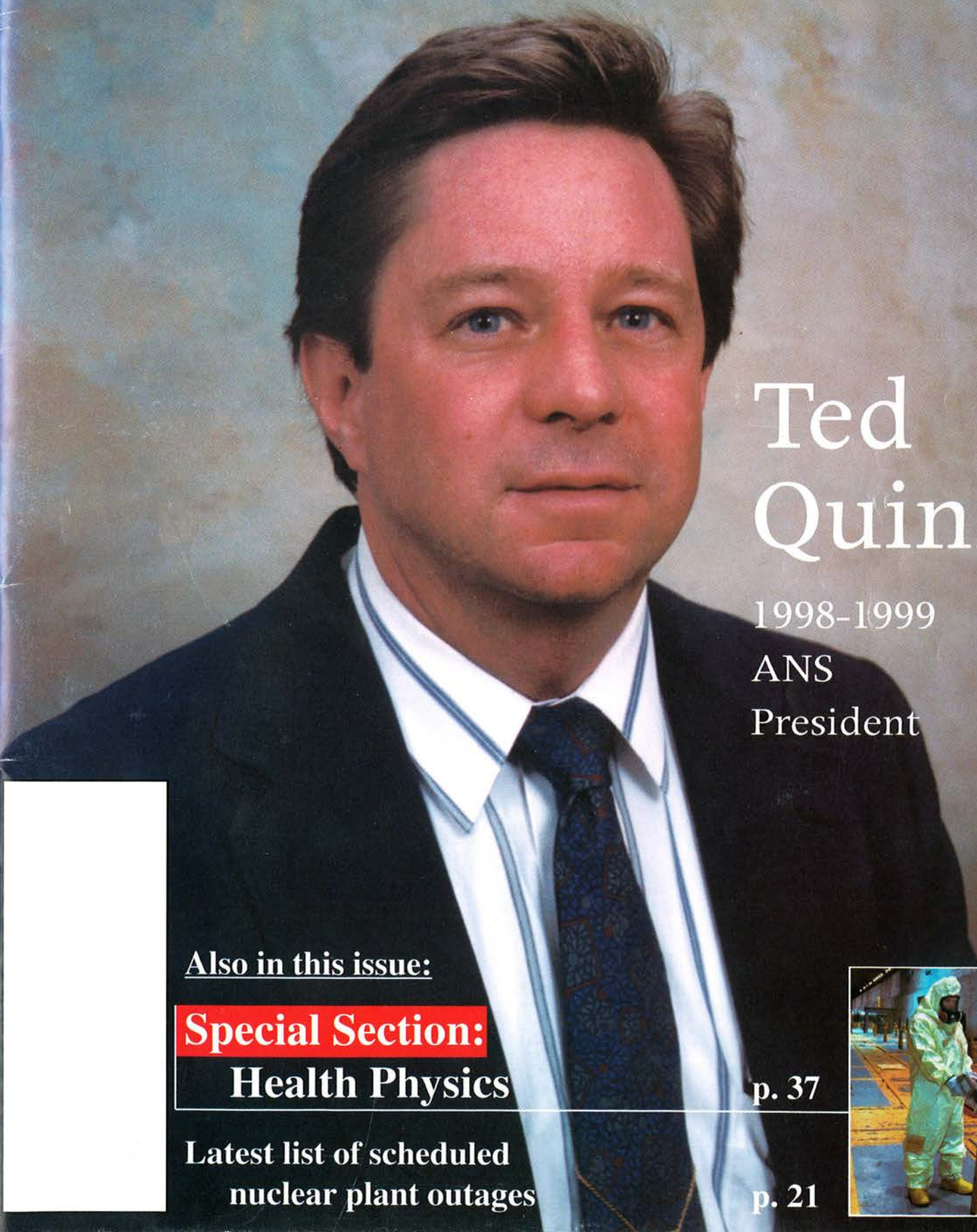


Nuclear News

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Ted
Quinn

1998-1999
ANS
President

Also in this issue:

Special Section:
Health Physics

p. 37

Latest list of scheduled
nuclear plant outages

p. 21



Ted Quinn: Getting ANS out in front on the issues

An early interest in submarines led Ted Quinn to a career that has taken him on an exciting ride to the ANS presidency, where his boundless energy will be directed toward the betterment of the Society.

TED QUINN'S LIFE in nuclear—which began a new chapter last month with the start of his one-year term as ANS president—traces back to an island off the southern coast of Maine. When he was eight, nine, ten years old, the Quinn family vacation each summer included a stop at a naval shipyard in Kittery, Maine, where seafaring vessels have been built for the past 300 years. The Portsmouth Naval Shipyard—where a few hundred years ago John Paul Jones supervised construction of his flagship, the U.S.S. *Ranger*; where the H.M.S. *Faulkland* was built in the late 17th century, considered the first warship to be constructed in North America—was better than Disneyland to young Ted. But even more remarkable than the island's pioneering history in surface ships, though, was its storied history in submarines. And there was nothing in the world more important to an eight-year-old Ted Quinn than submarines.

A sneakered kid making his way wide-eyed through the passages of the docked U.S.S. *Albacore*—his father was a military officer and could arrange these things—he may not have known that she was the fastest, quietest, most maneuverable ship moving under the water. He probably didn't realize the significance of her forward-thinking, teardrop hull design, intended for extremely high speeds and constructed of a new steel alloy that would become the standard for subsequent U.S. submarines. He may not have known that she was one of two experimental submarines whose design was based upon data gathered during World War II, and that the other was the U.S.S. *Nautilus*, the first submarine powered by a nuclear reactor, constructed under the leadership of the redoubtable Capt. Hyman Rickover. He didn't know that the two boats would be considered the forerunners of the current high-speed nuclear fleet. He didn't know that he himself two decades later would be leading the sea trials to test the nuclear propulsion system of a newly constructed submarine, the U.S.S. *Indianapolis*—Admiral Rickover relaxing in the boat's stateroom, the *Indianapolis* pushing up through the surface on her way back after a successful three-day power ascension, a blanket of white ocean foam spreading about her, Alpha Sea Trials Director Ted Quinn, sent up the sail, peering out through the spray to the coastline, remembering being a kid walking through the *Albacore*, thinking that this was all he wanted to do.

Except maybe play hockey

Ellen Quinn gave birth to Edward L.—soon to be Ted—Quinn on an army base in Frankfurt, Germany, in November 1953. Her husband, Ted Sr., was an officer in the U.S. Army and was stationed there at the time. Shortly after Ted's birth, Ted Sr. and Ellen moved back to Massachusetts where they both had been born, with a third generation of Irish-American Quinns—Ted and his two older sisters, Judy and Mary Ellen—in tow.

Growing up in the suburbs of Boston in the 1950s, Ted, as all boys did, started ice skating when he

Ted Quinn, 1998–99
ANS President





The mighty Quinn, ready for the puck



The Teds and their trophies

was five years old. On the ponds near his house, Ted and his friends would lace up and dart around the ice, practicing the skills that they would need to succeed in the only sport that mattered to the New England boys: ice hockey. The kindergartners had to learn to take a check.

The practice paid off as Ted made his way through the pee-wee and bantam leagues run by the towns in the Boston area, traveling throughout the northeast on various teams, and on into high school at Austin Prep where he was named captain of his team. As a kid, he was invited to play in exhibitions on the rink at West Point, and often played on teams coached by his father. Ted Sr. coached hockey for more than 30 years, taking one of his teams to a national championship in Portland, Ore., though not a team the younger Quinn played on.

"We built our family around hockey," Quinn said. "We always went in to see the Boston Bruins and it was a big deal. Hockey was the biggest thing."

A particularly memorable moment occurred when he went to an exhibition at the Boston Garden that featured famed Chicago Blackhawk Bobby Hull performing a demonstration of an emerging hockey maneuver, the slap shot. Illustrating the event with pen and paper three decades later, Quinn recalls, "We had a high school goalie at the one end of the rink, and Bobby Hull at the other. And he hit a slap shot at the goalie that went over his shoulder and was a goal—from way down here," Quinn said, pointing at one edge of the paper. "We couldn't believe it. No way. I'll never forget it for the rest of my life."

Through his teenage years, Quinn worked various jobs—as a caddie, a lifeguard, a soda

jerk and dishwasher at a Friendly's ice cream shop, and as a summer hire in the line department for Wakefield Municipal, the local utility. Taking care of the insulators and the bucket trucks, hearing the stories from the line crews between trips to fetch them coffee (as was expected from the summer help), it was here that Quinn received his introduction to the electric utility industry and gleaned some insight into what he might like to do for the rest of his life.

The allure of nuclear

There were other factors to stoke Quinn's interest in science and engineering besides a fascination with submarines and a summer job on the utility grid. An emerging technology to generate electricity, based on controlled fission, was just becoming economically competitive as he was growing up. This process used steam to drive turbines, like other thermal power plants, but produced the steam without burning or combustion and its polluting endproducts. It used heat converted from the kinetic energy of a sustained chain reaction of splitting nuclei. These "nuclear" power plants were starting to appear across the country. Yankee Rowe, in Quinn's home state of Massachusetts, went on line in 1961. Through his teenage years, many others were in development along the east coast—Seabrook, Pilgrim, Limerick, Oyster Creek. The excitement of a new technology to produce energy was especially attractive to a kid so interested in electricity to begin with.

"Nuclear was an important new aspect," Quinn said. "In the Boston area in the early days it was so well supported . . . Science and engineering and technology were such high points that it seemed important to be involved."

He decided to enroll in the electrical engineering program at Tufts University outside of Boston. By taking summer courses, he was able to graduate with a bachelor's degree after three-and-a-half years. This slightly accelerated pace was easier to afford, but left him in the job-hunting predicament of graduating in December when most companies hire in the summer.

One company, though, arrived on campus to interview prospective employee candidates—Quinn among them. He was offered a position, and accepted. They said, "Great. You start in June."

But this company was Electric Boat Corporation. This was the free-world pioneer designer and builder of submarines. This company built the U.S.S. *Holland*, with its 50 horsepower gasoline engine, which in 1900 was the first submarine ever accepted into the U.S. Navy. This company built the U.S.S. *Seawolf*. This company built the *Nautilus*.

"So I showed up in January and started."

"We hired a mistake"

Although they didn't want him until the following June, Quinn came to work in January and made sure to point out to his employers that their contract didn't specify a starting date. "Basically, I was a mistake," Quinn said. But they found work for him to do until the Ship Engineer Program began in the late spring.

The program, in which about 30 new employees were enrolled straight from university, trains new recruits to run the nuclear plants on the submarines that Electric Boat builds. The class is divided into two four-month phases: classroom studies and on-ship training. By the end of the classroom portion, Quinn had the



A photo of the U.S.S. *Indianapolis* surfacing, signed for Quinn by its first commanding officer, Harry Salmon. The submarine is now home-ported in Pearl Harbor, Hawaii.

highest grade average of anyone who had ever gone through the program. Quinn remembers, "They were saying, 'Here we hired a mistake and he did the best that anyone had ever done.'"

Submarine construction at Electric Boat typically ran on a rigorous, compressed 14-month schedule. Because their contracts tended to be fixed and not "time and materials," they had to deliver their ship on the specified date. This required three eight-hour shift crews to constantly churn through the construction, and necessitated shift test engineers like Quinn to be on call around the clock.

For the 14-month construction of the *Indianapolis*, a nuclear-powered submarine named after the World War II cruiser that sank in action two weeks before the end of the war, Quinn supervised the reactor plant construction. Upon its completion, he led the on-board power ascension. Then, he was the senior shipyard official selected to run the sea trials—and Admiral Rickover would be on board in the stateroom.

Just don't forget the cigars

The initial sea trials were to be run to test the power plant. Weapon systems were not tested, nor were the boat's depth capabilities. It was only a three-day trial of full-speed surfaced and submerged runs to determine how well the reactor propulsion system worked. Quinn brought a team from the shipyard to join the Naval crew that would be operating the submarine.

There was one particular incident that shaded Quinn's enthusiasm for the sea trials. As a boy, besides having the opportunity to roam around the *Albacore* and look through its periscope, he encountered the U.S.S. *Thresher*, a nuclear attack submarine, gleaming in overhaul at the Portsmouth Naval Shipyard. One of the newest boats in the fleet at the time, the *Thresher* was thrilling because it was the first of a new class of submarines designed to dive deeper than any of its predecessors. On April 10, 1963, following a scheduled overhaul, *Thresher* was put to sea. Engaged in a

dive about 200 miles off of Cape Cod, it failed to surface. All hands were lost—129 lives. The *Thresher* was on sea trials.

"I said to my family, 'Off the coast of New England we'll be going in shallow water to do these sea trials and we won't sink,'" Quinn recollected. "Well, come to find that, in order to perform sea trials, you can't do it in very shallow water. You need to be out farther. So we actually went out over the continental shelf into water that's 8000 feet deep. And that's not good."

It turned out to be a safe, successful trip. During the run, the *Indianapolis* "race-tracked" in mile-and-a-half-deep water, circling and testing the nuclear propulsion plant.

Compounding his anxiety, however, was one other element deserving of Quinn's utmost attention in preparation of the trials. Admiral Rickover was going to be on board, and this meant that while Quinn could perhaps get away with forgetting to pack a toothbrush, perhaps forget some clean socks or a belt, there was one item above all else that he was *not* to forget:

"Every time a sea trial ends," Quinn recalled, "Admiral Rickover would get on the microphone that goes through the whole ship and he would say, 'I want to thank the fine people of Electric Boat and Navy program for doing such a great job. And in honor of doing all this good work I want to give out cigars to the entire crew.' And what he'd do is, he'd be holding the microphone in one hand and have his other out here. And the person who was the forerunner would hand him the cigars and he'd start giving them out.

"Well, one time, the person who was later to be my forerunner was tapping him on the shoulder saying, 'Admiral, we forgot the cigars.' Rickover was *not* happy. This was a very, very unhappy time."

"So, not only did I have to make sure that the power plant worked, but that we had cigars on board. There was not going to be a chance that we were going to forget the cigars."

Coming home on the *Indianapolis*, Quinn was sent up the sail, the steep portion of the

boat that often pierces through the surface. "We have an officer, a watch, and then they allowed a third person up there; they sent me up to look. We were coming in to New London Harbor and you get to see the waves breaking over the bow. It was one of the best experiences of my life."

Career developments

A few days before the sea trials of the *Indianapolis* began, on a Wednesday morning just before dawn in the first week of spring, the main feedwater system in Unit 2 of a nuclear power plant near Harrisburg, Pa., malfunctioned. By 8 a.m., Nuclear Regulatory Commission headquarters in Washington, D.C. would be alerted. By midday, helicopters would be circling above the plant, sampling atmospheric radioactivity. By that Sunday, the President of the United States would be escorted through the site of that system failure, wearing protective plastic shoe covers.

The accident at Three Mile Island on March 28, 1979—though betrayed by its spotlighted media attention—was harmless in its effect on the public. The President's appointed commission to investigate the accident determined that the most serious effect was "severe mental stress" that was found to be "short-lived." Undoubtedly part of the reason that the Kemeny Commission was able to conclude such innocuous consequences was because of the 12-hour-plus days put in by thousands of nuclear specialists, brought in from around the country, in the wake of the accident. Among the technicians sent to TMI-2 within weeks of the incident was Ted Quinn.

Electric Boat was known for its health physics and radiation protection services because such work is crucial to the safety of the nuclear-powered submarines that they built. The team they sent to TMI-2 was composed mostly of health physics specialists, but they included one operations person, Quinn.

Unit 1 at TMI, shut down as a precautionary measure, shared some of its systems with Unit 2. In order to ensure that TMI-1 would be able to continue to operate, some of those shared systems needed to be isolated. Quinn commuted from a trailer park set up for the recovery teams in nearby Hershey, Pa., and for a month spent his 14- and 16-hour days working with the control room staff and other outside specialists to isolate the systems. "We had very, very high-pressure roles," Quinn said. "But it was a pleasure to be one of the experts brought in."

Upon return to Electric Boat, Quinn was promoted to assistant chief nuclear test engineer and supervised three shift rotations and the conduction of primary plant testing on the U.S.S. *Phoenix*. Working during the day, he was on call through the night. The demands of the fixed-price contracts and the enormous pressures to finish projects within the given timeframe would take its toll. "I would go home, but they would call me approximately 10 times or more every night," Quinn said. "I kind of took this as, 'Is this something I want to do for the rest of my life?'"

In the spring of 1980 Quinn left Electric Boat and went to work for Quadrex, a firm that

was doing work on the Susquehanna nuclear station in Berwick, Pa. After two years of electrical engineering support activities throughout the construction of Unit 1, Quinn was asked to come to the west coast to help with the formation of a company called Start Up Nuclear. And Quinn, a New Englander not yet 30 years old, whose trips to the West never went past eastern Pennsylvania, lit out for California.

Post-TMI

The impact of the accident at Three Mile Island was not only contained within the reactor core—with negligible impact off site—but within the nuclear industry itself. Sweeping changes were brought about as a result of the incident. Emergency response planning, reactor operator training, human factors engineering, radiation protection, and other areas of plant operations were reexamined, regulations were revamped, and oversight was heightened.

The environmental qualification requirements for a piece of equipment to withstand high radiation fields, high temperatures, and high pressures were modified, and every plant in the country needed to conform. As a vice president at Start Up Nuclear (later to be named SUN Technical Services), Ted Quinn was responsible for implementing post-TMI environmental qualification-related design changes on Unit 1 at San Onofre nuclear generating station in San Clemente, Calif. He was then an instrumentation and control startup engineer during the construction of SONGS-2 and -3, which included roles as lead project engineer for all accident monitoring systems and for the installation of the critical function monitoring system and the qualified safety parameter display system. He worked on the power ascension on-shift testing for SONGS-3 during its initial startup and commercial run.

Looking for a new challenge, in 1986 he accepted a position with Pickard, Lowe and Gerrick as a senior consultant, and learned about probabilistic risk assessment techniques. After a few years of working with utilities in the application of risk techniques, Quinn decided he missed the more immediate involvement with the nuclear power plants. He missed the post-TMI modifications. "I wanted to go back and be more involved in the plants directly instead of doing the analysis techniques," he said. "More hands-on. More direct support."

Having lived near the Pacific Ocean in southern California for a few years now—the enchantments of February on the other coast having somehow escaped him—Quinn wasn't particularly interested in leaving. He took notice of a small consulting firm near his home in Laguna Niguel, MDM Services Corporation, and went to work for them in 1988.

Soon after, Adm. Dennis Wilkinson was elected chairman of the board of MDM Services Corp. It was Adm. Wilkinson, the first commanding officer under Capt. Rickover of the *Nautilus*, who uttered perhaps the most memorable phrase in the history of the nuclear Navy as the *Nautilus*—the first nuclear-powered submarine—made her way into Long Island Sound in 1955 to begin sea trials: "Under way on nuclear power."

Under way at ANS

Having joined ANS in 1982, Ted Quinn was leaving his mark on the Society by the late '80s. By decade's end, he had served on the ANS Public Information Committee and the ANS Power Division Program Committee, had served as fundraising chair for an ANS annual meeting, and had served variously as treasurer, secretary, and chair of the ANS San Diego local section. He had also presented three papers at ANS Annual and Winter meetings through 1988.

"I came into ANS and I saw a group of people who, frankly, I became friends with," Quinn said, "People would switch companies but they would never switch their allegiance to ANS . . . and this entire group would always look out

for the best interests of nuclear energy, independent of what company they worked for."

In 1991, he was technical program chair for the ANS Winter Meeting, and helped organize that meeting's embedded topical on the outlook for the next generation of nuclear plants. He was also already serving on the Power Division Executive Committee, and a year later would be working on the Planning Committee. He was elected to the Society's board of directors in 1992.

One of the ANS accomplishments of which Quinn is most proud is the Special Committee on New Construction. Formed by the Power Division at the 1990 ANS Annual Meeting and chaired by Quinn through 1993, the committee has been looking at ways to resolve the ob-

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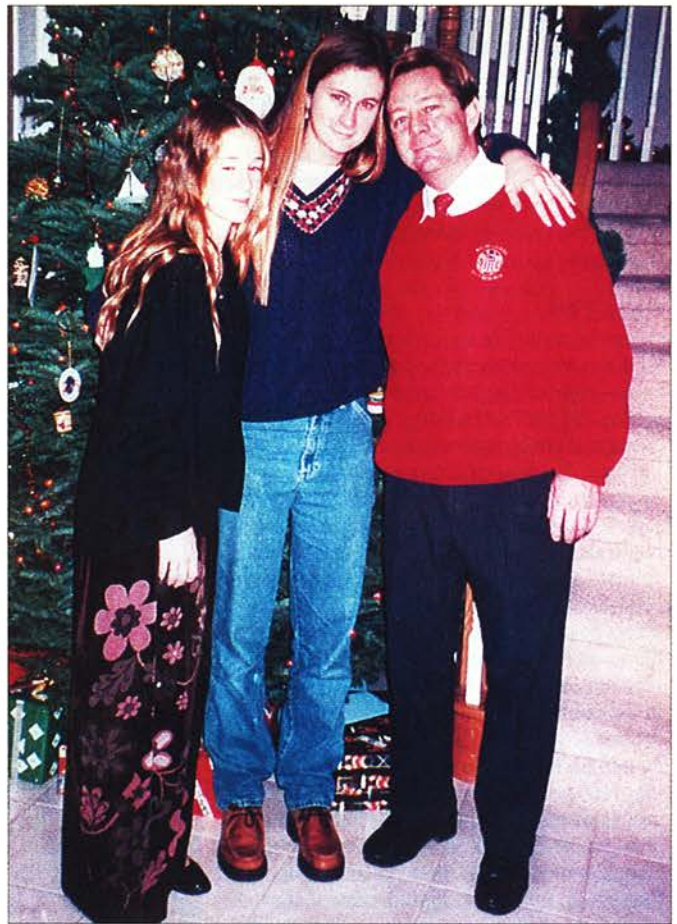




Quinn and Dixy Lee Ray



ANS Committee on New Construction members, left to right, Angelo Bisesti (who passed away in 1994), Kyle Turner, Ann Bisconti, and Quinn



Quinn at home with his daughters—Shannon, left, and Erin—last Christmas

stacles to the next order, license issue, and construction of a commercial nuclear plant in the United States. In 1991 it was approved as a special committee of the Society, and in 1994 Quinn received an ANS Leadership Award that recognized his role on the committee.

Quinn: "The industry was saying, 'Look, we can't build any new plants. We can't even support the existing fleet of plants unless we have a stable workforce that includes people coming out of universities, includes people coming out of the Navy program, includes people coming out of high school and other sources to support the growth of nuclear energy.' So we took that as a responsibility.

"To maintain a viable workforce, I think we need to build [a nuclear plant] in the United States. And we need to build soon because our workforce is aging."

In response to hearing members consistently request more ANS workshops to help them advance in their jobs, Quinn helped form the Professional Development Accreditation Committee. The goal is to have 10 professional development programs each year—five in the spring and five in the fall—focusing on such topics as preparation for nuclear engineering exams, decommissioning and decontamination techniques, special procedures for work in the national laboratories, and digital system upgrades.

"In order to get jobs, in order to expand your field, people need to know what's going on," Quinn said. "In the last year there seems to be a huge transition of people moving from

utility to utility. In decommissioning and decontamination there are a lot of opportunities . . . there are a lot of jobs out there and we need to help our members to get those jobs."

As busy as Quinn had been at ANS, he did manage to find time to devote to the commitments of his full-time job. As vice president of the utility operations division at MDM Services, Quinn helped the once small company grow into the sizable one—with 270 employees—it is today. He's been responsible for providing specialty engineering services to utility customers and overseeing company projects at all utilities.

Throughout the '90s, he has also been a summer reactor safety course instructor at the Massachusetts Institute of Technology (his father also taught at MIT) and a setpoint course instructor for the Instrument Society of America, served as an invited expert on analog and digital upgrades and licensing process for the NRC's Advisory Committee on Reactor Safeguards, been appointed project leader for the International Electrotechnique Commission's setpoint standard, served as a technical adviser to a number of U.S. utility setpoint programs, and authored six more papers on instrumentation systems that were presented at various ANS meetings.

In June 1997, Quinn was elected 1997-98 ANS vice president/president-elect.

President Quinn

One day, when Ted Quinn was driving the late Dixy Lee Ray—former Atomic Energy

Commission chair, former governor of the state of Washington, and noted environmentalist—to the airport, she turned to him and said, "You know, ANS isn't out front enough on issues. I never hear your name. I don't know what you're doing—on issues of waste management, on issues of advanced-design plants, on issues of the benefits of nuclear science. I need to hear you more out in front on issues." Quinn, recounting that story on two separate occasions over a weekend a few months ago, has taken her advice to heart.

The ANS Strategic Plan, passed by the board of directors at the ANS Winter Meeting last November, names heightening the prominence of the Society as one of the primary goals to be achieved by 2003. The plan calls for ANS to be sought after by governments, businesses, the media, and the public as the respected voice of the nuclear science and technology movement. It calls for ANS to be, as Ray once suggested, "more out in front on issues."

"Our members need to see a society that's actively promoting and out there fighting and presenting issues," Quinn said. "We need to be absolutely out front on issues."

Former ANS President John Landis prodded Quinn to include public information as an element of ANS that needs increased support. Quinn hopes to lead ANS in forming cooperative relationships with other societies—as outlined in the strategic plan—and to use these alliances, for one, to explore issues that the public needs to know about. "ANS can play a role in providing more scientific support and

research activities to understand better the effects of low-level radiation, and then to provide that information to the public," he said.

Quinn's intentions to focus on public policy issues as outlined in the strategic plan received a boost with the recent opening of the ANS Washington, D.C., office. One priority facing the nation in which ANS has a key role to play is the resolution of the high-level waste situation. "We need a clear understanding and process to address high-level waste right now, within the government's rules and regulations," Quinn said. "We need to have a near-term process that takes care of our high-level waste. I believe, moves it to a central location, and then has a permanent repository—somewhere. It doesn't have to be Yucca Mountain. But it needs to be soon. It needs to be moved forward . . . However, there are decisions that utilities need to make, that our members need make, right now, long before the repository is sited."

Quinn would also like to see the nuclear industry receive a form of credit from the government for generating electricity without producing greenhouse gases. "There has to be a credit that's provided for being a non-emissions producer. We need that. We need to get that through."

To ensure the nuclear option in the future, Quinn believes nuclear education programs will need all the support that ANS can give them. "It's absolutely fundamental that we support our nuclear engineering education, because that's where ANS started. We have 32 [university nuclear education] programs that are under enormous pressure—they're either being absorbed into other departments or they're ending their programs. We need to help them . . . We need young people coming into the programs or else we won't survive."

Perhaps the most significant outcome Quinn hopes his presidency will achieve is an increase in the number of members in ANS. "The one area that I really have a sense of urgency about is membership. We need to focus a lot of time and attention from all levels—the officers, the board of directors, the divisions, the committees, everyone who participates in governance—to get more members. We need more members." The best service ANS has to offer its members, Quinn said, is information that they can't get anywhere else. "There's no other source that provides a central forum, like ANS does, for nuclear issues."

The core goals of the Strategic Plan—increasing the prominence of ANS, expanding membership support, providing the public with easy access to information, contributing more actively in public policy matters—will require more than one year to accomplish. An important aspect of achieving those goals in the coming years is continuity between ANS presidents. As the assistant to recent ANS President Don Miller throughout his term, and as vice president over the past year to former ANS President Stan Hatcher, Quinn has been closely involved with the workings of the ANS presidency and is committed to building upon the work begun by his predecessors. "Between Don and Stan and myself, there's been a lot of agreement, a lot of continuity," Quinn said. "I think all of the work

that's been done by Stan and Don has set the stage for ANS to really expand our services and to expand our membership."

Up periscope

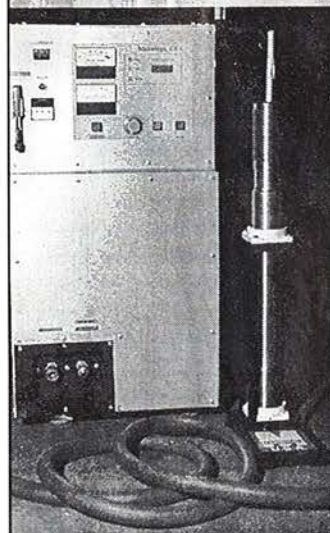
The hulking day-planner Ted Quinn carries around with him wherever he goes is likely to break a toe or two should he ever drop it on his—or someone else's—foot. His schedule, although even busier now as ANS president, still allows for some free time. Much of it he spends with his daughters from a previous marriage—Erin, 20, who attends Santa Barbara City College, and Shannon, 14, who just finished the eighth grade. They travel with him occasionally and, when at home, enjoy skiing and going to the beach.

In his other spare moments, Quinn enjoys playing the piano and reading. He particularly relishes a good thriller by Tom Clancy or Clive Cussler. In fact, he advised Cussler on the effects of radiation on the human body for his novel *Dragon*. (Cussler's inscription on the copy he sent to Quinn read, "To Ted—only you would know if this representation is correct.") And until a year ago, when traveling demands began to dictate otherwise, Quinn still played hockey in a senior league in California, and hopes to play in the league again soon.

The already considerably energized Quinn—as anyone who knows him will attest—is certain to be engaged in his coming busy days of the ANS presidency. Just watch out for that datebook.—Patrick Sinco **NW**

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