Mathematician solves evolutionary mystery

A Michigan math professor, dabbling in biology, may have come up with an explanation for evolution's great mysteries -- why some species flourish over others.

Iosif Pinelis, a professor of mathematical sciences at Michigan Technological University, was planning on publishing his thesis in a mathematics journal, but instead described his model in an article recently published in the Proceedings of the Royal Society.

Why is the typical evolutionary tree so lopsided, Pinelis wanted to know? Or, in other words, why do some descendants of a parent species evolve hundreds of different species, while others produce so few they seem to be practicing family planning?

To a certain extent, the answer lies in simple probability, says Pinelis. But when one species spawns more decendent species than another, that event in and of itself leads to the further propagation of more populous species.

"If one branch has more species, the chances are greater that it will speciate," Pinelis explains. "The rich get richer; money goes to money."
What Are the Chances? Mathematician Uses Probability to Unravel Evolutionary Mystery

HOUGHTON, Mich., Sept. 25 [AScribe Newswire]

The origin of species may be almost as random as a throw of the dice.

For the last two years, Iosif Pinelis, a professor of mathematical sciences at Michigan Technological University, has been working on a mathematical solution to a challenging biological puzzle first posed in the journal "Statistical Science" [see note 1]: Why is the typical evolutionary tree so lopsided?

In other words, why do some descendants of a parent species evolve hundreds of different species, while others produce so few they seem to be practicing family planning?

To a certain extent, the answer lies in simple probability, says Pinelis. Say you have two species of fish swimming in a pond, the carp and the perch, and it might be equally likely that one of them will evolve a third species. Say the goldfish evolves from the common carp, and suddenly you have three fish species in your pond.

Assume again that it is equally likely for the carp, the goldfish and the perch to split into two distinct species. The chances that the carp branch will develop a new species are now double that of the perch branch, because the carp family now has two members.

And so it may go, until the pond is overrun with carp and their descendant species.

"If one branch has more species, the chances are greater that it will speciate," Pinelis explains. "The rich get richer; money goes to money."

In real life, evolutionary trees are even more unbalanced than simple probability would predict. To explain this, Pinelis supposed that there must exist a significant number of species that change very slowly over time. His supposition is borne out in reality: Biologists have long puzzled over such species, which are sometimes called "living fossils."

A typical example of the living-fossil phenomenon is the coelacanth, a species of fish first identified by scientists after being caught in deep water off the coast of Africa in 1938. Scientists had believed it had gone extinct 80 million years earlier, but the discovery showed the unusual fish instead had survived unchanged for over 340 million years.

In the fish evolutionary tree, the coelacanth branch is pretty straight. Other branches have thousands of limbs, branches and twigs.

"In the beginning, I just speculated that such species existed, and that they are what cause many evolutionary trees to be so unbalanced," he said. "I'd practically finished the
model when I discovered about 150 papers by biologists for whom the existence of such living fossils was a given; they were only trying to explain this phenomenon."

"That was a pleasant surprise."

Pinelis had originally intended to publish his findings in a mathematics journal, but then decided to submit it to the scrutiny of specialists in another field, biology. His model is described in an article recently published in the Proceedings of the Royal Society, Series B. [see note 2]

So far, the reaction has been mixed. Some biologists are skeptical; others have expressed "great interest." However, Pinelis says, his model holds up under rigorous analysis and may have practical applications, such as better understanding and control of the evolution of various microorganisms, including viruses and bacteria, which have especially high rates of change.

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CONTACT: Marcia Goodrich, Michigan Tech Media Relations, 906-487-2343
Upper Peninsula Briefs

GRAND MARAIS, Mich. - A long-lost ship that sank in Lake Superior nearly 90 years ago may have been spotted, courtesy of declining Great Lakes water levels.

The wreckage was discovered about six miles east of Grand Marais. Some believe it may be the remains of the Annie M. Peterson, a wooden schooner-barge that sank off the mouth of the Two-Hearted River in 1914. All nine men aboard were killed.

"It could well be the Annie Peterson," said Fred Stonehouse, a well-known Great Lakes maritime historian and author who lives in Marquette. "It's possible it could be any of a couple of other shipwrecks."

Robert Hughes, a Grand Marais resident, has inspected the wreckage.

"With the tide changes, the waves started hitting just right to move the sands," Hughes told The Mining Journal for a story Monday.

It probably would be necessary to take measurements and study historical documents to positively identify the remains as the Peterson, Stonehouse said.

For now, the shipwreck has become a local curiosity for Grand Marais residents and visitors.

Stonehouse said the discovery of "new" shipwrecks on the Great Lakes has become fairly common recently, as lake levels have plummeted.

"There's probably been half a dozen hat have popped up in the past couple of years," Stonehouse said. "Especially along Lake Michigan. A lot of these ships ran up onshore and were then just kind of ground down into the sand."

MARQUETTE, Mich. (AP) - A Gwinn man was sentenced to at least three years in prison for sexually assaulting an Ishpeming girl.

Daniel Joseph Germain, 25, was sentenced Thursday by Circuit Judge John R. Weber to three to 15 years in prison. Germain was given credit for 220 days served in the Marquette County Jail.

Germain pleaded guilty Aug. 8 to one count of third-degree criminal sexual conduct, a 15-year felony. As part of a plea agreement, four other identical charges were dropped.

Detective Sgt. Dan Willey of the Ishpeming Police Department said the original charges involved three Ishpeming girls.

MARQUETTE, Mich. (AP) - A woman charged with embezzlement from a local trucking company has been arraigned.
Kathleen A. McDonnell, 50, of Negaunee, appeared before Marquette District Judge Dennis Girard last week.

In warrants authorized by the Marquette County Prosecutor's office, McDonnell is charged with one count of embezzlement by an agent or trustee over $20,000, a felony carrying a maximum sentence of 10 years in prison and a $15,000 fine; and four counts of failure to file income taxes, felonies carrying maximum sentences of five years in prison and a $5,000 fine.

The company involved was Martin Schmeltz Trucking of Negaunee Township. McDonnell had a part-time financial position with the trucking company until May.

Police said she wrote checks and made bank deposits on behalf of the business. A preliminary hearing is scheduled for Nov. 7.

MARQUETTE, Mich. (AP) - The Marquette City Fire Department started its Fire Prevention Week activities early Saturday with its 12th annual static display and parade.

The display included firefighting equipment from most of the fire departments in Marquette County, Onota Township in Alger County, and the Michigan Department of Natural Resources.

"We've got millions of dollars worth of equipment here," said Marquette Fire Department Sgt. Dan Dagenais, one of the event organizers.

Sparky the Fire Dog and Smokey Bear made appearances, teaching kids about fire safety. Clowns from the Marquette Masonic Temple passed out flying disks and balloons.

HOUGHTON, Mich. (AP) - A Michigan Tech University freshman was killed in a hit-and-run early Sunday morning.

Jeremy M. Larsen, 20, of Scottville, was trying to cross to the north side of College Avenue with another Tech student at about 3:15 a.m. when they were struck by a pickup truck, Houghton police said.

Larsen and 23-year-old Dominic J. Longhini of Marquette were taken to Portage Health System, where Larsen died. Longhini was transferred to Marquette General Hospital, where he was in fair condition Monday.

"We won't rest until we find the driver," Police Chief Ralph Raffaelli said, adding that this was the first hit-and-run fatality he could recall in Houghton in 30 years.

He said the two students were walking with a third person, who crossed the street successfully before turning to see the truck hit his friends.

Larsen's mother, Carol Larsen, told The Daily Mining Gazette her son graduated from Mason County Central High School in 2002. He was a state qualifier on the wrestling team and participated in band.
Spotlight

staff

College honors

* Kyle Ferguson, son of Jim and Laurel Ferguson, Green Bay, graduated from Trinity International University, Deerfield, Ill. He graduated summa cum laude in the honors program, receiving a bachelor's degree in youth ministry. He is a 1999 graduate of N.E.W. Lutheran High School. He is now a youth and family pastor at Cornerstone Presbyterian Church in Waukesha.

* The University of Wisconsin-Madison Department of Mathematics named Jeremiah Wilke of Green Bay as one of the winners of the Professor Linnaeus Wayland Dowling Scholarship. The award is presented to students who show great promise and have exceptional talent for mathematics.

* Local students graduated from the University of Wisconsin-River Falls in spring with bachelor's degrees. They are: Keith Zeamer, De Pere; Terrance Sorenson, Forestville; Erin Bell, summa cum laude, Sara Blazewicz and Daniel Toniatu, senior honors, all of Green Bay; Jennifer Golbach, Lakewood; Maria Ozarowicz, Maribel; Lucas Brzezinski and Trisha Hieronimczak, senior honors, both of Oneida; Amanda Junski, Pulaski; Gregory Kroncke, Rhonda Rusch and Amy Williamson, all of Seymour; Amanda Heling, Jessica Schroeder and Greta Wendorff, senior honors, all of Shawano; Lianne Greenfeldt and Jeni Knaapen, both of Sturgeon Bay.

* The Wisconsin Medical Society Foundation has chosen Laura Frisque of Green Bay to receive a scholarship from the General/Vetter Memorial Scholarship Fund. The $500 scholarship assists students who are pursuing training or advanced education as doctors, nurses and technicians or in related health fields. She is a senior at the Bellin College of Nursing and works as a nurse extern at St. Vincent's Hospital.

* Eleanor Christman Cox, Tallahassee, Fla., received her master of music degree in cello performance from the University of Wisconsin-Madison in spring. She is the daughter of the Rev. Robert and Kay Christman, Green Bay.

* Beverly Sturke of De Pere graduated from Cardinal Stritch University, Milwaukee, in May with a doctorate in leadership for the advancement of learning and service degree.

* Christopher Anderson of Green Bay graduated from the Milwaukee Area Technical College in May with an associate's degree in hotel-hospitality management.

* Rachel Lueck of Oneida was named to the spring semester dean's list at Drake University, Des Moines, Iowa.

* Trisha Vicario graduated summa cum laude from Hamline University School of Law, St. Paul, Minn. in May. She also holds a bachelor's degree from the University of Wisconsin-Madison.

* Jennifer DeMott of Green Bay was named to the President's List at Drake University, Des Moines, Iowa, for the spring semester. She achieved this honor with a grade-point average of 4.0.

* Sarah Wickert of Green Bay was one of six students selected by the Department of Music at Valparaiso University, Indiana, that performed at the Senior Honors Recital. She played the bassoon. She received a bachelor of music degree in music performance and is the daughter of David and Carolyn Wickert. She is a graduate of Bay Port High School.

* Jesse Jones, a sophomore at American University, Washington, D.C., was named to the spring dean's list. Jones is majoring in international studies and is a resident of Green Bay.
Humana Inc. of Green Bay named local winners of college scholarships awarded annually by the Humana Foundation Scholarship Program. The 2003-04 program provides up to $2,500 for each scholarship in an effort to help finance the college education of children of Humana employees. They are:

- Daniel Barker, Green Bay, University of Wisconsin-Madison;
- John Dennis, Kaukauna, Michigan Technological University;
- Lee Forbeck, Kaukauna, UW-Oshkosh;
- LuMarie Guth, Green Bay, UW-Green Bay;
- Kathleen Harmeling, Green Bay, UW-Eau Claire;
- Matthew Hockers, Green Bay, Northeast Wisconsin Technical College;
- Samantha Huettl, De Pere, UW-La Crosse;
- Mary Karman, Denmark, UW-Oshkosh;
- Daniel Mahoney, Green Bay, NWTC;
- Laura O'Donnell, De Pere, UW-La Crosse;
- Matthew Parmentier, Green Bay, UW-Oshkosh;
- and Jenna Van Thiel, Green Bay, UW-Madison.
Upper Peninsula Briefs

SAULT STE. MARIE, Mich. - Empty-handed. The words best describe the condition of most pink salmon anglers returning from the Garden River, Canadian Rapids, Alford Park and other traditional hot spots along the St. Mary's River system this year.

Louis Hank, owner and operator of Hank's Sport Shop, said the visiting anglers are telling similar fish tales - and when it comes to pink salmon, they're not about the big one that got away.

"They just aren't out there," Hank told The Evening News for a story Thursday. "It's way down. The stuff we sell for pinks is not selling because they just aren't catching any."

Roger Greil, manager of Lake Superior State University's aquatics lab, agreed.

"I was thinking they were going to be a couple weeks late," said Greil, because everything else in the system is running behind schedule this year. But as time passes, the prospect of a big influx of pink salmon seems less and less likely, he said.

The St. Mary's River isn't the only place where pink salmon numbers are off, said Dave Borgeson of the Michigan Department of Natural Resources.

He said he had heard similar reports from other places, such as the Carp River in Mackinac County.

The good news is that anglers are catching plenty of Chinook salmon, Hank said.

HOUGHTON, Mich. (AP) - The city will begin mandatory inspections of rental properties following approval of a plan by the city council.

The council approved the ordinance revision Wednesday after a public hearing, where landlords raised concerns about requiring owners of rental properties to register with the city and pay an annual fee.

"It's become reactionary that landlords bear the burden of inspections," said Kim Stoker of Chassell Township, who owns four rental properties in Houghton. "There are some of these things that are going to require give and take, or else you're going to have a strong reaction from landlords."

City officials became increasingly concerned about building safety after a fatal fraternity house fire killed a Michigan Tech University student in August 2002.

The ordinance affects 900 rental units in 400 buildings. Tech students make up the bulk of local renters, with about 3,600 living off campus.
MUNISING, Mich. (AP) - Endurance horse racers will head to the Hiawatha National Forest this weekend for the Pine Marten Run, a two-day set of events expected to attract riders from the upper Midwest.

"I've had people from five states and Canada," said Karen Bahrman of Rumely, manager of the event, now in its sixth season. "They come a long way to compete. Mostly, they are from downstate and Wisconsin."

Saturday events include 50-mile and 25-mile endurance runs and a 40-mile competitive race. On Sunday, there will be additional 50-mile and 25-mile endurance races and a 25-mile competitive run.

Winners receive souvenirs and awards. Typically, about 75 riders compete, The Mining Journal reported Thursday.

The course follows the Pine Marten Run trail system, located in the Chain of Lakes area of the Hiawatha National Forest.

MARQUETTE, Mich. (AP) - The Michigan Court of Appeals will hear arguments here Oct. 8 in a lawsuit over a snowmobile trail in Chocolay Township.

The Michigan Department of Natural Resources is appealing a ruling by Marquette County Circuit Judge Thomas Solka. He ordered the DNR to follow the township's zoning ordinance as the DNR works to establish a snowmobile trail on the former Wisconsin Central railroad grade.

The township had sued to block the trail, which it contends is inappropriate in a residential area.

Solka also issued an order prohibiting motorized use on the trail until the DNR applies for and receives a zoning variance.

Appeals judges Patrick M. Meter, Henry William Saad and Bill Schuette will hear arguments on that and several other cases Oct. 8 in Marquette.
School News

Staff

A number of area students attended the Summer Youth Program (SYP) at Michigan Technological University-Houghton.

Students attend one of more than 60 different weeklong explorations in engineering; math, science and technology; computers; outdoors and ecology; society and culture; and fine, performing and technical arts. Participants investigate various careers and academic areas through workshops, laboratory activities, field trips and meetings with professionals in their area of interest. Students also are given the chance to experience a taste of college life.

Local participants included:

Marshfield - Anita Haldes, grade 10.

Medford - Ashlee Helmbrecht, grade 9; Courtney Jablonsky, grade 7; and Michelle Curran, Medford Senior High School, grade 10.

Rhineland - Justin Fralick, grade 9; and William Schneider, grade 7.

Tomahawk - Justin Olson, grade 7.

Kate Nelson, Tomahawk Middle School, participated in a one-week engineering camp called the Summer Technology and Engineering Preview at Stout for Girls (STEPS for Girls) conducted at the University of Wisconsin-Stout, Menomonie, in July. The purpose of the camp is to expose girls to possible careers in engineering and technology through hands-on activities in manufacturing.

Throughout the week, Kate and her classmates manufactured 40 radio-controlled model airplanes, enough that each had one to bring home with her. Parts for the airplanes were produced in a variety of UW-Stout laboratories, such as the foundry, plastics lab, packaging lab and transportation lab. Sessions in math, physics, chemistry, and computer-aided design showed the campers how an airplane flies and how it is powered. On Wednesday night each camper flew her own airplane at the UW-Stout athletic field. The girls also learned how to program a robot, and how to operate automated machinery.

Throughout the week the campers acted as reporters and photographers in developing illustrated articles for a camp newsletter that they designed and published in the University's printing laboratories. They also learned how to develop a Web page and posted reports and photos of each day's activities on the camp web site found at www.uwstout.edu /ctem/steps.

The campers also partook in several fun activities during the week: bowling, swimming, picnics, a karaoke party, a ropes course, a walking tour of local historic sites and tours of local manufacturing companies.

Engineering and science faculty members of the UW-Stout plan, coordinate and conduct the camp for 160 girls participating in four camps during the month of July.

Senior high school student artists attended the 2003 University of Wisconsin-Green Bay Summer Art Studio from July 13 to 18.

Area students attending the Summer Art Studio were: Antigo - Madison Hoffman; Arpin - Haley Raabi; Marshfield - Laura Drew; Merrill - Stephanie Frederick; and Schofield - Lisa Lopez.

Middle school student artists attending the 2003 University of Wisconsin-Green Bay Summer Art Studio from July 6 to 11 included: Mosinee - Jaya Sita Charbameau; Schofield - Deidra Connors, Krista Connors and Janessa Hintz; and Wausau - Aurora Prehn.

Katrina Stewart, a graduate student at D.C. Everest High School, received the Jerry Seeley Memorial Scholarship.

The Global Automotive Aftermarket Symposium (GAAS) Scholarship Committee awarded Justin Kuck, Athens, a $1,000 scholarship.
Michigan Council of Women in Technology Announces Scholarship Recipients; Grand Valley State University Student Shanise Sarden and Michigan Technological University Student Melissa Ulstad Awarded $2,000 Education Scholarships

DETROIT, Sept. 24

The Michigan Council of Women in Technology (MCWT), an organization providing outreach, professional development and service to the Michigan technology community, today announced it has awarded two $2,000 Education Scholarships to Shanise Sarden and Melissa Ulstad, both undergraduates in the technology field.

MCWT strives to foster growth and continued development for tomorrow's technology leaders, and accordingly, understands the need to support and fund educational opportunities for women in the Metro Detroit community. Both scholarships were made possible through a generous donation by General Motors Corporation and MCWT. They were announced at an MCWT event held at GM's headquarters on September 23.

Sarden is currently pursuing her bachelor's degree in computer information systems at Grand Valley State University and holds a 3.8 grade point average. The scholarship will help to fund her financial needs in books, housing and tuition. Sarden is an active member of her collegiate chapter of the National Society of Black Engineers. She hopes to work in manufacturing and customer service upon graduation.

Ulstad, an active member of Michigan Technological University's Formula One Team, holds a 3.7 grade point average and will use her scholarship to pay her tuition for this year. Last summer Melissa served as an intern at John Deere Power Systems which fostered her interest in mechanical engineering. She is pursuing a Bachelor of Science degree in Mechanical Engineering at Michigan Technological University.

"Through their commitment to technology education, Shanise and Melissa are great examples of the values embodied by MCWT," said Sandy Moore, MCWT President. "I'm proud to honor these women with the MCWT Scholarships."

About The Michigan Council of Women in Technology

The Michigan Council of Women in Technology provides leadership, mentoring, outreach, professional development and service to professional women within the Michigan technology community. The organization is committed the open sharing of ideas among peers. Further, the organization fosters growth and continued development for tomorrow's technology leaders. The organization will offer compelling programs, opportunities for relationship-building, and outreach initiatives. The group's long term goals include the provision of organizational support to Michigan's educational institutions, to foster the growth and profile of women in technology fields. MCWT sponsors include: Ford Motor Company, Walsh College, SunTel Services, Microsoft Corporation, Deloitte and Touche,
General Motors, LogicaCMG, and Delphi Corporation. For more information, please see www.mcwt.org.

SOURCE Michigan Council of Women in Technology

CONTACT: Elin Spahr, +1-313-887-7209, spahr@airfoilpr.com, for Michigan Council of Women in Technology

URL: http://www.prnewswire.com
Spotlight

staff

High school honors

* Local high school students attended the 2003 University of Wisconsin-Green Bay Vocal Jazz and Gospel Choir Camp in July. The student vocalists were immersed in ensemble rehearsals, solo vocal coaching, jazz theory and improvisation, and studio recording. The camp concluded with a final performance on the main stage of the UW-Green Bay University Theatre. Participants were: Amy Cooper, Amber Gosz and Emily Kulner, Brillion; Alyse Delie, Kari Estel, Brooke Teegarden, Brenna Dee Hansen, Michelle Huff and Leann Seymour, all of Green Bay; Lauren Haight, Little Suamico; Hannah Pozorski, Manitowoc; Kristina Demsmith, Marinette; Molly LeCaptain, New Franken; Shanna Bude, Lydia Bugaj, Alyse Carver, Toni Sabelman and Miranda Sandberg, all of Peshtigo.

* Local high school student musicians attended the 2003 University of Wisconsin-Green Bay Jazz Ensemble Camp in summer. The camp provided participants with in-depth experience in jazz ensemble performance, master classes, jazz theory, improvisation and arranging. Attendees gave a final performance on the main stage of the UW-Green Bay University Theatre. They are: Paul Waterhouse, Antigo; Nathan Blasck, Benjamin Hogan, Michael La Count, Anthony Lennon, Kieran Leong, Michael Oldenburg, David Stangel, Matthew Stangel, Aaron Willems and Colin Eggers, all of De Pere; Brigette Douthitt, Nikita Flores, John Arndt, Jordan Bader, Michael Merline, Christopher Bartel, Nicholas Boreen, Denise Densing, Abby Frederick, Amy Linzmeyer, Jared Hazaert, David Tedeschi, Jacob VandeHei, Samantha DeLong, Joseph Facio, Adam Hatlak, Kevin Heim, Sean Kennedy, Jason Poupore, Brian Stauber, Eric Steinbrecher, Abby VandeWalle and Ryan Zimmerman, all of Green Bay; Hana Steffel and Kristen Stodola, both of Luxemburg; Katie Auchtner, Benjamin Burish, Garett Dismore, Craig Edgar, Chris Firkus and Jordan Waack, all of Manitowoc; Dennis Kump, Seymour; Amy Warmenhoven, Shawano; Ryan LeCloux, Sturgeon Bay; Eric Olp, Two Rivers.

* Seven are high school graduates now attending the University of Wisconsin-Madison were awarded scholarships by the UW Alumni Club of Brown County. They are: James Davis, Green Bay West High School; Talon DeWindt, Green Bay Southwest; John Katchenago, Notre Dame Academy; Kouapheng Moua, Green Bay West; Melissa Sachs, De Pere High School; Cole Stockheimer, Bay Port; and Jessica VandeWalle, West De Pere.

Middle school honors

* Local middle school students attended the University of Wisconsin-Green Bay Computer Camp in June. The students designed Web pages and created presentations with sound, digital images and digital video. They shared what they learned at the camp in a final “poster session” for family and friends. They are: Jessica Francar, Charles Gille, Jim O’Rourke, Paul Olvera, Benjamin Overeem, Dan Howell, Douglas Schultz, Kristin VandenBerg, Hahn-byul Cho, Thomas Gray and Christopher Wink, all of Green Bay; Nathan Arnold, Brett Bellmore and Samuel Ruedinger, all of De Pere; Paul Cain, New Franken; Daniel Cooley, Oneida; Weston Maier, Sturgeon Bay.

* Several Pulaski High School students participated in the American Indian workshop, one of the various youth programs at Michigan Technological University, Houghton. The program offers young American Indian students the chance to experience university life and investigate various fields of interest. They are: Angelica Skendore, Chandre Lucas, Gerald Skendore, Marcus Webster, Mitchell Skendore, Rosa Francour, Sterling Nunies, Sunshine Nunies and Tosa Skendore.

Other honors

* Susie Utiger Watson of Ellison Bay was one of two graduates honored at the Mount Mary College Alumnae Association Reunion 2003 event held in June. Watson, a 1975 graduate, received the Madonna Award for Outstanding Achievement for professional excellence. She graduated in fashion design and gained experience as a soft-goods buyer for a sporting goods store and later as a marketing director for Westwood Plaza Mall in Marquette, Mich. After moving to the East Coast she began her career with Timex Corp., where she spent 13 years as director of advertising, brand strategy and public relations. In 2001, she relocated to Door County and now works as a marketing consultant and as a public speaker represented by New York’s Harry Walker Agency. One of her most popular presentations is “Women and Work -- How to Keep Your Soul in Corporate America.”