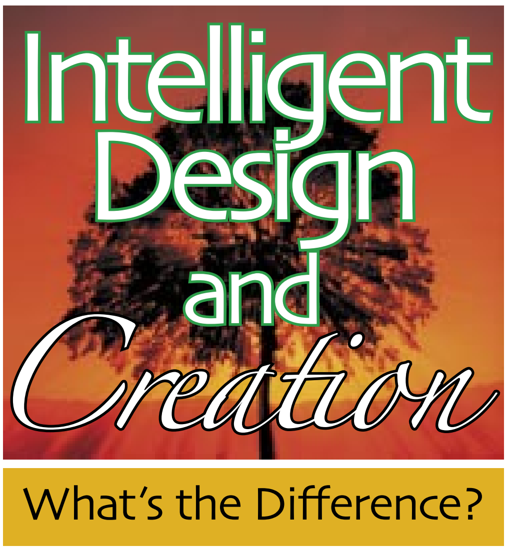
Creation Science
Dialogue
Volume 32 - Number 4 - December 2005
Publication Mail Reg. 40013654- ISSN 0229-253X

In this issue



by Margaret Helder

Intelligent design, and indirectly the creation model, have been in the news a lot lately. Not surprisingly, most of the articles have been sympathetic, not to intelligent design, but to Darwinian evolution, the mechanistic explanation for life so favoured by the majority of scientists. Despite the sympathetic treatment, the majority of scientists are actually embarrassed by all this attention to evolution, since this implies that there is some doubt about its validity. The response of the establishment scientists has been to deny the obvious. They insist that there is no controversy about Darwinian evolution among trained scientists. For example, a news item in *Nature* declared: "… scientists should highlight that there is no dissent over evolution within the scientific community and that if intelligent design had scientific merit, it would have been addressed by the vigorous and open scientific process." (August 11, 2005 vol. 436 p. 761). Of course such statements notwithstanding, there is controversy among scientists over the validity of Darwinism. The very fact that some scientists feel themselves forced to make these disclaimers, clearly indicates that there is disagreement over this issue.

It was President Bush's reluctant support for intelligent design, which elicited the recent flurry of responses in the media. What the President actually said was: "I'm not suggesting – you're asking me whether or not people ought to be exposed to different ideas, and the answer is yes." The President did not specifically mention intelligent design. Nevertheless many scientists saw in this remark, a threat to their position. The President's remarks were made at an informal news conference on August 1, 2005. By August 11, the scientific journal *Nature* had hustled into their next issue (the one for August 4 was no doubt already printed), with a news item entitled "Scientists attack Bush over intelligent design" (p. 761) and an editorial "Keeping religion out of science class" (p. 753). The subheading to the editorial declared that scientists were well positioned to prevail over the President's views and over intelligent design.

The issue, as the majority of scientists see it, concerns the definition of science. Influential scientists consider that intelligent design, as well as the creation model, constitute challenges to their core definition of science. It is the view of the majority of scientists that all natural phenomena can be explained in terms of processes working on matter, without reference to supernatural beings or events. This definition is called "methodological naturalism". According to that definition, scientists

Continued on page 2

Every Observation a Creation Adventure

by Moxie

When we walk outside, putter about the garden, or even splash in waves at the beach, we are making observations of nature whether we realize it or not. In our backyard during the summer, for example, plump saucy robins take up residence and the male fights off all invader robins. The resident pair is displaying "territoriality" or the determination to defend their "property" against all other robins. Other bird species come and go, but our resident robins don't care. It is very interesting to see a robin pull a worm out from the soil. The worm tugs in one direction and the robin pulls in the other. The worm certainly does not give up easily. How did the robin find that worm in the first place? The ability to find appropriate food is a behaviour conferred on these and all other animals. It is so touching to see the adult robins fly back and forth with their beaks full of food for the demanding young robins. Such observations help us to appreciate the "design features" of each creature. Sometimes it is a good idea to write down our observations. For example, other than the usual English sparrows,


© A. J. Hand

Continued on page 3

expect to see only matter and processes, and these are all that they will allow in their explanations of nature.

Intelligent design scientists beg to differ with the majority view. ID supporters, for their part, declare that there are phenomena in nature which can never be explained solely in terms of matter and processes. Some phenomena could never happen spontaneously no matter how much time is allowed. Such phenomena could only have been designed by an intelligent being (obviously beyond or apart from nature).

The creation model goes farther than intelligent design. These scientists understand that Scripture and nature both testify to the work of God, the Creator. Neither nature nor Scripture contradicts the other. Creationists therefore expect to find God's signature (evidence of His creative work) in all of nature. Also, since all things were created within the space of six days, it is evident that lengthy processes were neither required nor used in the creation event.

Secular scientists see appeals to intelligence or the supernatural in explanations of nature as a threat to the very definition of science (their definition). For example, theoretical physicist Lawrence Krauss was quoted in *Nature* as remarking: "Make no mistake – this is not an attack on evolution, but on science." (Aug. 11/05 p. 761). An official with the American Association for the Advancement of Science likewise declared: "Evolution is not the only issue at stake. The very definition of science is at stake." (*New York Times* June 21/05). The objective of such individuals is to protect their right to define what is and what is not science, and their right to declare what science tells us and what it does not tell us. Statements such as "no serious scientist supports …" or "the majority of scientists believes " are arguments from authority. Thus secular scientists hope to avoid discussions on the actual evidence from nature upon which intelligent design and creation scientists base their arguments. The mere dismissing of evidence as "religion," or "not science," however does not make that evidence disappear, as many people with open minds are discovering, hence the controversy that won't go away.

As far as the evidence is concerned, the issues discussed by the creation model and intelligent design, tend to be the same. The most popular issues include: 1) origin of life theories don't work (e.g. Stephen Meyer for intelligent design and the late A. E. Wilder-Smith for creation), 2) information content of DNA (e.g. Stephen Meyer for ID and Werner Gitt for C), 3) design, or irreducible complexity, or planning and purpose (e.g. Michael Behe for ID and most creationists), 4) Cambrian explosion (e.g. ID team and Dwayne Gish for C), and 5) natural selection does not explain differences in body plans of living organisms (e.g. Phillip Johnson for ID and Gary Parker for C).

A major difference between intelligent design and creation is that the scientists advocating the former view do not advance any explanation for the phenomena which they discuss. This is partly because no consensus position exists among ID supporters and partly for political reasons. These people are anxious (reasonably enough) to have their material evaluated on its scientific merits. However anything which is labeled "religion" in the United States is immediately ignored in scientific circles, and furthermore it is considered

Creation Science
Dialogue

Volume 32 / # 4 / Winter 2005

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 $5.00

Return undeliverable Canadian addresses to:
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 British Columbia (B.C.)
Box 39577, White Rock P.O.
White Rock, BC. V4B 5L6

▲ Answers in Genesis (Canada)
5 - 420 Erb Street West
Waterloo, ONT, N2L 6K6

▲ Creation Science Association of Quebec
CP63, Succ. Youville
Montreal, Quebec, H2P 2V2

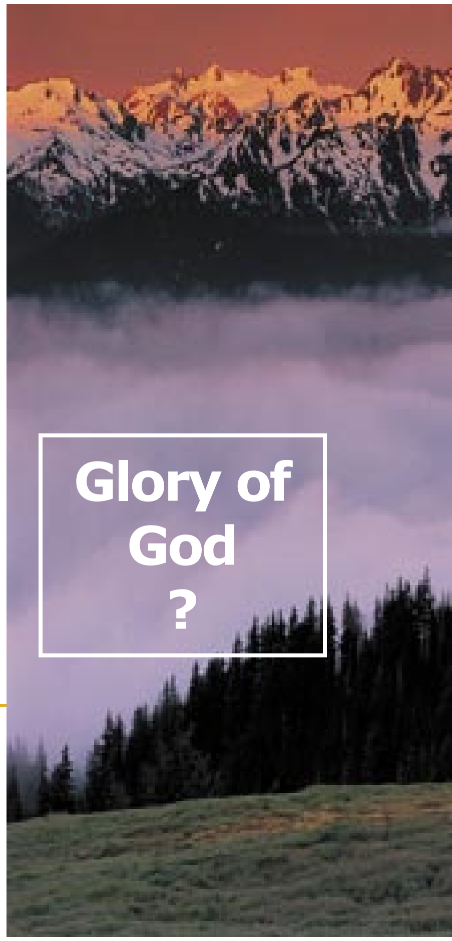
▲ Institute for Creation Research
10946 Woodside Ave. N.
Santee, CA. 92071

▲ Creation Research Society
Van Andel Center
6801 North Highway 89
Chino Valley, AZ. 86323 - 9186

Visit us at www.create.ab.ca

illegal for inclusion in public school curricula. Apparently as a result of past decisions by the Supreme Court in the United States, it is illegal to present any material in the public schools which is connected even remotely with a religious objective. Intelligent design advocates wish to avoid that pitfall. Some ID supporters even make very disparaging comments about creationists in an attempt to distance themselves from any religious stigma. Creation based scientists, on the other hand, always make clear that God is the instigator and sustainer of all nature. The creationist interpretive framework always is based on the historical record found in Scripture. This does not mean that creation based interpretations are obvious, arguments such as catastrophic plate tectonics and discussions of radiometric dating are complex and have involved a number of scientists working for many years. Thus creation based scientists advance religious explanations for origins while intelligent design scientists advance no explanation.

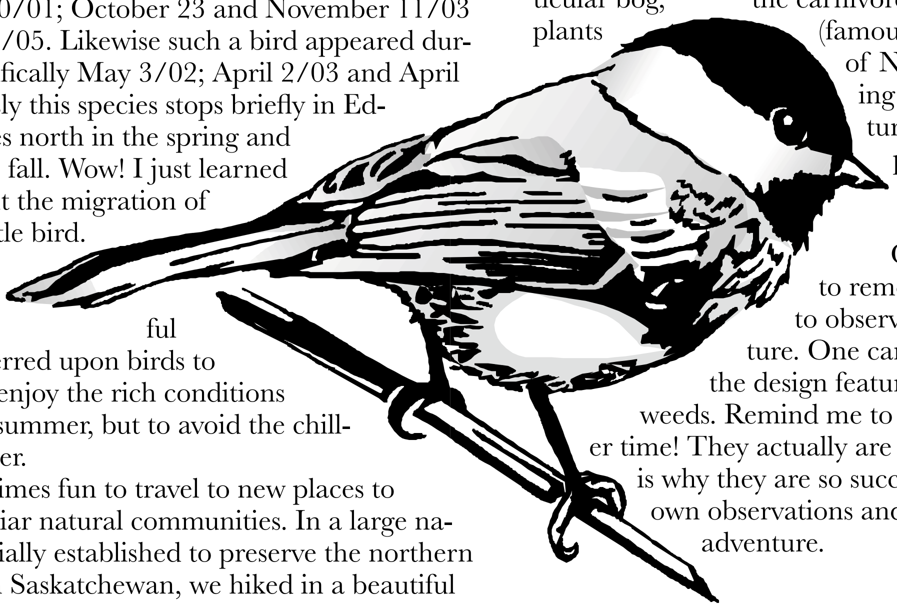
As far as the creation based scientist is concerned, that nature testifies to the glory of God, is undeniable. The intelligent design approach, for its part, arose from the discoveries of people who drew somewhat similar conclusions, but who had no expectation to do so. The value of intelligent design, as far as creationists are concerned, lies in the excellent quality of their discussions of nature. Moreover ID calls attention to the evidence in a broader public forum than most creation model supporters are able to manage today.



Every Observation a Creation Adventure

continued from page 1

chickadees, robins, magpies and blue jays, occasionally some other birds appear. I have taken to writing down the date of these observations in our bird book. For example, I observed the beautiful little red-breasted nuthatch in our backyard on November 30/01; May 3/02; April 2/03; October 23/03; November 11/03; April 20/05 and October 19/05. Do you see a pattern here? A representative of this species appeared in late fall on November 30/01; October 23 and November 11/03 and October 19/05. Likewise such a bird appeared during spring, specifically May 3/02; April 2/03 and April 20/05. Obviously this species stops briefly in Edmonton as it flies north in the spring and south in the late fall. Wow! I just learned something about the migration of this beautiful little bird. Migration, by the way, is another wonderful behaviour conferred upon birds to enable them to enjoy the rich conditions of the north in summer, but to avoid the chilling cold of winter.

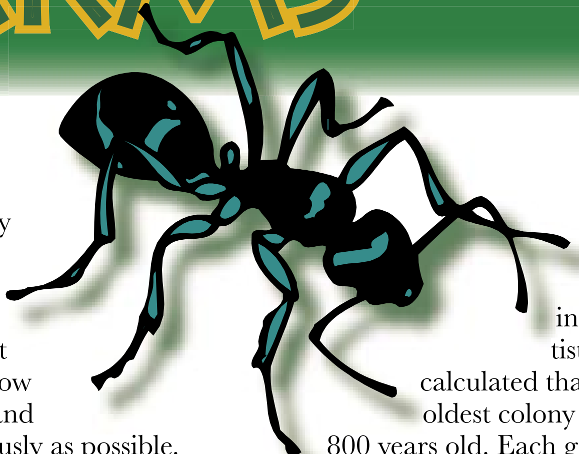


It is sometimes fun to travel to new places to observe unfamiliar natural communities. In a large national park specially established to preserve the northern (boreal) forest in Saskatchewan, we hiked in a beautiful peat bog. The spongy lush yellowish green Sphagnum moss was everywhere there. This moss so changes the local environment that the soil and water become very acidic. Under these acid conditions, dead plant material builds up so much that people can sometimes mine old peat for fuel or to increase organic material in their gardens. Also the acidic conditions mean that important soil nutrients are basically unavailable to plant roots. This means that the plants which we see in bogs, are a very long suffering lot. They are designed to make do with less. Among the interesting plant designs which we see in bogs, are plants which trap and digest insects. In this particular bog, the carnivorous plants included pitcher plants (famous as the provincial flower of Newfoundland.) It is interesting to reflect on the design features which allow carnivorous plants and a whole bunch of rare orchids to grow in bogs.

One does not have to travel to remote destinations however to observe wonderful designs in nature. One can start right at home with the design features of dandelions and other weeds. Remind me to talk about weeds some other time! They actually are wonderfully designed, that is why they are so successful. Why not make your own observations and enjoy your own creation adventure.

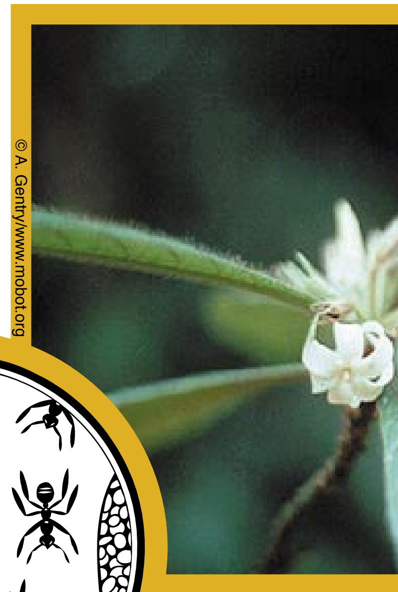
Superior Farms

by Moxie



Imagine a society where there are no managers, just workers. Imagine further that all these workers know exactly what to do and they do it, as vigorously as possible. Imagine too that these workers are farmers which do not make mistakes. One might well suppose that these farms would be highly successful, and so they are. However these are not human enterprises. The farmers to which we refer, are ants, insects with astonishing expertise in their tiny heads. Their success comes from know how, enthusiasm, suitable equipment (their bodies), and suitable crops.

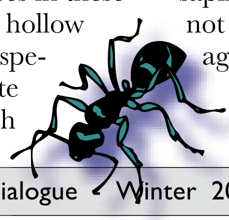
A recent article in the journal *Nature* (September 22/05 pp. 495-6) for example, describes the little known farming activities of some ants in the Amazon rainforest. In an ecosystem characterized by a wild diversity of tree species, there are some large clearings in the forest where all the trees, young and old, are of the same species. Local legend suggested that these single species stands of *Duroia hirsuta* were created by an evil forest spirit. Recent research has shown however that the cause is much more interesting. A local ant called *Myrmelachista schumanni* (not exactly a name which ripples off one's tongue) apparently is farming the trees in these clearings. The ants live in hollow swollen stems of this tree species. By comparing the rate of tree garden growth with the size of these clearings, scientists have calculated that the oldest colony is about 800 years old. Each garden is tended by a single ant colony consisting of as many as 3 million workers and 15,000 queens.



It is all very well to talk about creating a clearing, but it is not that easy to do successfully. Ranchers in Brazil burn large tracts of forest, but the fertility of the soil declines in just a few years and their land becomes worthless. Other groups of aboriginals cut small clearings but the forest soon invades their tiny gardens and the people move elsewhere. How do the ants so successfully manage their long term gardens? That is what scientists wanted to know.

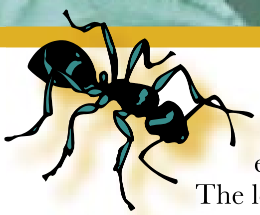
By means of studies which eliminated ants from some experimental plots, and left them in others, these scientists obtained answers. They planted saplings of a tree from the nearby rainforest into these plots. When the ants were left in the plots, the foreign saplings quickly died. When the ants were kept out, the saplings did just fine. Obviously it was not the *Duroia* trees which discouraged the foreign invaders, but the ants themselves. Other studies revealed that the ants are able to recognize their favourite tree, nobody knows how. To kill foreign invader trees, or simply to extend the size of their garden (by killing neighbouring rainforest trees), the ants simply bite a hole in each leaf, and then turning around, they insert the tip of the abdomen into the hole. The ant then squirts a simple molecule, formic acid into the leaf. Within hours, these leaves start to turn brown. Many ant species apparently produce this compound, but this is the first record of ants using the acid as a herbicide.

The colony is begun when a queen ant finds an isolated *Duroia hirsuta* tree. Her offspring eventually create a vegetation free zone around this nest tree, and eventually seedlings of the desired tree move in to fill the



clearing. The ants are patient. Over time their garden develops. The expertise programmed into these tiny ant brains includes the ability to recognize the desirable trees (not apparently by obvious visual clues), and the ability to distinguish unwanted trees from the wanted one. Next they know enough to bite a hole in each leaf and insert a poison.

This whole story reminds one of other gardening ants from the same



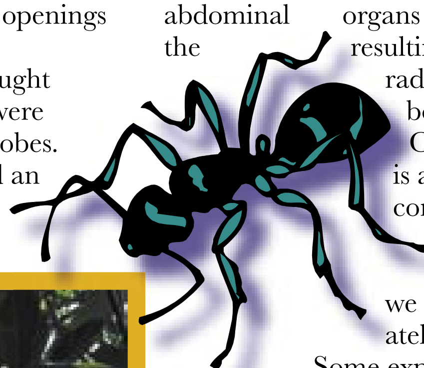
region, the tropical Americas especially Brazil. The leaf cutting ants which cultivate molds (fungi) are quite famous. There are about 200 leaf cutting ant species and they all depend upon fungus gardens for their food. The problem, for the ants is that they do not have suitable enzymes to digest the tough walls of the cells which make up these leaves. Thus the nutrient content in the leaves is largely, in its fresh state, unavailable to them. That is why they cultivate a fungus on the leafy material. The mold pre-digests the plant material for the ants. The dependence of the ants on their cultivated molds is so great that these insects lack digestive enzymes. They therefore depend on fungus manufactured proteins to carry out this function in their intestines. Apparently a number of similar fungi are suitable for these gardens and nearby nests with the same ant species may exploit quite different fungus cultivars. Some of these fungi are also able to live in the wild and to form mushrooms, but most of these molds are known only as thread-like growths from the farms themselves.

Some leaf cutter ant species build huge underground nests, tremendous labyrinths of chambers connected by tunnels. These nests are so well engineered that warm gases rising from deep compost-filled pits, serve to draw cool, oxygen rich air through special ventilation openings down into the nest.

Scientists initially thought that these fungus gardens were untroubled by foreign microbes. They have since discovered an invasive mold which has the potential to destroy

whole colonies. The worker ants must constantly struggle to suppress this bad mold. To do this they exploit yet another microbe. Actinomycetes are special soil bacteria, famous for their production of strong antibiotics. The gardening ants somehow promote the growth of these microbes on their bodies. They thus scatter actinomycete cells as they move about the farm. How very sophisticated.

The mere act of cutting leaves also apparently requires special talents. Sharp jaws are not enough to cut a leaf. That structure needs to be held firm. But who will hold the leaf for the cutter? The answer is the cutter ant is able to do it herself by vibrating her jaw at 1000 times per second. The leaf then assumes a rigid position and a nice straight cut is possible. The ant does not merely vibrate her jaw however. She rubs two tiny abdominal organs together and the resulting vibrations radiate along her body to the jaw. Obviously this is a highly energy consuming activity and not a solution that we would immediately think of.



Some experts have tried to speculate on how leaf cutting ants could have developed their farming talents through natural processes. Suppose that the forager ants were equipped with suitable jaws but they did not know how to hold the leaves firm for cutting. Suppose they did not have the stamina to sustain the body vibrations. Suppose that the forager ants were too tired for the long trek back to the nest carrying their leaf fragments. Suppose that the worker ants did not know how to prepare the leaf material or how to build the nest to sustain the fungus garden. Suppose they did not know how to discourage the invader mold. Suppose, suppose …. The hardest thing to suppose is that such organisms could possibly have developed these talents gradually and on their own. What we see in leaf cutter ants and *Duroia* cultivating ants, are organisms beautifully designed for their roles in nature. There are other interesting ant societies. Why not investigate one for yourself. They are all wonderfully coordinated and wonderfully designed.

Roundabout Lifestyles

by Moxie

When we study nature, it is probably a good idea to expect the unexpected. Certainly the richness and variety of living creatures can never fail to amaze us. One fascinating situation involves certain parasites or disease causing organisms. In several cases, a parasite passes through two entirely different kinds of host in order to continue its nasty parasitic existence. Not only are these situations fascinating, but biologists are mystified how these relationships could ever have developed.

Most fungi do not indulge in such fancy lifestyles, but there is one fungus group which does include parasites famous for their dependence on alternate hosts. The rusts include many highly specialized fungus diseases of plants. Some attack only a single kind of victim. Other rusts however require two distinct hosts in order to complete their life cycle. One of the most famous rust diseases is *Cronartium ribicola* or white pine blister rust. Pine (*Pinus*) trees, of course are conifers, non-flowering evergreens which reproduce by means of seeds borne in cones. Most of these plants are medium to tall forest trees. They are characterized by needles grouped in bundles. The white pines typically have five needles per bundle while the black pines have groups of 2-4 needles. Pine trees are found throughout the northern hemisphere, from Alaska to Sumatra and from Europe to North America to China. The fungus was apparently originally native to white pines in Asia. At some point centuries ago, plant collectors introduced diseased material to Europe and from there it came later to North America.

The story of white pine blister rust appears uncomplicated, but looks can be deceiving. The fungus which grows on pine cannot infect another pine tree or seedling. It needs an alternate host, namely flowering shrubs of the genus *Ribes* (currants and gooseberries). It so happens that *Ribes* species are native to Europe, temperate Asia and North America. Places where suitable white pine grow also tend to have currant bushes and/or gooseberry shrubs growing on the forest floor.

During the late summer and early fall, especially when the weather is cool and moist, special fungus spores from *Ribes* leaves may be carried by the wind to white pine needles. These spores (called basidiospores) are delicate and survive only a couple of days. Ideally they encounter white pine within a few hundred metres. The spores germinate and grow through the needle into the bark and the fungus then over-winters in the pine victim. As the following summer dawns, the fungus produces a swollen area which breaks through the bark late in the season. Sticky drops of sweet liquid from the fungus, attract flies which inadvertently transfer special sexual cells. Following this sexual union, the fungus settles down for another winter. In the second spring, swollen white to yellow blisters appear where the sticky areas were formerly. These blisters are full of spores called aeciospores. The fungus on the pine keeps growing farther on the stem. It may kill a whole branch or a whole seedling. More and more aeciospores are produced season after season. The aeciospores however cannot infect another pine tree.

White pine aeciospores can only infect a *Ribes* bush. These spores are tough and can spread hundreds of kilometers, carried by the wind. Once they light on a suitable *Ribes* bush, they invade the leaf. Within two weeks, orange uredospores (rust) appear on the bottom of the leaf. These spores infect more currants or gooseberry leaves. In the fall, dark spores called teliospores appear instead of uredospores. When conditions are cool and moist, each teliospore pro-

"Blind processes never exhibit such design skills"

duces a short club-like growth bearing four basidiospores. The basdsiospores are delicate and short lived and can only infect pine. All fungus stages on *Ribes* die when the leaves drop off in the fall. Only in pine trees does the fungus survive the winter.

The obvious way to control this disease is to eliminate one of the hosts. Since white pine trees are very valuable, the prudent course of action is to eliminate *Ribes*. In central Canada and the eastern United States, such efforts have lagged of late, but they certainly helped. In western North America however, the native shrubs are so common, and so hard to kill, that the initiative was soon abandoned and the blister rust continues to extend its toll.

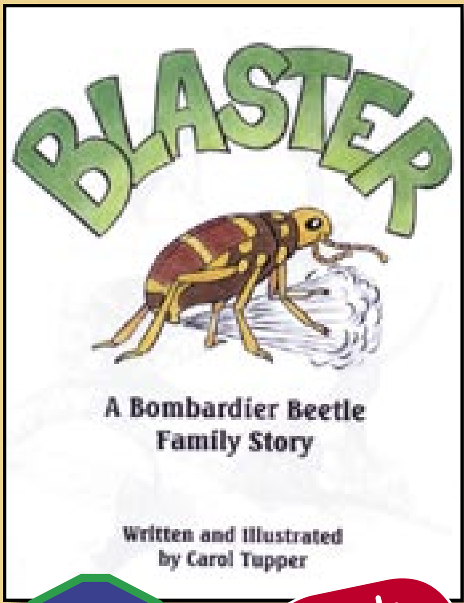
There are other rusts with interesting host choices. In many grain cultivating regions, wheat rust is the most famous disease which exhibits an alternation of hosts. It all begins with thick walled teliospores which overwinter on wheat stems. In the spring, each teliospore develops a tiny club like structure on which four delicate basidiospores are produced. The basidiospores, spread by the wind, land on the leaves of a small shrub called barberry (*Berberis*). There are native shrubs of this genus in most wheat growing regions. The fungus firstly develops sweet sticky pustules on the barberry leaves. These pustules attract flies which inadvertently spread the sexual cells. Once sexual union is accomplished, the fungus vigorously develops aeciospores on the lower leaf surface. The aeciospores, unable to reinfect barberry, are carried by the wind to wheat stems. Subsequent growth on wheat stems and leaves results in large rust coloured areas releasing myriad uredospores. These can and do infect other wheat stems. Eventually in the fall, the fungus produces dark teliospores which again overwinter on wheat stubble.

It might seem that if barberry bushes were eliminated, the fungus would likewise be gone. This program was indeed successful in some European countries. Similar programs were undertaken in North America. During the 1930s in the United States, many jobless citizens were employed in barberry eradication programs. There were still barberry shrubs in Canadian gardens during the 1950s, but later they too were rooted out. Within the past 4-5 years however, popular new resistant cultivars of barberry (from Japanese stock) have appeared on the market.

In view of the immense importance of wheat to the Canadian economy, this country has devoted a lot of money to research on the rust fungus. Eliminating the alternate host (barberry) unfortunately did not result in control of the disease here. Non-hardy rust coloured uredospores are able to survive the winter in the southern United States. This is a repeating stage which is able to reinfect wheat. Thus the need for an alternate host is bypassed. As the Canadian spring appears, uredospores proceed northward on native grasses.

Other examples of such lifestyles include malaria (a protozoan or single celled animal) which exploits both humans and some mosquitoes, and a worm parasite which exploits aquatic snails and water birds. Swimmers' itch develops when the worms mistake humans for suitable bird hosts. In people, the worms die under the skin, causing an allergic reaction. Other similar worms in tropical regions exploit humans and snails.

Fascinating as all these stories are, the really interesting question is how these parasites came to exploit, in alternate fashion, two highly different hosts. While few of us would be sorry to see such organisms disappear, we must admit to a respect for such an ingenuious plan. Blind processes never exhibit such design skills. The ability of the parasite to find and infect each host at an appropriate time of year and at an appropriate stage in the parasite's life cycle, is a clear illustration of purpose and planning.



$15.00

Pick me!!!

Always take plenty of time to make a snap decision!

Blaster: a Bombardier Beetle Family Story

Carol Tupper

Paper with coil/32 pages/Full colour illustrations

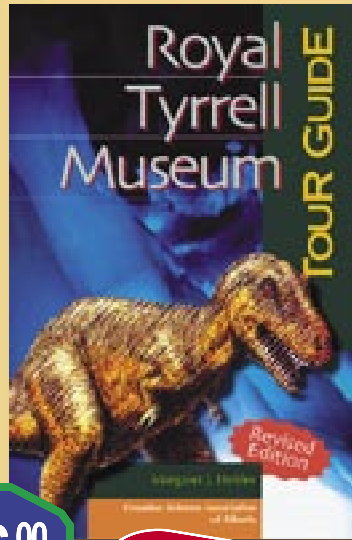
The fascinating details of a family of bombardier beetles is explained (at the K to grade 2 level) in the context of the impact on nature of mankind's fall. Extra notes at the end enable the parent or teacher to elaborate.

Tour Guide: Royal Tyrrell Museum

Margaret Helder

Paper with coil/41 pages/line drawings

Don't leave for the museum without this detailed guide to the major exhibits. The booklet comes complete with index and questions and answers. If one copy only is ordered and no other titles, add only $1.50 for shipping.



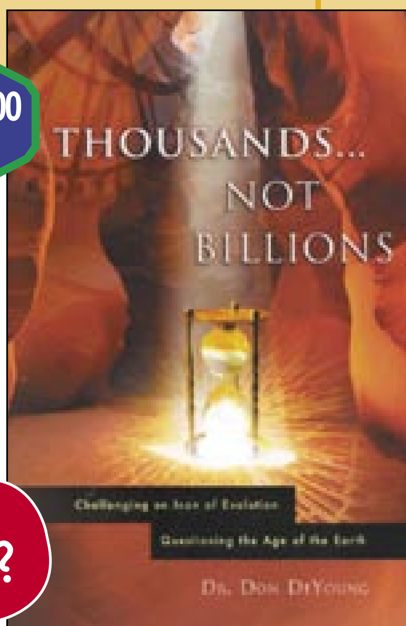
$6.00

No,No Pick me!!!

$20.00

Thousands ... Not Billions-DVD

This program provides in attractive visual format the amazing results of the five year RATE (Radioisotopes and the Age of the Earth) Project. Includes animated sequences, illustrations and photos. Recommended for advanced high school level and up.



Tough Choice?

Thousands ... Not billions-Paperback

D. DeYoung

Bring yourself up to date on the exciting results of the latest research on radiometric dating. Discussions on this topic need not be reserved only for scientists themselves. This non-technical discussion of the RATE project is written with the interested adult in mind.
- 200 pages

$14.50

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:

Please state titles and quantity of books ordered:

Total order	$.
Add 10% for S/H ($6.00 min.)	$.
Subscription ($5.00)	$.
Donation	$.
Total enclosed	$.
Free Catalogue	------------
Total	$

Make cheque or money order payable to:
Creation Science Association