

A topographic map of northwestern Canada, showing the Yukon, Northwest Territories, Nunavut, Alberta, Saskatchewan, Manitoba, and British Columbia. Yellow dots mark the locations of Dene-speaking communities: Rádeyǰǰkóé (Great Bear Lake), Deline, Gamèti, Whatì NWT, Behchokó, Lídli Kúé, Zhahti Kúé, Detah, Łutselk'e NWT, Kasika, Hay River Reserve, Dene Sų́iné Fort Chip, Lac Brochet, and Dene Sų́iné Lue Chock Tue. Major cities like Whitehorse, Yellowknife, and Edmonton are also marked. A text box in the upper right corner explains the 'DOT-TO-DOT' project.

DOT-TO-DOT: The Rochester team is using geotagging technology to map the locations of communities that include speakers of native Dene languages in northwestern Canada. Represented by yellow dots, the communities participating in the research project will provide examples of sounds used in their languages for an online speech atlas.

LINGUISTICS

Project Maps Native Languages—Before They Disappear

What is the sound of a language that's no longer spoken? Rochester linguist Joyce McDonough doesn't want to wait to find out.

Thanks to a two-year grant from the National Science Foundation, she and her research team are developing an online speech atlas of endangered native languages of the Mackenzie River Basin, a vast and sparsely populated region of northwestern Canada. The goal is to help preserve linguist diversity and help native communities hold onto their languages.

"Language for a community is like a second skin," says McDonough, an associate professor of linguistics and brain and cognitive sciences. "It's who they are. It's their source of identity. And it carries all of their cultural knowledge. This is especially true in minority cultures or oral cultures, where there is no body of knowledge that exists outside the speakers of the language. So when the language disappears, that knowledge disappears."

The atlas will focus on the sound systems of the Mackenzie Basin's Athabaskan—or as speakers prefer, Dene—languages. Spoken from Alaska to the Rio Grande, the systems constitute the largest and most geographically widespread language family

of native North America. Envisioned as an online site for sharing information, research, and educational resources between the Canadian Indigenous Language and Literacy Development Institute and the indigenous communities, the site will provide geotagged links to individual Dene-speaking communities. It will also provide examples and descriptions from each community, demonstrating sounds spoken by native speakers.

"Heritage languages are under considerable socioeconomic pressure from the English and French speaking overculture" in northwestern Canada, McDonough says. "Fewer and fewer native North Americans are becoming fluent in their heritage tongues, and those who are fluent or want to learn their languages face increasingly reduced opportunities to speak and learn in their tongue, a situation that undermines the stability of these communities and their cultural knowledge."

"This Web site," she says, "can be critical, too, to those interested in preserving linguistic diversity and for helping communities hold on to their native languages before they vanish."

—Susan Hagen



CITATIONS

Research Notes

MULTIPLE BRAIN REGIONS ARE WIRED FOR LANGUAGE

There's no single advanced area of the human brain that gives it language capabilities above and beyond those of other animal species. That's according to a Rochester study of American Sign Language led by Elissa Newport, the George Eastman Professor and chair of brain and cognitive sciences; Ted Supalla, an associate professor of brain and cognitive sciences, linguistics, and ASL; and Daphne Bavelier, a professor of brain and cognitive sciences and radiology. In a report published in the journal *Proceedings of the National Academies of Science*, the team found that humans rely on several regions of the brain in order to make sense of sentences, depending on the type of grammar used.

POPULAR AUTISM DIET DOESN'T DEMONSTRATE BEHAVIORAL IMPROVEMENT

A popular belief that specific dietary changes can improve the symptoms of children with autism wasn't supported by a tightly controlled Rochester study, which found that eliminating gluten and casein from the diets of children with autism had no impact on behavior, sleep, or bowel patterns. The study—led by Susan Hyman, an associate professor of pediatrics, and presented at the International Meeting for Autism Research in May—is the most controlled diet research in autism to date.

ROCHESTER TEAM ADVANCES UNDERSTANDING OF DEADLY MALARIA

Rochester scientists are making strides against cerebral malaria, a fatal form of the disease that can ravage children's brains and is often difficult to treat. New research points to platelets as a source of inflammation, leading to obstruction of blood vessels and causing damage similar to a stroke. Led by Craig Morrell, an assistant professor in the Aab Cardiovascular Research Institute, and published in the online journal *PLoS One*, the research suggests an effective treatment for the disease may involve targeting platelets.



ENGINEERING

Driven to Succeed

ROAD WORK: Dustin Canzonieri '11, a mechanical engineering major from Plainview, N.Y., and other members of the University's Society for Automotive Engineers demonstrated their engineering—and driving—skills with strong finishes this spring during the national society's Baja car season. The Hajim School team placed 36th out of 89 teams at the Baja Carolina competition, hosted by Clemson University, and the team was 23rd out of 70 at the Rochester World Challenge, hosted by RIT. Cars in the competition are judged on design, cost, acceleration, and other factors.