

A ring 500 metres in diameter in the Matagami area of Quebec.

A geochemist from Sudbury today unveils the latest theory to explain the formation of giant rings in the forests of northern Ontario and Quebec

BY ELIZABETH SHILTS

rom the ground, the backcountry of northern Ontario and northwestern Quebec seems like typical boreal forest: endless, dense stands of black spruce, tamarack, and pine, anchored in moist, peaty ground. But flying over the region on a clear day reveals a different terrain, marked with thousands of perfectly round rings, reminiscent of the bizarre crop circles that have confounded peopleforyears.

Theories of how the rings were formed have emerged from every scientific - and not-so-scientific - corner. Ufologists claim an extraterrestrial influence; astronomers suggest meteor showers; prospectors hope they signal diamond-bearing kimberlites (rare igneous, blue-tinged rocks); and others have contemplated unusual wind action or ancient permafrost features. "A colleague once jokingly suggested they were from moose tied up to a peg," says Jean Veillette, a geomorphologist with the Geological Survey of Canada, who has been studying the rings for more than 10 years.

Stewart Hamilton, a geochemist with the Ontario Geological Survey in Sudbury, is about to unveil a theory which, at first, seems as outlandish as UFOs. Today at the Prospectors and Developers Association of Canada's annual convention, he will show how the circles could be giant, natural batteries.

The battery hypothesis replaces a biological explanation, which Dr. Veillette will disprove at the same convention.

Dr. Veillette became intrigued by the rings in the early 1980s, when he noticed them on aerial photos he was using for a mapping project in Quebec's Abitibi region. The light colour of the rings results from sparse vegetation growth, which contrasts with the dense tree cover inside and outside the ring. Most of the rings measure less than 300 metres across, but the largest is two kilometres wide.

"I recorded them as I went along," he says, "and noticed there were more rings as I moved north." Since then, he has looked at 38,000 air photos and

which seem to be concentrated in a ... band that stretches from north of Lake Nipigon in Ontario to Matagami, Que. There is also an isolated cluster on Anticosti Island at the mouth of the St. Lawrence River.

Dr. Veillette consulted Jack Mollard, an aerial photography expert who was one of the first geologists to study the rings in the 1960s. Dr. Mollard suggested they were formed by a fungus that spread out radially, similar to the way the fairy-ring fungi leaves bleached rings on manicured lawns. He believed the fungus formed a killing front, strangling and weakening tree roots as it spread. If the theory were right, trees should increase in age toward the centre of the circle because they would have the most time to regenerate after the fungal infection.

Myron Smith, a plant geneticist at Carleton University in Ottawa, also supported the biological view. He had previously identified a fungus in Michigan, Amillaria bulbosa, that spread across 15 hectares of hardwood forest, weighed more than 10,000 kilograms, and had been stable for more than 1,500 years. He claimed it was among the largest and oldest living organisms.

The images [of the rings] looked consistent with the focus of infection," says Dr. Smith. The fact that rings occurred in various sizes and some rings stopped abruptly at rivers or streams also made a case for the fungus theory.

But when Dr. Smith analyzed tissue samples from the trees, he found no sign of the A. bulbosa fungus.

A more definitive shot to the biological theory came with a detailed botanical study conducted over the past two years, which was initiated by Dr. Veillette and Dr. Yves Bergeron, director of forest ecology an the Université du Québec à Montréal. Under their direction, Jean-François Giroux, a master's student, found that trees did not increase in age toward the centre of the circle as expected in Dr. Mollard's theory.

Mr. Giroux discovered another important feature: The soil underlying the ring sits one to two metres lower than the surrounding soil. In most cas-

recorded more than 2,000 of the rings, | es, the depressions are filled with a thick mat of peat that is poorly drained and allows only trees such as tamaracks to grow. "Instead of a killing front, [the decreased growth in the rings] is strictly a moisture condition," says Dr. Veillette. "In all fairness, we still do not know that it isn't biological, but we have created doubt about the vegetation theory."

He once again began searching for a common geological thread among the rings. He discovered that, while they do not all sit on the same bedrock, the main concentration of rings occurs in a band of carbonate-rich soil which spreads from Manitoba to northwestern Quebec. Those on Anticosti Island also lie on an isolated deposit of carbonate-rich bedrock and soil.

The soil type, along with the discovery of the rings' soil depressions "are very exciting," says Mr. Hamilton.

After five years of research, he released a paper last spring detailing a new model for finding mineral deposits buried deep beneath thick clays or soils. The model, based on electrochemical processes in the earth, suggests that a mineral deposit can act as a "natural battery in the ground that is slowly and continually discharging."

He has extended his theory to include the rings. He believes each ring could be acting as an individual battery, with a mineral such as iron acting as the negative charge at the circle's centre. As the negatively charged iron comes into contact with the positively charged carbonate soils on the circle's edge, it rusts, or oxidizes, leaving acidic conditions that eat away at the soil, forming a depressed ring. What is happening in the ring is "analogous to adding vinegar to baking soda," says Mr. Hamilton. "Acid is produced at the edges and dissolves away soil and the ground surface drops."

He cautions that the negative charge could also be produced by methane gas or upwellings of ground water.

Dr. Veillette says Mr. Hamilton's theory certainly seems plausible. "We don't yet know what they are, but we knowwhat they are not. We are getting

# Aliens drive among us in jumbo sport-utes

## Arrival of gargantuan Ford Excursion shows they're heading into attack mode

#### BY MARILYN SCHWARTZ

I beg of you, please, pay attention. This is urgent.

There is new evidence that aliens are infiltrating Earth.

The thing is, they've been so diabolically clever.

Traditionally, we've believed these creatures from other planets would try to take over with spaceships and advanced alien weapons of war.

But that's where we've been fooled. They've been so much more devious.

The aliens are taking over with sport-utility vehicles.

It's all so obvious that I don't know why someone didn't see this before.

They have been slowly filling up our parking lots and our roads with those huge SUVs, so many that we can't get out of a parking space or see more than a few feet ahead of us on the road.

They are totally debilitating to us non-aliens.

Soon, it will not be safe for us to travel anywhere without being taken over by an SUV.

Mark my words.

One day, these SUVs are going to revert to their alien forms and we'll be totally defenceless.

You say I'm just being paranoid? Just think about this.

Every time you go to the shopping centre, to a ball game or just to Denny's for breakfast, you find a parking place that's either off by itself or just has two small compact cars parked next to you.

When you come back, it never fails. There are two huge Suburbans parked on either side of you.

It always happens.

Don't be fooled.

This is not happenstance.

These are aliens.

And now they are going on the offensive.

It's called the Ford Excursion.

This one weighs about 3200 kg, is as long as a World War II Sherman tank, seats nine people and makes a Suburban look like a compact car.

The environmental council in

## Wheel opinions

Washington, D.C., has already called it "an urban attack weapon."

Some people live in houses that aren't as big as this new SUV.

Just think about having two of these parked on either side of you in a parking lot.

ing lot. We'll have to take special courses just to determine how to back up with these mammoth vehicles blocking our views.

Then, our taxes will go up because we are going to have to build more parking lots.

These super SUVs will take up at least three spaces.

They will cast giant shadows on the road and we'll never see the sun.

Forget about the nuclear threat. Let's just hope Saddam Hussein doesn't get his hands on the super SUV.

Aliens are working in other ways, too, also with cars.

I just saw a segment on television where one car manufacturer has made a special suit for engineers to wear so that they can duplicate an older person's experience of driving a car.

We're not talking really, really old. This research starts for people barely into middle age.

The results will enable manufacturers to make speedometers with large numbers for people who have become farsighted and — one thing that kind of gave me a chill — they will try and make the car easier to drive for people who have cataracts and can't see.

Dare I ask the question?

If people have eye problems so bad they can't see, wouldn't it be best to encourage them to go to the doctor and get it corrected before they get on the road?

Well, sure, good Earth people would do this.

No Earth person would encourage unsafe habits just to sell a few cars. We all know that.

So once again, it's the aliens.

Be cautious, be aware and don't get too close to those neighbors who can't wait to buy the new super SUV.

You do and you just might have to spend your golden years imprisoned with a lot of other Earthlings on Mars.

Marilyn Schwartz writes for The Dallas Morning News in Texas.

#### NATIONAL POST, FRIDAY, MARCH 12, 1999

## We're ready to go to Mars; book now for sometime in 2014

d Spooner assumes that some day in the not-too-distant future, geologists like him from the University of Toronto will be happily gathering rocks on Mars. And while it might take a few generations for the Martian atmosphere to change into something more like Earth's, we're pretty much ready to go right now, he figures. \*Everything is known, or as much as one needs to know, really," he says. "The difficult things are the launch and landing. When you're in transit, you know, you play cards." That kind of certainty is not unusual among members of the newly created Toronto Mars Society, which held its first meeting last night. Never mind that humans have never flown farther than the moon, or that it could take 260 days to get to Mars. "I just assume all of this will happen, and there will be an alternate economy on Mars, and that economy will involve mineral exploration and production," says Prof. Spooner. The society's vision includes colonists, with a Martian government and legal system. "It's something like people wanting to come from other countries to here," says Margarita Marinova, the 17-year-old president of the local society. Ms. Marinova's family emigrated to Canada from Bulgaria. When it's time to raise her own family, the Northern Secondary School student hopes it will be on Mars. Her chapter can trace its roots to a group of space buffs that started out at the University of Colorado in Boulder as the Mars Underground, and pretty much worked in obscurity for more than a decade. But the overwhelming interest in NASA's Pathfinder mission helped spark the creation of the international Mars Society last summer. The society caught NASA's eve with a Mars-on-abudget plan that would get us there for \$20-\$40 billion, and attracted high-profile sponsors like Titanic director James Cameron. Next year, the society plans to establish a research station on Devon Island in the Canadian Arctic to simulate life on Mars, where "summer" daytime temperatures are similar. That's a key step in preparing to send humans 250 million kilometres to the red planet. Right now, a launch date being bandied about by Mars enthusiasts is sometime in 2014. Notes an eager Ms. Marinova: "It would be difficult going to a new place and calling it home. But I still want to go. Living on Mars would be fun." Peter Boisseau, National Post

A social theory explains UFO sightings as cultural phenomena that reflect our hopes and fears, and change as our scientific knowledge of space increases

# Invaders from inner space

BY ANDY LAMEY

efore there were flying saucers, there were phantasmal hot air balloons and spectral spy planes, say two academics who have charted how UFO sightings have changed over the past 100 years.

According to Robert Bartholomew, a recent PhD in sociology at Australia's James Cook University and co-author of UFOs & Alien Contact: Two Centuries of Mystery (Prometheus, \$37.95), what people "see" in the sky is "a Rorschach inkblot of ... popular fears, hopes, expectations, desires, [and] anticipations." The sightings reflect current cultural beliefs and scientific advancement.

In the late 1890s, for example, the world's imagination was captured by Swedish explorer Salomon Andree's plans to fly to the North Pole in a balloon. The Canadian government and the Hudson's Bay Company even warned northern aboriginals that Andree's craft might blow south and be seen over Western Canada.

Andree took off from Norway's Svalbard Archipelago in 1897, but crashed within 65 hours of liftoff, only a few hundred kilometres from Svalbard. (Preserved film and diaries found in 1930 showed the crew died trying to trek back to civilization.)

Yet a wave of Andree sightings were reported across Canada in 1897. A fisherman in northern British Columbia said he could see "a great balloon-shaped body" flying through the sky, as did residents of a Kamloops nursing home.

In Douglas, Man., people reported seeing an illuminated object "the shape of a massive balloon." A man in Manitoulin Island, Ont., said he and some neighbours saw an object - going from red to white to blue that had to be Andree's vessel.

Excitement over the expedition had led to a similar wave of sightings the previous year - before Andree even left the ground.

"Believing is seeing," says Dr. Bartholomew, who compares the balloon viewers to the listeners of Orson Wells' 1938 War of The Worlds broadcast, who called police with eyewitness accounts of Martians.

A similar phenomenon took place during the First World War, Dr. Bartholomew says. After Canada entered the Great War in August, 1914, rumours of Germans infiltrating Canada from the United States swirled through the country. Every accident and fire was blamed on enemy agents.

"It was within this setting that a series of phantom aeroplane scares swept across Ontario and Quebec between 1914 and 1916," Dr. Bartholomew writes.

Airplane technology had barely been developed: The first night flight had occurred only in 1910 and lasted 20 kilometres. Quebec and Southern Ontario had almost no military significance for the Germans who, regardless, could have sent spies to "travel in the city unmolested in broad daylight," Dr. Bartholomew points out.

Nonetheless, Ontarians reported a wave of nocturnal German espionage and bomber plane sightings. Soldiers in London, Ont., told the local paper "we heard the purr of engines and looking up saw [an] aeroplane coming from the northeast of the barracks. It had a bright light and was travelling rapidly." In Windsor, people saw a biplane and used binoculars to "distinguish the figure of the aviator."

At the height of the panic, police and residents in Brockville swore they saw "light balls" and heard the "unmistakable sounds" of plane engines heading for Ottawa. After the police chief sent a telegram to Robert

Borden, then prime minister, the Parliament building's lights were all extinguished and the blinds drawn, while soldiers were stationed around Parliament Hill.

"Several Aeroplanes Make a Raid into the Dominion of Canada," The Globe reported credulously, before it was revealed that the UFOs were really toy balloons set off across the New York border. (In the United States, not yet at war, no one reported anything strange.)

The First World War case was a "collective delusion," Dr. Bartholomew says.

What all UFO reports have in common is a tendency to explain close encounters in culturally specific terms. Such encounters often occur when people are "alone, at night, [in] isolated areas: It was dark outside yet they record the presence of bright lights and time seems to move unusually fast or slow."

Under such circumstances in the last century, people thought they saw fairies. In

this century, they see UFOs.

"I would argue it's the same process, [with] different cultural expectations," Dr. Bartholomew says.

"People have a very large scientific component to their fantasies," says George Howard, Dr. Bartholomew's co-author and a professor of psychology at the University of Notre Dame.

He points out that in the early 1900s, people thought they saw heavier-than-air steam-powered flying machines: These would have been in step with turn-of-thecentury technology. When aliens themselves began to be reported in the 1940s and 1950s, they gave their home address as Mars or the moon. After science revealed both places to be uninhabited, alien visits from those bodies stopped, to be replaced by travellers from farther away.

Most UFO reports have easy explanations," says Chris Rutkowski, founder of Ufology Research Manitoba, which compiles an annual list of Canadian sightings. "But there always is a core of unexplained cases from year to year."

The "social theory," as he calls the view of Drs. Bartholomew and Howard and previous researchers, can't explain these residual cases, which "may represent a new phenomena [sic] ora hitherto unrecognized phenomena."

But even if UFOs do not exist physically, they still do psychologically and sociologically, Mr. Rutkowski says, and deserve scientific attention on those grounds. "So I applaud the authors of this study for taking the steps to seriously look at UFOs from a sociological point of view."

For his part, Dr. Bartholomew says we should keep our eye out for time travellers next. "[The concept is] so wonderfully ambiguous," he explains.

National Post

TUESDAY, MARCH 23, 1999

#### **Fireball in sky a mystery**

NATIONAL POST, THURSDAY, FEBRUARY 26, 1999 KITCHENER, ONT. • An unidentified flying fireball was seen flashing through the skies over southwestern Ontario early yesterday. The mysterious, meteor-like object was witnessed by people across a large swath of countryside from Kitchener to the Bruce Peninsula. Police said they started getting calls around 6:30 a.m. from residents wondering if an airplane had gone down. Officers scoured the area, but found no wreckage. Police also said there were no reports of overdue planes, and no emergency signals.

Send comments about DELVE REPORT to: Gene Duplantier, 17 Shetland St., TORONTO, Ontario, Canada M2M 1X5

NATIONAL POST, FRIDAY, MARCH 5, 1999

# HIT AIRLINER **MYSIERY**

# **NEAR TWA CRASH SITE**

BY STEPHEN THORNE

OTTAWA . ported that it by an unidentified flying objec ew York where a TWA airplane sibly a missile, near the area of A Swissair pilot has re his 737 jet was nearl

eport by the U.S. National Trans Swissair Flight 127 was cruising 23,000 feet on Aug. 9, 1997, hen the pilot reported the near iss by a round white object, says a rtation Safety Board shed in 1996.

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he controller Yes sir, and the time was 2107

Greenwich mean time]. fast to be an airp lane It was

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1997. The rep NYC97SA193, NATIONAL POST, MONDAY, MARCH 22, 1999 captain and first officer on Aug. 10, 1997. The report, filed under Investigators report, said the flight was interviewed the

ing off from JFK; killing 230 peo-ple. Some believe a missile caused the midair explosion of the TWA at 5:07 p.m. Eastern time – near the area where TWA Flight 800 el lank clusion but have been leaning to went down July 17, 1996, after tak opposite John F. Kennedy Airpor ward faulty wiring in the plane's fuhave reached no official conoff Long Island, N.Y. Authori

and no disruption or anomalies with any of the flight or engine inwas no noise, no wake turbulence craft. As the object passed by, there right of centreline. If it had beer The transportation safety board report said the cylindrical object ... passed over the cockpit, slightly The lower, it would have hit the air

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object pass overhead "very quickly "It was close enough that he ducked eet above the airplane thought it passed about 100 to 200 hought it would hit them. The first officer said he saw the his head because He he

at 7 p.m. and 3 a.m. Eastern time and usually take 25 to 28 minutes miles northeast of JFK twice daily HOH weather The ther balloons are launcus-ther balloons are launcus-N.Y., 43 nautical

posite direction target, either bez and plotted the plane's flight path There was no evidence of an op to reach 23,000 feet investigators checked radar data

port. con or non-beacon," The Canadian Press

said the re

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noted as the starting point of the Erie Canal, said sect members have made hardly a ripple in the Rust Belt industrial city, which otherwise An official of the Chamber of Commerce in Lockport, a town of 29,000 comfortably in Lockport, N.Y., 50 kilometres south of Niagara Falls self the reincarnation of Joseph, Jesus Christ's father. Mr. Liu, formerly an English professor in Taiwan, said the sect's remnants have settled the region sacred. Mr. Liu confirmed that Mr. Chen still considers him Chen stands by his prediction of a nuclear holocaust in Asia and Euwith a belief in flying saucers. Richard Liu, a spokesman, said Mr dia dubbed his Way of Truth sect, mixes Christianity and Buddhism has few ethnic Chinese residents. Barry Shlachter, Knight Ridder believers to the safety of the Great Lakes region. Mr. Chen considers age on a lawn in Garland, Tex., he issues a sweeping new revelation and God would appear on cable TV and then materialize in Mr. Chen's imthe case of Chen Hon-ming of Taiwan, What does a cult leader do when his grand prophecies fall flat? In rope between Oct. 1 and Dec. 31 while divine UFOs evacuate worthy Taiwanese followers are still with him. The UFO cult, as the news me relocates to upstate New York. But 12 months later, only 30 of his 160 who predicted last year that

ner's interest in the project is "purely scientific" and they got involved because they wanted to limit the risks to Earth by establishing proper communications and rules in dealing with aliens.

"There is a concern, for example, you have a religious group that believes in extraterrestrials as God and they want to call God to come here and who knows what might happen? If there is advanced civilization in space and they receive this kind of message they may come here and still play God," he said.

Chan Tysor, president of Houston-based Celelstis Inc., a company that sends cremated remains into space, told the National Post yesterday that he is participating in the Encounter 2001 project with the two Canadian scientists.

National Post

# **Defence Department on alien alert**

2 scientists urge PM to regulate messages sent by UFO fanatics

#### **By ROBERT FIFE**

**OFTAWA** • Two Defence Department scientists are urging Jean Chrétien to help avert an alien invasion prompted by unregulated message traffic sent into space by **UFO** fanatics.

Yvan Dutil and Stephane Dumas, who work as astrophysicists at the **Defence Research Establishment** in Valcartier, Oue., have written the prime minister to ask him to regulate communications with ex-

#### traterrestrials.

The two scientists, who are themselves attempting to contact extraterrestrial life, are concerned that inexperienced UFO fanatics could inadvertently invite an alien invasion.

"Sooner or later, messages carelessly designed might put Earth at risk," they wrote in an e-mail sent to Mr. Chrétien and Art Hanger, the Reform party defence critic. "For example, UFO cultists could send a message through space asking extraterrestrials to come and rule Earth."

Contacted yesterday at the Valcartier research establishment. Mr. Dutil said he and his colleague believe it is time the federal government got involved in regulating extraterrestrial communications.

"The main proposal is if you want to send something in space, the message should have to be checked out," he said. "It is not stupid to do this since [these communications] may imply danger so you have to be careful. It is like playing with dynamite."

Mr. Dutil stressed that the Defence Department is not involved in his and Mr. Dumas' plans to communicate with extraterrestrials.

Peter Donolo, the prime minister's usually voluble communications director, was almost speechless when told of the request of the government scientists to regulate "amateur" message traffic.

"Come on, this is insane," he

blurted out and then added: "We are not aware that fraternizing with aliens from outer space is a problem."

Mr. Hanger said he just cannot believe the Defence Department has allowed the two scientists to "play around with these kinds of fantasies.

"I don't know if they have talked to any moon people lately but it is obvious they are living in a fantasy world," said Mr. Hanger, who wondered "if they are going to converse in both of Canada's official languages."

Mr. Dutil said he and Mr. Dumas are involved in a project called Encounter 2001 where they hope to communicate with extraterrestrial civilizations using a transmitter in the Ukraine that is 100,000 times stronger than an ordinary TV.

Mr. Dutil said he and his part-

#### SPACE

# Human space colonies increasingly possible

#### **NASA** foresees long-distance space travel

#### By JAMES HEER

Humanity's age-old dream of living among the stars may be closer to reality than we think.

"Technologies are finally maturing to the point where we can do big things in space," says Robert Frisbee, a member of NASA's Advanced Propulsion Technology Group. His list of possibilities include mining asteroids, going to the moon, to Mars, going to the outer planets, and ultimately moving out of the cradle of - mankind into the stars."

How we might make that move is explored tonight in Escape from Earth, a two-hour television documentary airing on CBC's Nature of Things.

Projecting a century or so into the future, Escape from Earth, (which I helped write and produce) examines what it might be like for humanity's first star-travellers heading to an Earth-like planet in a nearby solar system. Science fiction perhaps, but not entirely out of this world, say the physicists, engineers, and astronauts focussing on this goal.

The most important advances are possibly those being made at NASA's Advanced Life Support System at the Johnson Space Center in Houston. What looks like a

NATIONAL POST, WEDNESDAY, FEBRUARY 24, 1999

## **ASTRONOMY Venus and Jupiter** may have created Star of Bethlehem

### SHONE 2.000 YEARS AGO

Venus and Jupiter converged over the traditional birthplace of Jesus last night in a way some scientists say they may have 2,000 years ago, giving rise to the story of the Star of Bethlehem.

#### RINGS Continued

closer to refining a model of what it all means."

Meanwhile, prospectors are chasing their own theory of what lies hidden beneath the mysterious rings.

Since last spring, Bob Komarechka and three others from Sudbury have been staking mineral claims in the area and have recently formed Diamtreme Explorations Inc., hoping to strike it rich by finding minerals below the ring surface. They began to stake after noticing that the rings were similar in size to diamond-bearing kimberlite pipes.

NATIONAL POST, TUESDAY, MARCH 16, 1999

As elsewhere on Earth for a limited time after sunset, the two planets appeared nearly to meet, together shining brighter than the other planets.

Church bells pealed after dark in Bethlehem, where according to Christian tradition a brightly shining star beckoned the Three Wise Men to the birthplace of Jesus.

"Because of the situation of Earth, Venus, and Jupiter, you can see them close to each other," said Yigal Pat-El, head of the Israel Astronomy Association who watched the rare convergence called a conjunction - through a . pheric soup, the Space Shuttle powerful telescope in Givatayim near Tel Aviv.

"And something very interesting about this conjunction is that about 2,000 years ago the two planets were in conjunction, but so very, very close that perhaps you couldn't distinguish between the two planets with the naked eye," he said.

The stars are really 400 million miles apart.

"So it appeared as one big planet and scientists think that probably it's the star of Bethlehem that appeared in the same year that Jesus was born," he said.

Reuters

small, windowless dome from the must travel at about 36,000 kilooutside, and a suburban rec room complete with scattered chairs, card table, and washing machine - on the inside, may hold the key to interplanetary travel.

ALSS scientists hope to overcome a central obstacle to sending humans to other worlds: how to keep them alive en route. They are creating a miniature ecosystem that might one day produce enough food, water, and air to sustain a group of astronauts indefinitely in space.

"It's just way too heavy to carry all the water that we need to drink, all of the air that we need to breathe," says Nigel Packam, an ALSS researcher. "So it forces us into recycling all of the water, and regenerating all of the air."

With a handful of crop species, and as little as 33 square metres of space in which to grow them, ALSS engineers can already produce enough oxygen, food, and recycled water to sustain one astronaut indefinitely.

"Plants are the ideal partner to take with you on a long-duration space flight, because they want what you breathe out and you want what they can produce for you, namely oxygen and food." says Dr. Packam, who recently spent 90 days locked inside the ALSS test chamber.

Hand-in-hand with keeping a crew alive on a long space mission is finding a cheaper, faster method of getting them there.

To break through Earth's atmos-

#### Youth dies to meet aliens

VICTORIA • A 16-year-old youth jumped or fell to his death from a 65-metre cliff in an effort to join an alien culture. In a report on the youth's death, Cynthia Morton, the children's commissioner, said the youth never received the help he needed. Three days before he went missing in 1997, the youth told a friend he was planning to jump from the top of a 20-storey apartment building.

NATIONAL POST, FRIDAY, MARCH 5, 1999

metres an hour, burning 10.9 tonnes of fuel every second. The cost is enormous - about \$3-million for each astronaut on board.

Using current rocket technologies, a trip to an alien world like the one Escape from Earth's crew is heading toward could take as long as 150,000 years. But here too, NASA scientists are hard at work, envisioning a propulsion system that will harvest hydrogen atoms as it moves through the galaxy and soar at speeds approaching 650 million kilometres per hour. Travel time for our future adventurers? Under 15 years.

Ultimately, it is the fragile nature of our own physiology that places the greatest limit on how fast and far we can go. Lawrence Krauss, whose book, The Physics of Star Trek, debunks many popular notions about space travel, says acceleration to high speeds would have to be done slowly over several years.

"As opposed to Star Trek where you go from zero to half the speed of light in a second," he says, "because if that's the case, then you're chunky salsa on the back of the spacecraft.'

Perhaps the only thing scientists cannot accurately anticipate is how voyagers might respond to being so far from home.

On missions near Earth, the time lag of communication is less than a second - only two seconds between Houston and the moon. But far beyond Pluto commands take nine and a half hours to reach Voyager 1. Messages to a crew travelling beyond our solar system could take years to arrive, if they get there at all.

Some day when we reach out, the Earth is going to fade into nothing but a bright, brilliant star," says Apollo astronaut Eugene Cernan.

"I think psychologically that's going to be something that people are going to have to think about."

National Post