evolution model.

The book includes 33 personal accounts including that of MRI inventor Raymond Damadian, followed by a special section describing the lives of the founding fathers of the creation movement. If one is interested in an inspiring and varied collection of personal accounts, this book is for you!

Doug Sharp and Jerry Bergman (editors). 2008. *Persuaded by the evidence: True stories of Faith, Science, & the Power of a Creator*. Master Books. 288 pages. \$12.50

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Negative News

can be Interesting Anyway

Poisons are often interesting to read about, particularly when they are natural. Stories from coastal regions concerning human deaths following feasts on shell fish, all too often find a place in newspapers even as far inland as Alberta. Massive fish kills in New England lakes or cattle deaths after drinking from prairie ponds, similarly arouse our interest. But the really interesting feature is seldom mentioned. One basic molecular structure produces all these catastrophes.

One might ask what banana shaped turquoise flecks floating in a freshwater lake have in common with tiny brownish dots swimming in seawater. The obvious answer is “very little” and basically this is the correct answer. The turquoise flecks are bundles of tiny filaments of blue-green algal cells called *Aphanizomenon flos-aquae*. (The popular name for blue-green algae today is “cyanobacteria” because these organisms, which superficially look and act like the other algae, nevertheless lack organized nuclei in their cells.) The swimming dots are really quite large cells which look dark brown under the microscope. They have been dubbed *Gonyaulax catenella*. “Aha,” you say. “What these two organisms have in common is terrible names!” Other than that, these two algae could scarcely be more different. Their internal cell structure, cell size, biochemical contents and their ecology, are all very different. It is therefore very surprising to discover that they produce the same poison.

In the sea near the North American coast, paralytic shellfish poison accumulates in clams and other shellfish during red tides. At these times the sea water is darkly stained with thick concentrations of tiny swimming cells of *Gonyaulax* and possibly other similar organisms. Many of these blooms are strongly phosphorescent and at night the glow can be seen for miles. Shellfish and clams accumulate these organisms for food. The consumers are not harmed by the poison, but people have died after eating only one or two small shellfish. As the bloom recedes,

so does the poison in the shellfish. An exception is the Alaska butter clam, which stays poisonous for a year or more. Only eating, or a chemical test can reveal that a shellfish is poisonous. Cooking does not destroy the poison and there is no known antidote. Thus when signs at the shore warn against eating shellfish, it is a good idea to obey!

The poison in the marine alga *Gonyaulax* has been named saxitoxin after the Alaska butter clam *Saxidomus* which stays poisonous so long. The compound is a nerve poison. It is 160,000 times more potent than cocaine and approaches botulism in lethal activity. The poison blocks the transmitting of messages along nerves by blocking the sodium channels in the nerve membrane. Victims of this poison include seabirds, fish, invertebrates and man. Fancy chemical analysis has revealed that some other organisms similar to *Gonyaulax* as well as the blue green algae *Aphanizomenon* and *Anabaena circinalis* produce minor variations in the poison’s chemical structure. The molecules look much the same and they act in the same way in victims. As many as 17 minor variations on the saxitoxin theme have been described.

That freshwater blue-green algae also produce saxitoxin is certainly surprising. It seems most unlikely that natural processes, such as evolution, could have produced this specialized result. The two algal groups are totally unlike yet they produce a similar poison. In evolutionary theory, when two organisms possess the same metabolic pathway, it is usually assumed that they had a common origin. If they obviously are very different and thus could not be closely related, it is usually assumed that the unique pathway arose more than once as a result of similar environmental pressures. What selective pressure could have produced the present result, it is hard to imagine. Scientists believe that each group actually does manufacture their own poisons from scratch. The fact is however that the poison does not seem to benefit either alga. The poison is not even released from their cells until the algae are dying.

Only the infinite mind of the Creator can account for intricate details in nature such as these. Like thorns and thistles, we don’t necessarily celebrate these natural phenomena, but we recognize their existence and learn about them all the same.



by
Jerry
Bergman

Captivating Kiwi Birds

The kiwi is a unique small flightless terrestrial bird native only to New Zealand that has fascinated researchers for decades. Because they are like no other animal, living or extinct, their evolutionary origin has stymied evolutionists. Experts have found no evidence, fossil or otherwise, that can explain their Darwinian origins. The first kiwi was clearly a kiwi.

When the flightless kiwi (*Apteryx australis* – or southern wingless bird) was first examined in 1813 by British scientists, they concluded that this “impossible” animal was in the same fictional class as mermaids and unicorns (Anderson. 1955. *National Geographic* March issue p. 395). The kiwi has whiskers like a cat, is usually almost entirely nocturnal like a cat, but burrows like a groundhog. Unlike any other bird or mammal, it has nostrils at the tip of its long thin curved beak. It also lays eggs like a bird, but lacks a bird’s tail and wings (Anderson. 1955pp 395-398). An omnivore, the kiwi can eat everything from small invertebrates to fruit, seeds and even leaves. In contrast to most birds, the kiwi has poor eyesight but has both excellent hearing and smell, traits typical of mammals but not birds (del Hoyo et al 1992 *Handbook of the Birds of the World* vol. 1. Barcelona: Lynx Editions p. 104).

The kiwi ranges from 25 (10 inches) to 45 cm (17.5 in) tall, depending on the species. It lays the largest eggs known for its size, a one pound 12.5 cm long monster, which is incubated by the male for about 75 days! It is ironic that the kiwi, the smallest ratite (a diverse group of flightless birds, most of them now extinct), lays the largest egg of all ratites. The egg is so large that it is close to the size of its body without its legs, head and neck. The only explanation given by evolutionists for this fact is that their body size has shrunk throughout history and the egg size has remained the same (Hjelmqvist et al 1995 *FEBS Letters* 367 p. 306).

For these and many other reasons, the kiwi is the “world’s most unbird like bird A biological oddity” a creature known worldwide for “its strange features and behavior” (Peat 2006 *Kiwi: the People’s Bird*. Dunedin. Otago University Press p. 8). Once believed to be a very primitive animal, research

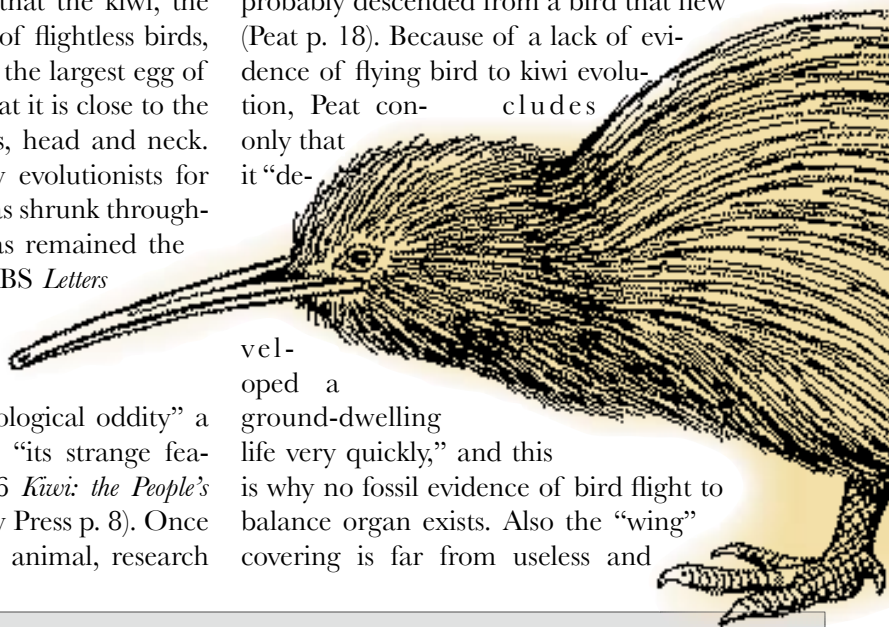
has found this claim is not true. For example, the most detailed study yet of its genome has found that it has a much more sophisticated immune system than previously assumed. Its immune system is now recognized to be as complex as those of placental mammals (Peat p. 167)

The kiwi is the smallest member of the ground-dwelling, usually non-flying birds called the ratite family, which includes the ostrich and emu (Peat p. 8). All flying birds have a “keel” protruding from their breastbone that provides a place for the attachment of their flight muscles, but all ratites are non-flying animals that have flat breastbones.

Although no fossil or other evidence exists in support of this view, the common claim is that the kiwi evolved from a flying bird. For this reason their wings are believed to have atrophied. Its name *Apteryx genera* means wingless, but it has what are regarded by evolutionists as vestigial wings beneath its silky hair-like covering. A typical claim is as follows: “The flightless Kiwi bird of New Zealand, familiar from the shoe-polish cans, has tiny vestigial wings hidden under its feathers; they are completely useless, but they attest to the fact that Kiwis, like all flightless birds, evolved from flying ancestors.” (Jerry Coyne. 2005 “The Faith that Dare Not Speak its Name” *The New Republic* Aug. 22-29 p. 24).

Other kiwi experts are more cautious, stating only that the evidence “suggests” that the “Kiwi probably descended from a bird that flew” (Peat p. 18). Because of a lack of evidence of flying bird to kiwi evolution, Peat concludes only that it “de-

veloped a ground-dwelling life very quickly,” and this is why no fossil evidence of bird flight to balance organ exists. Also the “wing” covering is far from useless and



is kept in good waterproof condition by the bird preening them with its long thin bill using oil from its uropygial gland.

Aside from the fact that loss of wings would be evidence of degeneration, not progressive evolution, the “wings” make it an excellent runner; its misnamed vestigial wings are critical in maintaining balance while it sprints through the grass. Kiwis can even work their way through a “tangled forest without stumbling or crashing into obstacles” (Peat p.18)

The “wings” actually consist of two small bones about the size of a child’s finger. They are not vestigial but – just as human arms enable us to run much faster with far greater coordination – are critical balance organs. Bird wings have feathers, but kiwi “arms” have hair-like plumage.

The kiwi is now commonly divided into five “sub-species” – two spotted and three brown kiwi – all of which are very similar in their appearance (morphology). Also the “taxonomy remains contentious” because the five sub-species are very similar in behavior and appearance (Peat p. 13). So close morphologically were they that until 1990 only three subspecies were identified, but genetic analysis has now indicated that five sub-species exist.

The kiwi has long been theorized to have evolved from the common ancestor of the other ratites which include the ostrich, rhea, emu, moa and even the cassowary family (Peat p. 37; Anderson p. 395). Fossil studies suggest it is most closely related to the now extinct moas, a large ostrich-like bird that stood up to 12 feet tall and resembled a giant flightless chicken (Peat p. 36). The moas, which became extinct around the 1700s, and the kiwis are believed to have evolved from a yet undiscovered common ancestor about 70 million years ago. Since then, it is claimed by evolutionists, that because

they are very different animals, they followed very different evolutionary paths (del Hoyo p. 104).

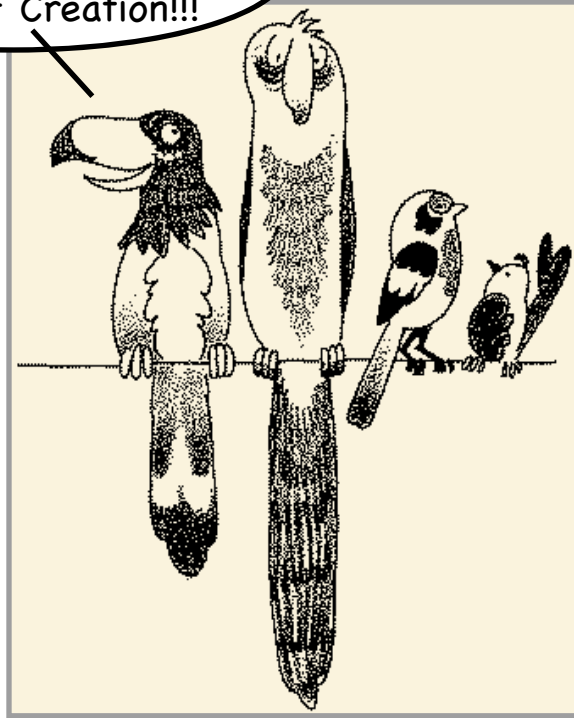
One proposed common ancestor of the kiwi is some other larger paleognath (“old jaws”), yet no fossil record connects it to any other ratite or any other animal -- and for this reason the kiwi remains an “evolutionary curiosity” (Peat p. 8). For a variety of reasons, such as no fossil evidence “clues to the Kiwi’s evolutionary history are not especially easy to find” (Peat p. 12). No fossil evidence of kiwi evolution exists in spite of the fact that there has been a “spectacular increase in the number of proven fossiliferous” deposits that have been uncovered in recent years (Bartholomai 1972 *Proceedings of the Royal Society of Queensland: Presidential Address* p. vi).

The lack of evidence for kiwi evolution in the fossil record has motivated evolutionists to do biochemical comparisons for clues to its evolution.

So far, biochemical comparisons of the organic molecules alcohol dehydrogenase I and 12S rRNA suggest that the kiwi is most similar to the ostrich, a fact that complicates the search for kiwi origins even more (Hjelmqvist pp.306-10).

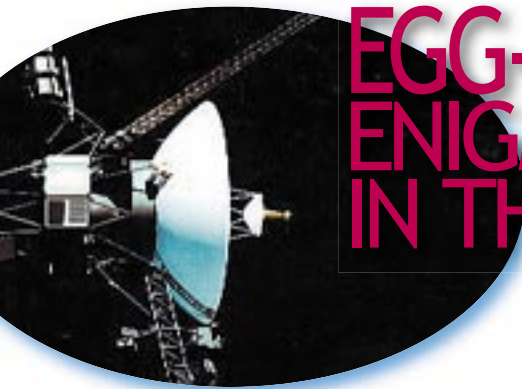
In conclusion, the theory that the kiwi has evolved from a primitive ratite is based on its physical similarities to others in the ratite family, but these theories lack both a mechanism and a rational explanation. More morphological similarities exist between the kiwi and birds than to most other animals, but major differences also exist. Furthermore, not one of the several existing theories of kiwi evolution is supported by the fossil record: the first fossil kiwis are clearly kiwis. The biologically and behaviourally improbable kiwi “is undoubtedly a living treasure – an ‘international heritage’” (Peat p. 7) and a wonder of creation!

Well Pete! I'll have to tell you.. It's a wonder of Creation!!!



Continued from page 1

Involved. By the early 1960s scientists had realized that Earth is protected from the solar rain by a strong magnetic field. Based on their observations with our planet, scientists thought that they understood shock waves, magnetic fields and the solar rain.



EGG-SHAPED ENIGMA IN THE SKY

This rosy picture of our understanding of space did not last long. In 1974 Mariner 10 approached Mercury. It was expected that the solar rain would be observed crashing pitilessly onto the planet's surface. Imagine the scientists' surprise however when they observed a fully developed bow shock (shock wave) resulting from a definite magnetic field. Mercury was not supposed to have a shock wave or a magnetic field. The planet is small, with no atmosphere. It rotates only very slowly so that it should not have a dynamo effect yielding a magnetic field. Yet there it was!

The situation around Jupiter was interesting as well. Measurements from the Pioneer 10 and 11 missions in 1973 and 1974 respectively, indicated that the magnetic field there was twenty times larger than the value for Earth's magnetic field at the surface. By now we have got used to the idea of the solar rain and shock waves associated with magnetic fields around most planets although we are a little unsure about what produces these magnetic fields. The solar system itself is a little harder to visualize as an object in space. However once we understand about particles coming from the sun, it is easy enough to picture what the solar system is like. Most have imagined it is be a sphere sitting in space. But what of

the interstellar (between the stars) space, is it empty as we formerly imagined? What the Voyager spacecraft have revealed is that interstellar space is not empty either. It transpires that the solar system creates its own bow shock as it encounters the interstellar flow of particles. It also transpires that there is something strangely lopsided about this interstellar flow.

The Voyagers amazing journey began in 1977. They eventually left the planets behind, in the case of Voyager 1 as early as 1980 and in the case of Voyager 2 in 1989. Voyager 1 left the plane (in which the planets move) first (1980), and has since traveled "north" of that plane. Voyager 2 left the planetary plane in 1989 and has since traveled in a "southerly" direction opposite the direction of Voyager 1.

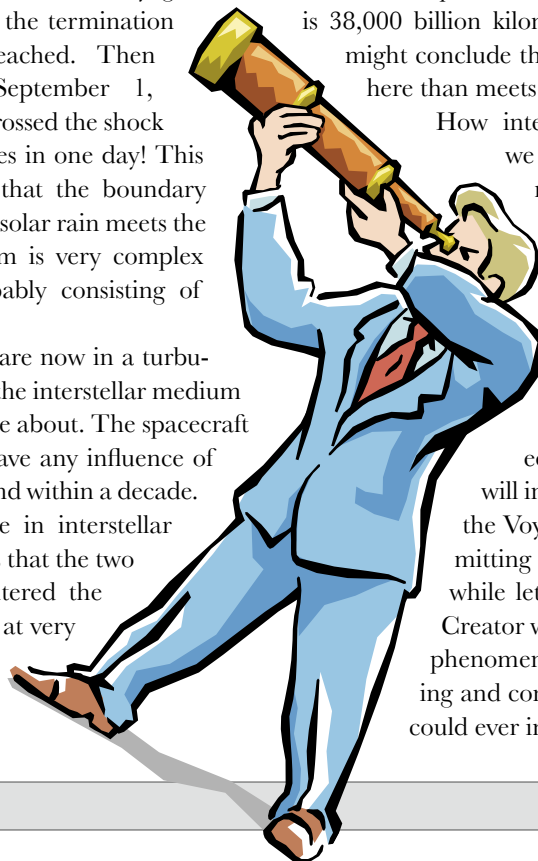
For many boring years the Voyagers encountered nothing but the faint spatter of the solar rain, but all that changed in the last four years. In December of 2004, the data recorders on Voyager 1 went crazy, and the termination shock had been reached. Then on August 31/September 1, 2007, Voyager 2 crossed the shock boundary five times in one day! This tells astronomers that the boundary point at which the solar rain meets the interstellar medium is very complex in structure, probably consisting of ripples.

Both Voyagers are now in a turbulent region where the interstellar medium and solar rain jostle about. The spacecraft are expected to leave any influence of the solar rain behind within a decade. They will then be in interstellar space. It is obvious that the two spacecraft encountered the termination shock at very different times. This translates into different

distances as well. Voyager 1 encountered the shock at 94 AU (One astronomical unit or 150 million kilometers is the average distance of Earth from the sun). Voyager 2 on the other hand encountered the termination shock at 84 AU from the sun. This suggested that the shock region is pushed in on one side. The two spacecraft were 110 AU apart, the one at 34 degrees N and the other at 26 degrees S.

Further investigations have shown that the solar system is not a sphere, as we would have expected, but more probably egg shaped. This seems to be the result of the impact of the interstellar medium. Measurements have shown that the interstellar flow impacts the solar system only on one side. This is all most interesting. We are told that there is a substantial flow of neutral (uncharged) particles coming from one direction in interstellar space. Where is the flow coming from? We are part of the Milky Way Galaxy, but the distances are huge. Also, in a region where the particles are neutral in charge, we are told there is a magnetic field. What is the source of this magnetic field? The closest star is Proxima Centauri, about 4 light years away. A light year is the distance light travels in one year, about 9.5 trillion kilometers. So the nearest source of particles or magnetic field is 38,000 billion kilometers away. One might conclude there must be more here than meets the eye.

How interesting it is that we keep discovering more complexity and more wonders in space. Our human imaginations are completely stunned by these unexpected discoveries. We will indeed be sad when the Voyagers cease transmitting in 2020. Meanwhile let us reflect on the Creator who made all these phenomena more interesting and complicated than we could ever imagine.



Continued from Page 1

"Floating a Forest: a study in creationist theory formation." This topic was chosen particularly to interest university students. Dr. Wise started his lecture by reviewing the location of plant fossils in the rocks and the identity of these plant fossils at different levels in the rock column. He then demonstrated how the data lend themselves very well to a new creationist idea, that many plants were part of extensive communities which floated on the oceans in pre-flood times. He discussed how the smallest plants, those most dependent on moisture, would be found in the outer, advancing edge of the community. Progressively larger plants, those requiring drier conditions, would be found toward the interior of the floating mat/island.

The composition of this plant community would be such as we see preserved in Devonian coal. The smallest plants, those exposed on the outer edge of the community, would be found farthest down in the rock column because they would have been swept away first by a storm.

Dr. Wise compared this floating community to quaking bogs which are quite common in our part of the world (boreal forest). The floating pre-flood plant communities however contained very different plants from those with which we are familiar in modern bogs. Particularly common in the earlier communities were club moss trees, tree ferns, cycads and the like.

The three talks on the Saturday took place at a large south-side church. His first lecture of the day dealt with the pre-flood world. He discussed the location and nature of Rodinia, possibly an amalgamation of most of the continents we know today. The biological community there, he proposed, included most of the groups of organisms with which we are familiar, but with the exception of birds, most mammals, people and many flowering plants. The latter organisms perhaps lived in a different community on another continent which may have been lost during the flood. And of course there were the floating forest communities, he declared, perhaps as large as a continent in combined extent. He also demonstrated that there was far more diversity (and disparity which means unusual features) among organisms which lived before the flood, compared to now.

His second lecture on Saturday dealt with the progress of the flood. Dr. Wise began with Scripture and then continued with current scientific models of the onset and progress of

the flood. He discussed catastrophic plate tectonics, Dr. John Baugardner's model and why it does not work over long periods of time although establishment scientists like to assume that it does.

He discussed how "bacterial" generated reefs (stromatolites) helped to trap sediments near the edges of continents. He also discussed research carried out at Mount St. Helens by Dr. Steven Austin and the implications of this for coal geology. Dr. Wise mentioned fossil trackways, particularly those of dinosaurs, and how most or all of these were probably made by animals which were suspended in water. These animals were trying to maintain some connection with the land surface (then submerged) and this is why impressions of their toe tips are what is found. He suggested this was why there are almost no dinosaur tail drag marks. It is because the animals were in the water and their tails were floating.

The final lecture of the day was on the post-flood world. The adjustment of the continents to emergence from the heavy overload of water included earthquakes, some of which moved mountains off of their "roots" (deeper area of rock in the continental plate which supports the heavier and higher mountainous rock column above), the rise of new mountain chains, the development of sediments with huge erratic boulders, some as large as 1 km in diameter, clearly carried by rushing water currents. Lastly he discussed the new concept of baramins, created kinds of organism. Many of these kinds, he postulated, changed quickly because of genetic diversity already present in them from the creation. He declared that the post-flood fossil record shows these creatures changing in the space of a few generations in step with a changing post flood climate and environment. The trend was to larger organisms better able to deal with increasingly dry conditions on land.

Nobody was bored in Dr. Wise' lectures. He showed an incredible range of facial expressions and tones of voice. He often reenacted scenes or situations such as his first visit to a quaking bog. His favourite expression was "Now that's really interesting!" when referring to some new information which has just been discovered. He knew how to highlight the important points so that nobody missed them. Even although the lectures were technical at times, everyone, even children, wanted to hear more. Everyone agreed that Dr. Wise must come back to Alberta soon for a return engagement.

WONDERFUL WEEKEND WITH DR. WISE



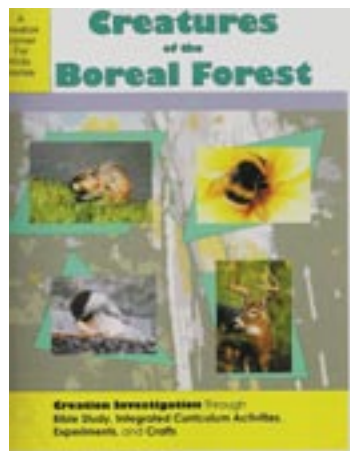
Persuaded by the evidence

Doug Sharp and Jerry Bergman (editors)

This book includes interesting personal accounts of the events which led 33 individuals to reject evolution theory and embrace the creation model and how this impacted their lives. Also the backgrounds of the founding fathers of the creation movement are included.

Paper / 288 pages

\$12.50



Creatures of the Boreal Forest

Tammie Burak

This activity book provides hands on activities in nature, arithmetic calculations, word games, Scripture study and more. Four creatures of the boreal forest are featured. Highly recommended for families with grades 3-6 youngsters or those in home school, or classroom situations.

Paper (coil) / 76 pages
black and white

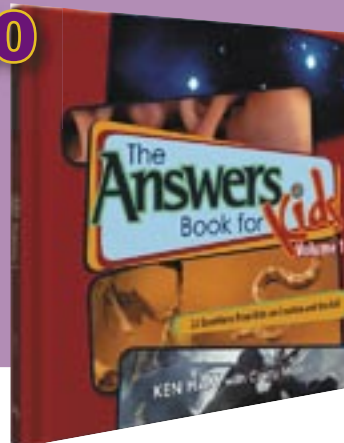
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Ken Ham

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If Animals Could Talk

Werner Gitt

Allan Collister and Mark Garvey (translators)

This book about wonderful design features in certain animals, has always been popular. However the animals themselves talk, in this new translation, in language certain to carry along the interest of young listeners. Animals discussed include whales, glowworms, earthworms and other creatures.

Paper / 113 pages / black and white

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