



## Men Overboard

Rod MacKinnon and Clay Armstrong, colleagues for 20 years, may know a lot about electrochemical signaling, but this past summer the two were reminded of a fundamental fact about the sea—one that they admit to overlooking in a moment of friendly competitive zeal.

Early on a Sunday morning last June, the two set off in kayaks from Woods Hole, Massachusetts, to enjoy a day of physical exertion in waters they both have come to love. MacKinnon, an HHMI investigator and Nobel laureate at Rockefeller University, spent his youth in coastal Massachusetts, and over the last three years has accomplished more as a “paddler”—venturing miles out upon the swelling seas, beyond sight of land—than most kayakers ever attempt.

Armstrong, emeritus professor of physiology at the University of Pennsylvania and co-winner (with MacKinnon and Bertil Hille) of a Lasker Award, has summered for years at Woods Hole. In his early 70s, he still

runs marathons and is an accomplished sailor. Nevertheless, that Sunday morning marked only the second time he had ever stepped into a kayak.

They planned to paddle 30 miles over the Vineyard Sound—which separates Martha’s Vineyard from Cape Cod—to Cuttyhunk Island, the westernmost in a chain called the Elizabeth Islands. Much to their delight, says Armstrong, that bright Sunday morning “a 10-knot wind and an ebbing tide were at our backs.” Remarkably, they reached Cuttyhunk

in only three hours. After lunch they would ride the flood tide back to Woods Hole, or so they thought.

“Now we had that good wind against us,” McKinnon recalls, and passage was getting increasingly difficult as the hours passed.

“We’d been going about five miles, right into the teeth of the wind and waves,” MacKinnon remembers. “Then, suddenly, over Clay went, upside down and under water. I expected he’d pop right up beside the kayak, but he remained upside down, trying to figure out how to do an Eskimo roll—just kind of *deducing* it himself!” (In this classic maneuver of the sport the submerged kayaker, from an inverted position, rolls right-side up, powered by a quick flick of the hip and screw-like sweep of the paddle.)

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ROD MACKINNON

Illustration: Peter Arkle Photo: Matthew Septimus

## The Sweet Smell of Exhaust

**“I’ve been around sports cars** and racing cars for as long as I’ve been around science,” says neurologist Peter St George-Hyslop. “My parents were scientists, and my father had a passion for cars. I distinctly remember the smell of racing fuel and Castrol R from when I was two.”

St George-Hyslop is an HHMI international research scholar at the University of Toronto who works on the molecular mechanisms that cause neurons to degenerate in Alzheimer’s disease. In his office, the original engine block from a vintage Jaguar he’s rebuilding serves as a coffee table.

Sports-car restoration is, refreshingly, “a more constrained problem” than probing the internal machinery of a cell, he says. “When something doesn’t work in the car, you can hit it with a spanner, swear at it, and walk away. With science, if it isn’t working, you’ve still got to keep plugging.” Still, biology “does give you fewer skinned knuckles.”

St George-Hyslop did a bit of racing as a student in the 1970s and never really hung up his driving gloves. “No hairy crashes, but I checked out the grass and weeds in the ditch on several occasions. Severely injurious to one’s pride, but not to one’s car. Since then, I’ve owned Jaguars and similar sorts of sporty cars, including a souped-up, Porsche-engined VW and a Triumph TR6.

“What I’ve always done with my cars has been to take the engine out, tear it apart, and put it together according to [competition] blueprints. The car I’m working on now is a 1974 V12 E-type Jaguar roadster.”

He points to the now “ornamental” engine block in his office. “This car’s been rebuilt to the specifications we used in Sports Car Club of America B Production Racing in the 1970s. With a roll bar and some proper



seats, I could qualify it for racing. But I’m not allowed to do that—” a sigh slips out “—due to, ah, family edicts.” The family includes a wife and three teenage daughters. He notes with satisfaction, however, that one of the girls “is a car nut.”

When he gets time out on the road, the scientist at the wheel is free to revel in other sensations.

“The vibrations, the feeling of acceleration and cornering and wind in your face. The sweet, aromatic smells of hot oil and racing fuel exhaust,” he exults, his account picking up speed. “The rumble of the 12-cylinder’s exhaust pipe, straight from the headers out. This deep, bass rumble: it starts out low and somewhat uneven and then, as you accelerate up to seven or eight thousand rpm, it becomes a melodious howl. The policeman at the side of the road looks up and wonders, ‘Am I going to chase after you and book you, or turn a blind eye because, by the time I could get in my car, you’d be long gone?’” —George Heidekat



“No, no, no, no, no. He’s giving me credit that I don’t deserve,” Armstrong insists. “The fact is, I lost my paddle. That’s why I remained upside down. I had nothing to right myself with!” It was a harrowing few minutes, in which Armstrong figured out, at last, “how to get out of the damned kayak,” and the two managed to drain his boat and set him in motion again.

But there remained 10 miles to travel, with wind and waves against

them. “Clay kept pushing on but was tiring,” remembers MacKinnon, 20 years Armstrong’s junior. “I started looking at my watch. I’m constantly calculating things: the time, the current, the wind, hours of daylight left. We paddled up onto a beach. I told Clay we weren’t going to make it.” He didn’t say anything. “What I’m getting at,”

MacKinnon said, “is that I’m going to tow you for a while.”

Armstrong glared at MacKinnon: “You’re not going to tow me *anywhere!* I’ll sleep here on the *beach* if I have to, but you’re not going to tow me!”

“His insistence on towing me kind of woke me up,” Armstrong admits. He paddled with renewed vigor, and they reached Woods Hole with daylight to spare.

The ordeal “certainly reinforced my recognition of the fact that the sea can kill you,” MacKinnon says. “But it also put me in even greater awe of my friend. Clay Armstrong, for 20 years, has been teaching me—and not only about potassium ion channels!”

Armstrong, for his part, reports that he is ready for another go, this summer. —Peter Tarr