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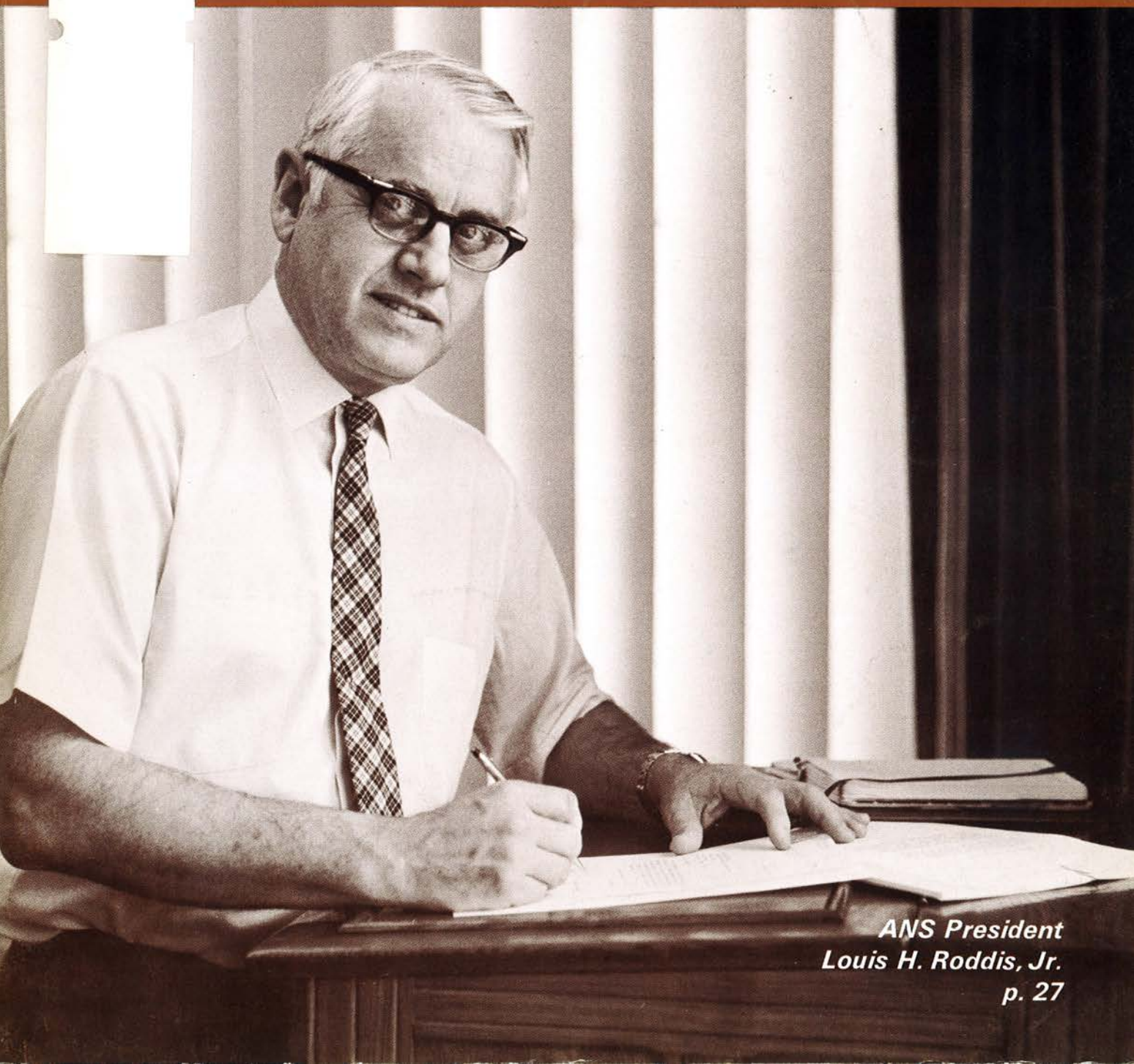

ANS President
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Responsibility in Search of a Man

LOUIS H. RODDIS, JR.

by Chris FitzGerald

Does man seek responsibility, or does responsibility seek the man? In the case of Louis H. Roddis, Jr., it works both ways. Although unpretentious and quiet in demeanor, he certainly has been aggressive in pursuing his career first in government service (Navy and AEC) and subsequently in the utility industry. At the same time, responsibility has gravitated *toward* Louis Roddis by virtue of his extraordinary mix of talents, He is at once a scientist, an engineer, a polished writer and speaker, an economist by practice if not by profession, and a skilled executive—all in all, a kind of "thinking man's utility executive."

Responsibility has been thrust upon him more heavily this year than usual. In April he left the relative calm of General Public Utilities Corporation, where he was director of nuclear power activities and board chairman and director of Pennsylvania Electric Company, one of the four companies in the GPU system, to become vice chairman of the board of Con Edison, where problems are hardly in short supply. He is scheduled to become president of the giant utility this fall, when John V. Cleary retires from that post. In addition, Roddis has accepted the task of leading the American Nuclear Society as its president during the 1969-70 term. He is the first utility executive to head the Society*, and he is also the only man to have served as president of both the Atomic Industrial Forum (1962-64) and the ANS.

A fit-looking man at fifty, Roddis carries himself with the bearing of a Naval officer. His white hair is in sharp contrast with a youthful countenance dominated by deep-set eyes and a somewhat square, firm jaw line. Something in the eyes tells you he is a man with an appetite for solitary thought, although in the presence of others his attentiveness and easy manner invite communication. When alone, he likes to work at a standup spool desk, perhaps a throwback to his Navy years.

The Navy Years

In a sense, Lou Roddis's Navy years began with his birth on September 9, 1918, in Charleston, S.C. His

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Mr. FitzGerald is managing editor of Nuclear News.

*Of the 14 past presidents, five have come from industry (but not utilities) (Chauncey Starr, M. C. Leverett, William E. Shoupp, Sidney Siegel, and Karl Cohen); six from national laboratories (W. H. Zinn, Leland J. Haworth, Alvin M. Weinberg, W. B. Lewis, Clarke Williams, and Raemer E. Schreiber); one from government (C. Rogers McCullough); and two from universities (Manson Benedict and Norman Hilberry).

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father was a Navy doctor, and life for young Louis and his brother Richard† was typically one of moving about continually. After Charleston there were other way stations—San Diego, San Pedro, Newport, R.I., Quantico, Va., Bremerton, Wash., and Washington, D.C. The recurrent home base, however, was St. Paul, Minn., where Roddis's maternal grandmother lived. Sentimentally, it was home for his father and his mother, the former Winifred Emily Stiles, who had attended the University of Minnesota together.

Moving about apparently did not hamper Lou Roddis in obtaining a good education. He was graduated from high school at the age of 16 and had attended 19 schools in the process. In 1935 he entered the Naval Academy upon winning the sponsorship of Senator H. Shipstead (Farmer-Labor Party, Minn.) in a competitive test. He enjoyed his years at Annapolis, working hard but getting in a lot of sailing and performing as a coxswain on the crew. The hard work brought results, for Roddis was the honor graduate in the Class of 1939.

After graduation he was assigned to sea duty for about three years and was in Pearl Harbor on December 7, 1941. He spent most of that day, after the attack, trying to free crewmen of the *Oklahoma,* which had rolled over. He and others from the neighboring *Maryland* worked on the bottom of the stricken ship cutting holes through which to bring out the living and the dead. Thirty-one were rescued.

About the middle of 1942 Roddis was directed to take postgraduate studies at Massachusetts Instiute of Technology. After two years he received his master's degree in Naval Architecture and Marine Engineering. His thesis: "Modern Airfoil Theory as Applied to the Design of Wide-Bladed Marine Propellers."

Roddis was next assigned to the Philadelphia Navy Yard, where until the end of the war he engaged in general repair work. In December 1945 he was ordered to Joint Task Force I on the staff of the commander of the Bikini atomic weapons test. Specifically, he was aide to Rear Admiral T. A. Solberg, director of Ship/Material.

This experience served as a kind of introduction to a program of nuclear studies that was to set the course of Roddis's career. In August of 1946 he was one of eight men who took part in the first training course on power reactors at Clinton Laboratories of the Manhattan Engineer District (later to become the Oak Ridge National Laboratory). Among his classmates were fellow Naval officers H. G. Rickover* and Jim Dunford and civilians Everitt Blizard and Al Amorosi. If his colleagues were to become illustrious, his mentors already were so: Eugene P. Wigner, Alvin Weinberg, Donald Glenn Rose, Fred Seitz, Harry Soodak. The classes were a part of a reactor development program then being conducted at Clinton Laboratories—specifically, the Daniels pile project. In addition to Farrington Daniels, this project occupied the efforts of C. Rogers McCullough and John W. Simpson, among others. The Daniels pile, as conceived, was a high-temperature (1500°F) gas-cooled reactor with a beryllium reflector. In his training status Roddis worked on this project, but after a year, with the establishment of the AEC, the power reactor work was discontinued, and full attention at that time was

†Now a professor of law at the University of Washington and formerly insurance commissioner for the State of California.

*Roddis recalls with amusement how Rickover let it be known to his four fellow officers that he was in charge, although ostensibly they had been assigned to the program as equals. "In the first five minutes," Roddis says, "Rickover told us he was writing our fitness reports."

Symbols of Roddis's career: He helped to power the Nautilus, and now as a Con Edison manager he is helping to power New York City

given to weapons development and production.

The reactor training bore fruit, however, because Roddis and Rickover were ordered to the Bureau of Ships in Washington, D.C. Rickover, who was made assistant to the chief of the Bureau, and Roddis worked "across the hall" from each other and were in close contact during this period (1947-49), when the initial planning and designing of nuclear ship propulsion was undertaken.

By 1949, the AEC was clearly on top of the weapons program, and the Navy was making up its mind about nuclear propulsion. The decision, of course, was made to go ahead, and at this stage the Division of Reactor Development was formed within the AEC. Rickover and Roddis were assigned to the Division at its inception while continuing to serve in the Bureau of Ships. Roddis worked in this dual capacity from 1949 to 1955, during which time he was associated with the development of the *Seawolf* and the *Nautilus,* as well as the aborted nuclear carrier whose power plant wound up eventually as Shippingport, 90-Mwe power station built jointly by the AEC and Duquesne Light Company. In this work he functioned in many different roles—design administration, project officer on the *Seawolf* and on the *Nautilus,* and, in general, Rickover's right hand man. Wherever trouble cropped up, Roddis was usually sent in to work things out. For instance, he saw to the redesign of the control drive mechanism for the Mark I STR (Submarine Thermal Reactor), which later became the *Nautilus* plant.

Of his relationship with Rickover, Roddis says, "He was a good man to work for. You did what he *wanted* you to do—which wasn't always what he *told* you to do. We got along real well together."

In 1955, when the *Nautilus* went to sea, Roddis resigned from the regular Navy and became deputy director of the AEC's Division of Reactor Development under the newly appointed director, W. Kenneth Davis (now a vice president of Bechtel). Roddis held this position from 1955 to 1958. He figured significantly in getting a number of programs started during that period —e.g., the nuclear rocket project, the NS *Savannah,* the nuclear safety program, and the civilian power demonstration program. He also took part in setting up the Commission's educational assistance program.

Group that worked on the Mark I Submarine Thermal Reactor (Nautilus): (l. to r., front row) Lt. W. H. Layman; Adolph Toepfer, Westinghouse; Lt. Cdr. E. E. Kintner; Cdr. Louis H. Roddis, Jr.; Lt. D. Brooks; (second row) W. A. Johnson, Westinghouse; R. C. Cunningham, Westinghouse; unidentified; Lt. L. D. Kelly; B. F. Langer, Westinghouse; Thomas E. Murray, AEC; Sid Krasik, Westinghouse; W. E. Johnson, AEC; unidentified; Rear Adm. H. G. Rickover; Lt. Nicholson; John W. Simpson, Westinghouse; Cdr. J. J. McGaraghan; Cdr. James M. Dunford; and A. A. Wood, electrician, USN

Private Industry

In June 1958, Roddis left government service to enter private industry. The announcement of his selection as president of Pennsylvania Electric Company came while he was out of the country—delivering a paper at the Geneva Nuclear Conference. Although he says that his nuclear background was not of paramount importance to Penelec (they wanted him for his business management ability), he has served as director of nuclear activities for the General Public Utilities Corporation, of which Penelec is a part. As such, he had primary responsibility for work being done on the system's three nuclear power stations—Oyster Creek, Three Mile Island No. 1 and No. 2—as well as the Saxton research reactor operating on Penelec's lines and the GPU-North American Rockwell prototype fast breeder reactor, also planned for installation on Penelec's lines.

During his years at the helm of Penelec, he directed the construction of the world's first 500-kv transmission line, which proved the feasibility of transmitting large blocks of power long distances and opened the way for construction of multi-megawatt generating stations remote from load centers. For this and other achievements the company received the industry's EEI Edison Award in 1962.

Much of his work has been distinctly non-nuclear. Three large mine-mouth stations located on top of west-central Pennsylvania's fuel reserves will, when completed, create the nation's largest coal-burning power centers. The company has also studied methods of reducing ground-level concentration of particulates and sulfur gases.

In 1967 Roddis became chairman of the board of Penelec and thus a member of the GPU corporate staff. He has also served on the board of directors of the Hammermill Paper Company and the Utilities Mutual Insurance Company and was formerly a member of the board of the United States National Bank in Johnstown, Pa.

Con Edison's hiring of Roddis is the culmination of a management revitalization program carried out under the leadership of Charles F. Luce, chairman of the board since August 1967. By reducing the mandatory retirement age from 68 to 65, the utility created hundreds of openings in its

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senior and middle management ranks. In the now almost completed rejuvenation drive, 332 men and women were promoted within the company's management, and 64 new men were brought in from the outside. Two other newcomers with strong nuclear experience: John Conway, 44, executive assistant to the chairman, formerly executive director of the Joint Committee on Atomic Energy; and Bertram Schwartz, 37, special assistant to the chairman, former assistant to the president and marketing manager of Nuclear Materials and Equipment Corporation and, prior to that, chief of the AEC's Chemical Processing Branch.

The company needs all the expert help it can get to solve its present problems and those of the next decade. As Luce reported to the stockholders at the annual meeting in May, "The management of your company is painfully aware of the need to improve its earnings. We are painfully aware of the fact that, while many industrial stocks have risen to new highs, Con Edison's stock has dropped from $45 to about $33 in the past five years, and the rating of its first mortgage bonds has dropped from AA to A. Con Edison ranks lowest in earnings of the big ten utilities by a distressingly large margin." The company earns 5.6 percent on each dollar of investment, as opposed to an average of 7 percent enjoyed by the other nine.

Increases in wages and benefits amounting to over $21 million and increased taxes of over $11 million make the prospects of improving the profit picture extremely dim, even with a proposed reduction in manpower of some 2000 positions in 1969.

Luce announced the need to build a new fossil-fired station of 1200 to 1600 megawatts capacity by 1974 to meet the area's needs and make up for delays in the nuclear generating program and in the ill-fated Cornwall pumped storage station. Ironically, a new fossil-burning unit runs counter to the company's nuclear power program and its efforts to reduce its contribution to the city's air pollutants.

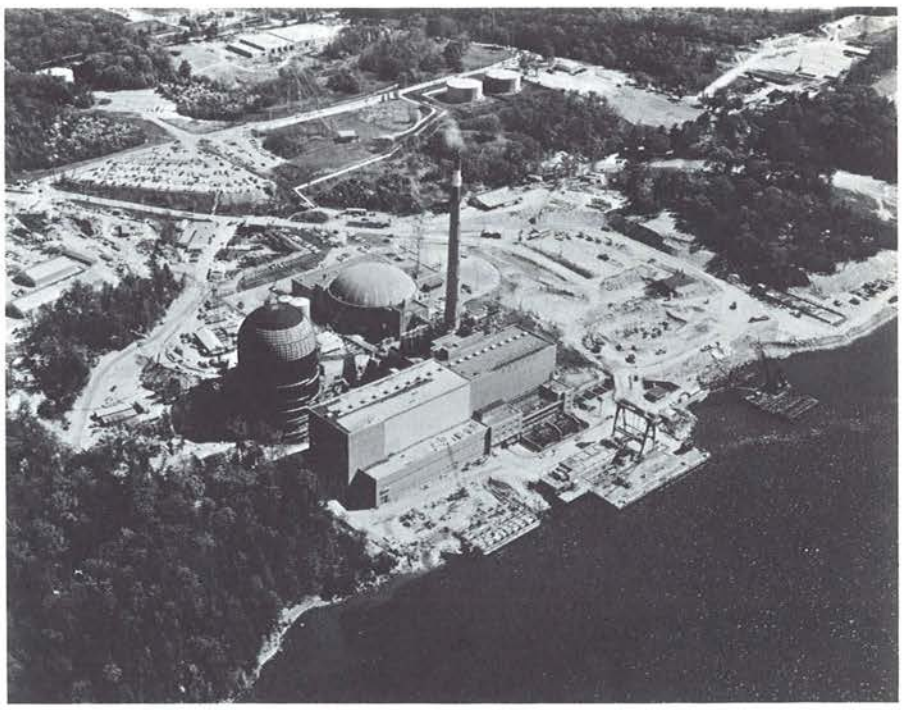
Indian Point No. 2 and No. 3, both rated at 1000 Mwe, have fallen behind schedule. Originally slated for completion in June 1969 and June 1971, respectively, it is now expected that No. 2 will not go on the line until 1971 and No. 3 not until the spring of 1973.

Another setback in its future generating capacity plans came when New York State Electric and Gas shelved its plans to build the Bell station on Lake Cayuga because of unresolved environmental problems. Con Edison was to have purchased 600,000 kw from this station in 1973, '74, and '75.

The 2000-Mwe Cornwall pumped storage hydroelectric project has been an especially disappointing experience for the company. In 1965 a license for construction granted by the Federal Power Commission was set aside on an appeal by a federal court, and the matter was returned to the Commission for further hearings. Despite the company's agreement to put the powerhouse underground, it has been opposed by the Scenic Hudson Preservation Society and other citizens groups. Last August an FPC hearing examiner again recommended that a construction license be issued, but proceedings have been reopened on another petition—this time by the City of New York, which alleges that one of its water supply systems might be damaged by construction of the powerhouse at the recommended site, about 50 miles north of the city on the Hudson. The company's investment in this project, designed to provide peaking power, was $16,200,000, as of December 31, 1968. Originally scheduled for completion in 1967, Cornwall is now expected to go on the line no earlier than 1977.

So problems are plentiful indeed, and the management skills of Lou Roddis and his colleagues will be put to the test continually during the forthcoming years. Judging by his past accomplishments, he should prove up to the task. In addition to credentials already cited are the following: member of the National Academy of Engineering; director of the Engineers Joint Council; author of more than a score of technical papers (see box for samples of his writing), including the section on "Nuclear (Atomic) Power" in *Mark's Standard Handbook for Mechanical Engineers;* consultant to several government agencies; and recipient of the AEC's Outstanding Service Award in 1957. He has also been active in several professional societies and community organizations. He has just moved with his wife and children into a home in Rye, New York.

A man of many talents, a man of many responsibilities—Lou Roddis is a most worthy holder of the American Nuclear Society's highest office.



Con Edison's Indian Point site, where three reactors eventually will be in operation. Unit No. 2 (taller dome at left) is now under construction

To Quote Louis H. Roddis, Jr. . . .

It has become so fashionable to discuss the impact nuclear power plants have on the environment that one sometimes gets the impression that if only electric utilities would go away, the nation's countryside and waterways would remain stable and undisturbed. But of course, this is not so.

We can't have a totally undisturbed environment if our civilization is to continue the process of life itself above poverty and drudgery. Electricity is an important factor in this process. History shows that the quality of a civilization is directly related to the energy available to it. The solution to the problem of changing the environment is not to stop change but to make the change properly.

—From an article entitled "Let's Put Perspective in Nuclear Plant Siting," Electrical World, *April* 14, 1969, *p.* 78.

Coal and uranium will continue to battle for base loaded generating stations with the competition forcing each fuel to seek additional cost reductions. Prior to Oyster Creek coal costs outside producing areas approached 35¢ per million Btu. The national average cost in 1966 was down to 24.5¢ per million Btu, and coal has been offered as low as 14¢ to some mine-mouth stations.

Nuclear fuel costs have dropped below the 20¢ per million Btu level and are headed for the 12¢ level. It is possible that coal can equal or better that figure at the mine mouth. However, transportation costs, either by unit trains or extra-high-voltage lines, will increase the delivered cost.

Oil will not be able to compete on an economic level and will be used primarily where air pollution must be reduced or where quick startup is required to meet peak and emergency needs. Outside of production areas where it obviously has economic advantages, gas will be used only for peaking purposes.

Breeder reactors will be operating by 1980 at costs comparable to thermal units. Their capital costs will be approximately 25 percent higher while fuel costs will be lower. Equal bus bar costs will result at a price of $6 per gram for fissile plutonium.

An improved fast breeder about 1985 will reduce energy cost to approximately 3½ mills per kilowatt-hour. This prediction envisions a plutonium price which will produce a balance between thermal and breeder reactors by the end of the century . . . .

Americans will be using five times as much energy by the end of the century, and more than one-half of it will be in the form of electricity. The combination of convenience and economy will stimulate progress . . . .

Power reactors will become the center of community development. Their output of electricity will be so generous and cheap that living, working, and recreational activities will be heated and cooled to one optimum comfort level. Work will be of the automatic variety and transportation always will be available. The centering of activity around a power reactor will be a complete switch from today's avoidance of metropolitan siting.

—"The Industrial Future of Power Reactors," a speech given before the Health Physics Society, Washington, D.C., June 20, 1967.

Because savings of great magnitude are possible with fast breeder reactors, I look for their introduction sooner than is generally forecasted. Prestige as well as pennies is involved in finding a more efficient method of utilizing the energy in all present-day fuels.

With water reactors using less than two percent of the energy contained in natural uranium and driving turbines at pressures and temperatures below top cycle efficiency, and with coal-burning plants rejecting more energy than they utilize—all in a society that is proud of its technical achievements—it is difficult to see how scientists can be satisfied not to develop a more efficient method of utilizing natural resources.

It is an oversimplification of conditions to even indicate that such a vexatious concept as a breeder reactor can be developed wholly with desire. However, it is interesting to speculate that we would have a breeder reactor today had the concept been given the same type of persistent and demanding attention that Admiral Hyman Rickover gave water reactors . . . .

To me the future availability of nuclear fuel is controlled by the same factors as the development of an FBR—namely, pennies and prestige. The recent history of energy development in the United States, Canada, and most of the world's more advanced nations has been that consumption is determined by the uses found for it rather than by the supply . . . .

It is my opinion that increased drilling activity and improvements in mining technology will provide additional sources of nuclear fuel to meet increasing consumption. It may be in the form of uranium, thorium, plutonium, or some other isotope that today has no appeal. When the use develops, the prime energy will be made available.

—"Pennies, Prestige, and Plutonium," Transactions *of the American Nuclear Society and Canada Nuclear Association, 14th Annual Meeting, Toronto, Canada, June* 1968, *reprinted in* Nuclear News, *February* 1969, *p.* 32.