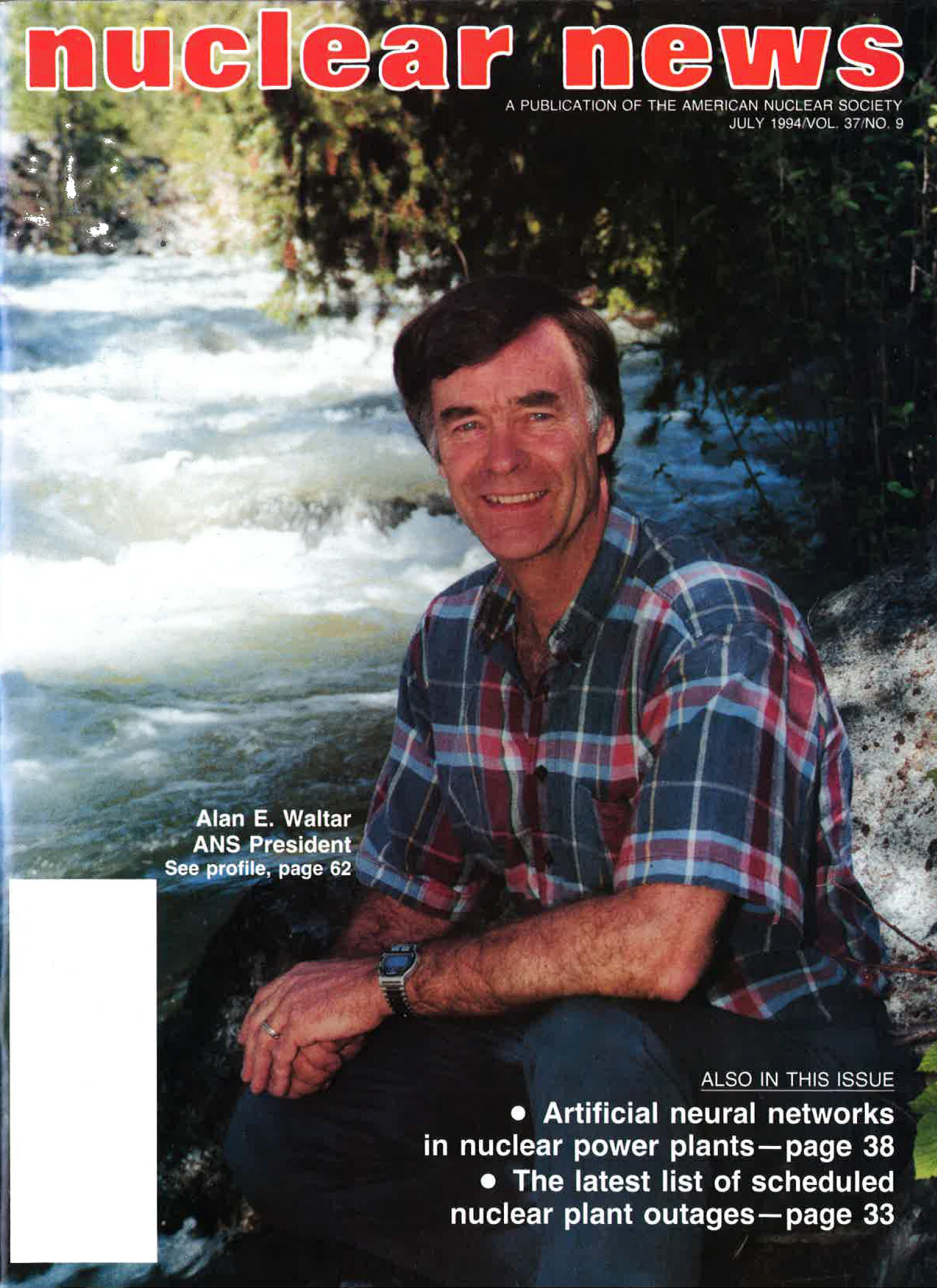
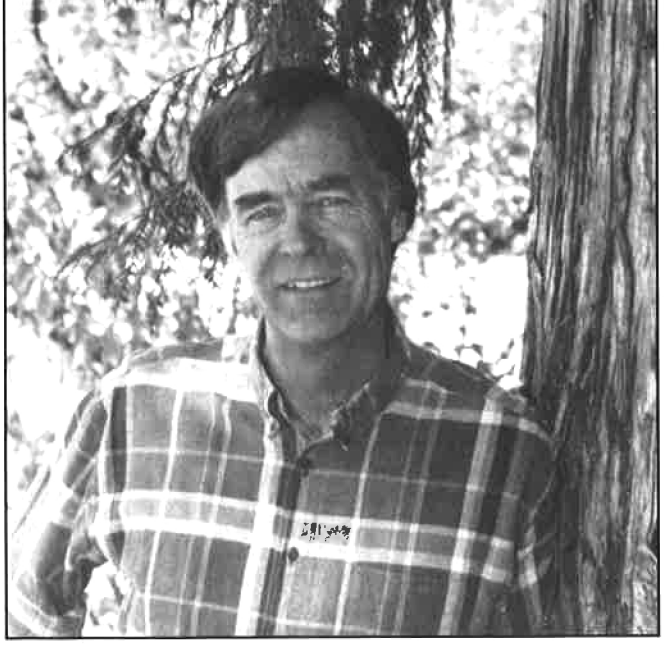
# nuclear news

A PUBLICATION OF THE AMERICAN NUCLEAR SOCIETY
JULY 1994/VOL. 37/NO. 9



Alan E. Waltar
ANS President
See profile, page 62

ALSO IN THIS ISSUE



# Alan Waltar: Reigniting the spark, revitalizing the technology

Alan Waltar would tell you he wants to double American Nuclear Society membership this coming year, except he is afraid of setting his sights too low. And this is just one of the goals he has set for his term of office as ANS President. He also wants to set up an electronic data base to aid grass-roots efforts to improve the image of nuclear energy, he wants the issue of national plutonium philosophies debated in Congress, he would like to begin an effort to analyze the mountains of radiation exposure data from the former Soviet weapons program—all part of his overall goal to begin a revitalization of the nuclear industry. Can he do it? Before you judge, read a little further.

**Starting out**

Alan Waltar was born July 10, 1939, in Chehalis, Wash. He was the second child—and only son—of Vaino and Doris Panush Waltar. "The name Waltar comes from an old Finnish name," Waltar notes. "My grandfather's name originally was Waltari, and he dropped the final i. One of his brothers kept the i, and there is a whole clan named Waltari in Montana. The third brother changed his name to Johnson."

When Waltar was still a toddler, the family moved from town to a farm. "My grandparents had homesteaded a little farm northwest of Chehalis, and one of my father's younger brothers was running it. He really wanted my dad to join him. That farm became my life—I loved the very feel of the place. I loved getting up in the morning and milking the cows; I drew plans to automate some of the operations; I was going to become the best farmer in the world," Waltar recalls.

But his dreams of a farming future came to an abrupt end when he was in eighth grade. "My dad had a stroke, and that meant that he could no longer do his share around the farm. After a year or two, he had to sell out. It was a trying time for the family, but my father's quiet persistence helped all of us accept our losses and look to tomorrow. My mom took a job with the county auditor. Eventually Dad was able to return to work, but it was in the county assessor's office, not working with animals and the land. Our life on the farm was over. Still, during those years I had been provided with models for living that shaped my entire future. My dad was an unassuming man. He had an ethic for hard work, a strong sense of responsibility, and always did his best at any task that came to hand. Mom, whose contagious positive attitude was always the real glue of our close family circle, just continued doing, with characteristic good grace, whatever had to be done.

"Those modest values built a powerful philosophy into my early consciousness. It never failed me, as a child or as an adult," Waltar notes. His father died in 1965. His mother still lives in Chehalis.

Waltar attended school in Adna, Wash. He was involved in most of the activities of a child of the '40s and '50s: Boy Scouts, marching band (he played the trombone), taking piano lessons, playing sports. It was while he was attending Adna High School that his thoughts about the future took a scientific turn. He explains: "I had a teacher named Ralph Nelson, who taught freshman algebra, advanced algebra, plane geometry, solid geometry, physics, chemistry, biology—all the math and science courses—that's what teachers in small high schools have to do. But, oh, what a teacher! He made the subjects alive for us. One year, a basketball star from another high school was killed because he had taken a curve at a very high speed and rolled his car over. The next day, that was our lecture. We learned centrifugal force, and we quickly came to realize that there was no way to control a vehicle at that speed. I'll never forget that. That's the way he taught all his courses—very personalized. I got interested in nuclear science because of the imagination and rare teaching skills of Ralph Nelson."

**Higher education**

After graduation from high school in 1957, Waltar attended Centralia College, a junior college near Chehalis, majoring in pre-engineering. "The idea of going from tiny Adna High School to a major university was too much of a scary thing. I was rather shy—my older sister Joyce was so outgoing, so self-confident. I think I may have overcompensated by always being 'the shy one.' Besides, financially, a major university was out of reach. So Centralia College seemed the logical choice. I had a $200 Kiwanis scholarship that basically paid my tuition each year, and I commuted from home to campus."

Again, Waltar benefited from some good teachers. "There's an assumption in the education world that junior colleges don't get the best faculty. But at Centralia, we had great teachers. They didn't worry about research, or contracts, or any of that. They just focused on teaching. And that's exactly what I needed. Victor Griel in chemistry, Vincent Coates in engineering, Boyd Mills in physics—we simply had inspirational teachers."

For a self-described shy person, Waltar enjoyed major social success at Centralia. He was elected freshman class president his first year, and student body president his second. In addition to his coursework, he was active in Circle K and joined the debate team. "One of my debate partners," he recalls, "was a guy named Bryan Stanley

Johnson, who at the time was the local radio announcer, and who now is the news director at one of the major television stations in Seattle. When he was on my team, we always won, and when he wasn't, we usually lost. But the experience was useful to me—it taught me some logic, and began to instill some degree of self-confidence in the country boy from Adna. Too often, we engineers tend to be withdrawn and hesitant to speak publicly, and the debating effort forced me to get more comfortable with public speaking."

After two years at Centralia, Waltar was ready and willing to head for the University of Washington in Seattle as a major in electrical engineering. "It is a very large school, but I was eager to try it by then. I'm not quite sure why I chose EE, except that it sounded like a fun and challenging area."

Even though he was majoring in electrical engineering, Waltar's interest in nuclear science had not waned. He recalls one incident from those times: "I had to take a human social studies course at Washington, and we had to write a major paper. I decided to do mine on atomic energy. I planned to write a Pulitzer Prize paper—to show the social science people that an engineer could write. So I handed in a huge treatise, and could hardly wait to get it back, since I expected to get not just an A-plus, but an A-plus-plus. But when I got it back, I was stunned to see the grade: B-minus! I was totally crushed. After a day or so, I was recovered enough to go to the professor for an explanation, and he said, basically, 'Your facts were good, but what was your point?' I had wanted to write everything about the field that had ever been reported. He was right—I didn't have a thesis. I learned more about how to make a point from that report than I did from anything else. About 10 years later, I looked at the report again, with a more objective eye. I really deserved to get an F."

For a "shy" engineer, Waltar continued to enjoy obvious social and academic success. He was elected Engineering Student Council president in his senior year ("This sounds like a bigger deal than it really was," he demurs, "since most engineers aren't interested in politics."), was named the outstanding senior in electrical engineering, and graduated Magna Cum Laude.

His interest in nuclear energy grew stronger, and Waltar decided as his years at Washington drew to a close that he definitely wanted to study nuclear engineering in graduate school. He applied for an Atomic Energy Commission fellowship, received one, and began to look for a school. "The AEC fellowship was a good deal. I could not have gone on to graduate school without it. With the AEC money at hand, I decided I could go anywhere. I thought about staying at Washington, but I got some very good advice from Prof. Al Babb, who told me that proving myself at another school would be good for my career, especially if I was only going for the master's degree and not a PhD. Since I wasn't sure what I wanted to do, I looked for another school. One of the places I applied was the University of Illinois. Marv Wyman was the head of the department back then, and I've never met him. But I think of him almost as a father figure because of the warmth of his responses to me. I also had the chance to go to the Massachusetts Institute of Technology. Eventually, I chose MIT, but I've always felt I needed to make a personal apology to Dr. Wyman for turning down Illinois."

His immediate academic future now settled, there was one more decision Waltar needed to make. He had known Anna Geiszler since they rode the school bus together starting in first grade. In farm terms, she was the "girl next door," since she lived only about a mile "down the road." Says Waltar: "She is about as close to a childhood sweetheart as you can get. We went through school together, including junior college. We'd known each other for a long, long time. Given all that comfortable stability, I thought there was no reason to rush into marriage! But after junior college, when I went up to Seattle, Anna went to work. And since I didn't show any signs of proposing, Anna began to talk about becoming an airline stewardess. Then she took a vacation in Hawaii with a girlfriend, and wrote back about how friendly the sailors were over there. I met her at the plane when she returned, and proposed."

They planned to be married when he finished at Washington, setting a wedding date of June 11, 1961, the day after graduation. Then a small complication arose. Waltar explains: "The Engineering Student Council was responsible for sponsoring the refresher courses for the Professional Engineering exam, and as president of the Council, I attended all the lectures—to make sure the lights were on and things like that. And I thought, gee, I should really take this test now, since I'll never be more prepared. The only problem was that the test was being held June 12, the day after our wedding. But since we were going through Seattle that day on the way to our honeymoon in Vancouver and Victoria, B.C., I convinced Anna to let me spend eight hours taking the test. She thought I was absolutely insane! Well, I did take the exam. But I have never (before or since) taken an exam where I really could not have cared less whether I passed or failed. I didn't care if I got a zero. As it turned out, however, I passed with flying colors. There probably is some significant moral in there about being casual toward exams. Anna would more likely call the whole business an omen of things to come."

Before the Waltars moved to Cambridge for the fall term at MIT, however, they spent the summer at Hanford. "One of my professors, Floyd Robbins, was a consultant there, and I had heard all the wonderful stories about the early years—the excitement, the mystery, the code words. He got me a summer job working at the N-Reactor, and that was our first introduction to Hanford and the Richland area. I have to admit, as we drove in, our hearts sank. It was hot, and air conditioning was almost nonexistent. The only things resembling an air conditioner were devices called 'swamp coolers,' and their lack of efficiency at real cooling was obvious immediately.

"It was a pretty bleak place. The broad expanses of sagebrush, dry grasses, and barren hills seemed as remote as another planet from the lush forests and enduring green fields of western Washington. The tight security of the site work areas didn't signal a hospitable environment either. Like many who had come before us, we were far from happy with the appearance of this life and this land. The work was challenging technically, however, so I buried myself in the reactor world. Anna determined to make the best of it, and by the time we left, we'd managed to adapt pretty well. But then, it was only temporary."

The year at MIT Waltar describes as a "great experience." He continues: "My stipend was about $180 a month, and after a lot of searching, we found a small apartment for $125 a month—well over half my income. But Anna, who was pregnant at

Alan and older sister Joyce, 1940


The baseball player, 1948

the time, eased the impossible money squeeze by finding a job working for a professor who specialized in octopi. She learned a lot about what could be accomplished if one could only use more than a half-dozen arms and legs going at the same time!

"MIT is a tough school, but it's very engineering oriented, and the faculty, of course, was outstanding. Manson Benedict was chairing the department at that time, and Robley Evans was still teaching from his classic nuclear physics text. My thesis adviser, Norm Rasmussen, provided my principal inspiration and also got me involved in the ANS Student Branch at MIT . . . my first experience with ANS."

Waltar received his master's in nuclear engineering from MIT in 1962. And one thing the year at Cambridge clarified for him was his desire for additional education. "I decided I did want to go for a doctorate, but I was a little uncomfortable about staying at MIT. It was 3000 miles from home, and we had always been a close family. I knew that the University of California at Berkeley was a good school, and I really wanted to study under Thomas Pigford, who, with Prof. Benedict, had written *the* classic book on the nuclear fuel cycle. So I decided to go to Berkeley."

Since Alan and Anna had driven from Washington state to Massachusetts the previous fall, they now drove back to the West Coast, this time with a new baby, first son Steve, in tow. "We drove the southern route, stopping by to see Oak Ridge, where I got in trouble for taking pictures of the Y-12 plant. With farm blood still in the veins, we were particularly intrigued to see the expanses of cotton growing in the deep south. We tried to bring some of the cotton back to show the family, but except for a little bit that Anna was able to hide away, it was confiscated when we crossed into the state of California. The agricultural quarantine 'spoil sports' were pleasant but firm in explaining their rationale to us: 'We can't allow the boll weevil into the state of California,' they said."

Wedding day: June 11, 1961

Waltar remained at Berkeley for four years—from 1962 to 1966. The first two years were funded by the AEC fellowship, the last two by a National Science Foundation traineeship. "I really didn't think it was going to take four years," he notes, "but these things always take more time than you think. Berkeley was tougher for me, because it's more of a physics-oriented school—more conceptual—and I'm more of an engineer." Waltar studied nuclear engineering, with minors in automatic control theory and mathematics, and received a PhD in engineering science in 1966 under the tutelage of Lawrence Ruby.

"One of my most memorable experiences at Berkeley," Waltar remembers, "occurred early one morning when I was trudging along, my head down, deep in thought. I had this sudden sense that people were approaching, but I didn't really look up to see them right away, and when I finally did, they had both moved off the sidewalk and were walking on the grass, to allow me to pass. One of them was Clark Kerr, the president of the university, and the other was Glenn Seaborg, both courteous gentlemen under the circumstances! But then, they always were."

Waltar's Berkeley years coincided with the Free Speech Movement at the campus, the beginnings of the civil rights and anti-war demonstrations, and the riots that characterized campus experience all around the United States in the late 1960s. "I must say that while I was there, I was really repulsed by the whole thing," Waltar says. "There was a lot of disruption, and sometimes the smell of tear gas was oppressive. I could sympathize to some extent with what they were doing, and I felt that part of their cause was just, but I didn't like their tactics. Still, I found that when I got very far away from the campus, perceptions of the motives and events were incredibly distorted. Almost everyone we talked to—my parents, for example—thought 'these people' were just a bunch of flaming radicals. So the further I got from Berkeley, the more I found myself acting like a real advocate of the movement, just to provide some balance. I even seriously considered going down South for the marches and the Civil Rights demonstrations. But by that time, I had two small children at home [second son Doug was born in 1964], and when I looked at the idea objectively, it just wasn't defensible."

**Off to work**

The mid-1960s were the boom years of the nuclear industry, and as he approached the end of his formal education, Waltar saw plenty of job opportunities ahead. Of the 10 companies interviewing on campus in early 1966, Waltar had offers from 9 of them. The most serious offers were from the Knolls Atomic Power Laboratory in Schenectady, N.Y.; Gulf General Atomic, in La Jolla, Calif.; and Sandia Laboratories, in Albuquerque, N.M. But before he

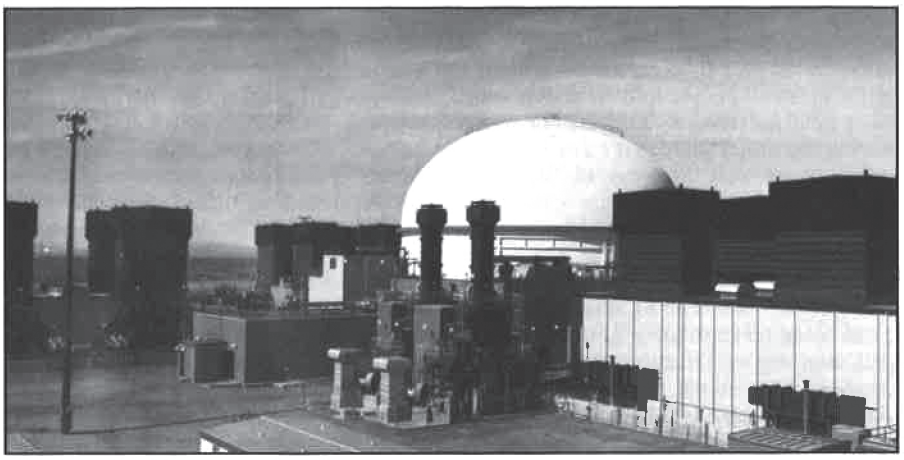
had a chance to make a final decision, he heard about one other opportunity—the newly authorized Fast Flux Test Facility, which was to be built at Hanford. "My interest in fast reactors had been piqued by a fast reactor seminar I had taken with Prof. Pigford," Waltar explains. "I saw that this was a chance to get in on the ground floor of a major new project in a next-generation technology. I went up to Hanford to talk to Peter Hofmann about the project, and immediately decided that he was the person I wanted to work for. But then I had to call Anna and tell her that I was taking the FFTF job. She remembered the summer we spent at Hanford before we went to MIT, and she actually cried. With the confidence born of limited experience, I told her it would only be for a couple of years. But, except for a year when I was a visiting professor in Virginia, we've been here ever since.

"So I had 'slightly misled' my wife!" Waltar admits. "But over the years, a strange thing has occurred. The community has grown, opened up, and blossomed. We discovered great schools, the mighty Columbia River, fantastic parks, wonderful people, and, to our surprise, home. Now it's hard for us to imagine ever spending this central part of our lives anywhere else."

The FFTF was conceived as a test facility for the U.S. liquid-metal fast breeder reactor program. At the time of its proposal, conventional wisdom within the AEC projected that the LMFBR would follow the generation of large light-water reactors due to arrive in the 1970s. The FFTF would be the final certification facility for establishing the appropriate fuels and materials for commercial breeder operation. Waltar joined the project in 1966 as a senior research scientist for Battelle Northwest, focusing on safety considerations of the facility. In 1970, new government regulations forced Battelle to divest itself of the FFTF, and the project was taken over by Westinghouse.

"My first direct boss at Hanford was Winston Little, and he is a brilliant thinker who leads by leaving people alone—he doesn't micromanage. The only negative thing I can say about Winston is that he invited me to play tennis with him one time. When he served the first ball, it left his racquet faster than a 100-keV neutron. I never even saw it—I just heard a 'rifle shot.' I haven't played tennis with him since!

"I have been extremely fortunate in my career," Waltar continues, "because I have always had strong support at least two levels above me. I don't know how many people can say that. Winston's boss was Peter Hofmann, and they both encouraged me to get professional exposure. They supported me when I gave papers at ANS meetings, and most of all, they allowed me to make mistakes. I really think a part of our technology's current problems derives from the fact that we are so concerned about making a mistake—any small mistake—that rigor mortis has set in. It is very difficult for creativity to flow in an environment like that.



The FFTF, on which much of Waltar's career has focused

"Another person I really admired at Hanford was Bertram Wolfe," Waltar continues. "Most people associate Bert with General Electric Company, and not many people realize that he wore a Westinghouse shirt for a little while. [Editor's note: Readers of the *Nuclear News* profile of former ANS president Wolfe—July 1986, pp. 103–108—will recall this little-known fact.] What a motivator he was! I consider him one of the two primary mentors that I've had in my life. I think I would have jumped off a cliff for that guy if he had asked me! Last year, I served as co-general chair of the Global'93 conference in Seattle, and in that role I was privileged to introduce him, because he was one of our key speakers. There, years later, I was able to articulate what his support had meant to me. Until that time, Bert had never been aware of how strongly he had affected my life.

"My other great mentor at Hanford was Dan Simpson, who always had the capacity to get right to the nub of a problem. He was a driver, but he could also laugh and joke, and he always worked from a fundamental base. A brilliant and inspirational guy."

Waltar worked on many specific projects in support of the FFTF, including reactor safety, advanced nuclear fuels and core design, and new applications of artificial intelligence for enhanced plant operation. Fast reactors were also receiving a lot of international focus, and Waltar began attending national and international conferences, becoming known as an American expert on fast reactors in general and fast reactor safety in particular. "Those were exciting times. I came in just as the project had been authorized and was in the design phase, which is, of course, the time when we engineers get our biggest kicks out of any venture. President Richard Nixon came to visit the facility during that period, as part of a trip he was making to Asia. Whether you loved or despised the guy personally, it didn't matter during a visit like that, because one couldn't help getting caught up in the pageantry of the presidential office. Besides, Nixon was a strong supporter of fast reactor technology, so everyone was delighted to have him on site."

**Sabbatical**

In 1976, Waltar had an opportunity to spend a year at the University of Virginia as a visiting professor. "I had gotten to know Al Reynolds through some of my regulatory work for the FFTF, and we had become good friends. He was taking a sabbatical in Grenoble for a year, and asked me if I would be willing to teach in his stead—sort of a reverse sabbatical for me. Well, getting permission to do it was no easy task in the old AEC/ERDA [Energy Research and Development Administration, the Department of Energy precursor agency] transitional structure. I had to officially terminate my employment at Hanford. The company would grant leaves of absence for educational purposes, but I was going to get paid by the state of Virginia, and that didn't fit the rules. I was pretty sure I would be rehired when the year was over, but it wasn't guaranteed.

"It turned out to be a wonderful experience for the family," Waltar continues. "We were in Virginia during the 1976–77 school year, just after the Bicentennial celebrations. Everything was still all spiffed up for the festivities, but the crowds had gone. So everywhere we went through the area, it felt like things had been cleaned and polished just for us."

Waltar taught a course on heat transfer the first semester, and a course on fast breeder reactor technology the second. His difficulty in finding a good textbook to use in the course led to a new project. He explains: "I was using Karl Wirtz's *Lecture Notes on Fast Reactors* as a text, but it really wasn't written as a textbook. It's basically lecture notes, just like it says, and the students were having problems with it. I was keeping in close contact with Al Reynolds during the year, and during one communication I suggested that he write a textbook on fast reactors. He immediately said it was too big a project, and he would do it only if we—he and I—could do it together. Well, I managed to get some government funding from Harry Alter at DOE to prepare such a book. When I went back to Hanford at the

end of the school year, an administrative agreement was negotiated that would allow me to work part-time on the book until I got it finished. People told Al and me that we would not remain on speaking terms during the project, but as it turned out, we worked very well together—his strengths were my weaknesses, and vice versa—and we grew to be much closer friends as a result.

"Then we had to find a publisher. We had agreed to waive all royalties so that the price could be kept down. One day I got a call, and my secretary said that Robert Maxwell was on the line. I thought: *the* Robert Maxwell? I answered the phone, and this imperial voice announced, 'Hello, I'm Robert Maxwell, president and CEO of Pergamon Press. My reviewers indicate that your book really looks good, and I want to publish it.' He then went on to announce some wonderful terms, something like $25 for the 850-page book in hardcover, and $15 in paperback. I must have said something like 'Are you serious?' because he cleared his throat and repeated: 'I am Robert Maxwell, president and CEO of Pergamon Press, and when I make an offer, nobody around here questions it.' Needless to say, we signed the contract without delay! The book, *Fast Breeder Reactors,* was published in 1981, and a Russian edition came out a few years later."

**Back at Hanford**

His year at Virginia and the book manuscript behind him, Waltar could refocus his energies on the FFTF. Over the years, the project had struggled through some of the same problems that commercial reactors had been facing, the most worrisome of which were repeated delays. Originally scheduled to be completed in 1973, the FFTF experienced many design iterations because of its unique state-of-the-art nature. At the time of its construction, it was to be the largest-scale user of liquid sodium ever to be put into operation. The FFTF went to full-power operation in December 1980, then began its first operating cycle and was officially dedicated in the spring of 1982.

Unhappily, its primary mission was made moot in October 1983, when Congress canceled the Clinch River breeder reactor. There were no future fast reactors in the works for which to test fuel and materials. Suddenly, the FFTF was vulnerable to becoming a candidate for the endangered species list.

"When I came back to Hanford, my focus changed from safety analysis to looking at the broader aspects of the program. And when the early rumblings began to suggest that the facility might be shut down, I felt an indescribable sadness. The FFTF had always represented more than just an interesting project. I had been there on the ground floor. It was the essence of my career. I saw it as the symbol of the future and felt that I had made a significant contribution to its success. We must have something out front of where we are, even without an immediate demand for the technology in today's format. Otherwise, how can we draw bright young men and women into the challenge of solving the incredibly complex problems of 2020?"

Efforts to find other missions for the FFTF were initially successful on many fronts. Explains Waltar: "We learned that we could do a remarkable number of things with this incredibly flexible machine. Clearly, for applications where a fast neutron spectrum is needed, there's no other substitute for a fast reactor. One of the new things we did was to install some yttrium hydride assemblies near the periphery to thermalize the flux, because we were interested in making plutonium-238 for deep space probes. This material was no longer available from Savannah River, because they were shutting their reactors down. Flight-grade Pu-238 cannot be made in a fast flux, because the contamination from Pu-236 is too great. But we discovered that we could make Pu-238 to flight standards by specially tailoring the flux in the reflector region. We also looked at the possibility of making the FFTF an international test facility, and the Europeans and Japanese were very interested. Perhaps the greatest promise was the potential for using the facility to make medical isotopes. We were truly excited when we analyzed the range and purity of what could be produced.

"Despite these efforts," Waltar continues, "toward the end of the last Administration, the shutdown order was prepared but not signed. When the new Administration came in, an extremely varied Washington State delegation did a remarkable thing. They submitted a unanimous request that Secretary O'Leary look into the situation."

O'Leary appointed a commission, headed by John Landis, to study the FFTF mission. After several months of fact-finding, the panel concluded that as long as the DOE's other test reactors were able to perform the tasks assigned to them, and could provide a reliable source of domestic medical isotopes, it would not be cost-effective to keep the FFTF running. Its operating costs totaled some $88 million per year, and even with substantial foreign support, no combination of missions could deliver that value without at least some DOE support. O'Leary subsequently ordered that the facility begin the shutdown process (estimated to take about five years) (*NN,* Nov. 1993, p. 20; Jan. 1994, p. 28). "It's been so hard to have lost that battle," Waltar concludes sadly.

These days, however, Waltar is busy with other issues—most notably, the long-range project to clean up the Hanford site. In his current position as manager of Nuclear Engineering, he is responsible for leading and refocusing a group of approximately 50 reactor physics, reactor design, and safety professionals into site-wide cleanup challenges.

One of the problems his group faces, Waltar admits, is the perception that their work—and, indeed, all the cleanup activity at Hanford—is no longer really nuclear work, but rather chemical. He counters that argument forcefully: "The nuclear discipline created these wastes, and the nuclear discipline is needed to clean it up. One of the big questions we're facing, not only here but also at Rocky Flats, Savannah River, and elsewhere, is how clean is clean enough? What are the cleanup criteria? What are the standards? This may sound like a simple issue, but it's a tough one, both technically and politically. And here is where we need the efforts of the professional organizations like ANS. We need standards and we need direction. Where issues like this arise, ANS has capability, competence, and credibility."

**On the home front**

Alan and Anna Waltar have four children: Oldest son Steve attended Seattle Pacific University and Princeton Seminary, receiving a master's of divinity degree. But, Alan notes, he did not sense a call to go into the ministry, so he studied law at the University of Puget Sound, and is now an attorney. Doug attended Wheaton College, in Wheaton, Ill. ("I found all sorts of reasons to travel to Argonne during the years he was in school at Wheaton," Alan laughs.), and received a master's of divinity degree from Regent College, in Vancouver, B.C. He now serves as a pastor at the First Presbyterian Church in Fairbanks, Alaska. He and wife Susan just had their first child—a daughter—in mid-May, making Alan and Anna new grandparents.

The Waltars' only daughter, Karen, now 27, received a teaching degree from Pacific Lutheran University, spent a year on a mission project at a Mexican orphanage, and now works in Seattle for Physician's Insurance. The youngest child, Bruce, graduated from Pacific Lutheran University this past May, with degrees in music and computer science.

"Bruce has been an interesting chapter in our lives," Waltar notes. "He was born with arthrogryposis, a disease that affects the joints, muscles, and nerve endings. When he was born, his feet were basically upside down, and his hands were twisted. He was in plaster from day one. I don't know how many operations he's been through. The doctors said he would never walk, but today he walks with the help of braces and crutches, and has done remarkably well.

"The Virginia experience was great for him—the Children's Rehab Center there had a marvelous program, and while Bruce was there he learned to swim. That really helped turn things around both physically and emotionally for him. In his junior year of college, he shocked both parents by going to Australia to study at the University of Adelaide. What a guy!"

One of Waltar's greatest extracurricular pleasures over the years has been his

Waltar as the Knight of the Mirrors

involvement with the Richland Light Opera Company. "The Company started because people here in Richland realized at that time that they would pretty much have to make their own entertainment," Waltar notes. "One of the first shows we saw when we got here was *Camelot,* and I knew the woman playing Guinevere. She was our church choir director's wife, and she got me involved with the Company. In my first effort, I sang in the chorus of *Brigadoon.* Since then I've been in more than half a dozen productions. I played the Knight of the Mirrors in *Man of La Mancha,* the male lead in *Little Mary Sunshine,* Richard Henry Lee in *1776,* Emile De Becque in *South Pacific*, sang the high tenor part in the quartet in *The Music Man,* and played the Baron von Trapp in *The Sound of Music.* I really wanted to play Don Quixote in *Man of La Mancha,* but maybe I can play him when I grow up."

The Waltars have been active in YMCA, United Way, and Rotary International, as well as church, where Anna works part-time in the finance office. They also have a most unusual "pet project"—building a retreat center in the foothills of central Washington. Weekends often find them alongside friends and colleagues, trenching or pouring concrete as they work on this life-long project. Both Alan and Anna find that being in this natural setting helps to recharge their batteries, no matter how many calories go into the labor.

Alan's work has meant a great deal of national and international travel, and Anna has accompanied him on as many of these trips as her own work and family responsibilities allow. "Alan's parents were always going to travel when they retired," Anna comments, "but his father died before they were able to. That experience was a real object lesson for us. We knew we didn't want to find ourselves in that position, so we've tried to arrange as much travel together as possible."

**ANS activities**

As noted above, Waltar first joined ANS as a student member during his year at MIT. He continued his involvement at Berkeley, serving as the Student Branch chair there one year. In the 1970s, he began to get heavily involved with the society, on both the national and the local section levels. He has held several offices—including chair—in the Eastern Washington Section and the Nuclear Reactor Safety Division, and was a member of several national committees. He has chaired the Bylaws and Rules Committee and the Finance Committee, and has served on the Board of Directors and Executive Committee.

Waltar reports that he was "shocked and humbled" when he was informed that he was to be nominated as ANS vice president/president-elect. "To be considered a person who could follow in the footsteps of such people as Manson Benedict, Bert Wolfe, Manning Muntzing, Gail de Planque, Dave Rossin—it was so meaningful to me. And after I agreed to be nominated, I began to think: What if I win? But then I decided that I really did want to win, because I'm convinced we have so much to do to help revitalize this industry.

"When I went into this business, I was really proud to be a nuclear engineer," he explains. "The profession had a lot of luster, it had a lot of scientific challenge, it had humanitarian value—even rocket scientists wanted to be nuclear engineers! But unless we start to do something now, this profession is going out of business. We need to reignite the spark in this industry, and that is going to be a major focus of my year as ANS President.

"How do we do that?" he ponders briefly. "First, we have to rebuild ANS. Where can we turn in an industry under siege if our professional association is not there? And one way to rebuild is to expand the membership. There are something like a quarter of a million professionals working in this industry—and less than 10 percent are members of the society. So, let's double our membership. It's not really that difficult if we truly believe in what we're doing. It can happen if every current member brings in only one new member. But let's think bigger than that. Are we committed to this industry or aren't we?"

Waltar wants to revitalize the industry because, after all these years, he is still excited by its potential and its technology. "According to a recent study, radioactive materials account for more than $250 billion in total industry sales annually—almost 4 percent of our nation's gross domestic product—and provide 3.7 million jobs—about 3 percent of the total U.S. workforce. [Editor's note: see *NN,* June 1994, p. 56.] And these numbers don't include the traditional nuclear power business. That's a staggering contribution to the economy! And yet, we're almost at a

The Waltars in 1981. From left: Alan (holding his book), Bruce, Doug, Karen, Steve, and Anna

At Bruce's college graduation this May. From left: Doug, Karen, Steve, Bruce, Anna, Alan

point where we're going out of business. For instance, if we don't have access to low-level waste sites, business will die. Both as individual professionals and as an industry, we need to collectively stand up and fight. As individuals, we don't have much power. One CEO from one company cannot effectively argue that more government money should be spent on advanced research projects. But as an industry, collectively driven to act as a group, we have a chance. It won't be easy, but we have to do it."

Waltar has also pondered what some might consider radical ideas for extending the ANS reach. One example: "I was thinking about some new kind of auxiliary organization, and the phrase that kept coming to mind was 'Friends of the ANS' or 'FANS.' Why not? We could create a FANS group, charge a very nominal membership fee, and provide some sort of informative monthly newsletter. Ann Bisconti, of the Nuclear Energy Institute, has conducted poll after poll revealing that most people believe more nuclear energy is going to be needed in the future. There's a base of support out there, but we haven't tapped into it. This is still in the idea stage, but I'm excited about it."

Another idea he hopes to begin implementing during his term of office (an idea stimulated by leaders in the ANS Trinity Section) is setting up a computer data base to aid members in communications efforts. As he explains: "No industry—except maybe aerospace—has had more to do with creating and developing the need for large computer systems than ours. And yet, who has the communications systems set up to marshall local forces? The antitechnology activists of the world, that's who. We need some sort of user-friendly computer data base that individual members can easily access when they read an outrageous news story or hear some ridiculous claim by an antinuclear group. Most engineers and scientists delay responding to such things until they can gather the facts. That means they put off their response for a couple of hours, then a couple of days, and before you know it, they never get around to responding, because they don't have time to gather the facts for their arguments. With a user-friendly data base, they could access the facts in a matter of seconds, and get their response prepared immediately. There must be a way to tap into the talents within our membership to set something like this up."

Another issue Waltar sees as a major focus is one that he personally feels very strongly about—the ethics of energy. "We are an energy-driven society," he notes. "But we are rapidly depleting the fossil fuels that it took nature millions of years to create. Not only that, the developed nations, by using fossil fuels so recklessly, are pricing these fuels beyond the reach of the developing nations. Where are the ethics in that? The developed nations must take the leadership in using alternative forms of energy so that the Third World can begin its development using the more readily available energy sources. And nuclear energy must be at the top of the list of alternative sources. There is no other choice. We cannot wait until there is a crisis—until our industrial base disappears—and there is a clamoring for nuclear energy, because by then we may be out of business. If the United States is going to take a leadership position in all this technically, economically, and morally, it means that we must begin to think in time frames longer than two- or four-year election cycles."

As a first step, Waltar would like to see the issue of plutonium philosophies debated in Congress. "We know we are dealing with an unfriendly Administration, so I think we need to focus on Congress. Because of the weapons return concerns and the proliferation fears, it's an issue they must come to grips with. I realize that it's a complex technical question, and that there are few in the Congress who are capable of debating the technical points, but it's essential that they get beyond blind fear and start wrestling with the real issues. I think if we as professionals could get the exposure—our day in court, so to speak—we and the Congress could serve our country well."

A final goal is to begin an effort to analyze the data from the former Soviet Union on the radiation exposures incurred during the Cold War years in their weapons program. "Radiation is such a frightening thing to the public—you can't see it, smell it, hear it, or taste it, so there's a perception that this technology is unique. That's what makes it suspect in the minds of the general public. But there is a potential gold mine of data on doses and dose effects in the former Soviet Union, most of it in loose-leaf notebooks and the like. If we can properly analyze that data, the results could literally revolutionize our business. We simply cannot get the same kind of information from the atomic bomb data, where large doses were delivered in a fraction of a second. Although significant attempts are currently under way by the DOE, the Nuclear Regulatory Commission, and other government agencies to access these data, the inclusion of internationally recognized professional societies like the ANS would contribute an important ingredient in working with Minatom and other Russian agencies to involve the key Russian scientists. It's a tremendous opportunity."

Alan Waltar has outlined 20 years of work for his one-year term as ANS President. He realizes that it cannot all be done. But it can all be started, and to him that's the significant thing. As he summarizes his agenda: "We need to truly motivate our members and rekindle our own passions that led us into this profession. Once we get that fire back in the belly, there is no limit on the impact we can make."—*Nancy J. Zacha* □