



THE OCEANS: OUR NATION'S BUSINESS

An address by
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The United States is in a second War of Independence. I begin to wonder if in 1976 we will have a celebration or a wake -- whether 1976 will mark the end of 200 years of independence for the U.S.

Will our dependence on imports of vital resources from other parts of the world make us dependent on the whims of others? I count about 13 basic materials without which manufacturing industries can't operate in our country. And if we define "dependence" arbitrarily as importing 50 percent of any of these, then we were dependent on four in 1950 and on six in 1970. By 1985 we will be dependent on nine. And by the year 2000 we will be totally dependent for almost all, except those things made of rock, sand, and vegetation.

With these resources now coming in on foreign bottoms, do we not indeed return to the status of a colony? Others can turn off the spigot of our vital needs at the source or they can cut off the transportation of these resources to our shores. Finally, they may impose blackmail prices constituting, if you will, taxation without representation -- the thing we fought against 200 years ago.

Should we not recognize the seriousness of this and admit that we are in a peaceful (hopefully) second war of independence -- a war for our economic independence?

Well, what to do about it? In our past years of true independence we built a navy second to none. We fished the world oceans as expertly as any. Our Clipper ships were the fastest freight carriers on the sea. We had at that time total sea power, not only militarily but economically.

Now we have one-third of this sea power. We still have a Navy, thank God. But we buy fish and other sea resources from other nations when we could reap them from the sea ourselves. The balance of payments alone is immense and is worsened when we cannot even carry goods home in our own ships. With two-thirds of the sea utilization missing, we are no longer a major sea power.

In the one area where the U.S. leads the world in development of economic resources from the sea -- offshore finding, drilling, and production of vital petroleum -- we are hampering our own industries by over-control and are driving them from our shores. Thus, they use our technical strengths in other countries for benefits accruing there and increase our dependency.

The grand American Sea tradition of a hundred years ago, which bred the pride in our Clipper ships, our fishermen, and our Navy, is being eroded to nothing. We must re-establish the U.S. tradition on and in the seas. Such a tradition can rest only on the reality of superior achievement.

ECONOMIC WAR

I look at it this way: we passed from a global hot war of the '40s into the global military cold war of the '50s and then into the global economic war of the present. We had better recognize this last as a hot global economic war which we must wage using extraordinary measures to preserve not only our independence, but our very survival. And as in all wars, the seas play a vital role in this kind of a struggle. In military wars, such as World War II, people erroneously thought that more controls were imposed upon them. But the controls they noticed were small ones such as rationing and travel restrictions. The real fact is that in a crisis the large controls -- very large controls by government, by labor, by industry -- were relaxed in the face of the necessity of meeting the vital challenge.

In this global economic war, in which the sea plays such a large part, similarly we must

have less controls or different controls. We must have more incentives so that we can utilize American initiative and imagination to its fullest extent by new synergistic combinations of our strength in industry, in government, and in our universities. This necessitates a relaxation of hampering, archaic legislation and a revision of controls of the greater agglomerations needed to accomplish the huge task. That task is to engineer the oceans, both for present productivity and for their protection for continued productivity.

It is possible to have a new miracle of the bread and the fishes, multiplying them by the use of our tools -- technology and science. I quiver when people use that hackneyed phrase, the oceans as a storehouse of resources. A storehouse is a thing you keep locked up; and if the ocean is a storehouse of resources, other nations are burglarizing the storehouse. We must regard the oceans as a huge, marvelously productive mechanism if properly understood and industriously operated in a business-like way. We must invent some assurances that investment in the sea can be protected long enough to assure a return. The sea can then supply us continually with many of our needs, and it can be a vital factor in preserving our economic independence.

In World War II, the hot global war, everyone pulled together and there were remarkable achievements due to the close knitting of four components in our society: the military, industry, business and the universities. So successful was this union that it led afterwards to efforts to destroy this productive synergistic combination. The military-industrial complex became a bad word. Yet, can you imagine a military not supported by industry? Industrial-university research and development cooperation was criticized almost to the point of destruction. Yet what good are the most brilliant discoveries unless they can be translated by people through their industry into products enhancing their own well-being?

Here I should define what I mean by "industry" because "industry" is also sometimes used as a bad word. The true definition of industry is "the employment of our skills to purpose." And when we refer to "industries," we have simply institutionalized a mechanism for applying our skills to the best purpose.

STONE AGE REVISITED?

Is the United States ready to see itself cut off from vital supplies by the actions of others? Are we prepared to enter a new stone age with everything built of stone, cement, plastics and wood, derivable from the things we still have left in plenty: rock, sand, and vegetation? And even if we were able to accomplish this and devise a new stone age, where would we get the energy to accomplish it?

In the past, we have had periods of self-imposed isolationism. Are we going to find ourselves in a new kind of isolationism imposed by others?

Some people criticize India because it has so much of its needed protein locked in its holy cows. But are we in the U.S. not in danger of breeding more and more idealistic holy cows which equally sap our sustenance? It's popular to knock private holdings of any kind and to believe that land and other things that serve the public serve best if owned by the public. This is a great mistake. Garrett Hardin has pointed this out in a brilliant paper called "The Tragedy of the Commons." Common ownership does not stimulate development.

EXPLODING SOME MYTHS

It's popular to think of the sea as a "common heritage of mankind." It's a great ideal. But, practically, this ideal makes it easier for those who flout the responsibilities of common heritage, such as those nations who are still hunting whales to extinction.

Live whales are indeed unique, not only from a humanistic point of view — but also from a pragmatic point of view. As an engineer, I admire them because they gather, filter, and concentrate the protein of euphasid shrimp far more efficiently than any machine man can devise. We should be breeding whales to crop the scattered pasture of the sea as we breed domestic animals that live off the pastures of the land.

It is popular to take shots at corporations that work in many lands today and facilitate the exchange of goods from one land to

another across the sea. Multinational corporations should not be discouraged merely because a few have transgressed propriety. They must be encouraged as important positive defense mechanisms in the global economic war. Foreign firms are now buying up our industries because they are not constrained by archaic anti-trust type laws which hamper synergistic combinations of our own U.S. industries.

It is popular to use the term Japan, Inc. in a derogatory fashion. But are we not envious of the strong sensible partnership between Japanese industry and government?

It is popular now to say that the oceans are a common resource for all mankind, but should we not use this resource to the maximum, compatible with its preservation? You can only go slow on using a resource if you own it completely and can hold it as a reserve. If the resource is common, you had better be best at using it.

It is popular today to recognize the need to conserve nature. But, the best conservation is taking renewable crops efficiently and economically and using all our ingenuity to increase and improve the renewal process. If you take nothing from the land you have neither the incentive nor the wealth to conserve and renew it. So it is with the sea.

It is popular today to talk about zero risk, zero effluents, and zero pollution. I was one of the first to write about the necessity for waste management — the positive connotation of this negative word "pollution." But, zero is a mathematical abstraction. In order to achieve zero risk, zero effluents, and zero pollution we must have zero productivity. It's popular to exhibit a great deal of concern for the quality of the environment, and this is excellent. But I simply hope that we will balance the necessities of economy with the necessities of that newly discovered word, "ecology."

In fact, I coined a word for that — the word is "ecolibrum." We must regain our ecolibrum and balance with ecology. Nowhere is an ecolibrum position more needed than in the sea. This return to reason, to balance, to ecolibrum, is crucial if industry is to purposely employ its skills.

USING THE SEA

The sea gives us space. Let's use it. We have a good start in the Coastal Act. Yet the coastline is just a line. We have succeeded in extending that line inwards to where people want to live and in preserving it for people's living. But very little attention has been paid to extending that line outwards, out to sea, and utilizing the space that we have at sea, not only for recreation but also for our industries and for other activities that enhance the well-being of man. I am sure these purposes can be engineered properly so that we use the sea and at the same time preserve it for continued use.

What about travel on the oceans? As I went over to Europe this past month, I noticed all the students who flew over at practically supersonic speed and then got on bicycles to tour leisurely around Europe. I think the travel of these youngsters is a wonderful thing and terribly important to preserve — but why couldn't we have ships with very moderate accommodations to take them across with greater economy of energy and money and then they can ride their bicycles? Why should we use scarce energy to rush people overseas so they can tour leisurely on bicycles, especially people who are sensitive about not over-using energy?

Oil, of course, is moving out to sea, and there are constructive things which are going on to facilitate its movement out further from shore and deeper below the water. This movement is accelerated as insurance rates against the ravages of wind and wave go up as you go further out to the sea. Seattle has a great controversy going on about the deep water port. It is not a question of whether we need deep ports. We need them and need them urgently.

We ought to be learning how to build deep ports so that they can be clean, beautiful things, and have other purposes in addition to being a port. A port does not have to be a dirty thing. It does not have to pollute. It can be modern and clean with museums and other things surrounding it attracting landlubbers from inland and renewing a feeling of pride in our great sea tradition. That's just part of good engineering in the future: aesthetics, cleanliness and service to people.

When I'm in Seattle I always think of its marvelous industry that has contributed so mightily to the fact that almost everything that flies over our globe flies on U.S. bottoms. If that is true, if we can have an industry do this, why can't we stimulate our ship-building industry so that much that floats at sea floats on U.S. bottoms?

We have spoken of fish and the importance of fish, and I have said, "let's go out and out-fish them." That's the only thing to do. As long as this ocean farm is common to all we have to use it better than others.

One of our holy cows is that we don't put heat into our waters; and badly needed power plants are held up because of this notion. We can put heat into the waters and carefully design the introduction of this heat so that, far from being non-productive, it can increase the fertility of the sea.

We must recognize that the sea, by nature was always a great sink and a source of heat. We must emulate nature and use it properly as a sink and a source of heat now that we need to dispose of large quantities of heat.

I am not afraid of re-engineering the general circulation of the atmosphere and the ocean, if it becomes necessary, and putting heat in different places; as long as we are capable of turning off this great experiment.

Senator Warren Magnuson has said that we must have national policies before industry proceeds. I would say, rather, that even in the absence of policy, we should go ahead on the grand experiments, provided we have designed the off-switch before we turn on the on-switch, in case we make mistakes.

This is how the U.S. can take the big jump. What we need are greater policies linking government, industry, business, and the universities. National Oceanic and Atmospheric Administration is the glue to bind these together. I know that the dimensions of the task for the proper use of the sea are so great that government's initiative must be as large and as daring as former national goals in space and atomic energy. They must be on a time scale that is both realistically long enough to achieve the aims, yet realistically short enough to meet the urgency.

The industrial effort is too large to be undertaken by even the largest of our industries alone. We will also need to abandon old social assumptions concerning the evils of size and cartels. Rather, we may need far from discouraging partnerships of our largest industries — to encourage consortia of industry, taking lessons from the space program to achieve our ocean goals.

The basic underpinning of science requires that universities move forward and work together — not separately.

In summary, the size of the job to be done requires new crossings, new meetings, new agglomerations of government, business, universities, and industry, each reinforcing the others in positive effort.

I remember one day driving in Florida where there was a railroad grade crossing. When we got to this level crossing the gate on our side was up and the gate on the other side was down. Well, what do you do? Do you drive the car across the tracks and open the other gate, or do you prudently wait where the gate is up? We waited. Pretty soon an official of the railroad came along and I said, "What gives here? You've got one gate open and the other one closed."

He said, "Well, I'm half expecting a train."

It seems to me that in many great projects we haven't set our goals high enough. We are half expecting disaster, and we are not half planning for it.

If we are to win the war for economic independence, we must rapidly come to agreement on at least two critical questions: How can we employ our skills to purpose? How can we combine in positive efforts toward the common national goal of utilizing the oceans fully as a powerful factor in the vital rebuilding of the economic independence of our nation?