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Contents

The Political Economy of Ports in the United States and Great Britain Alfred G. Cuzán	149
Title III of the Marine Protection, Research and Sanctuaries Act: Issues in Program Implementation Susan Harvey	169
Oil and Gas Development in a Coastal Landscape: Visual Preferences and Management Implications Joan I. Nassauer	199
Florida's Coastal Management Program: A Critical Analysis William E. Guy, Jr.	219
Book Reviews	249

The Political Economy of Ports in the United States and Great Britain

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Abstract This is an exploration of the political economy of ports in the United States and Great Britain. A number of technical, economic, and political issues concerning ports are examined. Particular attention is paid to the institutional evolution of ports from private to public ownership, and its consequences for port efficiency. The paper concludes with a set of recommendations designed to reverse the trend toward port nationalization in both countries.

I. Introduction: An Exploratory Inquiry into Ports and Harbors in the United States and Great Britain

This paper is an exploration into American and British port policy. It examines the technology, economics, and politics of ports in the United States and Great Britain in light of the larger political economy of these two maritime nations. The inquiry raises several fundamental but complex questions about private and public institutions for owning and managing harbors, ports, ter-

minals, and the greater transportation and economic systems to which they belong. Basically, the questions are about what type of politico-economic system performs more efficiently in this industry: private or public property.

My principal criterion for evaluating public policy is efficiency. This may disturb some readers who might regard efficiency as less important than some other objective. But before downplaying efficiency as a criterion of evaluation, however, they should be aware of the difficulties involved. For example, if they wanted to sacrifice some efficiency for some other goal, that would itself involve a question of efficiency, i.e., how much efficiency are they prepared to give up in return for how much of the other goal? This demonstrates that the efficiency criterion is difficult, if not impossible, to escape.

One last caveat. As an anonymous referee wisely pointed out, this paper "falls between the two stools of providing a well-documented general survey and exploring relevant topics in depth." It is neither. Rather, the paper takes a "birds-eye" view of ports in the larger theoretical context of political economy, with frequent swoops to examine particular policy issues in greater detail.

The paper questions what appears to be an established "way of thinking" about ports which sees public ownership, management, or regulation as natural or inevitable. It is written in a style designed to provoke a reaction from the reader, who will quickly recognize "public choice" theory in my analysis and classical economic and political liberalism in my philosophy. My conclusions reflect a minority point of view; I entertain no illusions about their acceptance, at least in the short run. But, if their publication generates a response, even if only in the minds of the readers, my purpose will have been served.

II. The Economics and Technology of Ports, Harbors, and Ships

Ports and harbors constitute heterogeneous bundles of goods and services used in shipping. A harbor provides safety from the sea while a port supplies the means for transporting goods and people

from ship to land and vice versa. A port serves as a gateway between water and land with its connections with other modes of a nation's transportation network like railways, roads, and airports. In earlier days, only nature provided harbors in estuaries and bays. But today harbors are partly if not mostly the result of capital. Even the best natural sites are usually improved upon with lighthouses, other aids to navigation, channels, jetties, breakwaters, locks, and related works of engineering.

In the nineteenth century, much of shipping took place in the traditional or "general cargo" port. This type of port served a large assortment of ships and cargo along its berths. It was a labor-intensive operation. There was a high concentration of shipping facilities and services near or within the port city's central district or "downtown." These included stevedores, cranes, warehouses, sheds, shipping companies, ship refueling and repairing facilities, insurance agencies, passenger facilities, stores, factories, and many other types of industry and commerce dependent on water transport.

During the twentieth century, but particularly since World War II, a "revolution" has taken place in shipping. Technological progress, economic forces, and demographic changes have combined to promote specialization, concentration, and decentralization of the port industry.

Over 75 percent of the world's freight tonnage consists of bulk cargo transported in specialized ships. Ore, petroleum, coal, fertilizers, sugar, and grains are handled by special facilities equipped with pipelines, tanks, elevators, conveyors, or suction devices. In the United States, most of these terminals are privately owned, integrated into longer processes of production and trade. General cargo is increasingly prepackaged in containers. Upon arrival at port, these are transferred directly to trucks or railroad cars. In addition, mother ships unload barges which continue the journey to their ultimate destination. Ships have grown in size, and this trend is expected to continue. The largest tankers exceed half a million deadweight tons and require depths of 75 to 100 feet.

According to several scholars and experts, these trends militate against the survival of many of today's small and medium-sized ports. They foresee a reduction in their number and importance,

with some surviving as feeders to regional superports, others specializing in particular commodities, and still others becoming increasingly dependent on trade with less developed countries until they, too, adopt more modern methods. These writers conclude that economics and technology do not favor the continued existence of many of today's ports.¹

However, it is easy to make the mistake of equating technological progress with bigness. Economic forces do not unequivocally favor larger and fewer production units. The processes of specialization are unlikely to result in all or most cargoes being handled exclusively by superports catering to giant ships. In any industry, one usually observes a wide range in the size of firms, with a great deal of contracting and subcontracting among them. There is no a priori reason to expect the port industry to be any different. Thus, one should not underestimate the ability of miniports and small ships to survive alongside the giants of the industry.

However, the structure of an industry in a relatively free market is not necessarily the same as in a system of government controls and regulation. In the former case, the most efficient combination of small, intermediate, and large ports is determined exclusively by economic forces to cut costs of production and seek greater or more specialized markets. But in government, such pressures are weakened by political incentives to extend the life of obsolete facilities or subsidize inefficient operations for reasons I will explain later in the paper. The resulting mix of firms is likely to include too many units of production, big *and* small. It is to this institutional problem that I now turn. I begin with a brief review of the recent history of ports and shipping in both the United States and Great Britain.

III. The Rise and Fall of Capitalism in Railroads and Ports

The nineteenth century was a period of laissez-faire capitalism in the United States and Great Britain. This was reflected in the port industry as individuals, dock and trading companies, and the rail-

roads developed many of the most important ports of both countries.

In an earlier day, the city of Boston offered bounties to enterprising individuals for enlarging the shoreline. In 1894, Boston had over 200 private wharves each catering to its own clientele. At the turn of the century, the ports of Boston, Philadelphia, Savannah, Charleston, Newport News, Galveston, and Portland were privately owned. At about the same time the port of London was owned by three dock companies. In addition, the ports of New York, Baltimore, Norfolk, and New Orleans were owned partly by private interests. The first ship channels connecting the inland cities of Houston and Manchester with the sea were built by private companies although in Manchester the local government subsidized the project.

The railroads were particularly suited for the task of port development and ports became another link in their nationwide transportation systems. Most of the Atlantic ports of the United States were developed at least partly by the railroads. In England, the ports of Southampton, Cardiff, Hull, Harwick, Grimsby, and many others were developed by the railroads. In the United States, the railroads incorporated the cost of port services into their freight rates while in England they charged separate port dues.

So promising did the system of British ports under railroad ownership appear at the beginning of the twentieth century that a contemporary writer was led to observe:

The tendency in British port ownership seems to be toward private ownership and in the form of railway termini. . . . The greater number of changes within the past thirty years have been toward the building of railway ports in the smaller cities. The British railways are consolidated into a few strong companies and the building of a dock as a port and feeder of a great system is a natural step in this development. . . .²

But this prediction did not come to pass. During the twentieth century, ports came under partial or total ownership or regulation by some level of government in both countries. Why this process took place, what specific actions were taken by whom, where, and

for what purposes, are fruitful questions for historical research. I found few definitive answers in the works listed in the bibliography. In fact, there were few references to these questions.

My own hypothesis is that since the phenomenon was nationwide and spread to both countries, one needs to look for general or systemic causes. National regulation of railroads, relative decline of the railroads, and transfer of ports from the private to the public sectors appear to have happened in historical sequence, the last two going hand in hand. In the United States, the railroads were the first nationwide industry to come under national regulation after a boom/bust period of extraordinary expansion partially fueled by federal land grants. The "populist" movement which battled American capitalist institutions during the last quarter of the nineteenth century had its first success vis-à-vis the railroads. In fact, the defeat of the railroads in the political arena marks the twilight of laissez-faire capitalism in the United States. In Great Britain, capitalism was also on the decline at the same time, but in response to other political events (Spencer, 1981).

World War I dealt capitalism another nearly mortal blow. In both countries the railroads were enlisted in the military effort, subject to national transportation controls. The process was repeated in World War II. Since then, the railroads have become increasingly nationalized.

In both countries government-abetted labor unions gained tremendous power over railroad property during the twentieth century. The many regulations governing the tasks of railroad traffic and freight handling are almost medieval in their restrictions on labor. In addition, the pensions of union members, which in the United States are partially subsidized by federal taxpayers, constitute still another burden on railroad capital and management.

In short, it appears that capitalism lost its first major battle in the railroad industry. The same public that bought railway services in the market voted for candidates who enacted national controls over them in the "public interest." Today the railroads are one of the most regulated industries in the United States. In Great Britain, they are owned by the government.

The nationalization process apparently was not conducive to the economic or financial well-being of the railroads. They have ex-

perienced a relative decline in the transportation system and the rest of the economy for decades. And, historically, the economic decline of the railroads is associated with the public take-over of ports. Although market changes and new transportation modes are partially responsible for this decline, it appears that national regulation crippled the railroads, making them retreat from the port industry. These investments were often liquidated through sale or gift to local governments. In the United States, the process was hastened by bureaucratic pressures from the Army Corps of Engineers, whose head declared in 1924 that public policy should compel the railroads to transfer their port assets to the government.³

There were still other political reasons for the government take-over of ports. It appears that, in some cases, a temporary private monopoly or tendency toward less competition within a harbor offended segments of the public. This led to government assumption of the monopoly power, directly under public ownership or indirectly through regulation. This is apparently what happened in the Port of London early in the twentieth century.

At that time three private companies owned the docks. With the increase in traffic and the larger size of ships, needed port improvements made it uneconomical for all three of them to compete for business. At least one of them fell into financial difficulties. A contributing factor was the "free water clause" which prohibited the companies from charging lighters for the use of their facilities. They appealed to the government to permit them to levy charges on goods as well as on ships but opposition from wharf, lighter, and warehouse interests as well as the London Chamber of Commerce could not be overcome. Instead, Parliament established a public body to levy rates on shipping and goods without, however, altering the "free water clause." The act was bitterly opposed by Sir Henry Le Marchant, a director of the London and India Docks Company who complained that Parliament had discredited his company without really debating the issue and had ignored the fact that the port of London was the cheapest in the United Kingdom.⁴

A similar case took place in the United States. The original Houston Ship Channel was dredged by a private entrepreneur and

railroad developer, Commodore Charles Morgan. It was 9 feet deep and 120 feet wide and connected the City of Houston with Galveston Bay. He financed his project by charging a toll for every ship that used it. Local interests in Houston, however, opposed this scheme and eventually persuaded the federal government to subsidize public acquisition and development of the channel by a local body.⁵

IV. The Relative Inefficiency of Public Ports and Terminals

In both countries, government is presently an important if not dominant agent in most ports. The process has gone further in Great Britain than in the United States. The majority of American *terminals* are privately owned and operated; government is less involved in port production except in the area of general cargo. In both Great Britain and the United States, it is a local, state, or regional body of government which exercises most of the public control.

Today the study of ports emphasizes management, financing, and regulation by public bodies. Practically all the works consulted assume, implicitly or explicitly, that ports belong in the public sector, like police or fire departments, or public utilities. Few in the field appear to have reexamined this assumption (an exception is Bruun, 1976). So universal is this attitude that when someone like myself raises the issue he invariably meets disbelief, heated objections, or simply silence, as if the question had no right to be asked.

Yet the question is not trivial. Society has an interest in the efficient use of its resources. Ports and harbors are resources unique in their own ways, yet subject to economic analyses like all others. If they are not being managed efficiently, society needs to know why and whether there is something inevitable about it that does not permit correction.

In the following paragraphs I argue that there is evidence suggesting inefficient employment of resources in the public sector of

the port industry. My remarks are general. While there are many differences among ports here and in Great Britain, my reading of the works cited in the bibliography reveals a number of inefficient characteristics that appear to be common to all or nearly all public facilities, although in varying degree.

Public ownership or control rescued many port facilities from ruin, prolonged the life of still others, and has resulted in vast new investments in storage and terminals, particularly for containers. A number of policies have promoted this development. In the United States, these include the authority of port institutions to issue tax exempt bonds; they are also exempt from other taxation, exercise eminent domain, and have access to public treasuries at several levels of government. A few of the largest American ports are under the jurisdiction of multipurpose authorities which subsidize port operations with revenues from highway and bridge tolls. In some ports, like Houston, industry located within the port premises is exempt from municipal and county taxes. In addition, the federal government contributes toward the maintenance and development of public ports through its dredging activities. Similarly, British taxpayers subsidize port operations heavily.

Despite—or, perhaps, because of—all these inducements, public ports tend to be relatively inefficient. In the United States, the average return on their investment is about zero, which indicates that too much capital has been invested.⁶ Much of the older physical plant is in poor shape. In the case of new terminals, they tend to be underutilized.

In some cases, the port is heavily congested. For example, the Houston Ship Channel is so congested that the neighboring port of Galveston derives considerable revenues from ships waiting to enter the channel. Houston also allocates scarce space to bulky commodities like cotton where other goods of greater value by weight would make more efficient use of the facilities. Small ports are idle much of the time.

Many public ports constitute a drain on the public treasuries. Yet the interests which use these ports for income or power are well organized and highly vocal. They justify the financial cost to

the taxpayers of the local, state, or national governments by arguing that a port is a "public utility" which generates a host of "secondary benefits" to the localities, region, or nation.

These are pseudoeconomic arguments. The only economic justification for an investment, whether by a public body or a private corporation, is that the income generated from it exceeds the income which those resources would yield elsewhere in the economy. Nobody has yet come up with a better indicator for measuring the efficiency of capital than the market rate of interest and, according to this criterion, everyone can agree that most public ports are, economically, a bad deal.

An alternative justification for public ownership might be a "collective good" argument. According to this theory, a public investment is justified if there is something about what is produced which makes it physically or economically difficult to charge beneficiaries directly. National defense, local police protection, and education, are usually given as examples.

But clearly ports do not fall under the category of collective goods. The benefits which they confer on users are highly divisible. Access to a harbor, the use of a channel, the berthing of a ship, the loading and unloading of cargo, and all the other services a port might provide can easily be financed—if they are economically justified—with tolls and charges on ships and cargo. The fact that many ports in the United States and Great Britain were privately developed and administered during the nineteenth century and part of the twentieth demonstrates that taxes are unnecessary to support a port that is economically feasible.

V. At the Threshold of Port Nationalization

In both Great Britain and the United States, financing, regulation, and control of public ports have become increasingly centralized at the national level. The process has proceeded further in Great Britain, which is characterized by a more socialistic economy oriented toward "central planning." In the United States, the impetus has come from a variety of sources including labor legislation, subsidies for the American merchant marine, control

over railroad and trucking rates, environmental regulations, and the pork-barreling of federal dredging of channels and harbors.

In both countries, a threshold has been reached calling for a much stronger direct intervention by the national government into port administration. However, one should not overlook the fact that there has been pressure in the opposite direction, too. For example, the Reagan Administration is less willing to aid port expansion, particularly more dredging, without greater local cost-sharing. The "conservative" nature of the Thatcher and Reagan governments should result in some ideological resistance to greater government port intervention. Whether this is a temporary or more persistent phenomenon is yet to be observed.

During the last two or three decades, the British government has been implementing plans that give it increasing control over the country's ports. National transportation officials have at various times expressed the view that the number of ports is excessive and in need of central coordination in their administration and development. The Ministry of Transportation has persuaded Parliament to create boards or councils for exercising greater control over the ports. Local resistance has prevented complete nationalization but current trends may make this inevitable in the long run.

In the United States, a large number of agencies and bureaus exercise some control over ports. Among these are the U.S. Army Corps of Engineers, the Coast Guard, the Environmental Protection Agency, the Department of Transportation, the Maritime Administration, and many others. Federal controls over ports have often been imposed indirectly as a result of legislation, regulation, or judicial decisions not specifically aimed at ports. Through its control of railroad and trucking rates, the Interstate Commerce Commission has considerable influence over ports. Favorable union legislation made it possible for the International Longshoremen's Association to become one of the strongest labor organizations in the country. The union has consistently resisted port modernization, mechanization, and technological innovation in general. Similarly, federal subsidies for the merchant marine, as well as laws that prohibit foreign ships from participating in the U.S. coastal trade, have contributed to port inefficiency. There are so many bureaus with jurisdiction over maritime affairs that

an industry leader describes federal controls over the industry as "chaotic" with little or no coordination between the various decision-makers.⁷

The Rivers and Harbors Act of 1889, along with related legislation concerning navigation, grants the U.S. Army Corps of Engineers practically unlimited veto power over port construction and development outside of "harbor lines" designated by the agency itself. The Corps also must approve private projects on navigable waterways. The Corps subsidizes the maintenance of channel and harbor depths at most ports and has constructed dozens of small boat facilities. In cooperation with local bodies which share part of the cost, the Corps yearly spends billions of dollars on dredging. Without this aid many ports would be hard-pressed to survive financially.

In 1947, the U.S. Supreme Court declared that the submerged land below the low-water mark belongs to the federal government and only the area between the high and low-water marks belongs to the states. This gives the federal government control over deep-water ports and similar offshore facilities. The Department of Transportation must license all such projects.

In the last ten years the Environmental Protection Agency as well as bureaus within the Department of the Interior have imposed a large number of regulations concerning the "environmental" impact of ports. These regulations have raised the cost of carrying out routine operations, particularly dredging. Disposal of spoils is not severely restricted even though according to several studies the environmental impact of dredging in most (though not all) ports is less than what is caused by natural forces of tides and winds.⁸

The Federal Maritime Commission exercises some jurisdiction over shipping rates. The Interstate Commerce Commission regulates the rates charged by railroads and trucks. Conflicts between the two agencies has prevented the integration of freight rates between land and sea. The ICC also uses its rate-making power to "equalize" rates between competing ports over their presumed "natural" hinterlands. Port officials lobby against rate changes that may cause them to lose traffic to competition. This artificially protects inefficient ports from competition by more distant rivals,

forces ships to make more port calls, and results in underutilization of port facilities.

As in Great Britain, national officials in the United States regard the number of ports as excessive. They have called for studies and plans to carry out a national port policy designed to "rationalize" the industry. These efforts have been vigorously resisted by local officials, particularly through the American Association of Port Authorities. Until 1972, the AAPA opposed direct federal subsidies to ports on the grounds that this would give unfair advantage to some ports and be only the first step toward centralized federal control. That year the policy was rescinded.⁹

The fiscal burden of many ports has reached the political limits of their local or state sponsors. Moreover, the cost of dredging below the 30-40 feet maximum depth of most U.S. ports, widening channels and basins, and bringing facilities up to date with the most modern shipping technology is not economically feasible in many ports. So efforts are presently underway in the Congress to authorize large-scale dredging operations in a few selected ports on the Atlantic and Gulf coasts. Congressmen from Virginia, Louisiana, and Texas are lobbying for projects in their areas. The politics of the pork barrel are such that the Congress will probably authorize several projects on each coast. Thus, a new era of "overbuilding" of ports, this time financed directly by the federal government, may be underway.

VI. Why Port Nationalization Will Not Result in Greater Efficiency

Since Plato's time a school of thought in political economy or social philosophy has extolled the superiority of centralized over decentralized and public over private planning management of a society's resources, natural or man-made. In this paper, I'll call this paradigm the socialist or centralist point of view.

According to this view, control over ports by ministries, departments, or agencies at the national level would be more efficient than the present decentralized mixture of private and local organizations. Greater centralization would raise the level of rationality in the port industry, since national officials would eval-

uate each and every port in light of an integrated plan for ports, the transportation sector, and the economy as a whole. Wasteful duplication, destructive competition, and lack of coordination in the port industry would be reduced by reorganizing ports into a hierarchy of local, regional, and national centers managed at the top. Due consideration would be given to public participation from below. But the interests of the entire nation in the port sector would take precedence over parochial plans of purely local advantage. Moreover, ports would then become more closely integrated into the larger transportation network already under greater central direction—trucking, railroads, and air routes—and the environmental effects of ports would be adequately taken into account.

It should come as no surprise that in both Great Britain and the United States ambitious people who control or influence transportation-related bureaus of the national government tend to argue along these lines. On the other hand, the view is far from popular among port and local government officials.

The socialist paradigm has serious theoretical flaws. The problems are summarized in the following questions:

- (1) What economic criterion for allocating resources among competing ends would national officials employ? This criterion has to be measurable, as is the rate of return on capital, in order to perform the necessary economic calculations arithmetically (Von Mises, 1981).
- (2) What common denominator is available to compare alternative choices for the use of resources? In the market, money serves that function. What is the common currency of socialist decisions? (Von Mises, 1981).
- (3) How would interest-group pressures be avoided at the national level? National officials are just as responsive to interest-group pressures as local ones, and are just as likely to sacrifice economic efficiency for political advantage. While in some cases they might use their power to close down small or inefficient ports, nothing guarantees that remaining ports will be managed efficiently. Excessive capacity from too many small ports would simply

give way to excessive capacity in a very few large ports, and there would bottlenecks everywhere else.

In both cases the relative political strength of existing ports, legislators, party leaders, bureaucratic entrepreneurs, interest groups, and population centers as well as the electoral consequences of port decisions would dominate port choices. In the United States, this selection would be made according to the rules of the Congressional pork barrel. Bargaining within the cabinet and the majority party would determine British decisions. In both countries, inefficient "show cases" designed with maximum publicity in mind would waste taxpayers' money. Those ports most successful at gathering support for their budgetary requests would prosper regardless of their actual economic performance. Even very inefficient ports would survive if they managed to exert enough opposition to proposals for closing them down. The Port of London received national subsidies long after it had been economically displaced by market forces downriver.¹⁰ In Florida, I have found state transportation officials rejecting a consultant's conclusions that not all of Florida's ports are economically viable. They fear the strength of the port lobby. This group recently persuaded the legislature to kill a private fuel pipeline into the state because it would take business away from them. Similar examples of inefficient interest-group policies are visible in Britain's nationalized industries and American irrigation and flood control projects. The inability of the British government to turn money-losing state enterprises around and the "overdevelopment" of water and power in the American West by the federal government are indicative of what port nationalization is likely to bring about in either country.

VII. Greater Efficiency through Privatization of Ports and Submerged Lands

In order to promote port efficiency, the United States and Great Britain would have to reverse the policies which they have pursued during the last century and to return ports to the private sector.

Whether such a change must wait for the larger politico-economic systems of these two countries to undergo large-scale capitalistic transformations, such as those experienced during the eighteenth and nineteenth centuries, remains to be seen. But it might be possible for port policy to run counter to the more general centralizing trends which presently characterize the public finances and policies of these two countries. After all, a return to capitalism, if and when it occurs, is likely to be incremental, and all evolution begins with some change somewhere in the system.

The following reforms might be considered as part of a program designed to bring about partial or total privatization of American and British ports in the next two decades.

- (1) Ending national or state subsidies to local ports.
- (2) Charging local ports, ships, or cargo for the costs of dredging, aids to navigation, and other services provided by higher levels of government. Only the efficient ports would be able to bear these costs. Marginal facilities would not.
- (3) Selling publicly owned terminals and related assets to stevedoring companies and other private firms interested in buying them. The firms would be free to reallocate port assets to other uses, such as housing, tourism, commerce, office space, or industry.
- (4) Reforming "environmental" regulations so that the effects of port activities on water quality, fishing, etc., are evaluated economically. The current approach is to set arbitrary limits on what ports may or may not do to water quality, bay bottoms, etc. What is needed is an attempt to measure, with market prices, whether the costs of lost income from fishing, recreation, etc., exceed the benefits from additional port revenues or cost savings. Without hard proof that marginal costs in fact exceed the marginal benefits, port activities should not be inhibited.
- (5) Selling submerged lands by state or national governments. Since World War II the oceans have been undergoing a process of "enclosure" by nation-states.¹¹

They now exercise jurisdiction over a 200-mile "exclusive economic zone" adjacent to their coasts. These submerged lands could be sold to private corporations interested in energy, mineral and fish production, tourism, recreation, ports, and marine terminals. The appropriation of these resources would integrate them into the market economy, attracting additional capital investments. Artificial islands would probably be constructed offshore for the purpose of mining, industry, housing, and recreation. Private owners of these lands would be free to sue for infringement of their rights which resulted from dredging or polluting activities. They would have the incentive to safeguard the quality of their fisheries (natural or artificial) and recreational sites; hence they would serve as protectors of the "environment."

If these policies were adopted, particularly those calling for the sale of public ports and submerged lands, industry and commerce along and beyond the British and American coasts would experience a large-scale economic boom. Revenues from land sales and taxes on income generated from the more intensive use of coastal resources would relieve the fiscal plight of government at all levels in both countries. If only for that reason, such reforms ought to receive serious consideration.

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Notes

1. Bruun (1976) and Oram and Baker (1971).
2. Smith (1904), p. 524.
3. Cunningham (1930), p. 40.
4. *Ibid.*, p. 52. See also Smith (1904).
5. Sibley (1968).
6. National Academy of Sciences (1976), p. 38, and U.S. Department of Commerce (1974), p. 16, and Hedden (1967).
7. *Traffic World* (1980), p. 35.
8. Bruun (1976), p. 447, and Herbick (1975), pp. 520-526.
9. U.S. Department of Commerce (1974), p. 60.
10. *The Economist* (1981), p. 62.
11. Eckert (1979).

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