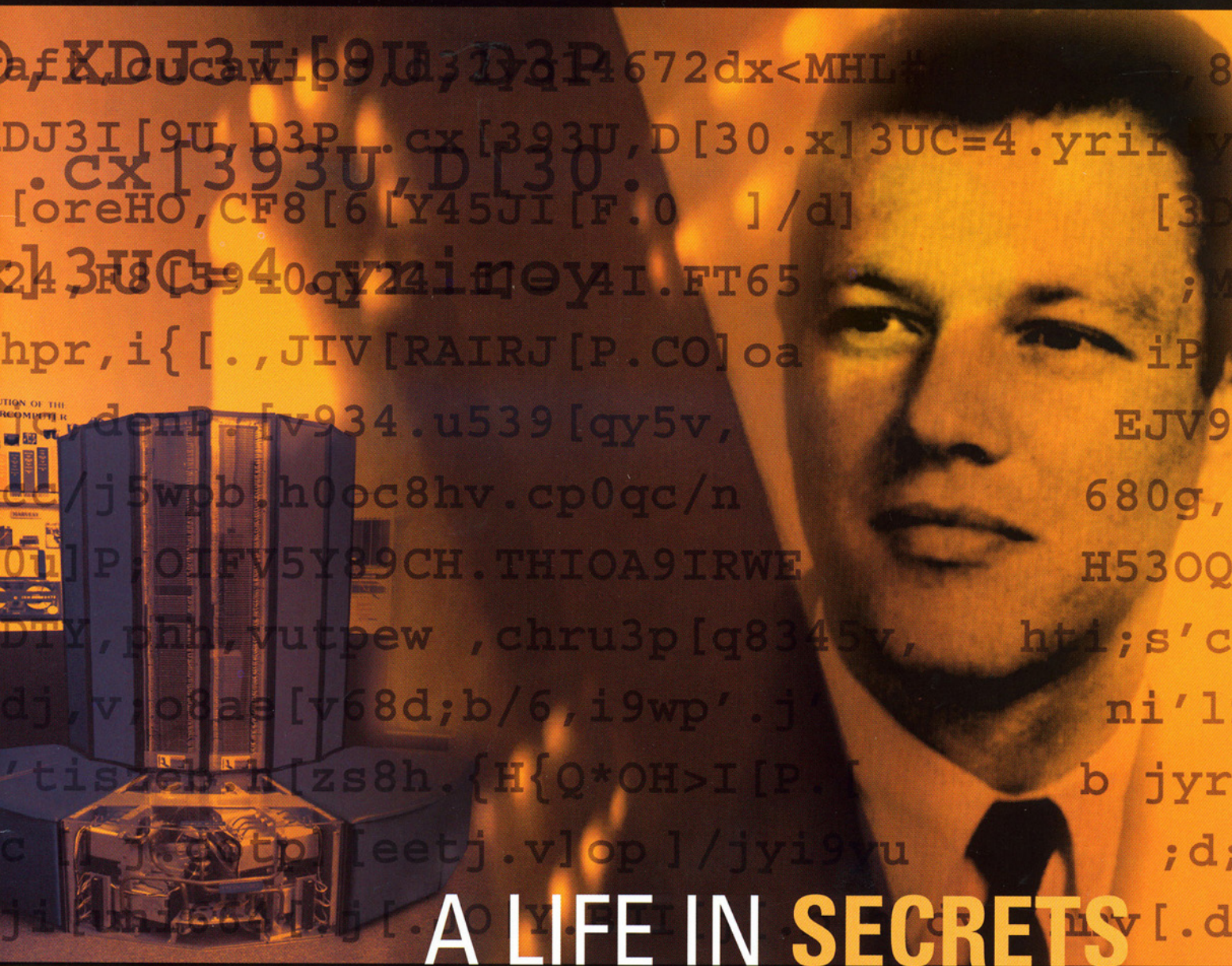


Fairfield*Now*

THE MAGAZINE OF FAIRFIELD UNIVERSITY / FALL 2009



A LIFE IN SECRETS

Richard C. Proto '62 was one of the nation's top code breakers. Most of his work remains a mystery outside the secret world of the National Security Agency.

TOP-SECRET FAMOUS

Richard C. Proto '62 was one of the nation's top code breakers. Most of his work remains a mystery outside the secret world of the National Security Agency.

BY LARRY REILLY

Within the United States security and intelligence agencies, thousands of employees work in almost complete anonymity on behalf of all U.S. citizens. On rare occasions, stories surface to reveal some astounding contributions by dedicated individuals. Here is one such story from the Fairfield University community.

On May 18, 2009, a ceremony was held on the gleaming campus of the National Security Agency (NSA) at Fort George Meade, Md.

For one of America's most secretive agencies, it was a semi-public moment — the dedication of its impressive Symposium Center in memory of Richard C. Proto '62, a past director of NSA Research, and a proud alumnus of Fairfield University. He received his B.S. in mathematics from Fairfield in 1962. Proto died in July 2008.

Dr. James R. Schatz, Proto's successor as director of NSA Research, offered this tribute: "Richard Proto's life was a celebration of intellectual power dedicated to the service of his country. He was an exemplary American, a wonderful friend and mentor to a generation of NSA employees. NSA and the nation owe him a tremendous debt of gratitude."

Chronicling the accomplishments of such an American hero might appear to be a straightforward exercise, but the highly classified nature of Proto's work makes it an uncertain endeavor. Even after a 35-year career followed by a long stint as a distinguished advisory consultant, many of Richard Proto's major contributions to intelligence technology and the agency he loved

simply cannot be discussed in detail. Yet.

Proto's brother Neil recalls a tour of the National Cryptologic Museum some years ago, when Dr. Schatz acknowledged, with a chuckle, the absence of Proto inventions noted or on display.

"We haven't been able to declassify anything of Richard's yet; most of them are still in use," Dr. Schatz told Proto's brother.

It may be several decades before we learn how profoundly Richard Proto shaped cryptology — the development and deciphering of coded messages. Nor will we know how his work may have shaped the course of American history during his watch. The full story may never be told.

This article is pieced together from a range of interviews with family and friends who knew Richard Proto well and are thrilled he is being remembered in his alumni magazine as a giant of the NSA, despite the fact that the scale and nature of his work remains largely a mystery.

His daughter, Elissa, now a division chief at NSA herself who knows something of the agency's understated ways, said, "Hey, they actually named a building after him. That's amazing."



Richard Proto's official NSA photograph. On the cover of the magazine is Proto's 1962 Fairfield University Yearbook photograph, and a Cray computer used for code breaking during Proto's time at the NSA.

Daughter Elissa notes that the influence of Fairfield on her father was profound. "Dad felt the education he received from the Jesuits at Fairfield prepared him for everything he faced in life. The philosophical approach remained with Dad and was reinforced in the way he worked."

MATH, LOGIC, AND HISTORY

Richard Proto was raised in a working-class neighborhood in New Haven, Conn., one of three children, and one of literally dozens of cousins in an extended but close-knit Italian family.

He was part of a generation descended from European immigrants who faced the social challenges of minorities in their day, and who, according to Richard's brother Neil, "worked hard to establish themselves as Americans on their own terms."

A member of the Wilbur Cross High School basketball team that won the New England championship, Proto was among the first in his family to go to college. He attended Fairfield as a "day-hop" from 1958 to 1962, when commuting to campus and back home

each night was not uncommon.

"Richard was really something of a loner in school. Quiet. Very reserved," said Stephen Csontos '62, a Fairfield classmate, friend, and basketball buddy. "Those of us who knew him then knew he was a bright and talented individual, but could not have imagined his impact on the NSA and the nation."

Neil Proto distinctly remembers Richard's Fairfield experience: "The Jesuits...insist on an intellectual discipline and inquisitiveness — an ability to probe deeply and with a powerful logic — without fear of where it might lead. What emerged for him was a confidence in his insightfulness into people, an ability to reason."

Daughter Elissa noted that the influence of Fairfield on her father was profound. "Dad felt the education he received from the Jesuits at Fairfield

prepared him for everything he faced in life. The philosophical approach remained with him and was reinforced in the way he worked and raised his three children."

Ellen Rabe, Richard's partner for many years and colleague at the NSA for even more, described him this way: "He had a natural interest in many aspects of life and learning. The interests he passionately pursued in his research-focused career were natural extensions to his early interests and were always from the heart."

Those interests included his love of history; he read about the Greeks, the Romans, and the Bible many times over. He also pursued music, from opera librettos in several languages to a long list of folk songs, which he taught himself to play on the guitar.

NSA: An aerial view of the NSA headquarters in Maryland





Proto playing basketball for Wilbur Cross High School.

public service to be the highest calling — a duty,” complemented by the Jesuit tradition of service to others, Richard Proto evidently saw his path.

When an American U-2 reconnaissance plane piloted by Francis Gary Powers was shot down over the Soviet Union in May of 1960, international tensions heated up, followed by the Cuban Missile Crisis in the fall of 1962. Again America showed its vulnerability. Signal Intelligence (SIGINT) provided no warning of nuclear-armed Soviet ballistic missiles in Cuba before their discovery by another U-2 aircraft. Clearly, in the field of national security, there was a need for top-echelon mathematics talent like Richard Proto. And he answered the call.

A LEADER OF AMERICA'S TOP STRATEGIC THINKERS

Proto continued his education with a master's degree from Boston College, and then joined the elite cryptologists of the NSA in the fall of 1964. (Cryptologists are teams of mathematicians, computer scientists, and engineers who study methods to decipher encrypted information by discovering the required secret key, and thus “crack the code.”)

Years later, Proto recalled how an early supervisor set him straight about his career potential at the agency. Though he would never be permitted to publish his work, the NSA would give him full opportunity to become “top-secret famous.” Proto did just that, flourishing among the nation's most gifted creative thinkers and problem solvers.

We know that some of his mathematical contributions built on his study

of abstract algebra, number theory, and computational analysis and include “Proto's Algorithm,” still a state-of-the-art tool for analyzing and developing code. Proto was responsible for several other patented inventions as well.

He rose quickly to become chief of the Office of Cryptomathematics, and eventually became the director of NSA Research. With Proto leading, NSA Research earned recognition as the premier organization of its kind within the Department of Defense.

Proto was an original thinker and an instigator. His efforts to facilitate information-sharing across the military intelligence community evolved into IARPA, the Intelligence Advanced Research Projects Activity, recently elevated in status by Congress as a key

INSPIRED BY SPUTNIK

On October 4, 1957, the Soviet Union launched the world's first artificial satellite, Sputnik I. The size of a beach ball and weighing just over 180 pounds, Sputnik took about 98 minutes to orbit the Earth.

The launch manifested a frightening new Soviet threat. A moderately chilly Cold War between the Soviet Union and the United States suddenly changed. One thing was certain: the U.S.-U.S.S.R. space race was on.

Proto recalled later that Sputnik was a career-inspiring event for him. An amateur astronomer since boyhood, he knew that America would need superior scientists to stake out a safe future in the new space age. With a deep sense of civic duty instilled by his parents, who, according to Neil Proto, “believed

WHAT IS THE NSA?

The missions of the National Security Agency (NSA) and its sister agency, Central Security Service (CSS), are “to protect U.S. national security systems and to produce foreign signals intelligence information.”

The Information Assurance mission confronts the formidable challenge of preventing foreign adversaries from gaining access to sensitive or classified national security information. The Signals Intelligence mission collects, processes, and disseminates intelligence information from foreign signals for intelligence and counterintelligence purposes and to support military operations. This Agency also enables Network Warfare operations to defeat terrorists and their organizations at home and abroad, consistent with U.S. laws and the protection of privacy and civil liberties.”

— From the NSA/CSS Web site
www.nsa.gov/about/mission

unit within the Office of the Director of National Intelligence.

Proto brought not only a keen mind to his work, but the warm encouragement of a born mentor, too, earning the honorary moniker of the benevolent "godfather" of the NSA's mathematics community.

Dickie George, a senior NSA colleague of Proto's, offered this written reflection: "All my memories of him bring a smile to my face. Rick was a fabulous teacher — not a classroom teacher... but a life teacher... We worked on things for 10 years and I thought I knew the matter inside and out — yet every time I talked to Rick he explained nuances that I hadn't realized. He was always a little deeper and more thoughtful than the rest of us. He'd start smiling and gently shaking his head saying, 'Dick, Dick, Dick, Dick...' (and I knew something was wrong). Every conversation was a learning experience."

A TRUE VISIONARY

Proto was "universally regarded as one of the Agency's most visionary thinkers," wrote Dr. Schatz. "Nearly two decades ago, when large scale [computer] networking was in its infancy, Richard anticipated the emergence of cyberspace as a battleground for national defense. He championed efforts to understand emerging threats and to develop strategies for dealing with them."

According to its Web site, the NSA has been a leader in computer development throughout its history. Some of the earliest supercomputers were designed and built for the National Security Agency. Today, NSA has the world's largest supercomputing facility on its campus.

In the 1980s and 1990s, during the apex of Richard Proto's career, personal computing and global networks took center stage. The expansion of technological capabilities was dizzying and

relentless. Famous Cray supercomputers of that era advanced from processing 420 million operations per second to 2.67 billion operations per second. It was all new, uncharted territory.

Richard Proto was among those creative problems solvers who, in service to their country, helped bring cyberspace to life, while working to ensure that the boundaries of this new landscape remained secure.

Proto and colleagues toiled in secret at the edge of a frontier that few of us can conceive. Their vision has changed the nature of warfare, contributing to the continuing supremacy of U.S. military capabilities and the safety of our troops. Proto retired in 1999, but consulted for the rest of his life.

They and their successors have responded in unknown ways to the unprecedented threats of international terrorism. As recently as June 2009, President Barack Obama alerted the country to the possibility of a catastrophic computer attack — a cyberwar — and declared that protecting our digital networking infrastructure must be a national security priority.

Those at NSA who carry on, shouldering the awesome responsibility Richard Proto did, can't tell us much. But they have told us unequivocally how much they respect and honor Proto, and how profoundly he served his country.

"Rick was one of the greatest leaders the National Security Agency has ever had," concluded George. "Always teaching, always giving; every conversation was a treasure. We will always miss him and never forget the person and what he did for us." ■

Christmas 2000, with Richard Proto, Ellen Rabe (his partner), daughter Elissa Proto Carter (eldest), son Christopher in back (middle), daughter Vanessa, Christopher's wife Lisa LeMair, and son-in-law David Carter

