CREATION SCIENCE ASSOCIATION OF ALBERTA

Creation Science Dialogue

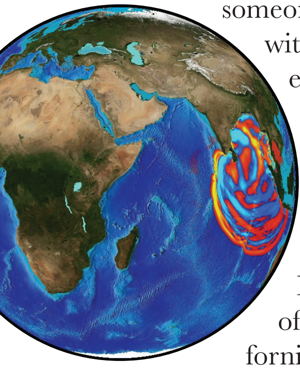
Volume 47/3 December 2020

Publication Mail Reg. 40013654
ISSN 0229-253X

CREATION WEEKEND 2020

On-line and Inspirational

For almost everyone, the year 2020 has certainly presented obstacles to our normal tasks and social gatherings. So it was that CSAA, like many Christian organizations, found that an on-line fall program offered the best hope of sharing our message. Blessed with someone on our team with expert computer skills, the appropriate programs were selected to make the event possible and professional. When David Coppedge of southern California agreed to be our speaker, we were so pleased! All the pieces of the organizational puzzle had fallen into place. One benefit of an on-line event, we discovered, was that people from as far away as Ontario and B.C., were able to enjoy the program. David Coppedge's theme for his presentation "Creation is Awe Inspiring" was Psalm 33:8. "Let all the earth fear the Lord, let all the inhabitants of the world stand in awe of him." Our speaker began his presentation by suggesting that Christians see the wonders of creation around them but do not always reflect on their significance. When we give proper emphasis to the doctrine of creation, he said, we find that it provides a reason for worship, a foundation of doctrine, a source of wonder, a reason for hope in suffering, and insights into where the battle with secular thought carries us today. Among that list, David Coppedge chose to discuss how the wonder of creation turns our out attention to God.



Keeping in mind that we are all interested in our own bodies, David Coppedge first called our attention to the marvelous capabilities of the human body. First of all, he showed us images of the World's Highest Resolution Computer Display at University of California, San Diego. This machine processes 10 gigabits per second and displays 315

Continued on page 3

PTEROSAURS /

Weird Animals that Defy Classification and Evolution

by Jerry Bergman

Pterosaurs (Greek *pteron* and *sauros*, meaning "wing lizard") are constructed from a combination of the characteristics of mammals, birds and dinosaurs with one of the weirdest looking beaks possible added on. This example points to the problem of taxonomy, the science of classifying life. Pterosaurs fly like birds and can flap their "wings" like a bird. They also can soar like an eagle using bat-like wings made from a flap of skin stretched between their body and a long fourth finger called the wing finger. They also have many body traits like dinosaurs. For this reason, they are often referred to as flying dinosaurs, or dragons of the air (Unwin, 2006, p. 2). Ironically, they are classified as reptiles likely because birds supposedly evolved after them.

Pterosaurs were first discovered in 1784 in the German Solnhofen limestone quarries. This is the same location where another strange creature, *Archaeopteryx*, originally identified as a pterosaur, was found (Clarey, 2015, p. 66). Twenty-nine pterosaur species, over 26% of the 110 pterosaur species currently known (in about 85 genera), have been found in Solnhofen limestone quarries alone.

Continued on page 4

Check-up Time
The Importance of Critical Thinking

by Moxie

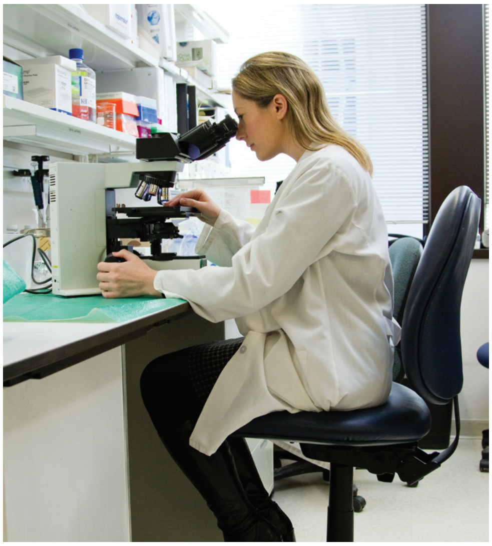
I remember suggesting to one of my professors, when I was at university, that a certain course would be a waste of my time since I had already studied that topic. He suggested that there might be more to learn and he was right, of course. In fact, there is always more to learn on any topic. That is why we hear so much about life-long learning. We don't want to atrophy (dry up) mentally or physically. It is important to keep developing our skills.

Naturally in everything we learn, we have to be cautious. We don't want to plant desert-loving plants in a wet area of the garden, or do stretches the wrong way, nor do we want to acquiesce to wrong interpretations in science, or history or philosophy or whatever. This does not mean we stop reading! What it means is that we apply critical thinking skills to our various pursuits.

That reminds me of a recent science story. Some people may remember the excitement in the scientific world that was generated by the publication of the ENCODE II study of the human genome in 2012. An international consortium of hundreds of scientists had boldly published the statement that the human genome (the 3.2 nucleotides that make up the total DNA in the cell) was 80% or more functional. What they meant was that 80% or more of these billions of nucleotides provides information for the production of materials or processes that are important to the success of the cell. A lot of scientists were very annoyed about this statement because they had been insisting that the cell was full of junk DNA left over from a long evolutionary process. Junk DNA and functional DNA were ideas that contradicted each other.

Many scientists were not interested in critically evaluating their evolutionary views in light of the new data. Recently however the ENCODE consortium has published an update. The results of ENCODE III are a confirmation and expansion of their previous results. So, if one wants the rest of the story about junk DNA see https://crev.info/2020/11/encode-iii-junk-dna/

The point is that we must be critical consumers of information. Are the interpretations based on dubious assumptions, or conclusions that go beyond the data, or are they something that one might provisionally keep in mind as reasonable. The book *No Christian Silence on Science* provides an in-depth approach to critically evaluating scientific claims. And there is a new advocate on the scene, Patricia Engler of Answers in Genesis Canada. She has a blog called *CT Scan* [Critical Thinking Scan]. See her recent excellent discussion on evoltionary trees. https://answersingenesis.org/blogs/patricia-engler/2020/11/04/evoltionary-tree-diagrams-part9/



Dialogue

Volume 47 / # 3 / Winter 2020

Creation Science Dialogue is a quarterly publication of the Creation Science Association of Alberta (CSAA).
Its purpose is to discuss the creation model of origin in terms of scientific details.
Subscription for 1 year $8.00

Return undeliverable Canadian addresses to:
PM 40013654
Creation Science Dialogue

Creation Science Association of Alberta
5328 Calgary Trail
Suite 1136, Edmonton, Alberta
T6H 4J8

Other Creation Science Associations
(see also www.creationinfo.com)

- Creation Science of Saskatchewan Inc.
  P.O. Box 26
  Kenaston, SASK. S0G 2N0
- Creation Science Association of B.C. P.O. Box 41104
  RPO Shaughnessy
  Port Coquitlam B.C.
  V3C 5Z9
- Creation Ministries International
  300 Mill Street, Unit 7
  Kitchener, ONT, N2M 5G8
- Association Creation et Science
  CP63, Succ. Youville
  Montreal, Quebec, H2P 2V2
- Institute for Creation Research
  1806 Royal Lane
  Dallas, TX. 75229
- Creation Research Society
  Van Andel Center
  6801 North Highway 89
  Chino Valley, AZ.
  86323 - 9186

Visit us at www.create.ab.ca

CREATION WEEKEND 2020
On-line and Inspirational

Continued from Page 1

million pixels. Computer fans will know that this is impressive, the equivalent of 150 high definition computer screens. But we should be even more impressed that our eyes are vastly superior (and so small!) Each eye displays the equivalent of 576 million pixels (and we have two of them!) The wonders of the eye do not stop there, of course.

David Coppedge also reviewed the remarkable details of the crystalline lens in each eye, and other features promoting perception.

As if we weren't already impressed enough with human anatomy, David Coppedge reviewed details of our inner ears, teeth, the spleen and appendix, and amazing details of our feet. It is certainly remarkable the things that people can achieve through use of their feet. One expert remarked that the human foot is a biomechanical masterpiece. The springy tendons in our feet are an exceptional feature that humans share only with horses and kangaroos! As a result of this capacity, endurance running is unique to humans among primates and such endurance is uncommon even among four footed mammals. In view of the impressive design features of the human body, we should perhaps emphasize fitness and the enjoyment of our conferred aptitudes in our lifestyle.

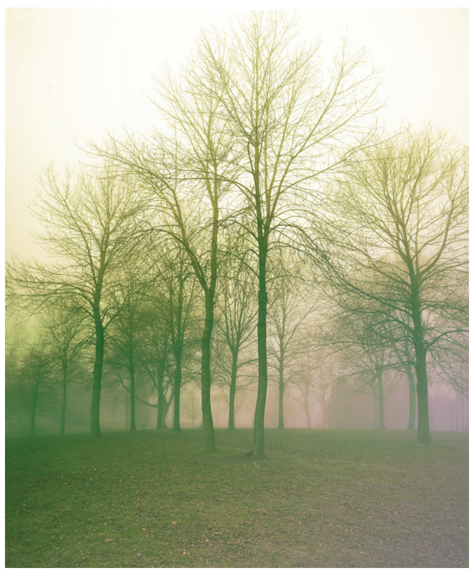
For a change of pace, David Coppedge proceeded to discuss the blessings and wonderful features of plants. We heard about mycorrhizae (fungal threads in the soil) which connect forest plants enabling them to share nutrients and signals concerning causes of stress such as attacks by parasites. One plant in India, the drumstick tree (*Moringa oleifera)* sounds almost too good to be true. Products from this tree disinfect water, fertilize soil, provide good human nutrition and help fight parasitic infections. What a gift to the people of India.

After providing a few highlights from animal design, we came to a discussion of the living cell. Originally, David Coppedge pointed out, scientists had considered that living processes in the cell came merely from chemical reactions. But now we know that life processes come from precisely shaped machines that do real work. One of the most amazing such machine is called ATP synthase. This machine exhibits about 6000 revolutions per minute and is almost 100% efficient in its use of energy.

This machine is extremely small, even by standards of molecular machines in cells. It consists of a base which revolves around a short stalk. At the top of the stalk are 3 pairs of pie shaped pieces with special grooves between each pair. Protons (hydrogen nuclei) rush into the base forcing it to revolve. At the top, within the special grooves, adenosine diphosphate and inorganic phosphate are pushed together as the whole thing rotates. The product ATP has a high energy bond from which energy can be released to drive all the processes of the cell. There are quadrillions of these machines in the human body and life of any sort could not exist without them. (This is a chicken and egg example of a problem for evolution. How did this totally necessary machine come about before there were these machines to provide the energy?)

Lastly Mr. Coppedge provided us with a glimpse from space which demonstrates how insignificant we are. The more we look into space, the more we discover there is to see. How great is our God who made and controls it all!

Having inspired us all with his insights into nature, David Coppedge then answered questions on such topics as earth's magnetic field. He also discusses this issue, which has implications for the age of the earth, in *Spacecraft Earth* coauthored with Henry Richter, and in discussions on *Creation Evolution Headlines* listed under physics for December 11/18, October 2/19 and June 10/20.



So CSAA's experiment with on-line technology went very well! Next year maybe we can go back to an in-person event, but it is still good to know how to enjoy and utilize the benefits of technology!

by
Jerry
Bergman

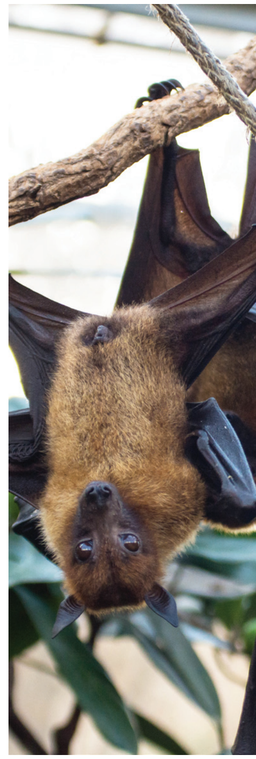
Pterosaurs / Weird Animals that Defy Classification and Evolution

continued from Page 1

Pterosaurs are the largest known flying animals that have ever lived. Most of them were about the size of a large bird, but some had wingspans up to 15 meters (over 45 feet) long and heads as large as a small automobile. They were excellent flyers, and from a distance looked like large birds. Even though pterosaurs had a long alligator like snout, they were in some ways more similar to birds than to alligators or any other reptile. For example, like birds, their bones were air-filled and hollow, some with walls as thin as playing cards. Thus, their fossils do not lend themselves to preservation; nevertheless, they have been found all over the world. Enough fossils have been preserved to determine that there were as many as 110 different species. They even had a keeled breastbone, required for the attachment of flight muscles, and an enlarged brain that indicates they had the specialized features required for flight. Like mammals, their bodies and parts of their wings sported dense coats of fine hair filaments called pycnofibers (Yang, et al., p. 24). The pycnofiber filaments were very much like mammal hair, yet homologous to the bird down feathers used to stuff pillows. [Homologus means that the picnofibres are presumed to share a common origin with feathers.] Their hair was so unique that it is believed to have evolved independently on pterosaurs and no other animal. The hair likely functioned to improve the aerodynamic qualities of their body, and also facilitated tactile sensing, signaling, and even thermoregulation.

Unlike feathered birds, pterosaur "wings" were constructed from leathery membranes similar to the wings of bats, which are the only flying mammals! New fossil pterosaurs discovered in Germany in 2001 were so well-preserved that even the wing structure details were visible. We now know that their wing membranes were very complex structures designed for effective flight. Also, like all reptiles, all "early pterosaurs had teeth" (Veldmeijer, et al., 2012. pp. 55-56).

Since the first study of pterosaurs in 1784, a great deal of research has been completed in the last century. Yet much about these creatures is still unknown (Hone, 2013, p. 1366). For example, were they warm or cold blooded? What was the function of the long colorful crests on the top of their heads? Possibilities include a result of sexual selection, a means of staying cool, or a steering aid. The fact that their crests vary greatly according to species indicates they have a display function to help them identify other members of their species.

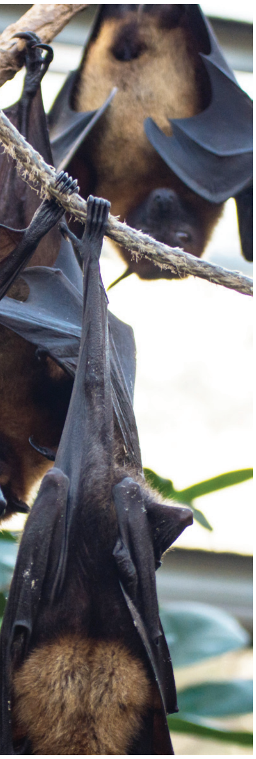


Pterosaur Evolution

Because they are different in several major ways from both birds and lizards, a major problem is pterosaur evolution (Witton, 2013). It is even difficult to speculate where they evolved from, or to identify their possible transitional forms. Professor Veldmeijer, et al., write that where they evolved "is not conducive to fossilization, which means our quest for these pterosaur ancestors may be in vain." (Veldmeijer, et al., 2012, p. 55). The fact that an estimated 110 species of pterosaurs have been discovered argues that they could not have evolved in locations "not conducive to fossilization." This claim is made to excuse the fact that the fossil record does not provide even a hint of their evolution.

Since no plausible common ancestor exists, Darwinists postulate that most of their traits "were not inherited from a common ancestor, but result from convergent evolution!" (Unwin, 2006, p. 7). This means their many major unique traits evolved separately from close to scratch! If so, their presumed long evolution from, for example, no wings to their large functional wings, should be well-documented in the fossil record. Irreducible complexity is also a major problem in pterosaur evolution. As noted by Peters, "Successful powered flight would have been possible only after a critical wing size had been achieved" (Peters, 2001, p. 277).

Of the comparatively good pterosaur fossil record "evidence of pterosaur [evolution]… seems to be completely and utterly absent: Not a single thin-walled bone, or shard of a wing-finger bone, has yet been found," says David Unwin, the world's leading expert on pterosaur evolution (2006, pp.



233-234). As a confirmed evolutionist, Professor Unwin believes they must have evolved, so asks "when did these currently invisible [evolutionary] changes occur?" His answer is that perhaps the "Pterosaur experienced an evolutionary 'big bang,'" meaning the evolution of a wing from a limb happened so rapidly that the thousands of changes required to change a leg into a functional wing were not, or were very rarely, recorded in the fossil record (Unwin, 2006, p. 233). The fact is, no evidence of their evolution exists in the fossil record, and the most straight forward logical answer is that the first pterosaur *was* a fully-formed pterosaur.

Researchers early on questioned if their strange design allowed them to actually fly. Consequently, they constructed several scale models to test this ability. They concluded that these huge animals not only could fly, but they were expert flyers in spite of the enormous size of the larger species. Evolutionists claim they were the first known animal to fly. And, as this research showed, they were perfectly designed for highly effective flight. Yet we have no examples of preflight animals that perfected flight leading up to the flying pterosaurs.

All known possible evolutionary precursors to pterosaurs were well-designed for either terrestrial life or flight, and no clear intermediate creatures existed between the precursors to flight and the flyers. Almost the entire design of a terrestrial animal would have to be modified to enable it to convert from a terrestrial to a flying animal (Lü, et al. 2010,). The best guess *where* they evolved from back in deep time, which is highly debated, is that their early ancestor was a *Scleromochlus*, an animal with the body of a lizard with long, thin legs like a whooping crane that look nothing like a pterosaur. Some transitions of minor traits though, have been uncovered. For example, *Darwinopterus* has been posited as a transition bridging the former gap between a long-tailed basal form and a short-tailed form derived from members of Pterodactyloidea (Unwin, 2010, pp. 68-69). As imagination is unconstrained by the fossil record, speculation is rampant. For example, Peters concluded "contrary to traditional thinking, the wings of pterosaurs appeared last, not first among their adaptations. The wings of pterosaurs appear to have been secondarily adapted for flight after first appearing as foldable membranes, employed in display, bluff, or vertical running escapes" (Peters, 2001, p. 299).

Why They Became Extinct

The reason they became extinct is also debated, as well as even *if* they have become extinct. Occasionally, sightings are claimed by persons such as ornithologists or airline pilots that are somewhat convincing. Most claimed sightings, though, have not been carefully documented, ideally with a Pterosaur body as proof. It is also hard to verify the identity of creatures sighted from a distance since they look very much like a large bird. Judgements of their size are also difficult because, when in the sky, there is rarely something of known size to compare it with to estimate size (Hone, 2013). Another problem is that many pterosaurs were the size of a robin, others the size of a small plane.

Intriguing rock carvings suggest these flying monsters could have survived well into modern times. Since no clear proof exists that they are extinct, the assumption is that some, possibly smaller pterosaur species, may have survived. What is clear, however, is that there is no sign of any evolutionary ancestors. This wonderful design appeared fully functional in the fossil record.

References

Clarey, Tim. 2015. *Dinosaurs: Marvels of God's Design*. Green Forest, AR: Master Books.

Hone, D.W.E. 2013. Pterosaur Research: Recent Advances and a Future Revolution. *Acta Geologica Sinica* 86(6):1366-1376.

Lü Junchang, Unwin, D. M., Ji Shu-an & Ji Qiang (Eds). Flugsaurier 2010, Third International Symposium on Pterosaurs: 5-10 August, 2010, Beijing, China. *Acta Geoscientica Sinica*, 31 (Supp. 1) 1-93.

Peters, David. 2001. A new model for the evolution of the pterosaur wing—with a twist. *Historical Biology* 15:277–301.

Unwin, David. 2006. *Pterosaurs From Deep Time*. New York, NY: Person Education.

Unwin, David, and Jay Lü., 2010. *Darwinopterus* and its implications for pterosaur phylogeny. *Acta Geoscientica Sinica*, 31(1):68–69.

Veldmeijer, Andre J.; Mark Witton, and Ilja Nieuwland. 2012. *Pterosaurs: Flying Contemporaries of the Dinosaurs.* Barnsley, England, UK: Sidestone Press.

Witton, Mark P. 2013. *Pterosaurs: Natural History, Evolution, Anatomy*. Princeton, NJ: Princeton University Press.

Yang, Zixiao, et al,. 2019. Pterosaur integumentary structures with complex feather-like branching. *Nature Ecology & Evolution* 3:24-30.

Films

Paleoworld. *Flying Dinos*. The Learning Channel. 1997. Film 2 is on Pterosaurs.

High Tech Expertise from Fruit Flies

It was a surprise to read in the September 17 issue of *Nature*[1] that fruit flies have some interesting things to teach us in the field of technological applications of extremely thin protective coatings.

For this story, we focus on their beautiful red eyes. Like all insects, fruit flies have compound eyes consisting of multiple miniature light receptors which focus on one spot at the back of the eye. We immediately notice that these compound eyes tend to bulge outward, or at least they are highly exposed. There are no eyelids to protect them from damage and/or to protect them from glare. It was back in the 1960s and 1970s that biologists began to notice that insect eyes seem to have some protection after all. Depending upon the lifestyle of the insect, their eyes seem to have anti-reflective or anti-adhesive protection. An anti-reflective coating allows more light to be transmitted through a transparent layer than would normally occur. And an anti-adhesion coating repels water from such a surface.

Apparently, there are many applications in industry where artificial nanocoatings are essential. [Anything on a nano scale is almost down to the level of individual molecules.] These applications include electronics, automotive, marine, aerospace and medical devices.[3] Unfortunately, current industrial and commercial nanocoating technologies exhibit limited versatility and they use non-eco-friendly methods and materials.[2] However, work with insect eyes, and specifically the eyes of *Drosophila* species, reveal a world of highly versatile, stable and eco-friendly nanocoatings. This study "identifies how multifunctional nanocoatings are created in nature and translates this knowledge into technological applications."[2] Apparently the fruit flies effortlessly manufacture the kinds of products that industry expects to spend about fourteen billion dollars to obtain by 2027.[3]

by Margaret Helder

It was partly to understand the biology of insects, and partly to learn how to expedite the industrial production of surface nanocoatings, that this project on *Drosophila* eyes was initiated. Apparently, this fly inhabits a wide variety of habitats, everything from tropical forests, to deserts, to volcanic islands. This scientific team, from Switzerland and Russia, studied fourteen species of *Drosophila* including our favourite *Drosophila melanogaster.* Depending on the lifestyle of each species, the coatings on the lenses of the compound eyes varied from more anti-reflective to more anti-adhesive. Interestingly, the insect eye nanocoatings appear in the developing embryo before the rest of the eye appears.[4]

When they examined all these fly species, the scientists discovered that the nanocoatings exhibited different surface textures. The anti-reflective surfaces exhibited nipple-like protrusions, whereas the anti-adhesive surfaces exhibited ridges or even maze-like structures built from the nipples. The scientists had expected that these different patterns would reflect what they assumed to be lines of descent of the different species (taxonomic subgroupings). This would be in keeping with evolutionary expectations. However, to their surprise, they found that the surface exhibited by each species instead reflected their lifestyles, and not according to genetic relationships.

Obviously, the fruit flies exhibit skills for manipulating nanocoatings that technologists do not possess. The current scientific team then adopted a hypothesis that the diversity of surface textures in these coatings is the result of pattern development. Alan Turing (1912-1954) had proposed that a reaction-diffusion process can explain a lot of patterns observed in biology. Most of the observed patterns are much larger however. These include spatially periodic patterns such as spots or stripes, hexagons, or spirals that we might see on animal skins. The corneal coatings in insect eyes is the first case where the Turing process is proposed for a nanoscale phenomenon.

Turing's idea envisages two compounds which mix together. The idea is that these substances diffuse into each other while at the same time interacting and changing their properties as they proceed. The interaction between two substances is what produces the pattern. In the case of the insect eyes, the more of the activator there is, the more nipples the nanocoating will exhibit (with better light transparency). The more inhibitor there is, the less transparent the coating will be, but the better it will be at repelling water. With this model in mind, the team set out to discover the identity of compounds which constitute the coating of the fruit fly eyes. One of the reasons that these scientists chose fruit flies was that the genomes of these insects have been fully sequenced.

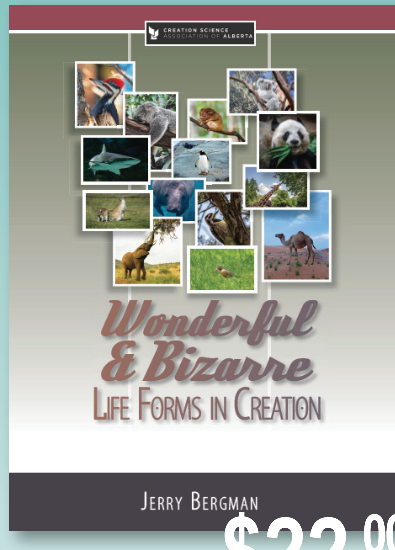
The scientists began to look through the nucleotide sequences in each species' DNA to look for products connected to eye biology. They suspected that the two compounds might be a protein and a wax. They were unable to identify the exact wax, but they did identify the protein. Retinin is an "unstructured protein" with no specific folding pattern until it interacts with a wax. Then, depending upon the composition of the wax, and the proportion of wax to protein, the nanolayer exhibits a more nippled surface or a more ridged surface. Thus, they concluded that "retinin and wax lipid(s) are the two components that jointly regulate the formation and the type of corneal nanostructure in *Drosophila* flies."[5] Additionally they suspect that the induced folding of retinin by the wax leads to changes in the properties of the protein. By mixing the protein with different waxes and in different proportions, the team found that they could produce all sorts of patterns. Their bio-inspired nanocoatings were stable, withstanding intensive washing. Thus, they declared "Diverse nanocoatings result in diverse functions."[3]

Through this study, these scientists have demonstrated a way to produce protective coatings which are thin, effective, resistant to damage and very economical. Once again technologists find that they can improve their designs by learning from the Creation. Alan Turing did not invent such processes, he merely hypothesized how natural patterns might develop. The interesting thing is that the insect world already applies such relationships and processes in order to produce precise products. Who knew that the fruit flies zinging around your kitchen, enjoy the benefit of high tech sunglasses. Now for sure, my friends will revise their negative opinions of these flies with the beautiful eyes!

Citations:

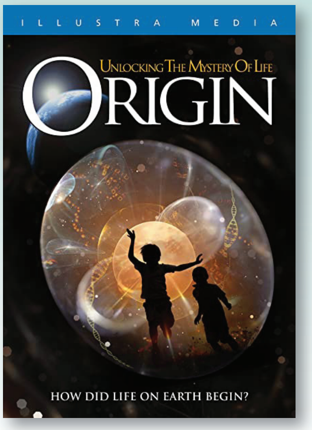
1. Mikhail Kryuchkov, Oleksii Bilousov, Jannis Lehmann, Manfred Fiebig, and Vladimir L. Katanaev. 2020. Reverse and forward engineering of *Drosophila* nanocoatings. *Nature* 585: 383-389.
2. p. 383.
3. p. 388.
4. p. 384.
5. p. 387.

Order these items online at www.create.ab.ca.
Free gift wrapping available!



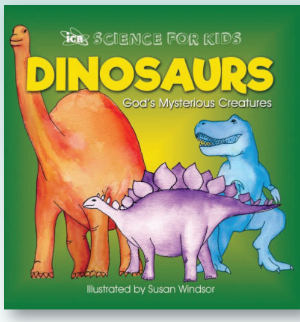
Jerry Bergman
Wonderful and Bizarre Life Forms in Creation
This fascinating new book discusses some remarkable and surprising features of a wide variety of animals. Our minds are truly broadened by this variety of creatures and how they testify, not to an evolutionary origin, but to God, the Creator of all things. Fun and stimulating for the whole family!
Paperback/144 pages/full colour

$22.00



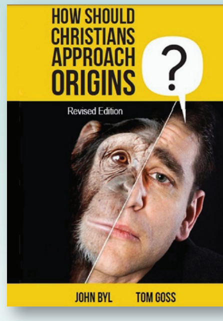
Illustra Media
Origin: Design, Chance and the first life on earth
This video examines the question of how life began on earth. Through beautiful animation this movie takes the viewer from grand perspectives of the universe into the workings of the living cell, all of which can only leave us in great awe of the Creator.
DVD/47 minutes

$18.00



ICR Authors
Dinosaurs: God's Mysterious Creatures
A wonderful introduction to dinosaurs for the younger set, kindergarten to grade five. Here we find winsome illustrations and discussion that dovetails with the Genesis account. Guaranteed a hit with young dinosaur fans!
Paperback/full colour/121 pages

$10.00



John Byl and Tom Goss
How Should Christians Approach Origins?
This handy booklet demonstrates that science has not disproved the clear message of Scripture. The authors show how basic Christian doctrines are grounded in the historicity of Biblical events including the Creation. Very insightful, comprehensive and useful!
Paperback/42 pages
[if you order only this title, the shipping is $2.00]

$5.00

Please fill in order form and mail to: Creation Science Association of Alberta, 5328 Calgary Trail, Suite 1136 - Edmonton, Alberta, T6H 4J8

Name:
Address:
City: Postal Code/Zip:
Email: List titles & quantity ordered below:

Total order	$.
Add $6.00 for S/H	$.
Subscription ($8.00)	$.
Donation	$.
Total enclosed	$.
Free Catalogue	$ 0.00
Total	$ -

Make cheque or money order payable to:
Creation Science Association