Living with
MEMORY LOSS
A CAREGIVER RECALLS HOW HER LATE HUSBAND LOST HIS INDEPENDENCE

Nancy Hogan can look back now and recall an incident that marked the beginning of very subtle changes in her husband.

“Colie and I were splitting our time between Florida and New Hampshire,” says the retired elementary school principal, who lives in Atlantis. “Then we sold our house in Exeter and had gone back up North to handle things before moving down here full time. We hadn’t been home very long when he turned to me and said, ‘I’m going back to Florida. The house is sold, and you can have the garage sale, pack up and then come.’

“It just seemed a little out of character that he would leave me to do such a big job by myself because he was such a kind, loving and generous man. But at the time, I figured he was understandably emotional about leaving the area where he’d spent so much of his life.”

Although Colie would remain kind, loving and generous to the end (“he never showed any belligerence or spoke a harsh word,” she says), the retired executive eventually would lose his independence -- and many precious memories.

Coleman Francis Hogan, 93, died Sept. 6, 2010. Nancy, his wife of 21 years, hopes the Hogans’ story will raise awareness about supporting research that targets memory loss and Alzheimer’s disease.

“My hope is that if we don’t find a cure, we’ll at least find a way to slow the disease down,” she says. “Not everyone can take the drugs that are on the market now, and we need money to fund the research to pursue treatment. It’s essential that we step forward and support research, especially because more people are living longer.”

Colie, the second of 11 children born to Irish immigrants, grew up in South Boston, served in World War II and received an accounting degree from Northeastern University in 1952. Nine years later, the Army Air Corps veteran became president of Davidson Rubber Co. in Dover, N.H.

Then in 1965, a year after Davidson was acquired by McCord Corp. of Detroit, Colie was named chairman and chief executive officer of McCord, which eventually would become a subsidiary of Ex-Cell-O Corp. of Troy, Mich. He retired as CEO of McCord in 1982 and continued to serve on Ex-Cell-O’s board of directors.

His impressive résumé is much longer, but the bottom line is this: Colie Hogan was a savvy and tireless businessman. But then, as the years passed, Nancy began to notice a gradual shift.

“At first, I didn’t think very much about...
Alzheimer's," she recalls, attributing Colie's occasional confusion to anesthesia because of a hip operation. He had a second hip surgery in 2006, and Nancy brought in 24-hour nursing care.

"At night he would get up -- he never wandered outside -- but he would get confused about where he was in the house. He'd turn on all the lights and make a cup of tea, and then he'd leave the kettle on."

A devout Catholic and family man, Colie had 11 children with his first wife, Peg, who died in 1986. He donated both time and money to countless charities, and he established scholarships at all of the colleges his children attended in memory of his son Larry, who was killed in Vietnam.

"It was hard for some people to accept because the changes happened very slowly, and they thought it was just dementia," Nancy says. "Of course, there's a fine line between dementia and Alzheimer's, and there are many diseases and phases related to memory loss."

For Nancy, however, the challenge revolved around day-to-day living, not a diagnosis.

"I was saddened because we couldn't do things together anymore," she says. "He never forgot who I was, but I couldn't carry on a conversation with him like I used to. He began to not recognize people in pictures. I felt terrible that this happened to him because Colie was such a wonderful man."

Although well-meaning friends sometimes encouraged Nancy to take a break since the Hogans had in-home nursing care, she rarely left her husband's side.

"I didn't want to leave because he still knew me, and I felt that him knowing me made him comfortable and happy. I also would've felt guilty if I'd left. Another person might have felt resentful and angry at God at the person with the disease, but that wasn't my personality. Nor was it his. He would want all of us to follow his commitment to nurture the talents of young people and be generous with one another."

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**Memory Loss - continued from page 1**

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**A Message from the Chair**

Thank you for reading this inaugural issue of Brain Waves, the newsletter of the Department of Neuroscience at the Scripps Research Institute Florida. The Department and Scripps Florida are new to Palm Beach County, the state of Florida and the country. The Department was initiated formally when I assumed the position of Founding Chair in September 2009.

Despite our very brief history, we already have made remarkable progress in assembling a cadre of world-class neuroscientists and in pursuing cutting-edge research. Our scientists share a broad mission, which is, in essence, to solve the mystery of how the brain works and what goes wrong in diseases of the brain.

Most of us take our brain and its ability to store memories for granted, but just think: Our brain provides each of us with the ability to feel the wonderful sensations of the world and to capture memories of our experiences. String all of your memories together and you have a movie of your life that you can play forward or backward. Or you can press “pause” and select specific episodes and scenes. The movie is not a perfect reproduction of each event; rather, each event is a reconstruction made by your brain. Now imagine what it would be like to be robbed of precious scenes from your life's movie. The possibility of losing our memories is not a pleasant thought, but it occurs in the many diseases that alter brain function. Understanding how memories are formed, stored and retrieved is a major goal of the neuroscientists at Scripps Florida.

Brain Waves also will explore recent research advances in the Department and will introduce you to one of our young neuroscientists. In this issue we discuss how experimentation with the common fruit fly, Drosophila, is providing amazing insights into how the brains of all animals work, including humans. Meanwhile, our young neuroscientists provide both dedication and the vigor of youth to our common goals. We greatly appreciate their many contributions.

We invite you to read more, in this and future issues of Brain Waves and on our website, scripps.edu/florida/neuro/. We also invite your participation in our endeavors. Solving the mystery of the brain is a large and difficult task, and finding the answers requires a long-term strategy. Those answers will come most rapidly if our neuroscientists and the public work together.

My best wishes to all,

Dr. Ronald L. Davis
Cristin Gavin was such a sleuth growing up that she read all the Nancy Drew books by the time she was 8 years old. And then, when she was a teenager, her dad would drop her off at the morgue to observe autopsies. (Her father, a physician’s assistant, had a friend who was a coroner.)

“I’d be horrified and fascinated at the same time,” recalls Gavin, 27, an Alabama native. “But I was a huge fan of forensics because I loved mysteries. I would spend hours looking at old forensics books from the ‘60s, and they fueled my curiosity.”

Gavin couldn’t keep her hands off books, she says, sometimes getting scolded for reading in class while the teacher was talking. Her love of reading no doubt served her well while she pursued a double-major in biology and philosophy from Birmingham-Southern College.

After earning two bachelor’s degrees in 2006, Gavin began graduate studies in the Department of Neurobiology at the University of Alabama at Birmingham under Dr. Gavin Rumbaugh. He came to the Department of Neuroscience at Scripps Florida in 2009, and she joined his lab as an external graduate student.

If you ask Gavin to explain what she does on a typical day, she’ll start drawing diagrams with circles and arrows and using phrases like “whole-cell patch clamp,” “dendritic spine” and “presynaptic bouton.” But the gist is this: Gavin and her peers are looking to solve mysteries, specifically those related to brain function and the disorders that alter it.

“You come in every morning with an experimental question. It may be different than the one you were thinking about yesterday, or it may be the same question for years, but addressed in a different way. There are times it may be as simple as attending a lab meeting and saying, ‘I’m looking for this answer.’ People forget that science is a very collaborative process.”

Science also, as a rule, is a very slow process. After all, discoveries don’t have deadlines.

“If you’re a researcher, the very, very small steps are satisfying,” she adds.

Gavin grew up around hospitals because her mother was also a physician’s assistant (and a nurse anesthetist as well). But illness wasn’t her main motivation for pursuing neuroscience.

“It was the mysterious intersection of brain and mind.”

“What drives me is the search for fundamental understanding of how memory is made in the brain and why you keep a certain memory as your memory, even if it’s not necessarily an accurate recollection of an event,” she says. “Why is that one impression so real to you when another person’s reality is completely different? Why do you choose to remember what you remember?”

Lots of questions, just like with Nancy Drew. But in Cristin Gavin’s case, add a lab coat and a two-photon microscope.
the microscope and watches the activity of certain brain cells. The fly is usually trained by allowing the fly to smell a particular odor and then providing a food reward, for instance, so that the fly learns that the odor predicts the reward.

The researchers have discovered many genes that are involved in learning in the fly. The most recent discovery is about one gene named *gilgamesh* (or *gish*). This gene works to help link odors and reinforcing stimuli such as food. Amazingly, fruit fly genes have been closely tied to those of humans and the diseases that affect human cognition. For example, fruit flies and people share a gene called *dunce*, which is involved in learning in flies but has been linked to mood disorders and schizophrenia in people.

Davis says that “the most expedient way to understand the human brain is not by researching the human brain directly,” which scientists cannot experiment with in the laboratory, but by “understanding simpler brains like those of the fruit fly first, and then to use that knowledge to conquer the human brain.”

It is this philosophy that recently earned Davis and his team a $3.2 million, three-year grant from the National Institutes of Health to accelerate gene research in the fruit fly towards unraveling the secrets of cognitive and neurological diseases, such as Alzheimer’s, mental illness, mood disorders and addiction. Those discoveries, in turn, could fuel the development of new drugs and other treatments. But first, researchers need to figure out precisely which genes play a role in memory and learning.

Fruit flies have about 15,000 genes, by the way, and investigators in the Department of Neuroscience will work to identify the 200 to 300 that are involved in learning. The insect’s brain, meanwhile, has about 100,000 neurons compared with 100 billion neurons in humans.

### HELP US SOLVE THE BRAIN

The Department of Neuroscience at Scripps Florida invites you to join us in our quest to solve the brain. Your generosity can help unravel the mysteries that surround memory loss, addiction, mental illness, learning disorders and other diseases that affect quality of life.

Giving opportunities include funding for graduate student fellowships, postdoctoral fellowships, endowed Chairs for junior and senior faculty members, equipment, research projects, named symposiums or seminars, and graduate student/postdoctoral travel awards.

For information, please contact Ben Starling, Director of Philanthropy, at (561) 228-2014 or bstarling@scripps.edu. Donations may be mailed to Scripps Florida, ATTN: Neuroscience Research, 130 Scripps Way, 4B2, Jupiter, FL 33458. Online donations are accepted at scripps.edu/philanthropy.

### Mission Statement

The mission of the Department of Neuroscience at Scripps Florida is to unravel the mysteries of brain function, identify the causes of brain dysfunction, and train young scientists for research careers in brain health.