

TO AUTHORIZE AN INCREASE IN THE LIMIT OF COST OF  
CERTAIN NAVAL VESSELS, AND FOR OTHER PURPOSES

MARCH 1, 1927.—Ordered to be printed

Mr. HALE, from the Committee on Naval Affairs, submitted the  
following

REPORT

[To accompany H. R. 16507]

The Committee on Naval Affairs of the Senate, to whom was referred the bill (H. R. 16507) authorizing an increase in the limit of cost of certain naval vessels, and for other purposes, having had the same under consideration, report favorably thereon without amendment and with the recommendation that the bill do pass.

The House report gives full information on this bill and is made a part of this report, as follows:

[House Report No. 1847, Sixty-ninth Congress, second session]

The purpose of this legislation is to authorize an increase in the limits of cost for the aircraft carriers *Lexington* and *Saratoga* from \$34,000,000 each to \$40,000,000 each.

The *Lexington* and *Saratoga* were originally two of the six battle cruisers included in the building program of August 29, 1916. Contract for the *Lexington* was entered into with the Fore River Shipbuilding Corporation, Quincy, Mass., under date of April 26, 1917, and contract for the *Saratoga* with the New York Shipbuilding Corporation, Camden, N. J., under date of May 5, 1917. Practically no work was undertaken on these vessels during the war, due to the necessity for concentrating on vessels of other types for which the need was more immediately urgent and which could be expected to be completed in time for service in the war. As a result of experience in the World War these vessels were redesigned in 1919, mainly for the purpose of increasing the protection against gun and torpedo attack, and new plans and specifications were issued late in that year. This redesign materially increased the size of the vessels.

The keel of the *Lexington* was laid January 2, 1921, and of the *Saratoga* September 25, 1920. Work on both vessels was stopped February 8, 1922, following the signing of the treaty limiting naval armament. The vessels at that time were about one-third advanced. The conversion of the vessels to airplane carriers in accordance with the terms of the treaty was authorized by the act of July 1, 1922. The contracts were modified to provide for the completion of the vessels as airplane carriers—that for the *Lexington* under date of

November 2, 1922, and for the *Saratoga* under date of October 30, 1922.

The original contracts for the two battle cruisers were on the basis of cost plus 10 per cent. This was changed to cost plus a fixed fee of \$2,000,000 for each vessel, under date of December 7, 1920, for the *Lexington*, and October 11, 1920, for the *Saratoga*. When the conversion to airplane carriers was authorized, the Navy Department was unable to arrange for the completion of the vessels on a fixed-price basis. The vessels were on the stocks in the building yards and it was not practicable to secure competition for their completion. The companies were unwilling to undertake the completion on a fixed-price basis, due in part to the difficulty of estimating the exact amount of work required and in part to the uncertain state of the labor and material market. It was therefore necessary to enter into supplementary agreements with the companies to continue the work on the same basis as provided in the battle cruiser contracts, namely, cost plus the same fixed fee of \$2,000,000 each.

The original limit of cost of the *Lexington* and *Saratoga* as battle cruisers, given in the act of August 29, 1916, was \$16,500,000 each. Prior to the placing of the contracts, this limit was raised to \$19,000,000 each by the act of March 4, 1917, and was further increased to \$23,000,000 each by the act of July 11, 1919. These increases were due in part to increases in labor and material prices and in part to the increased size of the vessels as redesigned.

The act of July 1, 1922, which provided for the conversion of the vessels to airplane carriers, continued in force the limit of cost of \$23,000,000 each. It was the expectation at that time that there would be a gradual adjustment downward in wages and material prices and that the bulk of the construction work would be carried out at prices approaching the pre-war level. Instead of going down, however, costs of both labor and material rose further, and when it became apparent that the vessels could not be completed within the amount previously set the limit of cost was increased from \$23,000,000 to \$34,000,000 each by the act of February 11, 1925. The limit of cost in both cases includes the expenditures made on the vessels as battle cruisers as well as the cost of conversion to aircraft carriers. At the time the limit of cost was raised to \$34,000,000 each, the work on the vessels was somewhat more than half completed.

Since the limit of cost was fixed by the act of February 11, 1925, there has been some slight increase in wage rates. The vessels are of an experimental nature and some of the installations developed as a result of recent experience with the operation of aircraft from ships have proved more expensive than was originally anticipated. The above factors have tended to somewhat increase the cost of the vessels but the principal increase is due to the conditions under which these vessels are building. The slackness in the shipbuilding industry as a whole has resulted in the vessels being for considerable periods of their construction the sole jobs of importance in plants equipped for carrying on a much larger volume of work. This has increased the proportion of overhead expense charged to the vessels and the economical handling of the force, difficult at best under cost-plus contracts, has been increased by the lack of other work.

It is estimated that the expenditures on the *Lexington* and *Saratoga* will reach the present limit of cost some time this spring, and unless the limit is increased at this session of Congress, the work on the

vessels will, of necessity, be stopped and their placing in service will be subject to a further serious delay.

Aircraft are now carried on our battleships and first-line light cruisers. The number of airplanes that can be placed on board such vessels is limited, however, to two or three per ship. These planes are intended primarily for service as an auxiliary to the vessels themselves and are not under ordinary circumstances available for use as an independent arm of the fleet. Furthermore, these airplanes, once launched, can not return direct to the vessel, but must land on the water and be hoisted on board when opportunity presents. In scouting operations arrangements can be made for the recovery of the aircraft by the vessels to which attached and for their repeated use. Once these vessels are in action this would not ordinarily be practicable, as the vessels must then be maneuvered with a view to the use of their main weapon, the gun.

An aircraft carrier is a mobile landing field that can accompany the fleet and from which airplanes may be launched and to which they may return as the exigencies of their service require. Aircraft being the main weapon of an aircraft carrier, such a vessel can be maneuvered with a view to facilitating the operations of the aircraft. The United States now has one aircraft carrier in service, the *Langley*. This, however, is a relatively small slow-speed vessel converted from a collier. While it has been of great service in the training of pilots and in solving many of the problems in the use of aircraft with naval vessels, its speed and capacity are not sufficient to permit the full development of the tactics required for the effective use of aircraft with the fleet. Until the *Lexington* and *Saratoga* are in service, the value of airplanes in fleet actions and the methods necessary for their most effective use can not be definitely determined.

Article VII of the treaty limiting naval armament permits the United States to place in service a total of 135,000 tons standard displacement of aircraft carriers. The *Lexington* and *Saratoga* account for 66,000 tons, leaving 69,000 tons yet to be constructed. The *Langley* is rated an experiment aircraft carrier and in accordance with the terms of the treaty will be placed out of service at such time as the United States desires to build up to the full amount under the treaty. The placing of the *Lexington* and *Saratoga* in service is required, not only for the development of the tactics of the use of airplanes with the fleet, but likewise for the purpose of determining what design features should be incorporated in any future aircraft-carrier tonnage which it may be decided to build. In designing the *Lexington* and *Saratoga*, full advantage was taken of the information then available. Judging, however, from past experience in the development of new types of naval vessels and more particularly from the development of the design of these vessels themselves since the conversion was started, the aircraft carrier of the future may be expected to depart materially, possibly not in general type, but certainly in many important details from the *Lexington* and *Saratoga*.

This proposed legislation was referred by the Navy Department to the Director of the Bureau of the Budget for advice as to whether its enactment would come within the financial program of the President and under date of December 21, 1926, the department was advised that the proposed legislation is not in conflict with the financial program of the President.

AIRCRAFT CARRIERS BUILT

United States							British Empire							Japan						
Number of class	Type	Date completed	Surface displacement	Surface speed	Guns	Torpedo tubes	Number of class	Type	Date completed	Surface displacement	Surface speed	Guns	Torpedo tubes	Number of class	Type	Date completed	Surface displacement	Surface speed	Guns	Torpedo tubes
1	Langley	1922	12,700	13	4 5-inch		1	Argus	1918	14,450	20	24-inch; 4 4-inch A. A.		1	Hosho	1922	9,500	25	4 5.5-inch; 2 3-3 inch A. A.	
							1	Hermes	1924	10,950	25	7 5.5-inch; 3 4-inch A. A.		1	Akagi	1926	26,900			
							1	Eagle	1924	22,790	24	10 5.5-inch; 6 4-inch A. A.								
							1	Furious	1925	19,100	31	10 5.5-inch; 6 4-inch A. A.								
1			12,700				4			67,290				2			36,400			

AIRCRAFT CARRIERS' BUILDING

1	Lexington		33,000											1	Kaga		26,900			
1	Saratoga		33,000				2	Courageous and Glorious		18,600 (each)	31	( <sup>4</sup> )								
2			66,000				2			37,200				1			26,900			

<sup>1</sup> Ex-battleship Almirante Cochrane.

<sup>2</sup> Ex-battle cruisers converting to aircraft carriers as allowed by treaty.

<sup>3</sup> Ex-cruisers to be reconstructed as aircraft carriers.

<sup>4</sup> Present battery 4 15-inch, 18 4-inch, 2 3-inch A. A., 16 tubes. Battery when reconstructed unknown.

<sup>5</sup> Ex-battle cruiser to be completed as an aircraft carrier.

<sup>6</sup> Ex-battleship to be completed as an aircraft carrier.

The tonnage of aircraft carriers allowed by treaty is:

United States	135,000
British Empire	135,000
Japan	81,000

The bill provides for alterations and repairs to the battleships *Oklahoma* and *Nevada*, at a total cost not to exceed \$13,150,000. The reconditioning proposed follows the general policy inaugurated by Congress in the act approved December 18, 1924, authorizing the reconditioning of the six coal-burning battleships. The *Oklahoma* and *Nevada*, which are the oldest of the oil-burning battleships, are next in line.

Of the battleships whose reconditioning has already been authorized, the work on the *Florida*, *Arkansas*, and *Texas* has been completed and these vessels have recently been returned to active service. Near the completion of the work on these vessels, the remaining three coal-burning battleships, the *Utah*, *Wyoming*, and *New York*, were placed in the navy yards for overhaul. The work on the latter vessels is now under way and will, it is estimated, be completed about the end of the present calendar year. It is proposed to undertake the work authorized on the *Oklahoma* and *Nevada* following the three battleships now under way and to complete it near the end of the calendar year 1928.

Under the provisions of the treaty limiting naval armament, the earliest date by which the coal-burning battleships may be replaced by new tonnage is three in the year 1934 and three in 1935. Similarly, the *Oklahoma* and *Nevada* may not be replaced until 1936. The changes proposed will materially reduce the risk of loss of the vessels in action and of the men by whom they will be manned, particularly when subjected to submarine and air attack, which forms of attack have been greatly developed since the vessels were designed and built. This increased protection and the improvement in the military value of the vessels in other respects, considered in connection with the remaining period of service, are fully sufficient to justify the expenditure required for their reconditioning.

Certain of the alterations proposed on the *Oklahoma* and *Nevada* are similar to those authorized on the six coal-burning battleships by the acts approved December 18, 1924, and May 27, 1926, except as modifications in the details of the work are necessitated by differences in design of the vessels involved. These alterations are the installation of additional protection against submarine attack, the installation of anti-air-attack deck protection, the reboiling of the vessels, the installation of airplane catapults, and the installation of a modern fire-control system similar to but somewhat more extensive than undertaken on the *New York* and *Texas*. The *Oklahoma* and *Nevada* are at present oil-burning vessels and no change is necessary in the type of fuel used. The boilers of the *Nevada* are, however, in immediate need of renewal. While the boilers of the *Oklahoma* are in somewhat better condition, they would require renewal within a short time in any event, and it is desired to take advantage of the laying up of the vessel for the other alterations to effect the change in the boilers. While this procedure will result in a slight saving in the cost of the work, the principal advantage is that it will avoid the necessity of again withdrawing the vessel from active service for a prolonged period.

In addition to the alterations listed above, the present bill contemplates undertaking on the *Oklahoma* and *Nevada* the installation of a 5-inch anti-aircraft battery, changes to permit an increase in the range of the turret guns, and provides also for repairs and minor

alterations involving a total expenditure in excess of the statutory limit.

The 5-inch antiaircraft gun has been adopted as the standard for the later battleships. Batteries of this type have been installed on the 16-inch-gun battleships *Maryland*, *Colorado*, and *West Virginia*, and funds have been requested for a similar installation on the 14-inch-gun battleships *Tennessee* and *California*.

In requesting authorization for the reconditioning of the *Oklahoma* and *Nevada*, the Navy Department suggested that the authority be couched in general terms authorizing repairs and alterations within a certain total amount instead of enumerating the items specifically as was done in the case of the coal-burning battleships. The committee has no objection to this form of authorization in general, as the work which the Navy Department proposes to undertake is discussed with the committees of Congress in connection with obtaining the authorization for the work and later in connection with obtaining appropriations therefor. In view, however, of the past history of the question of the elevation of the turret guns, the committee considered it best to set out this item specifically in the report in order that there might be no possibility of misunderstanding on the part of any member voting thereon.

The deficiency act approved March 4, 1923, appropriated \$6,500,000 for changes to increase the range of the turret guns on the 13 older battleships, including the *Oklahoma* and *Nevada*. At the time the appropriation was made, Congress had been informed that similar changes were being undertaken by other nations signatory to the treaty limiting naval armament. It was later found that the information relative to other powers was incorrect and the undertaking of the work was deferred until Congress might have further opportunity to consider the matter. The question was taken up again in connection with the deficiency act approved April 2, 1924, and the provision making appropriation for this work was repealed.

In the case of the 13 older battleships, the turret guns can be elevated to 15°, giving maximum ranges between 21,000 yards and 24,000 yards for the different ships. In the case of the five later ships, the turret guns can be elevated only to 30°, giving maximum ranges of approximately 35,000 yards. What is proposed for the *Oklahoma* and *Nevada* is to make such changes as will permit the turret guns to be elevated to 30°, increasing the maximum range to about 34,000 yards.

There is no question in the minds of the committee but that the elevation of the turret guns is permissible under the terms of the treaty limiting naval armament and that the question of whether or not the work should be undertaken is entirely one of policy. However, the interpretation of the treaty is the province of the Executive, and the bill provides that the alterations therein authorized shall be subject to the limitations prescribed by the treaty. The committee is of the opinion that this change should be made not only on the turret guns of the *Oklahoma* and *Nevada* but also on the turret guns of the 11 other battleships on which the elevation is limited to 15°. The increase in the maximum range of the turret guns of the older battleships would prevent their being outranged by the battleships of other powers. These changes would also equalize approximately the extreme ranges of all the battleships of our own fleet and would

materially facilitate the operations of the fleet by enabling the vessels to be maneuvered together.

The expenditure for repairs and alterations that may be undertaken by the Navy Department on an individual battleship at one overhaul is limited to a total of \$300,000 under all appropriations, unless specific authority for a greater expenditure has been obtained. Experience in connection with the reconditioning of the coal burning battleships has shown that the limit of \$300,000 per vessel is not sufficient to permit undertaking all the repairs and minor alterations which it would be desirable to undertake in order to make these vessels as up to date as practicable on the completion of the reconditioning. It is proposed, therefore, in giving authority for the reconditioning of the *Oklahoma* and *Nevada*, to authorize repairs and minor alterations in excess of the statutory limit. The total proposed in the bill provides for an expenditure under this head approximating \$1,000,000 per vessel.

The following table shows in detail the expenditure to be made from the \$13,150,000 for the proposed alterations and repairs on the battleships *Oklahoma* and *Nevada*:

Item	Oklahoma	Nevada
Additional protection against submarine and air attack.....	\$1,300,000	\$1,300,000
Reboiling and incidental work.....	1,015,000	1,235,000
New fire control, new masts, and incidental changes.....	865,000	865,000
Airplane-handling arrangements.....	140,000	140,000
5-inch AA battery, including installation.....	1,540,000	1,540,000
Raise certain secondary battery guns.....	150,000	150,000
Increase elevation turret guns.....	470,000	470,000
Miscellaneous minor alterations.....	410,000	500,000
Miscellaneous repairs.....	530,000	530,000
Total.....	6,420,000	6,730,000
Total both vessels.....		13,150,000

NAVY DEPARTMENT,  
Washington, D. C., December 16, 1926.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES,  
Washington, D. C.

MY DEAR MR. SPEAKER I have the honor to transmit herewith a proposed draft of a bill "To authorize alterations and repairs to certain naval vessels."

The purpose of this proposed legislation is to secure authorization for necessary alterations and repairs to the U. S. S. *Oklahoma* and *Nevada* at a total cost of not to exceed \$13,150,000. Should the proposed alterations and repairs to these vessels be authorized at the coming session of the Congress, the Navy Department intends to submit supplementary estimates for the fiscal year 1928 of \$13,150,000, the amount named in the inclosed draft of bill.

This proposed legislation was referred to the Director of the Bureau of the Budget for advice as to whether or not its enactment would come within the financial program of the President, and under date of December 15, 1926, the Navy Department was advised that the enactment of such legislation would not be in conflict with the financial program of the President.

The Navy Department recommends early enactment into law of the inclosed draft of bill.

Sincerely yours,

CURTIS D. WILBUR,  
Secretary of the Navy.

The necessity for increasing the limit of cost of the submarine V-4 is clearly set forth in the following letter from the Secretary of

the Navy to the Speaker of the House of Representatives, which is hereby made a part of this report:

DEPARTMENT OF THE NAVY,  
*Washington, January 24, 1927.*

The SPEAKER OF THE HOUSE OF REPRESENTATIVES,  
*Washington, D. C.*

MY DEAR MR. SPEAKER: I have the honor to transmit herewith a proposed draft of a bill to authorize an increase in the limit of cost of one fleet submarine.

Submarine V-4 is under construction at the Portsmouth Navy Yard, using engines being built at the New York Navy Yard. The limit of cost heretofore fixed by Congress for the hull and machinery of this vessel is \$5,300,000.

In the hearings on the naval appropriation bill before the subcommittee of the Appropriations Committee of the House, the subcommittee was informed that reports received from the New York yard were to the effect that the cost of the engines for the V-4 would materially exceed the estimate and it was suggested that consideration be given to increasing the limit of cost on the vessel to \$5,600,000. The naval appropriation bill as passed by the House provided for an increase in the limit of cost on the V-4 from \$5,300,000 to \$5,600,000 and this provision is included in the bill as reported by the Senate Committee on Appropriations, under date of January 17, 1927.

It was the department's understanding that the Portsmouth Navy Yard would be able to complete the portion of the work being undertaken at that yard within the estimate submitted, but the department is just in receipt of a report from the Portsmouth Navy Yard that the estimate of that yard will also be exceeded. The latest estimates submitted by the two yards indicate that the total cost of hull and machinery of the V-4 will be approximately \$6,150,000, with no allowance for unforeseen contingencies that might increase the cost.

At the estimated rate of progress, the expenditures will reach a total of \$5,600,000 before the next session of Congress. The Navy Department recommends that the limit of cost on this vessel be further increased to \$6,300,000, in order that the necessary authority may be available to proceed with such expenditures as may be required for the completion of the vessel.

This proposed legislation was referred to the Director of the Bureau of the Budget, with the above information, and on January 20, 1927, he advised that this proposed legislation would not be in conflict with the financial program of the President.

Sincerely yours,

CURTIS D. WILBUR,  
*Secretary of the Navy.*

