

## December 2005

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## Tumors in the crosshairs: Compass International

By Cynthia Lueck Sowden

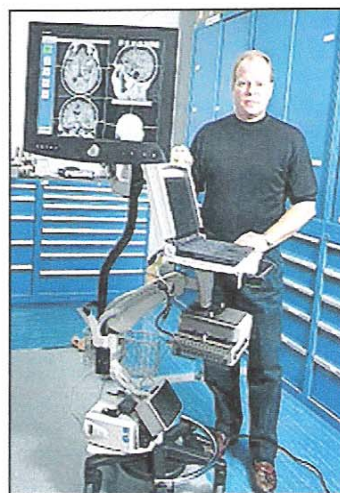
Although he's never held a scalpel, Jon Rouse has spent many hours at a neurosurgeon's side, guiding the hand that holds the knife.

Rouse is the general manager for Compass International, a Rochester company that is known throughout the world for its three-dimensional brain imaging systems. The systems are used primarily to remove tumors, but have been used for other brain surgeries for Parkinson's disease, epilepsy, and other brain diseases.

Established in 1986, Compass is the brainchild of Dr. Patrick Kelly, at that time a neurosurgeon and professor of neurology at Mayo Clinic (he's now chief of neurosurgery at New York University), who developed the technology while in private practice in Buffalo, N.Y. Although the idea of using three-dimensional surgery, or stereotaxis, has been around since 1906, it didn't become practical until the advent of computed tomography (CT) scanning and magnetic resonance imaging (MRI).

Mayo Medical Ventures (MMV) was in its infancy at the time, so the development and marketing of a computer-assisted stereotactic imaging system was spun off to a new company called Stereotactic Medical Systems, Inc. It was renamed Compass International in 1991.

Today, Compass sells two to five of its brain-imaging systems (at \$80,000 and up) per year. They also provide product software, hardware



Jon Rouse, general manager of Compass International, Inc., stands next to the computerized three-dimensional brain surgery mapping equipment that his company manufactures. (Photo by Jodi O'Shaughnessy Olson)

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build 36-inch bases, then upwards of one million skiers per season head north to the state's two dozen downhill ski resorts. It's our annual downhill skiing guide.

#### Short cuts

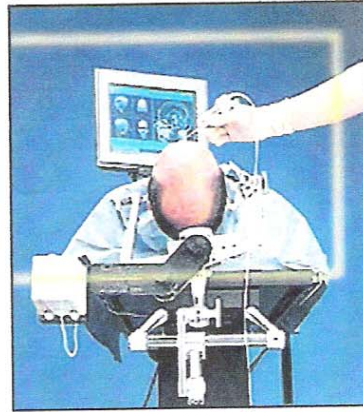
Letters; NAACP dinner; clothes for a cause; the 'what council members ate what' quiz.

#### Also

- Where to Eat
- Where to Golf
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upgrades, instrumentation and maintenance contracts for customers worldwide.

The first-generation system, still in use today, relied on a heavy, circular metal frame that attached to the patient's head with carbon fiber pins. The patient would then undergo CT and MRI scans. Data tapes recorded the images, which were loaded into a computer (today's system transfers images over a network). The Compass frame system was extremely accurate and quickly became a gold standard among neurosurgeons for stereotactic imaging systems.



A technician demonstrates Compass International's three-dimensional brain mapping equipment. (Photo courtesy Compass International)

Advances in computer technology led to the development of "frameless" technology. Compass released its first frameless system, the Regulus Management Unit, in 1994. Says Rousu, "It's evolved from the Compass frame system where they place the frame on the patient's head — rigid, more intrusive to the patient, somewhat painful, but very accurate, very reliable — to putting little radio lucent adhesive markers like a Lifesaver on the outside of the head. The patient gets these placed on, they go off to CT and MR and come back, they go to sleep and they perform the surgery."

The Compass system marries the CT and the MRI scans to produce a 3-D image of the entire head that shows the neurosurgeon exactly where the tumor is located. By using a probe on the image, he or she can try out different ways of entering the brain, finding the least invasive route. The system uses coordinates to locate the tumor, literally lining it up in the crosshairs. The doctor can also find the exact boundaries of the tumor — no more blindly probing for masses deep within the brain. And, he or she can "practice" the surgery via laptop computer prior to making a cut.

**Who:** Compass International, Inc.

**When they started:** 1986.

**What they make:** Three-dimensional imaging systems for neurosurgery; disposable biopsy needles.

**Where they make it:** Parts are manufactured throughout Minnesota; the complete system is assembled at 1815 14th St. N.W., Rochester.

**Number of employees:** Six employees plus four consultants hired on a per need basis.

Ads by Goooooogl

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The Regulus evolved into the Regulus Navigator. The latest version is the Cygnus PFS (portable frameless system), which puts the entire system into a suitcase that can be carried from hospital to hospital. The system can be used for biopsies, bone flap placements, and craniotomies. A large, flat-panel monitor is placed at the end of the operating bed so the doctor can get a detailed view of what he's doing. A laptop runs the system.

**How many they make:**  
Two to five systems per year, plus product software, hardware upgrades, instrumentation, maintenance contracts.

**How long it takes:** A complete system can take six months.

**How much it costs:** The Cygnus PFS Image-Guided System starts at \$88,000.

**For info:** Check out [www.compass.com](http://www.compass.com).

That's where you'll find Rousu, in scrubs with the rest of the surgical team. "We are in the OR, when requested, for technical assistance," he says. "We never touch a patient. We'll stand right next to the surgeon and if they have a technical question during the operation about how something functions, we answer it." New sales and service personnel are trained in-house, and learn OR protocol at a hospital in the Twin Cities.

Compass International's latest product is a disposable biopsy needle that provides a clean cut and larger samples for histopathology (the microscopic study of diseased tissue). Each needle is individually sterile-packaged. Rousu expects the needle will be a big hit with hospitals because it eliminates the concern of cross-contamination from reusable needles, dull cutting "windows" and bent needles, plus the time and cost of sterilization. The needles are manufactured in the Twin Cities.

"We're just a small fish in the ocean," says Rousu. "We're a very unique niche company. Most people in Rochester don't know we're here, but we've got 65 of our systems in hospitals across the U.S. and in Saudi Arabia, London, Italy and Australia."

**To learn about other products made in Rochester (and Zumbrota), pick up Rochester Magazine at one of over 200 locations throughout Rochester, Minn. and surrounding communities.**

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