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EMPLOYMENT

OF

CRUISERS

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Naval War College  
Newport, R.I.  
2 November 1937

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Presentation by Capt. R.R.M. Emmet, U.S.N.  
2 November, 1937.

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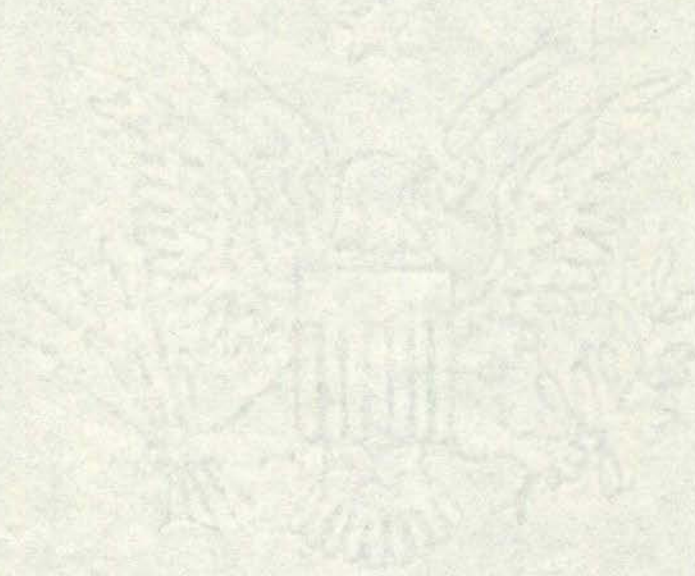
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SECTION I

THE BASIC FUNCTIONS IN THE EMPLOYMENT  
OF CRUISERS.





This presentation is designed to give students ideas of how the Cruisers of our fleet may be employed in future wars.

Before taking up the future employment of our Cruisers, it seems desirable to go back and trace the development of the functions which now pertain to this type of man of war and also see how they have exercised those functions in modern warfare.

The best and clearest exposition of the basic functions to be performed by Cruisers has been produced by Sir Julian Corbett in his valuable work entitled "Some Principles of Maritime War" published in 1911.

He begins a chapter on the Constitution of Fleets by observing that:

"In all eras of naval warfare fighting ships have exhibited a tendency to differentiate into groups in accordance with the primary function each class was designed to serve. These groupings or classifications are what is meant by the constitution of a fleet. A threefold differentiation into battleships, cruisers, and flotilla has so long dominated naval thought that we have come to regard it as normal, and even essential." p105

Lord Anson, who was first Sea Lord and First Lord of the Admiralty during most of the Seven Years War in the middle of the Eighteenth Century, is given the credit by Corbett for producing in his administration the first vessels to be specially designed as Cruisers. These were 32 and 28 gun frigates, completely divorced from any battle function. Before Anson's time, for two hundred years, the British Fleet had principally consisted of a large number of comparatively weak battleships designed to be able either to fight in the line or to protect commerce. Anson changed this



by laying down as a principle that battleships should be as powerful as possible and that to be able to develop their size and power they must be relieved of their Cruiser functions by a class of vessel specially designed for the purpose.

By the end of the eighteenth century, the proper functions of Cruisers had come to be well recognized in the British Service. These were (1) To act as eyes for the battleships and conversely to screen the battleships from the eyes of enemy cruisers; (2) To exercise control in those sea areas where control had been secured by the battleships.

Of these two functions Lord Nelson, at least, considered the second - to exercise control, etc. - as the more important. To again quote Corbett: *p 111-112*

"No thing is more familiar in naval history than his (Nelson's) incessant cry from the Mediterranean for more cruisers, but the significance of that cry has become obscured. It was not that his cruisers were not numerous in proportion to his battleships - they were usually double in number - but it was rather that he was so deeply convinced of their true function, that he used them to exercise control to an extent which sometimes reduced his fleet cruisers below the limit of bare necessity. The result on a memorable occasion was the escape of the enemy's battle fleet (Villeneuve to the West Indies), but the further result is equally important. It was that the escape of that fleet did not deprive him of the control which he was charged to maintain. *checked by E*



p 112

"If the object of naval warfare is to control communication, then the fundamental requirement is the means of exercising that control. Logically, therefore, if the enemy holds back from battle decision, we must relegate the battle fleet to a secondary position, for cruisers are the means of exercising control; the battle fleet is but the means of preventing their being interfered with in their work."

Corbett published these ideas in 1911. With what then happened in 1914-18 you are all familiar.



The conception of the basic functions of cruisers that was held in the days of sail persisted, pretty much unchanged, into the twentieth century. Then the development of a reliable long range automobile torpedo gave to the flotilla battle power against the battleship, and cruisers automatically acquired a third basic function which may be described as: (3) To protect battleships from the attack of vessels of the flotilla and conversely to support the attack of our own flotilla against the enemy battleships.

The development of the submarine as an important and essential component of the flotilla has not added another basic function for cruisers to perform. <sup>However,</sup> /cruisers must take precautions to avoid or render more difficult submarine attacks against themselves. When properly stationed as the eyes of the battleship, and particularly if equipped with airplanes of their own, they will often be able to give to the battleship timely warning of the presence of submarines. Their planes, when armed with bombs, may be used offensively against submarines.

The development of the airplane and of the airplane carrier, since the end of the great war, has not added another basic function for cruisers to perform, but has enlarged the duties pertaining to the three basic functions previously developed.

The exercise of control in areas where it has been secured by the battleship may be complicated and rendered more difficult by enemy airplanes either ship or shore based.

When operating as the "eyes" of the battleship, the effectiveness of cruisers will probably be much enhanced if they are equipped with planes of their own. Conversely, when operating to deny enemy "eyes" information of our own battleships their task will be rendered much more difficult, if not impossible to perform, if the enemy has planes.



When properly stationed and particularly when equipped with planes of their own, they may be able to give such timely warning of the approach of flights of hostile bombers or of torpedo planes directed against our battleships and plane carriers that such flights may be shattered by our own defensive planes and our antiaircraft gunfire before they can successfully achieve their mission.

Cruisers will be used to protect our own plane carriers from the attack of the enemy torpedo flotilla and from the attack of enemy cruisers. Conversely, they will be used, whenever possible, against enemy carriers.

To recapitulate:

The basic functions of cruisers may be stated as follows:

- (a) To exercise control in sea areas where control has been secured by the battleships or conversely to attempt to upset control in areas controlled by the enemy (raids).
- (b) To act as the "Eyes" of the battleships or conversely to act as a "Blindfold" for enemy eyes.
- (c) To protect our battleships from the attacks of the enemy flotilla or conversely to support the attacks of our flotilla on the enemy battleships.

Next let us see what characteristics a cruiser should possess in order to be able successfully to perform these basic functions.

The following characteristics suggest themselves:

1. Fighting ability.
  - (a) Power of gunfire.
  - (b) Accuracy of gunfire.
  - (c) Volume of gunfire.
  - (d) Flexibility of gunfire.
  - (e) Protection against gunfire.
  - (f) Flotability.



2. Seaworthiness.
3. Speed.
4. Endurance.
5. Habitability.

There may be some difference of opinion as to the relative importance of these characteristics as applied to each of the three basic functions of cruisers listed above. The following is suggested:

For cruisers engaged in the actual exercise of control etc. - Seaworthiness, endurance and habitability are probably essential characteristics. Fighting ability and speed may be essential characteristics.

For cruisers acting as the "Eyes" of the battleships or as the "Blindfold" for enemy eyes - Seaworthiness, speed and endurance are probably essential characteristics. Fighting ability may be an essential characteristic. Habitability is desirable.

For cruisers engaged in protecting the battleships from attacks by the enemy flotilla and conversely, for cruisers engaged in supporting the attack of our flotilla on the enemy battleships - Fighting ability and seaworthiness seem essential characteristics. Speed may be an essential characteristic.

It will be interesting to determine, if possible, how well fitted our present-day cruisers are ~~are~~ to perform any or all of the basic cruiser functions, but before doing so it is considered desirable to enlarge our background by very briefly considering how cruisers performed these functions in the two important wars of the twentieth century, (a) The Russo-Japanese War and (b) The World War.



SECTION II

THE EMPLOYMENT OF CRUISERS IN THE RUSSO-  
JAPANESE WAR AND IN THE WORLD WAR





(1) THE EMPLOYMENT OF CRUISERS IN THE RUSSO-JAPANESE WAR.

(a) Composition of the two fleets.

At the outbreak of hostilities the two fleets, in the Far East, were composed of the following numbers of battleships, cruisers and destroyers:

	<u>Japan</u>	<u>Russia</u>
Battleships, 1st Class	6	7
Other battleships and armored coast defense vessels	3	0
Cruisers (armored)	8	4
Other Cruisers	30	7
Destroyers	19	25

Japan had, therefore, a superiority of four (4) armored cruisers and twenty-three (23) other cruisers (eleven (11) of which were old and of very slow speed) to offset the Russian advantage of one (1) battleship and six (6) destroyers.

The two fleets would appear, therefore, to be about equally matched in a general action.

(b) Employment of Cruisers by Japan and Russia.

(1) As Battleships.

The Japanese used armored cruisers to lie in the battle line at the two general actions of the war, the battle of the Yellow Sea and the battle of Tsushima.

The Russians at the battle of the Yellow Sea attempted to have their three large protected cruisers, armed with six inch guns, lie in the line. This they did till they had had a few salvos of heavy gunfire from the Japanese battleships as the two fleets passed each other on opposite courses.



(2) To exercise control in Sea Areas.

The Russians, from the beginning of the war were never in control of any vital sea area.

The Japanese secured control of the vital sea communication with Southern Manchuria the very first night of the war. They retained control of these communications throughout the war.

Their battleships covered the Russian battleships in Port Arthur, first, from a base at Asan Bay, Korea about 300 miles from Port Arthur and later after the second army had been landed from a base in the Elliot Islands only about 50-60 miles from Port Arthur.

The line of passage of the transports and supply ships was guarded by the smaller Japanese cruisers. These vessels appear to have patrolled more or less fixed beats and the vessels they were detailed to guard were passed on from one cruiser or group of cruisers to another until they reached their destination.

To prevent the three Russian armored cruisers based on Vladivostok from raiding this vital line of communication, Admiral Kamimura was stationed in the Straits of Korea with a division of armored cruisers and a division of protected cruisers.

The Russian ships in the middle of June 1904, did successfully raid the Straits of Korea and destroyed two loaded outward bound troop transports and another inward bound transport loaded with sick from Manchuria to Japan before they were intercepted and driven off by Admiral Kamimura.

Encouraged by their success, they tried another raid on the Manchurian communications the end of June. They were intercepted again by Admiral Kamimura's forces, and only precipitate retreat and good luck saved them.



In the middle of July the Russian Squadron raided the eastern coast of Japan in the hope of picking up some transports plying between Yokohama and the Inland Sea. The cruise was unsuccessful. As soon as the presence of the Russian ships on the coast was known, all shipping was ordered into port, and the Russians were able only to pick up a few neutrals loaded with contraband.

(3) As the Eyes of the Battleships.

Scouting with cruisers, as we know it, and as described in our Scouting Manual, was not used in this war. Patrolling by cruisers of fixed beats was used extensively.

At the battle of the Yellow Sea, there was only tactical scouting on either side, as it was fought close to Port Arthur and the Russian ships were under constant observation from the time of their first appearance outside the inner harbor.

Admiral Kamimura, based at Takeshiki on the Island of Tsushima, seems to have used part of his light cruisers as a close-in patrol of the Straits of Korea, in order to give warning of the approach of raiding Russian cruisers.

There was surprisingly little scouting immediately prior to <sup>the battle of</sup> Tsushima. Rozhestvenski had only four regular cruisers suitable for scouting and did not use them for that purpose. Admiral Togo apparently had made up his mind that the Russians would surely come via Tsushima. He therefore based his heavy ships at Masampo (Southeastern Korea) and divided his light forces between Masampo and Tsushima Island. He established a cruiser patrol from the Goto Islands northwesterly across the Straits and an outer patrol still further to seaward, of four merchant cruisers equipped with radio. These dispositions accomplished perfectly their purpose.



(4) As Protection for the Battleships against the Attacks of the Flotilla.

Neither the battles of the Yellow Sea nor of Tsushima offer illustrations of this function of cruisers. The tactics of that day did not include using the torpedoes of the destroyers as a major weapon in a day action, except against disabled ships such as the Russian battleship SUVOROV at Tsushima.



(2) THE EMPLOYMENT OF CRUISERS IN <sup>world war one</sup> THE GREAT WAR.

(a) Composition of the British and German Fleets.

At the outbreak of hostilities, Great Britain and Germany appear to have had the following numbers of Battleships, Cruisers and Destroyers:

	<u>Great Britain</u>	<u>Germany</u>
Dreadnaughts	20	13
Other Battleships	38	24
Battle Cruisers	8	5
Cruisers	40	16
<u>Light Cruisers</u>	71	39
Destroyers	225	152

The British had about 75 submarines and the Germans about 30 submarines.

(b) How Cruisers were Employed.

(1) As Battleships.

Both the British and the Germans planned to use their Battle Cruisers, in a General Action, as a fast division of the battle line and probably on the advanced flank. These plans were carried out at Jutland. The British battle cruisers were found unable to resist the effect of the German 11" and 12" projectiles. Three of them were sunk. The German battle cruisers stood up better than did the British. They were provided with much thicker armor than were the British, and the British heavy projectiles seem to have been of inferior quality to the German heavy projectiles.



Nevertheless, the LUTZOW was so damaged that the Germans sunk her themselves the morning after the battle and the SEYDLITZ and DERRFLINGER were terribly smashed up. The experience gained at Jutland indicates ~~strongly~~ the undesirability of requiring battle cruisers to lie in the battle line.

The Germans had no armored cruisers at Jutland. The British had eight. Three of these large ships (14,000 tons) came under 11" or 12" gunfire at various stages of the action and were almost immediately either completely destroyed or were so wrecked (WARRIOR) that they sank the next morning.

(2) For the ~~purpose~~ Exercise of Control in Sea Areas.

How Cruisers performed this basic function in the World War has been exhaustively developed by members of the Classes in their presentation of Cruiser Warfare. It will, therefore, not be touched on ~~further~~ here.

(3) As the Eyes of the Battleships.

At the beginning of the War, the British, through pure fortuitous chance, were presented with a new weapon which reduced the wear and tear on their Cruiser Squadrons to an incalculable extent. In August 1914, the German Cruiser MAGDEBURG was wrecked in the Baltic, and the Russians recovered the German codes and ciphers. These books were turned over to the British and the Admiralty, with their aid, was able to decode and decipher every German radio message intercepted and most of them appear to have been intercepted, including intra-fleet short wave messages that the Germans did not believe could be heard more than a few miles. In addition to, and supplementing the above, the geography of the principal theater of naval operations (the North Sea) permitted the establishment of a network of radio-compass stations which were found highly effective in locating and then tracking enemy forces that used radio when at sea. Incredible as it seems, for over three years the British knew of projected German operations usually



before the German ship and unit commanders that were to participate were informed; they knew where the German forces were going; they were able to indentify all or most of the German forces at sea, and they were able to track quite accurately all their movements.

They knew in advance of the raid by the German battle cruisers on Scarborough and Hartlepool; of the unsupported sortie of the German battle cruisers that resulted in the battle of the Dogger Bank; of the bombardment of Lowestoff and Yarmouth; and lastly and most important of the movements of the High Seas Fleet that culminated in the battle of Jutland.

The Germans too had a new weapon which they hoped would reduce the wear and tear on cruisers and produce more and better information than could cruisers. This new weapon was the Zeppelin. In practice, however, the Zeppelin's performance fell much below expectations. North Sea weather turned out to be so unfavorable to their operations that the sum of their accomplishments as Naval Scouts was practically nil over the whole war.

When the British and German Fleets were at sea, each side used their cruisers as "eyes" to prevent tactical surprise.

The relative geographical positions of the British and German North Sea bases permitted the <sup>British</sup> battle cruiser fleet to ~~naturally~~ interpose between the Grand Fleet and the German bases. Admiral Jellicoe depended on the battle cruisers as his first source of enemy information, after the radio.

The battle cruisers themselves, when cruising, were screened by their attached three squadrons of light cruisers, twelve (12) ships.

The Grand Fleet usually was screened, when cruising, by eight (8) large armored cruisers disposed in line about ten miles ahead of the Battleship Divisions.



At Jutland as the third battle cruiser squadron was with the Grand Fleet, it and its two attached light cruisers were stationed about eight miles ahead of the Armored Cruiser Line.

The light cruisers attached to the Grand Fleet seem to have been primarily for defence against the enemy flotilla and as linking vessels between the armored cruisers and the battleships.

Similarly when the High Seas Fleet went to sea its Battle Cruisers were relied on to furnish timely tactical information of the enemy, if the Zeppelins failed. The Battle Cruisers were always interposed between the battleships and the enemy bases. They, themselves, were screened usually by a half dozen light cruisers and three flotillas of destroyers disposed on the arc of a circle of eight miles radius from Hipper's flagship.

The battleships of the High Seas Fleet, when cruising, seemed to have been screened by another half dozen light cruisers and by all, but three half flotillas, of the remaining destroyers disposed in an elliptical formation about their formation, divisions and about six miles from it.

These arrangements seem to have worked out well and to have accomplished their purpose at Jutland as well as the prevailing visibility could be expected to permit.

(d) As protection for the Battleships against the Attacks of the Flotilla.

During the period from the close of the Russo-Japanese War to the outbreak of the World War, the Flotilla had gained enormously in battle power. This was due to better destroyers and better torpedoes. The destroyers were larger, faster and had better seakeeping qualities. The range of torpedoes had been more than doubled and they were very much more reliable. The Germans being the weaker side had devoted great attention to the use of the automobile torpedo both by day and by night, in the hope that



torpedo hits might help to make up the disparity in gun power between the two fleets.

The German boats were primarily designed to carry torpedoes. The British boats were designed primarily for defense against the German torpedo attack, and their armament featured guns rather than torpedoes. The British had under construction at the outbreak of the war sixteen (16) light cruisers of 3500-4000 tons displacement that were specially designed to act in support of their own flotilla and against the German flotilla. They were armed with either two or three six inch guns and with six (6) four inch guns.

Curiously enough at the two principal Naval Battles of the war the British light cruisers, though potentially a major menace to the German torpedo craft, cut little or no figure.

At the Dogger Bank, which was a pursuit action from start to finish, the very superior British light cruisers and destroyers were, due to the rough and bumpy sea condition, never able to draw out ahead of the Battle Cruisers.

At Jutland, the superior British light cruisers were never used effectively against the German destroyer attacks. It is interesting to speculate on what might have happened had the British light cruisers been used to prevent the German destroyers reaching their torpedo launching positions when they stood in to cover the second withdrawal of the High Seas Fleet.



SECTION III

THE EMPLOYMENT OF OUR CRUISERS

IN FUTURE WARS



In this Section we will endeavor to determine how well <sup>is</sup> fitted the present cruiser force of the United States Fleet ~~is~~ to perform the basic functions of cruisers in a future war.

We will take up first the heavy cruisers and then the light cruisers.

#### Heavy Cruisers.

The heavy cruisers are a direct product of the Washington Conference which, ~~as we have seen,~~ fixed the upper limit of size for a cruiser at 10,000 tons plus fuel, and reserve feed, water and also fixed the upper limit for a cruiser's guns at 8 inch.

These limits were arrived at, not because of any scientific research, but because at that time Great Britain had just completed, for service abroad, four rather large cruisers (9500) armed with six or seven 7!5 guns, and she did not want to scrap them.

In 1930 was held the London Conference for Limitation of Armament and upper limits for heavy cruisers were agreed on as follows:

United States	18
Great Britain	15
Japan	12



These limits have been built up to, though our 18th ship is not due to commission till next year.

Current Cruiser Doctrine, 1935 - rates ten (10) of our ships - AUGUSTA, CHESTER, CHICAGO, HOUSTON, INDIANAPOLIS, NORTHAMPTON, PENSACOLA, PORTLAND and SALT LAKE CITY - as unprotected heavy cruisers, and eight (8) - ASTORIA, MINNEAPOLIS, NEW ORLEANS, QUINCY, SAN FRANCISCO, TUSCALOOSA, VINCENNES and WICHITA - as protected heavy cruisers. The extra protection of the later ships had to be paid for by a loss of steaming radius of 5-7000 miles.

The Navy Department has given much consideration as to how these ships shall be used in war. The War Instructions lay down the probable duties they will be called on to perform, in detail, as follows:

- (1) In a fleet action.
  - (a) To support attacks by own light forces.
  - (b) To break up attacks by enemy light forces.
  - (c) To operate against enemy cruisers.
  - (d) To operate as a detached wing.
  - (e) To support carrier operations.
- (2) Scouting.
- (3) To support carrier operations.
- (4) To raid enemy forces.
- (5) To destroy enemy commerce.
- (6) To protect our own convoys and commerce.

The War Instructions omits Screening as a probable duty for the heavy cruisers, though it includes it for the light cruisers. As the heavy cruisers are often used to screen the battleships in our peace time exercises, it has been thought proper to add it to the list of heavy cruiser duties, viz.:

- (7) Screening.



It will be observed that most of these duties may be grouped easily and naturally under the three basic functions of cruisers, as follows:

Function 1.

To exercise control, etc.:

- (4) To raid enemy forces.
- (5) To destroy enemy commerce.
- (6) To protect our own convoys and commerce.

Function 2.

To act as the "Eyes" of the battleship, etc.:

- (2) Scouting.
- (7) Screening.

Function 3.

To protect the battleships from attacks by the enemy flotilla, etc.:



- (1)(a) To support attacks by own light forces.
- (1)(b) To break up attacks of enemy light forces.
- (1)(c) To operate against enemy cruisers.
- (1)(e) and (3) To support carrier operations.
- (7) Screening.

Duty (1)(d) - To operate as a detached wing - implies using heavy cruisers as a detached wing of the battle line.

Before considering the ability of the ships to perform the duties listed above, let us see what characteristics have been built into them.

1. Fighting ability.

The heavy cruisers, in service, have developed a number of faults affecting their fighting ability, which have proved quite difficult to eradicate. The more serious of these faults have reduced the accuracy of fire of the main batteries very materially.

Briefly:

(a) The eight inch guns of the main batteries were found to be improperly mounted. The guns of the triple mounts (and of the twin mounts too, in the SALT LAKE CITY and PENSACOLA) were mounted in the same slide and with only 46" between adjacent muzzle centers. The result was gas interference at the muzzles, when the guns were fired in salvo, which caused large dispersions.



(b) The eight inch guns were found to wear out relatively very fast.

(c) The eight inch service projectiles were found to flight erratically.

(d) The three turret ships cannot divide their fire effectively. They have excellent fire control facilities <sup>for doing so</sup> but the fire of one triple mount has proved quite ineffective.

(e) The after turret of the three turret ships is placed in the ships exactly abreast the wing propellers. At speeds above 25 knots, the vibration in this turret adversely affects its efficiency and the efficiency of the turret range finder.

(f) The original allowance of main battery ammunition (100 rounds per eight inch gun) has proved quite inadequate both in fleet exercises and here at the college on the game board.

(g) It has proved very difficult to obtain accurate ranges from the main battery range finders at extreme and long ranges due to operators error caused by lively platforms and the small fields of high power optical instruments.

(h) The 5"/25 caliber combined A.A. and secondary battery is inadequate on the eight (8) earlier ships.

(i) The tops of the forward magazines of the SALT LAKE CITY and of the PENSACOLA are above the waterline.

The Department is endeavoring to correct these defects as best it can.

The last ship of the class to be constructed has her eight inch guns mounted 72" apart, and in separate slides. The Department is endeavoring to cure the dispersions caused by too close mounting in the other seventeen (17) ships by using delay coils.



The muzzle velocity of the eight inch guns has been reduced several hundred foot seconds to give them a longer life.

A new service shell has been designed and about \$25,000,000.00 worth ordered, ~~approximately~~.

Attempts are being made to improve vibration conditions in after turrets by the use of springs and rubber.

Means have been found to stow 500 additional charges, though this naturally ~~increases~~ congests the magazines.

The main battery range finders are being stabilized.

The addition of four 5"/25 caliber guns to the eight (8) earlier ships has been authorized but no work started.

It is apparent that the fighting ability of the heavy cruisers, with the exception possibly of the WICHITA, is very moderate.

## 2. Seaworthiness.

The heavy cruisers have proved splendidly seaworthy, in service. They are extremely stable ships and will certainly prove relatively hard to sink. The first ships of the class rolled excessively. This fault has been largely eradicated by the addition of longer bilge keels and the installation of anti-rolling tanks.

## 3. Speed.

These ships can all develop easily their legend speed. They can all steam fast in rough water.

## 4. Endurance.

These ships have proved economical and have long radii of action, at all speeds.

## 5. Habitability.

They are extremely comfortable ships to live on and there should be no trouble keeping their war complements happy



and healthy even during the most arduous campaign.

Now let us see how well fitted they are to perform their duties in war.

(1) In a fleet action.

(a) To support attacks by our own light forces.

They have the speed and the weatherly qualities to permit them to take the most favorable positions from which to support the attacks of our light forces. Their eight inch batteries (if and when the Department renders them effective) should prove very useful in crushing the opposition of the enemy cruisers. The Department (War Instructions) considers them better suited than are our light cruisers for clearing away the opposition of enemy cruisers when our destroyers are attacking. Too much must not be expected of them in performing this duty, as their fighting ability is very moderate.

(b) To break up attacks by enemy light forces.

The heavy cruisers ~~can~~ <sup>can</sup> take and maintain the most favorable positions from which to break up attacks by enemy light forces. Their eight inch batteries (if and when rendered effective) should prove valuable in crushing the cruiser support of attacking enemy destroyers. They should not prove particularly successful against a multiplicity of destroyer targets, as they cannot develop sufficient accuracy or volume or flexibility of gunfire.

(c) To operate against enemy cruisers.

They have the ~~can~~ qualities to take and maintain as favorable positions as possible when operating against enemy cruisers in a fleet action. Their very moderate fighting ability, however, does not fit them to perform efficiently this duty.



(d) To operate as a detached wing.

The War Instructions envisages, under certain conditions, employing heavy cruisers as a detached wing of the battle line.

Their speed and weatherly qualities fit them to perform this duty. Their lack of fighting ability would seem, however, to be a fatal bar to the successful performance of this duty.

Before operating any of our heavy cruisers as a detached wing of the battle line, we should consider the fate of the DEFENCE, WARRIOR and BLACK PRINCE at Jutland; the BLUECHER at the Dogger Bank; the GNEISENAU and SCHARNHORST at the Falklands. These were all armored cruisers. They were stronger, tougher, better armed and armored than are our protected heavy cruisers. They were all destroyed with comparative ease when subjected to the fire of heavy guns.

(e) To support carrier operations.

Discussed under (3) below.

Students desiring ideas on how to handle cruisers in a fleet action or in a cruiser action should study, (1) Current Cruiser Doctrine, 1935 - Chapters IV and VI, and (2) the College publication - Cruisers and Destroyers in The General Action.

(2) Scouting.

Our heavy cruisers have proved themselves in the fleet exercises and in the war games here at the College as excellently fitted to act as scouts for the Fleet.

They have the speed, the radius of action, the ability to steam fast in a sea way.



Each ship is equipped with four airplanes that, when they can be used, greatly enhance its ability as a scout and at moderate and long ranges enhance the effectiveness of the ship's main battery by furnishing plane spot for its fire. If, however, it is not possible for any reason to use the planes, and the ships must engage the vessels of the enemy's screen to get information, they may have trouble getting it because their fighting ability is so moderate.

To enable us to judge the possible effectiveness of cruiser planes, the following extracts are made from the report of ~~the Vice Admiral commanding the~~ <sup>Commander</sup> Scouting Force, ~~U.S. Fleet,~~ on Fleet Problem XVIII.

"In the past year's fleet tactical exercises including the Fleet Problem, there was only one occasion when Cruiser Aircraft were of any value in Scouting. Usually when atmospheric conditions permitted flying, the condition of the sea prevented catapulting planes when they were needed. It is realized that the decision not to catapult in peace time operations is often made when the sea conditions are such that injury to personnel is improbable but damage to materiel is probable. It may be said that under these conditions planes would be flown in war, but the decision faced by the Commander in scouting operations will be a difficult one. Assuming that there will be only slight risk to personnel, but probable injury to planes which will prevent further flight operations, shall he order planes catapulted? There may be nothing for them to see within flight



range, - and tomorrow may be such a day that they can be flown with safety. How much more difficult will be his decision if he believes injury to personnel probable.'

"Under the probable conditions of cruiser engagements in war it is unlikely that aircraft spot will be available when required."

During the two years, 1933-35, that Admiral Laning commanded the heavy cruisers and this lecturer served on his staff as Gunnery Officer, we got considerably more useful service out of the heavy cruiser planes than was apparently the case last year. This lecturer is bound to say, however, that he left the heavy cruisers with the firm conviction that their planes would not last long in war. He agrees, with the Commander Scouting Force, that plane spot will rarely, if ever, be available for the heavy cruisers.

If planes can be used, they <sup>greatly</sup> ~~considerably~~ simplify scouting. For this reason and also because of the probable moderate fighting ability of these ships and their consequent inability to obtain information by fighting, this lecturer would be very loathe to see their planes removed.

~~Students are referred to Current Cruiser Doctrine, 1935 - Chapter II and to the Scouting Manual.~~ Students are referred to Current Cruiser Doctrine, 1935 - Chapter II and to the Scouting Manual.

(3) To support carrier operations.

The protection of carriers and the support of their operations have come to be considered one of the most usual and important duties for the heavy cruisers. They have the speed to stay with the carriers and, on paper, they are a match for any cruisers that can be sent against our carriers except battle cruisers.



In defending carriers, it is important that the heavy cruiser guard be kept well concentrated in the direction of probable attack. In Fleet Problem 15, Crudiv 4, consisting of three heavy cruisers but representing nine heavy cruisers, was set to guard a division of three large carriers represented by the SARATOGA. The Cruiser Commander disposed his ships by divisions apparently equally spaced on the arc of a circle of about 10-15 mile radius surrounding the carriers. Crudiv 5, composed of three heavy cruisers but representing nine heavy cruisers in three divisions, attacked with all three divisions concentrated and crushed the cruiser guard of the carriers in detail as the divisions came up to support the first division attacked, and then shot up the carriers themselves. Carrier planes were absent on an offensive mission.

In Fleet Problem 14, six heavy cruisers were detailed to support carrier raids on a coastline where plenty of land based planes and some battleships were available to the defense. This attack was repelled with great loss. Three heavy cruisers and one carrier sunk and three heavy cruisers and the other carrier badly damaged.

(4) To raid enemy forces.

The heavy cruisers, in many respects, are fitted for carrying out cruiser raids against enemy forces. They have the speed and weatherly qualities to get to their objectives quickly and with precision. Their planes, if they can use them, should prevent their being surprised by superior enemy forces and should increase the effectiveness of their main battery gunfire at moderate and long ranges. It must not be overlooked, however, that there is real doubt of the ability of these ships to fight themselves clear if intercepted by enemy heavy cruisers.



(5) To destroy enemy commerce.

The heavy cruisers seem admirably fitted to destroy enemy commerce. They are faster than any existing merchant vessel and their batteries are too powerful for any armed merchantman to cope with. Their planes too should greatly increase their potentialities as commerce destroyers. They have long cruising radii.

On the other side of the picture, we must consider their moderate fighting ability; their vulnerability to airplane bombs; and that they make attractive targets for torpedoes from submarines.

There is little in Current Cruiser Doctrine, 1935 - Chapter V or in the War Instructions to guide us in how to employ cruisers as commerce destroyers. The College presentation on Cruiser Warfare in the Great War is a valuable source of information on this important subject.

(6) To protect our own convoys and commerce.

These ships seem admirably fitted to protect our own convoys and commerce.

As a convoy guard, their long range eight inch batteries would seem excellent insurance against surface vessel attack, except by battleships or battle cruisers.

They also seem suitable ships to exercise control in those sea areas where our battleships have secured it. Their speed, their fine sea-keeping qualities, their long radius of action, their embarked planes, their eight inch batteries, all add up to nearly an ideal combination for this purpose.



(7) Screening.

The War Instructions does not list Screening as one of the specific duties to be performed by heavy cruisers. The War Instructions, Chapter III, and Current Cruiser Doctrine, Chapter III, have, however, a good deal to say about screens.

Heavy cruisers have been used and will be used as part of the "Distant Screen". The "Distant Screen" is primarily to prevent surprise. The heavy cruisers are not in all respects well fitted to form part of such a screen. Their planes, if they can be used, and their speed are favorable. Their lack of fighting ability is against them.

Heavy cruisers are not well fitted to form an "Offensive Screen" because of their moderate fighting ability.

Heavy cruisers are not well fitted to form part of an anti-destroyer screen. Their eight inch batteries are not sufficiently accurate, cannot develop sufficient volume of fire and are not sufficiently flexible to be effective against a multiplicity of destroyer targets. Their five inch batteries, on the contrary, are very accurate, are capable of a high rate of fire and are extremely flexible. The earlier ships, however, have only two five inch guns in a broadside.



Light Cruisers.

We have ten (10) light cruisers of the OMAHA Class and nine (9) light cruisers of the BROOKLYN Class.

The British have fifty-four (54) light cruisers built or building, all armed with 6" guns.

The Japanese have twenty-five light cruisers built or building. Eight (8) of these ships are armed with 6" guns, the remainder with 5.5" guns.

The War Instructions has laid down the following list of probable duties for our light cruisers:

- (1) In a fleet action.
  - (a) To support our destroyer attacks.
  - (b) To break up enemy destroyer attacks.
  - (c) To operate against enemy light cruisers.
- (2) Scouting.
- (3) Screening.
- (4) To destroy enemy commerce.
- (5) To protect our own convoys and commerce.

It will be observed that these duties may be easily and naturally grouped under the three basic functions for cruisers, as follows:

Function 1.

To exercise control, etc.:

- (4) To destroy enemy commerce.
- (5) To protect our own convoys and commerce.

Function 2.

To act as the "Eyes" of the battleship, etc.:

- (2) Scouting.
- (3) Screening.

Function 3.

To protect the battleships from attacks by the enemy flotilla, etc.:

- (1)(a) To support our destroyer attacks.
- (1)(b) To break up enemy destroyer attacks.
- (1)(c) To operate against enemy light cruisers.
- (3) Screening (anti-destroyer).



As in the case of the heavy cruisers, let us see what characteristics the Department has built into the light cruisers.

1. Fighting ability.

The performance of the main batteries of the OMAHAs has always been moderate, in service.

In the winter of 1935 we had an opportunity to compare our OMAHAs with the modern German light cruiser KARLSRUHE armed with nine (9) 5.9 guns. We furnished her with a tug and a battle raft. Our fleet gunnery officer was allowed to be on board her while she fired what the Germans called a training practise. Her performance at 10-12 thousand yards was so much better than that of our ~~OMAHAs~~ <sup>OMAHAs</sup> that it was apparent that our ships were probably also inferior in accuracy of fire to corresponding British and Japanese light cruisers.

The superior accuracy of the KARLSRUHE's fire may have been due to the following:

- (a) Better method of gun mounting.
- (b) Better designed gun.
- (c) A more accurately flighting projectile.
- (d) Powder charges cased in brass cases.

The OMAHAs are, relatively speaking, very good gun platforms. Their metacentric height, however, is low, and it is believed that, relative to the heavy cruisers, they would be easy to sink or to capsize.

The BROOKLYN Class ships have not been tried in service. Their powerful main batteries of fifteen (15) six inch guns may turn out to be perfectly accurate.

Their six inch guns are of a new design. It is probable they will be furnished with an improved projectile. It is understood that the powder charges are to be cased in brass.



The gun mountings, however, are of the same pattern that proved so productive of excessive dispersion in the eight inch batteries of the heavy cruisers - triple mounts with the guns cramped close together in the same slide.

The stability of the BROOKLYN Class should be excellent. They should be hard ships to sink or to capsize.

It is certain that the fighting ability of the OMAHAs is moderate.

The fighting ability of the BROOKLYNs will be proportionately better. Triple mounts, with the guns cramped close together to save weight and space, must be paid for, however, with some loss of accuracy.

#### 2. Seaworthiness.

The OMAHAs have proved extremely seaworthy in service.

The BROOKLYNs should be even better as they are designed to be the equal in hull characteristics of the protected heavy cruisers.

#### 3. Speed.

The OMAHAs can all make their legend speed, and they are as fast or faster than any of their contemporaries.

The BROOKLYNs, it is expected, will have as good or better power plants than have the protected heavy cruisers and should be able to steam as fast in a seaway as can the protected heavy cruisers.

#### 4. Endurance.

The endurance of the ships of the OMAHA Class varies. They all have about the same radius of action (2,000 miles) at 30 knots. At low speeds, however, the five CONCORDs are very economical; the three OMAHAs not so economical; and the two DETROITs rather uneconomical.

It is expected that the BROOKLYNs will be very economical at all speeds.



5. Habitability.

The OMAHAs are not nearly as comfortable ships for their crews to live on as are the heavy cruisers. This is particularly so in tropical temperatures. It is believed, however, that they are still sufficiently comfortable to offer no real obstacles to keeping their crews healthy and happy in an arduous campaign.

The BROOKLYNs should not be as comfortable to live on as are the heavy cruisers. They carry two hundred more men on the same displacement and the ships are more cut up with five (5) six inch gun mounts than are the heavy cruisers with three (3) eight inch gun mounts. They should be more comfortable, however, than are the OMAHAs, and it should be ~~very~~ easy to keep their crews healthy and happy during an arduous campaign.

Now let us examine the ability of the light cruisers to perform the duties prescribed for them by the War Instructions.

(1)(a) In a fleet action to support our destroyer attacks.

Both the OMAHAs and the BROOKLYNs seem admirably suited for this important duty. They have the speed to stay with our destroyers; they have the weatherly qualities to attain and maintain favorable positions; on paper, their powerful six inch batteries seem ideal weapons with which to shatter enemy light cruisers and destroyers that may seek to oppose the attack of our destroyers.

It will probably be necessary to bear in mind that the BROOKLYNs are such large and important ships and we possess so few of them that there will be a great temptation for the enemy to give them a taste of main battery battleship gunfire if they venture into moderate ranges and moreover they, themselves, will be tempting torpedo targets. ~~There seems to be a possibility that we may have put too many eggs in one basket.~~



(1)(b) In a fleet action - to break up enemy destroyer attacks.

Both classes of our light cruiser seem admirably fitted to break up enemy destroyer attacks.

(1)(c) In a fleet action - to operate against enemy light cruisers.

The OMAHAs, on paper, are a match for any of the British or Japanese light cruisers except the largest and latest ships being constructed. Actually, there is reason to believe that this may not be so and it will probably be the part of wisdom not to oppose them to superior or even equal numbers of enemy light cruisers.

The BROOKLYNs, on paper, seem superior to any other light cruisers in existence. Actually, however, the manner in which their main battery guns are mounted may be a source of weakness.

(2) Scouting.

The characteristics of the OMAHA Class suit them to perform the duties of scouts and they have demonstrated their value as scouts over and over again in fleet exercises. They carry two (2) VSO planes.

The characteristics of the BROOKLYN Class should make them even better scouts than are the OMAHAs. They carry four (4) VSO planes.

It is believed our light cruisers should not be used for scouting so long as heavy cruisers are available for this purpose, as they would have to retire in a normal encounter with an enemy heavy cruiser.

(3) Screening.

The War Instructions list three kinds of screens that cruisers might logically form a part of, viz.:

(a) Anti-destroyer screen.

(b) Distant screen.



(c) Offensive screen.

The heavy cruisers, with their long range 8" batteries, seem better suited, if available, to form Distant Screens and Offensive Screens than do the OMAHAS and BROOKLYNS with their relatively short range 6" batteries.

Our light cruisers, however, seem ideally fitted to form part of an anti-destroyer screen. The large number of six inch guns they carry should prove very effective against destroyer targets and against enemy light cruisers acting in support of their destroyers.

(4) To destroy enemy commerce.

The BROOKLYN Class of light cruiser has all the necessary qualities - speed, weatherliness, long radius of action, size, embarked airplanes and gun power - to be efficient commerce destroyers. They cannot, however, successfully engage enemy heavy cruisers, except at comparatively short ranges.

The OMAHA Class too have the characteristics needed for successful commerce destroyers, except that the two DETROITS and the three OMAHAS are a little limited in their cruising radii for this duty. The five CONCORDs, however, are very economical ships at low speeds.

The OMAHAS, of course, could not cope with the British and Japanese heavy cruisers nor with the large light cruisers both the British and the Japanese have under construction.



(5) To protect our own convoys and commerce.

Our light cruisers are ~~definitely~~ not as well suited for protecting either our own convoys or our own commerce as are ~~the~~ <sup>our</sup> heavy cruisers. <sup>Enemy</sup> heavy cruisers, with their long range 8 inch batteries, could either <sup>destroy our light cruisers</sup> ~~break them up~~ without a reply or force them to abandon their convoy.

If used to cruise in general protection of our commerce in important areas, they would be vulnerable to raids by enemy heavy cruisers.

The above analysis shows us that from the standpoint of seaworthiness, speed, endurance and habitability, our present cruiser force, taken as a whole, is superior. Its fighting ability, however, is moderate and this fact is bound to hamper its employment in war.

This lecturer personally is convinced of the wisdom of building fighting ability into our cruisers and particularly into our light cruisers, even if certain other important characteristics have to be, to some extent, trimmed down. Admiral Laning, when addressing the officers of the Fleet at San Diego on 15 June 1935, expressed the importance of fighting ability in the following words:

"Not until every officer realizes that the vital thing in all naval war is hitting the enemy while actually engaged and not until every ship is thoroughly trained and ready to deliver a maximum number of hits from a minimum number of shots fired under battle conditions and not target practise conditions, will the United States Fleet be ready for war."



SECTION IV

BATTLE CRUISERS.

AUXILIARY CRUISERS.



Battle Cruisers

We have no battle cruisers.

The British have three.

The Japanese have four ships (the demilitarized HIEI is reported as being rearmed) which we class, since their modernization, as battleships, but which were originally designed as battle cruisers.

As Great Britain and Japan are our principal Naval Competitors, it seemed wise to consider, in this presentation, how their battle cruisers might be employed against us.

We have made some research as to what the principal naval commanders considered to be the proper functions of Battle Cruisers. There seems no information available as to the opinion of Admirals Scheer and Hipper. There is, however, some interesting evidence of what Admiral Beatty and of what Admiral Jellicoe conceived to be the functions of Battle Cruisers.

Mr. Filson Young, in his book "With the Battle Cruisers" states that "Admiral Beatty conceived that the main uses of Battle Cruisers were twofold:

"(1) To provide on occasion an independent scouting force and (2) to act as a provocative or decoying force

(Young, Filson. With the Battle  
Cruisers. 1921

↓  
see p 21



to engage the enemy's heavy ships and by the use of superior speed, bring them within reach of the main fleet and so force them to action. In war generally, apart from actual battle, their functions would be fourfold:

see  
p 21

"(a) Reconnaissance with fast light cruisers on the enemy's coast at high speed,

"(b) Supporting a blockading force or a patrol of armed cruisers,

"(c) Forming supports between such a force and the Battle Fleet when cruising,

"(d) Forming supports to a cruiser force watching an enemy's fleet at sea,

"While in a general action they would form a fast division of the Battle Fleet, probably on its flank."

Perusal of Mr. Young's book indicates that Admiral Beatty probably enunciated the above ideas prior to the Battle of the Dogger Bank, as Mr. Young appears to have left his staff shortly after the Dogger Bank action was fought.

Admiral Jellicoe, in his book "The Grand Fleet", has this to say about the employment and the functions of the British Battle Cruisers:

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"Throughout the War it had been our policy to cause our battle cruisers, with their attendant light cruisers, to occupy when at sea an advanced position, often at a considerable distance from the Battle Fleet. Battle Cruisers were designed and built in order that they might keep in touch with the enemy and report his movements when he had been found; hence, the heavy guns which they carried. They were intended to find the



enemy for the Battle Fleet and to ascertain the enemy's strength in order to report to the Battle Fleet. Had this policy not been adopted, the enemy's battle cruisers could not have been brought to action on such occasions as the engagement of January 24th, 1915. And in the cases of raids on our coast, the battle cruisers were always sent ahead at full speed to endeavor to cut off the enemy battle cruisers."

From the above, it seems plain that both Admirals Beatty and Jellicoe thought of battle cruisers in terms of the "Eyes" of the Fleet. Admiral Beatty thought of them also as a reinforcement to the Battle Line. Admiral Jellicoe apparently did not seriously consider them for this purpose probably because he held the following views on the subject of protection versus gun power of ships of war:

*p 308 The Grand Fleet, 1904-1916 (1919) Admiral Jellicoe*

"The relative values of protection and gun power had frequently engaged my serious attention. It was also a subject of much discussion amongst writers on naval matters, some of whom went to the length of suggesting that all available weight should be put into



gun power and that ships should be left practically without armor. Their views were based on the argument that 'the best defense is a powerful offensive'. Although this argument is very true when applied to strategy, the War has shown its fallacy as applied to matériel. The loss of the GOOD HOPE, MONMOUTH, QUEEN MARY, INDEFATIGABLE, INVINCIBLE, DEFENCE, and WARRIOR, and the considerations to which these losses gave rise, convinced naval officers afloat, even if <sup>it</sup> they did not convince others less intimately associated with the fleet during the War, that ships with inadequate defensive qualities are no match for those which possess them to a considerably greater degree, even if the former are superior in gun power." p308

Coming down to the present day. It seems probable that the British battle line, exclusive of the British battle cruisers, will soon be equal to or superior to our battle line. The British have five new battleships under construction to our two new ships. They also have the NELSON and the RODNEY.

We will examine, therefore, how Britain with an equal or superior battle line might use her battle cruisers against us. It is obvious that any analysis of the possible duties of the British battle cruisers can be applied to the Japanese ex-battle cruisers.

The duties the British may expect their battle cruisers to perform might logically include the following:

(1) In a fleet action.

(a) To operate against our cruisers and particularly our heavy cruisers.



- (b) To operate as a detached wing.
- (c) To support their carrier operations.
- (2) Scouting.
- (3) Screening.
- (4) To support their carrier operations.
- (5) To destroy our commerce.
- (6) To protect their convoys and commerce.

Let us very briefly discuss these duties.

(1) In a fleet action.

- (a) To operate against our cruisers and particularly our heavy cruisers.

Let us imagine, perhaps, three divisions of our heavy cruisers against one or two divisions of their heavy cruisers plus their three thirty knot battle cruisers. Our heavy cruisers **must** be crushed or driven off under the lee of our battle line.

(b) To operate as a detached wing.

Let us imagine their three battle cruisers, after having crushed or driven off our heavy cruisers, using their full speed to attain a position which will permit them to concentrate on our leading battleship or leading two battleships. Let us further imagine that these two ships are already under the fire of the enemy battleships and cannot reply to the battle cruisers unless they abandon their battleship targets and maneuver radically to bring them under fire. If our leading battleships do so shift fire, they may find the battle cruisers very difficult and slippery targets.

(c) To support their carrier operations.

The presence of battle cruisers with enemy carriers would obviously much increase the difficulty of attacking the carriers with our heavy cruisers.



(2) Scouting.

The relative value of battle cruisers as the "Eyes" of the fleet has been diminished, undoubtedly, by the development of the plane carrier and its embarked airplanes.

The development of the carrier bombers will also impose caution in the use of battle cruisers to obtain information of enemy formations that may include carriers.

(3) Screening.

Battle cruisers used as part of the Distant Screen of a British formation would obviously greatly increase the effectiveness of such a screen, against the operations of our heavy cruisers. Used in an Offensive Screen, they would seem particularly difficult for us to counter. They are, of course, not suitable ships to form part of an anti-destroyer screen.

(4) To support their carrier operations.

If used as a carrier guard, they should insure the British carriers against attack by our heavy cruisers.

(5) To destroy our commerce.

It does not seem probable that these ships would be used as general commerce destroyers. They might, however, be used effectively to raid an especially important line of communication or an especially important convoy. It would require a battleship guard to repel them.

(6) To protect their convoys and commerce.

Their presence with a British convoy would require us to use battleships to attack it. Their presence or the possibility of their presence in a particular area might sharply limit the potentialities of our heavy cruisers to act effectively against enemy commerce in that area.

The above brief discussion <sup>seems to</sup> indicate ~~clearly~~ that battle cruisers can be used very effectively against our present fleet.



Whether or not the type will endure is not easy to answer. This lecturer is inclined to think, however, that it will not endure. The development of aviation as the "Eyes" of the fleet certainly lessens the need for battle cruisers to perform that basic cruiser function. The marked increase in speed of the new battleships to 27-28 knots removes a good deal of the virtue from the existing 30-31 knot battle cruisers.

#### Auxiliary Cruisers

We will conclude this presentation with a brief discussion of Auxiliary Cruisers.

The United States, in a future war, will probably desire to commission auxiliary cruisers, particularly as our regular cruiser force lacks numbers. At the moment, we have thirty-eight (38) ships of 18 knots speed or above in our Merchant Marine. Eleven (11) are tentatively slated to be XCAs; eleven (11) to be XCVs, and sixteen (16) to be XAPs. Included in the XAPs are four (4) ex-German liners laid up out of commission and about twenty-five years old.

Japan has forty-three (43) ships of 18 knots speed or above and of suitable displacement for conversion to auxiliary cruisers.

Great Britain has fifty-five (55) ships of 18 knots speed or above and of suitable displacement for conversion to auxiliary cruisers.

The British used auxiliary cruisers extensively in the Great War, usually for the purpose of exercising control in particular sea areas. They had as many as forty (40) "Merchant Cruisers" in commission by 1917. About two-thirds of these ships were



employed on the home station and, covered by the Grand Fleet, engaged in the blockade of Germany. The remainder were on foreign station as station flagships and for convoy escort duty.

The Germans, because of the Allied control of the sea communications, used very few auxiliary cruisers. The few they did use, KRONPRINZ FRIEDRICH WILHELM, PRINZ EITEL FRIEDRICH, MOEWE, WOLF and ZEE ADLER were used to raid British commerce. The career of the MOEWE shows how difficult it is to stop the depredations of such ships if ably commanded and assisted by reasonable good fortune. This ship, on her first cruise, January-February 1916, captured fifteen ships of 57,000 tons. On her second cruise, November, 1916 - March 1917, captured twenty-seven ships, totaling 123,000 tons.

How the United States would employ auxiliary cruisers in war would, of course, depend on circumstances.

It seems probable, however, that we would use them either to actually exercise control in particular areas or as "Eyes" for the Fleet. We would hardly use them against the enemy's flotilla.

We might use them in a distant blockade as the British used them in the Great War, against Germany. The 10th Cruiser Squadron was only able to do its work, however, because it was effectively covered by the Grand Fleet.

We would undoubtedly use them for convoy escort duty in areas where raids by superior enemy surface forces were unlikely.

We might use them as sea sentinels in areas where it would be desirable to obtain warning of the approach of enemy forces, as Admiral Togo used his four auxiliary cruisers at Tsushima.

If we should ever find ourselves bottled up by a power possessed of a teeming world commerce, we would probably use them as Germany did in the Great War, or as the Confederacy did in our Civil War and prey on that enemy's commerce.



The ability to perform effectively all the above duties would undoubtedly be much enhanced if the ships were equipped with planes and fitted to use them, which could and undoubtedly would be done.



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