



Want pickles with that?



Emily Stone / The Antarctic Sun

Edith Day prepares for lunch by testing the temperature of cheese and meat on the sandwich line in the McMurdo Station dining hall. Cooking in Antarctica can be a challenge — ingredients are ordered months before they're used, fresh food can be scarce and cooks at the three U.S. stations are trying to cater to between dozens and a thousand people. Read about how Antarctic chefs keep the station workers fed in an article on page 7.

Piecing together Earth's tectonic past

By Emily Stone
Sun staff

Anyone who has hovered over a jigsaw puzzle for hours knows that sometimes you can't figure out how two pieces fit together until you've placed all the pieces around them.

The same holds true for Earth's tectonic plates. Understanding how the Antarctic plate fits in with its neighbors, and how that has changed over millions of years, helps geologists put together puzzle pieces as far away as Hawaii and Iceland or along the San Andreas Fault in the United States.

A team of scientists is hoping to add to the understanding of the important Antarctic plate during two cruises between McMurdo Station, South America and New Zealand. They will use underwater instruments to make a more detailed map of the plate, and see where it used to be joined to other continents.

"Essentially, what we're trying to do is sort out the plate tectonic history of Antarctica," said Joann Stock, principal investigator on the project's first cruise and

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Tractor lovers form club

By Emily Stone
Sun staff

When you hear an Antarctic worker talk about his sweetheart, don't assume he's referring to his girl back home. Sometimes he's affectionately discussing his tractor.

Massive tractors are the muscle that built the Antarctic stations. The old ones, including three Caterpillar stretch D-8s from the 1950s that are still used at McMurdo Station, have earned the respect of the people who drive them. But heavy equipment operators aren't the only ones who admire old tractors. Others on station brought their love of the machines with them to the Ice.

The Antique Tractor Club is a new

group at McMurdo for tractor enthusiasts. The group has met twice to watch old tractor movies. Steve Petraitis, the power plant mechanic who started the group, hopes they meet a couple more times this summer. He would like to see the get-togethers eventually include presentations by tractor enthusiasts and collectors.

"I've always been interested in tractors," said Petraitis, who grew up working on a farm in Connecticut and has 25 years of experience working on Caterpillars. "I've been messing with them since I was a boy."

Petraitis' "pride and joy" is a 1954 Caterpillar D-2, built the same year he was

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Quote of the Week

"You don't want to be the one to find out."

— Man wondering if aggressive skuas want to scare you or eat your eyeballs.

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Antique tractor enthusiasts gather for movies

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born. He's quick to show pictures of the yellow tractor with his 9-year-old niece sitting happily on top, and often mentions the Antique Caterpillar Machinery Owner's Club, of which he's a long-time member.

Petraitis also collects old tractor movies, mostly promotional films from the Caterpillar company. He brought about a dozen video tapes with him to McMurdo. A friend asked to borrow one, but didn't have a VCR in his room. They came up with the idea to show movies in a lounge and make a club out of it, Petraitis said.

Petraitis likes that he's able to give something back to the community by creating a social activity for tractor fans. Plus, he likes to joke, if he can't get a date he might as well watch old tractor movies.

The first meeting drew about 40 people, including several members of the South Pole Traverse team, whose lifeblood are the tractors pulling the equipment and supplies across the continent. That night they watched the hands-down group favorite, "The Great Tractor Race," a 1930s black and white film of a very slow race up and down gullies, over trees and through barns as needed.

The second meeting drew a crowd about half the size, nearly all of them men, who watched two hours of movies about the tractors that built fire access roads in the American West, and constructed the AlCan Highway from Alaska to Canada, which was used to transport military personnel and supplies during World War II.

The group occasionally shouted and groaned as the drivers bounced around in their cabs or perched precariously on the side of a steep slope. Every now and then someone identified a certain machine model, or threw out a rhetorical question about whether anyone would want to use those old machines to build a runway or maintain a road now.

Dave Tuepker, a mechanic in the fuels department, went to both meetings. He has 32 antique tractors dating from 1928 spread out among different friends' and relatives' houses for storage. He's well versed in tractor history and is happy to give a lesson in how the design and technology evolved. He pulls out old pictures, advertising posters and literature about the machines as he talks.

He's got four big tractors — three of them "high crops," with a higher than normal cab so the tractor can move over plants growing well off the ground — eight smaller riding garden tractors, and 20 walk-behind, two-wheeled garden tractors.

Tuepker's interest in tractors took root while growing up on a poor, "bottom land" farm along the Missouri River.

"That's all we could afford," he said of the old tractors. Still, they were an improvement over the mules that his grandfather farmed with.

Tuepker is drawn to odd and unusual antiques. His favorite is the steel-wheeled, 1928 Shaw walk-behind tractor he bought recently. The seller wanted to get rid of his whole collection, so Tuepker agreed to buy all 10 of the man's tractors in order to get the one he really had his eye on.



Poster courtesy of Dave Tuepker / Special to *The Antarctic Sun*



Courtesy of Steve Petraitis / Special to *The Antarctic Sun*

Above, this old advertising poster shows the type of walk-behind tractor that Dave Tuepker collects. Left, Steve Petraitis rides his "pride and joy" Caterpillar D-2 tractor at home. He started the McMurdo Station Antique Tractor Club.

He said people still look for the old walk-behind tractors to use in their gardens.

"There's nothing out there that can touch them," he said.

Fleet Operations Supervisor Gerald Crist deals with the big tractors. He oversees the station's heavy equipment, including the three stretch D-8s from the 1950s that are still used today. The tractors, called Pam, MaryAnn and Coleen, retain the women's names they got in their Navy days. They were specially designed by Caterpillar for polar work. Their extra-long tracks reduce the ground pressure, making them ideal for traveling over snow and ice because they're less likely to break through.

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Geologists across globe use Antarctic plate data

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million years the field switches direction, but the rocks retain the magnetism of the time they were born. By measuring which way the rocks are magnetized on the ocean floor — a technology that was discovered during World War II while Americans were looking for German submarines — scientists can tell when the rocks were created.

On the second cruise, the ship will move more slowly, which allows the scientists to take seismic readings. This will help them understand the sedimentary layers and fault patterns in the ancient seafloor that was created when the two Antarctic plates split. There are still many questions about how that ocean floor spreading affected the Antarctic continent, Stock said.

Earth sciences professor Tanya Atwater uses information from Stock and Cande's work in her research at the University of California at Santa Barbara. Atwater focuses on the tectonic plates of the western United States, particularly the San Andreas Fault.

"I use the circuit solution all the time to try to work out all sorts of things about western North America," she said. "It's completely hung on Antarctica. ... That's the only stepping stone you can use."

The Antarctic plate is important not only because it's the link between the Atlantic and Pacific regions, but also because of the composition of the plate itself, she said. Antarctica's plate is bordered all the way around by spreading centers, which are places where two plates have moved apart, as opposed to areas of subduction, where two plates smashed together and one has



Courtesy of Joann Stock / Special to *The Antarctic Sun*

Joann Stock and Steven Cande work in the lab onboard the Nathaniel B. Palmer during a cruise in 2002. They will continue their tectonic research on two upcoming cruises.

been pushed under the other.

"Subduction destroys the evidence," Atwater said. Spreading centers hold a record of everything that's happened there, and are best for making reconstructions.

"It's absolutely vital work," she said of Stock and Cande's project.

NSF-funded work in this project: Joann Stock, California Institute of Technology, and Steve Cande, Scripps Institution of Oceanography, www.gps.caltech.edu/~jstock/

Old D-8s have fans

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Yet sometimes they do. Two Navy men died on D-8s in 1956 at McMurdo and Little America V. Other tractors have fallen through, including Linda, which went into a crevasse on Thanksgiving eve in 1991. No one was hurt, but Linda was lost.

"It was our flagship," Crist said. "It was our sweetheart."

Crist said he enjoys watching the old movies, particularly to see the contrast between our safety-conscious culture and the more reckless work styles of the past.

"It is fascinating to see how they did it and how the machines progressed," he said. "It's a hoot."

Crist is quick to point out that he's not a true tractor enthusiast like Petraitis and Tuepker, who have made antique tractors a hobby. Mechanics, who explore the inner workings of the machines, are more likely to become enthusiasts than the men who drive the tractors during long work days.

"We've been beat up enough by that equipment," he said.



Continental Drift What's the dumbest question you've been asked about Antarctica?



"Are there a lot of polar bears down there? This from an environmental studies major."

Bess Koffman, Palmer lab technician from Bar Harbor, Maine, first season



"So how many seasons have you worked in Alaska?"

Jon Olander, South Pole utility tech from Denver, Colo., fourth season



"Will you see any polar bears? Most people don't even know where to start asking questions about Antarctica."

Brandon Andow, McMurdo utility mechanic helper from Denver, Co., first season