

v.29F, no.2-8 THE AURANIA AND THE REPUBLIC.<sup>1</sup>  
OCEANIC STEAM NAV. CO., LIMITED, v. THE AURANIA.  
CUNARD S. S. CO., LIMITED, v. THE REPUBLIC.

*District Court, S. D. New York.*

October 27, 1886.

1. COLLISION—TWO STEAM-SHIPS—FAIRWAY—GEDNEY'S CHANNEL.

In the afternoon of September 19, 1885, as the steam-ships Aurania, of the Cunard Line, and the Republic, of the White Star Line, were proceeding out to sea from the harbor of New York, they came into collision near Gedney's channel, the stem of the Republic striking the port quarter of the Aurania. The Aurania was but slightly injured, and continued her voyage. The Republic had her whole stem carried away to port, and was obliged to return to New York, where she was repaired at an alleged expense of \$35,000. Cross-suits having been brought by the owners for the damages respectively sustained by the vessels, it was held that both were in fault for the collision.

2. SAME—VESSELS ABOUT ABEAM—ONE DRAWING AHEAD—COURSES SLIGHTLY CONVERGING—CROSSING OR OVERTAKING RULE.

At the time when whistles were properly exchanged between them,—*i. e.*, when they were about a half mile apart and two miles from the Fairway buoy, which marks the entrance to Gedney's channel over the bar,—the vessels were on courses converging by at least three points. Their difference in speed, as deduced from careful computations, was not more than from one and two-tenths to one and five-tenths knots, and, it being found, therefore, upon very conflicting testimony, that each bore from two to three points forward of the other's beam, *held*, that in such a situation neither was an "overtaking" vessel; they were crossing vessels, under the sixteenth rule, and the Republic, leaving the Aurania on her starboard hand, was bound to keep out of the way, and was in fault for not doing so.

3. SAME—LARGE VESSELS—HIGH SPEED—CLOSE APPROACH—UNCHANGED COURSES—IMPRUDENT NAVIGATION.

From the evidence it appeared that the vessels, immediately prior to the collision, were sailing on courses converging by not more than one and one-half points, They were not distant from each other mere than from 250 to 300 feet, and the apparent change, of course, which caused the stem of the Republic to strike the Aurania, while it might have been caused by porting, through miscalculation or misapprehension of an order to starboard, was more probably caused by the effect of the south wind acting upon the stern of the

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Republic, while her forward part was in the Aurania's lee, and causing her stern to swing unavoidably to the northward, and her stem against the Aurania. *Held* that, whichever of these causes precipitated the collision, it was imprudent navigation in two vessels of such size, going through the water at a speed of about 15 and 16¼ statute miles, respectively, upon converging courses, to have come so near each other, without any material effort by either up to that time to keep away.

4. SAME—DUTY OF VESSEL HAVING RIGHT OF WAY TO CHANGE COURSE, IF COLLISION IMMINENT.

It was manifest to the Aurania, at least two minutes before the collision, that the Republic was not performing her duty to keep out of the way, but was keeping on in a manner that involved risk of collision. *Held*, that it thereupon became the duty of the Aurania, though she had the right of way, to do what she could to avoid risk of collision; *i. e.*, in this case, to have ported, and kept away from the Republic. For her failure to do so, *held*, that the Aurania also was in fault for the collision.

5. SAME—RULES OF NAVIGATION APPLICABLE TO COAST WATERS—“HARBORS.”

The question considered as to whether the international rules of navigation, (act March 3, 1885; 23 St. at Large, 438,) or the rules previously existing, (Rev. St. § 4233,) or the local rules of the supervising inspectors, are applicable to vessels navigating within harbors situated on the coast waters of the United States. The international rules adopted in this case, for the reason that the pilots and officers of each vessel apparently regarded themselves and the other vessel as sailing under the international rules.

6. SAME—DIVIDING LINE BETWEEN CROSSING AND OVERTAKING VESSEL.

Where vessels are sailing on converging courses, the range of the colored lights, *i. e.*, two points abaft the beam, may be taken as the dividing line in determining whether the vessels are crossing or overtaking; if bearing less than two points aft of abeam when the need of precaution begins, they are *crossing* vessels, under article 16.

7. SAME—WHEN COLLISION RULES APPLY TO APPROACHING VESSELS.

The rule of navigation applicable to approaching vessels depends upon the actual situation of the vessels at the time when the necessity for precaution begins. Everything prior to that is immaterial, except as it may give each some knowledge of the other's intention.

8. SAME—HELM—RATE OF CHANGE OF HEADING—STEERING UNDER REVERSED ENGINES—STOPPING—STATISTICS—SEE NOTE TO PAGE 121.

At about 24 minutes past 3 o'clock in the afternoon of September 19, 1885, the weather being fine, the sea smooth, the tide flood, and the wind light from the southward, as the steamship Republic, of the White Star Line, and the Cunard steamer Aurania, both outward bound from this port, and in charge of competent pilots, were about entering Gedney's channel to cross the bar, they came into collision; the stem of the Republic striking the port quarter of the Aurania about 50 feet from her stern, and at an angle of about 25 or 30 deg. The Aurania's stem was, at the time, about 100 feet to the westward of the Fairway buoy, which is situated in the middle of the western entrance to that channel. The Aurania, though somewhat damaged, was not so much injured as to prevent the continuance of her voyage. The Republic's whole stem was carried away to port, compelling her to return to New York for repairs, to her alleged damage of \$35,000.

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The above cross-claims were filed by the owners to recover their respective damages, each alleging that the collision was by the other's fault.

The Aurania is of 4,030 tons register, and 7,275 tons burden, 480 feet long by 56 feet beam, and she was drawing 26½ feet of water.

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The Republic is of 2,187 tons register, 3,700 tons burden, 420 feet long by 42 feet beam, and she was drawing 25¼ feet. The Republic passed Governor's island (Fort William) under full headway at 2: 05 P. M. The Aurania was then a little behind, and not under full headway; but she overtook and passed the Republic about midway between Bedloe's island and Robbins reef. After passing the Narrows, the Aurania kept to the main or Horseshoe channel, around the south-west spit. The Republic took the Swash channel, being, at the time she left the main channel, from one to two miles astern of the Aurania. The Swash channel is a short cut to the left; the main channel sweeps around to the right; and the distance to the Fairway buoy is about two and one-half miles greater by the main channel than by the Swash. The two channels are separated by shoals, impassable to such steamers, until within about one mile of the Fairway buoy, towards which the two channels converge by an angle of 25 deg., and there unite. At the place of widest separation the two channels are about two miles apart.

The speed of the two steamers, and the precise direction of their courses, as they approached the buoy, when from half a mile to a mile distant from it, are in dispute. The Aurania's speed was admitted to be not less than between 14 and 15 knots; the Republic's between 11 and 12. Their courses differed from one to two and a half points. About the time when the Republic was approaching the end of the Swash, or was already rounding out of it, the Aurania gave her a signal of one short whistle, to which the Republic replied with two, which, if the nineteenth article of the new rules is applicable, would indicate that the one was directing her course to the right, the other to the left. Each did so to some extent, but not enough to avoid collision.

Although there is sufficient water on the south side of the Fairway buoy, it is the most common practice for outward bound steamers, like these, to go to the northward of it in order the more easily to make the necessary turn to the southward after passing it; and the channel is not wide enough for two such steamers to navigate safely abreast of each other on the northerly side. The pilot and the master of the Aurania testified that it was their intention to pass on the southerly side of the Fairway buoy; that they steered for that buoy, keeping it, as they approached it, a little on the port bow; and that the blow of the Republic so changed the Aurania's direction that she passed the buoy close on its northerly side, instead of the southerly side, as intended. Both vessels were under full speed of their engines from the time of passing Governor's island, about 2:05, although there was some increase at least in the Republic's speed as the steamers proceeded down the bay. The Aurania did not slacken speed after her whistle, and prior to the collision. The Republic stopped and reversed her engines not more than a half minute previous, but without any material effect in checking her speed.

Most of the witnesses testified that shortly before the collision, and when the Republic's stem was from 60 to 300 feet from the Aurania's side, her stem seemed suddenly to fall upon the Aurania. The libelants contended that the Aurania was an overtaking vessel, and, as such, bound to keep out of the Republic's way; that she was also in fault for not keeping to the starboard side of the channel, in accordance with her signal, and for coming so near to the Republic's course, and then porting her wheel, as they allege she did, so as to throw her quarter upon the Republic's stem. The Aurania denies these alleged faults. She denies that she ported at that time, and denies that she was an overtaking vessel. She alleges that the vessels were crossing; that the Republic, having the Aurania on her own starboard hand, was bound to keep out of the way; and that the Republic brought on the collision by not doing so, and by porting her helm just prior to the collision, which porting the Republic denies.

*Wheeler & Cortis* and *J. H. Choate*, for the Republic.

*Owen & Gray* and *F. D. Sturgis*, for the Aurania.

BROWN, J. Considering that Gedney's channel across the bar is the principal, if not the only, thoroughfare for deep draught vessels in coming into and going out of the harbor of New York, it is a matter of surprise as well as of regret that where two vessels are going down the bay, and are approaching that fairway, the one by the Swash channel, and the other by the Main or Horseshoe channel, any doubt or uncertainty should exist which of them should keep out of the way of the other. It is still more to be regretted that any doubt should exist, since our adoption of the new international rules by the act of March 3, 1885, (23 St. at Large, 438,) whether the case is governed by those regulations, or by the rules previously existing and embodied in the Revised Statutes, (section 4233,) and by the local rules adopted by the supervising inspectors. And yet, at the very threshold of this case, I find a difficulty and embarrassment in determining which set of rules is applicable to vessels navigating in harbors within our coast waters that I have not been able satisfactorily to solve.

The enacting clause of the act of March 3, 1885, provides "that the following 'Revised International Rules and Regulations for Preventing Collisions at Sea' shall be followed in the navigation of all public and private vessels of the United States upon the high seas, and *in all coast waters* of the United States, except such as are otherwise provided for." Then follow the twenty-seven articles of the new regulations. The concluding section of the act is a repealing clause, declaring that "all laws and parts of laws inconsistent with the foregoing revised international rules and regulations for the navigation of all public and private vessels of the United States upon the high seas, and in all coast waters of the United States, are hereby repealed, *except* as to the navigation of such vessels within the *harbors, lakes, and inland waters* of the United States."

Both these vessels were, indeed, English; but the British act subjects British ships to these same regulations, whether within British jurisdiction or not. Orders in Council, April 14, 1879, (4 Prob. Div. 243;) Orders in Council, August 11, 1884, (9 Prob. Div. 247.) Article 25 of the new rules provides that “nothing in these rules shall interfere with the operation of a special rule, duly made by local authority, relative to the navigation of any harbor, river, or inland navigation.” If, therefore, by the exception in the repealing clause of the act of March 3, 1885, the old rules are in force in the navigation of harbors situated within our coast waters, they would seem to cover foreign vessels while navigating within such a harbor whether in going out or in coming in. The new rules have made important changes. See 1 Abb. Nat. Dig. 664. Besides those there mentioned, article 14, in relation to sailing vessels, is wholly changed in phraseology, and would seem to reverse the obligation to keep out of the way as it formerly existed under rule 12, in certain situations. See *The Commodore Jones*, 25 Fed. Rep. 506. The changes in the new regulations are so numerous and important that, in my judgment, it would prove practically impossible for the two sets of rules to be applied successfully to vessels engaged in foreign commerce, and upon the same voyage, on passing the indefinite line where a “harbor” might be supposed to begin; and only misapprehension, confusion, and fatal consequences can be expected from any such attempt.

The exception as regards “lakes and inland waters of the United States” seems to be surplusage, for the reason that lakes and inland waters do not fall within the enacting clause of the statute, which applies only to “the high seas and coast waters.” This language may have been employed from superabundant caution, to indicate that the old rules were unchanged as respects the “lakes and inland waters.” The word “harbors” cannot be construed in the same sense, *a sociis*, as meaning harbors only that are situated upon the lakes and inland waters, without taking from that word all effect whatsoever; since that meaning is already covered by the words “lakes and inland waters,” without the use of the word “harbor;” while, as it stands, the word “harbor” has an important significance, as a strict exception to the repealing clause immediately preceding.

On the other hand, inasmuch as the new rules are a revision of the old, and aim to supply several of their deficiencies; as they are designed to conform to the rules already adopted by the principal maritime nations of the world; and as they cover the whole ground of the former rules, and, in general, are plainly designed to supersede them; and as no object is apparent in retaining the old rules within the harbors of the seaboard; and as strong reasons exist against the retention of two sets of rules, applicable to the same ocean voyage,—it is difficult to suppose that it was the intention of congress, by this exception, to continue the old rules in force as respects ocean voyages terminating within the seaboard harbors. *Moore v. American Trans. Co.*, 24 How. 1, 36; *The Garden City*, 26 Fed. Rep.



766, 773; *U. S. v. Kirby*, 7 Wall. 482, 486; *U. S. v. Tynen*, 11 Wall. 88, 92; *Murdoch v. City of Memphis*, 20 Wall. 590, 617; *U. S. v. Claflin*, 97 U. S. 546, 552; *U. S. v. Auffmordt*, 19 Fed. Rep. 897.

Upon this view of the possible intention of the exception as respects the use of the word “harbor,” if its effect were limited to trips confined to the harbor only, so as to give the word some effect,—that is, to navigation beginning and ending within the harbor,—the same practical difficulty would arise in another form, and the same liability to fatal confusion as between foreign bound vessels, and vessels navigating the harbor only; between which there is equal necessity for intelligible rules and a common understanding. I see no way out of these various difficulties that would not altogether nullify the effect of the word “harbor” in the exception, by rendering it wholly superfluous, like the words “lakes and inland navigation.” The subject should receive, I think, further legislative consideration, and it is hoped that the difficulties referred to may be remedied.

The place of collision being inside of the bar, and upon pilotage ground, may be said, in a general sense, to be within the “harbor” of New York; and yet being in the lower bay, and not in a part of the bay where vessels could either moor or safely lie at anchor, it is not within the meaning of the word “harbor” in its most strict and proper sense; namely, “a safe station for ships; a place of refuge, shelter, rest.” *Worcester Dict.*

The fair inference from the pleadings and the testimony, moreover, is that the pilots and officers of each of the vessels regarded themselves and the other vessel as sailing under the new rules; and, this being the understanding of both, I shall treat the case, as respects the question of fault, according to the new rules, by which they both deemed themselves governed.

1. The first and principal question is whether, under all the circumstances of the case, the two steamers are to be regarded as crossing vessels, under the sixteenth article of the new rules; or whether the *Aurania* was an “overtaking” vessel, within the twentieth article. If the crossing rule governs, then the *Republic* is plainly in fault for not keeping out of the way of the *Aurania*, which was upon her starboard hand. If the *Aurania* was an overtaking vessel within the meaning of the twentieth article, then, under the language of that article, the overtaking rule controls, the *Aurania* was bound to keep out of the *Republic*’s way, and was in fault for not doing so.

By article 20 it is declared: “Notwithstanding anything contained in any preceding article, every ship, whether a sailing ship or a steamship, overtaking any other, shall keep out of the way of the overtaken ship.” Article 22 of the former regulations was to the same effect, excepting the words “notwithstanding anything contained in any preceding article,” which are new. There is no doubt that the language of the twentieth article was intended to remove any doubt that might

formerly have existed as to which rule should govern in cases where the vessels were crossing, and at the same time one of them was an overtaking vessel. *The Seaton*, 9 Prob. Div. 1. Under the former rules applicable to sailing vessels, 19 and 22, there was, in certain situations, a similar ambiguity, which the new rules have removed. *The Commodore Jones*, 25 Fed. Rep. 506. While article 20 leaves no doubt that it governs all cases that fall within its provisions, the new rules do not define in what cases a vessel is to be deemed an overtaking vessel, rather than a crossing one. The question whether, in a particular situation, a vessel is one or the other, remains to be determined much as before.

The terms "crossing" and "overtaking" are not mutually exclusive. A vessel may be crossing another's course, and at the same time overtaking her, in a certain sense; or she may be overtaking another in a general or popular sense, or in reference to certain aspects, and clearly not be an overtaking vessel in the sense of the rules of navigation. A faster vessel, sailing a racing voyage across the Atlantic, and starting after her rival, might, in the popular sense, be said to overtake and pass the other whenever she got nearer to her destined port, though at no time sailing within sight of the other. So two vessels beating up stream, against a head wind, might be so navigated as to be always sailing on opposite tacks. The hinder vessel, if all the time gaining on the other, would in one sense be an overtaking vessel,—that is, overtaking in reference to their general progress; but she would not be an overtaking vessel in the sense of the rules of navigation so long as the two were running on opposite tacks. The vessels, in that case, would be crossing vessels, and the crossing rule would apply, though the one to leeward was gaining upon the other. When beating, and on the same tacks, the faster vessel, if behind, would be overtaking in the sense of the rules, and the overtaking rule would govern. So two vessels sailing in independent channels, separated by dry land, as in the two channels that pass Blackwell's island, or vessels sailing in channels separated for a considerable distance by impassable shoals, are not, for the time being, within the scope or intention of the rules of navigation, though the one that went ahead of the other in a different channel might be said, in a certain sense, to overtake and pass her. The rules are made to avoid collisions. They are applicable in circumstances only where there is some occasion for the vessels to heed each other, and from the time only when the need of precaution begins. *The Nichols*, 7 Wall. 656; *The Cayuga*, 14 Wall. 270. The terms used in the rules are, moreover, used in the nautical sense, and must be applied as seamen are wont to apply them. *The Franconia*, 2. Prob. Div. 8.

The libelants insist that the *Aurania*, in this case, was an overtaking vessel, because, at the time when the signal whistles were exchanged,—*i. e.*, when the vessels were about a half mile apart and from



one to two miles distant from the Fairway buoy, which may be assumed to have been the proper time for mutual precaution,—the *Aurania* was further than the *Republic* from the Fairway buoy, which was the immediate objective point of both. The *Aurania* claims that, inasmuch as she had once passed the *Republic* above the Narrows, and was from one to two miles ahead of the *Republic* when the latter took the Swash channel, if either was an overtaking vessel it was the *Republic*, which sought, by means of the short cut through the Swash, to head off and pass the *Aurania* before the latter reached the buoy.

Each of these contentions is, perhaps, correct, in a certain sense of the word “overtaking;” but neither, I think, in the sense of the rules of navigation. These rules, as I have said; have respect only to the liability to collision, and do not come into operation until the need of precaution begins. When the *Aurania* was at the south-west spit, in an independent channel, separated from the *Republic*, which was then in the Swash, by two miles of impassable shoals, and over three miles distant from the Fairway buoy, these rules had no application to them. Either vessel could move in any direction she saw fit without the slightest present danger to the other. Neither was in any way bound to pay attention to the other at that distance. The rules, therefore, had no active operation upon either at that time, (*The Monticello*, 17 How. 152, 155; *The Dexter*, 23 Wall. 69, 75;) and, when they approached each other near enough to make it necessary or proper to regard each other’s movements, the rules became applicable according to the situation in which they then were. It was immaterial how either vessel reached the situation in which the rules first became applicable. It would be wholly inadmissible to apply contrary rules to the same situation, according as the faster vessel had come through the Narrows, or from South Amboy; or had passed the other an hour before, or had not passed her at all. The rule applicable must depend upon the actual situation at the time when the necessity of precaution begins. Everything prior to that I hold to be immaterial, except as it might give each a knowledge of the other’s intentions. So the mere fact that the faster vessel has a larger distance to travel to reach the point wheretheir courses intersect is also immaterial. In almost every case of crossing vessels, one has a longer distance to travel than the other, for it is seldom that both are going at the same speed; but that fact does not bring them within the overtaking rule. The faster vessel may be approaching the other at any angle from abeam to eight points forward of the latter’s beam, and may have a much longer distance to travel to reach the point of intersection; but no one would call such a vessel an overtaking one in the nautical sense. They would plainly be crossing vessels under the sixteenth rule.

In the case of *Whitridge v. Dill*, 23 How. 448, and *The Cayuga*, 14 Wall. 270, the supreme court, in stating the general rule as to the duty of an overtaking vessel, also indicate the meaning and the application of the rule. In the latter case the court say:

“Undoubtedly, where two ships are running *in the same direction*, the ship *astern*, if sailing faster than the ship *ahead*, is, in general, bound to adopt the necessary precautions to avoid collision. \* \* \* Where a steamer *astern*, in an open sea and in good weather, is pursuing the same general course as the one *ahead*, and at greater speed, the steamer *astern*, as a general rule, is required to give way, or adopt the necessary precautions to prevent collision, as the steamer *ahead* is entitled to the road.”

The Cayuga and the ferry-boat James Watt were in that case coming down the North river, converging at an angle of about three points; the former heading about S. S. W.; the latter bound from Hoboken to Barclay street, and heading about S. by E. The Cayuga claimed that the ferry-boat was an overtaking vessel bound to keep out of the way, and that, when a half mile distant, she bore off the Cayuga’s starboard quarter. But the court found the facts otherwise, and that, though the Watt was somewhat faster, she was but a “little behind” the Cayuga when the need of precaution began. The court held that the overtaking rule did not apply, and say that, even supposing that the Cayuga was at first slightly ahead, “the relative situation was that of the fourteenth, [crossing,] and not of the seventeenth, [overtaking,] rule. Precautions at that time were not necessary, as the distance between the two steamers, measuring east and west, [nearly abeam,] was very considerable; but they were moving on converging lines; and, as they advanced, that distance was fast reduced, which soon created the necessity for precautions to prevent collision; and the testimony entirely satisfies the court that, when the necessity for precaution commenced, the two were *nearly abreast*.” As respects the greater speed of the ferryboat, the court say:

“Every vessel overtaking another vessel, it is said, shall keep out of the way of the vessel ahead; but that rule cannot properly be applied in this case, as the two steamers were crossing or running on intersecting lines, in which case the question is not, in general, affected by the comparative speed of the two vessels, nor by the fact that the one or the other was slightly ahead when the necessity for precaution commenced. Undoubtedly, where two ships are running in the same direction, the ship *astern*, if she is sailing faster than the ship *ahead*, is, in general, bound to adopt the necessary precautions to avoid a collision; but it is clear that the rule does not, in general, apply in a case where the ships are crossing, or are distant from each other on a right line, and are running on intersecting lines.”

The language of the new rule does not weaken the force of the remarks here quoted as regards the meaning of the phrase “overtaking vessel,” in the sense of the rules of navigation. To constitute that relative situation one vessel must be *ahead*, and the other more or less *astern*, when the need of precaution first arises. A vessel coming up from abeam, or not aft of the other’s beam, is not *astern* of the other, and; is, therefore, not an overtaking vessel in the sense of the rules. On that ground, in the case of *The Peckforton Castle*, 3 Prob. Div. 11, that vessel was held to be a crossing vessel, and not an overtaking one.

The real difficulty arises in determining how much bearing aft of abeam shall be held sufficient to convert a crossing vessel into an overtaking one; and at what time or distance, in the approach of the faster vessel towards the other, their relations and obligations shall be adjudged and held fixed under the rules; for, when once fixed, the duty of keeping out of the way is not shifted till the danger is past. Mars. Coll. 312; *The State of Texas*, 20 Fed. Rep. 255; *The Peckforton Castle*, 3 Prob. Div. 11; *The Seaton*, 9 Prob. Div. 1. If there was any definite nautical usage or common understanding that determined at just what bearing aft an approaching vessel was considered to be an overtaking vessel rather than a crossing vessel, that, doubtless, would be sufficient. The bearings of vessels from each other, where neither is directly ahead or directly astern, are usually referred by seamen to three divisions of the ship: the bow, the beam, and the quarter. I doubt whether a seaman would ever speak of an approaching vessel that came in sight from only one or two points abaft his beam as astern of him at all; he would say she was so many points abaft his beam. And this might possibly be applied until the bearing became more upon the quarter than on the beam; *i. e.*, four points or more aft of abeam. In the case of *The Privateer*, L. E. 9 Ir. 105, it was held that by a wind “aft,” in subdivision 2, of the fourteenth rule, as respects sailing vessels, was meant a wind at least four points abaft the beam. In that view, any vessel coming up from less than four points aft of abeam would be a crossing vessel, and not an overtaking one. In the case of *The Breadalbane*, 7 Prob. Div. 186, Sir ROBERT PHILLIMORE states that the Trinity brethren advised him, in that case, where the vessels converged one and one-half points, and one bore from four to five points abaft the other’s beam, that they were crossing vessels, and not overtaking. The report of that case on this point does not seem clear. But there is no evidence in this case directly bearing on the general understanding of these nautical terms; and it is doubtful whether there is any fixed use or common understanding that would exclude the application of the word “overtaking” or “astern” from a range of less than four points aft of abeam. If there is no settled understanding, the courts before which the question arises from time to time must, in the absence of any statutory definition, give that construction to the rule which seems best to accord with nautical use, and to furnish the best practical guide for avoiding collisions. *The Peckforton Castle*, 3 Prob. Div. 11. In the case of *The Franconia*, 2 Prob. Div. 8, the range of the regulation colored lights, *i. e.*, two points aft of abeam, was adopted by the court of appeal as the dividing line between an overtaking and a crossing vessel, on account of its practical convenience; and that rule has been, to some extent, followed in this court. *The State of Texas*, 20 Fed. Rep. 254, 256; *The State of Alabama*, 17 Fed. Rep. 847.

Whatever rule be adopted, it must apply at night as well as by

day; and it ought therefore to be a rule capable of practical and certain application both by day and by night. But to determine one's own bearing accurately with reference to the beam of another ship, at a sufficient distance to avoid risk of collision, is no easy matter by day; and by night it would often be well-nigh impossible without artificial aids. The colored lights furnish such aids, if the range of two points aft of abeam be adopted as the dividing line between a crossing and an overtaking vessel. Under the existing regulations, no other dividing line furnishes to the approaching vessel the requisite certainty or means of distinguishing in season on which side of the line she may be. The very object of colored lights is to enable vessels to avoid each other that are meeting or crossing. The fixing of the range of the colored lights at two points abaft of abeam for these purposes would seem naturally to determine also the range of vessels that should properly be deemed crossing. This rule promotes simplicity, harmonizes with the existing regulations, and avoids confusion, by treating all vessels approaching from within that range as crossing vessels.

In the case of *The Peckforton Castle*, 3 Prob. Div. 11, two of the judges stated that, without dissenting from this rule, they should consider it as open for further consideration in any subsequent case, but without indicating in which direction they thought the rule adopted might be modified. The case of *The Cayuga*, 14 Wall. 270, before cited, is in harmony with this view; for, though the ferry-boat was "a little behind" and "nearly abreast," she was evidently a little aft of abeam, but less than two points; and it was held to be a crossing, and not an overtaking, vessel. I shall continue to follow this rule, therefore, until some better is found, or until it is modified by some higher authority.

The time when the whistles were exchanged may be fairly taken as the time recognized by both ships when precaution as respects each other was necessary or proper. This was probably from five to seven minutes before the collision, and in ample time for either to avoid the other. They were then estimated to be about a half mile apart. They were in what is described as the "fourth situation" of the supervising inspector's rules, and their local rules, if applicable, (rules 2, 6,) required these two vessels, when within that distance, to signal each other in order to indicate their intentions, and to come to a common understanding. The crossing or the overtaking rule must therefore be applied, according to their relative situations, courses, and bearings, as they existed at that time. The Republic claims that the *Aurania* then bore several points aft of her beam; and many of her witnesses so testify. An equal number of the *Aurania's* witnesses say that each then bore forward of the other's beam. It is unnecessary to dwell upon the great contradictions and inconsistencies to be found in the direct testimony on this subject, because their bearings at the time of the whistles can be determined from the speed of the

two vessels during the few minutes preceding the collision; and, although there is considerable diversity in the testimony on this point also, there are sufficient *data* to determine the speed approximately,—sufficient, at least, to determine the bearings of the two vessels from each other, as nearly as is necessary for this case.

*Speed.* The time and distance from Governor's island (Fort William) to the place of collision being known, the determination of the final speed of the two vessels during the six or seven minutes prior to the collision would be a simple computation, were it not for two additional elements that need to be taken into account, viz., the effect of the tide, which operated unequally against the two vessels while the Republic was in the Swash channel; and, *secondly*, the fact that the Republic's speed was all the time increasing. Capt. Irving estimates this increase to have been from a speed of 10 knots *through the water*, when passing Governor's island at 2: 05 P. M., to 11½ knots through the water at the time of the collision, at 3:24 P. M. The pilot says that in the Swash the tide was ahead, and "a good deal stronger than in the main channel." Taking the difference to be a half knot an hour, the excess over the main channel rate, during the 18 minutes that the Republic was in the Swash, would be equivalent to an addition of 900 feet to the distance run by her. From the official chart (Exhibit 2) it appears that the distance from Governor's island, by the dotted course, through the Swash channel, to the Republic's place at the collision (550 feet west of the Fairway buoy) is 89,060 feet; to which if 900 feet be added, we have 89,960 feet traversed in 79 minutes, or an average of 11.24 knots against tide at the main channel rates.<sup>1</sup> These rates, according to the official chart, are one and one-tenth knots below the Narrows, and nine-tenths of a knot in the upper bay. The pilot testified, if I understand him rightly, that in the vicinity of the collision the tide was about 1.25 knots; but, as the two vessels met the tide, which there runs in the last quarter somewhere between N. W. and N., at an angle of from one to four points, its retarding effect, if running N. W., would not exceed the rate of one knot. Assuming, for the present, a N. W. tide in that vicinity, the head tide throughout would be only a little over one knot, except in the Swash, and the average rate of the Republic's speed would therefore be 12.25 knots through the water. Capt. Irving estimates the flood-tide at from half a knot to one knot faster in the upper bay than in the lower bay. If this were correct, it would add correspondingly to the Republic's speed through the water; but I consider the official chart more probably correct. If to the above average rate be added one-half of Capt. Irving's estimate of the increase in the rate of speed, the Republic's final speed, about the time of collision, would be 13 knots through the water, or 12 knots by land.



The Republic's log further states, however, that she passed the Narrows at 2:38 P. M. Taking Fort Tompkins for the point noted, that being the most southerly point, and yielding the least final speed, the distance from Fort William is 35,300 feet, which, traversed in 33 minutes, gives an average, against tide, for that part of the distance of 10.56 knots, or 11.46 knots through the water. The remaining distance (54,660 feet) to the place of collision, traversed in 46 minutes, gives an average of 11.73 by land, or 12.80 through the water. From a comparison of the averages of these two parts it results that, if the increase was uniform, the whole difference in speed was 2.68 knots, and the rate through the water at Fort William would be 10.90 knots, at the Narrows 12.02 knots, and at the collision 13.58 knots. The testimony is that the Republic was all the time increasing her speed with the rising fires, and consequent greater steam pressure. There is nothing in the testimony to indicate whether the rate of increase was probably greater or less in the first half of the interval; but, even supposing that her rate of increase above the Narrows was twice her rate of increase below the Narrows,—an extreme hypothesis,—still her speed through the water on the above computations would be from 10.67 knots at Governor's island and 12.25 at the Narrows to 13.35 knots at the time of collision. There are some other circumstances that, taken into account, would slightly increase the final rate, and some that would slightly diminish it; such as, possibly, a minute's slowing while passing quarantine; a half knot's possible excess in the tide rate for one and one-half miles through the Narrows; and, doubtless, some 400 feet, at least, to be added to the Republic's distance from her curve in rounding for the Gedney course, and for the retarding effect of her port helm, and for going to the southward of the dotted course. I have carefully computed the probable effect of all of these, and find that, by making allowances for them all, the above computation would not be affected more than one-tenth of a knot either way,—a difference not material here.

One other entry in the Republic's log, that, if correct, would aid in determining her speed, I am obliged to reject, for its obvious error, viz., the entry: "3:17 P. M. Sandy Hook Light abeam, bearing S. by W.  $\frac{1}{2}$  W. true. This would give a rate of less than 10 knots from thereto the collision,—a rate so clearly incompatible with all the rest of the evidence, and with the other *data*, as to prove some error in the observation or in the entry.

If the flood-tide north of Sandy Hook, during the last quarter, runs, as is said, nearly north, the Republic would have been retarded but very slightly by the tide during the last four minutes; and this would reduce her average from the Narrows by about one-twelfth of a knot only, and make a corresponding decrease in her final speed; but in that case her speed by land would be nearly her speed through the water. From the *data* derived from the Republic's log her speed must therefore have been, for the few minutes preceding the collision,



somewhere from 13.17 to 13.50 knots through the water. This result might have been adopted from the simple average of 12.80 knots after passing the Narrows, with the addition of the mean increase that her witnesses testified to.

This result differs considerably from the testimony of the engineer and master as to the Republic's speed; but it is manifest that their testimony is from estimates only, made up afterwards, and not from any strict actual observation, made at the time. The number of revolutions per minute was not actually observed; no entry of the number was made; and the engineer's estimate of 45 or 46 at the time of the collision, with 10 per cent. slip, gives but 12.35 knots through the water, which is a half knot less than the average from the Narrows, counting nothing for the certain gradual increase in speed. The number of revolutions found entered in the log, viz., 39, would give but 11.63 knots through the water, which is far from sufficient to have brought the Republic to the place of collision. If that entry was from any actual observation, the observation must have been made not long after passing Governor's island. Not only therefore, are the estimates of these officers insufficient, but any mere unverified estimates are entitled to little weight as against the results derived from the known time and the distance traversed.

*Aurania's Speed.* The *Aurania*, at 2:05 P. M., was but a little astern of the Republic, between Governor's island and Castle Garden. Her engines were then first put at continuous "full speed." She had been Stopping, backing, and slowing before that; and it does not appear how long after 2:05 it would take for her to acquire full headway. She must have got full headway, however, by the time she passed the Republic, which, as the evidence shows, was not far from midway between Bedloe's island and Robbins reef, *i. e.*, about 10,000 feet below Governor's island. The Republic must have reached that point about nine and a half minutes after passing Fort William. From this point to the *Aurania's* place at the time of collision, the distance by the sailing (dotted) course is about 94,700 feet. To this must be added the amount of the *Aurania's* loss of speed, at the rate of about two and a half to three knots, according to the evidence, during six minutes of "half-speed," while she was passing Flynn's knoll, viz., about 1,700 feet; and also 400 feet for the effect of her port helm (two revolutions per minute) in rounding 11½ points, and for the curve in her course,—making in all the equivalent of 96,800 feet, traversed in 69½ minutes, an average of 13.74 knots, against an average tide of about 1 knot, or 14.74 knots through the water. If the tide north of Sandy Hook be taken as running north, the *Aurania's* speed through the water would be 14.63, and her speed by land nearly the same.

This agrees nearly with the rate (14.72) given by the 56 revolutions per minute, entered in the *Aurania's* log, and which the engineer said were the full-speed revolutions for the hour in which they are entered, as nearly as he could then judge. The entry of the rate between 2

and 3 o'clock is the same as that between 3 and 4 o'clock, viz., 56 revolutions during each hour. This indicates no substantial increase in her speed as estimated at the time. The engineer and the master so testify. There is no evidence, and there are no circumstances in the case, that tend to show any substantial increase of the Aurania's speed up to the collision, although, after 4:07 P. M., from a point about three miles east of Sandy Hook, she ran with the ebb tide 57 miles in 208 minutes, or at the rate of about 16.15 knots.

The time from buoy No. 10 to the collision also indicates that there was no material increase in the Aurania's speed, and agrees very closely with the previous estimate. The pilot testifies that he was off buoy No. 10 when he ordered "full speed" ahead after six minutes' "half speed;" and the entry in the log shows that the time was 3:05 P. M. The distance to the place of collision by the dotted course was 25,400 feet. To this should be added the 400 feet before mentioned, and probably 400 or 500 feet of the whole 1,700 feet, for loss of headway from the previous half speed. This would make about 26,250 feet traversed in 19 minutes, or the rate of 13.64 knots; *i. e.*, very nearly the same as the whole average, and showing no increase. The reason why the Aurania's speed did not increase is, according to the testimony, that she was allowed only a certain limited pressure of steam, viz., about 80 lbs., while upon pilotage ground, and that pressure was evenly maintained by the regulation of the throttle valve; While the Republic was not so limited, but was using all the steam her rising fires would give until complete full speed should be reached. The close approximation of these several results as to the Aurania's speed is pretty convincing proof of their substantial accuracy. They correspond more nearly than could have been anticipated, considering that, in noting and entering the time by the clock, fractions of a minute were disregarded.

Taking the mean of the above computations, the result is that the Aurania was going through the water, during the few minutes before the collision, at the rate of about 14.68 knots; the Republic, from 13.17 to 13.50 knots,—a difference of from 1.18 to 1.51 knots between the two vessels. This would make the Aurania a little less than two miles ahead of the Republic at the time the latter turned into the Swash channel, which agrees with the estimates of the Aurania's witnesses.

*The Photograph.* The conclusion drawn from the above data as to the comparatively small difference in the speed of the two vessels is strongly confirmed by the photograph of the Republic, taken by a passenger on the Aurania a short time before the collision. Upon careful examination I find that the conditions imposed by the photograph do not admit of a greater difference of speed than from one and one-fourth to one and one-half knots. The photograph was taken from a point on the Aurania's port-rail, 179 feet aft of her stem. The picture shows the Aurania then ahead. Computation

from the scale of the plate proves that the distance from the photographer to the Republic's mainmast (191 feet from her stem) was 724 feet, and that the line of vision formed an angle of 58 deg. 25 min. with her keel. That would make a line from the photographer, drawn at right angles with the Republic's path at that moment, intersect that path 185 feet forward of the Republic's stem. The evidence leaves no doubt that during the interval of from one to three minutes at least before the collision, both vessels were headed very nearly for the Fairway buoy; *i. e.*, not above 100 or 200 feet off from it either way. Observing this condition, and also the distance and the angle of vision given by the photograph, no position can be found for the two vessels, within even the extreme outside limits of their courses as claimed in the Republic's theory, that will admit of a difference of speed of upwards of one and one-half knots. The position of the two vessels one and one-fourth minutes before the collision, indicated in the careful diagrams submitted on the part of the Republic illustrative of her contention, not only puts the Aurania's head much to the northward of the buoy, whereas the evidence of the Aurania shows that she was headed somewhat to the south of it; but the angle of vision in the diagram, instead of being 58 deg. 25 min., as the photograph requires, is 73 deg. 30 min.,—a difference equal to the whole difference of convergence in dispute. If this angle in the diagram is made 58 deg. 25 min., the Aurania's position will be thereby advanced at least 175 feet; and then the difference in speed, upto the point of collision, will be found to be but about one and three-tenths knots, instead of three knots. Position R<sup>1</sup> A<sup>1</sup> in Exhibit 10 is correctly drawn for a time about 50 seconds before the collision, and it admits of a difference of speed of one and two-tenths knots only. In positions R<sup>3</sup> and R<sup>5</sup>, A<sup>3</sup> and A<sup>5</sup>, the vessels are not headed properly. By taking different positions more or less northerly or southerly with the angle of convergence 25 deg., as claimed by the Republic, and from one to four minutes before collision, an indefinite number of places may be found where the three conditions above specified may be fulfilled; but none of them admit a greater difference of speed than 1.50 knots; and the difference diminishes as the position assumed is further to the westward, and longer before the collision, until the Republic's curve out of the Swash channel is reached.

These conclusions, derived from *data* least liable to error or mistake, accord entirely with a great mass of evidence on the part of the Aurania; and, notwithstanding the opposing testimony of the Republic's witnesses, I cannot hesitate therefore to adopt them as fixing approximately, and beyond reasonable doubt, the difference in speed of the two vessels at the time of the collision as not greater than from one and two-tenths to one and five-tenths knots.

With this small difference in speed, it is immaterial, as respects the overtaking rule, whether the courses of the two vessels, after the Republic got straightened out for the Fairway buoy, converged at an

angle of 25 deg., as claimed by the Republic, or at an angle of from 10 deg. to 15 deg. only, as claimed by the Aurania; for, in either case, at the time when the whistles were exchanged, *i. e.*, when the two vessels recognized their duty to navigate with reference to each other, and undertook to observe the rules which the existing situation imposed upon them, they were converging by at least three points, even if the Republic was then swinging out of the Swash channel, and probably by an angle of as much as four or five points; and upon the small difference of speed above found, each must have borne, at that time, and long prior thereto, from two to three points at least forward of the other's beam. A tracing of their positions backward from the point of collision demonstrates this. Even if the Republic rounded to the northward of the dotted course, as she claims, and straightened out upon a course of E. by S. southerly, when nearly one and one-eighth-miles from the buoy, heading one-fourth of a point north of the buoy, each would all the time be forward of the other's beam until the Aurania, by her greater speed, had brought the Republic clearly astern. With vessels of such great length, their bearings should be taken from the corresponding points on each. The bridge, as the post of observation, is the most suitable point.

The place where, if anywhere, the Republic would have had the Aurania most nearly abeam, or abaft her beam, was at the moment when she got straightened out for the Fairway buoy after rounding out of the Swash channel. And at that time, whichever of the two theories as to their courses be adopted, the Aurania was not astern of the Republic, but abreast of her, or nearly abreast,—precisely as in the case of *The Cayuga, ut supra*. Her stem was probably no further from the buoy than was stem of the Republic. After that the Aurania was constantly drawing evidently ahead. Whether, therefore, the time when the whistles were exchanged, or the time when the Republic got straightened for the buoy, be adopted as the time when the rules became applicable, neither vessel was astern of the other; and, their courses being converging, it follows that they were crossing vessels, under the sixteenth rule, and that the Republic was bound to keep out of the Way of the Aurania. She had ample time and space to do so,—if not by keeping more to the north, then by alittle slackening of speed, and dropping astern,—and for not doing either the Republic must be held in fault.

2. In considering whether the Aurania, though having the right of way, is chargeable with fault in not doing all that was obligatory upon her to avoid this collision, it seems necessary to determine whether the two vessels were sailing under the larger or the smaller angle of convergence, as claimed by them respectively; and also to determine, so far as possible, what were the immediate causes that precipitated the collision, and what was the angle of convergence at which the vessels approached the Fairway buoy.

The Republic makes this angle of convergence, from the time she

got straightened out for the buoy, to be about 25 deg., by placing the course of each vessel outside of the dotted course on the official chart; *i. e.*, her own course E. by S. southerly, some 300 feet to the north of the dotted course at the point of its divergence from the Swash channel; the *Aurania*'s course E. by N.  $\frac{1}{8}$  N., and from 100 to 200 feet south of the dotted course from the south-west spit. The *Aurania* places the course of each vessel considerably inside of these dotted lines; her own course E.  $\frac{1}{4}$  N., and about 700 feet north of the dotted course; the *Republic*'s E.  $\frac{1}{4}$  S., and some 500 feet south of the dotted course from the Swash channel.

The compass courses of both vessels, as claimed by each, are mainly mere estimates, or opinions made up afterwards. With the exception of the wheelsman of the *Aurania*, none of the officers engaged in the navigation of either vessel observed her heading by compass. The masters and pilots of both say that they did not observe the compass, nor steer by it; but by the marks and buoys. Each, they say, headed for the buoy; the *Aurania* keeping the buoy directly ahead, or a little on the port bow; the *Republic* keeping it, as her witnesses say, one-fourth of a point on the starboard bow.

The effect of the flood-tide, aided by the southerly wind, was, however, such as to make the actual path of each about one-quarter of a point more northerly than her heading. Though this is unimportant as respects their relative progress, it is important in its bearings on the testimony as to the specific courses, and as to the headings of the vessels to which the witnesses have testified. As the *Republic*, after straightening out, kept the Fairway buoy about a quarter of a point on her starboard bow, she could not possibly have kept its bearing the same as she continued to approach it, if her heading by compass remained the same; The tide, and her own nearer approach, would have constantly caused the buoy to broaden off rapidly to starboard. To have kept a straight compass course for it, she would have been obliged to head about a quarter of a point to the southward of the buoy, and to have kept it a little on her port bow. As, however, she kept it on her starboard bow, she must either have changed her heading from time to time by porting, or else have approached it by a continuous curve under a slightly port wheel; and in either case, her heading, by these changes, would be considerably more to the southward when she got near the buoy than when she was first straightened out. Upon examination I am satisfied that this would have required a change on her part, during the interval, of nearly one point. If she first straightened out heading E. by S. southerly, she would have headed nearly E. S. E. at the collision even without any deflection from any other special cause; if headed E.  $\frac{1}{2}$  S. at first, she would have ended about E. by S.  $\frac{1}{2}$  S. There would be less change in the course of the *Aurania*, from the fact that she was kept headed a little to the southward of the buoy. But the testimony of the pilot and wheelsman indicates that she was headed very nearly for the buoy; and, as she must have drifted considerably



to the northward, and as, by the master's testimony, it appears that repeated orders were given to the helmsman "to mind his port wheel" I have no doubt that at least half a point's change of heading was made in the Aurania's course before the moment of collision, bringing her probably to head nearly east.

The probabilities of the case, and the weight of proof, in my judgment, show that, after the Republic rounded out of the Swash channel, the vessels were inside of the dotted lines, and upon courses not converging more than one and one-half points,—at least not until very shortly before the collision. A great mass of witnesses, including nearly all on the part of the Aurania, and many on the part of the Republic, whose depositions were taken before the trial, show that, when the Republic got straightened out for the buoy, the two vessels were quite near each other, much nearer than from 500 to 700 yards, which the Republic's theory requires, and going upon approximately parallel courses; differing, as the Republic's fourth officer estimated, by a point or a point and a half only. This could only be when both were much within the dotted courses.

The pilot and the master of the Aurania locate the Aurania above the dotted line. The open Point Comfort lights confirm it. Her porting afterwards, though denied by the wheelsman, is proved by several witnesses, some of them disinterested, who observed her diverging wake, and this porting, with her straight approach thereafter very nearly in line with the buoy, without again starboarding, necessitates the northerly course. Nothing in the depth of water on rounding the south-west spit, or in the other circumstances, renders this course improbable; while convenience in turning southwards after passing the buoy made a course north of the dotted line desirable. Baldwin, the wheelsman, says he did observe the wheel-house compass, about the time of the whistles, probably after the first slight porting, and that it was S. 82 deg. or 83 deg. E. This, with the 9 deg. correction for deviation, gives 1 deg. or 2 deg. N. of E. for her heading at that time, or nearly E.  $\frac{1}{2}$ N. for her actual path. This direction, subsequently changed, as it must have been, to keep the buoy nearly ahead, would have brought her path nearly east at the collision.

As respects the Republic, both her libel and her answer to the cross-libel state, in effect, that, not long after straightening out for the buoy, it bore E.  $\frac{1}{2}$  S., and a little on her starboard bow. All her witnesses say one-fourth of a point on her starboard bow. This would necessarily bring her below the dotted course. A party is not allowed any considerable departure from such deliberate allegations in its pleadings, under the exigencies of the trial, except on satisfactory explanation and clear proof, which certainly do not exist here. *The Sarah Ann*, 2 Sum. 206, 209; *The S. Morgan*, 94 U. S. 599—622. Besides the concurrence of a great majority of the witnesses, as above stated, there are other strong proofs that the Republic's course was not that which she now contends for.

(1) The pilot, as I understand him, states explicitly that in running



out of the Swash channel he went deliberately to the southward of the dotted course in order to be able to make a direct course for the buoy. He refers to the chart in explanation, and the chart shows that in the new position of the buoy, 1,250 feet east of its former place, and somewhat to the northward, reasonable prudence, in avoiding the two shoal points that run southward from the tail of the Romer shoals, required him to round to the southward of the old dotted course, which ran to the buoy in its former position, and that he could not otherwise safely make a direct course for the Gedney buoy, A course E. by S. southerly would run directly over those shoal points. No prudent pilot in charge of such a vessel would do that, especially when the tide and the wind were setting the vessel further upon them. Upon that course, moreover, he would be straightened out for the buoy when considerably over a mile distant from it; whereas he testified that, when straightened out, he was but three-fourths of a mile from it,—a larger error than a pilot so familiar with those waters, and the location and distances of the buoys would be likely to make; whereas his estimate of distance agrees almost precisely with the *Aurania's* theory.

(2) Again, all say they did not begin to starboard in coming out of the Swash till below buoy No. 4, which is about 1,250 feet above the point of divergence. Capt. Irving says it was one or two lengths below. With her helm only two-thirds over, the *Republic* could not round from a position two lengths below No. 4, and be north of the dotted course, but would fall considerably to the south of it.

(3) More conclusive is the fact that the course of E. by S. southerly, with the buoy one-fourth of a point on the starboard bow, which all her witnesses testify to, could not possibly have brought the *Republic* to the place of collision. That course adhered to, with the flood tide, would have carried her 600 feet to the northward of the buoy, far out of the *Aurania's* way.

(4) Equally conclusive is the further fact that if the angle of convergence had been 25 deg., as the *Republic* claims, the distance of the two vessels apart one minute before the collision would have been nearly 700 feet; or, if the *Aurania's* course were as she claims, about 500 feet only. But at either of these distances apart, one minute before the collision, with both vessels heading for the buoy, there is no possible explanation of the collision consistent with the *Republic's* theory and testimony. No possible suction, port helm, or other influence from the *Aurania* could have had any sensible effect upon the *Republic* at that distance, or have sensibly neutralized or delayed the effect of the hard a-starboard helm which her officers say the *Republic* was then under, and in spite of which, as they say, the vessels came together.

The facts show that the point of collision was about 550 feet *west* of the buoy, and not materially north of it. Had the *Republic* been sailing a course north of the dotted course, and at an angle of 25 deg.,

or even of 20 deg., with the Aurania's course, and heading to the northward and eastward of the buoy, as they ail say she was, she offers no explanation how she could have got to a point 550 feet *west* of the buoy when the tide and wind were all the time setting her to the northward of the buoy. From her assumed heading north of the buoy one minute before collision, and at an angle of 25 deg. or 20 deg. with the Aurania's course, she could not have reached the point of collision, west of the buoy, and so much to the southward of her former path, unless she went there under a port helm. The testimony of by far the greater number of witnesses to more nearly parallel courses, *i. e.*, to a divergence of from one to one and a half points only, must therefore be adopted.

I do not find anything inconsistent with this view in the testimony of Stephens, the first officer of the Aurania, or in the diagram illustrating it; A difference of a few feet only in his position at the moment when he noticed the four masts range all in one past the lighthouse would reduce the angle to one and one-half points, and that would agree well with his estimate of the distance and the time, viz., about a half minute before collision. But, besides this, the Republic, he says, was already swinging when he saw her, and this swinging must have increased her previous angle. The fourth officer of the Republic says they "got the coarse E. by S. southerly about the time [3:17 P. M.] when Sandy Hook light bore abeam S. by W.  $\frac{1}{2}$  W. true." This, as I have already said, is an erroneous entry, and I cannot attach any weight to it. He does not even say that he *observed* her compass heading at that time; and there is no reason to suppose that his idea of the ship's heading, which he was not called on to observe, and did not enter, is anymore accurate than the entry which it was his business to make, and which is certainly incorrect. The great distance of the light (some two miles) doubtless made exact observation more difficult, and there was not then apparently any occasion for accuracy.

The shadow of the projecting grating against the ship's side, shown by the photograph, affords some confirmation of the Aurania's contention. If the computations could be strictly relied on, they would be conclusive. The length of the shadow is apparently about seventy-two one-hundredths only of the length of the grating; and that indicates an angle of 54 deg. 28 min. with the sun's position, or E. 35 deg. 48 min. S. as the course of the Republic at that time. If an error of one-third were allowed, and the shadow increased to equal the length of the grating, the angle of the ship's side with the sun's position would be 45 deg., and the Republic's heading would then be E. 26 deg. 20 min. S., a heading that could only be found while she was on the swing out of the Swash channel, or else within a few seconds of the collision; and of those two, evidently the former must be adopted. At what precise point the photograph was taken I do not find it necessary to decide. There is an indefinite number of places,

as I have already said, during the interval of four minutes before the collision, and within the limits of the dotted lines, where nearly all the conditions of the photograph, except as regards the shadow, can be fulfilled; and there seem, upon the testimony, to be such possibilities of error in the micrometric measurements of the shadow, or in variation in the position of the vessel that would affect the length of the shadow, that I prefer not to lay any stress on those computations.

*Immediate Causes of Collision.* The contentions of the parties are in direct contradiction as to the immediate causes of the collision. Most of the witnesses on both sides seem to agree that, shortly before the collision, apparently about one minute before, the stem of the Republic seemed to be approaching the Aurania's quarter more suddenly and more rapidly than their previous angle of convergence would account for. Accordingly, each charges the other with a change of helm; the Aurania alleging that the Republic ported, and thereby swung her stem against the Aurania; the Republic, that the Aurania ported, and thereby swung her quarter towards the Republic; and the Republic also charges that suction from the Aurania's propeller, and from the great displacement of the Aurania, also contributed to the result. The officers of each deny positively any such porting shortly before the collision.

The evidence leaves no doubt that the Republic's engines were stopped and reversed just prior to the collision. This order was probably given not more, than half or three-quarters of a minute before they collided, because there was time only to get a few turns backward. A short time only before the order to stop and reverse, as the master and pilot testify, an order was given to put the helm hard a-starboard. The wheelsman testifies that he did starboard. The pilot says that under this order she canted about a point to the northward. But this is not compatible with the rapid approach of the vessels, or with the place of collision. It is contrary, also, to the testimony of the master of the Republic; and the latter is more likely correct, for he says that, though the Republic usually obeys her helm readily, "the starboard helm [at that time] did not seem to have hardly any effect. That is why I reversed the engines principally." From what he did? between the two orders, the interval must have been certainly a third of a minute, and probably more; so that the interval from the order to starboard to the collision must have been one minute, and probably a little longer. He says that, when he gave the order to starboard, the Aurania's mizzen-mast was "about abreast of our bridge, perhaps a little further ahead; I would not be sure,"—*i. e.*, from 180 to 200 feet ahead of its relative place at the collision; and that the vessels were then "perhaps half to three-quarters of a ship's length apart,"—*i. e.*, 200 to 300 feet; and that "their courses were not then altered." This confirms the view as to the courses of the two vessels above adopted. When the master of the Aurania

shouted to the Republic to starboard, he says that the latter's stem was aft of him, and "perhaps between the two funnels," or from 170 to 200 feet ahead of its place at the collision; and that the vessels were then about 250 feet apart. While these distances or positions are not assumed to be exact, they pretty well agree in indicating that, at a time from a minute to a minute and a half before collision, the vessels were only from 250 to 300 feet apart, and the Republic's stem relatively to the Aurania only 200 feet in advance of its place at the collision, and that, at that time, her approach sideways was more rapid than was expected from the previous angle of approach, and was such as to threaten Speedy collision. In such a situation it is evident from the testimony that no influence of suction from the Aurania could have been felt at that distance apart. With vessels of fine lines, going at less than the rate designed for them, the evidence of Capt. Watson, a most competent expert, is that there is no lateral suction at all. Whether there might not be some effect of this kind exerted upon a vessel only a few feet distant by another very large vessel, moving rapidly in water of a depth little exceeding her draught, I am not clear. But I do not credit the suggestion that it could have had the effect of deflecting the Republic's stem at a distance of 250 feet.

It is clear, also, that the Aurania could not have ported, and have thereby caused an apparent rapid approach, merely through the swinging of her stern towards the Republic. The proof shows that this effect would swing her to the northward only 25 feet in all; and would continue only during 24 seconds from the time the order was given. After that the stern would move away on the line of the curve. Considering that the Aurania, after 14 seconds, begins to cant at the rate of 5 deg. in 9 seconds, it is plain that had any such order to port been given, even a minute only before the collision, the Aurania, instead of swinging up to the Republic, would have canted two and one-fourth points to the southward before the collision. The narrowness of the channel, however, did not permit so much change as that to the southward; but one-half of that change would necessarily have carried her south of the buoy, instead of north of it; and by that deflection to the south, moreover, she would have headed, at the time of collision, very nearly in line with the Republic, instead of being at an angle at the moment of collision, as the proof indicates, of about two or two and one-half points. Her testimony, that she did not port, is therefore confirmed, and must be received as correct.

The evidence of a great number of witnesses must be held to show that there was at least some deflection to the southward in the course of the Republic, just before the collision; for the great weight of proof is that the point of collision was nearly directly west of the buoy, and at least 550 feet distant from it, and not materially to the north of it. This, as above observed, was considerably to the southward and west-ward of the line of the Republic's course that she had been previously

following, which was to the northward and eastward of the buoy. Upon that course she had all along been headed until in some way deflected from it, shortly before the collision, enough to bring her 550 feet to the westward of the point she was aiming at.

So far as I can perceive, there are but two remaining causes which could have produced this deflection, viz., either her own porting, or the unavoidable swinging of her stern to the northward through the effect of the southerly wind.

As respects porting there are but two alternatives: either that this was done deliberately, by the order of the officers, in order to go astern of the *Aurania*, as was their duty to do if there was not room to go to the northward, which order was too late, and failed through some miscalculation of the distance, or of the speed at which the *Aurania* was gaining on the *Republic*; or else that the wheelsman, though ordered to starboard, in fact ported by mistake, possibly from having been anticipating an order to port, and so misinterpreting the order actually given. The first of these alternatives involves direct perjury in the testimony of all the officers concerned in the navigation of the *Republic*. The second involves two separate concurrent mistakes on the part of the wheelsman and of the master; for, not only does the wheelsman say he did starboard, but the master says that, before ordering to stop and reverse, he went to the "tell-tale" in order to see, and did see that the helm was hard a-starboard, and that it did not seem to have much effect, and that "after watching a few seconds longer, when it didn't seem to draw clear, the pilot called out, 'Stop!' and he ran to the telegraph, and rung 'full speed astern.'" Of course, it is possible that much of this might have occurred in reference to an order to port, instead of to starboard. That the *Republic*, however, did cant somewhat to starboard, as if under a port helm, when some 250 feet distant from the *Aurania*, seems to me beyond doubt, from the fact that the place of collision was clearly to the southward (notwithstanding the flood tide) of the course towards the northward of the buoy that she had all the time previously been keeping. Had her helm, moreover, been put hard a-port a minute before the collision, as it would have been had it been ordered to be ported at all for the purpose of going astern of the *Aurania*, considering that such steamers cant a point in going a length, or a little less, she would have turned, up to the time of collision, at least three points, making the angle of collision fully four points,—considerably more than is at all probable upon the evidence.<sup>1</sup> The porting of the wheel, and the curve in the *Republic's* wake, that several of the *Aurania's* witnesses testify to observing

may have been merely the slight porting, which, as I have above said, (*ante*, 115,) must have taken place in order to enable the Republic to keep the buoy from broadening off widely through the effect of the tide. This was an immaterial porting, in order to preserve her course; not the material porting here considered, which would carry the Republic south of the buoy.

The position of the Republic in reference to the Aurania was, however, such that it was quite possible that the wind may have canted the Republic's stern to the northward, and have thereby produced all the deflection from her course that is necessary to explain the results witnessed. Reardon, a pilot called by the Republic, says that he was, at the time, beating down the lower bay, and that the wind was a "four-knot breeze" from the south. This wind, though moderate, could not but affect the Republic unequally, and operate with considerable force, when the whole after half of the Republic's hull was presented to it, while the forepart was in the lee of the Aurania, which had a freeboard 24 feet out of the water, and was higher than the Republic. This unequal influence of the wind was operative for over two minutes; but the full effect of it would not be felt until the whole after half of the Republic's hull had got astern of the Aurania, which was about one and one-half minutes, or a little over, before the collision, *i. e.*, very near the time when, according to the Republic's testimony, she was seen unexpectedly drawing towards the Aurania. That this cause would deflect the Republic's course to some extent there can be no doubt. A slight change of less than half a point in the Republic's heading to the southward during the two minutes preceding would have been sufficient to bring the Republic to her place



at the collision. While she was under such a swing, though slight, the action of the starboard helm would be delayed, as the master observed, and testifies that it was. In the excitement of the moment, the time allowed to observe the influence of the helm was probably short, no effect from it being ordinarily observable in less than a quarter of a minute; and, during the half minute following the order to reverse the engines, the helm would have but little normal effect; probably not more than enough to counteract the continuing swing of the stern to the northward. As this view may reasonably account for the facts, I adopt it rather than the theory of the Republic's porting, against the positive testimony of all those having charge of her navigation.

The nature of the damage to the Republic in knocking her stem to port, accompanied also by the gouging out of lines in the iron in a horizontal direction, shows only, as it seems to me, a combination of a swinging motion with a forward one. The forward force was, doubtless, that of the Aurania; the swinging motion might have been produced equally by the Republic's port helm, or by her stern's swinging through the effect of the wind, or by the swinging of the Aurania's stern, if she had ported. I find nothing decisive in this feature.

The best result I can arrive at, therefore, is that, while this collision may possibly have been precipitated by an order to port, made under an erroneous supposition that the Republic could drop astern in that way, or under a misapprehension of an order to starboard, it might also have been caused, and upon the testimony, as I find, was more probably caused, by the effect of the wind operating unequally upon the Republic's hull, while her forward part was in the Aurania's lee so as to swing her stern unavoidably to the northward; that is to Bay, by one of the contingencies of navigation.

But, whichever of these causes precipitated the collision, it must be held to have been imprudent, rash, and blamable navigation that suffered two vessels of such size, going through the water at a speed of about 15 and 16 $\frac{1}{4}$  statute miles, respectively, upon courses converging about one point, to come within 250 or 300 feet of each other, without any material effort by either up to that time to keep away. If they were converging by one point only, they were "approaching" each other sideways at the rate of about 200 feet per minute; and as I find that the Aurania was gaining on the Republic not more than from 125 to 150 feet per minute, and had to gain from 150 to 200 feet in order to clear her, I do not regard it as altogether certain, notwithstanding the opinions expressed by the Aurania's witnesses, that the vessels would not have collided, even if their previous courses had been perfectly preserved. Such proximity, under great speed for such large vessels, very plainly, in my judgment, involved "risk of collision," within the meaning of the rules. "Risk of collision" means, not merely certainty of collision if no efforts be made to avert it, but danger of collision; and there is danger or risk of collision Whenever it is not clearly safe to go on. *The John McIntyre*, 9 Prob.

Div. 135. The distinction between the risk and the certainty of collision is fully commented on by Brett, L. J., in the case of *The Beryl*, 9 Prob. Div. 137, where it was held that the rules required efforts to avoid, not merely the certainty of collision, but the risk of it; and that the obligation of the ship that had the right of way to slacken or stop in order to avoid collision arose with the risk of collision, and not merely when it would otherwise be certain. Still more elaborately was the same point ruled and decided by the house of lords in the case of *The Khedive*. App. Cas. 876.

In my judgment, there was risk of collision, within the meaning of the rules, some time before these vessels had come within 300 feet of each other, and at least two minutes before the collision, by reason of their converging courses, their great speed, and their great bulk, which prevented rapid handling. Two minutes before collision the Republic's stem was already at least 150 feet behind the Aurania's stem, and the latter vessel was evidently going ahead and crossing the Republic's bow. Even, therefore, if the Republic had had the right of way, it would have been her duty, being already somewhat astern, and the intent of the other to go ahead being clear, to slacken speed at once, or stop if necessary, under the seventeenth rule. Having the right of way does not dispense with the seventeenth rule, nor supersede the obligation to stop, when actual risk of collision is impending. This is settled by the English decisions last cited, and by many decisions of the courts of this country. *The America*, 92 U. S. 432, 438; *The Sunnyside*, 91 U. S. 218—224; *The Columbia*, 25 Fed. Rep. 844; *The Frisia*, 28 Fed. Rep. 249; *The Hills*, 23 Fed. Rep. 413; *The Fanwood*, 28 Fed. Rep. 373; *The Nacoochee*, 22 Fed. Rep. 859; S. C. 28 Fed. Rep. 462.

The same considerations, and the same authorities last cited, apply to the Aurania, although, as I have found, she had the right of way; because, at least two minutes before the collision, it was, I think, sufficiently manifest to the Aurania that the Republic was not performing her duty to keep out of the way by a safe and secure margin, either by steering sufficiently to the northward, or by slackening speed so as to drop astern; nor was she apparently taking any steps to keep out of the way, but was keeping on with unabated speed. This, from the Aurania's point of view, viz., that the Aurania had the right of way, showed to the Aurania gross violation of duty by the Republic in not keeping off earlier, and that the Republic's persistent keeping of her speed and course involved, at least, the risk of collision; since the close approach of the vessels left no margin for any of the unexpected contingencies of navigation. It is not to the purpose to say that if each had been kept upon exactly the same course, and if nothing unexpected had happened, no collision would have occurred, even if that fact were clear; or that the officers of the Aurania supposed so. Considering the great interests of life and property at stake, a reasonable provision for safety against unexpected contingencies, and even against slight mistakes or errors in

the navigation of either vessel, is plainly obligatory. No rational judgment, as it seems to me, can hesitate to pronounce it to be an unwarrantable risk to calculate so closely on one's course that a momentary mistake or misapprehension of an order, or a brief and slight error on the part of either vessel, or a small unforeseen deflection from an unexpected cause, would be past all remedy and involve inevitable collision.

The duty to keep out of the way, as this court has recently held, embraces the duty to keep away by a prudent and safe margin, having reference to all the contingencies of navigation, (*The Laura V. Rose*, 28 Fed. Rep. 104; *The Columbia*, 9 Ben. 254;) and when the Republic was plainly and grossly neglecting her duty in this regard, and had approached within 250 or 300 feet, their courses converging so that the risk of collision was becoming more imminent, it became obligatory upon the *Aurania*, though she had the right of way, to do what she reasonably could to avoid, not perhaps the certainty of collision, but the impending risk of it. Although, in my judgment, the vessels were "approaching each other" within the meaning of the seventeenth article, *i. e.*, Sideways, the *Aurania* was not, in this case, required to slacken speed, because in the situation as it then existed, inasmuch as slackening would have tended to promote collision, a departure from that rule, under the provisions of article 24, is proved to have been necessary; and she is therefore without fault in that respect. But she could and ought to have ported her helm, and gone to the southward of the buoy. There was nothing in the way to prevent this. There was sufficient water for a considerable space to the southward. Her officers say that they were intending to go to the south of the buoy; but intended to wait until within a hundred feet of it before porting, and that their intention was thwarted by the force of the blow on the *Aurania's* stern, which swung her round, and forced her to go to the north of the buoy. I do not think the circumstances bear out this explanation. In my judgment, the intended porting, order to go south of the buoy, was too long delayed. An elaborate mathematical computation by Prof. Compton, submitted as a part of the Republic's argument, would indicate the possibility, at least, that the *Aurania* may not have been deflected by the blow more than one-quarter of a point. Whether this be a correct estimate or not, other circumstances indicate that the *Aurania* was already so far to the northward; before the collision, that she could not, by porting subsequently, have gone south of the buoy, even if the collision had not occurred; for if, at the time of collision, she was within 50 feet of a line running east and west through the buoy, her stem being from 100 to 200 feet only from the buoy, upon porting to go south of it, the force of the tide and the swing of her stern under a port helm would have carried her stern across the buoy. On the other hand, had she, at that time, been more than 50 feet south of such a line, and heading a little south of the buoy, the blow upon the Republic Could not have swung her stern so much as to cause her to go north

of the buoy without running over it, except by a change of her heading of nearly four points to the northward,—a change much greater than the evidence admits. She passed northward of the buoy, and some 40 feet clear of it; her port side being, therefore, 96 feet from it. There seems to me no probability that the blow could have made any such great change in her course, or that there was any such change as approximated to four points. The evidence indicates that her port side went 96 feet north of the buoy without much deflection from her previous course. The pilot says he did not port till the *Aurania's* stem was past the buoy, and he thinks not till her stern was past it. The unavoidable inference is that, at the moment of collision, she was nearly in line with the buoy, heading about east; and this is to some extent confirmed by the repeated statements of Capt. Hains in his previous reports.

The evidence, in my judgment, all points, therefore, to the conclusion that the *Aurania* had gradually drifted to the northward of the regular course, through the effect of the flood-tide, not having been kept headed sufficiently to the southward of the buoy to counteract that effect; so that, at the time of the collision, she was nearly due west of the buoy. This would make easier her necessary turn beyond the buoy, and was, I think, in part at least, designed by the pilot. Nor, aside from the *Republic's* close approach, was there anything wrong in this. Having the right of way, the *Aurania* had the right to the whole of Gedney channel, if, as the witnesses of the *Republic* say, that channel was not wide enough for two such vessels to go safely abreast in it; and she had the legal right to go on either side of the buoy that was customary, or most for her convenience; and it would have been the corresponding duty of the *Republic*, as the vessel bound to keep out of the way, to yield her all of these rights, without obstruction, if there were no other circumstances affecting this right. But that does not affect the *Aurania's* final obligation, when the *Republic* was plainly neglecting her duty to keep out of the way, and was threatening collision, to do what she could to avoid it by porting sufficiently to clear the manifest danger. Rule 22, indeed, requires that the vessel having the right of way shall keep her course; but that is in order to avoid collisions, not to run into them. Rule 24 declares: "Nothing in these rules shall exonerate any ship from the consequences \* \* \* of the neglect of any precaution which shall be required by the ordinary practice of seamen, *or by the special circumstances of the case.*" Whenever danger of collision has become manifest, and the vessel previously bound to avoid it is plainly neglecting her duty to do so, the circumstances are special, and the other vessel must do what she can to prevent disaster. If this rule were not acted on and rigidly enforced, disastrous collisions would arise daily, and the lives and property of innocent persons be sacrificed to a tenacious adherence to the mere right of way; and that, not only when the consequences of the negligence of the one vessel were easily avoidable by the other, but as often, also,

as there was any miscalculation, or even honest mistake as to which vessel had the right of way, as is alleged in this case.

Rule 21 declares: "In narrow channels, every steam-ship shall, when it is safe and practicable, keep to the side of the fairway or mid channel, which lies to the starboard side of such ship." The *Aurania* did not keep to the starboard side of the channel by any certain or reasonable margin, as the place of collision shows. If she was not to the northward of the middle line of the channel at the time of the collision, she was very nearly, if not fully, up to that line. The one whistle which she had previously given also indicated, under the nineteenth rule, that she was directing her course to starboard. Without expressing any opinion as to the applicability, in this situation and on pilotage ground, of the inspector's rules, which are clearly incompatible with the new regulations, I think both vessels meant and understood the whistles to be indicative of their intentions; and this confirmed also her obligation, under rule 21, to keep to the starboard side of mid channel, or to the southward of the buoy.

"The special circumstances of the case" also, under rule 24, which is a substitute for the former rule as to departures, in view of the Republic's neglect of duty, and the close approach of the two vessels, required the *Aurania* to go to starboard; because that course would have been away from danger and from risk of collision; and because, in the situation of the two vessels, porting could not possibly have tended to thwart any movement of the Republic to avoid her. The *Aurania*, therefore, could have done something to avoid this collision, by porting enough to keep southward of the mid channel by a reasonable distance, and to go south of the buoy; and this, in my judgment, would have avoided the disaster. Notwithstanding the fact that it was the primary duty of the Republic to keep out of the way, I am constrained to hold, though not without much hesitation, that the *Aurania* is also to blame. The reason of the rules and the policy of the law, which, for the safety of life and property, demand that no reasonable effort to avoid collision shall be neglected by either vessel, compel me to hold both in fault, and that the damages be divided.

<sup>1</sup> Reported by Edward G. Benedict, Esq., of the New York bar.

<sup>1</sup> A convenient formula for these computations is the following: Divide the distance in feet by the number of minutes, multiplied by 101 $\frac{1}{8}$ . The Quotient is the speed per hour in knots, reckoning 6,080 feet to the knot.

<sup>1</sup> In collision cases a knowledge of the rate at which steamers turn under a hard a-port or hard a-starboard helm, and the effect of a reversal of the engines on steering, is so useful that the following facts, derived from experiments with the *Aurania*, made by Capt. Watson, are here abstracted from the record.

In a calm sea and no wind, the *Aurania*, 480 feet long by 56 feet beam, going at 14 $\frac{1}{2}$



knots, her helm was ordered hard a-port. The helm is moved by steam, and goes hard over in about 12seconds, and reduces the speed from one-half to three-fourths of a knot. A change of heading was first observable in 14 seconds after the order was given. From that time her bows canted to starboard very regularly at the rate of 5 deg. in every 9 or 10 seconds, making a change of 102 deg. in 3 minutes and 9 seconds, or 1 point in going about 490 feet, *i. e.*, about a length, and turning upon a radius of about 2,500 feet, or a little over five lengths. The rate of change, compared with the length of the vessel, is a little less than appeared in the case of *The Lepanto*, 21 Fed. Rep. 651. See White's *Naval Architecture*, 630—637. Her center of rotation is 114 feet aft of her stem; her center of gravity 120 feet further aft. Her engines being reversed at the same speed, the action of her helm during the first minute after reversal is normal to a much reduced extent, canting her only from 5 deg. to 10 deg. at most. After that, her headway diminishing, and her propeller being right handed, her bows fall rapidly to starboard, through the action of the propeller alone, and the helm has little or no effect until her headway is fully stopped; and this continues the same when she acquires Sternway. Reversing full speed, at 13 to 14 knots speed, she is stopped dead in the water in 3 minutes 59 seconds after the engines are put full speed astern, and in a distance of 1,740 feet. *The Oregon*, the same, or nearly the same. And, in general, whatever be the rate at which she is working ahead, if the engines are reversed *at the same speed*, she stops in the same time.

In some experiments with the *Frisia*, (24 Fed. Rep. 495,) 350 feet long, 40 feet beam, and 2,313tons net, and full speed 12 knots, it was stated that, going full speed ahead, if the engines werereversed full speed, the bows canted one and one-half points to starboard, the propeller being right handed, whether the helm was put to port or to starboard (?) in the interval of two minutes until her headway was stopped; but with the rudder amid-ships, she fell off two points to starboard in the same interval. (The details of the experiment were not given in the testimony.) Under ordersto stop and reverse, the engines were stopped in seven to eight seconds after the telegraphic order was given, and reversed six seconds afterwards. It took 23 seconds to turn the rudder from amid-ships to hard a-port.