

## Battleships at Surigao Strait

### Revelations of the Wrecks and Records

The Stories of U.S.S. *Maryland* and H.I.J.M.S. *Fuso* at the Battle of Surigao Strait.

By Anthony Tully and Robert Lundgren

(Online Posting 10/3/2024)

Robert Lundgren:

When I first downloaded the U.S.S. *Maryland*'s action report from NARA I fully expected to read [and discovered details explaining] a very conventional story on how she had trouble finding the targets due to her older MK 3 radar and she used the salvo's from her sister U.S.S. *West Virginia* to range in on her target. This story has been told repeatedly over the past 80 plus years and the myth in my opinion has become legend. Of course, part of the surprise was discovering it was a *myth* – ever since the Naval War College Analysis of Leyte Gulf every account of Battle Line's targets had simply declared unreservedly that *Maryland* couldn't find the target, but cleverly latched onto *West Virginia*'s by proxy. <sup>1</sup>So, I was surprised to read within *Maryland*'s action report that there was absolutely no documentation to support such an event. It is not what it says at all. Nor BatDiv 4's report says either. *Maryland*'s report clearly describes firing on a target to *Yamashiro*'s right [west, off *Yamashiro*'s port beam] and ComBatDiv 4 backed this up. *Maryland* opened fire at 0359 to 0405 firing 40 of the 48 rounds she would expend during this battle. It became clear *Maryland* actually fired on the Japanese heavy cruiser *Mogami* which was a different target than what *West Virginia* had fired on. It was at this point I reached out to Anthony Tully, whom I consider the preeminent author for this battle and gained his insight into the subject.

Anthony Tully:

When Robert Lundgren contacted me about his observations regarding what *Maryland*'s own report and the wreck of *Mogami* appeared to tell him about *Maryland*'s role the merit of them became readily apparent. A fresh look confirmed that ComBatDiv 4 aboard *West Virginia* had rather unambiguously stated *West Virginia* and *Maryland* fired on different targets. The probability *Maryland*'s target was *Mogami* became high. I strongly encouraged him to go on digging and expand the scope to Battle Line's other presumed targets. Ever since the documenting of the wrecks of Surigao Strait in November 2017 in anticipation of an eventual new edition I had been closely revisiting where the evidence often confirmed my speculations, and in some cases, invalidated them. They centered on: (a) *Fuso* was indeed more or less in one piece, at last confirming my 2009 book on this point, even down to details like the pagoda

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<sup>1</sup> Bates, Richard W., *The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis*, Vol. V, Naval War College, 1958. Henceforth, Bates.

toppling overboard first; however, astonishingly, revealed torpedo hits to *port* as well as starboard side; (b) the destroyer wrecks, though in very bad condition, confirmed *Yamagumo* blown into pieces; but also revealed that *Michishio* and *Yamagumo* sank on the same latitude; and finally, (c) *Yamashiro* was about as expected; but revealed major fantail damage that shed light on the last hits. These facts had already made a recasting of the Japanese tracks in a new edition required. What Lundgren had discovered quickly showed the wrecks – especially *Mogami's* -- had one other contribution to make: revealing substantial misattributions (but almost unavoidable due to paucity of data) in the Naval War College analysis for the Japanese target assignments for Battle Line and consequential credit or failure-to-credit a given unit resulting. This article is a collaboration presenting the results of what a synthesis of these facts revealed.

### Myths about *Maryland* and *Fuso* obscured Surigao Facts

To understand better the genesis of the *Maryland* myth it is necessary to look back at the principal first reconstructions of the Battle of Surigao Strait. Ever since its issue in 1958 the magisterial 1958 Naval War College analysis of the action - which utilizing interviews and individual ship reports – has served – albeit via S.E. Morison's volume on Leyte - as the backbone for reconstruction of the accepted principal track charts to date. It has governed the presumed target selection for various Allied units in nearly all subsequent accounts. This started immediately, in the same year with the 1958 edition of S.E. Morison's volume on Leyte which utilized a draft of it, while working in some caveats of his own research. This reliance is understandable, given the exhaustive nature of the reference to action reports and calculations of firing bearings and radar tracks. There was more than ample reason for accepting descriptions of Allied operations, attacks, and likely hit or missed targets, almost at face value. The reconstructive charts and mathematical calculations are without obvious peers.

However, for the Japanese side, the analysis was fishing in very shallow waters. Even then, some additional information was available but seems to have been overlooked. But in general, there was just not much post-war information available yet. As a consequence, the analysis suffers notably with the tracks of *Fuso*, *Asagumo*, and *Michishio*, which in turn has resulted in some important errors regarding *Mogami's* and *Shigure's*. In 2009 in "Surigao" Tully had demonstrated assumptions about *Fuso's* track and fate were substantially incorrect.<sup>2</sup> What was somewhat surprising and unexpected is that the wrecks in general would reveal that much of the Japanese track, and hence the target previously assumed of a given Allied ship, was overall in need of serious revisiting.

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<sup>2</sup> Research for his early 1999 online article "Shell Game of Surigao" had strongly impressed upon him the dubious nature and clear inconsistencies of the conventional take on battleship *Fuso's* destruction. On the other hand, the same article affirmed the work of the Naval War College and S.E. Morison in stating that *Yamashiro* was the northernmost battleship sunk, *Fuso* the southern, and that it was *Yamashiro* that had engaged Battle line. (Some accounts immediately post-war had followed Nishino's error in transposing the battleship's fates) Subsequent research spurred by this resulted in the 2007 manuscript which became the book.

To take a position up front for clarity, and in what follows to demonstrate it, the findings are principally these:

- (1) *Fuso*'s wreck revealed three port side torpedo hits. These in addition to the known starboard torpedo hits sustained at 0310 hours. Yet these port hits could have only been sustained during the impact times of either the attack of the Right Flank destroyers of DesRon 54 (0319-0322), or from one of the six destroyers of DesRon 24 (0325-0358). Whichever one is found to be the agent, either case proves *Fuso* remained operational and advancing north far longer than anyone suspected. We believe we have identified the previously unrecognized agent and the destroyer that finished off battleship *Fuso*.
- (2) The wrecks of destroyers *Yamagumo* and *Michishio* were found nearly at the same latitude. It had long been noticed that there is marked discrepancy between where *Michishio* supposedly was hit and stopped; and where she was reported to have sunk. The wreck shows she probably had to be hit later than *Yamagumo*, in order to drift down and founder to sink nearly parallel. The famed 'grand slam' by U.S.S. *McDermut* in supposedly hitting three DesDiv 4 destroyers (*Yamagumo*, *Michishio*, *Asagumo*) in the same torpedo salvo around 0320 cannot easily be maintained. Nor, as will be seen, did the Japanese testimony ever favor it. A somewhat more plausible sequence consistent with the facts of the last moments of DesDiv 4 is presented.
- (3) The result of Points (1) and (2) is that *Fuso* and *Michishio* both advanced further north, and thus influenced radar tracks and target selection, than previously recognized. This has great consequences for interpreting the track charges and firing data for Allied attacks after 0320, and especially the big guns of Battle Line. Moreover, U.S. tracks of that night actually did show this, and when re-interpreted preserve the likely true tracks of *Fuso* and others.
- (4) The "Maryland Myth" has led to a failure to recognize a subtle but consequential error of the Bates/Morison (followed in turn by Senshi Sosho) major gunfire phase regarding the placement of *Mogami* and her actual movement track. Battle Line's true accomplishment is greater than realized, fire was more carefully distributed than assumed, and it will be shown that every American battleship that fired hit its target that night.
- (5) Contrary to previous impressions, the wrecks and record reveal the Japanese battleships *Fuso* and *Yamashiro* stood up reasonably well to the damage they suffered, and both required far more punishment than recognized to sink them.

Battleship *Fuso* remained in the battle till a second torpedo salvo sank her.

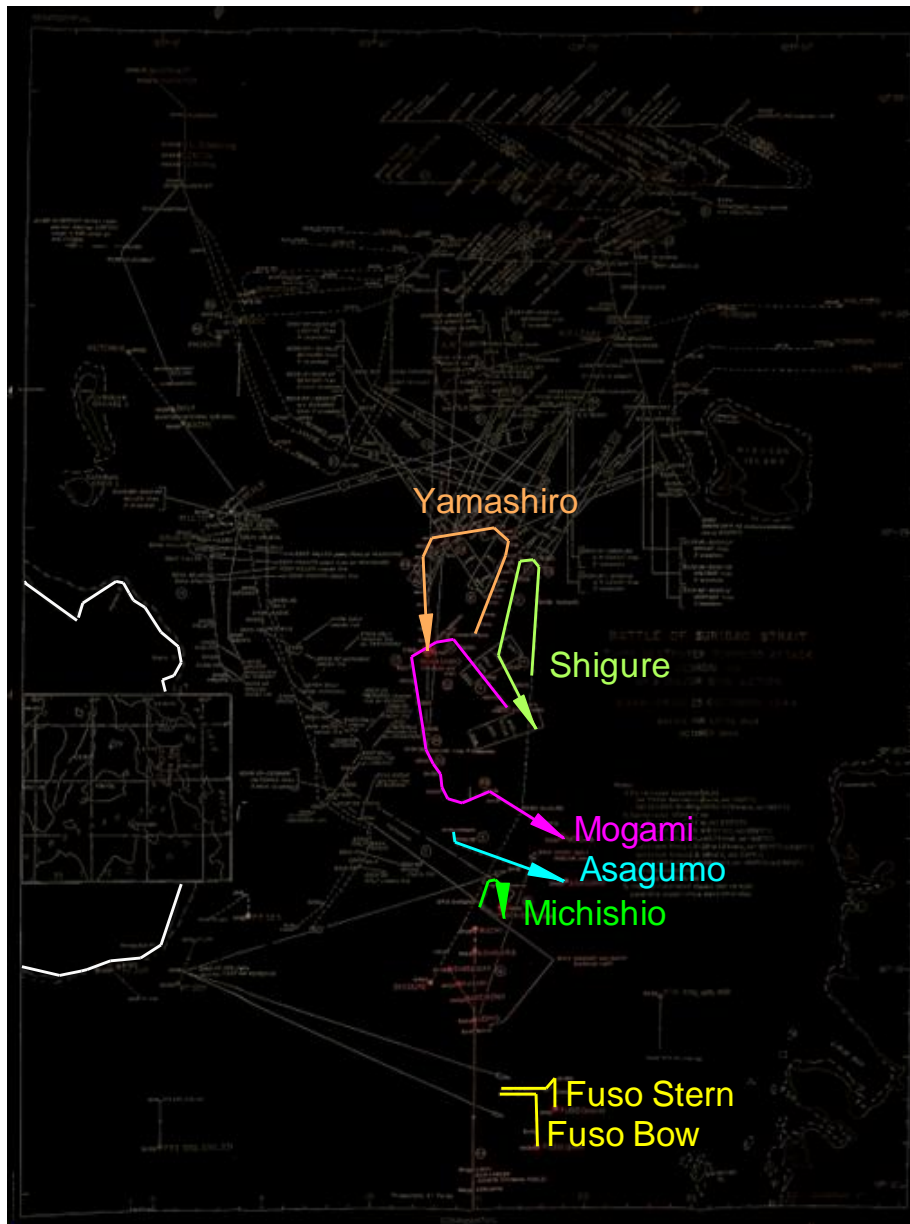
It is agreed that in the first destroyer torpedo attack battle *Fuso* took two to three torpedo hits to starboard between 0309-0310 and was crippled. What differs is what happened next. *Fuso*'s wreck now confirms she remained in action long enough to receive additional torpedo damage to port. This had been nowhere suggested, not even by the available survivor accounts from *Fuso*, to have taken place. (Indeed, Tully considered it “one of the most startling revelations of wreck exploration comparable to the confirmation *Titanic* had broken apart when sinking” or “that the *Musashi* had literally been blown to pieces”) This affirming the already found indications that *Fuso* had continued north with the rest of the force after initial damage than usually described. *Fuso*'s remaining in the advance solves a number of puzzles of the battle and holds the principal key to unlocking the other inconsistencies. This cannot be over-stated. To wit:

Anthony Tully: “Even in 2009 when had succeeded in publishing contemporary evidence that the dubious story *Fuso* exploded and split into two burning pieces floating down the strait was incorrect; still there was not the slightest inkling or clue that *Fuso* received additional torpedo damage on her opposite side, which could only come from a subsequent attack. She stayed in column longer. Not only that, but the previous assumption also that the initial starboard torpedo damage<sup>3</sup> alone sank her turns out to be not so. Another U.S. destroyer's torpedoes played a decisive role.”

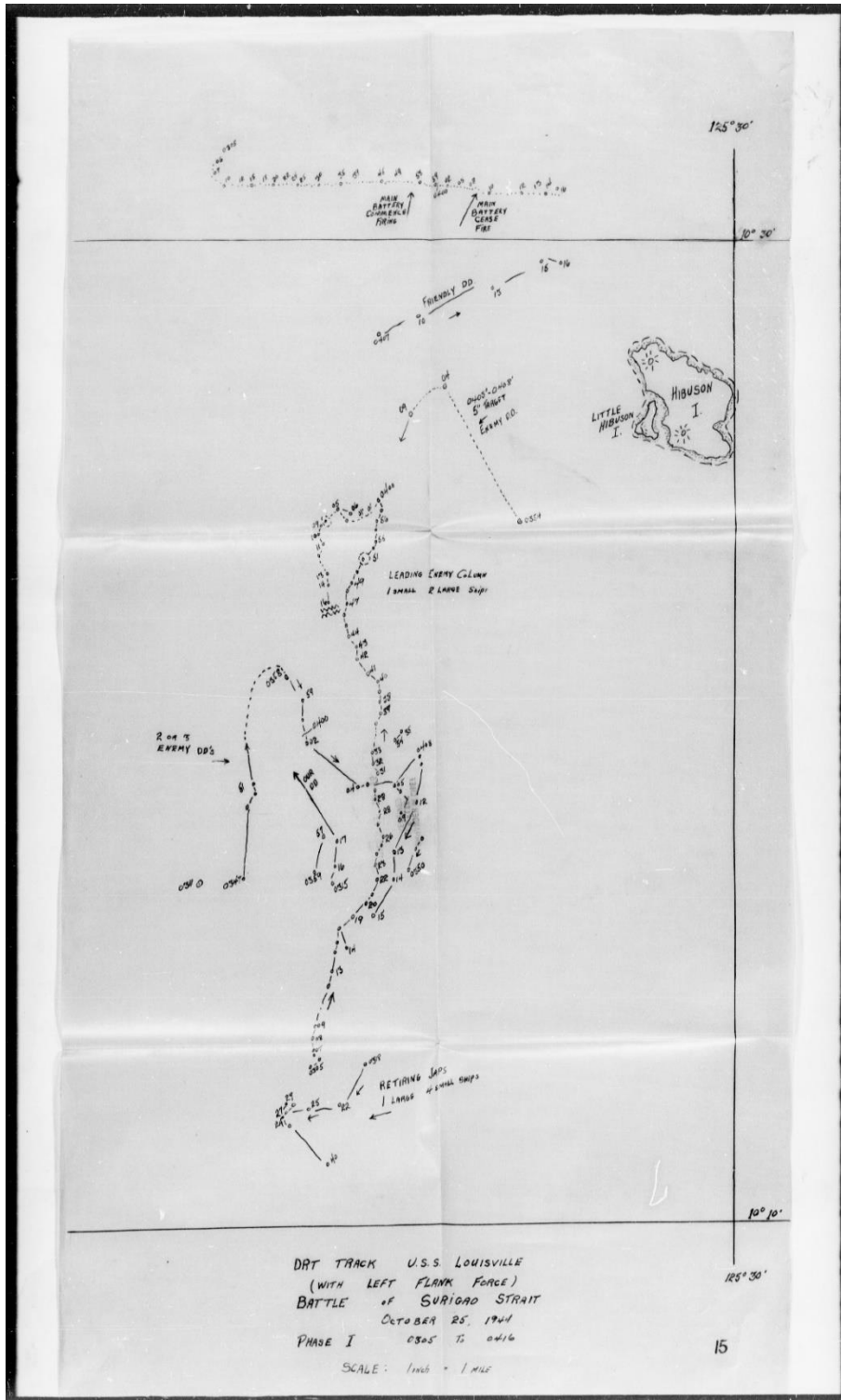
To date the familiar chart below and variants derived from it have served as the depiction of the Japanese tracks leading into the major-caliber gunfire phase of the Battle of Surigao Strait. Those familiar with the battle will readily recognize the standard descending from S.E. Morison's major gunfire phase chart, it in turn based on the findings of the Bates analysis. However, as will be shown, the discovery that *Fuso* remained advancing and attempting to engage longer than believed changes much of the assumptions made about the available radar and plotting data used to make these. The “*Maryland* Myth” has complicated this further by a misunderstanding of the track of *Mogami* for the conventional one conflicts with the contemporary Japanese sources available and some chart data.

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<sup>3</sup> (Generally credited between U.S.S. *Melvin*/ U.S.S. *McGowan* of DesRon 54)



Bates's diagram J. This is Richard Bates original track chart showing he had *Mogami* to *Yamashiro's* starboard side turning to port and then withdrawing. This error is why he fundamentally dismissed *Maryland's* report as inaccurate. *Michishio* also arguably should be a port turn south. The conventional track remains basically correct for *Yamashiro* but fails of course to show *Fuso's* northward movement, instead misled at the time into thinking broken and floating down strait in two sections.



U.S.S. Louisville's track chart. This track chart particularly, and various sightings, help demonstrate that *Mogami* was to port of *Yamashiro* during the advance, and then turned to starboard to fire torpedoes shortly before *Yamashiro* turned to port. The two ships diverge on the track. Careful analysis shows *Mogami's* track is listed as 2 or 3 enemy DDs but finds ready correspondence with *Mogami's* own chart.

0300 to 0320: First Torpedo attack-Fuso damaged, not disabled

It must be said it is not the intention of this article to cover the whole battle, but it will be seen that the span of time 0300-0430 indeed is significant and subject to notable revision in light of the mute testimony of the wrecks. *For at this time begins the least understood and yet larger than known role of the first battleship to be re visited: IJN Fuso.*

We begin with 0300. At this time according to conventionally accepted accounts, at this time Third Section of Kurita's 1-YB (hereafter Nishimura's fleet, or simply Nishimura) had changed from No.2 Approach Formation to a Battle Formation. This had all seven vessels roughly in a single column formation, or attempting to take up one, to minimize the risk of firing on friendly vessels with contact with enemy destroyers in progress. This was in the order of destroyers *Michishio* (Flagship of ComDesDiv 4) and *Asagumo*, with *Yamagumo* and *Shigure* originally on the flanks, now pulling into line. The destroyers were to be 700 meters apart. Behind at 1 kilometer intervals followed battleships *Yamashiro* (Nishimura's flagship) and *Fuso* and heavy cruiser *Mogami*. However, in Tully's book on Surigao Strait attention was drawn to the dissenting view of *Shigure*'s CO, Shigeru Nishino made in a post-war interview in 1980. Nishino averred that Senshi Sosho had erred by apparently following the version summary put together for the battle by 5<sup>th</sup> Fleet HQ (Shima's Second Striking Force – 2-YB) at Manila after the battle.<sup>4</sup>

Nishino denies that a "simple line-ahead formation was used" in the battle. Instead, Nishino said the formation as the destroyer attacks began was more properly described as: "*Yamashiro* and *Fuso* made up the middle column. *Mogami* was stationed at *Yamashiro*'s port beam, 1.5 kilometers away. *Michishio*, *Yamagumo*, *Asagumo* and *Shigure* comprised the right-hand column 1.5 kilometers abeam from the battleships.<sup>5</sup> It is worth mentioning that it was very dark, and the sky was heavily clouded, not to mention a fine haze—, quite unusual occurrence for southern areas"

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<sup>4</sup> (Note: In fact, if anything, Senshi Sosho was more closely following S.E. Morison's Volume XII Leyte's account – distilled from the Bates Analysis---which in turn used Shima fleet sources but not as much as might be presumed.)

<sup>5</sup> Note: It is true that in both his map and narrative Nishino places *Yamagumo* as No.2 ship in the DesDiv 4 formation once it was formed. This may have been the intended place. This needs to be checked – since it appears possible she never quite got into formation; it may be academic.

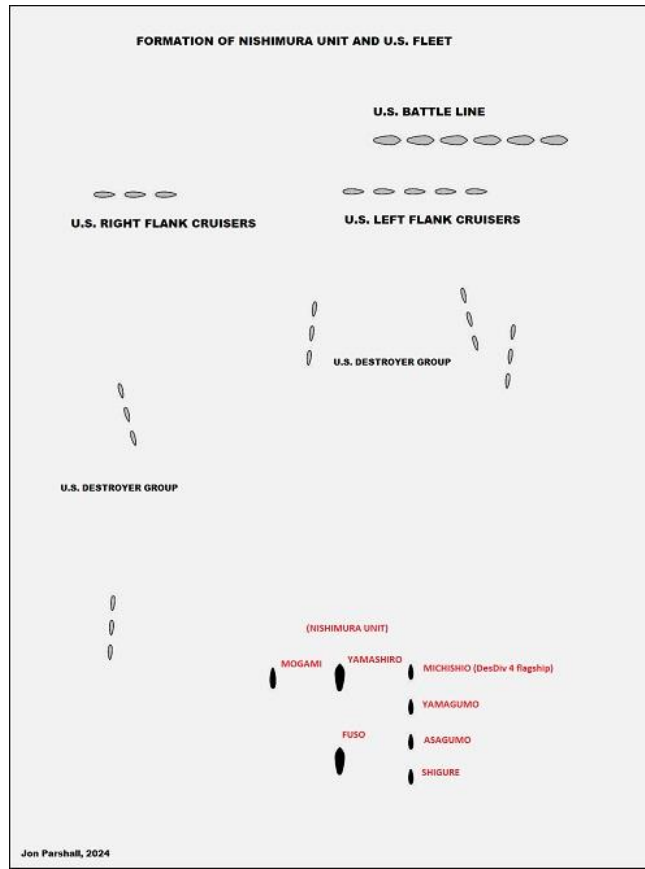


Diagram based on *Shigure's* Commanding Officer Nishino Shigeru's 1980 interview sketch depicting the Third Section battle formation at the time of the torpedo attacks as he recalled it. It differs from the conventionally accepted battle formation in the placement of the destroyer line and the flanking position of *Mogami*. Slightly unclear is whether this was the formation formed by 0320 or earlier, but the former seems likely. (Derived from diagram in *Kancho Tachino Taiheiyō Senso*, vol. 1)

If Nishino is correct, then when the Eastern Attack destroyers of DesRon 54 launched their torpedo attack at 0300 at the time DesDiv 4 and *Shigure* were indeed forming into a line column ahead of, *but offset to starboard* (i.e, east) from the battleships. U.S. radar pip displays appear to support some aspects of his claim. In any case, it should be borne in mind in looking at the events that followed.

In the standard accounts it is related that the attack of the Eastern Attack Force, with its torpedoes fired at moderately distant range and a fine angle, scored torpedo hits (reasonably credited to U.S.S. *Melvin*) on the starboard side of battleship *Fuso*, but made no other hits when the torpedoes crossed the Japanese track about 0309-0311. This appears to be generally correct, but more than one Eastern Attack Force destroyer probably hit *Fuso* now that it is known it was three torpedo hits.<sup>6</sup>

#### Eastern Flank Destroyers Attack: 0300 to 0315

For our track chart we assumed Nishino's positions with one exception in that at 0310 *Mogami* was still aft of *Fuso* as this was what U.S. ships observed and fired their torpedoes on.

<sup>6</sup> U.S.S. *McGowan* and U.S.S. *Melvin*'s torpedoes line up better with *Fuso*. U.S.S. *Remey* torpedoes line up more on *Mogami*.



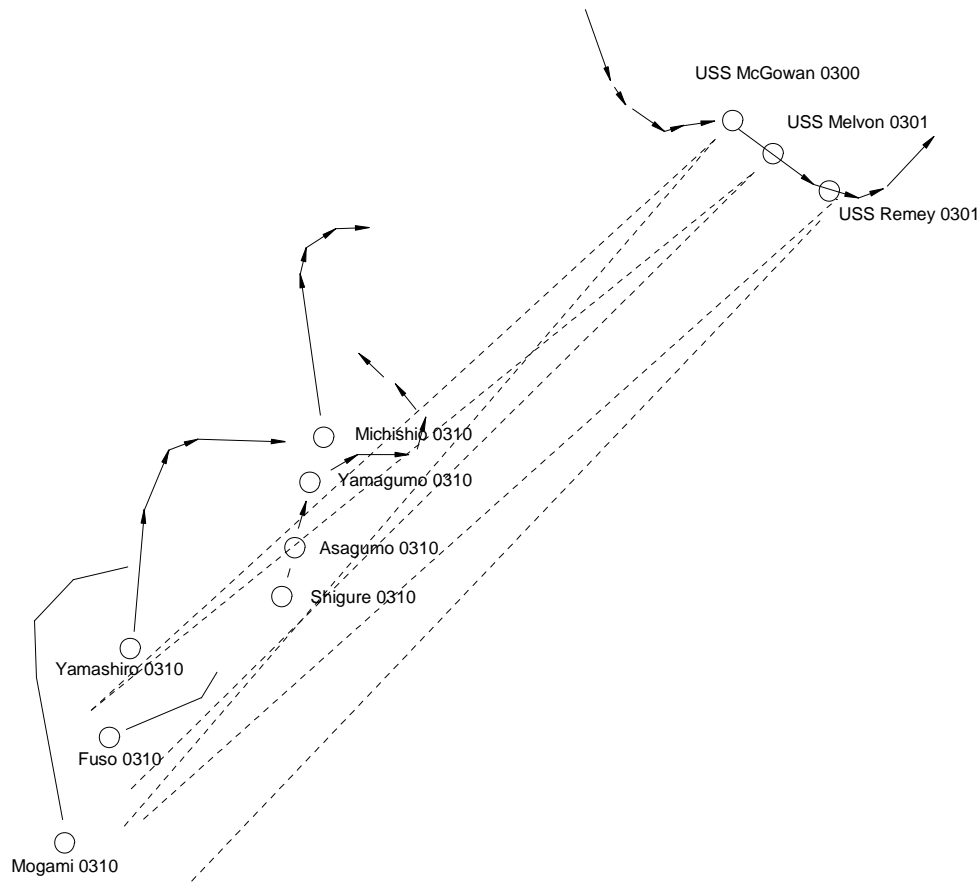
(Given context it is likely that Nishino's diagram point in time refers a little later, to 0320 when the Japanese destroyers started receiving torpedo attacks. By then *Mogami* indeed had moved to port.) Picking up the battle at 0310 the Japanese formation was shifting into a line ahead formation; however, the destroyers lead by *Michishio*, followed by *Yamagumo*, *Asagumo*, and *Shigure* at the start were approximately 1,500 yards to starboard of the main column. The destroyers set a course of 350 degrees to get more back in line and true van with the main column and at this time the Japanese fleet was moving at 18-20 knots.<sup>7</sup> The Japanese main column was led by *Yamashiro* and followed by *Fuso* and then *Mogami*. *Shigure* had made a sighting ahead fine on the port bow at 0256 range estimated as 8 kilometers (it was actually nearly double—*Shigure's* lookouts were that good) and though a searchlight making a half-minute sweep from *Yamashiro* failed to illuminate them, the Japanese remained wary. Probably *Fuso* trained her search radar in that direction. For at 0300 when the searchlight snapped on again it was directly on the American bearing.

At this time 27 U.S. torpedoes had commenced racing toward the Japanese main column. They had been fired between 0300-45 to 0301-50 by DesRon 56 destroyers, U.S.S. *Remey*, U.S.S. *Melvin*, and U.S.S. *McGowan*. *Melvin* and *McGowan* had used the second ship in the Japanese main column as their aiming point, this was *Fuso*. *Remey* had fired on the third ship, this was *Mogami*. The first large target (*Yamashiro*) and the smaller pip (the destroyers) had been assigned to ComDesDiv 108's *McDermut* and *Monssen* of the west flank attack group. "*The enemy formation appeared to change course to about 345 degrees true when we fired and increased speed two knots. After firing their torpedoes, the U.S. ships commenced making funnel smoke. Star shells began bursting over the group and six or eight salvos were landed close by. McGowan, Remey, and Melvin begin to retire.*"<sup>8</sup>

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<sup>7</sup> According to Nishino, *Yamashiro* and *Fuso* made up the middle column. *Mogami* was stationed at *Yamashiro's* port beam, 1.5 kilometers away. *Michishio*, *Yamagumo*, *Asagumo* and *Shigure* comprised the right-hand column 1.5 kilometers abeam from the battleships. (cf. the scheme on p. 243). Based on *Mogami's* Detailed Action Report we have *Mogami* aft of *Fuso* at 0310, but she swings to port by 0312 assuming Nishino's position by 0312. Paymaster Ezaki of *Yamashiro* also confirms *Mogami* was astern of the battleships at first, then passed *Fuso* to port when hit. This more matches U.S. observations of the Japanese formation as well.

<sup>8</sup> COM 3rd PHIBFOR - Fwding of Reps on the Occupation of Leyte Is, Philippines & the Battle of Surigao Strait, page 16.



Map 0300 to 0315

At 0300 it appeared *Yamashiro* saw the flashes of *Remey*'s torpedo launch and turned searchlight in that direction. *Shigure* (definitely) and possibly *Yamagumo* open fire in that direction; possibly *Yamashiro*'s secondary battery as well. (5-inch shells landed short of *Remey*.) At 0302 the Japanese turn off the searchlight. Then 6-inch star shells were fired, and heavy gunfire opened by *Fuso*.<sup>9</sup> *Mogami* also opened fire without searchlight, apparently using radar. One minute later they began to straddle the *Remey*. It is likely that *Fuso*'s surface radar was doing the work because according to one report *Yamashiro*'s had been knocked out in the air attack. Perhaps for the same reason, *Yamashiro* did not use main battery fire like *Fuso* at this time. Regarding accounts that make much of Nishimura's failure to order a radical evasion at this time, Bates (NWC-Vol. V p. ) usefully speculated Nishimura did not change from base course because the firing range had been long and was an arguably poor and fine angle less than 30 degrees starboard angle on the bow. Theoretically, there was "low probability of torpedo hits." It was not unlikely no torpedoes had been fired. Thus, the inaction was not negligent, and

<sup>9</sup> Bates didn't know, but it is *Fuso*, though he opts for *Mogami*, and maybe both did. "The fall-of-shot patterns were very small" and potentially dangerous. Paymaster Ezaki indicated *Yamashiro*'s search radar disabled by strafing.

Nishimura was simply rolling the dice with odds on his side, though it proved to be the wrong call.

*Shigure*, however, had changed course, at 0300 but for the purpose of getting ahead of the battleships and not having her line of fire to the enemy fouled and was closing the enemy online of bearing. It appears that *Yamagumo* on the starboard wing had opened fire already when sighted one of the approaching torpedoes (from *Melvin*) and combs it okay with a sharp turn. After avoiding it, she reports at 0307 torpedo sighted from 040 true. Approximately between 0308 to 0309 *Shigure* opened fire, using searchlight illumination. “*Enemy laid smoke and retired without much opposition.*”<sup>10</sup> From the reports of Phillips, *Monssen*, and *McDermut* it appears possible that *Yamashiro* or *Mogami* opened a relatively blind fire to port in their general direction starting at this same time while *Fuso* engaged Coward to starboard. The Japanese then had the impression the Americans had broken off this attack from mid-strait given the poor angle. They maintained their 000 base course and speed accordingly. *Shigure* or *Yamashiro* illuminated Phillips pair at 0311 and appears to have directed her recon planes overhead to try to illuminate the enemy to the west; for at 0313 a green flare was dropped behind *McDermut* and *Monssen*.

At 0308 U.S.S. *Remey* reported “*three explosions were seen in enemy formation. After guns reported four explosions. At 0309 enemy salvos were falling short, star shells control which at first was excellent had deteriorated, stars bursting between us and the enemy. At no time was there any spread although stars were fired in three gun salvos, possibly from a three gun 6-inch turret.*”<sup>11</sup> U.S.S. *McGowan* reported at 0308-48 “*torpedo officer reported one definite explosion probably made by a torpedo and one very probable explosion the same.*”<sup>12</sup> U.S.S. *Melvin* reported at 0309, “*at the approximate time that our torpedoes crossed enemy track two large and separate explosions were seen.*”<sup>13</sup> Some U.S. veterans related they were under main-battery fire from *Fuso* when they hit her.<sup>14</sup> These observations were almost precisely correct.

*Fuso* was hit by three torpedoes on the starboard side around 0308-0310 which caused her to momentarily slow to 6.5 knots. Examination of the wreck now reveals that hits occurred at approximately Frames 50 (probably from *McGowan*) forward of No 1 turret, and then two more at Frames 100 nearly under the pagoda, and 220 abreast the starboard engine room (this pair probably from *Melvin*) *Mogami* detailed action report recorded, “*direct torpedo hit on starboard side of Fuso amidships, causing ship to list to starboard and lose speed. Fuso fell back and Mogami moved on behind Yamashiro. Thereafter several torpedo attacks received interspersed with intermittent and accurate enemy shell fire. Because of the torpedo attacks, it was almost completely impossible to fire on enemy ships, and it became difficult to distinguish our own ships from those of the enemy as a result of evasive action.*”<sup>15</sup> *Mogami* veers to port avoiding these

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<sup>10</sup> *Shigure* Detailed Action Report, page 1.

<sup>11</sup> COM 3rd PHIBFOR - Fwding of Reps on the Occupation of Leyte Is, Philippines & the Battle of Surigao Strait, page 16.

<sup>12</sup> MCGOWAN - Rep of Ops in the Capture, Occup & Defense of Leyte Is, Philippines, Including the Battle of Surigao Strait, 10/20-26/44, page 8.

<sup>13</sup> COM 3rd PHIBFOR - Fwding of Reps on the Occupation of Leyte Is, Philippines & the Battle of Surigao Strait, page 52.

<sup>14</sup> Tully, Recollections of Cecil Kent, Battle of Surigao Strait, p 152.

<sup>15</sup> *Mogami* Detailed Action Report, page 11.

torpedoes and passed *Fuso* by 0312. This placed *Mogami* off *Yamashiro*'s port quarter for the remainder of the Japanese advance.<sup>16</sup>

The accounts of two Japanese survivors from *Fuso* are available, as given in an amalgam article published post-war in 1984 and referenced in Tully's book. Yasuo Kato was manning a gunner's station within the gun house of No.1 14-inch turret when the torpedoes hit. "*Bang!*" *Suddenly I felt a terrible shock. Twice, three times, I was bounced up and down from the gunner's seat. As the ship vibrated severely, all lights in the turret went out and blacked out. The ship was tilted steeply, and I had a hard time to hold my body bent downward with the elevated handwheels. From the shelves behind me, books, manuals, etc., fell down on the floor one after another. The ship, which was supposed to have been unfazed by one or two torpedo hits, experienced a shock as though a truck hitting a utility pole. Under the dim emergency lights, everyone was holding onto something trying to stand upright. Soon, the tilt gradually lessened, and the ship leveled again.*" Then Kato heard urgent voices from the speaking tube. Both the shell room and powder rooms below him were flooding – apparently from the hatches above both compartments. From this it appears the torpedo hit was just beside or forward of No.1 turret and water was overflowing aft into the principle rooms of this turret.<sup>17</sup>

Petty Officer Hideo Ogawa was not far away from Kato, but deeper in the battleship. He was busy at work loading charges on the elevator at his action station on the Platform Deck in the powder room of No.2 14-inch gun turret. Then "*At 0300...two or three torpedoes hit the battleship Fuso amidships on the starboard side. The electric lights immediately went dim, although the electrically operated magazine elevator still functioned.*" However, at first water only slowly began to enter the powder room.<sup>18</sup>

Thus, both Japanese survivors from forward actually believe it was three torpedo hits starboard though *Melvin* claimed only two and *McGowan* one; yet as related that three scored received striking confirmation from the wreck. Because of the great size of the vessel, each witness discerned only part of the story. Kato and Ogawa recalled the hits forward and amidships. *Mogami* may have observed the one amidships or the one further aft beside the starboard engine room. Both *Fuso* men agreed that after an initial list the battleship began to be righted; however, their stations began to take on water. Outside, post-war Japanese works from various witnesses described that *Fuso* slowed down and a fire on the fantail was observed. However, they also agreed that *Fuso* did not stop, but continued to proceed.<sup>19</sup> The idea that she slowed and foundered, let alone fell out of the battle and retreated after the first torpedo hits simply does not stand up. The simple fact is *Fuso* resumed the northward penetration. This is not

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<sup>16</sup> Very critical to understand because Bates had *Mogami* astern of *Yamashiro* in diagram J, when in reality she was approximately 3,000 yards off her port quarter. This was how she assumed that position. (Incidentally, this probably accounts for Nishino's recall of *Mogami* to port – its where she would be after the first torpedo attack.)

<sup>17</sup> Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, page 153.

<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*, Tully, p 154. Final proof of this appeared from the wreck. It is notable that many early Japanese sources had *Fuso* involved later in the battle engaging with gunfire but were also misled into thinking she had exploded into two pieces. (Tully)

speculation but is backed by incontestable evidence. Evidence albeit, not available in 2009, let alone 1958.

That fact is simple. The wreck of *Fuso* as surveyed in November 2017 revealed the battleship received a minimum of two, almost certainly three additional torpedo hits to her port side. The opposite side of her initial starboard side damage from Captain Coward's attack. This new fact that *Fuso* received torpedo hits subsequently on the opposite side - which could only come by getting further north - is decisive and key to the revelations uncovered in this study. So, who did it?

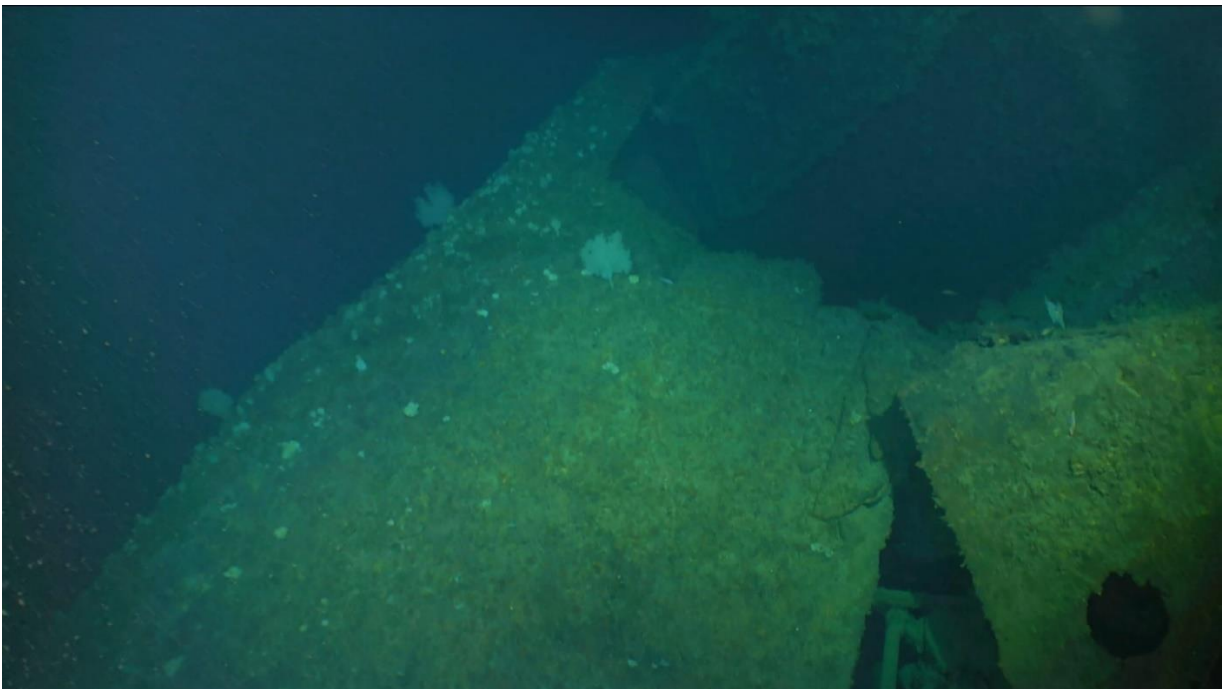
A simple matter of elimination demonstrates that she could only have received this damage in an attack subsequent to that of the Eastern Attack Force. Once this fact was revealed by her wreck in November 2017 it has remained to determine then, which subsequent destroyer torpedo attack struck her. For a variety of reasons, mostly relating to range and bearing and even time, the last torpedo attack by Captain Roland Smoot's DesRon 56 –can be easily ruled out.

If the agent was not Smoot's division, that leaves only the two destroyers of the Western Attack Force of Coward's division under Cdr. Phillips (*McDermut* (F), *Monssen*) or one of the six destroyers of DesRon 24 – three (*Arunta*, *Killen*, *Beale*) that attacked almost immediately thereafter or the other three (*Hutchins*, *Daly*, *Bache*) that attacked after that and only fired its last "fish" as late as 0349. These three torpedo attacks were each examined and revealed additional surprises beyond those of *Fuso*.

In sum: About 0310 battleship *Fuso* had received three torpedo hits in the starboard side. One just forward of No.1 turret, another apparently in the vicinity of the pagoda or No.3 turret, and the third under the mainmast. The first named hit low or even under the keel (perhaps from starboard turn) and caused flooding of much of the bow area and the magazines and shell rooms of the No.1 and No.2 turrets. The second is necessarily speculative but hit amidships were attested to by Ogawa and observed by *Mogami* and its placement accounts for the weakening of the hull and the subsequent collapse of the pagoda. The third without doubt deprived *Fuso* of the use of her starboard outboard shaft, and possibly the inboard one. (The location of the hits somewhat suggest the bow struck last of the three) Fire broke out topside amidships and aft and a list to starboard developed that was initially checked. However, *Fuso* remained underway and as will be seen, after a brief slowdown, increased speed again. The wreck stills below illustrate each impact area on the starboard side.

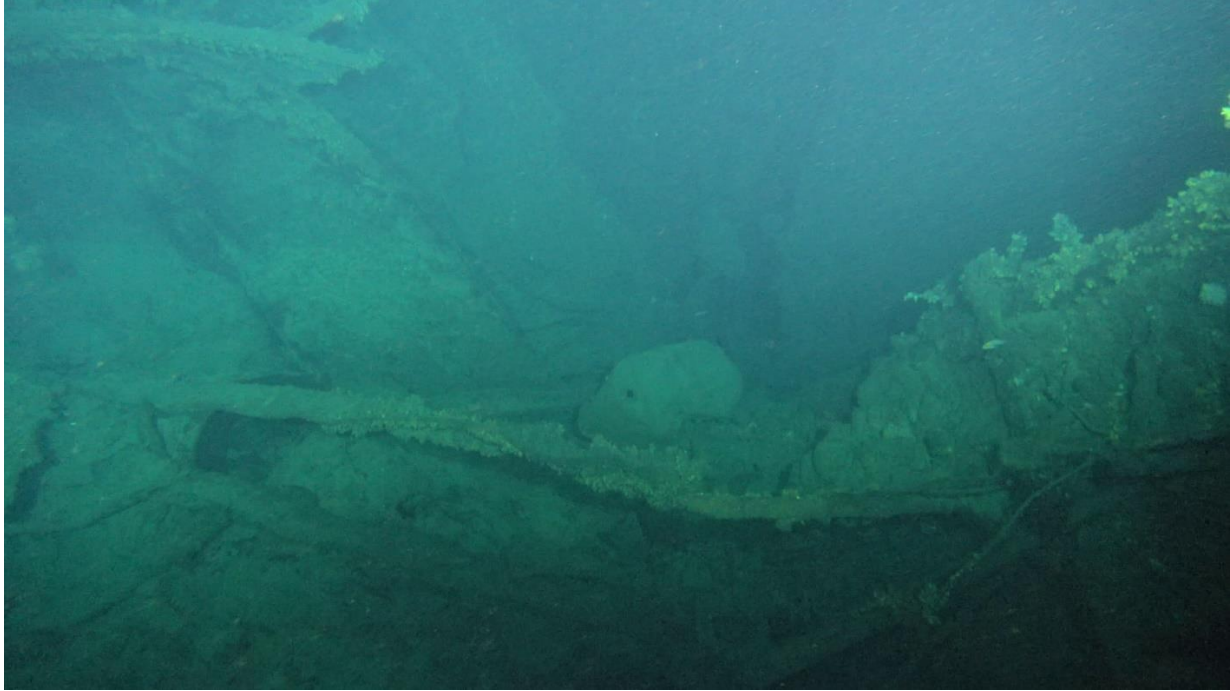


This is at *Fuso's* bow at approximately frame 25-30, and it shows a plate broken at seams and displaced inboard in what we believe is the capstan engine room. This damage is the most forward damage extending from the first torpedo hit which struck around frame 50 under turret one. This torpedo appears to have slipped under her keel and detonated under the ship. The gas bubble blew out her bottom all the way forward to the capstan engine room. (Photograph provided by Lone Wolf Media.)

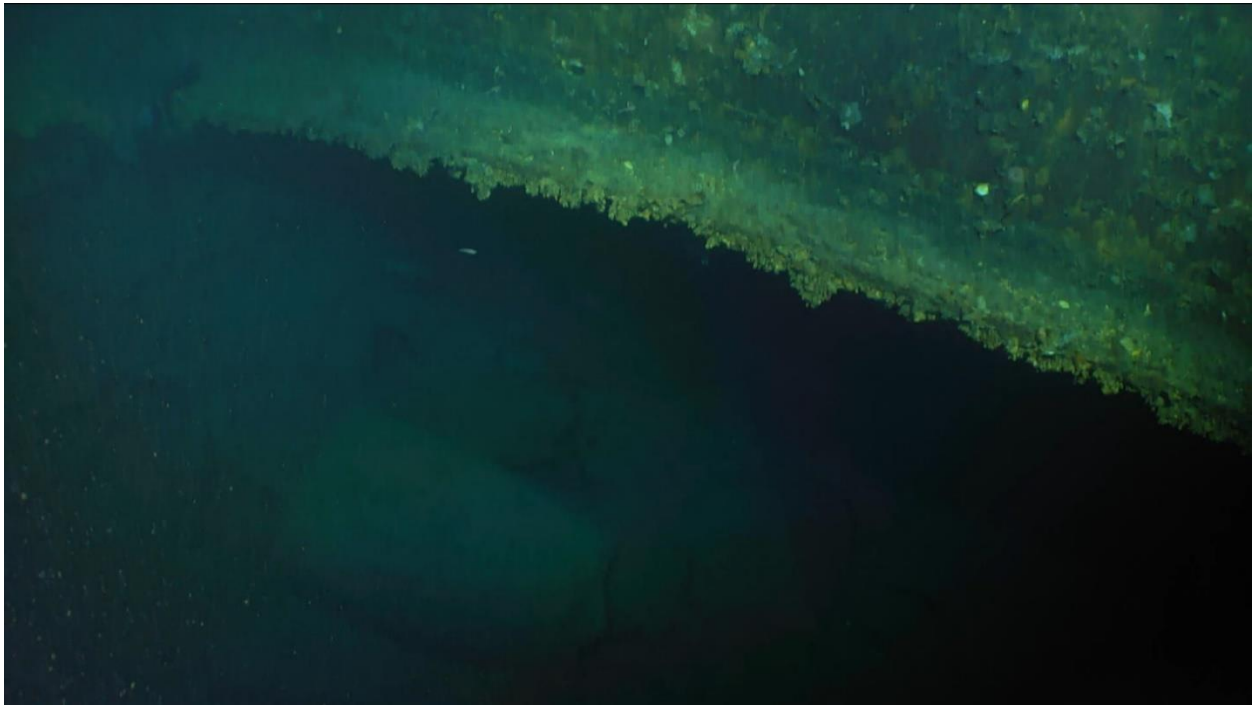


This is the torpedo hit at approximately frame 50 under turret one on the starboard keel of *Fuso*. We believe this damage flooded turret one powder magazine all the way forward to the capstan's engine room. Closer examination you can see her double bottom has been blown out. (Photograph provided by Lone Wolf Media.)

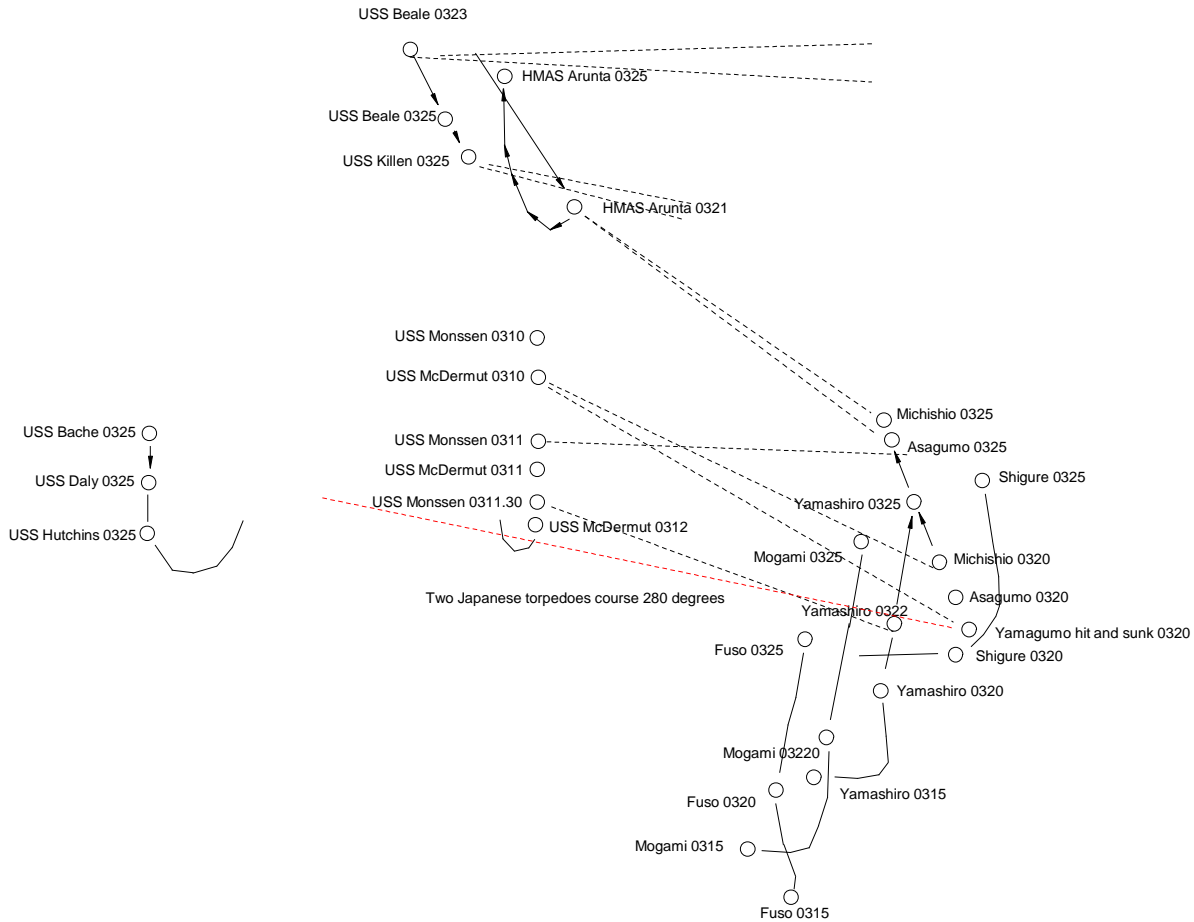




Moving further aft we come to an area that we believe represents a second torpedo hit around frame 80-100 just aft of turret two and under *Fuso's* pagoda superstructure. What makes this difficult to determine is this area is also bent when she sank. So, the damage in this area is a combination of combat damage and sinking damage. This damage corresponds to Ogawa's testimony and report of *Mogami* and additionally it is possible to rule out an amidships hit abreast the boiler rooms for hull intact. Her starboard side was weakened at this location and is the reason her hull bent when she hit the bottom. If no torpedo struck this area then *Fuso* would likely not have bent. (Photograph provided by Lone Wolf Media.)



There is a third torpedo hit at frame 210-230 of *Fuso* on the starboard side. This damage likely damaged the starboard outboard shaft and may have reduced *Fuso* to three engines. This damage was most likely the reason she briefly slowed to 6.5 knots and dropped back astern of *Yamashiro* during the initial phase of the battle. Photograph provided by Lone Wolf Media.



0315 to 0325 map.

I. What Really Happened to IJN DesDiv 4 (*Michishio*, *Yamagumo*, *Asagumo*)?  
0315-0322 Western Attack Force Strikes

So far so good. We have just seen that as generally believed in the first U.S. destroyer torpedo attack from the Eastern Attack Force that battleship *Fuso* was hit by two to three torpedoes to starboard. However contrary to the conventional take, these were spread in such a way the initially flooding forward was manageable, and that aft at most stopped two shafts; but probably just one: the starboard outboard propeller. *Fuso* would be able, and did, proceed. A stalking trio of PTs led by PT 494 hovering off Kanihaan had closed and at 0311 identified a Japanese battleship proceeding slowly northward at perhaps 12 knots by itself. However, due to a misreading of a radio order from *McDermut* directed at PTs on the Leyte side to keep clear, these PT's aborted any attack. This was *Fuso*. Overlooked TBS traffic further confirms this continued



advance. With this fresh data, it is probable Nishimura was aware *Fuso* had a setback, but very soon being made aware she was still following did not inquire further.

For about five minutes after *Fuso* slows down the Japanese have somewhat of an anxiety filled breather as they try to take stock; then a flood of sightings of enemy destroyers and torpedo boats starts to pour in again. These are now seen on both sides of the strait. We now come to the arrival of the torpedoes from the Western Attack Force of U.S. DesRon 54 and a phase of the battle it appears that wreck, witness, and track data all argue strongly for previous reconstructions to be abandoned. We will now take a closer look at this phase.

ComDesDiv 108 (Commander Phillips) in flagship *McDermut* with *Monssen* had both fired full salvos of ten torpedo spreads about 0310 at the Japanese port flanks. Significantly, they assigned a speed of 22 or 23 knots to the targets. This was about three knots too fast, even *Michishio* was making only 20 knots at 0320 as the torpedoes crossed the Japanese track. This pace had been to stay close to the battleships and to prepare to form a van for battle formation.

At 0309 just after or as *Fuso* was hit, with *Shigure* closing the fleet line, ComDesDiv 4 radioed for *Yamagumo* to also fall in (as her skipper already wanted to do). At the time *Yamagumo* had just finished avoiding a *Melvin* torpedo and was getting back into her position on *Yamashiro's* starboard bow. Now with this order, Cdr. Ono probably increased speed to 24 knots and changed course to about 350 degrees true to take station as the third destroyer (last of DesDiv 4) in column as follows: *Michishio*, *Asagumo*, *Yamagumo*, *Shigure*, and *Yamashiro*. *Fuso* was following at a greater gap astern of *Yamashiro* and *Mogami* was moving up on *Yamashiro's* port quarter. Technically, for ComDesDiv 4 to order this, violated Nishimura's prerogative of directing any changes in the formation.<sup>20</sup> A former DesRon commander himself, however, Nishimura clearly approved Takahashi's initiative. He voiced no countermand.

At 0313 *Yamagumo* reported a (probably false) torpedo trace bearing 350 true. At the same time a Japanese recon plane drops a parachute flare backlighting the Western Attack Force. This shifted attention to port and ahead. One minute later Nishimura ordered *Michishio* to "carry out observation for torpedo action" -- this is the standard prep to fire torpedoes, and we can assume that the loaded torpedo mounts of DesDiv 4 began to train left to bear on selected targets at this time. This time the range and angle of attack looked risky enough that Nishimura ordered evasion precautions -- at 0313-0314 he radio-phonied order of "simultaneous turns of 90 degrees to starboard" to course 090 T, which was promptly executed by all ships, including *Yamagumo* which had just entered column. Fire was checked at this time.<sup>21</sup> *Yamagumo* reported receiving a message from Admiral Shima from *Nachi*: "Notify situation?"<sup>22</sup> Admiral Shima was attempting to learn what the situation was, it is also possible that Shima's radio-phone call just then distracted Nishimura and Capt. Takahashi (ComDesDiv 4) for a moment or two.

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<sup>20</sup> It is possible Nishimura DID order it; the message just wasn't preserved.

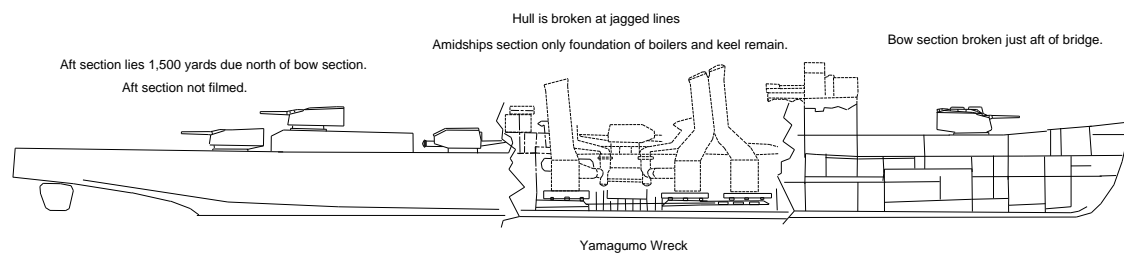
<sup>21</sup> Contrary to Bates/Morison, we have learned that *Fuso* did not "turn out of formation" -- she just slowed down while attempting to make emergency countermeasures. These would be successful. Using two or three remaining screws, speed would be increased on them to pick up speed again.

<sup>22</sup> *Shigure* Detailed Action Report, page 5.

The next ten minutes of the battle are very difficult to reconstruct as there are so many events in a very short time period - a crucial part only five minutes - that most surviving witnesses describe as simultaneous. With the exception of *Shigure*, Japanese times reconstructed after the battle by survivors (for example for *Mogami*) tend to be in round intervals. Greater precision is sometimes found in radio-phone entries and telegrams. At 0310 to 0310-45 U.S.S. *McDermut* fired ten torpedoes with the first torpedo bearing 118 degrees and the last 114 degrees at a speed of 32.7 knots and an arrival time of 0319-0320.<sup>23</sup> U.S.S. *Monssen* will fire her ten torpedoes at 0311 to 0311.30. Her first torpedo was bearing 089 degrees and her last 100 degrees at intermediate speed setting which is approximately 33 knots.<sup>24</sup>

Nishimura orders fleet to turn back north by 0317-0318.<sup>25</sup> The destroyers resume a course of 350 degrees still attempting to get ahead of Japanese main column.<sup>26</sup> *Michishio*, *Asagumo*, and *Yamagumo* made the turn by 0320 but *Shigure* was still on course 090 degrees at 0320. We believe that *Yamagumo* fired two torpedoes from torpedo mount one on a course of 280 degrees between 0319-0320 but before could get off any additional torpedoes was struck by a *McDermut* “fish” under torpedo mount No.1 that detonated the two remaining torpedoes within the mount. Another torpedo had probably hit just behind the bridge, buckling the destroyer at the break of the deck, and a third definitely slammed home aft in the vicinity of the No.2 torpedo mount and engine room. The aft torpedoes or magazines - or both - also exploded, completely demolishing the fantail. This is the wreck evidence and corresponds closely to what the west flank U.S. destroyers saw. Abruptly jackknifing, *Yamagumo* was gone inside two minutes. The rear section sank immediately, and the midships and bow very soon afterwards after drifting south for a short time.

At 0319 U.S.S. *McDermut* reports, “flash of explosive just abeam of us to starboard. Two large flare ups and a third smaller one seen. The torpedo run was computed to be 7 minutes and 45 seconds and at 0319 two definite large explosions and a third smaller explosion was seen. It is believed that the explosion seen were a result of torpedoes hitting the target and also that the largest explosion was the result of two torpedoes hitting simultaneously.”<sup>27</sup> U.S.S. *Monssen* “0319 felt a single underwater detonation. 0319-45 felt a series of three or four detonations in rapid succession. Large flashes not gunfire observed at target.”<sup>28</sup>



<sup>23</sup> U.S.S. MCDERMUT - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 3 and 5-19.

<sup>24</sup> U.S.S. MONSSEN - Rep of Ops in the Invasion of Leyte Is, Surigao Strait, Night of 10/24-25/44, page 11.

<sup>25</sup> *Shigure* Detailed Action Report, page 2.

<sup>26</sup> This tends to support Nishino’s version that Desdiv 4 was offset to starboard of the battleships initially.

<sup>27</sup> U.S.S. MCDERMUT - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 4-5.

<sup>28</sup> U.S.S. MONSSEN - Rep of Ops in the Invasion of Leyte Is, Surigao Strait, Night of 10/24-25/44, page 11.

*Yamagumo*'s wreck reveals the area just aft of the bridge, both stacks and torpedo mount one is gone. What remains of this section is her keel and the foundations for her boilers. The wreck is in three sections with only the bow and middle sections being filmed. The aft section lies approximately 1,500 yards north of the bow section.<sup>29</sup> It is possible, but we cannot confirm the torpedoes of mount two also detonated. It is not unlikely that the difference in destruction level is that No.1 mount only had two "fish" exploding or the boilers whereas No.2 mount had all four go at once. The two Japanese torpedoes fired on a course of 280 degrees will cross the path of U.S.S. *Daly* at 0330.<sup>30</sup> It is possible these torpedoes were fired from any of the three leading Japanese destroyers but between 0319-0320 the torpedoes line up with *Yamagumo*. Her sudden destruction may explain why only two torpedoes and not a full half salvo of four torpedoes at minimum were fired.

Moreover, ComDesRon 54 (Capt. Coward) reported by TBS at 0325 "Several fish fired at our group." Bates on page 447 posits strong convincing objections to this claim. Thus the report is likely incorrect, and no such torpedoes were present. However, *if true*, since Coward's group were the other flank, the probability is just after 0314 order to prepare for torpedo attack Takahashi complied quickly and *Michishio* had fired torpedoes as well, these to starboard.<sup>31</sup> These were not a reference to *Yamagumo*'s shot at *Daly* because that observation had not happened yet, and that vessel was part of another force anyway. Finally, best evidence is *Asagumo* did not fire torpedoes at this time.

At 0322 *Yamashiro* takes her first torpedo on the port side we believe around frames 240-250 between the aft turrets. *Yamashiro* does not slow down at this time but based on Paymaster Hisato Ezaki's (who was on the compass bridge) testimony this hit spurred the flooding of the No.5 and No.6 magazines from concern of fire. (This receives support from miscellaneous Japanese post-war accounts that describe the fire visible on *Yamashiro*'s quarter-deck)<sup>32</sup> It is likely the unrefined and highly flammable Borneo oil fire was of sufficient intensity to threaten the interior of the ship. Until the aft magazines could be pumped dry again, this effectively reduced the number of available main turrets to four. This torpedo hit likely came from U.S.S. *Monssen* as the Bates NWC analysis concluded. Bates analysis also showed this was actually a lucky hit for *Monssen* – Nishimura's turns and slower speed had cancelled out some torpedo firing tracking errors. For six minutes *Yamashiro* slows to about 10 knots but by 0328 is back to 18 knots. *McDermut*, apparently firing at the center of the large pip created by the destroyers, wiped out *Yamagumo* in the middle. *Mogami* coming up aft of *Yamashiro*'s port quarter was simply not embraced by the torpedo spread of either U.S. destroyer.

As for Nishimura's second battleship, *Fuso* was spared from further damage at this time from the Western Attack Group because of her reduction in speed earlier. She lay south of the fans of the spreads and was not targeted. This can be shown by tracks and mathematical calculations both. Ironically, the Naval War College indicated (p 369) this was a result of a significant flaw or

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<sup>29</sup> For *Yamagumo* wreck, see description at: <http://www.combinedfleet.com/atully08.htm>

<sup>30</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3.

<sup>31</sup> *Michishio*'s wreck though nearly complete in length is too badly smashed amidships to be clear whether all the tubes are empty or not – a least the visible tubes of No.1 mount still *seem* to be loaded. But since *Asagumo* apparently fired at the Right Flank cruisers with one mount and had another still loaded when hit by shellfire, if these torpedoes existed at all *Michishio* is the likely source. (Tully)

<sup>32</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 160-161.

error in an otherwise splendid torpedo attack. The attacks of the Eastern and Western Attack Groups were supposed to have been *simultaneous*, with torpedoes coordinated to be hitting Japanese port and starboard sides almost at the same time, instead of ten full minutes apart in sequence. This had resulted from Western Attack Group trailing by five miles the Eastern Attack Group when they started south so they were not parallel. As mentioned, due to over-caution, *Fuso* had also escaped further attack by the PTs of Kanihaan Island around 0313. Thus, she was slowly building speed to catch back up even as *Yamashiro* slowed down.

This brings us to a point necessary to question a deeply ingrained assumption about the course of events next to follow starting at 0320. It is known and stated by Japanese records that all three DesDiv 4 destroyers received severe torpedo hits between 0310 and 0330. It is also definite that by 0330 *Yamagumo* had been sunk, *Michishio* placed in serious condition, and *Asagumo* hobbled by having her bow shorn off at the base of No.1 turret. To date, including the book of one of the writers (Tully) the standard account that all three were hit in the same time frame by *U.S.S. McDermut* has been maintained.

This impressive and memorable claim was first put forth by the Bates Analysis which in turn appears to have mainly derived it from *Shigure*'s reports of all three DesDiv 4 destroyers being torpedoed in succession. However, *Shigure*'s entry is a single paragraph clearly telescoping events. In fact, *Mogami*'s report says similar, but does separate them in time slightly. Significantly, the first major Japanese synthesis at war's end, the Monograph on Leyte Gulf, also does not make them literally simultaneous. The track chart shows *Yamagumo* hit ten minutes before *Michishio*. *Michishio*'s CO memory snapshot recalled *Yamagumo*'s explosion; then after a short interval *Asagumo* behind him being hit, then his own ship immediately thereafter. In sum, the preponderance of Japanese testimony puts *Yamagumo* sunk abruptly, then after a very short interval, *Asagumo* and *Michishio* struck nearly at the same time.

It so happens the actual reports and observations of the Allied side say basically the same. In fact, the initial hits claimed by *McDermut* and *Monssen* are four - less than those credited by the Bates analysis. It averred that: 0319-0321 *McDermut* torpedoes *Yamagumo*, *Michishio*, and *Asagumo* -- all three---essentially smashing DesDiv 4. At 0322 *Monssen* gets a torpedo hit on *Yamashiro* port side aft. This essentially accounts for the four detonations observed. However, if three of these detonations are on *Yamagumo* alone, two U.S. torpedoes and torpedo mount one exploding, then *Yamashiro*'s hit at 0322 would account for all four detonations observed and *Michishio* and *Asagumo* were not hit at 0320. (If *Yamagumo* received three hits as *Shigure* and *Mogami* believed and the wreck does suggest it; that only complicates this further) This assertion may appear over-bold, but actually is supported by the track charts of *Hutchins*, *Daly* and *Bache* which show *Michishio* still advancing then suddenly veering to port after 0325. These three U.S. destroyers will get into a gun duel with *Michishio* at 0341 and she was significantly north of *Yamagumo*'s position at 0320.

A delay of some minutes before *Asagumo* and *Michishio* were hit is also supported by the admittedly fragmentary recollections of *Michishio*'s skipper, *Shigure*'s radiophone message log, and other Japanese accounts, including one of the earliest IJN track charts of the battle. (The one included with the Leyte monograph. See page 23 figure below.) If this is true, when the last of

the Western Attack Force torpedoes pass around 0322 the *Michishio*, *Asagumo* and *Shigure* are still advancing, with *Yamashiro* and *Mogami* on the port flank following. The question arises: If not from *McDermut* and *Monssen*, then who could have hit *Asagumo* and *Michishio* in the time frame needed before the benchmark of 0330? There is a good candidate.

### 0325-0337 Torpedoes of DesRon 24 Attack Group 2.2 Arrive

While Captain Coward's east and west flank units of his DesRon 54 were attacking Nishimura from both starboard and port sides another allied DesRon was already closing to attack. Detached at 0302 by RADM Berkey to head south from his right flank cruisers, DesRon 24 comprised six destroyers in two sections led by Captain Kenmore M. McManes who flew his flag in U.S.S. *Hutchins*. They steamed down the west side of the strait and as they neared the firing point, McManes at 0317 had his second attack group turn southeast and close to launch, while he took his three ship section onward to the south. As early as 1958 S.E. Morison remarked that DesRon 24 kept good track charts, and this true. The radar plots and charts are well plotted and detailed – *Daly's* in particular - and key elements to the reconstruction attempted below.

This second section "Attack Group 2.2. as it was termed was led by H.M.A.S. *Arunta* who had pulled out ahead of her team-mates U.S.S. *Killen* and U.S.S. *Beale* as they bore in. At 0321 *Arunta* fired four torpedoes at the only large ship sighted in the enemy formation. (This was *Yamashiro* – *Fuso* was too far astern at the time) "Details of torpedo fire are given in form A.S. 308A. 4 MK IX torpedoes fired at range 6,900 yards bearing 125 degrees true, speed 40 knots, depth 6 and 8. Director angle used 14 knots left deflection, 1/3 deduction of deflection being made to compensate for enemy avoiding action. Enemy estimated speed 25 knots. The enemy course was estimated by plot as 350 degrees speed 25 knots and bearing 120 degrees,<sup>33</sup> the inclination therefore being 130 degrees left but latter was observed to be 125 degrees left. Spread used 14 degrees." She launched her torpedoes on a bearing of 120 degrees and they would cross the Japanese path four minutes later at 0325.<sup>34</sup> *Arunta* may have sighted *Yamashiro*, but the plotted target aimed at was not her--- a speed of 25 knots and course 350 matched that of the Japanese van destroyers, not *Yamashiro*. If the indications are correct, this was *Michishio* and *Asagumo* boosting speed having just escaped being hit when *Yamagumo* was destroyed.

0327 H.M.A.S. *Arunta* reported, an undoubted hit was scored by the DDs on the left flank, as a large flash was seen about 3-4 minutes after they reported torpedoes away and no other forces were engaging the enemy at this time. *Killen* or *Beale* – at 0327 a large flash was seen which was thought to be a hit by *Killen* or *Beale*. *Arunta's* torpedoes not observed.<sup>35</sup>

*Killen's* torpedoes will not reach the Japanese line until 0331. *Beale's* torpedoes pass ahead of the Japanese line and completely miss. *Arunta's* torpedoes reach the Japanese line

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<sup>33</sup> The course and speed match *Michishio* and *Asagumo's* course and speed. *Yamashiro* maximum speed was likely only 18 knots.

<sup>34</sup> H.M.A.S. ARUNTA - Rep of Engagement with Enemy Surface Forces in Surigao Strait, Philippines Night of 10/24-25/44, page 3.

<sup>35</sup> H.M.A.S. ARUNTA - Rep of Engagement with Enemy Surface Forces in Surigao Strait, Philippines Night of 10/24-25/44, page 3.

approximately 0325-0327. Nishimura's pair of simultaneous turns appears to have taken the Japanese destroyers into the path of *Arunta's* torpedoes.

Japanese documentation 0325: *Asagumo* reports torpedoed in bow to *Michishio*.<sup>36</sup> *Mogami* reported, "0325 Direct torpedo hit observed on *Michishio*, and bow severed."<sup>37</sup> *Shigure*: Action Report states: "0320: *DesDiv 4* was hit by several torpedoes. *Yamagumo* blew up ("gochin"), *Michishio* and *Asagumo* lost their bows, unable to move. After that enemy attacks were getting steadily heavier."<sup>38</sup>

The events occurring in quick succession could easily blur into one blob that everything was happening simultaneously. However, the more persuasive clue is radar track charts from U.S.S. *Hutchins* and U.S.S. *Daly* in particular show that *Mishishio* and *Asagumo* did not slow until after 0325. We speculate that H.M.A.S. *Arunta* scored three hits just as U.S.S. *Beale* observed. Two hit *Michishio*, one in port bow and a second in the port engine room. The engine room flooded rapidly, and all lives were lost. Propulsive power was quickly lost, though the starboard shaft may have continued to turn for a short time. Had *Michishio* taken this damage earlier at 0320 she likely would have veered out of formation then and this is not supported by the track charts from U.S.S. *Daly* or U.S.S. *Hutchins*.<sup>39</sup> Further, Cmdr. Tanaka's recall also placed his ship being struck immediately after hearing *Asagumo* astern being struck at 0325.

A single torpedo hits *Asagumo* in her port bow. It smashed the bow back to just forward of the No.1 turret. She reported this at 0325. *Asagumo* now had a blunt ragged bow but continued to advance at her best speed to the north falling behind *Yamashiro* and ahead of *Fuso* at roughly 10 knots. She had not taken any boiler or engine room damage, and was capable of higher speeds on demand as will be seen later in the battle but her advance from 0325 to 0355 was roughly 10 knots.

As for *Michishio*, *Hutchins* documents her turning to port (not starboard as in Bates) at 0329 and *Daly* has it at 0332. Though their times differ slightly both agree it was a port 180. Together with *Shigure's* turn south over confusion about *Yamashiro's* situation, these turns somewhat explain Captain McManes momentary belief the Japanese had started to retire. It is why he reverses course with another 180 back to the south at 0333. However, in *Michishio's* case such a turn is likely as much a product of damage as intention, and she is swinging south while going dead in the water.

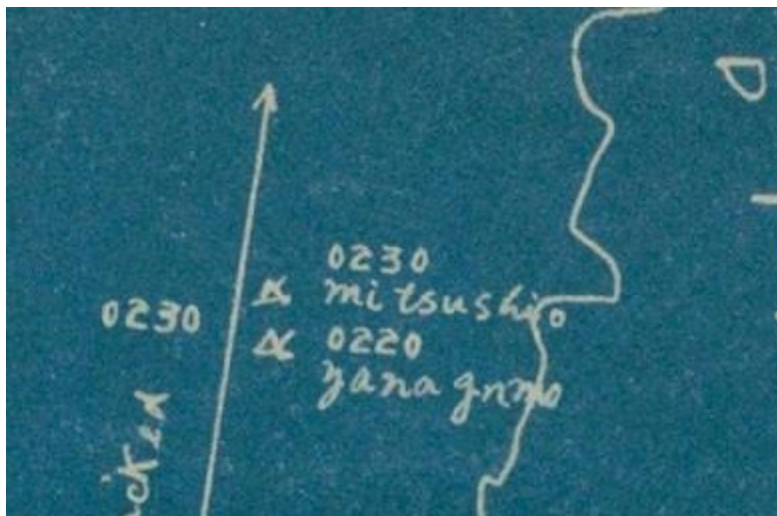
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<sup>36</sup> *Shigure* Detailed Action Report, page 2.

<sup>37</sup> *Mogami* Detailed Action Report, page 11.

<sup>38</sup> *Shigure* Detailed Action Report, page 2.

<sup>39</sup> This is arguably the best evidence from the American side that the Japanese recall that *Michishio* was hit closer to 0325 is correct and speaks with one voice. U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 19. U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 12.



The early Japanese monograph discussing Surigao clearly opts for close to a ten minute gap and also latitude difference between *Yamagumo* and *Michishio* being sunk. The same monograph shows *Fuso* in action longer than 0320 and much closer to where *Yamashiro* sunk. (It is not clear where an hour has been lost, but the same drift appears in other reports. It seems to have some connection to them being drawn up in Manila in early November 1944 after the battle)

Author's comment: It must be emphasized that the foregoing scenario with DesDiv 4 rests on the evidence of the Allied radars and tracks. We are aware it contradicts the long-held assumption that U.S.S. *McDermut* of DesRon 54 torpedoed all three Japanese destroyers, but the above appears to best comport with the slender Japanese evidence available, the message logs, action reports, and tracking data and the fact that *Michishio* ended up on the seabed at same latitude as *Yamagumo*. That Section 2 of DesRon 24 – specifically H.M.A.S. *Arunta* – hit *Michishio* and *Asagumo* aligns with this evidence best. A definite conclusion for now remains elusive and for future researchers.<sup>40</sup>

As for *Arunta*'s two team-mates following astern, U.S.S. *Beale* launched her torpedoes at 0323 and fired five torpedoes to port at a Japanese battleship. The torpedoes were fired at a range of 6,800 yards length of torpedo run being 6,000 at a Japanese battleship which was seen clearly through rangefinder optics at a minimum range of 5,470 yards. At least three explosions were seen at the time *Beale*'s torpedoes were due to hit, and these were the result of the *Beale*'s torpedoes combined with those of the *Killen* who fired at approximately the same time. "A minimum of one hit, and probably two or more was made by *Beale*. At the time of torpedoes enemy was on a course of 347 degrees true with a speed of 17 knots and the torpedo track angle was 270 degrees.<sup>41</sup> (Leading enemy ship, which she reported was a battleship, bearing 115°(T) (actual bearing was 104°(T)), range 6,800 yards, giving a base torpedo course of 077°(T)"<sup>42</sup> *Beale*'s observation of three explosions is important. These explosions are not her torpedoes

<sup>40</sup> It is worth mentioning that the last major U.S. work before the Bates analysis, U.S. Destroyer Operations in World War II, published in 1953, also was not inclined to assign all three Desdiv 4 destroyers to *McDermut* torpedo hits. Instead, it spread credit between DesRon 54 and DesRon 24 in a manner similar to like above that the fresh evidence suggests.

<sup>41</sup> U.S.S. BEALE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines Morning 10/25/44, page 2.

<sup>42</sup> Bates, Richard W., The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis, Vol. V, Naval War College, 1958, page 441.

because her torpedoes were fired on a course of 077 degrees well ahead of the Japanese formation so that all of these torpedoes likely missed. Her observation of three torpedo hits is witnessing *Arunta*'s torpedoes.

U.S.S. *Killen* launched her first torpedo attack at 0325 convinced that her target was a battleship and that more targets were to come, fired ½ salvo of five torpedoes to port 1 degree spread, medium speed, (33.5 knots with range of 9,000 yards) 22 foot depth setting torpedo run of 8,000 yards, torpedo course 101°(T) at the battleship, bearing 125° (T), target angle 305°, range 8,700 yards.<sup>43</sup> Reversed course to 330 degrees true following *Arunta*.<sup>44</sup> They will cross the Japanese path at 0331.

U.S.S. *Killen* was not finished. After turning north and continuing to have a firm identification of her target as a battleship decided to give it a second salvo. "At 0329.30 *Killen* fired two torpedoes at same target appeared to be changing course and fire was checked. Target course 000 degrees true, target speed of 18 knots was used in both cases, with target range of 8,700 and 8,100 yards respectively for first and second salvos at time of firing. Torpedo course was 087 and 088 degrees" and again the depth 22 feet.<sup>45</sup> They will cross the Japanese path at 0337. This salvo was fired at *Yamashiro*. With this launch, the torpedo attacks by Attack Group 2.2 concluded.

Before the last of DesRon 24's Attack Group 2.2 torpedoes had arrived, at 0329 Nishimura opened his command circuit to send an important update to all commands crucial for reconstructing the battle. However, it has also generated many questions that till now have been difficult to understand. The message was broadcast at 0330: "*Enemy DDs and torpedo boats are stationed at the northern entrance to Surigao Strait. Two of our DDs have received torpedo damage and are drifting. Yamashiro has been hit by one torpedo, but her battle integrity is not impaired.*"<sup>46</sup>

Some criticism and bewilderment have long been leveled at Nishimura for the apparent nonchalance of this update. It had seemed incredible he made no mention of the fact that half his main strength, the *Fuso*, had been knocked out of action, nor any attempt made to raise her until much later. Now this perhaps clears up. *Fuso* never did stop advancing, and he knew she was still following. There was nothing to report. If true Nishimura did not attempt to contact *Fuso* because he rather likely was aware she was still astern or had even been informed by Ban via light signal. *Yamashiro*'s message logs did not survive. A dim-light message would not have been logged by others – we simply do not have enough surviving data to say whether *Fuso* communicated with *Yamashiro* about her damage or not. Or needed to.

If the reconstruction above is correct, at 0330 the following held true: His flagship *Yamashiro* had received one torpedo hit port abreast the aft turrets, starting a fire that had spurred a precautionary flooding of the No.5 and No.6 powder magazines. *Mogami* was unscathed, but

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<sup>43</sup> Bates, Richard W., *The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis*, Vol. V, Naval War College, 1958, page 441.

<sup>44</sup> U.S.S. KILLEN - Report of engagement with Jap surface forces in Surigao Strait, Philippines on 10/25/44, page 2.

<sup>45</sup> U.S.S. KILLEN - Report of engagement with Jap surface forces in Surigao Strait, Philippines on 10/25/44, page 2.

<sup>46</sup> Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, pages 161-162.



DesDiv 4 had been nearly erased: first *Yamagumo* sunk at 0320, then at 0325 *Asagumo* and *Michishio* both torpedoed and now set adrift as seen by *Yamashiro* as passed them two minutes later. *Asagumo* would get back underway again shortly, but *Michishio* was left crippled and swinging away to retire. *Fuso* was limping onward from torpedo hits but not mentioned at all. The reason *appears* to be Nishimura knew she was rejoining the advance after unknown – if any - degree of damage.

Furthermore, it has been found that at 0335 U.S.S. *Denver* which had heard Nishimura's 0330 message very clearly, "*reported that she had located Japanese command frequency and was proceeding to jam it.*"<sup>47</sup> (U.S.S. *Thorn* DD 647 Action Report).<sup>48</sup> So, it also possible *Yamashiro* sent more messages than actually got out through the jamming. In any case, nothing should be so strongly read into an absence of "*chatter.*" For whatever reason he did not observe or report *Yamagumo*'s sinking – perhaps reported just prior in a lost telegram as he appears to have been reporting in increments. This, however, is merely speculation. It is perhaps significant that when Nishimura does call up *Fuso*, he asks only what her maximum speed she can yet make. With the harsh charge about *Fuso* removed, Nishimura's report at 0330 becomes essentially accurate.

For some distance astern, *Fuso* too, was still driving due north, cranking up steadily again (probably on two or three screws) to 16 knots. At 0318 *McGowan* noted in follow-up regarding the same target speed-up: "*Combat reported to conn that large enemy vessel previously reported as having slowed appeared to be trying to catch up with rest of column.*"<sup>49</sup> This was just what would be expected of a Japanese battleship in this context. Indeed, the flooding forward on *Fuso* is known to have initially been moderate. Ogawa in the No.2 14-in powder magazine said that "water began entering the magazine slowly and on order from the turret captain he and the 10 other men working in the magazine climbed into the projectile room above, closing the steel door behind them."<sup>50</sup> The shell handling room was on the Lower Deck and no water entered here before this compartment was abandoned by Ogawa and the others in turn. Merged with Kato's account for No.1 turret area, this demonstrates *Fuso*'s foc'sle was flooding and causing concern but like *Kongo* [with similar forecastle flooding and a hit amidships], the battleship still "felt" stout enough that Ban doubtless does not contemplate leaving the battle nor does he need to. It is significant that *Kongo* was able to make 16 knots with comparable, if slightly less damage (assuming *Fuso* has a third hit starboard aft).<sup>51</sup> *Mogami* remained off *Yamashiro*'s port quarter and *Shigure* was off *Yamashiro*'s starboard beam.

It should be mentioned here our two Japanese *Fuso* accounts shed no light whatsoever on this stage of the battle due to the nature of what was published of their interview. Survivors Kato and Ogawa's narrative is "snapshot" in nature, describing the first torpedo hits on *Fuso* from the point of view of one; then skipping all the subsequent events by giving only their point of view

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<sup>47</sup> U.S.S. DENVER - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, pages 4-5.

<sup>48</sup> U.S.S. THORN - Rep of engagement with Jap surface forces in Surigao Strait, Philippines, morning of 10/25/44, page 4.

<sup>49</sup> MCGOWAN - Rep of Ops in the Capture, Occup & Defense of Leyte Is, Philippines, Including the Battle of Surigao Strait, 10/20-26/44, page 9.

<sup>50</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 172-173.

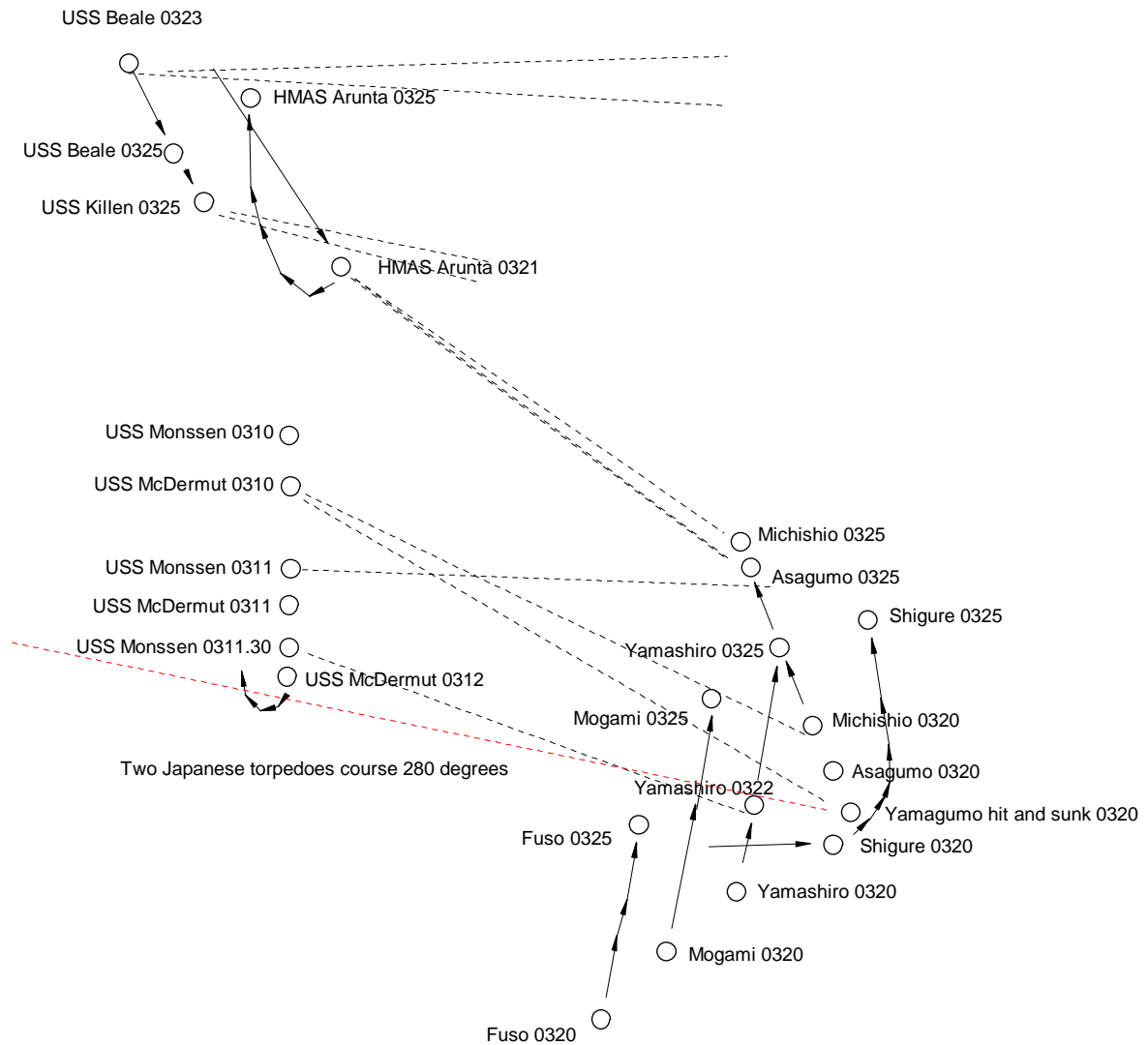
<sup>51</sup> For account of battleship *Kongo*'s damage and sinking, see: <http://www.combinedfleet.com/eclipkong.html>

as they seek to escape from below till the time just before CO Ban ordered Abandon Ship called on *Fuso*. For the events between the first hits and the last moment we must resort to informed conjecture and what evidence observations and radar tracks of other ships of both sides give us in addition to that revealed by the wreck.<sup>52</sup>

Analogies to other IJN warships and similar circumstances indicate that *Fuso* would not immediately have started to founder, nor would a commander such as Ban Masami prematurely have quit the battle and reversed course. This arguably even more so on a diversion mission such as this. The natural expectation is that *Fuso* would conduct damage control measures to correct list and trim and seek to constrain flooding and fire, while otherwise attempting to make best speed and continue to proceed. This is in fact exactly what the tracking and survivor evidence indicates. With the possible exception of the starboard quarter hit, none of the torpedo hits were immediately crippling in character. Even the loss of the starboard engine room would be readily compensated for by increasing revolutions on remaining shafts. In any case the tracks appear to clearly show *Fuso* remained headed north and resolved to battle in *Yamashiro*'s wake through the next wave of American torpedo attacks, this time the remaining half of DesRon 24's two attack sections.

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<sup>52</sup> In essence, Kato & Ogawa's available accounts describe the moments around 0310 and then leapfrog forward to around 0350 hours through *Fuso*'s sinking and almost nothing in between, including known fires and any additional battle damage which clearly took place. Further, Kato's account stops at the sinking; only Ogawa's continues to Shima's arrival and later. (Tully)



Map of 0320 to 0325.

While his second section was making its attack, McManes in Attack Group 1.2 had continued advancing south past the port beam of the Japanese in order to get into an advantageous position astern of them in order to cut off any attempt to retreat. For this reason, Attack Group 1.2's swipe comes after Attack Group 2.2's of his second section. His flagship U.S.S. *Hutchins* led U.S.S. *Daly* and U.S.S. *Bache* and at 0329, even as Nishimura sent his update, his own section commenced its torpedo attack also from the Japanese port or western flank.

However, in the meantime the aftermath of Attack Group 2.2's spreads were playing out. With bow smashed and engines flooding *Mishishio* veers to port between 0326 and 0332 losing

power and slowing down.<sup>53</sup> With way crumbling she begins to make a 180 toward the south but it is an open question whether was even under control.<sup>54</sup> Nishimura had just sent his major update when his flagship took her second torpedo hit from *Killen*'s first salvo at 0330-0331. The torpedo hit *Yamashiro* in the vicinity of the port outboard engine room. This time *Yamashiro* slows down but only briefly. It is probable that the engine room went out of action, but revolutions increased on the center and starboard engine rooms and speed built back up.<sup>55</sup>

*Shigure* reported at 0330 "three torpedo wakes passed beneath our ship."<sup>56</sup> *Killen*'s torpedoes were set to a depth of 22 feet. CO Nishino of *Shigure* believing *Yamashiro* was the ship he saw going dead in the water turns south intending to try to transfer the flag. He may have been misled into following the southward drifting and foundering *Michishio*, only to see her sinking, and abandon the attempt to close about 0337. (It's worth noting that 0338 is a likely break-up time for *Michishio* – see below)<sup>57</sup>

Cdr. Nishino later conflated *Shigure*'s narrow escape with the time *Desdiv 4* was struck but the torpedoes were part of the group fired at *Yamashiro*, not the destroyers. However, *Killen*'s Parthian shot of two torpedoes had yet to arrive. At about 0337 this moment came, and *Yamashiro* was hit by a third torpedo on the port side likely from *Killen*'s second torpedo salvo. *Mogami* documented "0340: Direct torpedo hit observed on *Yamashiro* apparently near the bow." Time was given as 0340 but the hit was likely scored at 0337.<sup>58</sup> (This torpedo hit appears confirmed by wreck damage on the bow near the capstan room, that has caused the whole prow to fold back as if on a hinge) Within two minutes, *Yamashiro* picks up her speed most likely still on three engines. By this time, the first torpedoes of *McMane*'s trio were already en-route.

In *Hutchins* CIC from the tracking reports, it appeared at the time that the Japanese were breaking off and starting to retire. At this time in fact, two Japanese ships had swung around to the south. *Shigure* to investigate *Yamashiro*'s condition, and *Michishio* from crippling torpedo damage. *Yamashiro* herself abruptly slowed down after 0331 and *Fuso* was lagging.

At 0329-15 to 0329-45 U.S.S. *Hutchins* had turned to a due north course and "fired five torpedoes in salvo at southernmost of four enemy ships in leading column. Range 8,200 yards. This target had just turned south and was the biggest by size of radar pips at long range during previous tracking. It had not been intended to fire at a detached ship but as track had been

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<sup>53</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 19. U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 12.

<sup>54</sup> It is possible, but unclear, if these movements by *Michishio* may have given rise to the radar tracks that gave Bates the impression *Fuso* retreated south. More likely this was derived from the later *Shima* sightings.

<sup>55</sup> Survivor reports confirm second hit amidships port. *Yamashiro* is known to have both slowed down temporarily then regained nearly full speed again. This is consistent with an engine room or fireroom hit. Significantly, her wreck allows determining by location the hit was an engine room hit. Since the port engine room was struck again and hole widened, the frame vicinity is unknown.

<sup>56</sup> *Shigure* Detailed Action Report, page 2.

<sup>57</sup> Cdr. Nishino's identifications are very difficult to unravel, especially since it is now known that *Fuso* continued advancing for a time. It is an open question whether times he says 'Fuso' it actually was her, and not transposing *Yamashiro* as has been assumed to date. Another element is that *Michishio*'s fall away, and drift south strongly resembles in both time and manner what Nishino describes as 'Yamashiro' falling behind and then apparently sinking. (Tully)

<sup>58</sup> *Mogami* Detailed Action Report, page 11. *Killen*'s action report has this torpedo salvo passing the Japanese line at 0337. Bates Analysis was so exacting in this regard that 0337 is preferred to *Mogami*'s 0340 but this is arbitrary. What seems clear is being well forward it is not the second hit that was amidships, but a genuine third hit. Perhaps about frame 15, port.

*continuous and good on this large target, firing was carried through on it.”*<sup>59</sup> Since ship had turned north and not closed the range *Hutchins* had to use intermediate speed setting. These torpedoes were fired southeasterly along 120 degrees and plot to have been fired at *Michishio* now swinging south not realizing she was losing power and going dead in water. The likely reason her radar pip was so large was *Mogami*, *Asagumo*, and *Yamashiro* were passing beyond her almost abreast around this time. Due to *Hutchin*’s believing *Michishio* could still make speed the torpedo angle of 120 degrees was too far in front and so none of these torpedoes would hit anything.<sup>60</sup> At 0329 *Hutchins* altered course left to 000 degrees true. *Daly* had not yet launched but still followed in her wake.<sup>61</sup> This slight turn was extremely important.

At 0330 “*two torpedoes crossed Daly’s bow, the closest not more than 50 yards ahead, from starboard to port, on approximate course 280 degrees true. The wakes of these torpedoes could be seen forming as they approached. Bubbles were just rising as Daly’s bridge crossed torpedo track number two with water still sizzling. A light trail of smoke could be seen rising from the bubbles. Bubbles from torpedo track number one were rising just forward of the stem at the same time. Both of these torpedoes were first detected by underwater sound equipment. They were too close however to permit evasive maneuvers.*” As noted above these Japanese torpedoes may have been fired by *Yamagumo* just prior to herself getting hit. The slight turn by *Daly* to follow *Hutchins* may have been providentially enough to avoid these torpedoes. Certainly Cdr. R.G. Visser said as much.<sup>62</sup>

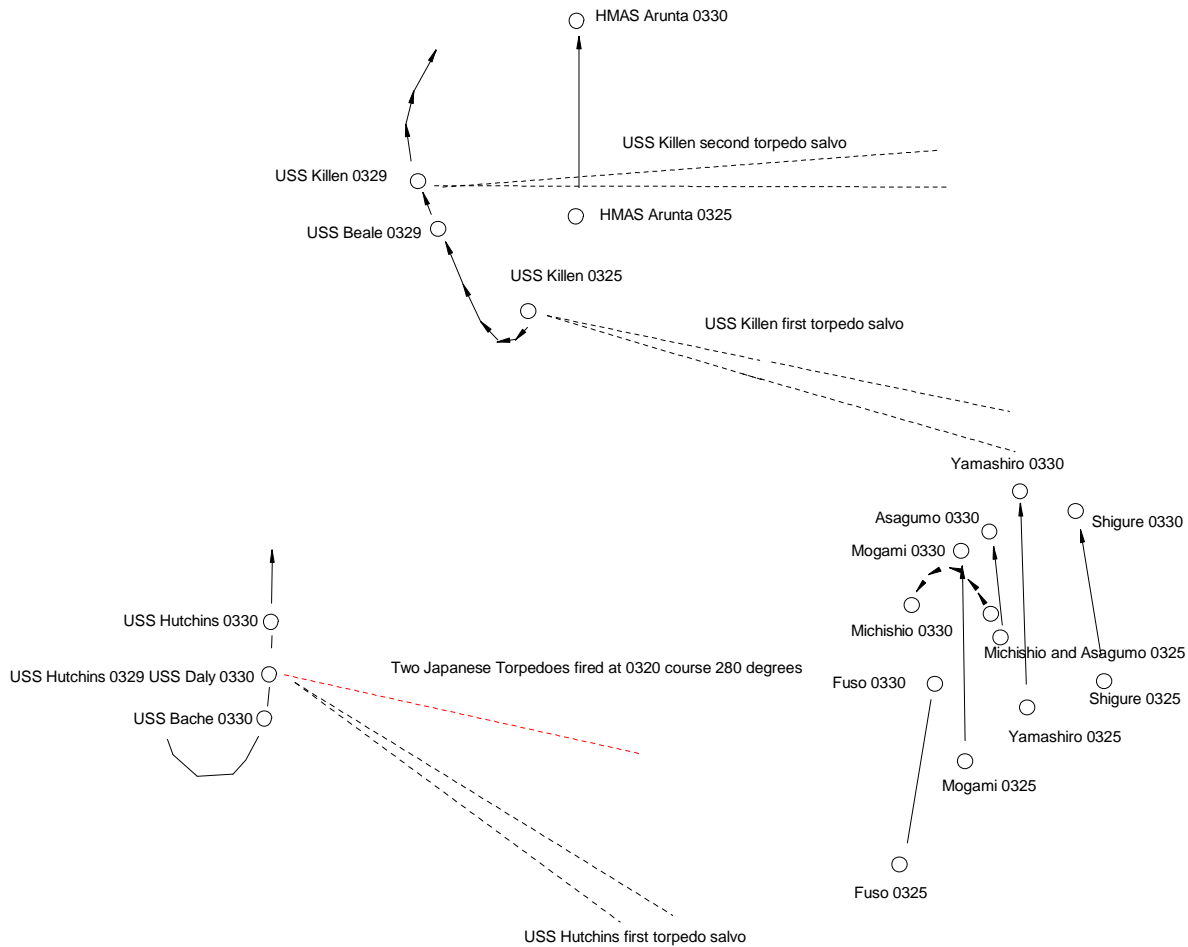
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<sup>59</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2. It is possible, but unclear, if these movements by *Michishio* may have given rise to the radar tracks that gave Bates the misleading impression *Fuso* had already abandoned the advance and retreated south. More likely this was derived from the later Shima sightings.

<sup>60</sup> “*At 0338 Captain reported sighting explosions on port bow, other observers reported three. Sound gear operator reported hearing two faint snaps and one loud one. No ships firing guns at this time.*” We believe these snaps are *Michishio*’s hull breaking up. Morison associated 0338 with an explosion and breaking in two of *Fuso*, but this did not take place. U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2.

<sup>61</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2.

<sup>62</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3.



Map of 0325 to 0330

Close call avoided, it was *Daly* and *Baches*' turn to fire. *Daly* noted: "0332 - Hutchins reversed course to the left after firing torpedoes, *Daly* held course and at 0332 fired five torpedoes to starboard, using as target an enemy ship of the second group (Largest pip visible on the SG radar) bearing 093 degrees true, 10,700 yards, course 010 degrees true speed 16 knots, torpedo course 035 degrees true speed 27 knots, depth six feet."<sup>63</sup> These torpedoes plot to have been fired at *Fuso*'s extended north track - they will cross her path at 0344.

<sup>63</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4. There is a discrepancy in *Daly*'s action report where her action report says she fired at 0332 with a torpedo course of 035 degrees, Her TBS log/track chart says the time of firing was approximately 0337 at 055 degrees but plotting this out the torpedo pattern crosses *Fuso*'s path at the same time of 0343-0344. So, if she fired at 0332 she fired on a bearing of 035 degrees and if she fired later at 0337 they were fired at 055 degrees but they both end up at the same location at 0343-0344. This article uses her 0332 and 035 degree bearing as stated in her action report.

*Bache* reported – “At 0335 we reversed course to 350 degrees true and fired one half salvo of torpedoes to starboard. Results of torpedoes were not observed as we retired into smoke.” These torpedoes were fired at *Fuso* but on a torpedo course of 063 degrees and will miss aft of *Fuso*.<sup>64</sup>

As McManes destroyers completed their first torpedo attack and barreled northward, Third Section was attempting to reform but proceeding independently. The Allied radar tracks revealed the general picture. By 0338 *Shigure* turns back north and at flank speed attempted to catch up with the leading Japanese ships which she will do by 0350. At the same time, *Yamashiro* was in the lead with *Mogami* to port, with *Fuso* closing from astern and *Asagumo* behind her. South of them all the *Michishio* was a foundering wreck drifting south. Thus, ironically at 0340 the three largest ships – *Yamashiro*, *Mogami*, *Fuso* - are very briefly in the van with all three destroyers – *Asagumo*, *Shigure*, *Michishio* - to the rear. It was at this point the destiny of the battle was truly decided and decisions made that would determine the targeting to follow.

For by this time, the flagship of Battle Line, *Mississippi* herself, had locked onto Third Section’s pips and Rear Admiral Weyler issued his firing directives. He had on his radar contact with two distinct groups of obviously enemy ships. The lead or northern-most one was now designated, logically enough, “Raid Able.” From the American battleline, Raid Able was already picked up by *Mississippi* at 0306 bearing 167 degrees true, range 43,000 yards. The raid was estimated to consist of two or three large ships on course 327 degrees true. Note: that these target designations are not individual ships but pip groups as they are first detected – thus Raid Able consists of two or three ships. By 0340 *Mississippi* picked up Raid Charlie on radar screen bearing 175 degrees true. Range 31,500 yards. Estimated to consist of two or three large ships on course 031 degrees true. Speed 20 knots.<sup>65</sup> This indeed appears to be *Mississippi* picking up *Fuso*.

U.S.S. *Tennessee* recorded five targets on a northerly course were observed on the search radar screen. In the van there were two large ships on a line of bearing. Following astern were three smaller targets.<sup>66</sup> The two large targets in the van were *Yamashiro* and *Mogami*. The rear ships were *Fuso*, *Asagumo*, and *Shigure*. *Michishio* was well to the south dead in water and likely not picked up on *Tennessee*’s radar. This had important implications for Admiral Weyler in command of the U.S. battleships showed large targets in both raids and it was possible that Raid Charlie may be the more important target. *Shigure* will overtake *Fuso* and *Asagumo* by 0350 and the lead ships will be *Yamashiro*, *Mogami* and *Shigure* followed by *Fuso*, *Asagumo*, and with (if not already sunk) *Michishio* registering furthest south. Raid Charlie on radar represented *Fuso*, *Asagumo*, and *Michishio*. Raid Able represented *Yamashiro*, *Mogami*, and *Shigure*.

Commander Battle line had previously ordered open fire when range is 26,000 yards. At about 0342, range was 26,000 yards and *Tennessee*’s skipper Captain J.B. Heffernan requested of

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<sup>64</sup> U.S.S. BACHE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3.

<sup>65</sup> MISSISSIPPI - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 3-4.

<sup>66</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 15.

RADM. T. Chandler ComBatDiv 2 also aboard permission to open fire. Chandler denied it and directed *Tennessee's* frustrated gunners not to open fire until *Mississippi* opened up. Reasons for this was fourfold:<sup>67</sup>

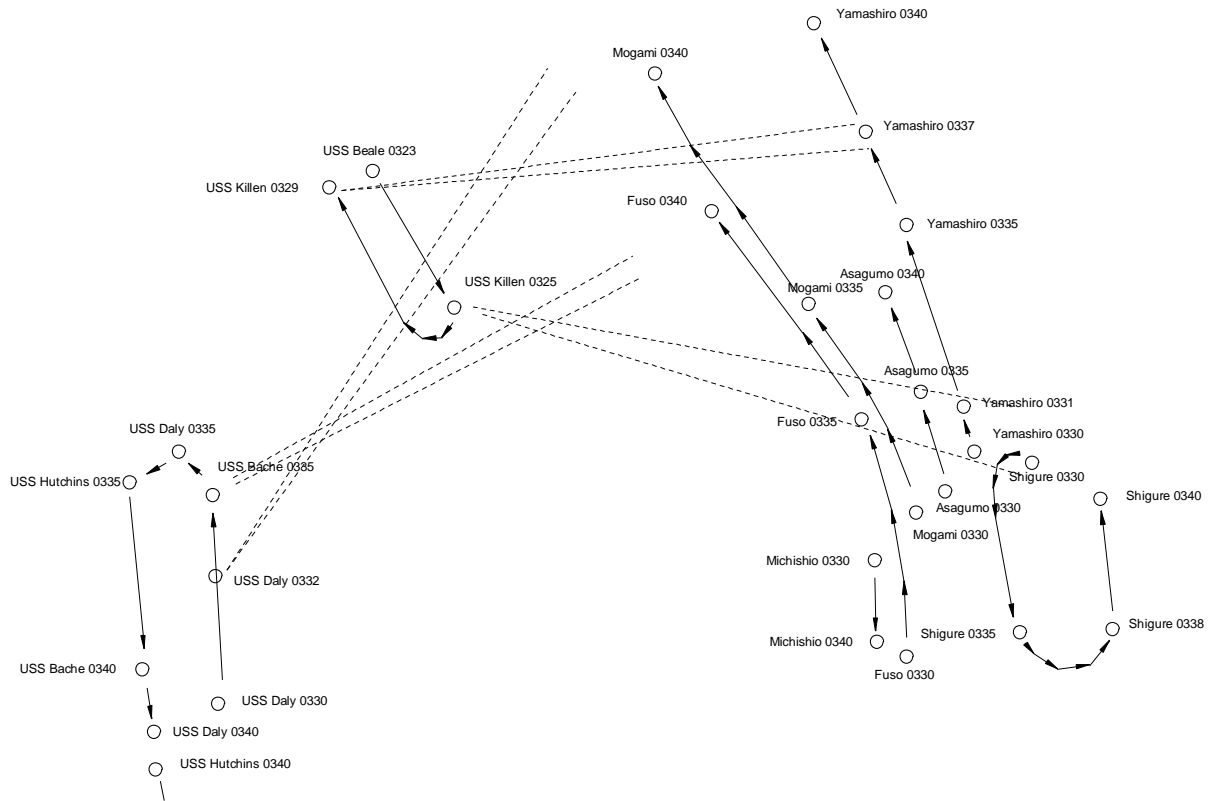
- *Battleline was nearing end of easterly run, and it was deemed unwise to open fire and thus reveal our presence at about the time Commander Battle line might reverse course.*
- *Commander Battle line might want to delay fire. (As it turned out, commander battleline did issue a subsequent directive at 0351 that he was not going to open fire until second group reached 26,000 yards.)*
- *The range being approximately equal for all ships there seemed no reason why a 14" ship should fire before two 16" ships, especially when further reduction in range would be an added guarantee of decisive action.*
- *Custom of following motions of senior officer.*

Commander of the Battle line wanted to wait until the second group had closed to within 26,000 yards. At 0342 when this decision was made it is probable that *Fuso* was still combat capable and was moving north at 16 knots roughly 10,000 yards behind *Yamashiro*. Between 0340 to 0344 the pip that seems to be *Fuso* was altering to the west - likely attempting to swing her aft guns to bear as her forward guns had been disabled by torpedo damage. Her radar may have picked up U.S. cruiser line now 22,000 yards from her. U.S. battleships are approximately 29,000 yards at 0342.

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<sup>67</sup> COMBATDIV 2 - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3.





Map of 0330 to 0340

This was the picture as Battle Line had it at 0340. What they could not know, but perhaps suspect, is that two of the targets were the pair of Japanese battleships known to be present, and one or more cruisers. This was indeed the case. Recall that contrary to previous understandings, *Fuso* was still advancing at this time. In fact, with probably still operating Type 22 search radar, there is reason to believe that about this time RADM Ban had a contact and commenced a shift westward to present his starboard broadside. *Fuso* was in fact already in 14-inch range (as was *Yamashiro*) and probably about to open fire on Berkey's ships. We have established that it does not appear that *Fuso* was torpedoed in the port side by the Western Attack Group or targeted by *Arunta*'s group. If correct, the port torpedo damage thus has yet to be accounted for.

*Yamashiro* reportedly had lost the use of her search radar from strafing damage. It may be significant she remained headed steadily north, probably entirely unaware of the ships ahead at this precise moment. *Mogami* sailed in support on her port beam but was speeding up. *Shigure*, with a bone in her teeth, was fast overtaking from astern to rejoin. Finally, *Asagumo* had cranked up more speed and had torpedoes primed to launch. (It should be remembered that all the Japanese ships had radar detectors) At the moment the bow-less destroyer was keeping pace with the contact that must have been *Fuso*. But McManes Attack Group 1.2 had not finished with Nishimura's ships.

Headed north parallel to the Japanese since launching their torpedoes, McMane's feisty destroyers now opened gunfire to starboard on selected targets. At 0340 *Hutchins* recorded: "Section coming left to north. Commenced 5-inch fire using AA common projectiles to obtain best splashes. FD ranges and bearings on CIC designation. Target was third ship in enemy column and was turning left to southerly course. Opening range 12,000 yards and range closing slowly. About sixth salvo the first hit was observed. About 10 salvo a steady white light as of an open door appeared. Target caught fire soon after and the light was put out."<sup>68</sup> (This was likely *Michishio*)

*Daly* – "Main battery trained on enemy vessel in vicinity of second enemy group, a relatively small *Pip*. Commenced firing to port at 0341 on this target bearing 085 degrees true, range 11,800 yards. Target appeared to have reversed course making 16 knots. Small bursts could be seen at the target as salvos landed. FD and SG radars indicate salvos were hitting."<sup>69</sup> (Bearing of 085 degrees and range of 11,800 yards lines up with *Michishio*) Based on *Bache's* account and the effect of *Michishio's* reported engine room flooding *Hutchins* and *Daly* have almost certainly overestimated her speed.

*Bache* – "At 0342 we commenced firing on the nearest ship in a group made up of three enemy ships. The first two salvos were short but beginning with the third salvo, hits were observed in each salvo thereafter. After seven salvos had been fired, computer and combat information center tracking solutions indicated that the **target was dead in water**. Eight additional salvos were then expended on this target with the same effectiveness. Eyewitnesses state definitely that fires were started."<sup>70</sup> (This was likely *Michishio* though the *Fuso* which was hit hard again at this time is another candidate) By 0341 *Michishio* was dead in water. Drifting south at 3 to 4 knots based on current and wind. Bates, followed by Morison was inclined to credit *Hutchins* second torpedo salvo with sinking her around 0358. In truth it cannot be ruled out.

Aboard *Michishio*, CO Tanaka later would prove too dazed or defiant to provide many details of his destroyer's loss. He did say that she sank within 10-15 minutes after being first hit. The engine room had been completely flooded but the boilers had been secured. He speaks of great confusion of messengers back and forth to the bridge in fog of war circumstances. A torpedo hit smashing the bow noted by both *Mogami* and *Shigure* may well have gone unnoticed or unrecalled by him. As for a violent final hit, there are hints that he was blown into the water with Captain Takahashi by a final convulsion. He mentions nothing of gunfire hits, but the U.S. accounts and the condition of the wreck support the likelihood of shells hits and fires. There were only four survivors of *Michishio* and while this may be due to the attrition among survivors overall, it may also imply a more sudden final blow at the end.<sup>71</sup> The wreck shows considerable

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<sup>68</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2.

<sup>69</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>70</sup> U.S.S. BACHE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3.

<sup>71</sup> *Michishio's* wreck is generally complete but shows heavy topside damage consistent with shells and fire damage. The torpedo hole in the port engine room and a partly broken bow is also apparent. The shattered bow, likely sustained at same time as engine room hit just as both *Mogami* and *Shigure* reported. Overall the wreck is in very decayed and collapsed condition, and features recognizable to few but experts. (Tully)

evidence of fire and blast damage and can certainly support such a blow. Though it is nearly complete in length the fantail area is smashed. We believe the snaps U.S.S. *Hutchins* noted on her sound gear at 0338 was *Michishio* starting to break up and sink. Whether then blasted by a final torpedo impact must be left open. Her wreck ended up on the sea floor roughly at the same latitude as *Yamagumo*'s main wreck. *Michishio*'s final course south and then drift since around 0325 having almost precisely accounted for the north-to-south distance from *Yamagumo*'s point where hit.<sup>72</sup> It is likely that by 0400 *Michishio* had sunk and left radar screens. At that very moment another Japanese warship was also just about to be subtracted for good.

What happened next is graphically chronicled with persuasive detail and track charts in the reports of U.S.S. *Daly* - "*Checked fire at 0344 as Hutchins turned left to cross our bow. At 0344 three large explosions, unmistakably torpedo hits [when due to hit] in quick succession were observed by all bridge personnel and repair parties bearing about 045 degrees true. Each explosion was a round ball of dull orange flame which subsided and disappeared almost immediately. The ship which was hit by these torpedoes immediately opened fire with major and minor caliber guns frantically throwing steel through 360 degrees and initiating general gun action between both forces.*"<sup>73</sup> It is certain that these three torpedo hits were made by *Daly*'s torpedoes fired at 0332, twelve minutes before for the following reasons.

- (a) Radar plot shows a large target in *Daly*'s torpedo water at a range of 10,000 yards from point of firing the exact distance a 27 knot torpedo will travel in twelve minutes. Subsequent plots reveal that this target decelerated and was making only 2 knots at 0400.
- (b) *Hutchins* torpedo course was 120 degrees true. She fired at different target southeastward, three minutes prior to launching our torpedoes.
- (c) *DesRon 54* conducted first attack with torpedoes away prior to 0320 since the last destroyers of that group to attack *Monssen* and *McDermut* passed *Daly* to westward on retirement course time from PPI tracing their firing range was close to 7,000 yards so that their torpedoes hit long before 0344.
- (d) Section II (*Arunta*, *Beale*, *Killen*) launched torpedoes at 0327 at a range of 6,500 yards to 7,000 yards. Their torpedoes reached their marks within the maximum time of 9 minutes or prior to 0336.
- (e) Torpedoes fired by *DesRon 56* were fired at 0350. In addition, ships were on the eastern flank and there would be little chance of seeing torpedo hits on the other sides of large enemy ships from our western position. Our TBS log shows that these three ships were ordered to fire a half salvo at 0348 with standby to fire at 0354."<sup>74</sup>

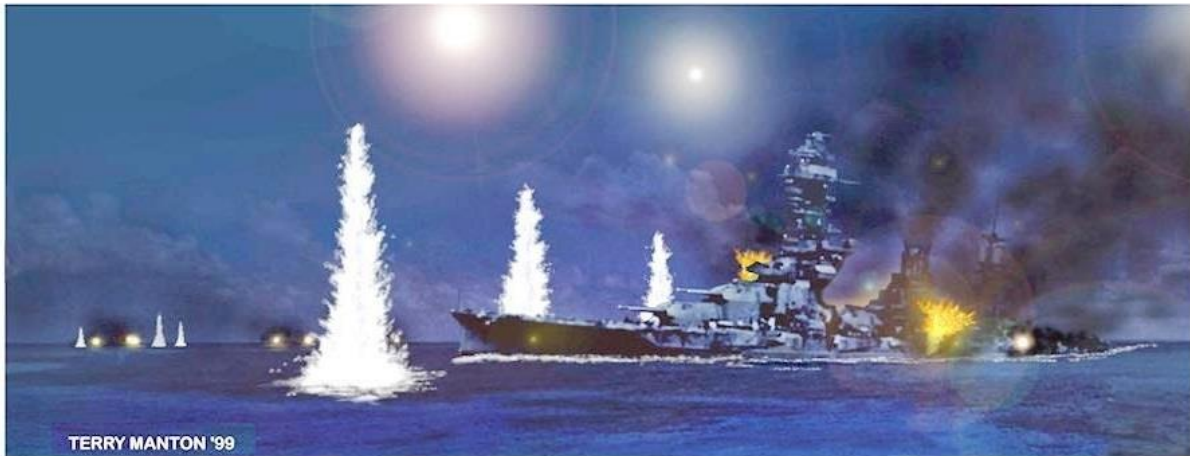
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<sup>72</sup> Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, page 179-180.

<sup>73</sup> This was very likely *Fuso*'s final main battery salvo. She continued to fire her secondary battery at *Hutchins* until 0400.

<sup>74</sup> U.S.S. *DALY* - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 4-5. Bates dismissed *Daly*'s report because by admission he had no good information on *Fuso* and had her well to the south and assumed what *Daly* observed was *Yamashiro* firing her main battery. Bates, Richard W., *The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis*, Vol. V, Naval War College, 1958, page 434. At 27 knots the torpedo would travel 911.417 yards per minute and travel 10,937 yards by 0344. Ironically he picked 0345 for when *Fuso* blows up and splits in half based on *Hutchin*'s observations. It is indeed correct to associate 0345 with *Fuso*'s moment of becoming ablaze and left sinking.

Thus, it is seen how meticulously, and convincing, *Daly* documents three torpedo hits on a large target, one that burst into flames, and was capable of major caliber gunfire. It will be immediately apparent the correspondence with *Fuso*'s mysterious port side torpedo damage, and such is indeed our argument. Once it is admissible to consider *Fuso* got a bit further north, it has much more to support it than *Daly*'s claim. Other sources from both Allied and Japanese witnesses converge remarkably on this time frame of 0343-0345 for *Fuso* bursting in major flames.



THE END OF THE FUSO

Original by Terrence Manton for the Tully 1999 article that turns out to capture just as she might have looked at 0345 after being set afire and sinking from *Daly*'s torpedo hits to port. Battleship *Fuso* is listing and traveling at slow speed, fires spreading ominously as enemy guns to the north flash and boom. Coincidentally even the forward turrets trained forward secured is correct. All that is lacking really is the bow should be nearly awash but that was unknown in 1999. [Frame has been reversed to reflect westward course] (Combinedfleet.com)

At 0345 *PT-495*'s trio which had been stalking a lone Japanese battleship moving away north at 12 knots observed from a distance said battleship to burst into flames. *PT 523* off Sumilon Island also reported two big fires blazing up at 0345 to the north. At 0344 heavy cruiser *Nachi* flagship of VADM Shima now advancing up the Strait, observed a large fire break out ahead. By 0348 it was distinguishable as a large warship on fire. It might be added also that in the same time frame 0342 *Shigure* reported, "*Mogami received a direct hit, slowed down and dropped back. It was observed how she was enveloped in fire*".<sup>75</sup> Context suggests this may be *Fuso* not *Mogami*. It is very close to when *Fuso* was torpedoed. It also does not well match the circumstances of *Mogami*, which also was on the far side of *Yamashiro* at the time. Admittedly, with the big exception of Shima fleet's observations as will be seen below, none of these can be considered proof standing alone.

Nonetheless, the facts revealed by the wreck are unequivocal. *Fuso* was hit by three torpedoes on the port side. One around frame 50, one (possibly even two) at frame 220 and one at frame 260. Her outboard port engine room has suffered major damage and her keel at

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<sup>75</sup> *Shigure* Detailed Action Report, page 2.

frame 260 is snapped. Everything about the suggested time of 0344 for these hits fits – by this time *Fuso* was down at the bow enough where a port quarter hit would go in above the shafts of a slightly raised stern, just as it does. Some selected frames of the ROV pass on *Fuso* show this remarkable evidence.



*Fuso* at approximately frame 220 on her port side and the pipe may be to her port condenser. This damage is over an area that cannot fit into a single picture frame. (Photograph provided by Lone Wolf Media.)



This is moving forward on *Fuso* approximately frame 210 on her port side showing that this area is devastated. The area of damage is so great that it is very likely it was caused by two torpedoes striking her in close proximity to each other. (Photograph provided by Lone Wolf Media.)





The third torpedo struck further aft at approximately frame 260, you can see the outboard port shaft entering the hull. This is approximately under turret 6. (Photograph provided by Lone Wolf Media.)

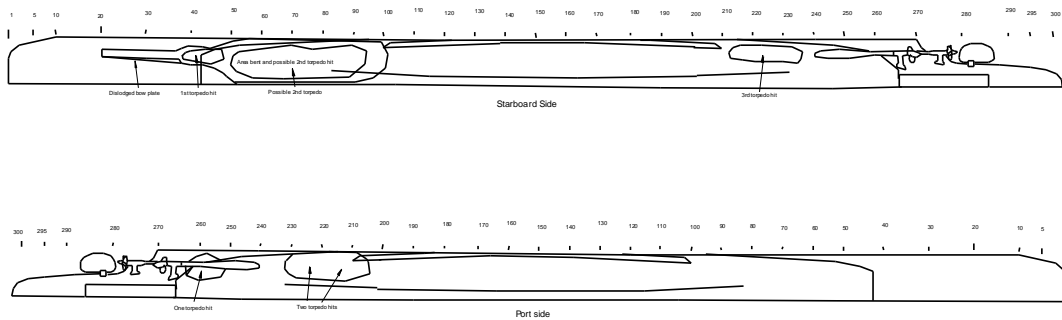


This is directly below the above photo still at frame 260 showing more damage on *Fuso*. The torpedo likely detonated above the port outboard shaft which is now misaligned and shoved inboard. In fact, her centerline keel is snapped in half at this position. (Photograph provided by Lone Wolf Media.)



This is *Fuso's* centerline keel at frame 260 looking from the starboard side and it shows *Daly's* torpedo hit at the same location from port snapped the keel in half. (Photograph provided by Lone Wolf Media.)

Fuso Wreck



Torpedo damage on *Fuso*

It should be reminded that at 0344 *Fuso* had already had three torpedo hits to starboard and was struggling with managing their effects and that of a waterlogged foc'sle. The consequences of three more torpedo hits, on the opposite side but nearly in the same places, can easily be imagined. With port engine room also blasted, a big gash aft, and afire, *Fuso* lost power and was now mortally wounded; abruptly reduced to a sinking condition. She continued her port turn now at a crawl, a dead ship, and by 0400 was going dead in the water with bow pointed southwest and drifting down the strait nosing under by the bow at a steepening angle. The end was at hand.

For reasons outlined earlier, the two survivors do not mention *Daly's* or any subsequent attacks to the first starboard hits and yet on closer examination appears to be due to the snapshot character and limits of the account as published available. We believe this is partly explained by the fact they may have still been inside the battleship involved in evacuation. It is quite possible

they exit the forward turrets just after *Daly's* torpedoes impact at 0344. Certainly, it was not long after, because one thing is certain - time left for *Fuso* was short after that point and that is where the two accounts resume their narrative: Escaping the battleship.

Ogawa's account *may* contain a hint. After he and his 10 men had climbed up into the shell handling room on the Lower Deck they had waited for an indeterminate time. Then, "*although no water was entering the projectile room the 11 men from the magazine and the 15 men in the projectile room left through the after steel door for the deck above.*" Unlike the prior movement from the magazine, it does not appear to have followed an order. It is quite possible the concussions of further hits and perhaps a marked increase in the tilt of the deck was the unspoken spur to this action. Once eventually topside, the band had "*waited on the starboard side of number 2 gun turret while the ship slowly settled.*"<sup>76</sup>

Kato in No.1 turrets say's:

*"It was pitch black outside and I could not see a thing. I felt the movements of the hurried people among but could not make out their faces. I hastily walked to the designated place of the center starboard upper deck. But when I got to No. 1 cutter's davit, I suddenly felt like I was suffocating in the pack. I noticed the ship was tilted diagonally forward. Normally the aft deck which should have been lower, now rose higher. The ship was tilted so much that it could barely be walked on. I was almost crawling to walk. And the deck looked like shining white uncannily."*

Kato here mentions No.1 cutter, which is to starboard and approximately beneath the tall pagoda; between it and No.2 turret. He is thus abandoning ship from the opposite side of the final damage and from near the bridge. And doing so after an orderly evacuation of first the powder and shell room men and then from the gun-house of his No.1 turret. He could have arrived on deck after *Daly's* attack. Indeed, the scene appears to match the conditions of 0402:

*"I heard ferocious gunfire in the utter darkness yonder. But complete silence prevailed on our ship. I looked around over the water, but nothing was to be seen. We must have been left behind, and alone. As we assembled at the designated place and finished making a muster, the tilt gradually increased, and our ship looked like it was going to be immersed in the water. In the darkness, I hurriedly walked around to find my 10 men and gathered them around me by patting their shoulders or by beckoning. I then told them. "OK, you guys, listen to me...."*

Kato then related how together with his comrades they heard the pagoda bridge toppling over at a 45 degree angle, and then the battleship corkscrewed as nosed steeply down by the bow. He went into the water only to see the upended portion then flip over and being pulled momentarily toward it, swam with all his might to kick away.

*"At long last, I came to a point where I was sure of being enough distance away from the ship. I was relieved and took a deep breath. Then looked at the ship. The bridge of the ship had fallen sideways, and she was about to go down to the bottom. The stern which stands out diagonally, rose high above the water slantingly, and I clearly saw the huge rudder against the night sky. On either side of the rudder, were the screws running with slight noise as if they were*

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<sup>76</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 173.



*showing regret. The huge black hull gradually increased its slant angle, and seemed to stand still for a while, but then it disappeared into the water completely with a sound like hitting a drum quietly as if it were rolling down rails. As I recall, my watch had stopped at 0325. Since 1938, I had lived with and shared the fate with Fuso. Her living quarters were old fashioned and inconvenient, but I liked Fuso very much. As I watched her going down with my own eyes, I wept openly in an unmanly way.”<sup>77</sup>*

Kato Yasuo’s contribution ended right there--- before could make any mention of the fire pool burning that other ships noted. Ogawa however, does. It is he that gives description of what follows after *Fuso* capsized and the graphic fact that of the burning fire on the sea as she went down. Ogawa, Hideo. Member of 2nd Division, working in powder-room of No.2 gun turret picks up the story from a similar point to Kato’s just before he abandoned ship. Significantly, the excerpt of Ogawa’s account includes nothing of what preceded the Abandon ship order:

*“Suddenly, the area around the bridge became noisy with movement. The order “abandon ship” was issued, and I observed some people began jumping into the water from the center starboard side. Most of the approximately 100 shipmates of the 1st and 2nd Divisions gathered on the port side, and prepared to leave, but I (joined by a shipmate) straddled the handrail on the starboard side of the No.2 gun turret, glaring at the sea surface that was gradually coming nearer and nearer to us.”* Ogawa and the others than both jumped and fell into the water one after another. He heard a gruesome steel cracking sound and *Fuso* whose bow was under the water listed heavily to starboard suddenly rolled to the opposite port side away them with a great splash.

*“I looked at the ship in the distance. In the darkness, the huge black hull of our ship stood high above the water, and the forward bridge was about to fall down sideways. How were the CO and other officers in the bridge now? Soon, the bridge disappeared into the water. The stern, about 60 meters long aft of No. 6 turret, was above the water at an angle of about 50 degrees, stood still, which showed an awkward figure in the nightly sky. The screws...were running in the air hopelessly.”*

Ogawa got mired in a thick patch of the fuel spilling forth and struggled hard to get free. Fortunately, his portion of the oil slick was not yet afire. He reached a point where he could swim easily away. A macabre glow was lighting the water, and about 60 meters away, Ogawa stopped to look back. *“ I saw Fuso still showing a small part of her stern enveloped in flames. The area of burning oil spread out very quickly with the terrible noise, which was similar to the amplified sound of roasting beans.”* Ogawa was horrified to hear the groans and shouts of doomed men struggling in the burning inferno.<sup>78</sup>

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<sup>77</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, pages 171-172. Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 177.

<sup>78</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 178.

“Boom!” “Boom!” I heard the sound of dull explosions twice in succession and felt them in my belly. Did the powder magazines explode under the water?<sup>79</sup> *Fuso* was no longer to be seen anywhere at that time, and the layer of oil on the surface of the water was blazing. Then I saw a ship about 1 km on the other side of the floods of fire moving to the right. The ship’s bow and stern were furiously aflame. She was desperately trying to get out of the Strait. Men moving around on the deck and fighting fire were clearly visible. As I looked at her more, I found it was Mogami....”<sup>80</sup>

It will be seen that Ogawa describes a departure from the sinking battleship much like Kato’s and from the near vicinity, except he is leaving from the top of No.2 turret. Further, he confirms the upraised fantail and that a furious fire now broke out, creating a bonfire around the projecting stern and killing many of his shipmates swimming in the oily inferno. How long it remained sticking up is not clear. Being adrift and swept southward away from it in the strong current, time naturally would blur a bit for Ogawa.

To recap. We have seen how – contrary to prior beliefs - battleship *Fuso* did not fall out of the advance after her torpedo hit’s to starboard; but clearly pressed on northward just as reported by half-heartedly following PT boats. Indeed, apparently speed had been built back up to 16 knots when further calamity in the form of *Daly*’s torpedo attack struck the port side. This completely knocked out her propellers and engines and already badly flooded, *Fuso* was left drifting south and foundering, with fires burning aft. At some point, probably shortly after 0400, *Fuso* upended and planted her bow in the seabed; stricken in such a way, the battleship lost stability and rolled over keel-up even as she buckled at the bridge area, pitching the pagoda into the sea some 70 meters to the north. With stern upraised *Fuso*’s hull hung there surrounded by roaring flames for long minutes; then finally subsided under the sea. At no point did she explode and break in half, but the macabre nature of her last moment and fire easily explains how the impression originated (See Postscript) Even so *Fuso* had not been put out of action as fast as believed, but in fact had come within an ace of engaging the Battle Line with her sister *Yamashiro*, only to be cut down at almost the last moment.

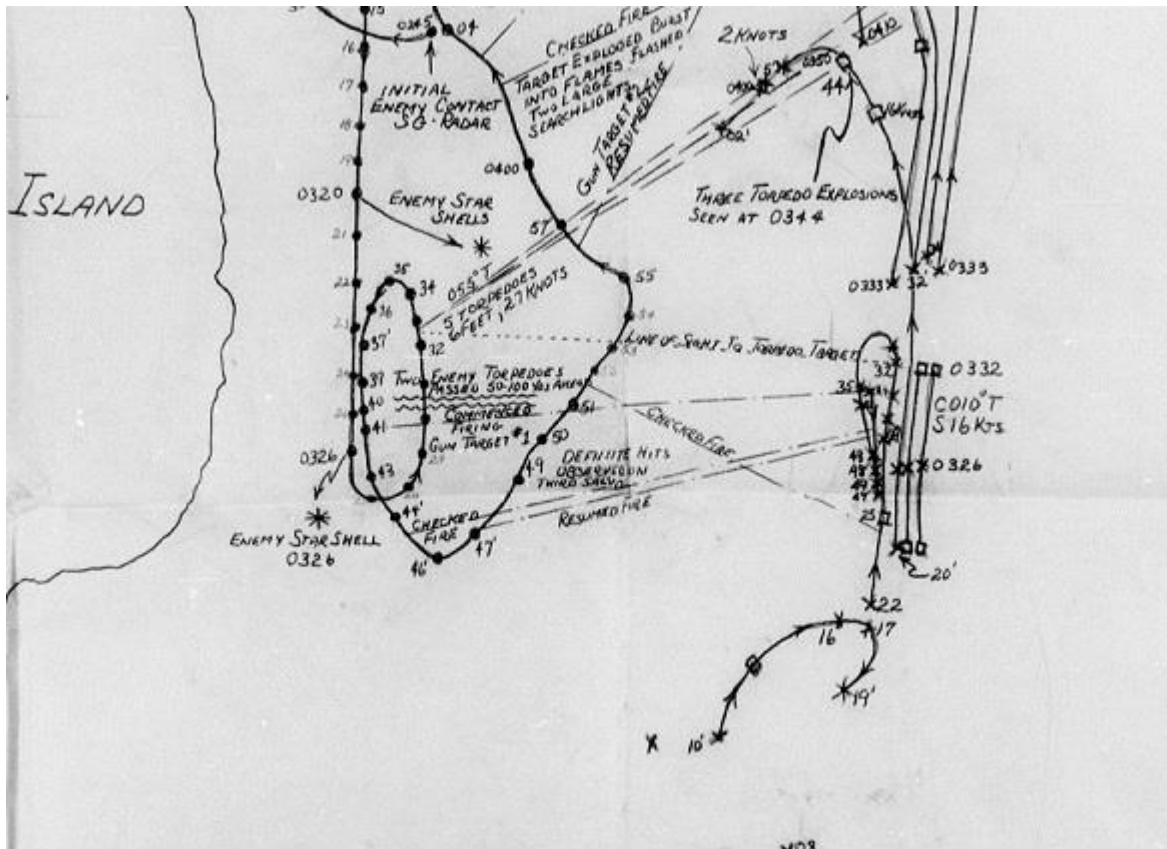
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<sup>79</sup> *ibid.* The broken up condition of the bow segment in the vicinity of the second turret and bridge certainly could permit some manner of lesser induced explosion undersea but doesn’t seem extensive enough to be main magazines. Thus, we do not believe any underwater explosions occurred. Rather, the Boom-Boom heard reverberating, is probably the result of *Fuso*’s hull bending after her bow impacted the bottom. Her starboard plates were placed into compression which places her port side plates into expansion and the port side rips apart and the starboard side is crushed inboard. The weight of the stern section out of the water and unsupported acts as a lever due to gravity. *Fuso*’s deep end is at a depth of 185 meters now in the shape of a boomerang bent on her starboard side and ripped open on her port side forward. The pagoda superstructure lies to the north of the wreck.

<sup>80</sup> Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, page 178.



The wreck of *Fuso* as faithfully rendered in capture from Drain the Oceans episode "[Mega Wrecks](#)" Season 2-Episode 8 . It shows at a glance how the battleship's hull still essentially forms one single piece but upside down and boomerang shaped. Notice also the large defect/gash in the port quarter just forward of the propellers and how the rudders are turned. Part of the pagoda foremast is just above and nearly due north of the buckle point.(Drain the Oceans)



U.S.S. *Daly*'s very good track chart is invaluable for filling in the confused phase of 0320-0350 following DesRon 54's attack and up to the opening of the Major Gunfire Phase. In middle right, the track starting points are identified as: 0310: *Yamagumo* sunk at 0319; 0322 *Michishio*; 0320: *Fuso*. If you follow these tracks, you see *Daly* torpedo *Fuso* port side at 0344; and you see *Michishio* stopped being tracked at 0348 as falls south following a wide 180 to the left that commenced at 0332.

It has been necessary to follow the aftermath of *Daly's* attack to *Fuso's* end, for the latter's sinking appears to have so clearly resulted from and speedily followed the former. Yet during this time, by the time *Fuso* upended amid flames shortly after 8 bells, a gunfire storm had erupted and begun to fall on her sister battleship *Yamashiro*, the *Mogami*, *Asagumo*, and *Shigure*. Admiral Oldendorf's cruisers had opened fire at 0351 and mighty Battle Line barely a minute later. The last big gun battleship battle in history now ensued.

#### The Major Gunfire Phase – The Giants Spar: 0351 - 0411

Still expecting to encounter the enemy a little later, within Leyte Gulf and not now, the surviving Japanese ships now forged ahead generally unaware of what was in store for them. Radio-phone communications were balky, and their captains had to fend for themselves as best they could. At 0340 *Shigure* had supposedly heard order from Nishimura to “*proceed independently and attack all ships.*” Then at 0344 *Shigure* heard *Nachi* hail *Yamashiro* directly. *Nachi* to *Yamashiro*: “*We are penetrating through strait.*” (It is likely having seen the *Fuso* flames (see below) Shima wanted to update and let Nishimura he was close) Hearing *Yamashiro* hailed, Nishino immediately tried to call her up but used the wrong address - for he still believed the battleship in sight was *Fuso* – and phoned at 0348 *Shigure* to *Fuso*: “*We are following behind you (not acknowledged).* Even if *Yamashiro* heard, she would not have answered. Yet probably led to believe both *Fuso* and *Shigure* were behind him and to also let Shima gain some ground, *Yamashiro* and *Mogami* now slow down. Nishimura, not realizing *Fuso* has been hit again and set afire then requested her best speed. “*0352 Flag to Fuso: “Notify your maximum speed.”*”<sup>81</sup> *Fuso* by then was sinking and in no condition to answer. However, this reduction in speed by *Yamashiro* and *Mogami* allowed *Shigure* to catch up and *Asagumo* as well, still stubbornly pushing north at 10 knots. Hearing Nishimura call *Fuso*, *Shigure* promptly hailed Nishimura himself. *Shigure* to Flag: “*Notify situation (not acknowledged).*”<sup>82</sup> It was not acknowledged because at that very moment the very sky seemed to crack open with a deluge of shells as Oldendorf opened fire.

Meanwhile DesRon 24 was brazenly staying in gunfire range and all but pursuing the Japanese. (Much to his superior RADM Berkey ComRight Flank Cruiser's vexation who kept warning McManes to get clear for the big guns were about to cut loose) *Daly* reported – “*0345 came right to 050 degrees true to close range at 30 knots. Ship astern not in sight. Smoke in background. SG radar spot no change range closed rapidly. Broadside now exposed. Observed 6-10 definite hits.*”<sup>83</sup> (*Michishio*)

*Hutchins* reported – “*0347 Target burning brightly. Occasional explosions. Decided to shift to another target. Ceased firing. Range 7,300 yards. Director commenced tracking a target to the*

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<sup>81</sup> *Shigure* Detailed Action Report, page 5.

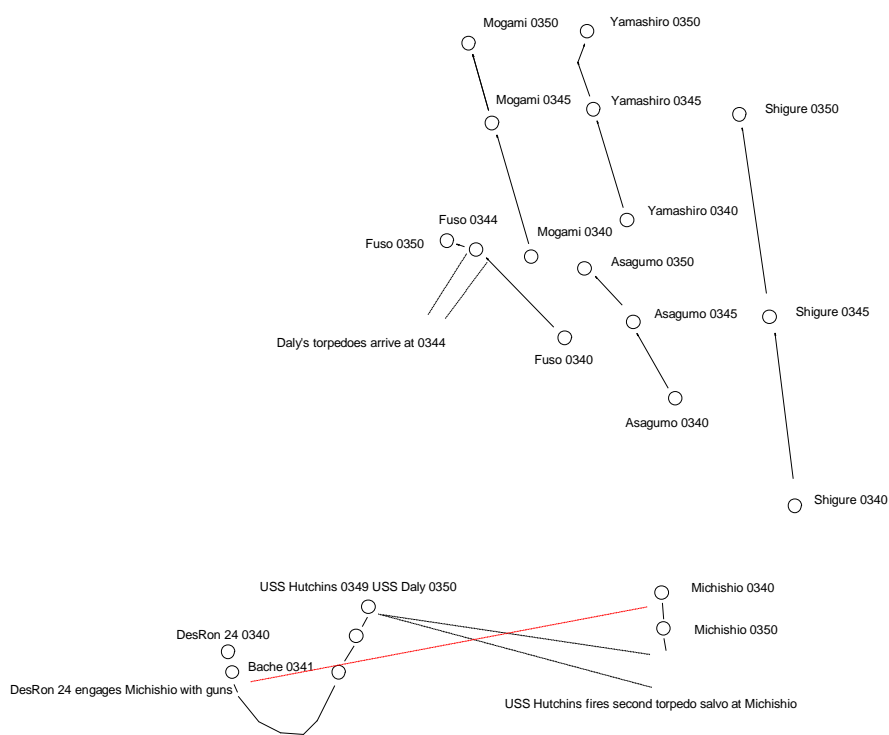
<sup>82</sup> *Shigure* Detailed Action Report, page 5.

<sup>83</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 5.

left and more distant.”<sup>84</sup> (*Hutchins* stopped firing on *Michishio* 7,300 yards away and started to track *Fuso* which was to her north.)

*Daly* resumed gunfire to starboard on first target at 0347 after turning left in *Hutchins*’s wake to 050 degrees true. “Further hits were observed on radar scopes, but no further visual results noted other than small flashes at target, apparently caused by projectile impact. Resumed laying funnel smoke.” (*Daly* resumes fire on *Michishio*.)<sup>85</sup>

*Hutchins* - 0349-30 to 0350 “fired second half salvo of torpedoes at first gunfire target now heading south at low speed 7 to 9 knots range 7,400 yards. Torpedo man reported tripod mast and two stacks but cannot be sure.”<sup>86</sup> (This was at *Michishio*.)



Map of 0340 to 0350

Oldendorf’s waiting cruisers and battleships had in fact been tracking Third Section’s advance since shortly after the Western Attack Force’s second torpedo attack at 0320. Ears had been attuned to the bursts of chatter over the TBS from the PT and destroyers and any picture they could give. Some of the ships had observed the glow of *Yamagumo*’s explosion. For the gunners of the battlewagons the next half-hour was an impatient and nerve-wracking wait for the

<sup>84</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2.

<sup>85</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 5.

<sup>86</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 2.

Japanese to come into the zone designated where Battle Line would open fire. This was particularly grinding, because some of the battleships already had firm locks on targets coming into maximum long range, only to have to refrain from firing.

They had to wait because of a somewhat questionable decision on the part of ComBattleLine RADM George L. Weyler aboard U.S.S. *Mississippi*, third ship in the Battle Line column that with the cruisers were trundling slowly back and forth across the northern exit of Surigao Strait. At 0349 he announced that main battery fire would be opened when the range to the Japanese had reached 26,000 yards.

What made this questionable is that the enemy would be in range much sooner – i.e., further away - than that. More problematical, perhaps not realized, is that despite their age, the armor protection of the Japanese battleships was such that 26,000 yards was basically in their “sweet spot.” This being a range where their armor would generally protect their vitals and machinery from all but perhaps 16-inch shells. This was because of a reality of surface major gunfire warfare wherein a capital ship’s armor gives it the best protection at moderate range. At very long range, the plunging fire has too much force and can penetrate to magazines and machinery rooms. At very close range, the armor can be defeated by the extreme velocity and near right angles of the impacts. But in the middle ranges, this is where the armor held up best. Weyler was in fact choosing to engage at ranges that gave *Yamashiro* and *Fuso* their best chance of withstanding shell hits. An irony of the battle possibly little appreciated by either side.

At 0349 *Maryland* reported that “*Commander Battleship Division-3 reported a small group followed by a large group and that he would open fire at 26,000 yards, gunfire reported on starboard bow.*”<sup>87</sup> Probably Commander Battleship Division 3 (i.e, Weyler who was also Commander Battleline) intended to open fire upon the second group once it came within 26,000 yards.

When the cruisers opened fire at 0351 *Louisville*, *Minneapolis*, and *Denver* fired on *Yamashiro*. *Columbia* opened fire on *Mogami*. At 0352 *Portland* opened fire on *Yamashiro*. *Boise* and *Phoenix* also opened fire on *Yamashiro* between 0351-0352. *Shropshire* will not open fire until 0356 on *Yamashiro*. *Columbia* reported “*at 0351 commenced firing salvo fire with main battery on target A bearing 189 degrees true range 15,450 yards. This appeared on the screen as a very large target.*” *Columbia* designated her target A which was *Mogami* and fired her main battery against this target and fired her secondary guns at target B which was *Yamashiro*. *Columbia* would fire 844 x 6-inch AP rounds at *Mogami* and 339 x 5-inch common at *Yamashiro*.<sup>88</sup> Bates changed her firing bearing to 176 degrees to reflect assumption of her firing on *Yamashiro* but a bearing of 189 degrees actually lines up with *Mogami*.<sup>89</sup>

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<sup>87</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 6-7.

<sup>88</sup> U.S.S. COLUMBIA - Rep of Ops in the Philippine Area, 10/15-27/44, Including AA Act & Resultant Loss of PRINCETON 10/24/44, page 12.

<sup>89</sup> Bates, Richard W., The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis, Vol. V, Naval War College, 1958, page 487.

At the time *Columbia* opened fire on her, *Mogami* was apparently engaging DesRon 24 to her port beam, and her turrets were so trained. For that reason, when a 6-inch shell slammed into No.3 turret, it hit the starboard or back side of it and *Mogami*'s No.3 turret was knocked out and jammed trained to port.<sup>90</sup> Contrary to first impressions, *Columbia* appears to be the only cruiser that fired at *Mogami*. In truth, this made little difference for *Columbia* would fire more than 844 shells at *Mogami*!<sup>91</sup> However, far worse impacts for *Mogami* were soon to arrive.

The commanding officer of *Shigure* still thinking he was following *Fuso* recorded at "0350 *Fuso* (Yamashiro) was targeted by fierce concentrated fire from enemy battleships and cruisers and a fire broke out aboard her."<sup>92</sup> However, *Yamashiro*'s armor at this range afforded sufficient protection to her vitals. The fullside of incoming cruiser shells hits demolished upper works, knocked out rangefinders and anti-aircraft batteries, smashed and burned boats, and riddled the superstructure. They surely inflicted numerous casualties for any above the armored deck and started a big fire amidships, but they could not really threaten her. That would fall for Battle Line's bigger shells to try to accomplish. They were now within a minute of starting to land. The U.S. battlewagons were about to at last open fire on their Japanese counterparts.

When the Left and Right flank cruisers cut loose at 0351 Battle Line was still on an eastward course at 15 knots. The great turrets were trained to starboard, loaded and ready. More than a few of them had been tracking good targets for a while and the enemy had reached the designated range, but there were complications. Contrary to repeated instructions from *Phoenix* DesRon 24 had remained in the vicinity of the target area. Second, the orderly Japanese column formation had splintered, with individual ships advancing closer to in line-abreast than any column. This made it even more likely their pips could merge and get confused with the bundle of U.S. destroyer pips currently on the western side of the strait; some of them in close gunfire action still with the western-most Japanese (*Mogami* and *Asagumo*) RADM Berkey ComCruDiv 15 of the Right Flank cruisers had been monitoring the risk to his right flank DDs with some frustration and now warned Battle Line.

At 0352 *Maryland* reported, "CTG 77.3 reported that the little ones out in front were friendly trying to reach the shoreline." At 0353 U.S.S. *California* reported, "From ComCruDiv 15, believe those three little ones out in front are friendly trying to get over to the shorelines." Richard W. Bates wrote, "At 0353 he (Battle Line Commander) received a message from commander right flank force that the three little ones in front were friendly, trying to get into shore. What considerations he gave this message is not recorded."<sup>93</sup>

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<sup>90</sup> *Mogami*'s DAR reported this hit as an 8-inch projectile, but no U.S. heavy cruiser fired on *Mogami*, *Portland* who is often credited with firing on *Mogami* actually fired on *Asagumo*. The fact that *Mogami* reported a specific 8-inch projectile hit led others to conclude *Portland* had fired on *Mogami*.

<sup>91</sup> USS COLUMBIA - Rep of Ops in the Philippine Area, 10/15-27/44, Including AA Act & Resultant Loss of PRINCETON 10/24/44, page 12.

<sup>92</sup> *Shigure* Detailed Action Report, page 2. Commanding Officer Nishino confused *Yamashiro* for *Fuso* during the action.

<sup>93</sup> Bates, Richard W., The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis, Vol. V, Naval War College, 1958, page 479.



The record states “what considerations he [Weyler] gave this message is not recorded.” This is important. Because some of the ships involved did record their considerations. The natural assumption upon receiving CTG 77.3 warning would be for each commander to check with their CIC and Fire Control Plot to gain assurance that the targets they are about to open fire on are indeed enemy targets. *Maryland*, whose radars were otherwise working fine, had doubts. So did *Pennsylvania* and *California*.

At 0352 *Pennsylvania* reported “the [radar] search continued until the cruisers opened fire, at which time their tracers appeared to fall well to the right of the designated bearing. Learning this CIC ceased tracking the group in question and thereafter concentrated its search chiefly in the area of the fall of shot. As a result of the information from Spot One that salvos were falling to the right of the designated bearing, the group originally believed to be the leading enemy group was then thought to be composed of friendly destroyers retiring after having made their torpedo attacks.”<sup>94</sup>

At 0349 *West Virginia* reported, “Star shells in target area. Can’t tell if our DD or enemy is firing them. Our range is 24,000 yards. Am hesitating to fire until certain target is enemy. ComBatDiv 4 directed to open fire.”<sup>95</sup> This indicates that the commander of *West Virginia* already had a conversation about if the leading ships were friendly or enemy with his Plot and CIC crews. Therefore, when CTG 77.3 sent their warning lead ships may be friendly, *West Virginia*’s command ignored it, as they had already ascertained the ships they were tracking were not friendly.

ComBatDiv 4 RADM T.D. Ruddock aboard *West Virginia* now at 0352 notified Commander battle line they were opening fire. “Fire was opened with full radar control, with after radar, director 2, range keeper 2, and stable vertical 2 controlling. All spotting was by radar. Turrets were in fully automatic. Rapid salvo fire was used after second salvo. Computed ballistic plus arbitrary of UP 100 and UP 100 cold gun correction was used. After the 1st salvo the cold gun correction was removed. Opening gun range was 22,400 yards. Average gun range 20,880 yards. 0352-10 first 8 gun salvo range 22,800 yards AP projectiles. Radar Spot NC, NC. At 0352-45 second 8 gun salvo Radar spot NC, NC Spot applied D100, NC.<sup>96</sup> Bates uses a bearing of 196-197 degrees for *West Virginia*’s opening salvos.”<sup>97</sup> *West Virginia* opened fire on *Yamashiro*. “At 0353 could hear gunnery officers chuckle and announce hit on first salvo, watched second salvo through glasses and saw explosions when it landed. Third salvo 8 guns radar spot D200, NC Spot applied NC, NC. By 0354 salvos are very regular at about 40 second interval. Other BBs opened fire after our second or third salvo. Fourth salvo 8 guns radar spot

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<sup>94</sup> PENNSYLVANIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 11/25/44, page 15. Note: *Pennsylvania*’s action report is listed with incorrect date of 11/25/44 not 10/25/44 and may be a reason it was difficult to locate. (Lundgren)

<sup>95</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.

<sup>96</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 6-7.

<sup>97</sup> Bates, Richard W., *The Battle for Leyte Gulf, October 24th to October 25th Strategic and Tactical Analysis*, Vol. V, Naval War College, 1958, pages 483-484.



NC, NC spot applied D200, NC. 0355-11 fifth salvo 8 guns, radar spot NC, NC, spot applied NC, NC. 0355-49 sixth salvo 7 guns radar spot NC, NC, spot applied NC, NC.”<sup>98</sup>

It is worth mentioning that *West Virginia* was operating under a possible handicap should the action require extensive maneuvering. At dawn October 21 she had damaged all but No. 4 of her four propellers by scraping a reef.<sup>99</sup> Speed was cut to 16 knots, with 18 knots possible if emergency arose.<sup>100</sup> But this did not impede her guns, as “*Wee Vee*” now demonstrated. Earlier, Assistant Gunnery Officer Lt. Thomas Lombardi in Spot 1 had been unable to pick up the targets clearly, so he had had control switched to Lt. Owen Baumrucker in Spot 2 abaft the mainmast. Its Mark 8 radar mounted atop the director had picked up and was firmly tracking a Japanese target since 0310, and never lost it until cease-fire was ordered. At 0345 a big explosion was seen in the target area (this was possibly *Fuso* being set afire) and fire was still being held to make sure U.S. destroyers were clear. However, when the cruisers opened fire at 0351 Gunnery Officer Baumrucker assured the bridge the big target he had was enemy. RADM Ruddock then directed *West Virginia*’s Captain H.V. Wiley to open fire. The first salvo had been eight AP and appeared to score a direct hit. So did the second salvo. However, Main Battery Plot had been so excited they forget to trigger the warning buzzer and both bridges of the battleship were temporarily blinded by the flash of the first salvos. (The same thing had just happened to Oldendorf aboard his flagship *Louisville*).<sup>101</sup>

Lt. Baumrucker had his eyes on the spotting glass, hoping to get a glimpse of the target as the salvo landed. To his delighted surprise “*Out there on the horizon I saw a tremendous burst of flame. Only a heavily armored target would explode our 16-inch armor-piercing projectiles on impact...*” He called out “*Ya hit ‘im! Ya hit ‘im! No change, no change!*” for they were already on target “*...and almost immediately we fired again.*” In the salvos that followed Baumrucker alternated between rising halfway out of the director’s hatch or ducking down to check the spotting glass. When outside, sometimes he “*caught glimpses of a great hulk silhouetted in the flares*” and his pointer claimed he saw a pagoda.<sup>102</sup> It was indeed a Japanese battleship, and *West Virginia* had hit from the opening round. Reportedly these opening hits were on the Japanese ship’s foc’sle and superstructure.<sup>103</sup> The target was *Yamashiro* --- armor piercing hits on the bow may have played a role in its subsequent snapping found on the wreck. However, her forward turrets remained operable though what remained of full fire-control was apparently quickly knocked out. *Yamashiro*’s main battery switched to local control.<sup>104</sup>

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<sup>98</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 6-7.

<sup>99</sup> Marshall, M. Ernest, *That Night at Surigao*, Sunbury Press Inc, 2013, pages 78-79.

<sup>100</sup> *Tennessee* was also operating after a collision, in this case with another vessel. On the same day October 21, the transport U.S.S. *Warhawk* had that evening blundered into *Tennessee*’s port side amidships forward, breaching her blister, but it performed as designed protecting the interior of the battleship from flooding. The damage was speedily made good and by the 23<sup>rd</sup> the battleship was fit for action again, just in time for Surigao. Doyle, David, *Legends of Naval Warfare: U.S.S. Tennessee*. Schiffer Publishing Ltd, 2019 page 99.

<sup>101</sup> Tully, *The Battle of Surigao Strait*, p 190 .

<sup>102</sup> Marshall, *That Night at Surigao*, page 239.

<sup>103</sup> Sauer, *The Last Big-Gun Naval Battle*, page 119.

<sup>104</sup> Paymaster Ezaki indicated that *Yamashiro*’s search radar had been knocked out by the strafing of the air attack the day before; but even if true, *Fuso*’s remained functional.



U.S.S. *West Virginia* was arguably the “prize-fighter” in the big-gun brawl with Japanese battleship *Yamashiro* and the only one hitting whose shells likely could penetrate to *Yamashiro*’s vitals . Her 16-inch gun sister *Maryland* played the primary role in knocking *Mogami* out in turn. Both Mark 8 fire-control radars are visible forward and aft, Gunnery Officer Baumrucker directed the fire from the aft one ‘Spot 2’ behind the mainmast. (Naval History and Heritage Command, 19-N-68374)

The foregoing description from *West Virginia*’s point of view gives some idea what it was like for each of the battlewagons anxiously tracking and awaiting the moment they could open fire and what they could observe when they did. By 0355 *Tennessee* was still waiting for *Mississippi* to open fire and her commander Captain J.B. Heffernan eventually gave the order to fire by the expedient of “mistaking” the *West Virginia* for the *Mississippi*. “Commenced firing on leading heavy ship with a three gun salvo from turret 1. Enemy ships course 000 degrees true, speed 16 knots, opening range was 20,500 yards. At 0355-15 fired a three gun salvo from turret two. At 0355-35 fired a 6 gun salvo from forward turrets.”<sup>105</sup> *Yamashiro* was the ship on course 000 degrees at 16 knots. “First salvo hit target. Thereafter the Mean Point Impact of each salvo was corrected to center the pattern on the target which could be seen continuously on the radar screen. Pattern size was estimated to be 400 yards. The largest spot applied was 300 yards. Of the 13 salvos fired, it was estimated that 12 salvos were straddles. The majority of the salvos were six gun salvos fired by forward turrets. The line of fire was always forward of the beam. Fire distribution afforded no real problem because of the nearly head on approach of the enemy.”<sup>106</sup>

At 0355 *California* opened fire on *Shigure*. “ComCruDiv 15 from OTC, open fire. Commenced fire, following lead of *Mississippi*, turrets 2 and 3 firing a six gun spotting salvo. At commence firing, target bearing was **188 degrees true**, range 20,400, **target course 342 degrees**, speed 15 knots.<sup>107</sup> Fall of shot was not observed.” *California* would fire on *Shigure* from 0355 to

<sup>105</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>106</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 15.

<sup>107</sup> The bearing to *Yamashiro* at 0355 was approximately 197-198 degrees (Y55) from *California* and *Tennessee*. A bearing of 188 degrees lines up with *Shigure* at 0355 and she was on a course of 342 degrees closing on *Yamashiro* based on her action report and surviving track chart. *California*’s first six salvos are all directed at *Shigure*. At 0400 both *Yamashiro* and *Shigure* are very close to each other, but *Yamashiro* turns west and *Shigure* will turn north. *California* continues to engage the ship moving west so after 0403 her target became *Yamashiro*. *Shigure* will come within 7,000 yards of *Louisville* by 0404 and *Louisville* engages her with her secondary battery. At this time *Shigure* withdraws to the south.

0400 and then check fire. At 0400 *Yamashiro* and *Shigure* are very close to each other, and their radar pips likely combined. *Shigure* will turn north but *Yamashiro* turns west. At 0403 *California* would resume fire on the target heading west which was now *Yamashiro*. *California* would fire at 0405, 0408 and 0413 so that her first six salvos were fired at *Shigure*, and her last four salvos were fired at *Yamashiro*. At 0355 *Shigure* noted *Fuso* (*Yamashiro*) hit and unnavigable. At 0355 she seemed to stop.<sup>108</sup>

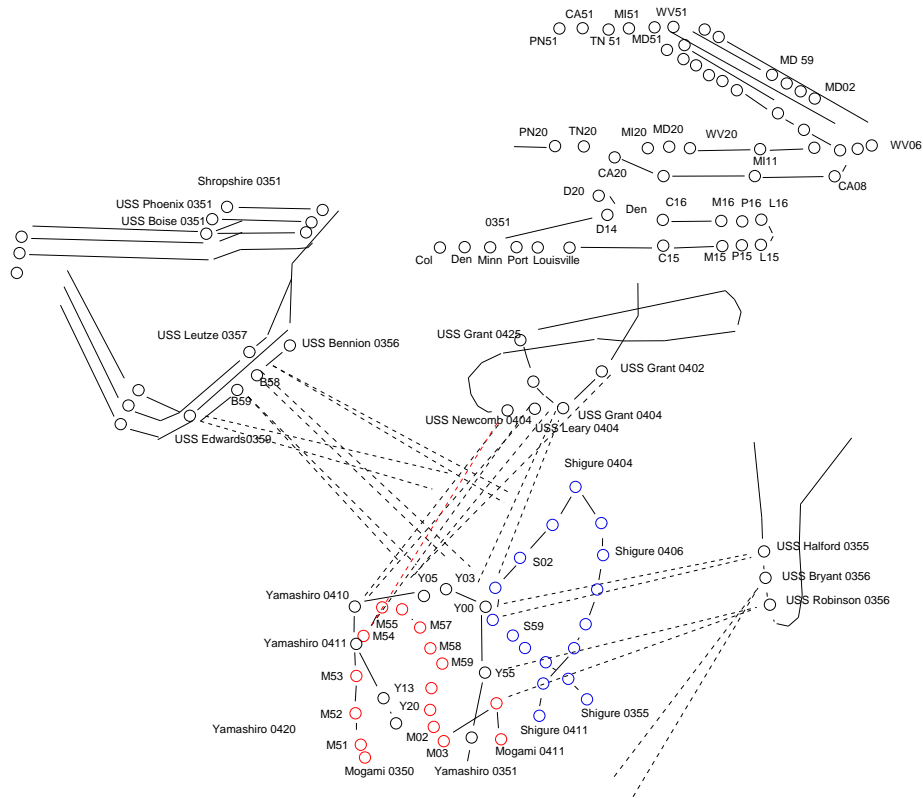
Adding to the confusion of observers then and historians now difficulty of reconstructing the gunfire battle and who-hit-who, Section 1 of DesRon 24 continued to (perhaps unwisely) engage Nishimura's surviving ships from 0354 to 0405 to even as the cruiser and battleship salvos were smacking the sea all around the Japanese. *Hutchins*, *Daly*, and *Bache* were arguably in the danger zone, and Right Flank commander justifiably fearful for their safety. None of this however seemed to phase McMane's three destroyers. They appear during this time to have engaged with gunfire fired on no less than four ships: *Asagumo*, *Fuso*, *Mogami*, and *Yamashiro*.

At 0355 *Daly* opened fire on *Asagumo*, which then bore about 032 degrees at 7,500 yards. She thought she was hitting a cruiser, but it so happened that cruiser *Mogami* was in the same general direction, but 15,000 odd yards further distant. So as Battle Line and cruiser shells pummeled *Mogami*, that is what DesRon 24 generally saw, though their range and plot data clearly show a nearer target. Understandably then, they had the impression they were shooting up a cruiser. *Daly* claimed she hit her target on the first salvo, and started a fire, and it appears true. This is probably when the flurry of shells that struck *Asagumo* started the fire recalled by her Chief Engineer around her No.2 torpedo mount occurred. He mentions both mounts were fully loaded at the time and had not been fired. In fact, there is good reason to believe that partly because of this fire, and because turning to retire, *Asagumo*'s skipper now fired her forward torpedo mount at 0358 to both use them against the enemy and get rid of them. The angle and time fit very well with torpedoes seen to pass U.S.S. *Leary* at 0411. After the firing her "fish" *Asagumo*, burning amidships now, turned to course 160 degrees to withdraw.<sup>109</sup>

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<sup>108</sup> *Shigure* Detailed Action Report, page 2.

<sup>109</sup> Letter from Lundgren to Tully, 9/25/24h1137.



Map 0351 to 0420

At 0354 U.S.S. *Hutchins* “reported gun splashes coming closer on port beam. In groups of three excellent pattern. Captain received a very calm report from staff intelligence officer that the last one was 50 yards over. Ship brought right 20 degrees. Next salvo lit close but following walked off. At 0354-30 opened fire on CIC target headed south. Range 6,700 yards. Previous volume of fire indicated target to be a heavy ship. After numerous hits observed went to rapid fire on Captains command, he had forbidden this previously. Continuous hits plainly seen. Minimum range 5,400 yards. Trajectory seemed flat. Targets fire to northward decreased. Target on fire but still shooting.”<sup>110</sup> It is probable this was the doomed and burning *Fuso* continuing to engage with secondary port battery as she limped south to sink.

The action reports of DesRon 24 give a good flavor of the mayhem taking place, but if not plotted where ranges and bearings are taken into consideration, can mislead a chronicler. For example, it has been seen above that what *Daly* describes next is actually her hitting *Asagumo*, as plotted range indicates, while visually seeing *Mogami* struck repeatedly on similar bearing but further away. Further demonstrating this is at 0405 *Daly* does shift fire to *Mogami*, the “target further north.” *Bache* was also engaging *Daly*’s target and similar considerations apply. It is not

<sup>110</sup> U.S.S. HUTCHINS - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 3. *Hutchins*’ range of 6,700 yards is significantly less than *Daly*’s and *Bache*’s target at this time. Believe *Hutchins* engaged *Fuso* and *Daly* and *Bache* engaged *Asagumo*. The gunfire *Hutchins* was receiving at this time likely came from *Fuso*’s secondary battery or *Asagumo*.

until *Asagumo* withdraws south at the top of the hour that they do begin to engage *Mogami* herself.

U.S.S. *Daly* “shifted to new target bearing 032 degrees true, 7,500 yards and commenced firing at 0355. Target was hit on the first salvo. Tracers could be followed into the hull of the vessel. On the third salvo this target exploded and burst into flames. *Bache* also took this target under fire and continued salvos from both destroyers continually hitting in rapid succession brought results which were gratifying to see. The light from the fires and explosions positively identified this ship as a heavy cruiser. Our fire forced enemy to turn away. Target angle on opening fire was 045 degrees true changing slowly to 160 degrees true. After the first explosion it flashed two search lights and fired a very red star. It continued to be hit repeatedly by *Daly* and *Bache*. Debris flew into air as each salvo hit. After it burst into flames, this target was taken under fire by Blue heavy units to the north and it is certain that it never escaped. Through descriptions of this target by bridge personnel and particularly vivid description given by rangefinder operator, it has been established that this target was a Furutaka class heavy cruiser. Since we were clearing the area in order not to foul the range of our battleships and cruisers, it was necessary to cease firing on this cruiser and shift to a target farther north.”<sup>111</sup>

At 0354 U.S.S. *Bache* reported, “we shifted fire to a second target bearing 020 degrees true distance 8,200 yards.”<sup>112</sup> This target another of the same group of three northern most ships were on a northwesterly course slowly coming left but now tracking at about 25 knots. Initial salvos were starting fires and causing an explosion in the vicinity of his after turret. We then shifted to rapid fire. Fires started near his fantail and silhouetted the bridge structure, since at this point he had turned towards this vessel. At this point two offset blinker lights (mirror type- such as are used only in foreign navies) were observed flashing in the direction of this ship, and several red flares were shot into the air. Fire was checked momentarily but rapid fire was resumed in about 20 seconds, the salvos hitting directly below the signaling lights which were being used as a point of aim. The lights went out shortly thereafter. Very little return fire was experienced during the entire engagement. Shells landing close aboard this vessel only once. However, the few shells which passed overhead rumbled rather than making the usual whistling noise caused by 5-inch projectiles. By this time the enemy had reversed course to about 160 degrees true and the range had close to 5,300 yards. At such a close range it was possible to identify the target with some degree of accuracy aided by fires. He had a single large stack of the inverted Y type; square sided turrets do not turtle back turrets and a long bow. It is believed that this second target then under fire was a Japanese cruiser of the *Mogami* class. Twenty-seven salvos were expended by this vessel on the cruiser during the engagement at a mean range of about 6,000 yards.

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<sup>111</sup> U.S.S. DALY - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 5. Notice that the description of the target comes from visual observation that is distinct from the fire-control data. To the visual observer, if on the same general bearing it would not be obvious that it was not the target bursting into flames.

<sup>112</sup> The range and bearing that both *Daly* and *Bache* provide line up with *Asagumo* not *Mogami*. *Mogami* at 0354-55 time frame is much further north approximately 15,978 yards bearing 10 degrees from DesRon 24. At 0402 *Daly* picks up a third target bearing 043 degrees true, 11,000 yards. This is *Mogami* which DesRon 24 will engage after 0403. The ships that fired on *Asagumo* between 0354 and 0402 were *Daly*, *Bache*, and *Portland*. The possible reason for the misidentification is *Mogami* is getting hit during this time period by U.S.S. *Maryland* and is further beyond *Asagumo*. DesRon 24 guns are being directed by radar but the observations being described are clearly optical. So, during this time period U.S. ships are firing on *Asagumo* but witnessing the hits on *Mogami* from U.S.S. *Maryland*.

*Responsible eye-witnesses state that at the time the target was under fire from this ship there were no other units firing upon her and commenced retirement to the northward. It was clearly evident that the enemy cruiser was aflame from stem to stern and none of his batteries at the time were active.*”<sup>113</sup> (As observed above, despite the description the **target** was *Asagumo*, **Mogami was beyond and what was visually observed**) It might be noted that *Mogami* was certainly being fired upon during all this time, so the fact that there were “no other units firing upon” *Bache*’s target supports the identification with *Asagumo*. A further detail, but a quibble that should not be pressed, is that *Mogami* had no aft turrets --- *Asagumo* did and indeed was now on fire in this vicinity.

Lt. (jg) Ishii Tokichi reported that after the initial torpedo hit *Asagumo* continued to engage U.S. forces with her main battery. His station was below decks in her engine room. Because of this he was below deck and knew nothing in detail of the battle. We speculate that around 0358 *Asagumo* fired two to four torpedoes from her forward mount directed at the U.S. cruisers as a parting salvo as she turned south to withdraw.<sup>114</sup> The range would have been approximately 20,568 yards. Lt. (jg) Ishii Tokichi reported the torpedoes from the after mount were imperiled by gunfire and the engine room was directly below this mount. Paint on the engine room began to peel off and several water pressure gauges broke. Telephone wires were burned up. He ordered the hatches to the engine room to be closed, but smoke was pouring in, he gave orders to shut off the ventilators, but this too was impossible due to smoke. He ordered the men topside, and they watched efforts to fight the fire around torpedo mount two. After 15 minutes the flames died down and he ordered his men back into the engine room where they pumped water from emergency fire stations onto the deck.<sup>115</sup>

At 0355 U.S.S. *Halford* of DesDiv 112 left flank fired one half salvo of 5 torpedoes were fired at about 9,000 yards depth 6 feet setting on a bearing of 258-260 degrees that would cross *Yamashiro*’s path approximately 0400 to 0402.<sup>116</sup> At 0355 U.S.S. *Bryant* torpedo control was ordered to fire one half salvo of torpedoes. At the same time another plot was obtained indicating that the target had not turned right as had been deduced from previous plots. This information, however, was obtained too late for use by torpedo control. Torpedoes were fired between 0355 and 0356.<sup>117</sup> All of *Bryant*’s torpedoes would miss. U.S.S. *Robinson* “changed speed to 35 knots. *Robinson* tracked three ships, battleship leading underway again, bearing 222, range 9,340 yards, course 322 degrees true, speed 15 knots, ComDesDiv 112 to attack section two make smoke. Fire torpedoes, one half salvo to starboard at leading battleship, bearing 222 degrees true, range 8,300 yards, course 322, speed 15 knots, base torpedo course 250 degrees true,

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<sup>113</sup> U.S.S. BACHE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 3-4.

<sup>114</sup> This is based on fact at 0411 U.S.S. *Leary* will sight two torpedoes and they will narrowly miss hitting her. At this time *Leary* was approximately 17,694 yards from where *Asagumo* was at 0358. Assuming she used a speed setting of 42 knots this would take 12.5 minutes for the torpedoes to reach this position. The wreck of *Asagumo* shows the forward mount is empty but we do not have a specific time the torpedoes were fired so this remains speculative on our part. The aft torpedoes apparently were never fired and were likely detonated by gunfire or jettisoned before the final sinking.

<sup>115</sup> ATIS file, Tokichi Ishii, Interrogations No 648, *Asagumo*.

<sup>116</sup> COMDESDIV 112 - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 5.

<sup>117</sup> U.S.S. BRYANT - Rep of Engagement with Enemy Surface Forces in Surigao Straits, Philippines, Morning of 10/25/44 with radio log and track chart. Page 4.

*torpedo run 8,400 yards, time of run 7.4 minutes.”*<sup>118</sup> *Robinson’s torpedoes would pass astern of Yamashiro.*

At 0356 *Portland* “checked fire to shift targets as present target is under fire from many ships and burning brightly.”<sup>119</sup> At 0356 *California* wrote “second salvo fired by turrets 3 and 4. Had a misfire in right gun of turret 4. Five rounds fired at a range of 19,750 yards. Fall of shot not observed. D-800 applied.”<sup>120</sup> At 0356-15 *Tennessee* “fired a 5 gun salvo from after turrets. Left gun turret three did not fire. The left gun of turret 3 misfired. Cause of misfire is believed to be a faulty primer.”<sup>121</sup> By 0356-32 *West Virginia* reported seeing explosions on target. She fired her seventh salvo of 5 guns radar spot NC, NC, spot applied NC, NC.<sup>122</sup> At 0357 *California* logged “third salvo fired by turrets 3 and 4. Six rounds fired at a range of 19,200 yards. Target straddled. The concussion of this salvo caused the No 2 Mark 8 radar and the Spot 1 indicator scope to stop functioning. Spotting officer used trainers 3 inch indicator scope for remainder of the firing. U100 , NC applied.”<sup>123</sup>

Something that stands out in the American reports this night is the commendable attempts at honest reportage and failure admitted when it occurred. For example, at 0357 U.S.S. *Leutze* of the right flank of DesRon 56 “fired half salvo torpedoes at large target believed to be a battleship bearing 142 degrees true, distance 9,900 yards. Base torpedo course 120 degrees true. Target plotted on average course 035 degrees true. Speed 15 knots, for 5 minutes prior to firing, but appeared to be turning left at instant of firing, target course 020 degrees, target speed 15 knots were set on director. Torpedoes were fired without incident and appeared to make normal runs. Torpedoes plotted to hit target course set, however plot continued after firing shown enemy continued to turn left and slow as if he were hit by our gunfire and was attempting to retire. For this reason, it is probable that our torpedoes missed ahead, results could not be observed because all ships in section were making smoke during retirement.”<sup>124</sup>

By 0357 *Tennessee* fired a 4 gun salvo from after turrets. Turret three fired left gun only. This gun was reprimed and fired successfully.<sup>125</sup> At 0357-19 *West Virginia* fired her eighth salvo, 6 guns, radar spot U100 NC, spot applied NC, NC.<sup>126</sup> At 0357-45 *Tennessee* fired a 6 gun salvo from forward turrets.<sup>127</sup>

At 0358 U.S.S. *Bennion* of the right flank of DesRon 56 fired first half salvo at a BB target bearing 146 degrees true course 011 degrees true, target speed 12 knots, range 8,800 yards,

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<sup>118</sup> U.S.S. ROBINSON - Rep of Engagement with Jap Surface forces in Surigao Strait, Philippines, Morning of 10/25/44, page 13.

<sup>119</sup> U.S.S. PORTLAND - Rep of engagement with Jap surface forces in Surigao Strait, Philippines, morning of 10/25/44, page 4.

<sup>120</sup> USS CALIFORNIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 14.

<sup>121</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>122</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 6-7.

<sup>123</sup> USS CALIFORNIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 14.

<sup>124</sup> U.S.S. LEUTZE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

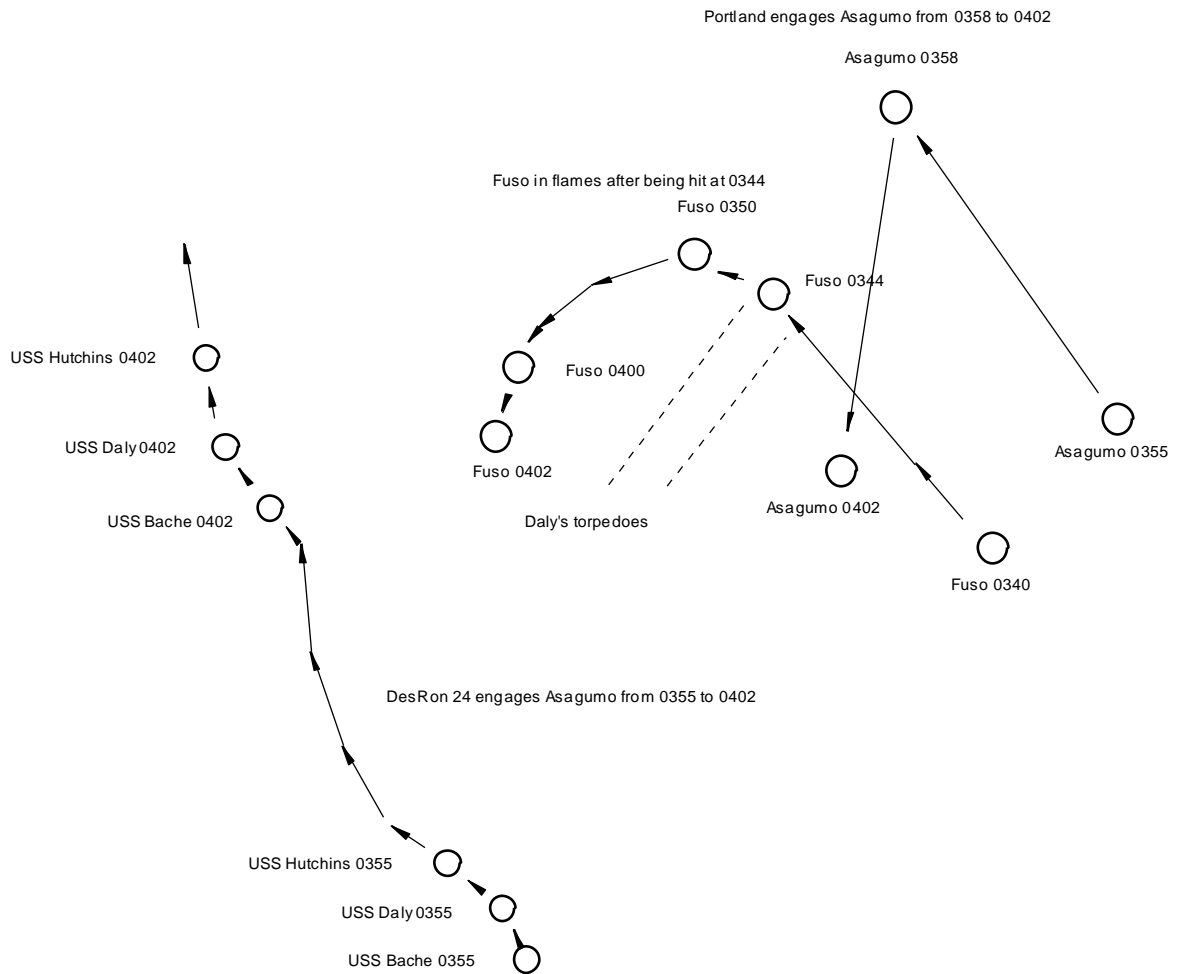
<sup>125</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>126</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 6-7.

<sup>127</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

torpedoes set at depth setting 22 feet, speed intermediate, 1 degree spread.<sup>128</sup> This salvo likely passed ahead of *Yamashiro*.

At 0358 *Portland* resumed fire at a second ship in column which appeared to be retiring to south at high speed. Opening range 19,300, bearing 194 degrees true. *Portland* fired 8 salvos at *Asagumo* from 0358-0402, 19,300 to 23,100 yards, bearing 194 degrees.<sup>129</sup> Analysis appears to reveal that *Portland* never fired on *Mogami*. Note when *Daly*, *Bache* open fire on *Asagumo* at 0355 followed by *Portland* at 0358 she then went from 10 knots to 25 knots during this period despite her bow damage.



Map 0355 to 0402

<sup>128</sup> U.S.S. BENNION - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.

<sup>129</sup> U.S.S. PORTLAND - Rep of engagement with Jap surface forces in Surigao Strait, Philippines, morning of 10/25/44, page 15.



Up until 0358 Weyler's flagship *Mississippi* had maintained fire control plot on the second or third ship of Raid Able (This was *Mogami*). "Assuming a normal fire distribution. Range was under 26,000 yards, but as Raid Charlie was estimated to have two or three large ships and as a warning had been received to watch out for ships astern they may be real target, shifted targets from Raid Able to Raid Charlie. At the time of shifting range was over 26,000 yards and training pips were too weak for satisfactory fire control solutions."<sup>130</sup> However, despite *Mississippi*'s command shifting to target Charlie her CIC and Plot continued to track the second ship of target Able. Had *Daly* not torpedoed *Fuso* at 0344 and stopped her advance, *Fuso* would have likely approached within 26,000 yards and *Mississippi*'s actions would have been justified.

While Weyler waited for 'Charlie' to come into range the deluge from others of Battle Line continued. 0358 *West Virginia* gunnery officer reports target has stopped, and pip is getting small. At 0358-12 *West Virginia* fires her ninth salvo 7 guns radar spot NC, NC spot applied U100 R03. At 0358-53 *West Virginia* fired her tenth salvo 7 guns radar spot U50 NC, Spot applied NC, NC.<sup>131</sup> *Shigure* records, 0358 to 0403: "Enemy battleships and cruisers... (almost whole passage illegible). Gunfire..."<sup>132</sup>

*California* – "0359 fifth salvo fired by turrets 2, 3 and 4. Eight rounds fired at a range of 18,450 yards. Right gun of turret two did not load. Elevating motor kicked out. Target straddled. Observed first definite *California* hit on target, having straddled target on at least two preceding salvos. One enemy turrets had been observed firing. Two splashes were observed to land 400 to 500 yards off our starboard quarter, and at least one shell was heard passing overhead. NC, NC applied."<sup>133</sup>

On board the *Shigure* the entire ship vibrated and leaped in the water from the huge near-misses all around. About the top of the hour a *California* shell crashed through the quarter deck on the starboard side aft of the rear turret and downward out the bottom of the thin-skinned ship without exploding.<sup>134</sup> Even failing to detonate it had done considerable damage. It ripped through the No.5 crew space, damaged 7 oil tanks, and left a forty meter gash in the bottom of the ship in the starboard shaft room.<sup>135</sup> By 0400 *Shigure* was concerned about the mounting bombardment falling on *Mogami* and radioed: "Notify situation (not acknowledged)." The destroyer noted: "Radiophone system completely knocked out by near-misses that made temporary retirement difficult. Only #2 phone repairable."<sup>136</sup> Probably just after, *California*'s shell hit.

At 0359 with enemy bearing 121 degrees true, distance 7,800 yards, *H. L. Edwards* of *DesRon 56* right flank destroyers fired half salvo on mean torpedo course 104 degrees true with the following set up on director, target course 010 degrees true, target speed 10 knots, torpedo

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<sup>130</sup> MISSISSIPPI - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>131</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, pages 6-7.

<sup>132</sup> *Shigure* Detailed Action Report, page 2.

<sup>133</sup> U.S.S. CALIFORNIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 14.

<sup>134</sup> Often presumed as an 8-inch shell hit no U.S. cruiser so armed ever engaged *Shigure*. *Louisville* will engage her with her secondary battery at 0404-0409 but this was the only hit suffered by *Shigure* in the battle. We believe the shell in question was actually 14-inch caliber.

<sup>135</sup> Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, page 205. Also, *Shigure* Detailed Action Report, page 5.

<sup>136</sup> *Shigure* Detailed Action Report, page 5.

speed 33 knots, torpedo depth 6 feet, spread 1 degree.<sup>137</sup> These torpedoes were fired believing *Yamashiro* would continue north but at 0400 she turned west so that these torpedoes passed ahead of her.

At 0359-15 U.S.S. *Bennion* “fired second half salvo at BB target bearing 155 degrees true, course 012 degrees true, target speed 12 knots, range 9,800 yards, torpedoes set 22 feet depth, speed intermediate, 1 degree spread. The second half salvo was good in every respect. We had two heavy ship targets almost in line at the time of firing. In addition, our first BB was in a hard turn to left which headed him into our torpedo water. Again, there were two possibly three brilliant explosions which occurred at the arrival at the target time of the torpedoes. Strict accuracy as to which ship obtained the hits is not possible as at the time the heavy batteries of our cruisers and battleships were hitting our targets effectively.”<sup>138</sup> These torpedoes will cross *Yamashiro*’s path approximately 0404-0405.

At 0359 *Maryland* made some important entries: “used the standard night fire control set up which was used during the action, director 1 controlling train, and director 6 (in Plot) controlling elevation. Radar train was used throughout. However, train was checked by optics on those occasions that the target was illuminated by bursting projectiles and on the occasion the director was right on the target. Range from forward MK 3 radar was used throughout checking closely with that from the after MK 3 and from the MK 27. All fire control radars functioned excellently during the action. Two targets were picked up on the Mark 3 radar. They were separated by about five degrees in bearing and by approximately 3,000 yards in range. The target to the right was closer of the two and was being fired on by our right flank cruiser force. This target was taken under fire by this ship. Eight gun salvos were fired and turret loading intervals are considered entirely satisfactory.”<sup>139</sup>

These bearings and description show that *Maryland* opened fire on *Mogami* at a range of 20,800 yards bearing 210 degrees true. “It is believed that control intervals were normal although they were occasionally delayed by waiting for spots. Radar range operators experienced considerable difficulty in spotting due to the large number of splashes from other ships around target. Although both operators reported that this ships splashes were greater intensity than any others, suggesting the possibility that this was the only battleship firing on that target, spotting could not be done until splashes had built up to maximum size so that they could be distinguished from the others.”<sup>140</sup> At 0405 checked fire. Changed course to 270 degrees true. Fired five, eight gun salvos, or 40 x 16-inch AP rounds. The effect of this ships fire was difficult to judge under the circumstances, especially since other ships were firing at the target at the same time. However numerous topside observers report having seen hits on two salvos, and the

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<sup>137</sup> U.S.S. HEYWOOD L. EDWARDS - Rep of Engagement with Enemy Surface Forces in Surigao Straits, Philippines, Morning of 10/25/44, pages 5-6.

<sup>138</sup> U.S.S. BENNION - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.

<sup>139</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 7-8.

<sup>140</sup> At this time the only other U.S. ship engaging *Mogami* was *Columbia*. The deluge of shells *Columbia* was tossing at *Mogami* readily accounts for the forest of smaller scale splashes. After 0403 *DesRon 24* will briefly engage as well. At 0411 *Mississippi* will engage *Mogami*. However, between 0359 and 0403 only *Maryland* and *Columbia* were firing at *Mogami*.

*consensus of opinion seems to place them on the second and fourth. Radar spotters are of the opinion that possible straddles were obtained on all salvos after the first.”<sup>141</sup>*

ComBatDiv 4 report further affirms *Maryland*'s actions and states, “*Performance of the ships of the division within limits of their equipment left little to be desired. The Division Commander is of the opinion that West Virginia and the Maryland fired on separate large targets. The Commanding officer of the Maryland has informed the division commander that after the West Virginia opened fire and her tracers were seen at the long range an attempt was made to find a target in that vicinity. When one was finally found it bore approximately five degrees to the right of the bearing of the West Virginia’s target. The Maryland opened fire on this new target. The Division Commander is therefore, of the opinion that the West Virginia and the Maryland each should be given credit for an assist in the destruction of one heavy enemy ship each.*”<sup>142</sup>

So, if it was clear to ComBatDiv 4 and *Maryland* they had not fired on *Yamashiro*, where did the myth that *Maryland* used *West Virginia*'s salvo's to range in on the target originate? This comes from ComBatDiv 3 report which states, “*Mississippi’s lateness in opening fire and Pennsylvania’s failure to open at all are attributed to both material and personnel. Both ships had difficulty identifying their target and obtaining an acceptable solution. Mississippi was able to fire at the end, but Pennsylvania was not. Commander Battle Line believes that if these ships had Mark 8 Fire Control Radar they would have opened fire with the rest of the Battle Line. Maryland is to be commended for her speed in picking up her target from observation of West Virginia’s fall of shot.*”<sup>143</sup>

The Commander of Battleship Division 3 was *assuming* this was how *Maryland* was able to engage the enemy. Where the assumption is incorrect is many authors assumed *Maryland* fired on the same target as *West Virginia*. *Maryland* did account for where *West Virginia*, *Tennessee*, and *California* were shooting, and their targets were all to the left from her perspective and a second target to the right was largely being ignored and only being engaged by *Columbia*. *Maryland* decided to engage this target where her firepower would be the most useful.<sup>144</sup>

Some accounts credit *Portland* with the hits on *Mogami* around 0400 but her description and target behavior given at 0358 far more precisely match *Asagumo* as her definitive target. Neglected in most accounts of Surigao, *Asagumo* remained semi-operational and trying to engage the enemy as late as 0400 as shown by her Chief-Engineer's account and affirmed by radar tracks. *Mogami* was 12,800 yards from *Portland* bearing 196 degrees at 0358, while *Asagumo* was 19,300 bearing 194 degrees at 0358.<sup>145</sup> Their target cannot have been the same one. That *Maryland* was the true culprit for *Mogami*'s ruin at this time seems definite.

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<sup>141</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, pages 7-8.

<sup>142</sup> COMBATDIV 4 - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 2-3. It should be noted how clearly ComBatDiv 4 indicates *Maryland*'s target was west, to port, of *Yamashiro*, not east. Bear in mind American reports speak of east side of Surigao Strait as left flank, west as right flank, because facing south.

<sup>143</sup> COMBATDIV 3 - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 12.

<sup>144</sup> *Maryland* was looking south so from her perspective *Shigure* and *Yamashiro* are to her left and *Mogami* is to her right.

<sup>145</sup> U.S.S. PORTLAND - Rep of engagement with Jap surface forces in Surigao Strait, Philippines, morning of 10/25/44, page 15.



It was U.S.S. *Maryland's* 16-inch guns, not 8-inch of U.S.S. *Portland*, that demolished IJN heavy cruiser *Mogami* at Surigao, assisted by another battleship, U.S.S. *Mississippi*. Contrary to common conception *Maryland's* radars and fire control was tracking perfectly. (Naval History and Heritage Command, 80-G-455340)

At 0400 *Mogami* noted “received about 20 salvos from enemy’s heavy and medium caliber guns. The shelling began straddling the ship. We took evasive action but apparently received over ten direct hits.”<sup>146</sup> The enemy apparently was using red and blue-dyed ammunition, which left red and blue coloring on canvas and wooden materials located on the deck.”<sup>147</sup> It is striking to notice that U.S.S. *Maryland* had blue dye in her 16-inch AP shells. U.S.S. *Mississippi* had orange dye in her 14-inch AP shells.<sup>148</sup>

During the time U.S.S. *Maryland* fired on *Mogami* the Japanese cruiser reported the following damage. At 0359 shell hit in vicinity of starboard after engine air intake port. “Black smoke in pilot room. Black smoke and flames outside of same spread to inside filling it. Half of the lighting went out. Emergency lighting affected but no visibility. Steam observed emitting from

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<sup>146</sup> *Mogami's* Detailed Action Report lists approximately 100 shell hits in total, so I think the mention of 10 hits means 10 large caliber hits were scored out of a total of 100 shell hits. The majority of the smaller caliber shell hits likely came from *Hutchins*, *Daly*, and *Bache* after 0403. *Columbia* fired the medium caliber shells. *Maryland* and *Mississippi* would fire the large caliber shells.

<sup>147</sup> Fukushi, page 8.

<sup>148</sup> These were the only two U.S. ships and one Australian present at the Battle of Surigao Strait with a dye load. The fact *Mogami's* Detailed Action Report listed two colors despite not being a perfect match I still find significant. While blue matches *Maryland's* color the orange for *Mississippi* may have looked red especially at night and in poor light. *Yamashiro's* projectiles also may have had a dye load which was green based on records from *Columbia*. I do not know if *Fuso* had a color. Cruiser H.M.A.S. *Shropshire* used yellow dye. (Lundgren)

*vicinity of inboard bulkhead. Unable to remain in space, all personnel withdrew, stopping main engine.”<sup>149</sup>*

The deluge of heavy-caliber impacts continued. She recorded: “ 0402 starboard forward engine and vicinity of No. 9 boiler room top hit by shell(s).<sup>150</sup> Starboard forward engine room appeared to be emitting steam. Continued operating for a while but all personnel died shortly thereafter. Main engine stopped. Flames spread to No. 9 boiler room from vicinity of after bulkhead. At same time, black smoke poured forth from [the boiler’s] furnace, making it impossible to remain in space. All personnel withdrew, putting out furnace.”<sup>151</sup>

At 0402 the bridge was hit by two shells. “Ship commander, executive officer, chief navigation officer, chief communication officer, torpedo officer, and most of the other officers who were on the bridge or in the anti-aircraft control post were killed. Mechanical steering knocked out. Switched to normal steering.”<sup>152</sup> It is *Mogami*’s orientation at this time and the character and trajectory of the shell damage visible her bridge on her wreck that align so well with *Maryland*’s work. *Mogami* was moving south between 0359 and 0402 roughly on a course of 180 degrees and turned out of control to port at 0402. She regained control around 0408 and turned south again to withdraw.

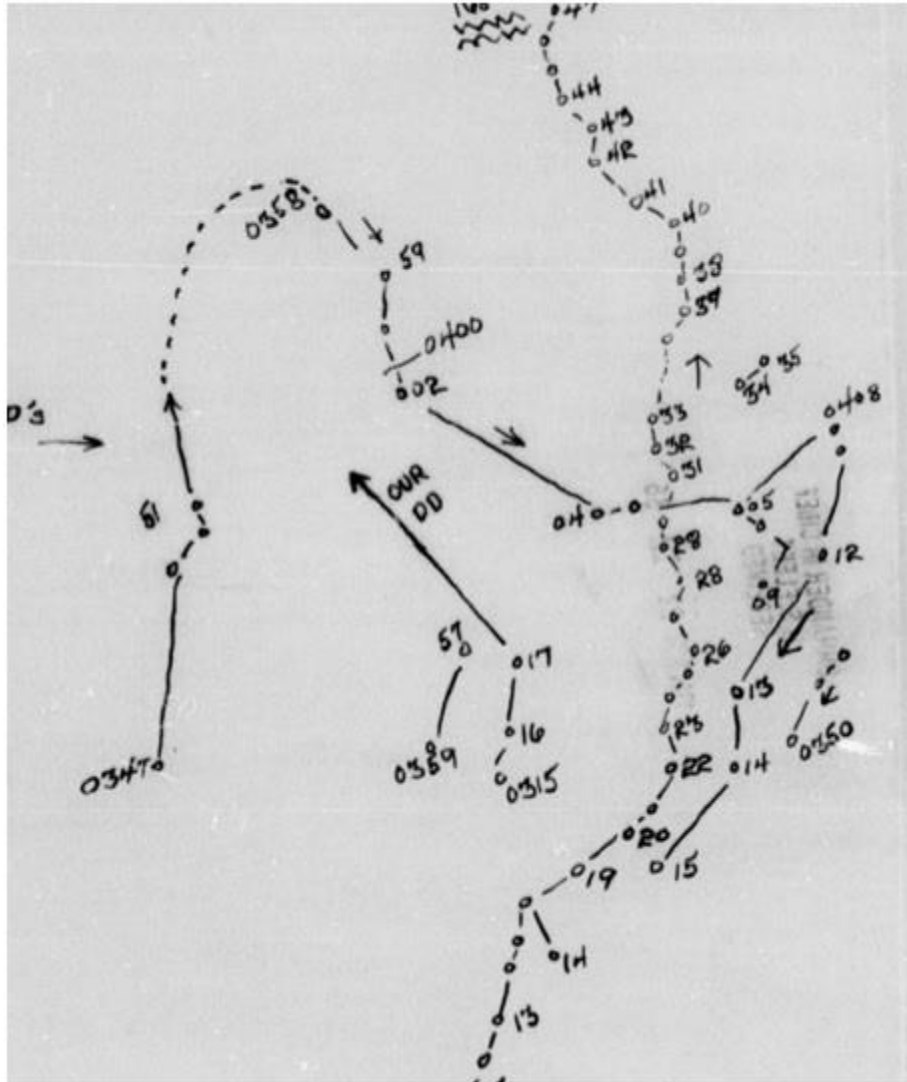
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<sup>149</sup> *Mogami* Detailed Action Report, page 33.

<sup>150</sup> I believe a better translation for “top hit” would be deck hit. I believe the shell penetrated the main deck above the engine room.

<sup>151</sup> *Mogami* Detailed Action Report, page 33.

<sup>152</sup> *Mogami* Detailed Action Report, page 11 and page 30. The precision of the time invites notice---apparently a clock was stopped at this moment.



A close-up crop of *Louisville's* track chart shows the movement of *Mogami*. At the time of the bridge hits *Maryland* is off on *Mogami's* port side and this matches the trajectory of the shells through her bridge. After her bridge was hit at approximately 0402 she veers to port and was out of control. Her crew does not regain control of *Mogami* until 0408 and then turned her away from the U.S. battleline to withdraw. *Mississippi* will fire on her at 0411 and her starboard torpedoes detonated at 0415 when *Louisville* stopped tracking her. *Asagumo* is the small track withdrawing to the south at 0357 to 0359. The friendly destroyers between 0315 to 0317 were likely *Monssen* and *McDermut* withdrawing after their torpedo attack.

At 0403 “port after engine top hit by shell.<sup>153</sup> All lights extinguished. Observed what appeared to be a pillar of fire before one’s eyes. Black smoke poured in. Visibility zero. Unable to remain in space. Stopped main engine and all personnel withdrew, some from air duct.<sup>154</sup>



This is *Mogami*'s turret 3 still trained to port. When this turret was disabled she was engaging the U.S. destroyers *Hutchins*, *Daly*, and *Bache* who were to her port side. The U.S. cruisers and *Maryland* would have been to her starboard side at 0350. The ROV did not film the starboard side or rear of the gun house or barrette so there is no apparent film that shows the hit that took out this turret. *Mogami*'s DAR reported this turret was struck by an 8-inch caliber shell.<sup>155</sup> *Columbia* was the most likely ship to disable this turret as she was the only U.S. cruiser to engage *Mogami*. (Photograph provided by Lone Wolf Media.)

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<sup>153</sup> Based on *Mogami*'s Detailed Action Report, U.S.S. *Maryland* scored one hit at 0359, three hits at 0402 and one hit at 0403 for a total of five main caliber hits. Based on *West Virginia*'s 41 seconds between salvos it is very likely *Maryland* fired all five salvos between 0359 and 0403. *Maryland* believed she straddled her target on her last four salvos. It is possible the three hits scored in the 0402 minute may have been two consecutive salvos fired within this one minute time period. It is possible *Maryland* scored hits on her first four salvos but certainly three out of her five salvos scored hits. *Maryland* only provided range and bearing on her initial salvo at 0359 of 20,800 yards bearing 210 degrees. Based on my track chart at 0403 *Maryland* was 22,713 yards and bearing were 212 degrees. The 16-inch MK 5, model 1-4, 2,240 lb. projectile used in 1944 had an angle of fall between 16.2 and 19.5 degrees at these ranges with an impact velocity of 1,629 to 1,588 fps. This was excellent shooting for her MK 3 and MK 27 radar systems.

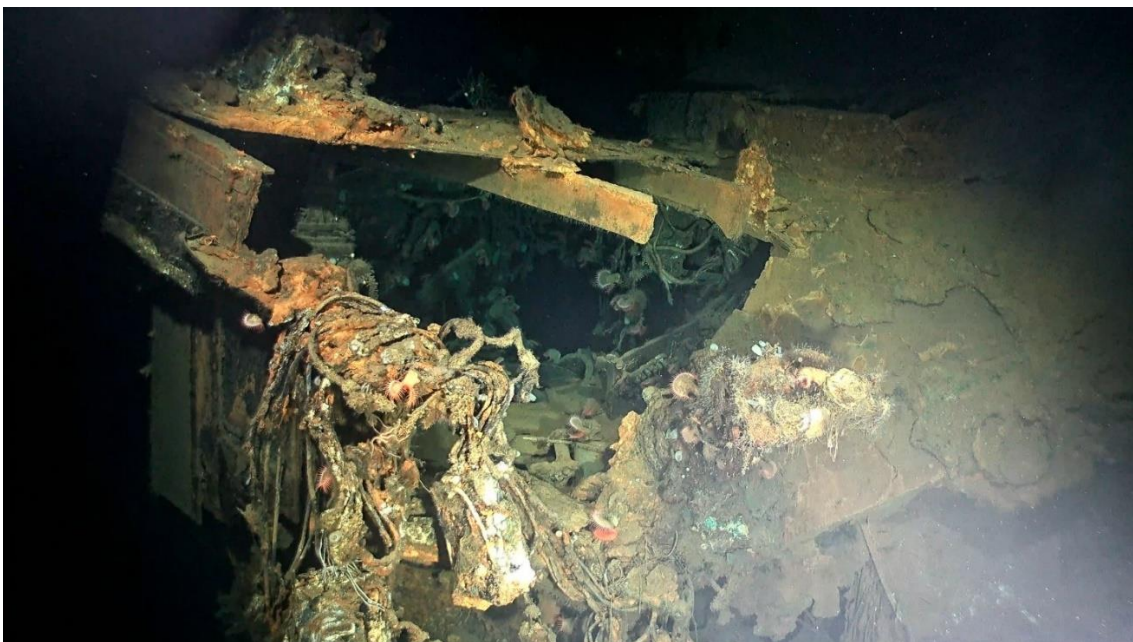
<sup>154</sup> *Mogami* Detailed Action Report, page 33.

<sup>155</sup> *Mogami* Detailed Action Report, page 11. *Mogami* actually lists the time as 0340 but since the U.S. cruisers did not open fire until 0351-0352, we think this is a more appropriate time. What this indicates is that this turret was disabled prior to U.S.S. *Maryland* opening fire so the likely ship responsible was U.S.S. *Columbia*. At 0350 *Mogami* was heading north. U.S.S. *Columbia* would have been to her starboard side.





This is *Mogami's* compass bridge and there is a large caliber shell hit through the port side and out the forward face of the compass bridge. The port side of the AA platform above the compass bridge has also taken a second hit. The damage is consistent with battleship caliber projectiles in that the diameter of the holes is anywhere between 20-24". These shells did not detonate but simply passed through the bridge structure. There is no view of the wreck to determine possible deck hits. The film largely views the wreck from the side and very close. (Photograph provided by Lone Wolf Media.)



This is the entry hole produced on *Mogami's* AA platform above the compass bridge from one of the shells fired by U.S.S. *Maryland*. The exit hole in the starboard side can be seen from the light of the ROV. *Mogami* was heading south between 0359 and 0402 with U.S.S. *Maryland* off her port side. (Photograph provided by Lone Wolf Media.)

*At 0400 California "fired her sixth salvo fired by turrets 2, 3, and 4. Nine rounds fired at a range of 18,200 yards. Target straddled. Enemy observed to have changed course to southward.*



*No further enemy fire was observed. D100, NC applied.” This would be her last salvo directed at Shigure.*<sup>156</sup> At 0400 and 0400-45 *Tennessee* fired two six gun salvos from her forward battery.<sup>157</sup> At 0400-24 *West Virginia* fired her twelfth salvo of 7 guns radar spot NC, NC, spot applied U100 NC.<sup>158</sup> At 0401 *Columbia* reported “*Japanese straddles and near misses of a large caliber gun were observed aft. This ship was plainly silhouetted to enemy by main battery flashes of our BBs as our station was about abeam of 3rd BB in column.*”<sup>159</sup> At 0401-30 *Tennessee* fired another six gun salvo from her forward battery.<sup>160</sup> At this same time *Maryland* reported her target changed course to the left. This was just after the bridge hit at 0402 and *Mogami* does turn to the left because she is out of control. She moves east and then northeast at 0405 and regains control at 0408 turning south to withdraw. (*Louisville* and *Maryland*’s tracks both affirm this turn east then south as does *Mogami*’s report) ”*Top Observers reported target to be large ship with heavy superstructure. Another similar ship observed eastward of target.*”<sup>161</sup> By 0401 *Mississippi* changed course to 210 degrees true. Training pips by fire control radar on *Raid Charlie* were lost completely during the course of the turn.<sup>162</sup> At 0401-05 and 0401-25 *West Virginia* fired her 13<sup>th</sup> salvo of with three guns “*radar spot NC.NC, spot applied NC R03 and 14<sup>th</sup> salvos 2 guns radar spot D100 NC, spot applied NC, NC.*”<sup>163</sup>

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<sup>156</sup> U.S.S. CALIFORNIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 15.

<sup>157</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>158</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.

<sup>159</sup> U.S.S. COLUMBIA - Rep of Ops in the Philippine Area, 10/15-27/44, Including AA Act & Resultant Loss of PRINCETON 10/24/44, page 12.

<sup>160</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>161</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 6-7.

<sup>162</sup> MISSISSIPPI - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>163</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.



Battle Line turns westward. At 0402 with some still firing, Battle Line came around to a westward course to head back across Surigao Strait. Battleship *Pennsylvania* made this frequently published picture of *West Virginia* firing full broadside at *Yamashiro* as completed the turn. Barely minutes later, a disastrous collision would narrowly be avoided. (Naval History and Heritage Command, 80-G-288497)

At 0354 Weyler had ordered Battle Line to shift to a southeasterly course of 120 degrees because their turrets were getting trained too far aft to starboard and at 15 knots they were drawing too far east. Since then, they had been firing south with each battlewagon roughly abreast. Now at 0402 *Mississippi* ordered Battle line to execute ships right 150 degrees to 270 degrees by orders of commander battle line and that Section One destroyers were ordered “to launch torpedoes when ready and to retire making smoke.” Seeing the fourth ship in line *California* moving oddly ComBatDiv Two inquired of the *California* whether or not she had received the turn signal.<sup>164</sup> 0402-20 *Tennessee* “turned to course 270 degrees and fired a six gun salvo from forward turrets, checked fire because line of fire was too sharp on the bow.”<sup>165</sup> *West Virginia* turned on signal. Ordered cease fire. Have to think about small amount of ammunition on board (110 AP left). CIC reports targets turned left and reversed course.”<sup>166</sup>

At 0402 the *California* had received communication from Commander Battle line to execute turn 15. As related, the intention was to make a 150 degree starboard turn which would bring all the line to a west course headed back across the strait. They would be in reverse order, with *Pennsylvania* in the lead and *West Virginia* at the rear as a result. However, this signal was

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<sup>164</sup> PENNSYLVANIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 11/25/44, pages 7-8.

<sup>165</sup> TENNESSEE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>166</sup> WEST VIRGINIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning 10/25/44, page 6.

improperly reported to Captain H.B. Burnett of the *California* as a change of course to 15 degrees. As a result, *California* did not turn 150 degrees but only 15 degrees to starboard due to error noted above. Due to this error, *California* was on course 135 and left cutting across the *Tennessee*'s path as the latter came around but by not turning west also got out of position to south of the others and in the line of fire. (That is, *California* briefly blanketed fire from *Tennessee* and *Mississippi*.<sup>167</sup> At 0405 a hasty order went forth among the battleships for all "to look out for the *California* as she apparently did not receive the turn signal."<sup>168</sup> However, the confusion was rather while *California* had indeed received it, she had mis-read it. The upshot was the same: disaster was brewing quickly.

*Tennessee*'s skipper saw quickly that her present course was going to take her into her sister-battleship's port side and slammed all four engines into full reverse. This slowed *Tennessee* just enough for the two huge ships to swerve clear of one another, *Tennessee* passing astern. It is worth mentioning that this awkward moment could have been worse: it was in fact *Tennessee*'s remarkable turbo-electric drive engines that allowed her to so effectively reverse engines in such a short time interval. Both the newer fast battleships and the older *Pennsylvania* would have had a harder go at stopping in time. The close-call evoked memories of a more tragic encounter with her sister-battleship earlier that year. In the pre-dawn hours of August 23, 1944, *Tennessee* had lost steering control and slammed its starboard bow into the port bow of *California*. Eight men aboard *California* had been killed or gone missing after trying to jump clear. Mercifully this time, a repeat accident was avoided.<sup>169</sup>

This stumbling moment passed, now led by *Pennsylvania* Battle Line proceeded west. To her credit, *Tennessee*'s fire control never lost their fix on *Yamashiro*, and indeed would hold it till the Japanese flagship sank. *West Virginia*, *Maryland*, and *Mississippi* were ahead and clear of the above tangle, but only *West Virginia* maintained fire with *Tennessee* on *Yamashiro*. *Mississippi* was still waiting for her target (*Fuso*) to close and *Maryland* checked fire at 0405 having fired 40 x16-inch rounds. This may be due to *California* being out of position but also may be due to the formation turning to 270 degrees true and her losing the southward retreating *Mogami*.<sup>170</sup> At 0407 *Maryland* warned she had heard reported by ComDesRon 56 to Oldendorf "that friendly ships were firing on his boys in the center of the channel."<sup>171</sup> This underscores the need to have fire discipline in this situation. As for *California*, she was still out of line to the south of Battle Line's westward track as late as 0420 but at that point began a converging course to starboard and Battle Line by 0458 reformed now in the order of *Pennsylvania*, *Tennessee*, *California*, *Mississippi*, *Maryland*, and *West Virginia*. A moment later that order was reversed, and *West Virginia* once more took the lead as Battle Line made another 180 to port to head back on an eastward leg.<sup>172</sup>

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<sup>167</sup> U.S.S. CALIFORNIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 15.

<sup>168</sup> PENNSYLVANIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 11/25/44, pages 7-8.

<sup>169</sup> David Doyle, *Legends of Naval Warfare: USS Tennessee*, page 95.

<sup>170</sup> U.S.S. *Maryland* was firing to starboard but the turn to 270 degrees requires her to swing her turrets to port. *California* may still be in her way after the turn was completed. I suspect her commanding officers based on the reports of friendly fire were being extra cautious.

<sup>171</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, pages 7-8.

<sup>172</sup> Naval War College Analysis, page 756 Diagram "J". This diagram shows clearer than the prose what followed the near collision.

DesRon 56 was under friendly fire but DesRon 24 continued to risk it. At 0402 *Bache* said “on orders from Commander Destroyer Squadron 24 we retired in order to clear the area for allied heavy units to take over.”<sup>173</sup> Yet we find others drawn into lingering: “0402 *Daly* picked up a large enemy ship bearing 043 degrees true, 11,000 yards.<sup>174</sup> Our third and last gunfire target and commenced firing at 0403. Changed course right to 330 degrees true and increased speed to 30 knots. This ship had apparently been firing at our group for some time with its secondary battery. In the lightning flashes at least three salvos which were from 50-100 yards over in range, were seen to land midway between *Hutchins* and *Daly*. Some salvos were also heard by director crews and after 40 mm and 20 mm gun battery crews passing overhead. No shorts were observed. Immediately after opened fire on this ship a salvo with on tracer was fired at us. It was definitely on in deflection for it gave the sensation of standing in center field waiting for a fly ball which will land in one’s glove. Fortunately, this salvo passed overhead, landing 200-500 yards over. This enemy vessel was a heavy cruiser or battleship for it was firing major caliber guns at our heavy units to the northward and was under heavy fire from our ships. It is certain that its escape was impossible. It is possible, from the fact that three or more successive salvos landed midway between *Hutchins* and *Daly* that enemy has some type of fire control radar, and that he experienced a blending or convergence of pips from our two pips. At 0405 ceased firing and proceeded on northerly course past blue forces which were advancing southward toward the disintegrating enemy.”<sup>175</sup>

In fact, *Daly* at 0403 almost certainly now had opened fire on *Mogami*. She brazenly exchanged fire with the heavy cruiser for two minutes. *Mogami* likewise appears to have had a good solution, and its perhaps fortunate for *Daly* that *Maryland*’s salvos began to wallop the cruiser just at this time; demolishing *Mogami*’s bridge. However, *Yamashiro*’s port battery joined the barrage from a distance, confusing the picture further since she was at 0402 nearly directly in line with *Mogami* further northeast (*Mogami* at the time heading south and *Yamashiro* turning west) At 0405 *Daly* broke off the engagement to get clear of precisely those incoming Battle Line and cruiser shells.

At 0402-30 U.S.S. *A. W. Grant* logged “enemy torpedoes reported as missing astern by approximately 20 feet. This was a torpedo wake hence torpedo should have been a hit. Miss probably due to deep submergence of torpedo.” These were *Mogami*’s torpedoes fired likely at cruisers but because this group of destroyers was sailing directly in line of fire of cruisers they sailed into the path of *Mogami*’s torpedoes. *Mogami* had launched four port side torpedoes at 0345 but believe the time of 0355 is more accurate.<sup>176</sup> Probably noting *Yamashiro*’s turn away to the west, *Mogami*’s bridge officers were debating whether to resume the advance and fire starboard torpedoes or to retire. When *Maryland* engaged *Mogami* her salvo’s wiped out her

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<sup>173</sup> U.S.S. *BACHE* - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, page 4.

<sup>174</sup> This range and bearing lines up with *Mogami* which based on my track is at 042 degrees at a range of 10,748 yards. *Mogami* was moving south between 0359 and 0402. *Yamashiro* at this time is bearing 035 degrees at a range of 14,121 yards from DesRon 24.

<sup>175</sup> U.S.S. *DALY* - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 5-6.

<sup>176</sup> In this we follow Bates who also believed the time worked out to 0355, but for different reasons. Ours is based on at 0355 she is in a position to fire in the direction U.S.S. *A. W. Grant* will be in at 0402. At 0355 *Mogami* is approximately 9,916 yards from where U.S.S. *A. W. Grant* will be at 0402. In the seven minutes the torpedoes would need to travel 1,416 yards per minute. That equates to 42 knots. This is the medium setting for a Japanese Type 93 torpedo and would give the torpedo a range of approximately 35,000 yards.

command crew only seconds after her captain had decided to close in an attempt to launch a second torpedo attack with the starboard torpedoes. For a few minutes *Mogami* raced through the water out of control from 0402 to 0408.

At 0404 center force of DesRon 56 led by U.S.S. *Newcomb* U.S.S. *Leary* and U.S.S. *A.W. Grant* fired their torpedoes using half salvo plan. *“The target was tracked by SG radar and FD radar heading up Surigao Strait on course 000 degrees true speed 12 knots. At approximately the time of the first torpedo attack by DesRon 56, the target turned left on course 290 degrees true speed 9 knots. This was the target set up used by the ship. The type of target had not been determined as yet and the torpedoes were consequently set for 6 foot depth. It appeared that there was one target with no escort. When the ship had closed for the attack a number of men reported seeing a Fuso class battleship in the flashes caused by gunfire from our battleline. Due to reduced visibility the attack was conducted completely by radar control, target course and speed and true bearing being supplied by CIC.”*<sup>177</sup> *Newcomb* or *Leary*’s torpedoes may impact *Yamashiro*’s port side at 0411 after she turns south. *Grant*’s initial salvo torpedoes may have been fired at *Mogami*, but they will all miss.

*Yamashiro* throughout all this of course was attempting to fight back. At first while still on northerly heading engaging ahead with her No.1 and No.2 turrets while port secondary battery fired at DesRon 24. At 0356 when *Shropshire* opened fire the battleship appeared to zero in on her and up to 0403 *Yamashiro* fired six salvos at *Shropshire*; four that were just over and two that were short. Then after turning west to unmask No.3 and No.4 turrets *Yamashiro* between 0400 to 0408 fired at the cruisers *Columbia*, *Minneapolis* and *Denver*. It is just possible No.5 and No.6 fired what they had loaded at Battle Line because U.S.S. *Claxton* noted a major caliber near-miss between 0401-0405 that was one four-gun salvo that would have hit had she been the leading battleship, but no more came. *Columbia* *“documented the following tabulation below and is believed to be conservative description of splashes falling near this ship. It was difficult to determine how many projectiles caused splashes. Some splashes were definitely one projectile, others were caused by several close together possibly 15-20 yards between projectiles which appeared as one large splash. Some observers stated they saw green dye, but its use cannot be confirmed. All splashes could not be clearly seen but enough were clearly seen to show that they were caused by heavy projectiles larger than 8-inch. It is believed they were 14-inch splashes. At the time of observation, they appeared even larger than 14-inch. Detonations were felt below decks.”*<sup>178</sup>

Salvo	Estimated error in range	Estimated error in deflection	Number of shells
1	Short 1000	Left 20 mils	4 or more
2	Over 200	Left 10 mils	2
3	None	Left 7 mils	3

<sup>177</sup> U.S.S. NEWCOMB - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, pages 5-9.

<sup>178</sup> U.S.S. COLUMBIA - Rep of Ops in the Philippine Area, 10/15-27/44, Including AA Act & Resultant Loss of PRINCETON 10/24/44, page 14.

4	Over 100	Left 2 mils	Could have hit in deflection.
5 straddle	Over 100 Short 50	Left 2 mils	Could have hit in deflection.
6	Over 200	Left 2 mils	3
7	Over?	Left 2 mils	Believe overs not observed, heard
8	Over 100	None	2
9 straddle	Over 100 Short 100	None	2
10 straddle	Over 100 Short 100	Left 2 mils	? (most likely 2)
11	Over 200	Left 5 mils	?
12 straddle	Over 100 Short 100	None	? (most likely 2)
13	Over 500	Right 5 mils	?
14 straddle	Over 100 Short 100	None	? (most likely 2)

Had *Yamashiro* been able to fire full broadsides she had a good solution, but not enough shells are in the pattern. She would have likely scored hits on several of these salvos had there been additional shells in the pattern. The fact she was firing one turret salvo's may also indicate each turret was under local control and that her main gun director was damaged.

At the same time *Yamashiro* was contending with further torpedo hits. Between 0405 and 0408 she slowed temporarily, apparently due to a torpedo hit that knocked out the starboard engine room per Paymaster Ezaki. This the War College was inclined to believe came from *Bennion*'s 0359 salvo which seems likely.<sup>179</sup> Nishimura was sufficiently concerned that he instructed telegram be sent to Kurita: "*We will dash into Leyte Gulf for gyokusai.*" But by just prior to 0408 *Yamashiro* had commenced increasing speed and by 0409 was again making about 12 knots. Probably from increasing the revolutions on her inboard shafts, her center engine room now the only one still operational. Another torpedo appears to have struck the starboard side just after, roughly under the pagoda, but did not appreciably impede her speed.<sup>180</sup>

By 0406 U.S.S. *Leary* reported enemy shells commenced falling near the destroyer.<sup>181</sup> At 0407 *Grant* ran out of luck. "*First hit aft and landed among empty powder cases stacked across fantail. 5"/38 gun #5 out of commission from shrapnel. No fire started. Remaining five torpedoes were ordered fired. At 0407-30 Grant commenced turn to 000 degrees true. Still following in column. Several bad shell hits amidships. Steam began pouring out of #1 stack.*

<sup>179</sup> NWC Bates, page 459.

<sup>180</sup> Side-scan sonar made in November 2017 of *Yamashiro*'s wreck by RV *Petrel* appears to show a marked deformity at the approximate location of the bridge. Since the starboard side could not be filmed by the ROV due to currents, this must remain speculation. For the same reason the starboard engine hit cannot be confirmed but appears has fairly secure agreement between survivor and tracking data.

<sup>181</sup> RICHARD P. LEARY - War Diary, 10/1-31/44, page 16.

*Forward fireroom and forward engine room out of commission. After fire room abandoned due to excessive temperatures caused by rapidly escaping steam through two shell holes from forward engine room.*”<sup>182</sup> Many of these initial hits came from *Yamashiro*’s starboard secondary battery. However, she also was receiving a flurry of hits to starboard, from friendly fire. The Bates analysis and Morison both conclude, apparently correctly, that U.S.S. *Denver* was the culprit. Upon getting word from *Newcomb* that what many feared could happen – was in fact happening – Oldendorf learning DesRon 56 was taking fire from “friendlies” went on the air at once at 0409 and ordered “All ships cease firing.”<sup>183</sup>

At this time *Pennsylvania* reported “radar one forward FC still unable to obtain any signals on the original bearing designated by CIC was instructed to search the area covered by friendly salvos and at 0407 picked up an enemy group at a range of 27,500 yards. Prior to this CIC had been tracking the second group by dead reckoning, using the reports coming over TBS and information sent down from topside stations. At about the same time Range 7, the coincidence rangefinder forward of the navigation bridge intermittently picked up, visually an enemy heavy ship whenever flashes in the area so permitted and snapped ranges on this target at 27,000 yards. This target was in the same area as the target giving radar one its signal. The other group which was being tracked by this ship and upon which this ship expected to open fire at a range of 26,000 yards was a second enemy heavy group, most probably cruisers. According to our plot and track, the range to this group did not decrease to 26,000 yards until after cease firing to the battle line had been executed. Later the battle line turned away and headed north which further opened the range.” This was *Fuso* at 27,000 yards now slowly moving south and away and likely on fire or bleeding oil that was on fire.

The chance for “Penny” to open fire was missed. This was realized. “*It is evident now that Pennsylvania took the closest enemy group to be our friendly destroyers retiring. She reported her radar one could not pick up these ships and failure to do so indicated further that this group was composed of small ships, most likely friendly destroyers.*”<sup>184</sup> This was *Pennsylvania*’s perception as reported within her action report. At the time there was no way to understand that DesRon 24 had deprived her of the oncoming target.

By 0409 *Mississippi* having been unable to obtain satisfactory training pips by fire control radar on Raid Charlie, and since range was over 30,000 and increasing, shifted targets back to Raid Able. “*At 0411 Mississippi opened fire at second heavy ship of Raid Able, range 19,790 yards, bearing 205 degrees true.*”<sup>185</sup> Ceased fire immediately thereafter on

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<sup>182</sup> ALBERT W. GRANT - Rep of Ops in Support of the Invasion of Leyte Is, Philippines, 10/17-30/44, Including Engagement with Jap Surface Forces in Surigao Strait, P I, Night of 10/24-25/44, pages 18-19.

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<sup>184</sup> PENNSYLVANIA - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 11/25/44, page 15.

<sup>185</sup> MISSISSIPPI - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 4-5. The 14-inch MK 16 model 1-6, 1,500 lb. projectile had an angle of fall of 15.38 degrees and an impact velocity of 1,659 fps at 19,790 yards. It is documented in the U.S. action reports that *West Virginia*, *Tennessee*, and *Mississippi* all hit with their initial salvo. It is possible but not confirmed *Maryland* may have also hit on her initial salvo, but she definitely scored hits on 3 out of 5 salvos and possibly 4 out of 5. *California*’s first observed hit was on her 5<sup>th</sup> salvo, but she was engaging the smallest target at 18,450 yards at 0359.

*orders from Commander Battleline.<sup>186</sup> The mean radar spot for seven splashes observed on the single twelve gun salvo fired was down 150 yards, while the observed range pattern was less than 300 yards. It was considered probable that one or more hits were obtained.”<sup>187</sup>*

Remarkably, this appears correct. The flagship of Battle Line hit her target squarely with her first and only salvo. If calculations of bearing and range are correct *Mississippi* struck at retiring *Mogami*. At the time bearings to *Yamashiro* at 0411 are 220 degrees at 19,530 yards, not 205 degrees, so contrary to common supposition it was not a late hit on *Yamashiro*, but potentially more important ones on retreating *Mogami*. A Japanese officer taking inventory of the damage after daylight even mentioned red dyed shell hits.<sup>188</sup> Battleships *Maryland* and *Mississippi* and the Australian heavy cruiser *Shropshire* were the only ones reported to have been firing dyed shells: blue for the former, orange for the latter of the battleships, with *Shropshire*'s shells being yellow dye. Out of her 12 projectiles fired, *Mississippi* likely hits *Mogami* with 5 of them as only 7 splashes were observed. *Mogami* citing 10 large caliber hits adds up nicely to *Maryland* scoring five hits and *Mississippi* scoring five hits.

*Mississippi*'s shell hits were the last to score on a Japanese ship in the major gunfire phase, though both *Mogami* and *Asagumo* would take more cruiser shells at first light. It was this Parthian shot by “Missy” however, that helped seal *Mogami*'s fate. Before them, the Gunnery Officer was preparing to take command with regained steering at 0408 and had turned south with the cruiser was retiring at a good speed. These shell hits left *Mogami* with a dangerous fire burning on the torpedo deck amid the AA mounts that will detonate her starboard torpedo battery at 0415. *Mogami*'s Engineering log noted: “0415 strong impact near top of port forward engine (appeared to be torpedo explosions) black flames poured in. Yellow smoke poured forth from vicinity of lower inboard bulkhead.”<sup>189</sup> The vital remaining engine room was made increasingly untenable. Already deprived of bridge command, *Mogami* was left staggering and not really under control, blazing up afresh, even as she and *Shima*'s approaching flagship *Nachi* mutually sighted one another. The notorious collision that would ensue was in no small part due to *Mississippi*'s closing contribution. The record of *Shigure* confirmed post-retirement shell hits on *Mogami* at just this time. “0410: Sight *Mogami* being hit, decide to retire.”<sup>190</sup>

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<sup>186</sup> One gets the impression that *Mississippi*'s guns opening fire took Weyler by surprise, and he immediately repeated Oldendorf's received order.

<sup>187</sup> MISSISSIPPI - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 4-5.

<sup>188</sup> Lt. Fukushi. In the gray half-light of the pre-dawn when the inspection was made before the final air attacks, it is very easy to see how the Japanese would take orange for red.

<sup>189</sup> *Mogami* Detailed Action Report, page 33.

<sup>190</sup> *Shigure* Detailed Action Report, page 5.





U.S.S. *Mississippi* (BB-41), the flagship of ComBattleLine RADM G.W. Weyler, waited in vain for *Fuso* to come into range and almost missed chance to use her guns. However, she got off one salvo, and it hit the target. BB-41 has the distinction of having fired the last salvo at an enemy in a battleship-to-battleship battle. However, instead of just adding to topside damage to *Yamashiro* as presumed, evidence strongly indicates she played a decisive role in ensuring cruiser *Mogami* did not survive. Here *Mississippi* is seen on Jan 8, 1945 bombarding Luzon with two other Surigao veterans: U.S.S. *West Virginia* (BB-48) and H.M.A.S. *Shropshire*. (Naval History and Heritage Command, 80-G-301229)

At 0415 *Maryland* unloaded guns through the muzzle. Other battleships did the same. This last salvo was not aimed at the enemy but at a safe range where no ships were located. Therefore, the Battle Line flagship *Mississippi's* salvo was the last battleship one fired at the enemy.<sup>191</sup> It is notable that most Japanese accounts agree that shortly after the bridge hits *Mogami* was further hit by heavy shellfire after being well committed to her southward course that would bring her into *Nachi's* path.

*Yamashiro* made the same decision as *Shigure* nearly at the same time. When the hail of gunfire ceased abruptly for no obvious reason at 0409 Nishimura apparently resolved to immediately attempt to retire and reform with Shima. Once again making a wide turn south to the left, the blazing battlewagon began to head southeasterly toward where *Nachi* was even then coming into sight. To the amazement of American gunners tracking her, she even increased speed to 15 knots. It seemed nothing could stop her. Indeed, her conning tower and compass bridge were both intact, and all still lived. Topside fires raged amidships to the fantail but were not threatening to the ship's existence. In the opinion of her senior survivor, she could have yet made good her retirement.

But torpedoes remained in the water from both sides. At 0411 U.S.S. *Leary* reported “two torpedo wakes were observed to pass down each side of this vessel coming from

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<sup>191</sup> U.S.S. MARYLAND - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Night of 10/24-25/44, page 7-8.

southward.”<sup>192</sup> The probability is these torpedoes came from *Asagumo*, but whether from *Asagumo* or *Mogami* the warning from U.S.S. *Leary* ended up further disrupting a Battle Line already in disarray from *California*’s lunge south. Like a flock of giant startled geese, half of Battle Line under Weyler’s order turned due north to clear the danger zone, and *Mississippi*, *Maryland*, and *West Virginia* headed away from the battlefield at top speeds. *Pennsylvania*, *Tennessee*, and *California* had to fend and try to evade for themselves as best they might. Weyler’s ships would reform in column by 0458 but between Oldendorf’s cease-fire order at 0409 and the maneuvers to evade the Japanese torpedoes, for Battle Line the battle was over. Nishimura’s surviving ships were given free hand to retire south at their best speeds and temporarily escape. However, U.S.S. *Leary* also recorded a reason why that would not include proud *Yamashiro*: ”At 0411.30 observed two explosions on the enemy target at which this vessel’s torpedoes were fired. This time coincides with estimated time of arrival of our torpedoes at the target.”<sup>193</sup>

It was true. With cruel timing, *Yamashiro* was caught by one, probably two torpedoes in her port side and stern at 0411 ½. Credit can be shared between U.S.S. *Newcomb* and U.S.S. *Leary*. The stern was blasted (the wreck would show massive damage just forward of the propellers) and the large hole in the port engine room ripped even wider. *Yamashiro*’s last engine room was inundated, and she came to a dead halt as burning wreck settling aft while listing further and further to port. On the compass bridge Paymaster Ezaki recalled the impression things did not seem so bad with fires dying down and was still underway when the disastrous final torpedo hits came. Now when the list reached 45 degrees, CO Shinoda ordered Abandon Ship. Ezaki observed that Vice Admiral Nishimura made no attempt to escape. Two minutes later, *Yamashiro* abruptly toppled over to port. The bridge went into the sea and Ezaki was suddenly swept overboard and out a doorway to starboard. There was little time for any to escape. *Yamashiro* then rolled right over, floated keel up only briefly, and rushed under by the stern “with deadly suddenness.”<sup>194</sup> The damaged bow broke off as she sank and the bow rests on top of the capsized main hull forward facing aft in an upright position. (It is possible a torpedo hit here to port damaged both sides of the bow enough to create a weak point. A similar thing happened to the German battleship *Gneisnau* hit by a torpedo off Norway in 1940; the bow never really "hinged" or snapped, but a hole was blown right through it and if the ship had gone to the bottom, perhaps it would have.)

It is worth mentioning that like her sister’s, *Yamashiro*’s pagoda may have detached and toppled overboard just before she sank. Paymaster Ezaki’s memory of being cast into the sea through an open frame may be this happening, and not the very last moment of capsizing. It may be significant that nothing resembling a pagoda stump is beside *Yamashiro*’s wreck or projecting out from under it (as with *Nagato* and *Mutsu* wrecks both). It may instead lie very close near-by, like *Fuso*’s does to her wreck.

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<sup>192</sup> RICHARD P. LEARY - War Diary, 10/1-31/44, page 16-17.

<sup>193</sup> RICHARD P. LEARY - War Diary, 10/1-31/44, page 17. We believe the Japanese torpedoes come from *Asagumo* fired approximately at 0358. The two torpedo hits were on *Yamashiro* and either came from *Leary* or *Newcomb*.

<sup>194</sup> Interview of *Yamashiro*’s senior survivor, Paymaster Ezaki in 1961. Cited by S.E. Morison in his “Two Ocean War” Little, Brown, and Company, 1963. In the same interview, Ezaki insisted it was the four torpedo hits that sank his ship. If not for the last torpedo hits, *Yamashiro* could have made good her retirement / joining with Shima. (As has been laid out, it is probable *Yamashiro* was hit by as many as nine torpedoes. Another survivor did think six. It seems likely Ezaki did not even know clearly when the last shattered the stern.)

*Yamashiro* had indeed absorbed an epic amount of punishment. What is perhaps very surprising to learn is that both the Allied radar and tracking data, and the few Japanese survivors speak with one voice. The flurry of major and medium caliber shell hits failed to significantly injure her below decks. They started raging fires, demolished fire-control and put No.2 and No.4 turrets out of action. But they did not penetrate her armor in sufficient number or manner to set off magazines or knock out the engines. The fact that *Yamashiro* was engaged in the so-called 'sweet spot' range previously mentioned where her armor and design would do her the best service, plays no small role in this.<sup>195</sup>

Significantly, given the plunging character of most of them, it is quite possible that even eventual ROV inspection of the starboard side of the wreck will reveal relatively few shell impact holes in what is visible of the upturned hull. Barring some extensive survivor memoir surfacing comparable to that available for *Kirishima*, for example, we will likely never know much about the location and nature of the shell damage received. However, we can make a few informed suppositions. Lundgren has drawn the useful comparison that *Yamashiro* had been reduced to a shell-battered state not unlike U.S.S. *South Dakota* during the one other battleship-vs-battleship action in the Pacific War. That is, *Yamashiro* had been rendered "combat-ineffective" but was not in danger of sinking, or even being brought to a halt, by the shellfire. *South Dakota* had suffered 26 hits mainly to her superstructure and fire control stations, but this damage never placed the ship in jeopardy. At Guadalcanal the Japanese fired many torpedoes at *South Dakota* with some exploding in her wake, but none of these torpedoes hit. *Yamashiro* was not so lucky.

From her performance and the American reports, it has been seen that at a very early point in the action *Yamashiro* had received direct shell hits to her anchor deck and pagoda foremast. It is likely these knocked out fire-control, for she was clearly forced to switch to local control for her main battery turrets. These may have also severed steering lines, for she appeared to be making wide slow turns characteristic of manual steering after 0357. As far as gun power, her aft turrets had flooded magazines, and apparently took Parthian shots expending their loaded rounds at the Left Flank cruisers as *Yamashiro* turned.

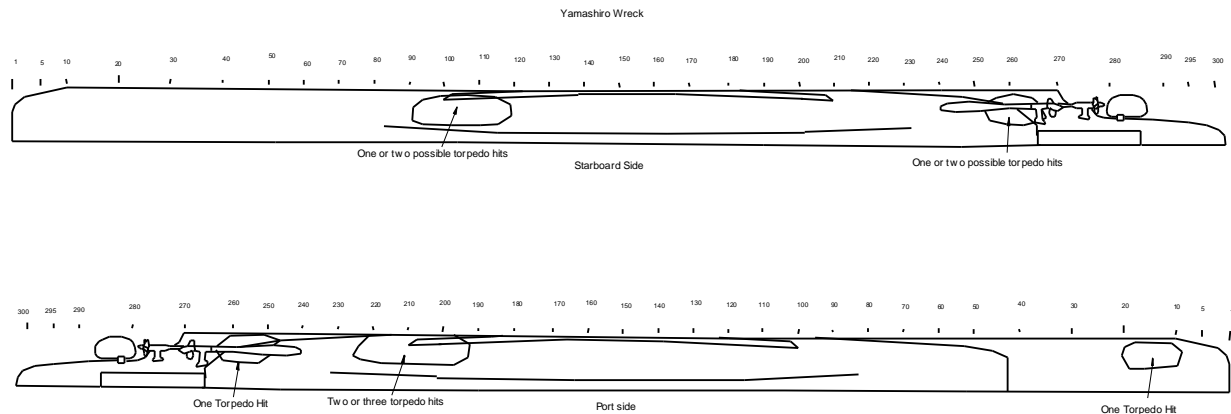
Then Nishimura's flagship had engaged with all four remaining turrets in broadside and in concert with an energetically served secondary battery. The constant flashes of the "machine-gun" cruisers of the Right Flank gave sufficient bearing to compensate for lack of fire-control radar, allowing *Yamashiro*'s turrets to obtain a good solution optically. She just lacked the density of fire to score hits. In the meantime, she was receiving a deluge of shells hits, starting topside fires that lit up the whole amidships. Apparently No.3 turret went out of

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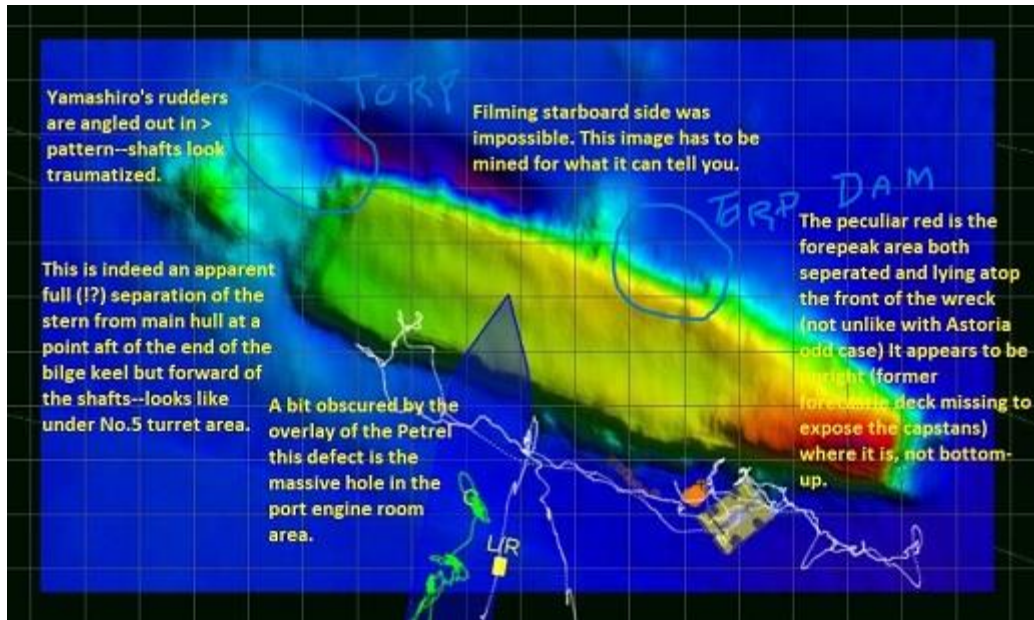
<sup>195</sup> *West Virginia* fired 93 x 16-inch rounds at *Yamashiro*, *Tennessee* fired 69 x 14-inch rounds at *Yamashiro*, and *California* fired 21 x 14-inch rounds at *Yamashiro* for a total of 183 major caliber rounds expended. If we assume a normal hit percentage of 10%, *Yamashiro* may have only taken between 18 battleship caliber shell hits. This may help explain why she was able to pick up speed between 0408 and 0413. The exact number of major caliber shell hits is unknown, but it may have been fewer than what has previously been assumed when all the battleships were reported as concentrating all fire on *Yamashiro*. Unfortunately, the starboard side of the wreck was never filmed and in its upturned condition the number of hits will likely never be determined. The ranges in which U.S. battleships engaged *Yamashiro* was between 18,000 and 22,800 yards on average.

action early; but it appears No.2 and No.4 took longer, and No.1 was still operational when *Yamashiro* sank. With a few exceptions - such as the infirmary set up in the officer's wardroom that was destroyed - there is little indication of shell hits penetrating to vitals. The center engine room and sufficient boilers remained to give 15 knots even in retirement. It's also worth noting that both *Yamashiro's* compass bridge and armored conning tower were more or less intact when she capsized.

Thus, it was not the gunfire that did *Yamashiro* in, but the destroyer fired torpedo hits. The number on *Yamashiro* were a bare minimum of four to six per survivors and may be as high as nine. These had steadily reduced *Yamashiro's* vitals and reserve buoyancy. First they had knocked out the port engine, then damaged the bow, then knocked out the starboard engine, and the last had blasted the stern and completely ripped open what was left of the port side torpedo defense. Only then did *Yamashiro* come to a halt, then quickly capsize and sink. Thus, the fateful and fatal difference for *Yamashiro* (and *Fuso*) from *South Dakota* at the Guadalcanal was the enemy torpedoes fired at her that night connected.



Estimate of *Yamashiro's* torpedo damage. The port side damage is more confirmed, and the starboard side damage is estimated based on sonar images of the wreck. The port side damage outboard of her port engine room is so massive that there were concerns the ROV would be pulled inside the wreck due to currents. U.S. Action reports estimate a possibility of nine hits. The damage on the ports side is consistent with at least five and the starboard side may contain two to four hits which would be consistent with U.S. estimates. Japanese survivors estimated four to six torpedo hits.



Side-scan sonar image of *Yamashiro* wreck in November 2017. This has been annotated with the present authors interpretations of the wreck video footage and survivor evidence. (Sonar scan © Navigea Ltd./R/V Petrel)



This is the port side of *Yamashiro's* engine room with what I believe is machinery within the compartment. The area of damage is so wide that it cannot fit into a single picture frame. (Photograph provided by Lone Wolf Media.)





This continues to show the damage on the port side of *Yamashiro's* engine room. Her entire port side is open to the sea. (*Yamashiro's* engine spaces occupied roughly frames 190- 224) (Photograph provided by Lone Wolf Media. )



This is still *Yamashiro's* port engine room now totally exposed to the sea. At minimum this area was damaged by at least two torpedoes and possibly three hitting in close proximity to each other. (Photograph provided by Lone Wolf Media.)

Battleships at Surigao – The Recovered Record: American and Japanese

It is not in the scope of this article to follow the events with *Mogami* subsequent to her infamous collision with Shima's flagship *Nachi*. These remain largely as chronicled in Tully's "Battle of Surigao Strait" and in need of little revision. However, it can be said that as of 0430 primarily the work of two American battleships, *Maryland* and *Mississippi*, had rendered her close to combat-ineffective and probably doomed her. It is an open question whether she would have remained navigable after 0900 even without the Taffy 2 aircraft attacks that eventually forced her scuttling.

To recap the night's work by the battleships of both sides. U.S.S. *West Virginia* and *Tennessee*, with some assist from *California*, inflicted the major-caliber hits on *Yamashiro*. Yet they failed to silence entirely that tough old battlewagon. U.S.S. *Maryland* and *Mississippi* put out of action and direly crippled the *Mogami*. Counting what appears to be a 14-inch shell hit from U.S.S. *California* on destroyer *Shigure*, the fact is that every American battleship that fired that night hit its target. The only one that did not, U.S.S. *Pennsylvania*, had also never fired. Due to the simple un-discerned fact she held fire waiting for *Fuso* to come in range which never quite happened, and from a just fear of hitting friendlies.

On the other hand, the two gallant Japanese battleships had not succumbed to or even been silenced by shellfire—it was destroyer-fired torpedoes that did both of them in. Because the testimony of her wreck was not available, *Fuso*'s role and persistence in advance has been both underestimated and overlooked. She proved a bit tougher than prior accounts would have suggested and in the end more closely resembled that of her sister-ship. In the final tally, it appears that *Fuso* took a minimum of six torpedoes (plus two bombs the prior day) before succumbing. *Yamashiro* took a bare minimum of five torpedoes, and more likely as high as seven or eight, and a conservative estimate of 18 major-caliber hits topside (plus near-miss bomb damage the day prior) before she went down.<sup>196</sup> These undoubtedly knocked out her fire-control and other equipment; started numerous fires and put out of action some turrets. However, the armored conning tower remained intact, as did the compass bridge. The *Yamashiro*'s armored deck was not significantly defeated by shellfire, and some of the propulsive machinery remained operational in both battleships to the very end.

This revelation of the extraordinary performance by the capital ships of both sides heretofore unrecognized is almost entirely a product of the light shed and re-examination of the record made possible by the mute testimony of the wrecks of Surigao Strait. A testimony to the value and potential of underwater archeology to enhance a received historical record. In the end, indeed, "The steel doesn't lie." \*

Postscript: How Long did the wreck of battleship *Fuso* remain visible?

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<sup>196</sup> See, Tully, Anthony, *Battle of Surigao Strait*, Indiana University Press, 2009, pages 68-74. Both battleships received bomb damage from USS *Enterprise* (CV-6) the previous morning, October 24<sup>th</sup>. *Fuso* was alleged to have suffered a deep penetrating bomb hit beside No.2 turret and another that blew a hole in the fantail above the waterline and started a temporary fire. *Yamashiro* had her starboard blister torn from near-misses and took a list for a time. This damage undoubtedly had somewhat impaired both ship's integrity but not severely so.

It remains to be considered one of the more bewildering aspects of the night battle, and which has misled and confused historians ever since. The first to chronicle the action were so deceived by appearances that night that it spawned the remarkable and scarcely credible story that battleship *Fuso* not only blew up and broke into two sections, but that both burning sections then drifted down Surigao Strait to sink later in the morning. Despite its improbability, this dubious scenario was enshrined very early. This in turn, complicated and obscured any plausible reconstruction of *Fuso*'s last moments.

In 2009 Anthony Tully in his book on Surigao Strait was able to demonstrate by use of survivors and action reports properly quoted that all the evidence pointed to *Fuso* simply foundering from torpedo hits and rolling over, sinking in one piece but amidst a huge oil fire that left an impression on Americans and Japanese alike. In November 2017 this argument in outline was confirmed as fact by ROV examination finding that the battleship *Fuso* wreck remains more or less in one piece on the bottom, albeit keel-up, badly buckled and shattered in places, but the true bow and stern are both present at the ends of the wreck. In other words, the entire length of the battleship is accounted for – there never was two separated hull sections adrift. The bulk of the pagoda lies detached and lying 50 meters north of the main wreck. Just as survivor testimony of it falling would have led one to expect. Also unexpectedly confirming one of the more dramatic claims of Shima fleet (2-YB) observers as will be seen.

The location in mid-Strait was within a few nautical miles of where Shima's cruisers last reliably observed the wreck near its oil fire. But the question of when *Fuso* actually upended and sank is a little more difficult to answer; even more indefinite is the time the last glimpse of the wreck sank out of sight. The starting point should begin when we have argued she was last operational and underway: 0340 hours. We have seen this is when U.S.S. *Mississippi* designates "Target Charlie" which is almost certainly *Fuso* still advancing north with *Asagumo* loosely in support. Admiral George Lester Weyler prepares to fire on 'Charlie' within just a few more minutes and had so notified his command, unintentionally causing a little confusion for those tracking *Yamashiro*, *Mogami*, and *Shigure* which were all very obviously the more northern-most group of ships. *Fuso* for her part may have had a surface radar contact, as now commenced a swing west, probably to open fire to the north with four turrets in broadside. With the bow turrets now secured in-line and evacuated from flooding, this makes total sense. The range from the Allied cruiser line at the time was just about 20 km, well within the range of *Fuso*'s Type-22 radars flanking the very top of her pagoda and it is likely she had a good fix to target. Yet just three minutes later, if the above reconstruction is correct, *Fuso* received mortal damage from three shattering torpedo hits from U.S.S. *Daly* in the port side that stopped her dead and set her strongly afire. Thwarted from entering the gunfire phase at the last minute, *Fuso* soon became unnavigable and was left burning and drifting down-strait – now rapidly sinking, bow pointed southwest. Soon to nose down and founder in a corkscrewing motion that planted her in the Surigao seabed and that broke her back.

This sinking orientation, like the wreck today, is complex and difficult to describe. However, it so happens there is a useful example from the Atlantic War that was clearly observed and photographed. It provides nearly perfect visual analog. This is the last moments of the Kriegsmarine's Admiral *Hipper*-class heavy cruiser *Blücher* in Oslo Fjord. Sunk by Norwegian shore-based gun and torpedo batteries seeking to repel invasion in April 1940,



*Blücher* first rolled to port bottom up; then nosing down, left the surface with her stern both upended and inverted.<sup>197</sup> (Like *Yamashiro*, abandon ship was ordered only when the list reached 45 degrees.) Another parallel with *Fuso* was as the cruiser sank the burning superstructure set the spilled oil on the water ablaze roasting many of those swimming. This was almost exactly what the *Fuso* survivors are trying to describe and goes far toward explaining the how confusing other Japanese ships found the scene of the wreck amid its bonfire. Seen this way the vague accounts and descriptions start to make sense. It was recognizably a *Fuso*-class battleship, apparently just a piece of it, apparently adrift. However, this was incorrect. It was not drifting. Only its huge burning oil slick and survivor patch naturally detached from the wreck by the 2.5 knot current was drifting southward.



The German Hipper-class heavy cruiser *Blücher* sinking in Oslo Fjord after being hit by shore batteries and two shore-based torpedoes. *Blücher* is heeling over to port and will roll bottom up. Notice how heavily ablaze topside as heels over. *Fuso* (and *Yamashiro*) were in similar states. *Blücher* will fully turn turtle about 20 minutes after this picture. The topside fires will ignite the spilled oil then. (Maritime Quest)

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<sup>197</sup> A particularly fine account of *Blücher*'s sinking, and the maritime invasion of Oslo, Norway by the Kriegsmarine is found in Haarr, Geirr and Melien, Tor Jorgen, *The Sinking of the Blücher*, Pen & Sword Books, 2023.



Here the now upturned *Blücher* has begun to upend sharply as plunges by the bow. This remarkable photograph – if imagined in the stygian dark of night – almost exactly captures the confusing and complex orientation of *Fuso*'s wreck just as she sank. Like *Fuso*, the spilled oil slick has been set afire around the ship as she sinks. Imagine the propellers still slowly turning and the stern staying in this position for an extended time. It is something like this still projecting surrounded by multiple burning oil pools in the vicinity that Shima's ships glumly glimpsed as made their dash by it up Surigao Strait; only for *Nachi* to almost immediately collide with fleeing *Mogami*. In November 2017 *Fuso*'s wreck would be found by Robert Kraft's *RV Petrel* also upside down, having settled that way after an orientation like this. (Maritime Quest)

So much then, for the manner by which *Fuso* left the surface. For the approximate time and *terminus ante quem* this took place there are a few clues. As noted above our two survivor's accounts roughly pick-up again as they muster topside forward of amidships after the Abandon Ship instruction had arrived. Both speak of nothing of the events topside after they started up from their action stations within the vessel. They thus neither prove nor disprove further action or further battle damage. They then go over the side as *Fuso* upends and corkscrews, their descriptions both describing the pagoda being pitched overboard, and the stern rising. The oil slick is described as afire while some of the stern is still projecting. One man's watch stopped at 0325 but this seems far too soon to have marked the sinking time and could have resulted from any number of causes. The other witness puts his time of leaving and the final roll over as about 0350 which appears to be far closer to the truth.<sup>198</sup> Neither time, however, can or should be taken literally. There are better markers.

Instead, to find the sinking time, we need to look at when other Japanese ships came across the wreck site. For this we do have some firm indicators that narrow the time frame acceptably. Coincidentally at just about this time, Shima's Second Striking Force was steadily advancing directly toward the scene of the last moments of the *Fuso* from the south. Senshi Sosho describes how about 0330 as Shima crossed into the south entrance far ahead flashes of gunfire and flares were seen...then as the force charged north and neared it a big fire bloomed and continued to expand. At 0343 Destroyer *Kasumi* logged "*ships on fire ahead.*" (*Nachi* naturally saw it too, phoning direct to *Yamashiro* a minute later.) Five minutes later at 0348 *Nachi* ordered course shift to due north and speed increased to 28 knots and noted sighting broad

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<sup>198</sup> Tully, Surigao Strait, page 177

on the starboard bow what appeared to be two big ships on fire. Then comes one of the more remarkable statements -- some felt they had glimpsed “a pagoda of a *Yamashiro* class battleship collapsing” as if melting among the flames.

Unfortunately, no precise time is given for this “melting” in Senshi Sosho – the source of the remark - but it is after 0343 and probably 0348 or later and marks the time the fire on *Fuso* began to spread so prominently as to illuminate superstructures in backdrop. The collapsing pagoda probably was revealed a few minutes after the 0348 sighting, which puts it very close to 0400. From what is now known, it seems certain Shima had come within long distance visual range of *Fuso* even as she keeled over and upended with pagoda toppling. This makes it very likely that the projecting upturned fantail was still visible among the flames when approached closer. Ogawa Raito even saw them:

*“Through the floods of fire, I heard the sound of engines and shearing the sea somewhere behind. Fluttering a white windsock in the wind, which was clearly visible in the dark, a friendly ship was dashing into the Strait at flank speed. From the shape of the ship, I recognized her as the heavy cruiser of the 5th CruDiv. Was she Myoko, Haguro, Nachi, or Ashigara? Another heavy cruiser of the type was following her about 1 km behind carrying a bone in her mouth at flank speed so as not to drop astern. As I learned later, those 2 cruisers were the flagship of Shima unit (the 2nd Striking force) Nachi and her consort Ashigara, who dashed into Surigao Strait 2 hours after Nishimura unit.”<sup>199</sup> Yet to his disgusted surprise, he soon saw them coming back. “What in the world was the matter? In less than 10 minutes, both ships made a 180 and fled to the same direction from which they had come, the one following on the heel of the other at tremendous speed! Unconsciously, with my body thrust above the water, I yelled, “Ahoy!” “Ahoy!” Of course, they did not hear me. It was so sad to reflect on the situation. As I saw from the distance that Nachi and Ashigara had fled in all haste, and limping Mogami desperately attempting to get out of the Strait, I keenly felt it as the last day of the Imperial Navy. When 3 ships had gone out of sight in the darkness, the east sky was gradually turning gray.”*

This important event described by Ogawa is not earlier than 0405 when *Nachi* sights the burning fire and announces to all commands “*Have arrived at Battle site*”<sup>200</sup> but far more likely is later and further up the Strait after 0410 when Second Striking Force passed the drifting fire and near the actual site of *Fuso*’s wreck survivors.<sup>201</sup> *Nachi* was indeed moving fast for she logged 28 knots at 0407.<sup>202</sup> Lundgren has noted and demonstrated by tracks that Ogawa and other *Fuso* swimmers would indeed have seen *Nachi* and *Ashigara* first come by, then make turn and head back south now followed by *Mogami* -- all in a matter of minutes.

Whatever else, Ogawa’s account and Shima’s both helps demonstrate he was in the water, and thus *Fuso* had sunk (but probably not fully out of sight) by the time the Second Striking Force’s CruDiv 21 cruisers arrived at the site. Thus, providing the *terminus ante quem* for *Fuso*’s foundering. At 0423 per her log, *Nachi* collided with *Mogami*. The two cruisers separated again

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<sup>199</sup> Tully, Anthony, Battle of Surigao Strait, Indiana University Press, 2009, page 220-221. Ogawa somewhat overestimated the time gap. In fact, Shima entered the southern exit of Surigao Strait and turned north ninety-minutes behind Nishimura’s fleet.

<sup>200</sup> Campaigns of the Pacific War.

<sup>201</sup> Leyte, Vol. XII, S.E. Morison.

<sup>202</sup> Log of heavy cruiser *Nachi*, recovered in April 1945 from her wreck in Manila Bay.

fairly quickly, but *Nachi* had to limp south with a damaged bow at less than 18 knots. Both *Ashigara* and *Mogami* followed her, and Ogawa indeed saw them retreating. What he probably didn't see is what happened next. After a turn back north and then west during a brief toying with resuming the advance, Shima's staff persuaded him to give up the attempt and shortly before 0500 Second Strike Force headed south once more along the Leyte side of the strait and passed the site of *Fuso*'s sinking at a greater distance to the west. At 0450 the retiring *Mogami* fatefully recorded two ships sighted, identified as *Asagumo* and *Fuso*. Signals were even exchanged with *Asagumo* which sought to follow; the '*Fuso*' recognition presumably refers to a recognizable wreck or survivors shouting in the water – no similar signal communication is mentioned. Shortly afterward, as they continued down Surigao, *Mogami* and *Asagumo* both came under enemy gunfire from the north.

From the Japanese side then, given *Mogami*'s recall of being in the “vicinity of *Fuso*” when shelled again, we have a *terminus post quem* for when *Fuso*'s stern remained in view of about 0520 [*Mogami*'s time for the pursuit gunfire action, actually opened at 0530]. As we now know, this is in fact the whole wreck site. For the American side, the *terminus post quem* appears to be 0615 when *PT 495* passed the site and absolutely 0720 when only the drifting oil fire itself was to be seen to be photographed. At 0529 southbound *Louisville* had opened fire on a large fire but checked fire after two salvos, no longer believing a target was there.<sup>203</sup> It then shifted fire to *Mogami*. Since other U.S. ships including the light cruisers of CruDiv 112 proceeded on south of this point and ultimately sank *Asagumo* at 0725 probably 0530 is the *terminus post quem* for the American side too, as they would have mentioned passing such a hulk. None do, with one tantalizing exception:

U.S.S. *Thorn* (DD 647) of Desdiv X Ray recorded: “0535: *Noted one sinking ship, which appeared to be a battleship with its entire superstructure in flames.*” This may refer to *Mogami* very far distant on the south, but as it comes just after the 0532 order to reverse course and close *Louisville*, it's tempting to wonder if *Thorn* is indeed looking at *Fuso*'s upturned stern projecting. However, given the cruisers had just concluding firing on her it is more likely this is indeed *Mogami*.<sup>204</sup>

Thus, after careful examination the conclusion it is likely that *Fuso*'s upraised and keel-up stern remained visible past 0410 and possibly as late as about 0530 but not long after that it settled to the sea floor upside down. What Bates credited as the “*Fuso* bow” that *Louisville* fired on was in fact the stern and the final site of the whole wreck. There never was a “stern section” floating south – that was the oil slick afire that had drifted south from the wreck site.

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<sup>203</sup> U.S.S. LOUISVILLE - Rep of Engagement with Jap Surface Forces in Surigao Strait, Philippines, Morning of 10/25/44, pages 8-9.

<sup>204</sup> U.S.S. THORN - Rep of engagement with Jap surface forces in Surigao Strait, Philippines, morning of 10/25/44, page 6.