with many more ion pumps — might generate the stronger potassium signal he sought.

In January this year, Bezanilla and Holmgren travelled to the small seaside town of Montemar. They found the old laboratory succumbing to the ravages of time: cracks ran through the walls and a layer of grime covered every

experimenting with the large excitable cells of the sea algae *Nitella*.

It was British zoologist John Zachary Young who first proposed experimenting on *L. pealeii*. Squid are the one of the fastest swimmers in the ocean: giant axons that run the length of the body trigger muscular pulses that propel the creature forward. Young urged Cole to take advantage of these axons, which are up to 1 millimetre in diameter, 50 times the thickness of axons found in the common shore crab and 1,000 times that of human axons. Cole found that he could thread a wire electrode right into the cell without disrupting the electrical signal propagating down the axon. Using this 'voltage clamp' technique, with electrodes both inside and outside the cell, it was possible to measure the current as ions move across the membrane during a nerve impulse.

Giant bandwagon

Others were quick to catch on. In 1938, Alan Hodgkin visited the lab in Woods Hole

Humboldt squid axons can be the size of spaghetti.

M. HOLMGREN

cells. It could be squeezed out of the giant squid axon as simply as toothpaste from a tube — but even then it was problematic because the squid rarely grows longer than a metre and its axon is highly branched.

In a 1955 interview with the *New York Times*, Schmitt also bemoaned the limited supply: only 300 squid per week for the annual two month breeding season. As

"When we had squid we would work from eight in the morning till two in the morning."
— Mario Luxoro

Schmitt had been sceptical of their existence. "He thought I was just an exaggerating South American." Still, the prospect of a bountiful supply of squid during the winter months in Massachusetts was appealing to Schmitt. And Luxoro felt vindicated when the team landed the jumbo squid now known to be the Humboldt. Named after the Humboldt ocean current that runs the length of South America, this squid grows up to two metres in length, making it one of the largest squid species in the world and twice the size of their Atlantic cousins that had been the mainstay of electrophysiologists.

The University of Chile in Santiago ran a marine-biology laboratory in Montemar and Schmitt leased a small room there before returning to Massachusetts. Luxoro remained behind, hired by Schmitt to organize the dissection, preparation and packaging of the squid axons for transport to the United States. The proteins