Nahmin Horwitz, October 28, 1927—

After a summer at the University of Minnesota and two quarters at Ohio State, Nahmin Horwitz at age 17 enlisted in the US Navy. He had enrolled in the Navy's Eddy program to learn enough electronics to repair radio, radar, and sonar equipment. After Boot Camp, it was an eleven month program beginning with elementary electricity and circuit tracing and ending with hands on experience with the equipment. Although the war was still on when Nahmin enlisted, VJ day occurred while he was in school, so he was spared combat. At the end of the program, Nahmin volunteered to be one of the radio technicians on board a ship participating in the first underwater nuclear explosions in the Bikini Islands. In August 1946, Nahmin was discharged and he prepared to complete his university education.

Nahmin was born on October 28, 1927 to Bertha and Aaron Horwitz. Both Bertha and Aaron had come to the United States with their parents prior to 1910. Both worked in their teens, completed high school and entered the University of Minnesota. Aaron completed a degree in Civil Engineering and became a city planner for Duluth, MN. Bertha earned an MS degree in Bacteriology, but did not pursue a career. They married around 1920 and a daughter, Ellen, was born in 1922. Nahmin arrived five years later. Both children had their elementary schooling in Duluth. Ellen went to the University of Minnesota, then to Smith College for a Master's degree, and has had a career as a psychiatric social worker. After Nahmin completed high school, his parents moved to Cleveland. Nahmin had his two quarters at Ohio State as noted above and then his experience in the Navy.

Nahmin began his business career at age 10 buying flowers in the morning at the farmer's market and selling them at hospitals and night clubs in the afternoon and evening. At age 13 he bought a printing press and operated a print shop from his basement selling business cards, greeting cards, and letterhead to the parents of his friends. In high school he and a partner were runners up for a Minnesota State debating championship. There, he enjoyed both physics and chemistry. He remembers his physics teacher remarking about chess, "How can people get excited about football compared with this?" In any case, after his two quarters at Ohio State, Nahmin was convinced he wanted to study physics. Reading *The Men Who Make Our Future* led to an interest in particle physics. So that when he returned from service with the Navy, he completed his undergraduate degree with a BS in physics from Western Reserve in Cleveland.

Nahmin's parents were members of the American Zionist Organization and he joined a Zionist youth group, IZFA. He says he joined to meet girls, but later he became national treasurer. Also, he was inspired in the summer of 1947 to visit relatives who lived in Israel. Having no money for passage, he joined the seamen's union and signed on to a freighter scheduled to deliver cargo to Haifa where he planned to jump ship. However, a strike threatened in New York and the ship left without the Haifa cargo and sailed directly to India. It stopped at seven ports and returned to New York in time for Nahmin to return to classes at Western Reserve. In October '47, he received a telephone call from Chaim Pekeris, a scientist employed at the Princeton Institute for Advanced Study. Pekeris was also a high ranking official in the Zionist Organization. Nahmin was asked to help set up and run a secret electronics school for Israelis. The school began in March '48 with a course that paralleled the Eddy program. At the end of this program, another phone call asked him to go to Israel to help set up a similar course. With several students, including Israelis, he set sail on the US ship the Marine Carp. They were at sea on May 15 when Israeli independence was declared and war followed on the 15th. At the first stop in Beirut, Lebanese soldiers armed with machine guns boarded the ship. All male passengers bound for Israel were taken off at gunpoint, loaded into trucks and driven through a very dark night to a military base near BaalBec. There they lived for six weeks with mattresses on the floor

and "pita for morning, noon, and night." After six weeks, the US Consul arranged the release of the Americans on condition they return to New York. In New York, Nahmin spent the rest of the summer snooping around for military equipment to send to Israel.

At the end of the summer he was back at Western Reserve and received his BS in June, 1949. In the meantime, Nahmin had met Leah Gressel through both IZFA and the fact that she was also a physics major. They were married in January 1949. Nahmin then went to the University of Minnesota for graduate work. He had a TA for his first two years and also joined the cosmic ray group under Ed Ney. His first assignment was to design and build a lightweight coil to produce a magnetic field around a cloud chamber. The chamber was to be flown by balloon to the top of the atmosphere to search for possible heavy nuclei in primary cosmic rays. His thesis problem was to make the first measurement of the flux of alpha particles in the primary radiation. Nahmin did this by building a small Cerenkov counter embedded in a Geiger counter telescope as a trigger. This apparatus was flown to the top of the atmosphere. Pulses from the Cerenkov counter were recorded on film. It was assumed a relativistic alpha would produce a four times larger pulse than a proton (most primary cosmic rays were known to be protons). The earth's magnetic field would transmit only relativistic alpha particles. Indeed pulses due to alphas were observed. This provided not only the desired flux measurement but was the first demonstration that Cerenkov radiation is proportional to Z^2.

In the course of receiving his PhD in 1955, Nahmin spent a summer at Los Alamos building a diffusion cloud chamber and a summer at NRL building a power supply for Joe Weber who was beginning to plan his search for gravitational waves. Through Ed Ney, Nahmin got a job with Ed Lofgren who was in charge of building the Bevatron at UC at Berkeley. For the coming years the Bevatron would be the center of the universe for elementary particle research.

Nahmin's office mate at the Bevatron was Joe Murray, a recent Cal Tech graduate. Together with other members of the Lofgren Group, they designed an experiment to detect anti protons produced in the Bevatron. Emilio Segre also proposed an experiment, and unfortunately the scheduling committee awarded his group first crack at beam time. Anti-protons were indeed observed, and a Nobel prize was awarded. Probably Nahmin's most important activity at the Bevatron was to assist Joe Murray, who 'invented' and built the world's first high energy particle separator. External beams from the Bevatron consisted mainly of pi mesons with small 'contaminations' of anti-protons and K mesons. Many counter and bubble chamber experiments would succeed only if the copious pi mesons could be filtered out. This could be done by passing the beam through a mass spectrometer. But unlike the table top mass spectrometers familiar in the laboratory, these would involve thousands of amperes of current and thousands of volts/meter electric fields. Nahmin occasionally assisted visiting bubble chamber groups who came to the Bevatron for an exposure and needed help in using the particle separators. One such was headed by Jack Leitner from Syracuse and the resulting interaction played a role in Nahmin's coming to Syracuse. He spent five years at the Bevatron and probably would have remained there. However, the eventual tenure offer was slow in coming and by the time it arrived Nahmin had accepted an offer from Syracuse.

Therefore, in the fall of 1959, with Leah and two children, David and Susan, Nahmin moved to Syracuse. Two more children, Amy and Annie, were to arrive somewhat later. At Syracuse University, he worked with Jack Leitner and with Ted Kalegeropoulos. They were part of the experiment in 1964 that discovered the Omega Minus, the strangeness 3 particle that completed the 8-fold diagram of SU(3). It was a bubble chamber experiment that used a particle separated beam. Nahmin designed and built a Cerenkov counter that, when placed in the beam to the bubble chamber, could measure the purity of K

mesons (the omega minus mesons were to be created in K minus-proton interactions.) This was critical because the separator high voltage tended to drift and something was needed to continually readjust it. Jack died unexpectedly in 1967 at the age of 36. Then Nahmin worked with Ted Kalegeropoulos on an experiment using spark chambers to look for pp-bar annihilation at rest from an orbital p state. They claimed evidence for such annihilations, but it was not believed by the community. Then followed a number of years in which Marvin Goldberg, Giancarlo Moneti, Ted, and Nahmin worked on the multiple particle spectrometer at Brookhaven.

In 1975, Nahmin and Ted lost NSF funding and Nahmin joined a Cornell group under Al Silverman looking for interactions of pi mesons with various nuclei. A year later he was again NSF funded this time also together with Marvin and Giancarlo. In 1978, SU was invited by Silverman to join a group (CLEO) of six original collaborators at Cornell (Cornell, Rochester, Harvard, Vanderbilt, Rutgers, and Syracuse) to study colliding beams of electrons and positrons. Nahmin was assigned the job of building a cylindrical multiwired proportional chamber which was part of a large general purpose detector. An early important discovery was the Upsilon 3S at a mass a little above 10 GeV - it was the first b-bbar resonance to decay via strong reactions. Using it, CLEO was able to measure the lifetime and mass of the B meson. Probably Nahmin's most important contribution to CLEO physics was guiding work that helped establish the first observed decays of a B meson via a penguin diagram. The report was one of CLEO's most referenced publications. CLEO has produced more publications per grant dollar than any other major high energy collaboration. In 1981, Nahmin was elected spokesman for the collaboration. Eventually 'B factories' were built elsewhere with beams so intense CLEO could not compete. So CLEO switched to a study of charm physics (mesons containing one or more c quarks) that lasted until 2012.

Nahmin and family enjoyed various sabatticals abroad. In 1966 he worked for one year at the Rutherford Laboratory near Oxford. He was a member of a counter group from Imperial College. In 1975 he was hired by CERN for one year to work on an Intersecting Storage Ring accelerator experiment as a member of the Bill Willis group. In 1982 he was awarded both a Lady Davis and a Fullbright fellowship to work for a year at the Technion in Haifa, Israel, and in 1993 he received another Fullbright Fellowship to work for half a year at the University of Valencia developing time-of-flight counters.

Syracuse University benefited greatly from Nahmin's service. In the Physics Department he served on the usual committees and in 1973-74 served as acting chair when Nathan Ginsburg, the chair, was asked to serve as acting Dean of Arts and Sciences during a search year. Over the years, he taught much of the curriculum, but in his later years Nahmin took over teaching Quantum Mechanics. From 2000 until he retired in 2006 Nahmin taught half time. However, his research activities at Cornell continued unabated.

Shortly after coming to SU, Nahmin joined the American Association of University Professors. While not a union, the organization is interested in the state of the profession from the points of view of economics and faculty participation in governance. He participated with Don Kibbey in examining the state of the retired faculty. Because of low salaries, they were living in very poor conditions and dependent on Chancellor Tolley's largesse. Under pressure from the AAUP, one of the largest chapters in the country, that situation improved and a salary review began under Otway Pardee. In spite of the decline in chapter membership, an annual salary review continues to this day. Through the AAUP, Nahmin and John Prucha, chair of Geology, approached Tolley for a Faculty Club. That did not come to fruition, but today there is a Faculty and Alumni Center which is used for lunch dining and event dinners

and other affairs. However, it does not serve as a center where faculty can meet casually which was the idea for a Faculty Club. In 1972, the AAUP filed a request for a bargaining election with the US Labor Relations Board. The AAUP narrowly lost the election which took place in the fall of '72. Nahmin, along with a number of AAUP members, opposed the election. The election, however, did improve the role of faculty, students, and staff in the governance of the University.

Nahmin was also active in the University Senate. While he served on a number of different committees, his most notable service was on the Budget Committee. Nahmin carefully analyzed the budgetary data that was given to the Committee. He fought for greater support of academic budgets including better salaries for the faculty. His voice on the budget was respected by the Senate. After many years of service, he was devastated to learn that the Chief Financial Officer, Louis Marcoccia, together with Chancellor Eggers, had deceived the Senate about available funds. They had squirreled away funds for buildings and, in particular, the new Eggers Building for the Maxwell School of Citizenship. Nahmin also found that funds for the Athletic program were off limits to the Budget Committee. In frustration he left that committee and in his last years in the Senate, he was on the Agenda Committee. As chair of the Agenda Committee, he was involved with Chancellor Buzz Shaw in a controversy over freedom of speech for the student's paper, the Daily Orange. The DO published obscene comics. Nahmin, among others, resisted the move to censor the paper. A resolution was found in the appointment of a Board of Overseers. As a testament of the Senate's respect for him, Sam Gorovitz rose at Nahmin's last meeting to remark on the need of a University to be accessible to change and yet maintain its culture. He notes,

> "...And that this can happen only if there are strong voices within to remind them of what they must be, and dedicated faculty willing to labor tirelessly to help them maintain their highest values.
>
> Nahmin Horwitz, for decades has spoken with such a voice and labored with that dedication.....the big picture is that Nahmin has not just served this University Senate with distinction, but that in doing so as he has steadfastly done, he has served every member of this university community - the advocates of change and the keepers of tradition alike....For that we are all in his debt."

He chaired a search committee for a Vice Chancellor for Academic Affairs, and served twice on search committees for new Chancellors.

In the mid '80s, Leah and Nahmin began to think about moving to a community with living support services. They found in Kendal, at Ithaca, a facility that fit their needs and might enable continued work on CLEO data. In 2001, they joined Kendal, but as Nahmin continued to teach half time at SU, they kept their home in Syracuse and lived in Kendal during the summers. Nahmin retired fully in 2006 and since then they have lived only in Kendal. Moving to Kendal was a wrench in their lives. In the course of 46 years of living in Syracuse, they had built up a large community of friends. As an avid tennis player, he found close friends and acquaintances with whom to play. As a skier, in the winter he found friends to join him for weekends or more extended periods. And there were the parties and long conversations about the university and politics.

At Kendal, Nahmin and Leah quickly made new friends. They became involved with their community. From 2008-10, Nahmin was President of the Kendal Residents' Council. In 2009, a physicist, Peter Stein,

who was politically active in the Town of Ithaca, suggested that Nahmin run for an open seat on the Town Board. He was easily elected and serves currently.

Life was running smoothly with occasional visits to Syracuse to visit friends and occasional return visits from friends. Then in the spring of 2011, Nahmin began to have trouble using his legs. The diagnosis was the existence of a tumor between the T5 and T6 vertebrae. He had a round of radiation treatments followed by chemotherapy. The latter destroyed his white blood cells and he developed pneumonia. He sought a second opinion from a physician at Strong Memorial Hospital in Rochester and remained at Strong for one month. Physicians in Rochester decided they could do nothing more for him and he was sent back to Kendall. Shortly after his return, the symptoms of the pneumonia disappeared and there was no sign of the tumor. Slowly, Nahmin regained his strength. In May 2012, he and Leah visited their daughter Amy in Charleston, SC. There Nahmin played 15 minutes of tennis and when he returned to Kendal, he began to play more competitively. One day in early July, he charged the net after a ball, he tripped, bounced off the net, fell on his back and damaged a number of Lumbar vertebrae. With this accident, he once more lost use of his legs. He is paralyzed from the waist down so that he is confined to bed or a wheelchair. Remarkably, Nahmin is not depressed. For Nahmin this is just another obstacle that he must work at hard enough to overcome its enforced limitations. After three weeks of therapy at Upstate Medical Hospital in Syracuse, Nahmin returned to the Kendall infirmary where he is enjoying support from Leah, visits from Ithaca and Syracuse friends and his children David, Susan, Annie, and Amy.
