1966

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A novice boater returned from a pleasant day of recreational motorboating. Shortly after disembarking, he heard a loud report and returned to the moorings to find his craft tossing about like a cork. Several side planks had been fractured when the vessel was thrown against the dock pilings. In the distance there was an ocean steamer throwing a large white bow wave making her resemble a dog with a bone in its teeth. The heartbroken yachtsman barely made out the words “I. M. MADDOG, Wilmington, Del.” written across her stern. He sued.

The 80th Congress, by statute, resolved a longstanding anomaly in procedural law by bringing all such suits into admiralty and by recognizing a common law remedy where the common law is competent to give it.1 In years to come, the fed-

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1 The Judiciary Act of 1789 bestowed exclusive admiralty jurisdiction on the District Courts but saved “to suitors, in all cases the right of a common law remedy where the common law is competent to give it.” In essence, this holds true today (28 U. S. C. § 1333); however it is recognized as a duality of maritime jurisdiction, with the District Courts having original jurisdiction. Gilmore & Black, Law of Admiralty 33-36 (1957). Unfortunately, tort jurisdiction in admiralty did not originally extend to damage caused on land. The Plymouth, 70 U. S. (3 Wall.) 20 (1866). However, the 80th Congress passed into law a statute providing that admiralty jurisdiction shall extend to all cases of damage or injury to persons or property caused by a vessel on the navigable waters “notwithstanding that such damage or injury was done or consummated on land.” 46 U. S. C. § 740; U. S. v. Matson Navigation Co., 201 F. 2d 610 (9th Cir. 1953). Admiralty jurisdiction extends to every species of tort committed upon the navigable waters or high seas. Holland, Amphibious Torts, and an Act for Extension of Admiralty Jurisdiction, 5 N. Y. U. Intra. L. Rev. 1 (1949). Vogel, Extension of Admiralty and Maritime Jurisdiction, 16 Brooklyn L. Rev. 191 (1950). Fauver, Extension of Admiralty Jurisdiction to Include Amphibious Torts, 37 Georgetown L. J. 252 (1949). See also Salaky v. Atlas Tank Processing Corp., 120 F. Supp. 225 (E. D. N. Y. 1953) (damage to motorboats from an oil sludge). Chicago, Burlington, and Quincy R. Co. v. The W. C. Harms and H. W. A. Harms, 134 F. Supp. 636 (S. D. Tex. 1954) (Collision between train and barge). Diamond State Tel. Co. v. Atlantic Refining Co., 205 F. 2d 402 (3rd Cir. 1953) (vessel damage to submarine cable). However, negligent damage to ship’s cargo on land is not a maritime tort. Tennant Sons & Co. v. Nordeutscher Lloyd and Steamship Kassel, 220 F. Supp. 448 (E. D. La. 1963), and compare with Spann v. J. Lauritzen, 344 F. 2d 204, 1965 A. M. C. 1192 (3rd Cir. 1965) where a longshoreman, standing on a pier, was injured by a defective mechanism of a shore based unloading hopper (being filled by a shore based crane) and yet recovered under a warranty of seaworthiness of the vessel because it had sufficient connection with the operation of the ship.
eral courts will probably be severely taxed with swell-damage suits because of the phenomenal growth of recreational boating. No one knows precisely, but estimates are that there are approximately eight million pleasure craft afloat today, compared with less than half a million at the close of World War II. The necessity for a standard test of a vessel's liability for swell damage is obvious and imperative.

Aside from the criminal aspect, an action for damages based upon negligence seems to fit the situation. However, any discussion relating to swell-damage of a moored vessel must of necessity be broadened to include damage to shore installations and to vessels under way, since the same principles of law are applicable.

In general, an owner of a vessel or other property damaged by the tortious acts of another committed in the course of boating or shipping is entitled to recover for such injuries. But what of the time-honored doctrine of the paramount right of navigation? It has been said that a moving ship is not an in-


3 Reckless or negligent operation deemed a misdemeanor, 46 U. S. C. § 526(m), providing for a fine up to $2000.00 or imprisonment for a term not exceeding one year or both. In lieu of this, a penalty may be prescribed, 46 U. S. C. § 526(O). Administrative suspension and revocation proceedings may be instituted against a license or certificate holder for incompetency, misconduct, negligence, or for any act in violation of the provisions of Title 32 of the Revised Statutes; 46 U. S. C. § 239. See also Inland Rules of the Road, 33 U. S. C. §§ 154-232; Great Lakes Rules, 33 U. S. C. §§ 241-295; Western Rivers Rules, 33 U. S. C. §§ 301-356; and speed of vessels in ice region, penalty, 46 U. S. C. § 738(c).


5 Id., C. J. S. and Annot.

surer and is not liable for all damages that occur as a result of its swell.\footnote{Martin Marine Transportation Co. v. U. S., 66 F. Supp. 673 (D. C. Pa. 1946); The Daniel Drew, 13 Blatchf. 523 (1876).} And further,

The shore itself and the structures thereon are subject to the dangers incident to the paramount right of navigation, such as wash from the reasonable propelling of vessels in the stream and damage to shore installations, by reason of their location, . . . \footnote{R. & H. Development Co. v. Diesel Tanker, J. A. Martin, Inc. \textit{supra} n. 4, at p. 770, citing Adams v. Carey \textit{supra} n. 4; and Field v. Apple River Log Driving Co., 67 Wis. 569, 31 N. W. 17 (1887).}

Thus, the issue presents itself. Every vessel sailing on navigable waters creates a propagating swell by reason of its displacement in the water. By what yardstick is liability measured as a result of subsequent swell-damages? Does the paramount right of navigation absolve a vessel doing a reasonable amount of damage? The answers lie in defining swell damage and the right of navigation, and in analyzing the case law imposed upon those who exercise that right.

\section*{Swell-Damage}

In truth, the swells caused by a vessel's displacement in water are not as evident as the layman might expect, and much of the research is as yet uncompleted, especially in determining the effects of large ships in restricted waters. The article, "Large Ship Effects in Restricted Waters," \footnote{Breece & Moffitt, Large Ship Effects in Restricted Channels, in, Proceedings of the Merchant Marine Council, U. S. Coast Guard, September 1961.} provides an excellent treatise on the subject. It describes how a moving vessel floats in a reduced water level known as "squat" causing a propagating bow wave, suction, and a following stern wave. This phenomenon is documented by model basin experiments and actual incidents of surge parting mooring lines when the only vessels in sight were still approaching the dock areas. The authors conclude that (1) squat increases with increases in speed, the rate of increase being greater with higher speed, and (2) for any given speed, squat increases with a decrease of water under the keel.

The tests indicate that a vessel of 77,000 dead weight tons having a draft of 38 feet and 10 feet of water under the keel
would squat nearly three feet at a speed of 6.5 knots. This demonstrates the possibility of a steamer creating a three-foot drop in the water level around adjacent docks while passing in a narrow channel. The resultant damage could be extensive.

**The Right of Navigation**

At early common law, navigable waters were considered to be under the exclusive control of the government, held in trust for the public with respect to navigation. In theory, this has not changed, and at present every navigable waterway is regarded as a public highway and subject to free and common use by all.

In *Silver Springs Paradise Co. v. Ray*, the court ruled on a dispute concerning the exclusive right to operate a glass bottomed sightseeing boat and held:

> The public right of navigation entitles the public generally to the reasonable use of the navigable waters for all legitimate purposes of travel or transportation, for boating or sailing for pleasure, as well as carrying persons or property gratuitously or for hire, and in any kind of water craft the use of which is consistent with others also enjoying the right possessed in common.

There are also rights incidental to the public right of navigation, best described in *Munninghoff v. Wisconsin Conservation Commission, et al.* These include boating for recreation, bathing, fishing, hunting, use of the bottom for walking (as by a fisherman), standing on the bottom while bathing, anchoring, poling a flatboat, or walking on an ice-covered waterway.

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13 50 F. 2d 356, at 359 (5th Cir. 1931).

14 255 Wis. 252, 38 N. W. 2d 712 (1949). An attempt was made to curtail these incidental rights in Elder v. Delcourt, 241 Mo. App. 839, 263 S. W. 2d 221 (1953), however it was properly reversed, 364 Mo. 835, 269 S. W. 2d 17, 47 A. L. R. 2d 370 (1954).
The public right of navigation has been held to be so dominant to other rights that under some circumstances the public may acquire an easement of navigation over lands which are suddenly flooded. While the right of navigation is paramount, it is not absolute and does not preclude a regard for the lawful rights of other parties. It is best characterized as a relative right, i.e., a right superior to the other rights associated with navigable waters, such as the right to create obstructions, riparian rights, fishing rights, or the right to exclusive use for private purposes by reason of ownership of lands under the water.

In summary, it can be seen that there is a paramount right to reasonably propel a vessel upon the water, but such right bestows no license to damage another in the process. Assuming that one party can prove that another's swell caused injury or damage, the surrounding facts and circumstances determine the presence or absence of legal fault. The question is: does the operation of a vessel measure up to the required standard of care?


19 The Armorica, 189 F. 503 (E. D. N. C. 1911) (damage caused to fishing nets obstructing navigation).

20 U. S. v. Willow River Power Co., supra n. 16; Silver Springs Paradise Co. v. Ray, supra n. 13 held even in the absence of a statutory provision the title, which an owner of highland contiguous to a navigable body of water has, is at best a qualified one. "Whatever the nature of the interest of a riparian owner in the submerged lands... his title is not as full and complete as his title to fast land... to be held at all times subordinate to such use of submerged lands and the waters flowing over them as may be consistent with or demanded by the public right of navigation," citing Scranton v. Wheeler, 179 U. S. 141, 21 S. Ct. 48, 45 L. Ed. 126 (1900); U. S. v. Chandler-Dunbar Water Power Co., 229 U. S. 53, 3 S. Ct. 667, 57 L. Ed. 1063 (1913).
SWELL DAMAGE AND NAVIGATION

An Inductive Test: Duty Relation

What are the duties of a navigator exercising his paramount right of navigation? While everyone has an equal right to use navigable waters, each must exercise ordinary care and caution, having due regard for the rights, property and lives of others. The duties of the reasonable man, or prudent seaman, as he is called in this instance, cannot be precisely stated in advance; however, the criterion for reasonableness is best defined in American Jurisprudence by way of analogy to use of a public highway where there must be taken into consideration:

The character of the highway, its location and purposes, and the necessity, extent and duration of use, under all the attendant and surrounding circumstances.

Obviously, the duty of the average reasonable man is no more easily defined here than in other areas of negligence. In general, any vessel passing piers or docks is obligated to proceed prudently to avoid creating unusual swells or suction which could damage shoreline installations or properly moored craft. There is authority requiring the use of extraordinary care toward smaller vessels. Justice Bradley aptly stated the rule in 1882:

The ocean steamer is one of the great inventions of the century, and one of the advanced instrumentalities of modern civilization; but whilst it may freely exercise its powerful propeller and sport its leviathan proportions on the ocean or in deep and open waters, it is justly required to observe extraordinary care and watchfulness when surrounded by feeble craft in a crowded harbor.

22 Id. at 672.
The distance between the offending vessel and the injured is important, but no specific formula has been found to establish that distance. One case held that it was unreasonable for a steamship to pass within a mile of a schooner moored in New York Harbor.\(^\text{27}\) In a more recent case,\(^\text{28}\) the court ruled that a master having timely notice of a vessel moored at a dock 200 feet from the center of the channel was obligated to see that he did not enter at such a speed that his swell would create a danger to the moored vessel. The test of foreseeability is frequently employed to determine liability. Yet, in \textit{City of New York v. McLain Lines, Inc.},\(^\text{29}\) where a ferryboat traveling at 12 mph was one-half mile from a tug and allegedly caused swells damaging the tug, the court concluded:

The ferryboat was not chargeable with duty to foresee that the swells caused by it were likely to strike the barge before they ran out sufficiently to make them harmless, and the ferryboat was not liable for the damage.

Naturally, damage is more likely to be foreseeable in a crowded waterway and, in that instance, the respondent may be required to show that he reduced speed or directed his course away from the damaged vessel in an attempt to reduce the reasonable effects of his swell.\(^\text{30}\) It was explained in the case of \textit{The Nevada}\(^\text{31}\) that incidental inconveniences, such as reduction in speed, attach to the use of many great improvements of the age. The court used the analogy of a locomotive being compelled to reduce speed in passing through cities.

A vessel will be held liable for swell damage caused by excessive speed.\(^\text{32}\) The rule laid down in \textit{The New York} (1888)\(^\text{33}\)
has generally prevailed, namely, that a power-driven vessel which proceeds at such speed as to create a swell causing injury to another properly handled vessel of a kind properly in the waters which she is navigating, is liable for such injury, even if that speed is only five or six miles per hour. Excessive speed is not necessarily conclusive however. In the case of The Washington\(^{34}\) two scows were found to be improperly moored, the damage occurred when one scow traveling at a "somewhat excessive" speed overrode the other. The failure to moor the vessel properly was viewed as the proximate cause of the damage, and there was no liability. This reasoning is not restricted to the duty of properly securing a vessel; it also applies to the seaworthiness of a vessel\(^{35}\) or the condition of a shore installation.\(^{36}\) There must be an ability to resist ordinary swells where traffic may be anticipated,\(^{37}\) and locating the mooring in a dangerous place may result in defeat for the injured party.\(^{38}\) Some of the legally imposed duties are noted in O'Donnell Transportation Co. v. M/V Maryland Trader:\(^{39}\)

Piers and docks along the shoreline are required to be kept in proper condition and vessels tied up there must be seaworthy and properly moored so as to resist ordinary and normal swells in narrow waters where heavy traffic may be anticipated. Some wash from passing vessels is bound to occur and must be anticipated and guarded against. Only unusual swells or suction which cannot be reasonably anticipated furnish the basis for a claim.

On the other hand, where a barge is tied up to a wharf, the barge owner is not required to put out enough lines to hold securely any other barges which may later tie up to his barge.\(^{40}\)

\(^{34}\) 182 F. 885 (E. D. Va. 1910).

\(^{35}\) Drake v. Inland Waterways Corp., \textit{supra} n. 32; Martin Marine Transportation Co. v. U. S., \textit{supra} n. 7; The Silvia, \textit{supra} n. 25; The Reba, 22 F. 546 (S. D. N. Y. 1884) (canal boat was old and unsound).


\(^{38}\) The Hendrick Hudson, 203 F. 694 (2d Cir. 1913).

\(^{39}\) \textit{Supra} n. 36, at p. 909.

\(^{40}\) Petition of Tracy, 92 F. Supp. 706, aff'd 194 F. 2d 362 (S. D. N. Y. 1952).
Such is the extent of liability for causing swell damage or injury. Clear and precise guidelines for determining the duty of care in each situation are lacking. Perhaps the best statement was recorded in 1876 and reiterated in 1946:

There is no rule of law prescribing the speed a boat may use, or the swell it may make, or how near it may pass to another upon a public river. It depends upon the circumstances of each particular case.

Sic utere tuo ut alienum non laedas.

An Objective Test: Proximate Cause

Not unlike other causes of action based upon negligence, a libelant in a swell damage case must show that the respondent's acts were the proximate cause of the injury or damage. At the outset, the respondent must be identified as the offending vessel. Mere presence in the vicinity will not suffice. In O'Donnell Transportation Co. v. M/V Maryland Trader, the court held:

Under these circumstances the Trader cannot be held liable for any damages to libelant's craft or installations which may have occurred. Since it was not established that her movements generated the swells and surges claimed to have caused the damage, and having shown that she was proceeding at moderate speed with due care and caution, she was not required to exonerate herself further.

Although failure to foresee and protect a vessel or property against usual and reasonable swells may be adjudged the proximate cause of damage, causal connection is usually a question of whether the evidence is sufficient to support the conclusion that the respondent's negligence contributed to the damage; because contributory negligence will not wholly defeat a cause of action in admiralty as it may in common law.

41 The Daniel Drew, supra n. 7.
42 Martin Marine Transportation Co. v. U. S., supra n. 7.
44 Drake v. Inland Waterways, supra n. 32; The H. C. Graebner, supra n. 37; Williamson v. The Carolina, supra n. 25.
45 Williamson v. The Carolina, supra n. 25; Benedict, American Admiralty 257 (1940); Gilmore & Black, Law of Admiralty 438 (1957). If one vessel is at fault, that vessel must bear its own loss and pay for the other's dam-
In case of damage or injury to another vessel underway, the conduct of the libelant is always examined very closely, since he runs the risk of having caused the result. In Tolle v. Higginson,\textsuperscript{46} a fishing boat was capsized by swell created by a tug pushing a barge, and the death of a fisherman resulted. The lower court dismissed the libel, asserting that the fishing boat's failure to maneuver and head into the swell was the proximate cause of the capsizing. On appeal,\textsuperscript{47} however, the court noted that the tug operator's view was obstructed by logs piled atop of the barge ahead, and the negligence of a lookout placed on the logs was found to be the actual cause of the accident.

Clearly, proving a vessel's swell to be the proximate result of negligence is not a simple matter.\textsuperscript{48} Expert testimony on wave theory should make the task easier, although some courts have little faith in it.\textsuperscript{49}

On the other hand, if the respondent is shown to be at statutory fault,\textsuperscript{50} the burden of proceeding with the evidence may shift to him.\textsuperscript{51} And even where failure to have a proper lookout is not a statutory fault, it gives rise to a strong inference of fault, and there is a heavy burden to show clearly and convincingly that such omission was not the proximate cause of the

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\textsuperscript{46} 25 So. 2d 744 (C. A. La. 1946).

\textsuperscript{47} 212 La. 173, 31 So. 2d 730 (1947).

\textsuperscript{48} Western Fuel Oil Terminal Co. v. The Elisha Woods, 89 F. Supp. 862 (W. D. Ky. 1950); Byrd v. Belcher, \textit{supra} n. 4; Williamson v. The Carolina, \textit{supra} n. 25.

\textsuperscript{49} O'Donnell Transportation Co. v. M/V Maryland Trader, \textit{supra} n. 36.

\textsuperscript{50} Indian Towing Co. v. The Lyons Creek, \textit{supra} n. 30 (running lights not in conformance with Rules of the Road); Moran v. The Georgie May, \textit{supra} n. 25 (wrong side of channel); Kelley Island Lime & Transportation Co. v. City of Cleveland, 144 F. 207 (N. D. Ohio 1906) (violation of rules for overtaking a vessel by failing to signal). It is of interest that a vessel guilty of a technical statutory fault may be required to show that her fault not only did not, but could not, have contributed to the accident to escape liability. The Pennsylvania, \textit{supra} n. 45.

\textsuperscript{51} McKelvey, Evidence 96 (1944).
damage. Generally, the presumption of negligence is against the moving vessel.

The issue of proximate cause was paramount in *The Kaiser Wilhelm Der Grosse* case. The waves of a passing vessel had caused shifting of the deck cargo of a lighter and eventually a large amount of cargo was lost overboard. The court denied recovery, holding:

That conceding the correctness of a finding that the respondent steamship produced the swell which caused the original shifting of the logs, the facts did not show that to have been the proximate cause of the loss, so as to render the steamship liable therefor, but rather that it was due to the negligence of those in charge of the lighter, whose duty it was to correct the list before subjecting it to additional overturning force of the boom and the weight at its end.

In questions of swell-damage as in other areas of the law, “Every why hath a wherefore.”

**Conclusions**

In exercising the public right of navigation, the duties of the peerless, yet equally fictitious, prudent seaman arise.

In *Heaven v. Pender*, the court attempted to formulate a definition for duty without much success, and later attempts were so imprecise as to render them useless.

No better general statement can be made, than that the courts will find a duty where, in general, reasonable men would recognize it and agree that it exists.

Such definitions are very convenient for the courts but of little help to those seeking the extent of liability.

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54 145 F. 623 (2d Cir. 1906).
56 11 Q. B. D. 503 (1883).
58 Prosser, *op. cit. supra*, n. 23, at 334.
Swell-damage cases deal with injury indirectly caused by a vessel setting up waves which travel to the shore. The waves are acted upon by environmental forces and their wave energy dissipates in direct proportion to the distance traveled. The amount of damage that such a series of waves might cause is dependent upon the wind, tidal current, depth of water, presence of loose ice, and the physical configuration of the shoreline or shore installation.59

The libelant must show that there was a natural and probable sequence between cause and effect, without too many intervening circumstances, and without which the damage or injury would not have occurred.

Thus general tort concepts have combined with the peculiarities of sea law and a body of legal principles has emerged for determining liability for swell damage.