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NUCLEAR POWER AND BREMERTON

by

H. G. Rickover

I am happy to be back in the home territory of my good friend Henry M. Jackson and to speak to his many friends. I should like first to pay tribute to him and to the members of the Joint Committee on Atomic Energy on which he has served since 1949. The United States now has in operation 19 Polaris and 20 nuclear powered attack submarines. We also have the nuclear powered aircraft carrier ENTERPRISE, the cruiser LONG BEACH, and the destroyer leader BAINBRIDGE. Under construction or authorized are an additional 22 Polaris and 25 attack submarines and another destroyer leader. For all this we must give great credit to Senator Jackson and his colleagues on the Joint Congressional Committee.

I speak from personal experience when I say that without the support he and other members of this Committee have unfailingly given, conversion of our Fleet to atomic energy would have been delayed and might have come too late to be of use to the United States.

As a member of the Senate Armed Services Committee he has been a leading advocate of strong defense forces. He has fought for stepping up our missile and space programs and for modernizing our Army.

His service does not stop here, as the people of the United States and of this State know. As Chairman of the Interior and Insular Affairs Committee he has been a leader in the fight to preserve our natural resources; to make it possible for our children to inherit America's "rocks and rills" her "woods and templed hills."

govern an industrial democracy as large, as heavily populated and as diverse as ours
task of unparalleled difficulty and has no precedent. Senator Jackson has been
conducting searching investigations into Government administration, operation and staffing.
his work in these areas has been acclaimed nationally and has resulted in reforms in the
way national policy is formulated and in the way the Government conducts its business.

I feel compelled to add a personal note. Had he not undertaken^R my defense when the
Navy wished to have me leave it I would not be here today. So to the thanks due him by
the people of his State I wish to add my own gratitude. It has been a privilege for me to
be able to go to so fine a friend and patriot for advice and help.

Because all of you are interested in the Navy's nuclear propulsion program I thought it
would be appropriate to give you a brief summary of what has been accomplished technically
over the past few years. Then I will comment on your own activity in this area.

Beginning with the NAUTILUS we have placed great emphasis on reducing costs. An
example of cost reduction we have achieved is our experience in procuring reactor cores--
the heart of the reactor plant--over the past ten years. Today, because of improved
design and manufacturing procedures, cores similar to the one in the NAUTILUS cost only
one third as much.

In addition to reducing cost, we have also made significant advances in the energy
contained in the cores. To illustrate this point, the nuclear powered aircraft carrier
ENTERPRISE has eight reactors. Our latest design of aircraft carrier power plant can do
the same job with four reactors. And each of these reactors will last twice as long.
My object is to design cores which will last the life of the ship, and we are well on our
way to achieving this aim.

In general, the cost of cores per unit of energy generated has been reduced by a factor
of ten in a period of ten years.

another example of cost reduction, I will cite what has happened in the case of reactor plant equipment installed in a nuclear submarine--not just the cores. The cost of this other equipment over the past ten years has been considerably reduced. You should keep in mind that during this time we and the manufacturers were learning a great deal from our early mistakes, so even as costs were being reduced quality was being increased.

I could cite many details such as this, but time does not permit. However, one of the most significant achievements of the naval nuclear program is the development in American industry of capability to produce components and equipment to the high quality standards necessary for our nuclear plants. In effect, a new industry had to be developed. Ten years ago no companies were producing equipment to the specifications we needed. Standards for welding, forging, machining, radiography, cleanliness, and means for their enforcement--and I could go on and on--had to be worked out. To give you some idea of the scope of this effort, about 725 commercial vendors participate in the naval nuclear propulsion program. These standards of ours have influenced not only industry, but shipyards and Navy yards as well--as those of you who are concerned with this Yard surely know.

Now for Bremerton. In November 1961 your Yard was asked to develop capability to overhaul nuclear submarines. Senator Jackson took the initiative and was responsible for providing you with this opportunity; it took a great deal of hard work on his part. During the past two years, progress has been made in achieving this overhaul capability. Congress has provided funds for facilities which should be completed this year. Efforts are underway to select and train engineers for technical direction of the work. Training of the crafts to develop the special skills for this type of work has been going on for over a year. Progress is being made but the job is still far from done. You are experiencing difficulties similar to those encountered by other yards. Only through intensive effort and much training can you become ready.

area in which more effort should be made is quality control. An alert, edgeable, motivated work force must be built up that will assure we get the high quality work essential for nuclear submarines. Nuclear propulsion plants are designed, and must be built to operate safely and with highest reliability. And this same special care is also important during an overhaul. There is no margin for error because nuclear submarines are required to operate continuously submerged, far away from repair facilities, for sixty and more days at a time.

I don't have to tell you that shipyards are being looked at to eliminate those in excess of the Navy's needs. Naval shipyards are finding themselves in competition not only with each other, but with private yards as well. From my experience in the Navy's nuclear propulsion field I can venture a few applicable comments--comments that apply to all yards, Government and private. In fact they apply to all forms of manufacture and repair.

First, producing a quality product is no simple task. Systems and equipment are becoming more complicated with every new design. Just last week Admiral Curtze, Deputy Chief of the Bureau of Ships, noted that the Navy intends to "declare war on what it considers generally shoddy products of American industry." Remember that naval shipyards are part of our American industry and must share in the blame. The shipyard is the final assembly point of all the thousands of pieces of complex equipment in a modern warship. When a ship leave the yard its systems and equipment must be in top working order. However, in many instances ships depart from the yards on the basis that the "ship's force can work the bugs out at sea." The fact is that the bugs don't get worked out-- frequently they get worse. Bremerton is probably no better or worse in this respect than other yards. As competition becomes keener those yards not capable of producing or repairing ships ready to fight will probably not survive.

Second, Government shipyards are being watched as to how they compare with private yards. Recent surveys indicate that for new ship construction, Government yards average ten to 30 percent higher costs than private yards. Perhaps all pertinent considerations

not taken into account in arriving at these figures, but you'll have a hard time convincing people that costs in naval yards can't be reduced substantially, and with no sacrifice in quality. Senator Jackson, when he was last here, went into great detail on this subject. I can only re-affirm what he told you.

And now I come to a point I made when I was last here, in October 1962--the responsibilities of and challenges to the Shipyard civilian management. Not enough improvement has taken place in this area. There is nothing you can do about military management of naval shipyards, for that is not within your control. However, you can develop effective civilian managers to provide the continuity that is needed. Shipyard Commanders, Production Officers, Planning Officers, all cycle through your Shipyard frequently. They have an intense interest in the Navy and in the particular yard they manage, though it is naturally not possible for them to feel as close to the problem as those of you who live here all your lives and must depend upon the Yard for your livelihood.

From many years of experience and observation of private and Government yards I have come to the conclusion that the men who do the actual work are, by and large, just about the same at all of them. The difference is in the leadership. When the Leadership is intelligent, alert, alive to its responsibilities, the work is done well and efficiently. Where it is not, there is poor work at high cost. Therefore, it is this civilian management who must provide the driving force for quality and economy. It is they who must act as a back-up to the transient military management. I am sure that the Shipyard Commander, Admiral Schultz, agrees with what I am saying and will help to the fullest in this regard. He too wants the best for Bremerton.

I would not be candid if I did not tell you that I do not believe the civilian leadership at your Yard has taken all the interest they should. It seems they expect that a fairy with a magic wand will always be around to take care of things. They do not seem to face up to the facts. As Goethe said: "It is the truth, but not for us." Possibly they believe the platitudinous statements made by visiting dignitaries on official

ons such as launchings and other ceremonies--when they tell you how good you are. Puget Sound has a reputation for doing good work on surface ships. It was the principal West Coast battleship yard when the battleship was supreme. As battleships faded into history, the Yard took on carrier work. Now you are moving into submarine work. You cannot afford to rest on your oars--on your past reputation.

Senator Jackson has given you the opportunity to take this important step which can mean so much for each of you and for your neighbors. But no one, not even Senator Jackson, despite the outstanding job he is doing for you, can help you if you do not help yourselves.