

REPORT

OF

THE SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
December, 1842.

SIR: I have the honor to present the following report in relation to this Department:

The home squadron, authorized by the act of the 1st day of August, 1841, has been put in commission, and placed under the command of Commodore Stewart. It is composed of the frigates Independence (the flag ship), now under the command of Captain Stringham; the frigate Constitution, Captain Parker; the steam-frigate Missouri, Captain Newton; the steam-frigate Mississippi, Captain Salter; the sloop Falmouth, Commander McIntosh; the sloop Vandalia, Commander Ramsay; the brig Dolphin, Commander Knight; and the schooner Grampus, Lieut. Van Brunt.

The original design of this squadron was to cruise along our own coast, with a view to extend the usual protection to our trade; but more particularly to afford assistance to vessels in distress; to make accurate soundings and observations along our shores, from which charts might be formed; to afford vessels of different classes, always ready to take the places of those returning from distant stations; and to perform any occasional service for which vessels of war might be required. Finding, however, that it was unnecessarily large for these purposes, and that active employment could not be given to it, I determined to assign to it the duties of the West India squadron, and to withdraw that squadron from service. This has accordingly been done, and the cruising ground of the home squadron now extends from the banks of Newfoundland to the river Amazon, including the Caribbean sea and gulf of Mexico. This service requires one or two small vessels in addition to those originally assigned to the squadron, and these I propose to add.

It is found that the steamships Missouri and Mississippi are unsuited to cruising in time of peace. Their engines consume so much fuel as to add enormously to their expenses; and the necessity that they should return to port after short intervals of time for fresh supplies, renders it impossible to send them on any distant service. They will be useful vessels in time of war as guards to our coast and harbors, and as auxiliaries in fleets; but they can not be relied on as cruisers, and are altogether too expensive for service in time of peace. I have therefore determined to take them out of commission, and shall substitute for them other and less expensive vessels.

The Independence has not yet gone to sea, owing in part to the fact that her crews have been taken from time to time for other vessels, and in part to the necessary engagements of Commodore Stewart in other services. The rest of the squadron has, under his orders, been kept actively and usefully employed, and promises to answer all the expectations of Congress in establishing it.

The duties originally contemplated for the home squadron are highly important, and such as require in the commander the best order of qualifications. They do not, however, require so many vessels as the law establishing that squadron authorizes. While, therefore, it is desirable that the squadron should be such as to be worthy of the best professional rank and talent, it is equally desirable that it should not be so large as to have any portion of it inactive. By assigning to it the duties of the West India squadron, and extending the cruising ground to the northern boundary of the cruising ground of the Brazil squadron, the larger vessels may be kept on constant duty to windward. In the meantime, the smaller vessels may, in like manner, be employed in the Caribbean sea and gulf of Mexico, where the harbors are too shallow to admit those of larger size. The impossibility of beating up the coast against the tradewinds and gulf stream, suggests the propriety of assigning two or three steam-vessels of medium size to that duty. These would afford a sufficient protection to our commerce, while they would serve to keep up the necessary intercourse between the commander of the squadron and that portion of it destined to service in the gulf of Mexico. Without the aid of steam, that intercourse could not well be maintained; for a vessel, not propelled by steam, entering the gulf of Mexico from the windward, could not regain her position without a tedious and dangerous passage through the gulf of Florida.

The duties thus contemplated for the home squadron will afford full employment for it, except during the hurricane season, when it would not be prudent for it to keep the sea except in the northern part of its cruising ground.

The Brazil squadron consists of the Delaware (74), Captain McCauley; the frigate Columbia, Captain E. R. Shubrick; the sloops-of-war Concord, Commander Boerum; John Adams, Commander Conover; Decatur, Commander Farragut; and the schooner Enterprise, Lieut. J. P. Wilson; all under the command of Commodore Morris. This squadron, I have every reason to believe, has distinguished itself for good order, discipline, and constant and strict attention to all the appropriate duties and exercises of squadron service. I have also the pleasure to report that the interests of our citizens committed to the care of Commodore Morris, have been fully protected and secured; and that our relations with the countries within the range of his command have been preserved on the most favorable and honorable footing.

After the return of the frigate Brandywine, in July last, the squadron in the Mediterranean consisted of only two sloops-of-war, the Fairfield, Commander Tattall, and the Preble, Commander Voorhees, under the command of Commodore Morgan. I regret to say that Commander Voorhees died at Smyrna, on the 27th July last; he was an officer of a high order of merit, and his death is a serious loss to his country. The Preble is now under the command of Commander Nicholson, and Commander Bigelow has succeeded Commander Tattall, who has returned to the United States.

On the 15th of July last, the frigate Congress, Captain P. F. Voorhees, sailed for the Mediterranean; and on the 29th day of August last, the Columbus 74, Captain Spencer, was despatched to the same station. The squadron now consists of the Columbus, Congress, Fairfield, and Preble, all under the command of Commodore Morgan. Orders have been given, however, assigning to Commodore Morris the command of the Mediterranean squadron, and to Commodore Morgan that of the Brazil squadron.

This exchange is made in execution of a plan which I propose for the management of all our squadrons, and of which I shall speak more at large in a subsequent part of this report.

Our relations with the countries of the Mediterranean have been preserved on the most friendly footing, with the single exception of the empire of Morocco. In consequence of an outrage, offered by a subordinate officer of that Government, to the late consul of the United States, Mr. Carr, it was deemed necessary to call on the higher authorities to disavow the act, and to punish the aggressor. This was promptly done by Commodore Morgan, and after many delays and much unnecessary formality on the part of the Emperor, ample redress was afforded by the public disavowal of the offence, and the dismissal of the offending officer. Commodore Morgan appears to have conducted this affair with much skill and address, asserting with proper firmness the respect due to our flag, and yet claiming nothing in an arrogant or dictatorial spirit. I have every reason to be satisfied with the part he has borne in this delicate transaction. The friendly relations between the two countries are now restored.

The squadron in the Pacific consists of the frigate United States, Captain Armstrong, sloop Cyane, Commander Stribling, sloop Yorktown, Lieutenant Nicholas, sloop Dale, Commander Dornin, and the schooner Shark, Lieutenant Eagle, all under the command of Commodore T. Ap. C. Jones. The St. Louis, Commander Forrest, returned on the 16th September last, and her place has not yet been supplied.

Nothing has occurred, since my last report, to interrupt the friendly relations of our country with the nations bordering on the Pacific coast of America. Our squadron has, at all times, ably and faithfully performed its duty; but it is much too small to render all the services expected of it, in that remote region. Every part of that vast ocean is traversed by our trading vessels, and in every part of it the protection of our naval flag is consequently required. The few ships allowed even to the largest squadron that we have ever sent to the Pacific, are not enough to guard our whaling interest alone. It can scarcely be expected that five or six vessels, most of which are of the smallest class, can properly protect our commerce and our people, along a coast of three thousand miles in extent, and throughout an ocean four thousand miles wide. I respectfully suggest that too little attention has heretofore been paid to the important interests of our country in the Pacific ocean. There is at this time, a stronger necessity than ever, for more strict vigilance and more active exertion on our part, to prevent other nations from subjecting our trade to injurious restrictions and embarrassments. The English settlers have, by their enterprise, nearly engrossed the trade from the Columbia river to the islands, so that our countrymen are as effectually cut off from it, as if they had no rights in that quarter. The people of various countries are rapidly forming settlements all along the shores of the Pacific, from Columbia river to the gulf of California; and this, too, with the countenance and support of their respective Governments. In the meantime, we are doing literally nothing for our own interests in that quarter. To those of our people who are inclined to settle there, we do not even hold out the encouragement of a reasonable expectation that we will protect them against the violence and injustice of other nations. A few small vessels, scarcely as many as we ought to keep constantly upon the coast of each of the South American nations on the Pacific—these, too, charged with duties which twice their number would not be able to perform, can offer but little

aid or support to the infant settlements of our people, remote from each other, and demanding the constant presence of some protecting power. There are many considerations, connected with this subject, of deep importance in themselves, but which belong rather to other departments of the Government than to this. I advert to them only so far as to justify me in recommending a very large increase of the Pacific squadron.

In the East Indies we have only two ships; the frigate *Constellation*, Captain Kearny, commanding the squadron, and the sloop-of-war *Boston*, Commander Long. It is owing more to our good fortune than to our strength, that our commerce has suffered no material interruption. That little squadron has done all that could have been expected of it, and it deserves much credit for its great vigilance and activity, and for the prudence and sound discretion with which Commodore Kearny has acquitted himself of the important trusts reposed in him.

On the coast of Africa we have *no* squadron. The small appropriation of the present year was believed to be scarcely sufficient to answer the pressing demands of more important stations; and hence no vessel has been equipped expressly for the African seas. The sloop-of-war *Vandalia*, Commander Ramsay, belonging to the Home Squadron, was assigned to that service in March last, and is still on the coast. The ratification of the treaty with England renders it necessary that a squadron of at least eighty guns should be assigned to that service.

I regret to say that, in consequence of the unprotected condition of our trade on that coast, several of our vessels have been captured by the natives, and their crews barbarously murdered. The last aggression of this sort was upon the schooner *Mary Carver*, Captain Farwell, in the district of Beribee, ninety miles south of Cape Palmas. Instructions have been given to Commander Ramsay to proceed to that point and demand such reparation as the circumstances of the case may require. This, however, will be at best but little satisfactory, since no chastisement which can be inflicted upon such savages can either do honor to our flag, or prevent other outrages of the like kind. Our commerce with Africa is rapidly increasing, and is well worthy of all the protection which it asks. This protection is to be derived, not from any terror which can be inspired by the destruction of a few miserable villages on the sea beach, but from the presence of armed vessels, able to *prevent*, as well as to punish, all violations of the rights and laws of fair trade.

I need scarcely add, that our duty in the suppression of the slave-trade can not be discharged without a much larger force on the coast of Africa than we have ever yet maintained there.

The return of the Exploring Squadron, late under the command of Lieutenant Charles Wilkes, has given to the country rich and abundant stores in all the departments of natural history. I am now arranging them, under the authority of a law of the last session of Congress. Lieutenant Wilkes himself is engaged in preparing a narrative of his voyage, and in completing the various charts of the numerous surveys made under his direction. In this work he has, at his own request, the assistance of Lieutenants O. Carr, T. A. Budd, and G. M. Totten, of the navy. I regret that I have no authority to furnish him with the additional aid which he has a right to expect from the scientific corps attached to the expedition. There is no fund under my control out of which a compensation could be paid to them. I respectfully suggest that provision ought to be made for

this. The country looks with very deep interest for the results of this expedition ; and it is due, not less to the officers concerned in it than to the country itself, that they should be fairly and properly laid before the world. It can scarcely be expected that Mr. Wilkes, even with the aid of the few naval officers whose assistance he has asked, can, in any short time, accomplish a task of so much labor ; nor is it reasonable to suppose that naval officers, however skilled in what properly belongs to their profession, will be able to perfect the drawings and other mechanical works, and works of art, necessary to prepare this publication in the style contemplated by Congress.

When I had the honor to present to you the usual report from this department, at the commencement of the last session of Congress, I proceeded upon the idea that it was the settled policy of the Government gradually to increase the navy. Notwithstanding the favorable change which has since occurred in our foreign relations, and notwithstanding the present *unfavorable* condition of the public Treasury, I have seen no reason to believe that this policy is less approved now than heretofore, by the great body of our people. It is true that the circumstances in which we are now placed, render necessary very great modifications of the systems which would otherwise be proper ; but the opinion is as general now as it ever has been, that a *suitable navy* is absolutely necessary to the protection of our trade, the security of our people, and the respectability of our Government. Fortunately, there is nothing in the circumstances of our country to render this in any degree a local question. Apart from the general proposition that what is best for the general interest should be regarded as best for the whole, there is a local and particular interest in nine tenths of our country which demands a respectable naval establishment.

The commercial towns on our seaboard, by which nearly all our foreign and coasting trade is conducted, have so immediate and direct an interest in the subject, as to render unnecessary any remarks upon that point. The various agricultural and manufacturing classes, scattered throughout the country, and connected with, and dependant upon, this trade, have an indirect interest, not less apparent. The great and increasing commerce of the lakes, although less exposed than that of the ocean, is yet far too important to be left undefended, even against the single power which may become its enemy. But the gulf of Mexico has peculiar claims. It is believed that there is not in the world, an equal amount of commercial and agricultural interest belonging to any one country, so much at the mercy of the most inconsiderable maritime force, as is that of the gulf of Mexico. Not only the States which lie immediately on that water, but all those whose streams enter into it, including the vast and fertile region of the Mississippi and its tributary waters, make this their chief channel of commerce. And we may properly add, also, no inconsiderable amount in the article of cotton, sent from Texas by means of the Red river, and paying tribute to our commercial agencies in its transit through our territory. Cotton is the principal material of our trade, both foreign and domestic ; it probably constitutes three fourths of our exports, in its raw and manufactured states. Taking the year ending on the 31st August, 1842, it is found that the whole cotton crop amounted to 1,683,574 bales ; of which 1,160,389 were shipped from the ports of the gulf of Mexico. Of this crop, 1,465,249 bales were exported to foreign countries ; and of these exports, 937,830 bales were from the ports of that gulf. Thus it may be assumed, that two-thirds of the most valuable article

of our commerce, foreign and coastwise, is shipped in the ports of the gulf of Mexico.

In other articles, the productions of the west, the proportion, although perhaps not quite so large, is yet large enough to give peculiar importance to the gulf of Mexico. The tobacco, the iron, the lead, the sugar, the hemp, and the provisions of that great and rich region (and in a few years we may add also its coal) find their way to market chiefly through that single channel. These already form no inconsiderable part of the entire exports of our country, and will, after no long process of time, enter still more largely into our trade, both foreign and domestic. Without pretending to perfect accuracy, we may safely assume that not less than two thirds of the entire commerce of our country, exclusive of the whale fisheries, passes through the gulf of Mexico; and we may, with even more safety, assume, that this proportion will increase from year to year, with the increase of the population and wealth of our western States.

It is to be borne in mind that nearly all this valuable trade, is carried on through the gulf of Florida. I had the honor to present my views upon this subject, in a report which I made to the Senate, during the last session of Congress, but which was not acted on by that body. I respectfully refer to that document, as containing many suggestions connected with this inquiry, which I believe to be not wholly unworthy of public attention. I repeat here, only the well-known fact, that, in consequence of the strength of the gulf stream and trade-winds, there is virtually no passage for our trade eastward, on the south side of the Island of Cuba. It must, of necessity, pass through the Gulf of Florida—a narrow strait which can be effectually blockaded by two active steam-frigates, and probably by one. Even if a trading vessel should pass such a blockading force in the night, it would have but one path open to it for a great distance, and might, of course, be pursued with a certainty of being overtaken. It would not enjoy even the ordinary chances of a vessel escaping from a blockaded port, into a wide and open sea.

The facts to which I have thus adverted, show a striking peculiarity in our condition. The greatest portion of our commerce, confined to a single channel for some hundreds of miles, is exposed, in a peculiar manner, to any enemy having possession of the sea; and, what would render our condition still worse, if we be without a naval force, that commerce may be annihilated, at a cost which would not be felt by any tenth-rate maritime power!

If these views be correct, I am at a loss to perceive what portion of our country is not interested in them. To the States bordering on the gulf of Mexico, and to all those which use the Mississippi river as a channel of trade, the subject is of deep and daily increasing interest. So far as their prosperity depends on the outlet of the various productions of their country, they have but a single question to decide: Is, or is not, their commerce worth the cost of a naval power, adequate to protect it? *It has no other protection*, and it can not have any other, until its present channels shall be changed.

To these considerations, are to be added others, growing out of the particular character of our Government and institutions, and the exposed condition of our lake and seacoast. On these points, I can only repeat the suggestions offered in my last report. No country in the world has a greater interest than ours to guard itself against invasion. If we are destined to see again the smoke of an enemy's camp, we should, at least, be careful not to allow it to ascend from our own soil. It is, in all respects, better for us to repel an enemy from our coast, than to subdue him after he has landed upon our

shores. To do this, we must cherish our naval power, not as the institution of a day or of a year—not as a subject which we can lay aside, and take up again whenever we please, as the policy or the caprice of the moment may dictate, but as a great and permanent institution, worthy of a great people, and demanding the grave attention of Government—an institution resting upon a wise system, and worthy to be maintained in the spirit of a liberal, comprehensive, and stable policy.

These considerations forbid us to fall so far in the rear of other nations, and of the age in which we live, as to surrender our due share of the dominion of the seas. A commerce, such as ours, *demand*s the protection of an adequate naval force. Our people, scattered all over the world, have a right to require the occasional presence of our flag, to give assurance to all nations that their country has both the will and the power to protect them. Our position among the nations is such as to leave us without excuse, if we voluntarily strip ourselves of a power which all other nations are anxious to grasp. Our forms of government and municipal institutions suggest that a naval force is our safest, and, perhaps, our only defence; and, as an additional recommendation, of no small weight, the expenditure which this defence requires, is to be made chiefly among our own people, encouraging their enterprise, invigorating their industry, and calling out the abundant and now almost hidden resources of our country.

If our navy is not to be put down altogether, nor abandoned to neglect and decay, it is high time that it were placed upon some fixed and permanent plan. With a view to this, I respectfully offer the following suggestions:

In the present favorable condition of our foreign relations, promising a long continuance of peace, I can not recommend any considerable appropriation for building new vessels of war. We have already as many vessels as it will be necessary to keep in commission, except, perhaps, in the classes of sloops of war and small brigs and schooners. A few more of these are required, and they can be built out of materials now on hand, at a very small cost. It seems to me to be too obvious to admit of doubt, that our true policy is to apply as much as possible of the appropriations for the general naval service, to the employment of ships in commission.

I hope to be excused for repeating here, an idea thrown out in my last report, and which I am anxious to enforce, because it is the foundation of all sound policy in regard to the navy: *it is an easy thing to build a ship of war; it is a difficult thing to qualify an officer to command her.* This simple proposition, which every one knows to be true, should never be lost sight of by a nation that does not intend to abandon the ocean altogether. It requires at least five years of strict attention to make a good seaman; and not less than twenty years of active service, in different grades, to form a properly-qualified naval commander. Surely, then, since competent officers can not spring up with every exigency which may require their services, true policy demands that we should keep the requisite number of them in constant training, to be ready whenever their country shall call for them. The best ship of war is powerless, when unskillfully commanded. We build fleets for our enemies, when we put them in charge of incompetent men.

In order to carry out this idea, it is necessary not only that we should keep more ships in commission than heretofore, but that we should employ them in a different manner. Our squadrons on foreign stations have been generally kept too much in port; have been too little employed in cruising, and too

seldom exercised in squadron manœuvres. To remedy this, I propose to establish a system of interchange between the several squadrons; and, with that view, so to arrange them that no ship, except, perhaps, that of the commander-in-chief, shall remain more than one year on the same station. I propose that the squadrons of the Mediterranean and the Brazils shall consist, as near as possible, of the same number and classes of vessels; and that the same equality shall prevail between those of the East Indies and the Pacific. After particular intervals of time, a vessel of the Mediterranean squadron shall be sent to Brazil; and, at the same time, one of the same description from Brazil to the Mediterranean; and so of the squadrons of the East Indies and the Pacific. The advantages of this system are great and obvious:

1. By keeping the ships more at sea, the officers will be more exercised in their proper duties, and will acquire more of the science and practice of their profession:

2. Discipline will be better learned and better enforced, both on officers and crews. It is always relaxed while vessels are in port.

3. The dangerous connexions and fatal habits, so often formed amid the seductions of luxurious ports, will be avoided.

4. Officers will have a better opportunity to become acquainted with different coasts and harbors; with their currents, winds, &c.; with the languages, manners, customs, &c., of different regions of the globe; all which information is indispensable to an accomplished naval commander.

5. The flag of the country will be displayed in different ports, on many different vessels, thereby giving to foreign countries a better idea of the extent of our naval power. Heretofore, the habit of sending the same vessels repeatedly to the same foreign station has produced the impression that we had no others to send, and has thus detracted from the respect which ought to attach to us as a naval power.

6. Our vessels of war will be kept constantly in the tracks of our commerce, and be thus ready, on all occasions and in all places to afford to it whatever assistance it may need. In this way, the small force destined for the protection of our African trade, and for the suppression of the slave-trade, may be occasionally strengthened by the presence of vessels of war interchanging between the Mediterranean and the Brazils. But the great interest of our commerce in the Pacific, and particularly that most important part of it, the whale-fisheries, will derive peculiar advantages from this system. At present, most of our whalers rarely see one of our vessels of war, although it is well understood that they often need their protection. Our national ships, crossing the Pacific, should be directed to visit the whaling stations; a process, by which that distant and now neglected part of our commerce may always be within the reach of the protecting arm of their country.

The system thus proposed, will require, in order to prosecute it with all its advantages, larger squadrons than we have heretofore employed. The good effects, however, which may reasonably be expected from it, will, it is hoped, recommend it to adoption. The charge upon the Treasury need not be materially, if at all, increased, if the appropriations heretofore made for "increase and repair," should be, as far as possible, for "equipment, pay, and subsistence."

I have caused estimates to be prepared for such squadrons as could, in my opinion, be most usefully and profitably employed in the manner above-mentioned. This it is my duty to do, submitting it to Congress to determine whether, under the circumstances of the country, so large a force can properly

be put in commission, or not. If the condition of the Treasury will warrant it (of which *they* are the judges), I have no hesitation in earnestly recommending the employment of the largest force estimated for. But, in order that Congress may, without trouble, apportion the appropriation to the force which they are willing to keep in commission, I have caused to be prepared a table, showing the cost of a ship of each class. Thus, the reduction in the estimates may be made in exact proportion to the reduction of the vessels in commission.

Whether it be the pleasure of Congress to authorize a large or a small naval force, the necessity will be the same for placing it on a proper footing. The navy can not be reformed by merely reducing its size. In my report of last year, I invited your attention to a variety of points on which I considered legislation necessary, in order to give due efficiency to this Department, and to correct the abuses existing throughout the whole naval establishment. In my opinion, every reform necessary to place the navy upon the most useful, and at the same time, upon the most economical footing, may be easily effected. With that view I respectfully offer the following suggestions:

So far as the *matériel* is concerned, nothing is required except fidelity, vigilance, and industry, on the part of those to whom that matter is intrusted; and such changes in the laws as will insure a proper accountability. A great deal has already been accomplished in this respect. It is confidently believed that the expense of building, repairing, and equipping our vessels of war is much less at this time, than it was at any previous period within the last twenty years. This result is attributable, not so much to the head of the Department, as to the steady and zealous efforts of those officers of the navy who have had charge of the navy-yards. Little is now required, except to establish a rigid system of accountability, in every branch of expenditure. Much has already been done to attain this object.

The law for the reorganization of this Department has been carried out, as far as has been found practicable. The advantages of this change, in the increased facilities of transacting business, and in the concentration of responsibilities, are manifest and great. I regret to say, however, that the system is yet very imperfect. It is with extreme reluctance that I bring this subject again to your notice; and I should not do so, if I were not convinced that it is the wish of Congress to make the work of reform, which they have thus commenced, as perfect as possible. The bill as it passed the Senate would, it is believed, have proved as complete and effective in its provisions, as could be reasonably expected of any new measure, running so much into details; but the changes which were made in it by the House of Representatives, have produced difficulties and embarrassments in practice, which were not foreseen at the time. The uniting of two bureaux whose duties are wholly distinct, and require a wholly different order of qualifications to discharge them, has been found extremely inconvenient and embarrassing. The Bureau of Construction and Repairs, for example, is charged with duties of the Bureau of Equipment. It requires a ship-carpenter to build or repair a vessel of war; it requires a naval officer to equip her. In like manner, the providing of ordnance and ordnance stores has no natural connexion with hydrographical surveys; and yet these two subjects are intrusted to the same bureau.

It would probably be impossible to find any one man properly qualified to perform all the duties of building, repairing, and equipping, a vessel of war; and although it would not, perhaps, be so difficult to find one compe-

tent to the duties of the two Bureaux of Ordnance and Hydrography, yet it would probably happen, in most instances, that he, who was best qualified for the one, would be least qualified for the other. Besides, great confusion will necessarily exist, in keeping, by the same set of clerks, the accounts of matters so wholly distinct. The clerical force allowed to these two bureaux is much too small. Indeed, this is true, though not to the same extent, of the other bureau. The severe labors imposed, and the small salaries allowed, are positive discouragements to a zealous and energetic discharge of duty.

In providing a chief of the Bureau of Construction, Equipment, and Repair, the alternative was between a naval captain qualified to equip, and a naval constructor qualified to build and repair. I did not hesitate to prefer the former, and the place is filled by a member of the late Board of Navy Commissioners. But, in uniting the two bureaux, it was, I presume, not perceived that the salary, originally contemplated for the Bureau of Construction and Repairs, was retained. Thus it happens that one of the captains, at the head of a bureau, receives five hundred dollars per annum less than his pay as a captain in command, and less, by the same sum, than is received by each of the captains holding correspondent stations in the Department. This was doubtless not intended, and will be corrected.

I also respectfully suggest that there is no good reason for giving to the chief of the Bureau of Medicine a less salary than is received by others in corresponding positions. He ought to be, and it is presumed always will be, a man of a high order of professional attainments, and general education, holding a social position equal in all respects, to that of any other man. His *expenses*, of course, will be as great, and his *sacrifices* certainly will not be less. Of the importance and utility of this bureau I already have the most satisfactory proof, in the improved organization of the medical department of the service, and in the saving of expense greatly beyond my expectations. An expenditure, twice as large as the bureau now calls for, will be more than twice saved annually, by its services. Its claims, therefore, to the increase of salary which I recommend, are of the strongest character in every respect.

These defects in the law are obvious. Whenever they shall be corrected, it is confidently believed that a system of administration may be established in this Department, as prompt, exact, and efficient, as can be found in any other department of the Government. The acts of the last session, "to establish and regulate the navy ration," and "to regulate the pay of pursers and other officers of the navy," promise the most beneficial results to the economy of the service; and will probably remove many of the difficulties which would otherwise have existed, in accomplishing all the objects proposed in the reorganization of the Department.

The *personnel* of the navy is a subject of much deeper interest, although it presents no greater difficulties. That abuses exist, and that the public eye is occasionally offended with displays of disreputable behavior, is not surprising. Such things might be expected in any body of men equally numerous; they are seen every day, in social circles on shore, without affixing to those circles any individual or even general reproach. The navy is as free from such scandals as any equal number of men in any order of society. It is matter of just surprise that it should be so. Withdrawn, in a great degree, by the very nature of their pursuits, from the immediate influence of that public opinion, which is the best corrective of manners; and with a most imperfect

system of laws and regulations as a substitute for it, what is there but their own sense of propriety, to prevent naval officers from falling into the worst excesses? For twenty years past, the navy has received from the Government little more than a stepmother's care. It was established without plan, and has been conducted upon no principle, fixed and regulated by law. Left, to get along as well as it could, the wonder is that it retains even a remnant of the character which it won so gloriously during the last war.

Reform, in this particular, must commence with the midshipmen. After a time, these boys become men, and these midshipmen become lieutenants, and commanders, and captains. Hence it is of the utmost importance that none should be appointed, who are not duly qualified, and suited in all respects to that peculiar service. And yet, to this great and fundamental truth, no attention has hitherto been paid. The Department has been left free to appoint whom it pleased, and as many as it pleased, without any law whatever to guide or regulate its judgment. The only rule by which the Secretary can be governed, is to appoint those who are, or who seem to be best recommended; and yet, in half the cases, the boy himself is as well known as those who certify in his favor. Hence the Secretary acts in the dark, and must of necessity be often in error. It is a notorious fact, that wayward and incorrigible boys, whom even parental authority can not control, are often sent to the navy as a mere school of discipline, or to save them from the reproach to which their conduct exposes them on shore. It is not often that skilful officers or valuable men are made out of such materials. The corrective which I propose is this:

1. The naval establishment shall be fixed by law; ascertaining, among other things, the number of officers to be allowed in each grade. There must be a due proportion among the several grades, or else it will be impossible that the different duties of the service can be properly discharged. In this respect, the proviso of the appropriation bill of the last session of Congress, limiting the number of midshipmen to the number who were in service on the 1st of January, 1841, and of other officers to the number who were in service on the 1st of January, 1842, will, if persisted in, prove extremely unfortunate in its action. The *precise* proportion proper for the effective officering of a ship depends upon her class. We may find in an average of the different ships, a rule near enough to perfect accuracy to afford a safe guide of legislation upon the subject. But this proportion is wholly destroyed by the proviso abovementioned, so that it will be impossible, under that law, to furnish the proper officers for the several stations of our ships of war, supposing any considerable number of our captains and commanders to be employed. The inconvenience of that proviso is already felt, in regard to the medical officers in the service. I had the honor to represent, at the last session, the pressing necessity for an increase of the number of surgeons and assistants. There are not now in service enough to afford the aid which it is the acknowledged duty of the Government to afford to those who are engaged in her service at sea; and yet, whatever may be the necessity for them, their numbers can not be increased. In regard to the forward warrant officers, such as boatswain, carpenter, gunner, &c., the restriction is scarcely less inconvenient. They are appointed only as their services are required, so that there is no danger that their numbers will be inconveniently great. At all events, they should bear a due proportion to the other officers.

2. There should be established proper naval schools on shore. Little or

no attention has hitherto been paid to the proper education of naval officers. Through a long course of years, the young midshipmen were left to educate themselves and one another; and it is creditable to them that they lost few opportunities of doing so. Suitable teachers are now provided for them, but their schools are kept in receiving ships and cruising vessels, in the midst of a thousand interruptions and impediments, which render the whole system of little or no value. Under such circumstances, the foundation of a solid and useful education can rarely be laid. This subject was brought to the attention of Congress at its last session, and a bill establishing a naval school passed the Senate. It was not acted on by the House of Representatives for want of time. I again earnestly recommend it, convinced as I am that its effect upon the navy will be in the highest degree beneficial. If adopted, Congress will of course prescribe such rules and regulations in regard to it, as may seem to them proper; but I respectfully suggest the following as the outline of the system:

The schools shall be established at such of the old military fortifications on the seaboard, as may afford suitable accommodations; and as may not be required by the War Department.

The officers and teachers shall be supplied from those actually in the naval service; and all nautical instruments, boats for practice, &c., shall be furnished from the navy. This will save nearly the whole expense of the schools.

Instruction in the schools shall be given to candidates for admission into the navy, and to midshipmen actually in the service.

The admission of candidates shall be regulated by law, as is done in regard to the West Point academy.

No boy shall receive an acting appointment in the navy, until he shall have passed a certain period of diligent study at a naval school; nor unless he shall produce the necessary certificates from his officers and instructors, of his good conduct, capacity, physical ability, and general fitness.

Among those who shall produce such certificates, appointments shall be made, according to such rule as Congress shall prescribe:

These precautions will afford a reasonable assurance that no boy will be admitted into the navy, without being qualified for, and worthy of, that station. But the watchful care of the Government over him should not stop here. He should receive, in the first instance, an acting appointment, as is now the practice, and not be entitled to a full appointment until he shall have seen at least one year's service at sea, and made suitable progress in the science and practical duties of the service. After receiving his full appointment, he should pass not less than five years in active service at sea, before he should be entitled to examination for a warrant as "passed midshipman." That examination should be rigorous and thorough, and none should be entitled to it who could not produce the most satisfactory proofs of good conduct, attainments, capacity, and general fitness. By this time the boy will have attained a period of life when the character is generally well developed, and in some degree fixed; so that the country will have good reason to trust him in the higher grades of the service. A corps of officers, formed of such materials, would probably present few instances of misconduct or incapacity, and would reflect honor on the country, while rendering to it the most valuable services.

This system could not fail to relieve the *personnel* of the navy, after a time, of all its present incumbrances, and would certainly tend to keep it

a healthy condition. But it would be too slow in its operation, for the cure of existing evils. Probably there never was a similar institution in any country, into which abuses have not crept, after so long a period as thirty years of profound peace, and of consequent neglect. Governments and their people are too apt to overlook the military arm, when there is no immediate need of its protection; forgetting the wise maxim, that in peace we should prepare for war. Our navy has experienced its full share of those unfavorable influences; and the natural consequence is seen in the admitted fact, that it contains some officers who do no credit to their commissions. Their number, however, is much smaller than might have been justly expected, under the operation of so many discouraging and corrupting causes. Every nation finds it necessary, after particular intervals peace, to revise and reform its military establishments; and the time has now arrived, when such a corrective may be advantageously applied to the navy of the United States. The only difficulty is in adopting the right process. To dismiss from the service officers who have committed no positive offence, would be unjust and cruel. The nature of their profession, is such as to disqualify them for nearly all the pursuits of industry on shore. Most of them have been kept long on probation, and have been thus encouraged to expect that they would remain the service. Many of them now have families dependant on them, who would be exposed to great suffering, if the public support should be entirely withdrawn. On the other hand, it is to be borne in mind that the officer stipulates with his country, that he will be both willing and able to perform all the duties of the station which he solicits and receives at her hand: and he has, therefore, no right to complain, that she rejects him when he proves either neglectful or incompetent. Perhaps no more just rule can be adopted, than to compel the officer to retire, upon a certain proportion of his annual pay. A system of compulsory furlough, properly regulated, and guarded against abuse, would have the most salutary effect. To lodge such a power in the Secretary of the Navy would probably not be generally acceptable. The natural jealousy which every one feels, of whatever approaches to arbitrary power, would present a strong objection with most persons, to intrusting so much to the discretion of any one man. For myself, however, I have no doubt that the only danger would be, that the power would be too cautiously and too seldom exerted. Public opinion, in this country, is a sure corrective of all abuses of that sort; and no man, who valued either his reputation or his comfort, would hazard the one or the other, by challenging that public opinion for the indulgence of any feeling, unbecoming the impartial justice of his station. Still, however, it is desirable, not only that the Department should be in fact just and impartial, but that the public and the navy officers, should believe it to be so. I propose, therefore, that whenever the Secretary of the Navy shall be of opinion that an officer is unfit for the service, he shall be required to present his name to the Senate for furlough; stating fully, if required so to do, the reasons for that opinion. If the Senate, after such inquiry as it may choose to institute, shall concur with him, the officer shall be put on furlough, upon a certain proportion—say one half his pay,—and be considered out of the service. In this way, the same power that appoints, will remove; and the act, receiving the sanction of the Senate, will be placed above the suspicion of injustice or oppression.

It may be urged, as an objection to this plan, that it will create a body of quasi pensioners upon the Treasury, who have done nothing to deserve such

favor. This is not true, in point of fact. These officers are already in the service, and if they be not put on furlough, will receive their *whole* pay, instead of only half of it. No officer will ever be put on furlough if he be really qualified for the service; and if he be *not* qualified, he ought not to be, and I presume will not be, called into service at all. Of course he will remain a dead weight upon the Treasury, to the full amount of his whole pay. To put him on furlough, therefore, is a positive relief to the Treasury, to the extent of one half his pay.

But the evil, if it really be one, will be of very short duration. When the navy officer shall come to understand that there is a process, more certain and summary than a trial by court martial, by which his dignity and his income may both be reduced, he will be cautious not to bring himself within such peril. The effect of the furlough system will be, to create a new motive on the part of the naval officer to exert himself to excel in his profession, and to place himself above suspicion, in point of personal character and conduct. The belief, heretofore prevailing, that an officer, of any standing in the navy, could not be driven out of it, or at least that he could not be *kept* out of it, has had a strong influence in ruining its discipline, and corrupting its morals and manners. The furlough system, firmly administered, will serve to remove this impression; and, with the assistance of an unsparing and impartial administration of the law, through courts martial, will soon purify the service, and will long keep it pure. When the inefficient who are now in the navy shall have been removed, it is probable that the Treasury will, thereafter, be rarely taxed with the pay of furloughed officers. The necessity of some mode of proceeding, by which the navy may be rid of the *incompetent*, as well as of the guilty, is universally admitted; and I have not been able to devise any mode more just, more effective, or less objectionable on the score of expense, than that which I now suggest.

If this system should be fully and faithfully carried out, I do not perceive that anything more will be necessary to insure to the navy competent and honorable officers. Hitherto, it has been their great misfortune, that, with fewer opportunities than others to educate themselves, the Government has done nothing to educate them. The cadet from West Point enters the army well founded in the principles of solid and useful learning, and fully prepared to engage, with advantage, in any pursuit, whether of civil or military life. The candidate for the navy, on the contrary, is deemed well enough qualified, if he be able to read and write, to answer a few simple questions in geography and English grammar, and to solve plain problems in the elementary rules of arithmetic. Why should this difference be made? Important as a proper preparatory education may be to the army officer, it is even more important to the officer of the navy. Apart from the fact that he has few opportunities to improve himself, it is to be remembered that he is the most frequent representative of his country abroad—the standard by which foreign nations will be most apt to measure her moral and intellectual character. He is, also, frequently intrusted with important and delicate negotiations, involving the rights of our citizens, and the peace and honor of our country. The function of the naval commander is much more useful, important, and dignified, than is generally supposed. To his skill and vigilance are intrusted, at every hour of the day and night, the safety of the ship, and the lives of her crew. The honor of his country's flag, and, in a great degree, her harmonious relations in peace, and her protection in war, are among the awful trusts with which he is clothed. Very few men can be

found, qualified in every respect, for so high and imposing an office; and, unhappily, there are too few among those who now hold it, who duly feel its importance and dignity. I humbly think that it is a high duty of Government to adopt every means calculated, in any degree, to elevate the standard of character in the naval commander, and to fit him in knowledge, in professional skill, and in personal character, to discharge the high and solemn duties of his office. This can be best done by giving him a suitable preparatory education, and by providing proper and ready means of removing him from the ranks of his profession whenever he may be found unworthy to occupy a place in them.

I respectfully renew the suggestions heretofore made—that there is yet one thing more necessary to complete the process of reform. The naval officer should feel that he has a place in the respect and confidence of his country, and that the honors and distinctions which his services shall have earned, will not be withheld from him. PROMOTION is the vital principle of military service; and hence, as many *grades* should be established as may be found consistent with the due order and efficiency of the service. The experience of every day tends to confirm me in the belief that the several grades of admiral, vice-admiral, and rear-admiral, ought to be established in our navy. I had the honor to bring this subject to your notice in my last report, and to urge such reasons as seemed to me to be sufficient in support of the recommendation now renewed. I have only to add, that this important measure *need not* increase the expenses of the navy at all. It will afford an opportunity to reward, by well-deserved promotion, many officers in the several grades who are well qualified for the highest stations and most important duties of the service. These men (most of whom would soon become the ornaments and grace of any other navy in the world) are likely, under our present system, to grow gray in subordinate and obscure stations: their merits unacknowledged, and their usefulness thrown away. We may, at least, be allowed to regret that the higher officers of the navy—those who, by their services in war, have reflected most honor on their country, and given the best proofs of their own merits, are so rapidly passing from the stage of life, that, even if our policy in this respect should ultimately change, others are likely to reap the honors which *they* have so richly earned. This should be deemed, by a generous country, a reason for adopting, at once, a policy which, beyond all doubt, will ultimately be forced upon us, if we shall continue to maintain any navy at all.

I again respectfully ask for an increase in the number of marines, and of marine officers of the lower grades. Not less than twenty millions of dollars of the public property are now exposed, in our navy-yards, to conflagration and theft, for want of proper marine guards. Thefts to a considerable extent have recently been detected, and doubtless others have been committed which never will be detected. One fire, which a single additional marine might prevent, would probably destroy, in a few hours, more than the expenses of the whole marine force for ten years. Surely it can not be true economy to leave so much of the public property exposed to such great dangers, for want of so very cheap a protection as a few additional marines.

It is an object of great interest to me to make the navy subservient to the encouragement of American industry. This may be done, not only by the protection which it affords to American commerce (upon which I have already commented), but also by means of the supplies which it requires. We are, probably, the only people in the world who can, with perfect con-

venience, build, equip, arm, feed, and clothe a navy of the largest size, from our own home resources. A nation of any magnitude, having all the materials of war constantly at its command, is essentially powerful. Hence, it is of the utmost importance that we should adopt a policy calculated at once to cherish and to develop these sources of our strength and security. The measures more immediately necessary to accomplish this object, have already been brought to the notice of Congress; but, as they have not yet been acted on, it would seem to be proper that I should again refer to them.

The first in importance is the preservation of navy timber growing on the public lands. No other country possesses so rich a store of this material as the United States. Properly protected, it would afford a supply for the largest navy in the world, for an indefinite time, without any sensible diminution. But I regret to say that the laws which have been enacted with this view are, in some respects, inoperative, and in all respects inefficient. Depredations of the most ruinous kind are daily committed, in spite of all the vigilance which this Department can use, and in defiance of all the power which it is authorized to exert. Our own people are daily selling to the Government timber which they take against law from the public lands, and it is understood that large supplies of the same timber are already contracted for by foreign Governments. It is impossible to prevent these depredations under existing laws. The subject is, in my opinion, worthy of the serious and prompt attention of Congress. If they should thoroughly investigate it, the information which this Department can afford will not fail to convince them of the necessity of a reform in the laws relating to it, and of additional grants of power and means to the officers of the Government to whom they may choose to intrust this valuable part of the public property.

The subject next in importance is the establishment of a navy-yard on the largest scale on the waters of the lower Mississippi. I had the honor to give my views upon this subject in a report to the Senate of the 31st of January last. Respectfully referring to that report, I forbear to repeat at large the suggestions which it offers. I will only say that the object which I have in view is to afford whatever facilities such an establishment can afford to the industry of the whole valley of the Mississippi, now cut off, in a great degree, from its due share in the supplies of the navy. The iron of that region would find there a ready and convenient market; an extensive rope-walk, a necessary appendage to such a navy-yard, would present a constant demand for hemp; the provisions of the west, now worth little or nothing, from their superabundance, would find a ready purchaser at fair prices. Every branch of western industry would feel, directly or indirectly, the influence of such an establishment, while the navy itself would be secure of abundant and cheap supplies, sufficiently convenient to the ocean, and yet perfectly safe from the attacks of an enemy.

It is by arrangements of this sort that the navy can be made to return to the country twice the wealth which is expended in support of it. The wealth of a nation does not consist in the quantity of gold which it may have in its treasury; the economy of a nation is not shown only in the smallness of its expenditures. It is rich only in proportion as its people are rich; and it is economical only so far as it applies the public money to uses more valuable to the people who pay it than the money itself. This is but another name for national thrift, but it is the only sense in which national economy is of any value. Nine tenths of the appropriations to the navy are paid back to our own people for materials, labor, and subsistence. It is thus *put into cir-*

culation, paying debts, supplying wants, and sustaining credit. Every dollar thus employed increases the *tax-paying ability* of the people to twice that amount, and this tax-paying ability is the true wealth of the nation. The expenses of the navy, therefore, are not to be considered a dead tax upon the Treasury. They not only go back and circulate among our own people, but, unlike most other expenditures of the Government, they give employment to industry, encouragement to enterprise, and patronage to genius. They perform, to a great extent, the office of a protective tariff, in developing and bringing into use various sources of our national wealth, particularly in copper, iron, hemp, provisions, and coal. The effect of even a small disbursement so made upon the public prosperity and comfort is much more important and extensive than the first view of it would lead us to suppose. I am far from saying that taxes ought to be levied merely for the purpose of so expending them. No tax should be imposed, direct or indirect, which is not required for the legitimate and proper uses of Government. But if a necessity for the tax can be shown to exist; if the purposes to which it is proposed to apply it clearly appear to be useful and profitable to the country far beyond the measure of the tax itself, it ceases to be a burden, and is relieved from all fair objection. Such, in my opinion, is emphatically the case with almost the entire appropriation to the naval service. It is confidently believed that such appropriations, *as liberal as any convenient and proper revenue system will allow*, may be, and of necessity *must be*, applied to "uses far more valuable to the people who pay them than the money itself;" and that, far from being an oppressive burden, they will operate as a measure of positive relief.

In looking for the sources of unnecessary expense throughout the naval establishment, I have found much to correct. It can not be denied that our navy has cost much more than it ought to have cost, considering the small number of vessels that we have usually kept in commission. I do not know that this could have been very easily prevented, under the former defective organization of the Department. The mode heretofore pursued of obtaining the supplies of the surgeons' and pursers' departments has subjected the seamen to unnecessary charges, and the Government to constant impositions, in many cases to gross frauds, and consequently to heavy losses. These losses have been the greater, in consequence of the want of proper means of establishing a system of strict accountability, which would have enabled the Department not only to see the extent of the evil, but to apply the proper remedy. The bureaux to which these subjects belong have been diligently and successfully engaged in devising suitable means of guarding against similar impositions for the future. The articles are now procured, as far as possible, from those who make or produce them; so that the profits—always large, and often extortionate, which have heretofore been paid to the grocer, the apothecary, and the contractor for clothing—are saved to the Government and the sailor. Such supplies as we are still compelled to obtain in the former mode, are subjected to rigorous inspection, which assures us of their good quality and reasonable prices; and when brought into the public stores, the persons under whose charge they are placed are required to account for them with a degree of minuteness which promises to guard effectually against any waste or extravagance in the use of them.

I have very little doubt that much of the mechanical labor which has been performed at our navy-yards has been too dearly paid for. I can per-

ceive no good reason why a mechanic should work fewer hours in the day, or receive higher wages, in a public dock-yard, than in a private workshop; on the contrary, if there be any difference, it should be in favor of the Government, in consequence of the more constant employment, and the more prompt and certain pay. It is certainly good policy on the part of the Government to give such wages as will command the most competent and faithful workmen; but this can always be done, for the reason above assigned, for the same wages which are paid at the best private establishments. Measures have been adopted to place the Government upon terms of just equality with individuals, in this respect.

But a still more considerable source of expense—in building, repairing, arming, and equipping our vessels of war—may be found in the high prices and indifferent quality of the iron and copper which have been used. The Department has given much attention to these two important subjects, with a view to the correction of former abuses. In particular kinds of iron, the standard has been raised seventy-five per cent.; and yet it is found that supplies can be obtained at less prices than heretofore, although the quality is nearly twice as good. The fact, now generally known, that proper tests are applied, and that no iron will be received which does not bear them, has served to create an honorable competition among those engaged in that branch of industry; so that the most important improvements are constantly made. The United States can furnish as good iron as any other country in the world; and with suitable encouragement, would soon be able to supply the world with that metal.

In *chain cables*, an invaluable improvement has been made. None but the very best iron is ever applied to that use; and an apparatus is now in progress, and very nearly completed, for subjecting the cables, when finished, to *thermotension*. A long series of careful and accurate experiments has ascertained that this process adds seventeen per cent. to its strength. By this means the weight, and consequently the cost, of a cable of given strength, is greatly diminished, and so also is the labor of handling it on board ship. For this great improvement, we are indebted to the scientific information and industrious researches of Professor Walter R. Johnson, of Philadelphia. It is impossible to calculate its value to the whole navigating interest of the world. The fate of the largest ship, and of all her crew, often depends upon the strength of her cables; so that a little more or less of strength in a single link may save or destroy her. I have considered it, therefore, of the utmost importance to improve, by every practicable means, the quality of chain-cable iron. It is believed that, even at the present day, we are not surpassed in this respect by any other nation; and if improvements shall advance hereafter as rapidly as heretofore, we may in a short time safely challenge the competition of the world.

A similar improvement has been made in iron for ordnance. Too much importance can not be attached to the soundness of cannon. The bursting of a single gun in battle is often more disastrous than many broadsides from the enemy. It not only destroys life, and withdraws so much from the effective battery of the ship, but it also creates confusion and disorder, excites in the minds of the crew distrust in the soundness of the other guns, and thus discourages and renders them timid. Hence, no consideration of mere money-saving should ever enter into the arrangements for procuring ordnance for the navy. True economy requires that *the very best guns which can be made*, and none others, should ever be used. Upon this idea

this Department is acting. No cannon is received which does not bear the most satisfactory tests ; and yet it is not found that the cost of ordnance is any greater than heretofore. On the contrary, guns of the same kind which have heretofore cost more than \$130 per ton, have recently been contracted for at \$95.

In *copper*, the frauds which have been practised upon the Government, have been gross and enormous. Pure copper ought to last upon a ship's bottom twenty years ; and yet that which we have used upon our ships of war, has not lasted upon an average more than seven. Upon examining a portion of the copper recently taken from the bottom of the *Columbus*, I found that it exhibited the appearance of worm-eaten wood ; the reason of which is, that it was full of impurities, which corroded and fell out. Even that which remained, instead of possessing the toughness which belongs to pure copper, would not bear to be bent, but broke short off, like a piece of cast-iron. It is impossible to be too careful in procuring an article so costly as copper. Nothing but the application of proper scientific tests, can detect its impurities, or prevent the grossest and most ruinous impositions. A single defective sheet on the bottom of a large ship, will render it necessary to bring her into dock, and will thus cost the country ten times as much as would have been required to prevent any such result. The copper in a ship's bottom is no small part of her entire cost ; and this cost is more than doubled by using copper of bad quality.

The great importance of guarding against impositions in this respect, has induced the department to institute a series of experiments, under the management of Professor Johnson, the results of which, promise to be of great benefit to the economy of the service. These results I have the honor to communicate in a copy of Mr. Johnson's report, hereto annexed.

As steamships will hereafter form a part of our navy, it becomes important to ascertain what kind of fuel can be most advantageously used. With this view, I have taken measures to cause a proper analysis to be made, of the several coals of our country, and also of those of England. All persons interested in this subject, were invited, by public advertisement, to send samples of their coal to the navy-yard in Washington, in order that a proper comparison might be made, under suitable philosophical tests. About thirty samples have been sent, and some progress has been made in the examination of them. Professor Johnson, to whom this investigation has been intrusted, was called from Washington before any conclusive results had been obtained ; but his experiments will be resumed as soon as possible, and will undoubtedly present a mass of most useful information on this important subject.

The application of scientific principles in the mechanical arts is now universal. The mere artisan, whose skill is derived only from practice, is far behind the times. Science is now lending her aid to the arts, in all their departments—expanding their powers, multiplying their uses, and perfecting their works. I respectfully suggest that this aid is nowhere more important, than in the various operations connected with a naval establishment. When we consider the number and variety of the materials which are used, the costliness of many of them, and the high importance that they should all be of the best and most durable kinds, the propriety of subjecting them to all necessary tests, and of improving their quality as far as possible, will at once be admitted. This can be done, only by the union of science with practical skill. The knowledge which we obtain from *experience* is always slow, always costly, and *not* always sure ; that which we obtain from *experiment*,

particularly in physical science, rarely deceives, and seldom fails richly to repay us. The experiments which have already been made, under the direction of this Department, have imparted to it a degree of information which could not have been derived from any other source, and which will more than repay their cost, in the building of a single ship. These experiments, however, are but the beginning of what might be accomplished in the same way. If the Department were in a condition to avail itself of the improvements which are daily made in practical science, the most important results would soon be realized, in the improved quality of our ships, and in the general economy of the service. I respectfully recommend the subject to the favorable consideration of Congress.

I shall, in a few days, have the honor to lay before Congress a code of rules and regulations for the navy, prepared in obedience to their directions.

I invite attention to the existing laws on the subject of navy pensions, which appear to me to need many changes and modifications.

I have thus, sir, submitted, without reserve, my views of the present condition and actual requirements of our naval service. It is my duty to do this, without reference to any other considerations. Whether my recommendations shall be adopted or not, must of course depend on the view which may be taken of them by the legislative department of the Government. In presenting my own views, I simply discharge my own duty to those, to whose better judgment all the measures which I have proposed must be referred.

All which is respectfully submitted.

A. P. UPSHUR.

The PRESIDENT