DAUBERT ISSUES IN MARITIME CASES

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In the nearly ten years following the amendment to the expert testimony provisions of the Federal Rules of Evidence, volumes of case law have been produced in an attempt to discern properly admissible opinion testimony. As one might expect, the application of these rules to Admiralty and Maritime cases in the federal courts is as varies as the field. Accordingly, this paper reflects an effort to draw some general rules of expert testimony applied to maritime law, and to provide a resource for the maritime lawyer when considering or facing a motion relating to such testimony.

I. THE EVOLUTION OF EXPERT WITNESS STANDARDS

Before 1993, the seminal case on the admissibility of expert testimony was Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). Frye held that scientific evidence must gain general acceptance in the particular field to which it belonged to be admissible, referred to as the "general acceptance" test. After the Rules of Evidence were enacted, there was considerable controversy as to whether Rule 702 incorporated or rejected this test.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), the Supreme Court rejected the Frye test as a requirement for admission of scientific expert testimony under Rule 702. Daubert was a pharmaceutical litigation case involving a claim that birth defects were caused by the

ingestion of Benedectin for morning sickness during pregnancy. The lead defense expert reviewed over one hundred and thirty studies and concluded that none of them found a connection between the drug and birth defects in humans . The plaintiffs' experts didn't disagree, but instead looked to animal studies and re-tooled some of the data in human studies.

The district court excluded the plaintiff's expert testimony, finding the methods used by the experts were not "generally accepted" given the amount of data available. The Ninth Circuit affirmed, and the Supreme Court granted certiorari to determine the validity of the Frye test in light of the adoption of the Federal Rules of Evidence. The court found that the Rules of Evidence were designed to liberalize the admission of expert testimony in federal courts, that the general acceptance test was too restrictive Id. at 588-89.

Looking to the language of Rule 702, the Daubert Court noted that the adjective "scientific" implies a grounding in the methods and procedures of science. Similarly, the word "knowledge" connotes more than subjective belief or unsupported speculation, but still "applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds." Id. at 590.

The Court distinguished the scientific principles of validity and reliability; to be scientific, a theory need not be established as true, it must simply be reliable as evidence, i.e. trustworthy. Id. This could be determined in a number of ways. First, the Court noted that the scientific method provided for the challenge of most theories, and therefore generally such knowledge should be able to be tested, if it had not already. The second consideration noted by the court was whether the theory had been subject to publication - not because a theory must be published in order to be admissible, but because publication made the theory subject to public and scientific scrutiny (i.e.,

a higher potential to be determined *unreliable*) Id. at 593. Third, a trial court should review the known or potential rate of error. Fourth, for known techniques or theories, general acceptance could still point to admissibility, while genereal skepticism may not. Most importantly, the Court held that the inquiry must be flexible to account for the subject matter, looking for "scientific validity-- and thus the evidentiary relevance and reliability" focusing "solely on principles and methodology, not on the conclusions that they generate." Id. at 594-95. If the trial court determined that the testimony was reliable, it was then charged with the duty to determine if it would assist the trier of fact. That is, the testimony must be "helpful"; it must go to a fact in issue and fit the issues in dispute in the case.

The Daubert Court explicitly noted that its opinion only involved issues relating to "scientific testimony" under Rule 702. The application of the Rule to other types of testimony was addressed in Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999). As the Kumho Tire court noted, Rule 702 speaks of "scientific" knowledge and "technical" or "other specialized" knowledge. It makes clear that any such knowledge may be the subject of expert testimony, and makes no distinction between those types of knowledge. Id. at 147 The Kumho Tire court found that Daubert's principles applied to all expert matters, holding that Rule 702 "establishes a standard of evidentiary reliability" and "requires a valid . . . connection to the pertinent inquiry." In any expert testimony, the trial judge must simply determine whether the testimony has "a reliable basis in the knowledge and experience of [the relevant] discipline." Id. at 152 (Citations omitted). Perhaps most importantly for the maritime practitioner, the Court clearly recognized the validity of expert testimony that was not necessarily "scientific", recognizing that "an expert might draw a conclusion from a set of observations based on extensive and specialized experience." The question is only "whether [a]

particular expert [has] sufficient, specialized knowledge to assist the jurors "in deciding the particular issues in the case." Id. at 156.

Lower courts have addressed the requirements of Fed. R. Evid. 702, Daubert, and Kumho tire by focusing on the "trilogy of restrictions on expert testimony: qualification, reliability and fit." E.g., Paoli R.R. Yard PCB Litig., 35 F.3d 717, 741 (3d Cir. 1994); Schneider v. Fried, 320 F.3d 396, 405 (3d Cir. 2003). That is, the witness must be qualified to testify as an expert, the methods of reaching the opinion must meet certain standards of reliability, and the testimony mut be relevant to a fact at issue in the case.

II. THE RULES

The admissibility of expert testimony is subject to FRE 104(a), which states "[p]reliminary questions concerning the qualification of a person to be a witness . . . or the admissibility of evidence shall be determined by the court." The Daubert Court referred to this as the "gatekeeping" responsibility of the district courts. Notably, the rule also specifies that the court "is not bound by the rules of evidence except those with respect to privileges" in a Daubert hearing.

In re: Paoli R.R. Yard PCB Litig., 35 F.3d 717 (3d Cir. 1994) is a leading case on issues of reliability and admissibility. In that case, the Third Circuit examined the gatekeeping required by Rule 104, finding that a proponent of expert testimony must do more than simply make a prima facie case on reliability. While the proponent does not have to prove to the judge that the proffered expert testimony is correct, it must be established by a preponderance of the evidence that the testimony is reliable. Further, the court held that "any distinction between methodology and its application is no longer viable. An expert who has sound methodology but who has misapplied it in the case should not be permitted to testify." This analysis applies to every step in the formation of the opinion.

Importantly, courts have recognized that Rule 104 is not only for use at trial, but may be combined by motion with Rule 56 to challenge the admissibility of expert testimony and seek summary judgment if the testimony is excluded. See Cortes-Irizarry v. Corporacion Insular De Seguros, 111 F.3d 184, 188 (1st Cir. 1997) ("We conclude, therefore, that at the junction where Daubert intersects with summary judgment practice, Daubert is accessible, but courts must be cautious -- except when defects are obvious on the face of a proffer -- not to exclude debatable scientific evidence without affording the proponent of the evidence adequate opportunity to defend its admissibility."); Progressive Northern Ins. Co. v Bachmann 314 F Supp 2d 820, 2004 AMC 1745 (W.D. Wis 2004) (neither party was entitled to summary judgment on insurer's claim that damage to boat was caused by mechanical failure, not by collision, and therefore not covered by insurance policy; affidavits of mechanic and of claims specialist created genuine dispute of fact concerning cause of damage). With regard to summary judgment, an expert opinion must be more than a conclusory opinion, it must state the factual basis and the process of reasoning which make the conclusion viable. Poulis-Minott v. Smith, 388 F.3d 354 1st Cir. 2004)

In an Admiralty bench trial, these requirements are relaxed. For example, in Weber v. Eco-Adventures Inc, No. 02-596, 2004 U.S. Dist. LEXIS 27485 (D. Hawaii April 2, 2004). the plaintiff dive instructor alleged that she suffered back injuries while lifting the vessel's dive ladder. Her expert opined that the only means to lift the ladder was "in contravention to all accepted safe lifting techniques." The defense moved to exclude this testimony because he had not actually witnessed the procedure and had rendered an opinion on lifting techniques which was beyond his expertise. The court ruled that Daubert applications were not as strict in admiralty cases, and that it could admit the testimony and give "due consideration to the value" at trial. Likewise, in

Thibodaux v. C&G Boats, Inc., No. 03-3617, 2004 US Dist. LEXIS 25638 (E.D. La. December 15, 2004), Judge Barbier found that in a non-jury trial, the danger of confusion from expert testimony "does not exist". The court therefore held that it would consider the expert report, testimony, and all other evidence at trial, and would "properly limit or disregard any expert testimony that is neither helpful nor within the scope of the witness's expertise." See also American Home Assurance Co. v. Masters Ships Management S.A., No 03-0618, 2005 U.S. Dist. LEXIS 985 (S.D.N.Y. January 24, 2005)(in an admiralty bench trial"there is no concern protecting a jury from being bamboozled by technical evidence of dubious merit.").

The Procedural requirements for presenting expert testimony appear in Fed. R. Civ. P. 26. Rule 26(a)(2)(A) requires that "a party must disclose to the other parties the identity of any witness it may use at trial to present evidence under Federal Rule of Evidence 702, 703, or 705. Rule 26(a)(2)(B) requires the proponent of an expert to provide a written report, contemporaneous with the diclosure, prepared and signed by the expert, containing

(i) a complete statement of all opinions the witness will express and the basis and reasons for them;

(ii) the data or other information considered by the witness in forming them;

(iii) any exhibits that will be used to summarize or support them;

(iv) the witness's qualifications, including a list of all publications authored in the previous 10 years;

(v) a list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by deposition; and

(vi) a statement of the compensation to be paid for the study and testimony in the case.

Rule 26(a)(2)(C) sets the default time for such disclosures "at least 90 days before the date set for trial or for the case to be ready for trial; [or] if the evidence is intended solely to contradict or rebut evidence on the same subject matter identified by another party under Rule 26(a)(2)(B), within 30 days after the other party's disclosure. Rule 26 contemplates that expert disclosures will need to be supplemented from time to time, and requires the proponent of expert testimony to do so.

In Poulis-Minott v. Smith, 388 F.3d 354, 358 (1st Cir. 2004), a Jones Act case involving the disappearance of a fishing vessel and her captain, the First Circuit held that these directives were mandatory, as Fed. R. Civ. P. 37(c)(1), "clearly contemplates stricter adherence to discovery requirements, and harsher sanctions for breaches of this rule. . . . The required sanction in the ordinary case is mandatory preclusion." That court excluded a variety of opinions simply because the expert's opinion exceeded that explained by the designation. Although Rule 37(c)(1) is traditionally invoked to preclude expert testimony at trial, it can also be applied to motions for summary judgment. Id. However, the rule does provide the court some leeway, allowing the court "to admit belatedly proffered expert evidence if the proponent's failure to reveal it was either substantially justified or harmless." Id.

Substantively, the admissibility of expert testimony is governed by FRE 701 through 705.

Rule 701 provides for Opinion Testimony by Lay Witnesses as follows:

> If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness, and (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue, and (c) not based on scientific, technical, or other specialized knowledge within the scope of Rule 702.

Rule 702 governs testimony by retained experts, stating

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Rule 703 governs the permissible bases for expert testimony, specifically allowing an expert to rely on certain testimony that would otherwise be inadmissible. Rule 704 provides that testimony in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact, and Rule 705 allows experts to testify without first testifying to the underlying facts or data, unless the court requires otherwise.

Rules 701 and 702 were amended in 2000 to reflect the standards enunciated in Daubert. The Advisory Committee Notes indicated that the amendment was designed to set the trial court's role as a gatekeeper and to provide general standards that the trial court must use to assess the reliability and helpfulness of expert testimony. Consistent with Kumho Tire, the amendment provides that all types of expert testimony should be reviewed for admissibility by the trial court reliability and helpfulness . "Consequently, the admissibility of all expert testimony is governed by the principles of Rule 104(a). Under that Rule, the proponent has the burden of establishing that the pertinent admissibility requirements are met by a preponderance of the evidence."

As the advisory notes state, for all types of expert testimony, the rules as amended require that: "(1) the expert be qualified; (2) the testimony address a subject matter on which the factfinder can be assisted by an expert; (3) the testimony be reliable; and (4) the testimony "fit" the facts of the case."

III. THE EXPERT'S QUALIFICATIONS

To testify as an expert under Rule 702, a witness must be "qualified as an expert by knowledge, skill, experience, training, or education." To be qualified, the witness must possess specialized expertise, which is a liberal requirement that can be met by "a broad range of knowledge, skills, and training" St. Martin v. Mobil Exploration & Producing U.S., Inc., 224 F.3d 402, 412 (5th Cir. 2000).

In Galentine v. Stekervetz, 273 F. Supp. 2d 538 (D. Del. 2003), plaintiff's proffered expert testified that defective wiring caused a marina fire. The expert had little formal training and had a high school education, but performed cause and origin investigation for the State Fire Marshall for over ten years. The court admitted his testimony, holding that a "broad range of knowledge skills, and training would suffice to qualify an expert. Notably, the court found that this "very liberal" standard is "particularly flexible" when the testimony is not scientific but other specialized knowledge typical in marine cases.

The expert's qualifications must apply to every aspect of the testimony. Certain Underwriters at Lloyds v. Inlet Fisheries, 389 F. Supp. 2d 1145, 1150-54 (D. Ak. 2005)(insurance exec with 45 years experience in the marine insurance industry not qualified to testify on stand alone marine pollution policies because he lacked the specialized experience with regard to those policies). Thus, qualifying an expert does not mean all of the expert's potential testimony will be admitted. In Calhoun v. Yamaha, 350 F.3d 316, 323-24 (3d Cir. 2003) the district court excluded portions of the plaintiff's expert's testimony on the safety of a jet ski's accelerator. The accelerator resembled a bicycle brake, and the plaintiff proffered experts to testify that a child's normal reaction to an extremis situation would be to squeeze the throttle. The court excluded this testimony from one witness on qualification because it was outside his area of expertise, and from another on reliability,

because the theory had not been tested and otherwise lacked valid scientific foundation. See also Aldahe v. Matson Navigation Co. No 06-11125, 2008 U.S. Dist. LEXIS 18465 (E.D. Mich. March 11, 2008) (expert in internal medicine not qualified to testify on psychiatric issues).

Experience alone can often qualify a witness as an expert in marine cases. For example, in an insurance declaratory judgment action, an affidavit of claims specialist on cause of a loss was admissible because his eleven years of experience as damage appraiser qualified him to render opinions on causation. Progressive Northern Ins. Co. v Bachmann 314 F Supp 2d 820, 2004 AMC 1745 (W.D. Wis 2004). In Insurance Co. of North America v. American Marine Holsingds, Inc., No. 04-86 2006 U.S. Dist. LEXIS 63913, (M.D. Fla. September 7, 2006), the court found that knowledge, training, and experience in the area of manufacturing recreational vessels is "other specialized knowledge", and therefore such witnesses are not presenting scientific evidence within the meaning of Rule 702 or Daubert. Testimony is admissible based on the experts' observations of the vessel after it was salvaged and they formed conclusions as to the cause of the sinking "using their vast wealth of knowledge and experience in the recreational boating industry."

Further, experts typically do not need experience with the exact issue at trial, so long as they are otherwise qualified in the field. In Warford v. Industrial Power Systems, Inc., 553 F. Supp 2d 28 (D.N.H 2008), the plaintiff was severely burned when a flash fire erupted while he was testing a recently installed generator system aboard a commercial fishing vessel. The case involved Warford's personal injury claim, CNA's subrogated insurance claim, and the owner's lost profits claim. The plaintiffs produced experts on proper installation of the generator system, causation, and loss of use. The court found that a non-degreed owner of a marine electrical service could testify about the proper installation of the system, even though he had no experience with the system that

was installed and his usual work was "much less complicated." Id. At 32. The court noted that an "expert need not have design experience with the particular product in order to render expert opinion about the unreasonableness of its design." (Citations omitted). Rule 702 is not so wooden as to demand an intimate level of familiarity with every component of a . . . device as a prerequisite to offering expert testimony." Therefore, without any specific evidence of incompetence with this type of system, the testimony was admissible.

Likewise, in American Home Assurance Co. v. Masters Ships Management S.A., No 03-0618, 2005 U.S. Dist. LEXIS 985 (S.D.N.Y. January 24, 2005), the defense challenged a marine insurance expertwho was a graduate of Kings Point and SUNY Maritime, and who had forty years of experience in marine insurance, arguing that the underwriting practices in question developed after he retired, and therefore he could have no knowledge of them. The court found that this went to weight, not admissibility. See also Banks v. Cinergy Power Generation Servs., No. 04-8, 2005 U.S. Dist. LEXIS 9918 (E.D. Ky May 24, 2005) (human factors and engineering expert with no specialized expertise in marine architecture or engineering properly qualified, no specialized marine design experience was required due to his extensive experience elsewhere). But see Enna v. Crescent Towing & Salvage Co., Inc., No 01-856, 2002 U.S. Dist LEXIS 15781 (August 19, 2002) (mechanical engineer with no naval architecture or marine design experience excluded the testimony due to lack of specific marine experience, specialized knowledge, or training; opinion that the lip of a door was too high, and the vessel had insufficient handholds, resulting in the captain's trip and fall was not based on specialized knowledge).

Warford also involved a defense challenged to the liability and causation testimony of an expert with forty years of experience overseeing construction and upgades of commercial and Coast

Guard vessels, "asserting that he had no training or experience in electrical matters." The court found that his experience involved enough marine electrical systems work, and his testimony established enough knowledge, that he was generally qualified as an expert in the field. Further, the court found that it was permissible for him to rely on the opinions of the electrical systems expert, and held that such reliance goes to the weight of the evidence, not to its admissibility. Id. at 34-35. This reasoning also applied to testimony on lost profits from an expert who had managed a fishing fleet for twenty years. The court found that the owner was entitled to recover lost profits from lost fishing opportunity if they could establish that by catches of similar vessels over the same grounds in the same period, and any challenge to that testimony must be through cross-examination. Id. at 35-36. See also Falconer v. Penn Maritime, 421 F. Supp 2d 190, 208, 2006 AMC 1430 (D. Me. March 10, 2006) (plaintiff's remedy as to the shaky factual basis for expert's opinions was vigorous cross examination)

IV. RELIABILITY OF THE EXPERT'S METHODS

Rule 702 also requires expert testimony to be based upon sufficient facts or data, and the product of reliable principles and methods. That is, the opinion need not be correct, but the methods used to reach it must be reliable. The court's goal in this regard is to "make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." Kumho Tire, 526 U.S. at 152.

The trial judge has great latitude to determine how to assess reliability. Essentially, the testimony must be "based on the 'methods and procedures of science' rather than on 'subjective belief or unsupported speculation', and the expert must have 'good grounds' for his or her belief . . . any

assessment of "the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity." Paoli R.R. Yard PCB Litig., 35 F.3d 717 (3d Cir. 1994). The reliability analysis also applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, and the link between the facts and the conclusion.

Courts have articulated a number of means to assess reliability, such as (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) therelationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put. E.g., Calhoun v. Yamaha, 350 F.3d 316, 323-24 (3d Cir. 2003).

Daubert is not satisfied by "an expert's self-serving assertion that his conclusions were derived by the scientific method." Rather, "the party presenting the expert must show that the expert's findings are based on sound science, and this will require some objective, independent validation of the expert's methodology." Daubert 43 F.3d at 1315 (on remand).

If an expert's opinion is based on insufficient information, the analysis is unreliable. Id. In Holesapple v. Barrett, No 00-1537, 5 Fed. Appx. 177 (4th Cir. 2001), he Fourth Circuit affirmed the exclusion of an expert report in a recreational vessel case because the report contained no indicia of reliability other than the expert's reliance on his own experience and knowledge. According to the Court, the expert's failed to reference any of the particulars of the day such as weather, vessel traffic, etc. which the court felt should have been considered in the formation of the expert's opinion. See also Seaman v. Seacor Marine, LLC, 2009 AMC 1506 (5th Cir. 2009) (excluding expert medical

testimony on causation in a Benzene/cancer case mainly because the source of the physician's information was data supplied by the plaintiff's attorney).

The basis for the expert's opinion must also pass the reliability standard. Kallas v. Carnival Cruise Lines, Inc., No. 06-20115, 2009 U.S. Dist. Lexis 33797 (S.D. Fl. March 30, 2009), (insufficient basis for an economist's testimony that the decedent's daughter had lost earnings due to a decreased likelihood of attending college from her father's death); Revak v. Interforest Terminal UMEA AB No 03-4822, 2009 U.S. Dist. LEXIS 81818 (September 8, 2009) (court excluded defense testimony on plaintiff's alcohol use diminishing future earnings or life expectancy, finding it irrelevant to the issue of without evidence that his alcohol use was debilitating in some fashion).

In Wills v. Amerada Hess Corporation, 379 F.3d 32, 46, 2004 AMC 2082 (2d Cir. 2004), the plaintiff alleged that her husband contracted squamous cell carcinoma from benzene exposure aboard the defendant's vessels. Her expert advanced the "oncogene theory", which states that there is no safe threshold exposure level to some chemicals because a single exposure can alter a single cell and begin the cancerous process. The court found that the expert testimony was unreliable without evidence of specific levels of exposure. The court also held that there is a need for medical expert testimony on causation in any case where an injury has multiple potential etiologies or etiology is otherwise beyond the experience of the lay juror, even under the Jones Act, where the plaintiff has a reduced burden of causation. But see Houle v. Jubilee Fisheries, No. 04-2346, 2006 U.S. Dist. LEXIS 1408 (W.D. Wa. 2006) (admitting medical testimony on summary judgment to defeat a Jones Act claim, but not an unseaworthiness claim, due to the lower burden on causation in the former).

Expert testimony can be excluded where the expert fails to test his theory. In Cook v

American S.S. Co. 53 F3d 733, 1995 AMC 2815, (6th Cir. 1995), for example, the court found that an expert should not have been permitted to testify to opinion that a line that was supporting deckhand in bos'n's chair parted because it was weakened by exposure to localized heat source, as he conceded that he did no testing on line in question nor did he call upon any scientific, technical, or other specialized knowledge that would have given his opinion valid basis.

In Roane v. Greenwich Swim Committee, 330 F. Supp. 2d 306, 2005 AMC 45 (S.D.N.Y 2004), this principle was also applied to exclude the Plaintiff's expert's opinion that a vessel was defectively designed because of the swim platform's proximity and orientation to the stern drives. The expert had never personally inspected the vessel, conducted any tests, or included measurements which could be subject to peer testing. The court found the expert qualified, but found his methodology flawed because he had not engaged in any testing or provided detailed analysis of alternative design. The expert was therefore prevented from testifying as to design defects of the vessel, and he manufacturer prevailed on summary judgment. See also Stolt Achievement Ltd v. DREDGE B.E. LINDHOLM, 447 F.3d 360, 2006 AMC 975 (5th Cir. 2006) (In a collision case, the court prevented an otherwise qualified expert from testifying as to specific hydrodynamic effects of a ship on a dredge barge because he had not actually calculated the forces involved, but allowed him to testify generally to the presence of a hydrodynamic effect, from his experience as a Master Mariner).

The expert must also be able to articulate his methods so that others can test them. See In re: Midland Enterprises, Inc. No 00-3750, 2002 U.S. Dist. LEXIS 23851 (E.D. La. December 11, 2002) (failure to articulate or identify an underlying methodology for his opinion which would even provide an opportunity to determine a known or potential rate of error along with a lack of testing

was performed that could be evaluated and replicated, led to exclusion of expert testimony).

However, experts have leeway, particularly with "other specialized knowledge, to use typical means and methods of their industry. In Hartley v. St. Paul Fire & Marine Ins. Co., 118 Fed. Appx. 914 (6th Cir. Ky. 2004), the court found a cause and origin expert's testimony that a vessel fire was caused by a cat interacting with a space heater was admissible because Rule 702 only required an expert to employ the same level of "intellectual rigor that characterizes the practice in the relevant field." Likewise, in Revak v. Interforest Terminal UMEA AB, no 03-4822, 2009 U.S. Dist. LEXIS 83462 (E.D. Pa. September 9, 2009), a personal injury case filed by a longshoreman who was injured when a draft of lumber fell on him. The terminal's expert examined the sling, and determined that the damage that caused the lumber to fall was so severe that the sling could not have worked earlier in the day in that condition. Therefore, he concluded that the sling must have become pinched against the vessel during the failed lift. The court found that a visual and tactile inspection of the failed sling by an engineer was a reliable method to make these conclusions. The court also found that the lack of testimony indicating contact between the sling and the vessel, and in fact significant testimony of no such contact, went to the weight of the evidence, not to admissibility.

This standard appears slightly higher with medical testimony, as demonstrated in Johnson v. Vane Line Bunkering, Inc., No 01-5819, 2003 U.S. Dist. LEXIS 23698 (E.D. Pa. December 29, 2003). The Johnson court conducted an extensive evaluation of the use of "differential diagnosis" to determine the cause of a stroke. The court found that a treating physician "need not rule out every possible cause so long as he or she employed sufficient diagnostic techniques to have good grounds for his or her conclusion." See also Poulis Minott v. Smith, 2003 AMC 2560 (D. Me. 2003) (expert need not eliminate every other possibility when explaining theory of loss, so long as the methodology

is reasonable). Unreliability may be shown as to medical testimony when a plausible alternative cause is demonstrated and the doctor offers no explanation for why he or she has concluded that was not the sole cause. But see Green v. McAllister Brothers, Inc. Nos. 02-7588 & 03-1482, 2005 U.S. Dist. LEXIS 4816 (S.D.N.Y. March 24, 2005)(the fact that the treating physician could not rule out other causes of the asthma did not make his testimony unreliable for Daubert purposes).

The crux of reliability analysis is that an expert's methods must be reasonable, well founded, and testable. Nothing about this standard actually requires the result to be correct, so long as the methods are reliable. The correctness of those methods or of the result is a subject for cross-examination, not a question of admissibility.

V. THE "FIT" OF THE TESTIMONY

The final third of the expert trilogy is that the testimony must "fit," Id. at 743, meaning "the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact." Schneider, 320 F.3d at 405. In Rule 702's language, the witness must apply "the principles and methods reliably to the facts of the case." In general, this means the testimony must be relevant to some question in the case, and must be suited to help the trier of fact resolve that question. Notably, the Second Circuit has indicated that relevancy may be a relaxed concept in Jones Act cases, due to the lower burden of proving causation. Wills v. Amerada Hess Corporation, 379 F.3d 32, 2004 AMC 2082 (2d Cir. 2004).

Initially, expert testimony must also pertain to a question that is itself relevant in the case. In Murray v. New York, No.08-1696 (2d Cir. May 29, 2009), the court upheld the exclusion of testimony from an expert that a Jones Act plaintiff had been improperly trained, and therefore should not have been engaged in a salvage operation. The Court found that the expert's testimony was not

relevant because the plaintiff was injured when he slipped, and there was no evidence that technical training could have prevented the injury. Similarly, in Vanderpool v. Edmondson, No. 01-147, 2005 U.S. Dist. LEXIS 8611 (E.D. Tenn. March 23, 2005) the plaintiff was injured when she was run over by a pontoon boat while she was swimming. The Court excluded the testimony of the plaintiff's liability expert because he relied on Inland Rules 5 and 7, look out and risk of collision respectively. The court found that these rules were implemented to avoid collision, and did not relate to risk to swimmers. Accordingly, it was not relevant to the issues at trial, and there was no need for expert testimony on the simple issue of negligence.

In Taylor v. Teco Barge Line, Inc., No. 08-27, 2009 U.S. Dist. LEXIS 50952 (W.D. Ky. June 16, 2009), the court excluded testimony regarding the NIOSH revised lifting equation. The court found that the testimony was not relevant to the issues, as there was no evidence that OSHA had intended these standards to apply to vessels, or actually applied them in a marine context. The court also stated that the NIOSH lifting standard was below and "contrary to any standard of reasonable care the Court is aware of in the maritime industry" because the stated purpose of the guideline was to set a standard that would prevent injuries in "almost the entire working popuation." The court did allow Green to testify on OSHA's general duty clause, and the reasons why he believed it was breached. This clause mirrors the "reasonably safe workplace" language prevalent in Jones Act cases.

Next, the testimony must be helpful in some way to the trier of fact. The Fifth Circuit's opinions in Peters v. Five Star Marine Service, 898 F.2d 448, 450 (5th Cir. 1990), and Smith v United Gas Pipeline Co., 857 F.2d 1471 (5th Cir. 1988) are often cited examples of how testimony is helpful to the trier of fact. In Peters the Fifth Circuit affirmed the exclusion of an expert who was

to testify "whether it was reasonable for an employer to instruct his employee to manually move equipment on the deck of a boat during heavy seas," as well as whether the cargo had been stowed properly, and whether diesel fuel made the deck slippery. The court found that the testimony was simply unnecessary because the jurors needed only "their common experience and knowledge" to appropriate assess the situation. Id. However, in Smith, that court reversed the district court's exclusion of an expert witness on marine operations who testified on "the reasonableness of a ship-to-ship transfer of machinery during rough seas," "the reasonableness of using a ship's crane equipped with a 'headache ball' and a shackle without a 'tag line' while the two ships were stern-to-stern in heavy seas, taking into account the backwash caused by the propellers of both vessels." According to the Peters court, the testimony was appropriate in Smith because that case was more complicated.

Courts have used this rationale to exclude testimony regarding situations that would appear to be outside the average juror's experience, such as the danger of "cluttering" on the deck of a drilling rig, Parker v. Diamond Offshore, No. 04-3306 (E.D. La. March 23, 2006), and to admit testimony about engineering and safety features of railings around hatch covers did not appear to be within typical juror's common knowledge. Falconer v Penn Mar., Inc. 380 F Supp 2d 2 (D. Me 2005).

Otherwise, decisions on helpfulness appear to have little continuity. In Kiger v. Plaisance Dragline & Dredging Co., No. 04-3153 2006 U.S. Dist. LEXIS 93999(E.D. La. December 28, 2006), the court review various liability expert testimony in a Jones Act cacse where one seaman tripped and fell into the Plaintiff. The court found that expert testimony was not needed as to the propriety or usefulness of the obstruction that caused the fall, because those issues were within the court's

experience to decide. However, the court allowed testimony as to how the lack of a clear passageway contributed to the fall. In Robertson v. Caldive Int'l, Inc., No. 05-807, 2006 U.S. Dist. LEXIS 51572 (E.D. La. July 14, 2006), the plaintiff was a galley hand who slipped on a set of wet steps in rough seas while holding a salad and trying to open the galley door. The court found that testimony that the configuration of the door, steps, and entrance to the galley was reasonable and within industry and regulatory standards was admissible because such information was not within the common knowledge or experience of the ordinary person. See also Johnson v. Cenac Towing, Inc., 06-0914, 2006 U.S. Dist LEXIS 97434 (E.D. La November 15, 2006) (customary practices and procedures for lifting a crossover hose with hose lifting tongs outside the realm of normal experience and therefore useful to trier of fact and admissible); Champion v. Global Santa Fe Drilling Co.. No 06-1800, 2008 U.S. Dist. LEXIS 107883 (E.D. La. December 15, 2008) (testimony regarding the impact of rough weather on pipe loading operations aboard a jack up rig would be helpful to a jury); Dartez v. Caldive Int'l, Inc., No 07-2653, 2008 U.S. Dist. LEXIS 13001 (February 20, 2008) (Expert testimony not necessary that a rubber-backed mat creates less of a hazard than a throw rug).

In Nickerson v. Sealift, Inc., No. 04-2462, 2005 U.S. Dist. Lexis 45873 (E.D. La. May 26, 2005), however, the defense challenged testimony in a Jones Act case that there was oil on the deck, and that was a hazard, as the jury could determine that without an expert. The Plaintiff argued that that the testimony related to ordinary procedures, duties owed by the defendant, and the breach of those duties. As such, the testimony relates to standards of care, outside of the ordinary juror's experience. The Court allowed this testimony. This argument could have been used Welch v. Noble Drilling (U.S., Inc.), no 04-2689, 2005 U.S. Dist. LEXIS 45875 (E.D. La. December 7, 2005) (expert opinions are unnecessary if they "merely reveal acts or omissions, or obvious conditions, in

support of theories of negligence and unseaworthingess) and Warner v. United States of America, 04-2789, 2005 U.S. Dist. LEXIS 36528 (E.D. La. Nov 29, 2005). (Excluding testimony that plaintiff's injury related to repeated lifting of paint cans "where the risk of injury should have been obvious to his supervisors").

Maritime cases typically involve situations and environments that are beyond the realm of everyday experience for the average juror or average lawyer. Therefore it is tempting to hire an expert to testify that the defendant was negligent, or that it was not, or that the plaintiff was guilty of comparative fault. Courts examining this testimony under Rule 702 have typically excluded such testimony as it invades the province of the trier of fact. See Hill v. NSB Niederelbe Sciffahrtsges.MBH & Co., No 02-2713, 2004 U.S. Dist. LEXIS 4837 (E.D. Pa. March 5, 2004) experts can not comment on the credibility of fact witnesses or legal principles, but can testify as to custom and usage or standard practices of the trade); Poulis Minott v. Smith, 2003 AMC 2560 (D. Me. 2003) (expert testimony on meaning of contract (bareboat charter) is inadmissible). Fenimore v Am. River Transp. Co. 66 Fed Rules Evid Serv 325.(E.D. La. 2005) (expert may not testify that seaman who brought suit was not culpable in accident because such opinion was not grounded in technical knowledge and was issue of fact for jury). In Gulasky v. Ingram Barge Co., No. 02-173, 2006 U.S. Dist LEXIS 1187 (W.D. Ky. Jan. 10, 2006), the defendant proffered a Captain's testimony of a captain as to which of the plaintiff's responsibilities were more "dockhand" verus "deckhand" on the issue of seaman status, an ultimate issue in the case. In response to the Plaintiff's argument that his testimony was an attempt to communicate a legal standard to the jury, the court restricted his testimony to what those positions did, and prevented the witness from testifying which of those duties related to being a seaman. The court also found it helpful to the trier of fact because it

provided the jury with "a better understanding of maritime life".

However, courts are more receptive to testimony on the standards of care in the marine environment, and for particular positions in maritime employment. In Ross v. Noble Drilling Corp., No 03-0015, 2005 U.S. Dist. LEXIS 356 (E.D. La. January 5, 2005), the plaintiff was injured while being transported from a rig to a vessel in a crane basket. Defendant presented testimony that the plaintiff had assumed an unsafe position in the basket. Plaintiff alleged his opinion was inadmissible because he re-stated facts with a spin favorable to the defendants, deriving conclusions outside the scope of Rule 702. The Court noted that "generally expert testimony offering a legal opinion is inadmissible because it will not assist the trier of fact in understanding the evidence or determining a fact in issue. Further, restatements of factual determinations are not permitted." Therefore, the court limited experts on both sides to testimony "as to whether a specific person acted appropriately or inappropriately because it assumes actual knowledge about what the person did." In an earlier order, reported at 2004 US Dist. LEXIS (May 11, 2004) the Ross court also ruled that a plaintiff's expert could testify as to whether a particular maneuver by the crane operator was appropriate or not, so long as he did not testify that an inappropriate maneuver was negligence.

Similarly, Marceaux v Conoco, Inc., 124 F3d 730 (5th Cir. 1997) affirmed the admission of testimony of expert in workplace lifting safety in a Jones Act case because the expert provided the jury with specialized knowledge concerning safe lifting practices and training procedures which helped it understand evidence and determine whether seaman was improperly trained to handle situation he was confronted with.

VI. Experts and Lay Witnesses

Maritime cases frequently involve fact witnesses with specialized knowledge outside the

experience of the average judge or juror. The opinions and impressions that these persons form can be helpful to the trier of fact, and can be used to support or defeat summary judgment motions if properly admissible. Rule 701 allows fact witnesses to testify to opinions and inferences, but only if they are rationally based on the witnesses personal perceptions.

A lay opinion under Rule 701 must be based on personal perception, must be one that a normal person would form from those perceptions, and must be helpful to the finder of fact. Texas A&M Research Foundation v. Magna Transportation, Inc., 338 F.3d 394, ,401, 2003 AMC 1839 (5th Cir. 2003). "In particular, the witness must have personalized knowledge of the facts underlying the opinion and the opinion must have a rational connection to those facts." Id. Accordingly, Rule701 does not preclude testimony by business owners or officers on matters that relate to their business affairs.

For example, an officer or employee of a corporation may testify to damages, industry practices, and pricing under Rule 701 without being qualified as an expert under Rule 702. In Tampa Bay Shipbuilding & Repair Co. v. Cedar Shipping Co., 320 F.3d 1213, 1223 (11th Cir. 2003), the plaintiff claimed $1,035, 554.50 to repair a bulk carrier that had grounded. The defendant counter-claimed for portions of the invoice and for delay damages. The plaintiff presented several employee/subcontractor witnesses, who had been involved in the repairs to testify about the work done, the amounts invoices, and related industry standards. The defendant argued that these witnesses were not qualified under Rule 702, and testified beyond the scope of Rule 701. Following a lengthy analysis, the court found that fact witnesses could testify based on particularized knowledge garnered from years of experience within the field. Business owners who had participated in the repairs were precisely the type of witness contemplated by Rule 701.

The Tampa Bay Shipbuilding court noted that the 2000 amendments to Rule 701 adding the reference to Rule 702 were made at the behest of the Department of Justice, who was concerned that all witnesses would be barred from testifying based on personal and specialized knowledge unless they had complied with all of the expert disclosure rules. Rule 701 was therefore amended to reflect a desire to allow fact witnesses with specialized knowledge to testify about their perceptions and opinions specifically derived from their facts, observations, and knowledge without need for disclosure under Civil Rule 26 or specific qualification under Rule 702.

By contrast, in United States v. John Stapp, Inc., 448 F. Supp. 2d 819 (S.D. Tex. 2006), the court faced a summary judgment motion on damages which was opposed by the report of the chief mate aboard the offending vessel who estimated the amount of damage at $15,000. The court found that this testimony was "akin to an expert opinion" and proceeded to analyze it under Rule 702, finding that there was no evidence the Chief Mate was qualified to perform a damages assessment or that his "quick look" at the damaged vessel was insufficient methodology to assess the damages.

Courts have generally found that the essential difference between lay opinion testimony and expert testimony is that the expert can answer hypothetical questions - lay witnesses are limited to testifying to opinions gleaned from factual information they personally perceived. Only an expert can testify to"specialized knowledge" with no firsthand knowledge of the events giving rise to the lawsuit. Minerva Marine Inc. v. Spiliotes, No 02-2517, 2006 U.S. Dist. LEXIS 13922 (D.N.J. March 13, 2006). Further, a lay witness can only testify with regard to the facts of the case, and hypothetical questions may only be posed to a properly qualified expert. Certain Underwriters at Lloyd's v Sinkovich 232 F3d 200, 2001 AMC 1054 (4th Cir. 2000) (marine surveyor and investigator not able to testify as lay witness since much of his testimony was in form of responses to

hypothetical or similar questions that required specialized knowledge to answer). Still, a witness with personal knowledge of the facts can draw conclusions and inferences from those facts, regardless of whether he has specialized expertise. Certain Underwriters at Lloyds v. Inlet Fisheries, 389 F. Supp. 2d 1145, 1150-54 (D. Ak. 2005).

Like any ruling on the admissibility of expert witness testimony, district courts exercise very broad discretion, and the cases are hardly congruous. In Osprey Ship Mgm't, Inc. v. Jackson County Port Authority, No 05-290, 2008 U.S. Dist. Lexis 12731 (S.D. Miss. February 6, 2008), for example, the court was faced with a proffered damages expert with "thirty years of experience involving claims management and investigation" who was employed by the plaintiff and oversaw the repairs at issue in the case. The court recognized that the witness could testify as a fact witness on certain matters relating to damages, but excluded his testimony on reasonable cost of repairs and loss of use under a Rule 702/Daubert qualification analysis. However, under Rule 701, courts have allowed a chief engineer employed by the same company to provide lay testimony under Rule 701 on the duties of various positions aboard the ship and for other seamen employed by the defendant to testify on issues of liability under 701. Falconer v. Penn Maritime, 421 F. Supp 2d 190, 208, and 397 F. Supp 2d 62, 67-68 (D. Me. 2006).

VII. CONCLUSION

Maritime cases on expert testimony are much like others in the field. The discretion given to the court is very broad, and therefore the range of opinions is broad as well. In the Federal Judicial Manual, Justice Breyer recalls "[a]fter a colleague asked whether a certain scientific paper was wrong, Wolfgang Pauli replied, "That paper isn't even good enough to be wrong!" Our objective is to avoid legal decisions that reflect that paper's so-called science." Science and knowledge are ever-changing arts, however, and the decisions of federal courts reflect that premise.