Night of the Trilobites, Part 1

By LEONARDO VINTIÑI
Epoch Times Staff

"It is harder to crack prejudice than an atom."—Albert Einstein

In spite of the strength with which the evolutionist doctrine has been applied in contemporary biology over the last century, facts oblige one to doubt the validity of mutation and natural selection as the true driving force behind the origin of species.

THE ENIGMA OF LEFT-HANDED SNAILS AND OTHER RARITIES

To some, the left-handed marine snail is one of the greater rarities with which nature delights us. Contrary to their significantly more common, right-handed brethren, the left-handed snail has a slight mutation, making the spiral of its shell inverted. This characteristic means that the can-opening claws of its fiercest opponent, the crab, lose their ability to break the snail's shell so the crab can feast on the delicacy within.

According to evolutionist understanding, this inverted shell trait should lead to the gradual dominance of the left-handed snail, while the environmental factor (hungry crabs) will naturally weed out the weaker variety, resulting in a steady decline of the inferior right-handers.

However, in reality, left-handed snails constitute less than even 5 percent of the total snail species. This number has not increased over the long course of years and, mysteriously, evolution to this seemingly desirable trait has not taken place.

Now consider the trilobite, one of paleontology's most prominent fossils. These marine arthropods began declining in number by the end of the Permian period, about 250 million years ago. Their relatively rapid extinction had been a mystery for scientists until recently.

Recent investigations have concluded that the key to understanding the demise of the trilobites resided in their inability to free themselves from their large shell, which they shed periodically during growth.

The irony in this case is that the very exoskeleton that served to protect the animals, in the end became their prison—their only escape route failed to open. But the inevitable end of the trilobite, as in many prehistoric species, is joined with another inescapable enigma: How is it that the very trait that brought extinction of a species, could be the same as that which allowed for their proliferation when they first emerged?

HYPOTHETIC MOTIVES: MUTATION AND NATURAL SELECTION

Examine some of the most recent advances in genetic investigations and you are faced with an enormous amount of "DNA junk"—which was presumed to be clear evidence for the different stages the human species experienced on its way through the evolutionary process.

However, the most obvious deductions can eventually be overturned in light of more exhaustive studies. The supposed evidence that all life forms on the planet share the same cellular code is no longer considered a viable argument to explain the connection of all species from a single origin.

It is simply no longer possible to believe that the Deoxyribonucleic acid molecule sprang forth in some instant, out of the earth, as if overnight. This in itself represents a dilemma, containing in it the enigma with which science still struggles.

Furthermore, the processes of mutation and natural selection—the driving forces behind evolution—have also demonstrated a multitude of problems that science remains unable to clearly explain. For example, the great majority of mutations are of a neutral or negative character in the history of the organism. Only one in every thousand has the possibility of benefiting a species.

C.H. Waddington, professor of animal genetics at the University of Edinburgh, believed the understanding that adaptation was random and mutational was an extremist view. He noted that mutations were such a rare occurrence that they appeared as little as once in a million animals, or once in a million lifetimes.

Add to this the work of Jeffery H. Schwartz, professor of Anthropology at the University of Pittsburgh, who affirmed that cells possess an army of proteins resistant to mutations. In light of this information, the "evolutionary machine" necessary to sustain the theory becomes highly improbable.

So if a real change occurred in a species, it follows that it should come about through considerably great steps rather than a few small mutations. This idea is seen coupled with recent investigations which demonstrate that for a true "adaptation" of the species to occur, it must be the result of an extreme environmental change.

Therefore, if the statistically complicated possibility that a successful mutation in a species indeed took place in history, it makes it even more difficult for us to clarify how this event could have possibly occurred so smoothly in millions and millions of species—whether aquatic, terrestrial, or aerial animal species, as well as insects, trees, shrubs, tubers, algae, and others—time and time again.

EXOSKELETON ENIGMA: Researchers have found that the extinction of the trilobite resulted from its inability to free itself from its own defense, its shell. PHOTOS.COM

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Saving the berries for pickers and bears

By David Suzuki with Faisal Moola

One of my favourite summer activities is picking wild blueberries with my family at our cabin in northern B.C. The waning weeks of summer are the best time to be out in the bush, as the berries are ripe and flavourful, in contrast to the sometimes bland-tasting commercial varieties from the grocery store.

Wild-berry harvesting is a Canadian tradition that rural and northern people from Newfoundland to the Yukon share in late August. Wild blueberries have been an important part of the traditional diet of First Nations and Métis for generations, especially in the boreal forest where several varieties, including the lowbush and velvet leaf blueberry, grow well in the acidic and nutrient-poor soils.

According to University of Victoria ethnobotanist Nancy Turner, berry gathering has always been a social activity in aboriginal communities. Family members and friends often set up berry-picking camps, where they will stay for days or even weeks to take advantage of nature's bounty. Berries are great fresh, but they're also tasty in jams, jellies, fruit leathers, and pies. They can also be sold commercially, which provides important seasonal income in rural and northern communities.

Our approach to managing the wild lands where these berries grow, such as the boreal forest, leaves something to be desired, though. According to prevailing economic thought, the only value in these areas is in the money we can make from harvesting or extracting resources – most often lucrative timber, oil and gas, or minerals. And so when a natural forest is cleared, we replant it with a single or a few economically desirable tree species of the same age and genetic stock, and then we try to maximize the growth of these species by using toxic chemicals to kill any insects or "competing" plants that would slow them down.

It's time we started to recognize the significant economic importance of wild blueberries and other native plants – what rural economists call "non-timber forest products". For example, economists estimate that the Canadian boreal forest is worth between $261.4 million and $575.1 million a year to aboriginal people for subsistence food alone.

And these foods are increasingly becoming a delicacy for non-northerners. A pint of wild blueberries from Northern Ontario sells for close to eight bucks in the trendy health-food stores of Toronto, where many consumers are motivated not only by the fantastic taste but also by increasing scientific evidence about the health benefits of the fruit.

Harvesting, processing, and selling wild blueberries brings pleasure and profit to many rural and northern communities. It's distressing that industrial activities such as herbicide spraying by logging companies can kill wild blueberry plants and other vegetation, which are considered competitors for resources needed by the trees, such as light, nutrients, and water.

In Canada, the most popular herbicide for this purpose is Vision, produced by agri-chemical giant Monsanto. This column's co-author, David Suzuki Foundation science director Faisal Moola, has studied the impacts of Vision herbicide on wild blueberry plants, and has published research showing that chemical spraying harms the plants, reducing the amount of berries available for people and wildlife like bears and birds.

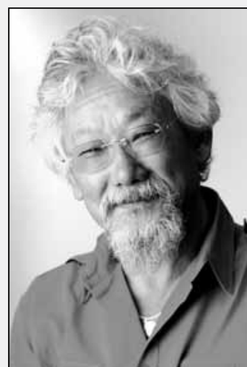
Logging companies typically spray the herbicide in mid to late summer, which is when the berries are ripe. Because of this, wildlife and berry-pickers may also be accidentally exposed to chemical residues when they eat contaminated fruit (even though warnings must be posted when areas are sprayed).

Scientific debate over whether Vision poses a serious risk to human and wildlife health is ongoing. Still, some indigenous and local people have expressed concerns that chemical spraying could make the berries less healthy and are therefore reluctant to eat them.

This indirect consequence of spraying herbicides in our managed forestlands concerns us. Wild berries are a free, healthy, and traditional source of nutrition for northern communities. If fears about toxicity, real or perceived, keep people from eating berries or the animals that graze on them, the consequences will be serious for people who are already ravaged by a western diet of too much sugar, salt, and fat.

We should do everything we can to encourage people to eat safe and nutritious "traditional country foods", such as wild blueberries and other plants and resources of the forest (including wild fish and game). We must protect the traditional foods of First Nations and others who live off the land from the damage that industrial activities can cause.

Take David Suzuki's Nature Challenge and learn more at www.davidsuzuki.org.



Dr. David Suzuki

Dr. David Suzuki is a scientist, broadcaster, author, and chair of the David Suzuki Foundation. He is Companion to the Order of Canada and a recipient of UNESCO's Kalinga Prize for science, the United Nations Environment Program medal, and Global 500. Dr. Suzuki is Professor Emeritus at the University of British Columbia in Vancouver and holds 24 honorary degrees from universities around the world. He is familiar to television audiences as host of the long-running CBC television program The Nature of Things, and to radio audiences as the original host of CBC Radio's Quirks and Quarks, as well as the acclaimed series It's a Matter of Survival and From Naked Ape to Superspecies. His written work includes more than 47 books. Dr. Suzuki lives with his wife, Dr. Tara Cullis, and family in Vancouver, B.C.

Dr. Faisal Moola

Dr. Faisal Moola is director of the David Suzuki Foundation's Terrestrial Conservation and Science Program. He is a practising scientist and has published widely in scientific journals on many topics in the areas of wildlife biology, conservation, and environmental policy. He has conducted research in some of Canada's most significant wilderness areas, such as the great northern boreal forest, the old-growth rainforests of British Columbia, and the Acadian woodlands of Atlantic Canada. He has also been a university lecturer and is currently an adjunct professor in the University of Toronto's Faculty of Forestry. He lives in rural B.C. with his wife and their two young children.

Of mutts and men

Genetic study of African village dogs challenges the ancestral origins of several dog breeds

National Science Foundation

Domesticated animals provide man with benefits such as food, clothing, and muscle power. Dogs, which descend from gray wolves that originated in Eurasia, were the first animals domesticated by man. Since that time, man has imposed strong artificial selection pressure for desirable traits, resulting in the various dog breeds we have today.

A recent study published in the August 3 issue of Proceedings of the National Academy of Sciences provides insight into the origin of some popular breed dogs and how domestication has affected the overall level of diversity in dogs. Adam Boyko in the Department of Biological Statistics and Computational Biology at Cornell University is the lead author of the study.

Boyko is optimistic that this NSF-supported study will help refine the statistical models that scientists currently used to understand genetic diversity.

He stated, "How the domestication process affects genetic diversity is poorly understood. We were interested in studying village dogs because we expected them to be the modern day dogs most similar to dogs that existed before man began to create breeds. Our study is unique because we are able to surmise whether specific village dog populations are more genetically similar to breed dogs or indigenous ancestral dogs."

DOMESTICATED DISTINCTION: A recent study of African village dogs revealed they are genetically distinct from non-native breed dogs, but share some genetic markers with mixed-breed dogs from North America, like this one in Puerto Rico. ADAM BOYKO, CORNELL UNIVERSITY

Mobility is another factor that affects genetic diversity of dogs. Because ancient dog populations have a location-specific genetic "signature," researchers can learn about migration patterns and population history by comparing the markers found in breed dogs to those observed in the semi-feral village dog populations of geographically isolated areas.

Boyko and his team, which includes his brother, sister-in-law, and a number of African research partners, sampled 318 village dogs from seven distinct regions of Africa. They compared the genetic signature of village dogs to Pharaoh hounds, Rhodesian ridgebacks, and other breed dogs thought to be native to Africa, in addition to Puerto Rican street dogs and mixed-breed dogs from the United States.

They found that most African village dogs are genetically distinct from non-native breed dogs, but share some markers with mixed-breed dogs from North America. These results indicate that African village dogs descend from indigenous ancestors related to Basenjis, while Pharaoh hounds and Rhodesian ridgebacks, previously believed to be African in origin, are more closely related to mixed-breed American dogs.

"For the most part, African dogs are distinct from other dogs we have studied, and these village dog populations display more diversity than purebred dogs across the markers we tested," explains Boyko. "We found exceptions in Namibia and Giza, which may be due to European colonization or proximity to Eurasia, the ancestral home of modern breed dogs."

The unique relationship between humans and dogs provides the opportunity to infer details about the ancient people who also inhabited the places in which these dogs lived. Using genetics to trace the movements of dog populations across continents will likely yield insights into the migrations of man during these periods. Therefore, the genetic history of man's best friend may also speak to the history and habits of man.

CERN Collider to restart with less energy

GENEVA (Reuters)—The giant particle collider built to probe the origins of the universe will restart in November at a lower energy level following its shutdown days after its inauguration last year, CERN said last week.

The announcement by the European Organization for Nuclear Research represented the latest in a series of delays to restart the Large Hadron Collider—the biggest and most complex machine ever made. CERN had previously set an autumn date.

The more than 10 billion Swiss franc ($9.4 billion) machine overheated and needed to be switched off just nine days after its inauguration in September 2008. Its experiments are meant to reproduce conditions just after the "Big Bang" that many scientists believe created the universe.

In a statement, CERN said it planned to restart the Large Hadron Collider with 3.5 Tera-electron volts (TeV) per beam—less energy than on its initial go—"because it allows the LHC operators to gain experience of running the machine safely while opening up a new discovery region for the experiments."

It will continue at the lower energy "until a significant data sample has been collected and the operations team has gained experience in running the machine," CERN said. "Thereafter, with the benefit of that experience, the energy will be taken towards 5 TeV per beam."

CERN Director General Rolf Heuer sought to reassure the public and the backers of the machine, whose 17-mile collider tunnel lies underground just outside Geneva, that all will run smoothly when it starts up again.

"The LHC is a much better understood machine than it was a year ago," he said. "We can look forward with confidence and excitement to a good run through the winter and into next year."

The experiments would take place at just above absolute zero to recreate the conditions believed to have been present at the beginning of the universe 13.7 billion years ago.

NASA Telescope Can Find 'Oodles of Earths'

WASHINGTON (Reuters)—The orbiting Kepler telescope has spotted a Jupiter-size planet around another star—a sighting that demonstrates it can see Earth-like planets if they are out there, scientists reported.

The planet, called HAT-P-7b, was already among the 300 or so known so-called extrasolar planets, the team led by the U.S. space agency NASA reported. But measurements of its orbit by Kepler show the telescope will be able to see smaller planets, they reported in the journal Science.

"We think it is likely that Kepler is going to find oodles and oodles of Earths," astrobiologist Alan Boss of the Carnegie Institution of Washington told a news conference.

Boss said that one day "we'll be able to stand outside ... and say, 'Hey kids, look out there, see that star? That one has an Earth.'"

The team, led by William Borucki of the NASA Ames Research Center in Moffett Field, Calif., said the telescope not only detected the "hot Jupiter," which orbits very close to its sun, but was able to get readings that could give information about its atmosphere.

This ability will help scientists tell whether Earth-like planets have water or oxygen on their surfaces.

Kepler was launched in March with the specific goal of finding Earth-size planets that might support life outside our solar system. It orbits the sun behind the Earth and in theory should be able to spot things that Earth-bound telescopes and even the orbiting Hubble telescope cannot.

It uses a standard planet-hunting method—watching for the slight dimming of a star's light as a planet passes in front of it.

Borucki's team is looking at data from Kepler's observations of more than 50,000 stars. "The question remains how many Earths are there out there for Kepler to find," Boss said.