Prologue by Lowell A. Benson, VIP Club Webmaster:

This article was originally published with photographs as "The Original Geek Squad" in the July 2005 Minnesota Monthly. Sadly, since the original article was published, several of the persons mentioned in the article have passed away: Sid Rubens, Earl Josephs, Harry Wise, George Hardenbergh, and Bill Norris. Parrish's Restaurant is now the Casa Vieje, still on West 7th in St. Paul. The group still meets!

The text itself is James P. Lenfestey's original electronic file before editing by the Minnesota Monthly. As the Webmaster and club web site editor, I've done some formatting and minor editing. I have not made some of the word changes which appeared in the published version, i.e. in the first line after the first joke – the Minnesota Monthly wrote "17 or so in their seventies, eighties, and nineties"

Mr. Lenfestey's permission e-mail said: "Lowell - I would be pleased to have the article on the website, and am gratified that it stimulated further stories. I searched my name on the Minnesota Monthly Website and only a later article comes up, so it apparently is not in their electronic archives. You are welcome to use the version from my computer I sent. Yes, do put under the title, "Originally published in Minnesota Monthly, July, 2005."

Googling for more info, I just learned that the article won a 2006 Silver Honor for "best Feature Article" from the MAGAZINE PUBLISHER'S EXCELLENCE AWARDS. A nice surprise. James P. Lenfestey"

A GAGGLE OF GEEKS - 2830 words -

By James P. Lenfestey
Originally published in the Minnesota Monthly, July, 2005

On the first Friday of every month, at a long table in Parrish's Supper Club on W. Seventh St. in St. Paul, a gaggle of geeks gathers. Not just any geeks. These are the Denizens of digital. Monsters of the mainframe. Dukes of disc drives. The very first Geek Squad.

They love jokes, which run around the table in waves.
ENGINEER JOKE. Get a degree in Electrical Engineering. You can't spell "geek" without two "e's."

These are the men -- 17 or so in their 70's, 80's and 90's -- who invented and built the first practical digital computers, not to mention guidance computers for rockets, and the magnetic disc drive that now captures your grandbaby's howling face on your son's camera phone. That is, much of the technology we take for granted in today's home, office, factory and laboratory.

There's Manny Block, who graduated with his engineering degree in '49 from the University Minnesota on the GI bill. He was on his way to New Jersey for an electronics teaching gig in 1951 when he heard of something exciting going on in a St. Paul warehouse -- there was no name for it. He stopped in, and didn't leave for thirty years.

There's Dr. Sid Ruben, the one they all talk about, and to (over the phone), recently retired to the Jewish Home back in Rochester, NY, where he celebrated his 95th birthday. He loves to talk, his memory as sharp as the magnetic memory he, Arnie Cohen and others brought to life in 1946.

There's Jack Hill, Class of 1930 at Rochester Institute of Technology in New York, and recent recipient of an award from same. Also 95, he was probably the 5th employee hired in 1947 in St. Paul by Engineering Research Associates (ERA), the brand-new company that was the seed of the computer industry that has flourished in this region.

There's the guy they all wait lunch for, George Hardenbergh, one who was also "there" at the beginning. A Cal Tech grad and another early hire at ERA, he enjoys repeating the story Bill Norris, ERA founder, used to tell of why George accepted the job: "This was a company that looked like it would not last."

There's wise Harry Wise, who attended Georgia Tech, then came to Minnesota in 1956 to join Remington Rand UNIVAC, successor of ERA, when they were still building computers with vacuum tubes. He dove into the "fantastic change" of the transistor world, and has seen the world speed up exponentially ever since.

And Mark Shoquist, who worked through ERA's 34 year evolution into Unisys. Since retirement in 1993, he regularly flies to Europe advising NATO on how to make its computers work together, just as many others around the table continue to serve.

And Earl Joseph, ERA's first programmer, famous then and now for his white socks, who quickly changed to engineering because he noticed "they make more money," he says with a grin. He became a celebrated Futurist. And so many others around the long table, telling tales of time travel.

BACK IN 1945.

A gaggle of engineers was mustering out of the Navy after working in the heady area of code cracking machinery, which needed to make as many calculations as possible to "try out" different combinations of letters and numbers. One of the group was the Nebraska farm boy, electrical engineer and Navy Lt. Commander William C. Norris, who was to became the legendary founder of ERA, Control Data Corporation (CDC) and godfather of Twin Cities entrepreneurs.

The engineers wanted to stay together and the Navy agreed to help, but no established company wanted them, including National Cash Register, which had been building digital code-breaking equipment, but didn't see the commercial potential.

Wall Street was no help either, since the initial products of the proposed company - more code breaking machines - were so secret the officers couldn't tell potential investors what they made.

ERA finally arranged financing through John E. Parker, a board member of Northwest Airlines, who controlled an old cast iron radiator factory which had turned to glider manufacturing during the War. The address was 1902 W. Minnehaha Avenue, St. Paul.

The men lunching at Parrish's laugh, remembering radiator casting equipment lying about, parts of giant gliders stashed on the factory's second floor, birds nesting in the rafters, and breezes blowing through the walls. They had to cover their desks at night because of "the sparrows." Compare that to today's computer manufacturing facilities in clean rooms where a dust mote causes the havoc of Godzilla.

When ERA got its first US Navy contacts and ramped up in St. Paul, it brought along 40 of the original Navy code breakers, and needed more help. They placed newspaper ads for mechanical and electrical engineers and physicists, posting no phone number, only the Minnehaha address. They hired mostly U. of M engineering grads, many educated on the GI Bill.

The Navy drove ERA managers crazy with bureaucracy, but creatively forced it to worship reliability and modularization, as every component had to take a beating at sea and fit though a standard Navy shipboard watertight door.

The first general purpose computer ERA built was called ATLAS, so secret many people who worked on it had no idea what it was for: Code-breaking, at that time mostly Russian and Chinese.

In October, 1950, ATLAS was delivered to government spooks in Washington DC, then assembled and up and running in eight days, free of problems. That's about the time it takes to get your desktop PC out of the box and bug free. But Atlas weighed 17,400 pounds, had 2700 vacuum tubes and a huge main memory drum, all covering 400 square feet of floor. A very big secret indeed - Roughly a year later, Eckert-Mauchly Computer Corp. of Philadelphia delivered its first UNIVAC, which they claimed to be the world's first general purpose digital computer, a claim the men at Parrish's laugh about a bit ruefully, for their success remained classified until 1977, and is still not widely understood.

One engineer tells of visiting the National Security Council to deliver an early ERA computer. As he walked down a hall with rooms of computers on both sides, he realized there was more computing power in that corridor that in the rest of the world combined. In 1952, ERA had 85% of the world's computer production.

Bill Norris and others saw the commercial potential of ATLAS. The Navy agreed as long as the existence of ATLAS remained a secret. According to historian David Boslaugh, "ERA astounded the infant computer industry" when, in December, 1951, it announced the availability of their first commercial model, the 1101. (WHEN COMPUTERS WENT TO SEA, pp. 97-98)

After Bell Labs invented and William Shokley perfected the transistor, ERA, now the UNIVAC division of Sperry Rand, pioneered a transistorized computer for the Navy that exceeded the performance of the 17,400 pound ATLAS, but weighed 800 pounds and was the size of a modest refrigerator. The rest, as they say, is history, right down to the big brain in your Blackberry.

The geeks laugh remembering how Tom Watson (legendary leader of IBM) couldn't understand how a small group in St. Paul pulled off the radical advances they did, when he with his 500 researchers could not.

SEYMOUR CRAY, NOT YOUR AVERAGE PRICKLY GENIUS

The transistorized circuitry in that 800 pound non-gorilla was designed by an ERA, then Sperry UNIVAC engineer from Chippewa Falls, Wisconsin named Seymour Cray, whom historian Boslaugh calls "a young brilliant and enigmatic electronic design engineer." (Boslaugh, p. 157). Except for the "young," nothing much changed in Seymour's brilliant career, the acknowledged "father of supercomputers."

Oh, do these geeks have Seymour stories. Like the time Manny Block was sitting next to Cray in Fluid Mechanics class at the U. Seymour was doing his "double E" homework while the professor chalked a complicated equation on the board. Seymour glanced up and slipped one of those circular slide rules out of his briefcase -- he was among the first to have one -- and pointed out to the professor that a power in the equation was off by one. Then he went back to his homework. "Seymour was as true genius - an intellect with few equals -- and multitasking was his great skill," says Block.

Or Seymour's eccentric work habits: One day Seymour was leaving the lab early in the morning as Manny was arriving. "Look on your bench; there's your transistor clock," said Seymour. "And he had solved the problem so simply," says Manny, still amazed. Others chimed in. "Seymour wasn't the only one who stayed up all night. My wife almost divorced me!" Appreciative laughter trickled around the table for the memory of the exhilarating, exhausting eighteen hours days and many Sundays at the plant, and for the "almost," these family men (Jack Hill has been married 57 years, for example) who came up through the frightening instability of the Great Depression and WW II.

> *ENGINEER JOKE. The optimist says the glass is half full. The pessimist says half empty. The engineer says, "The glass is the wrong size."*

And that's what these guys did. Kept reducing the size -- while increasing the speed -- in their quest to make the fastest computers on the planet.

They tell stories too about "The Cape," and I'm thinking Dracula or something. They laugh when I ask. "Cape Canaveral," of course! Turns out these guys also developed the first ground-based guidance systems for the Air Force, beginning with the giant Titan 1 missile, you might say putting the "guided" in "guided missile."

And they tell about developing "THE DRUM," the first ever rotating magnetic memory device.

IN THE CATACOMBS OF THE HISTORY CENTER

I meet up with Harry Wise at the History Center cafeteria in St. Paul. Our mission: uncover the world's first magnetic memory drive, buried somewhere in the Center's catacombs. We are met by Adam Scher, curator in the Museum Collections Department. Scher, a thin, serious man, guides us down the elevator to the B level. In a room with dozens of metal racks holding everything from baby sleighs to milk cans, there it is, "THE DRUM," next to a steam engine, iron school bell, iron lung and an early wooden water ski.

Harry goes over it like an old friend. The three-foot diameter aluminum wheel was probably cast from molds for a steam tractor fly wheel. It's covered with strips of black magnetic tape, war surplus from Germany, powered by an off-the-shelf electric motor, with 24 heads to record the data. It stored 24,000 bytes (units of binary digits, hence "digital") of information running at 600 rpm. It replaced machines reading long strips of paper that could never match this speed w/o shredding the paper.

This is the Mother of All Magnetic Memories -- literally, of the hard drive in your computer and the newest cell phones, big as your thumbnail, that can hold hundreds of gigabytes of data while spinning at speeds of 4,500 to 15,000 rpm, with reading and writing pickups the size of pinheads. Yet the principle is the same as the one right here in the basement of the Minnesota History Center. In 1946, the guys at Parrish's know, this was one of the great inventions in the history of information processing.

LOVING ENGINEERS.

I have had a special admiration for engineers every since I ran afoul of the potentiometer experiment in second semester Physics in college. To my lab mate*, it was so simple, and he helped me squeak through. I learned two lessons from that class: there are people a lot smarter technically than I am; and I have no idea to this day what a potentiometer is, not to mention how it works. (*I felt a little better when that lab mate went on to become a professor of Astrophysics at Harvard).

Engineers, so commonly mocked publicly in our culture as geeks with pocket protectors (why not protect pockets, I ask?) are in fact relentless problem solvers who make our daily lives run as effortlessly as any lives can. They do so by staying focused.

> *ENGINEER JOKE: A lawyer, a priest, and an engineer are awaiting the guillotine. The knife came down toward the lawyer but it jammed. The lawyer argued that, legally, the executioners were now required to let him go. They let him go. The priest put his head on the block, and the knife jammed again. The priest said that God had intervened. They let him go too. The engineer put his head on the block, and they were about to release the blade when he said, "Wait a minute, I see the problem!"*

As a writer (my default position after engineering came a cropper), my professional life was revolutionized by the computer and word-processing software. You know those universal "cut" and "paste" commands? As a freelancer 30 years ago, I actually used to cut and paste paper paragraphs with scissors, then photocopy the new pages. That worked reasonably well unless someone opened the office door and flew paragraphs around the room. So I don't just appreciate engineers, I LOVE them.

And the engineering achievement that has revolutionized EVERYTHING we do, mostly to our benefit, and unimaginably improved productivity (where *are* all those file clerks?) is the digital computer. The one on your desk, and the millions you don't see -- from servers that are the brains of the Internet to supercomputers that help scientists model climate so we might finally figure how to live on this planet. These brilliant machines -- or many key components -- were developed right here, by the men around the table at Parrish's.

WHAT'S THAT PINGING SOUND?

I remember years ago visiting an early educational software developer in St. Paul, one of many spin-offs of Control Data. As I waited for my interview with the boss, I noticed a technician sitting at his terminal on his lunch hour, little arrows bouncing around the screen pinging against what looked like exploding stars. I asked him what he was doing. "Playing a game," he responded. I try to shoot down the other guy's space ships." "Cool," I said. "Who are you playing against?" "Let me see," he responded, and checked an onscreen list. "This guy's in Australia."

And that "ping" is how Bill Norris thought the fully computerized planet would go: terminals connected to giant mainframes would illuminate our desktops to this day. But then a couple companies out West named Intel and Texas Instruments developed the integrated circuit -- the computer on a silicon chip the size of your fingernail -- and companies like Apple and IBM developed machines with the brains and memory right inside: the personal computer.

And Minnesota's Mainframe Mecca slid west to become Silicon Valley. But the rest is not just history.

SILICON PRAIRIE?

Minnesota today harbors massive remnants of that revolution. The IBM plant in Rochester manufactures IBM's -- and the world's -- fastest computers to this day. Seagate Technology, successor of CDC's disc drive business, is a major provider of disc drives to the world. Unisys, the successor of Sperry Univac, is still a big employer here. And there are hundreds of other, newer companies. Some claim our region should be called "Silicon Prairie."

But no one seriously argues that the glory days of world computer leadership aren't behind us. The days when a bunch of guys in an abandoned radiator plant banging around tubes and drums could come up with a NEW WORLD. Where a genius kid from Wisconsin could use the old-fashioned brain in his head to calculate and imagine faster

and farther that anyone on the planet. The days when the men lunching at Parrish's today were eager to leave behind the waste of Depression and carnage of war to build a black box to do the unimaginable on our desktops in no time flat.

The two most famous of the group, Seymour Cray and Bill Norris, are still around too, in their ways. The mercurial Cray, having started yet another supercomputer company in Colorado, died there in 1996 as a result of an automobile accident. But his old company here still lives. Split in two, Cray Inc. and Silicon Graphics, Inc. (SGI) both make very fast computers, and both have offices in the St. Paul area and manufacturing plants in Chippewa Falls. And William C. Norris, the visionary founder of ERA and CDC, is a living legend in the Twin Cities entrepreneurial environment he relentlessly fostered.

MEANWHILE, BACK AT PARRISH'S IN 2005

The clam chowder at Parrish's is as fine as your mother used to make. That and a fish sandwich cost you $5.25, $7.95 for the full walleye plate, circa 1960's prices still intact. But that delicious fact is not what lures these men back month after month. They know they played an important part in one of the great technological revolutions of human history. And they know that few but these friends around the table understand.

With IBM's Tom Watson, I wonder how the heck they did it.

What an honor and pleasure to dine with them, and listen to their jokes and stories. Thank you, gentlemen. A job well done.
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James P. Lenfestey is a poet, writer, former editorial writer for the Star Tribune, and a lousy engineer.

Lowell A. Benson is a U of MN 1966 BEE graduate and a UNISYS retiree (33.58 yrs.)