

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

CIVIL ACTION NO. 09-11948-RGS

JOSEPH B. BERTRAND and
NANCY L. BERTRAND

v.

GENERAL ELECTRIC COMPANY

MEMORANDUM AND ORDER ON DEFENDANT'S MOTION
TO PRECLUDE EXPERT TESTIMONY AND FOR SUMMARY JUDGMENT

September 21, 2011

STEARNS, D.J.

Joseph and Nancy Bertrand brought this product liability lawsuit against defendant General Electric Company (GE). The Bertrands allege that an early morning fire that destroyed their Wakefield, Massachusetts home originated in a defective gas cooking range manufactured by Mabe, a GE affiliate. The Bertrands maintain that a defectively-designed ignition switch caused the “push-to-turn” safety feature of the burner control valve to fail, permitting a family pet to activate the left rear burner of the stove. This is the explanation for the fire offered by the Bertrands’ expert witness, Peter Chen.

GE moves to preclude Chen’s testimony on a purported lack of qualifications and on *Daubert* grounds. *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579

(1993). GE contends that Chen's professional training and experience as a mechanical engineer do not qualify him to render an opinion on kitchen stove design, and that his conclusions are unsupported by reliable engineering methodology. If either of these propositions is true, GE has plausible entitlement to summary judgment as Chen is the Bertrands' only expert witness.¹ The court heard oral argument on GE's motion on August 3, 2011.

BACKGROUND

The facts in the light most favorable to the Bertrands as the non-moving party are as follows. The fire broke out at approximately 5:00 a.m. on August 24, 2006, at the Bertrands' home at 7 Shumway Circle in Wakefield, Massachusetts. The Bertrands and their two children (ages 14 and 20) were asleep when Joseph Bertrand was awakened by a smoke detector. The Bertrand family made their way safely out of the house, which was quickly enveloped in flames.

¹ "In evaluating the adequacy of a product's design, the jury should consider, among other factors, 'the gravity of the danger posed by the challenged design, the likelihood that such danger would occur, the mechanical feasibility of a safer alternative design, the financial cost of an improved design, and the adverse consequences to the product and to the consumer that would result from an alternative design.'" *Back v. Wickes Corp.*, 375 Mass. 633, 642 (1978), quoting *Barker v. Lull Eng'r Co.*, 573 P.2d 443, 455 (1978). Needless to say, in performing this task, a jury ordinarily requires expert assistance. See *Kourouvacilis v. Gen. Motors Corp.*, 410 Mass. 706, 716 (1991).

It is undisputed that the fire originated in the left rear burner of the Bertrands' GE gas cooking range. The Wakefield firefighters who suppressed the blaze observed that the left rear burner control of the stove was in an "on" position and that the burner's gas flame had ignited a plastic cutting board placed over the burner. The Wakefield fire investigator estimated that a fire would have erupted within 20 minutes of the cutting board's exposure to the burner's flame. He also noted (at the scene and in a later test) that the burner's knob could be turned to the "on" and back to the "off" position without first depressing the knob. Joseph Bertrand testified that no alterations or repairs had been made to the stove from the date it was purchased and installed. Neither the Bertrands nor their children had used the stove for at least 24 hours prior to the fire. The Bertrands kept a menagerie of eighteen cats who were permitted to roam freely in the house.²

The range was manufactured in 1999 for GE by its Mexican partner Mabe. The range was equipped with four gas surface burners and an electronic ignition. The control knobs for operating the surface burners are located on the front face of the range, above the oven. The configuration of the control knob consists of a pointer

² Joseph Bertrand testified that some of the cats were feral and would leap up on the stove. The plastic cutting board was placed over the burner to keep the cats from coming in contact with the burner. Joseph Bertrand Dep. at 45-46.

seated on a circular, two-inch diameter skirt. The pointer is similar in shape to a bicycle seat. The narrower end of the pointer protrudes farther from the skirt than the wider end to allow the user to readily position the pointer at the desired setting by rotating the knob counterclockwise from its seated position at “off.” To light a burner, the user must first depress the control knob and then turn it counterclockwise to the “lite” position. As the knob is manipulated, the stem of the burner control valve to which the knob is attached turns in sync with it, activating the ignition switch through which the stem passes. The ignition then emits an electric spark which ignites the burner.

The “Use and Care Installation Guide” that typically came with the range contained the following general instruction: “WARNING: If the information in this guide is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.” *See* Def.’s Mem. - Ex. 9. The Guide also cautioned: “Do not store or use combustible materials, gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance” – “Keep all plastics away from top burners.” Despite the warnings, it was the Bertrands’ practice to keep two plastic cutting boards on top of the stove when the burners were not in use, one that covered

the two left surface burners and another covering the two right burners.³

The fire largely destroyed the Bertrands' home and its contents. The burner control valve and the ignition switch for the left rear burner sustained extensive damage and the plastic control knob was completely melted. The original user's manual that came with the stove was also lost in the fire.

The Bertrands' Proposed Expert: Peter Chen

Chen is employed by CED Investigative Technologies, Inc., a litigation-oriented company that provides "forensic engineering," "investigative services" and "consultation" for "all manners of accidents," principally to law firms. *See* <http://www.cedtechnologies.com/> (last visited Sept. 20, 2011). Chen has worked for CED since 2006. Chen has a bachelor's degree and a master's degree in Mechanical Engineering from the Georgia Institute of Technology. His graduate school concentration was in the area of tribology, an engineering discipline that involves the study of "friction, lubrication and wear of devices." *Id.* After receiving his master's degree in 1995, Chen worked at Pratt & Whitney until 2006 in engineering jobs related to jet engine manufacture. More specifically, he worked on thermal management

³The Bertrands persisted in covering the surface burners with two plastic cutting boards even after Joseph Bertrand had observed one of the boards beginning to melt after he or someone else in the household inadvertently turned on one of the burners without first removing the cutting board.

systems, “operationally mature” engines, and heat transfer analysis. *Id.* Chen also performed product engineering, including the design and structural analysis of mainframe components and the testing of subcomponents of jet engines. While at CED, Chen “completed testing of gas ranges or their components.” Pls.’ Mem. at 4. Chen has also designed valves.

Chen lists his areas of expertise as including general mechanical engineering, machine analysis and guarding, human factors analysis, fire origin and cause determination, product liability, mechanical equipment evaluations and testing, accident reconstruction, gas turbine engine systems design, and tribology. Since 2008, Chen has given expert testimony in product liability cases involving a go cart, an industrial floor grinder (polisher), a personal mobility scooter, and a hot water expansion tank. He has also testified as an expert in “slip and fall cases.” Def.’s Mem. at 5. In a non-litigation context, Chen has consulted with a paper shredder manufacturer regarding warning labels and has investigated a “building explosion” for a New Jersey company. Pls.’ Statement of Facts (SOF) ¶ 20.

In preparing his report for this case, Chen inspected the remnants of the Bertrands’ range for approximately 90 minutes on May 18, 2010. He noted that while the right side burners and controls were damaged by the fire, the left side burner was

essentially intact.⁴ Chen found the inside of the stove, including the supply lines, cooper lines, and soft metal lines to be in “good shape”, while the numbers on the burner valve were readable. During the inspection, Chen inserted a relatively undamaged knob from one of the right surface burners onto the valve stem for the left rear burner and attempted to turn the knob counterclockwise six times. On two attempts, he was able to rotate the knob without first depressing it. On the remaining four attempts, the push-to-turn detent feature of the control valve functioned properly. Chen also “inspected other stoves at retail stores.” Pls.’ Opp’n Mem. at 16. While he was unable to locate an identical model of stove that the Bertrands had purchased for testing purposes, he was able to review the stove’s design drawings.

Chen claims that the stove’s mechanical drawings failed to include a specified tolerance for the through-hole for the valve stem. Chen states that the tolerance for the through-hole diameter should have been specified as “just greater than 1 millimeter.” Pls.’ SOF ¶ 27. He opines that the lack of specificity for the tolerance leaves open whether the specified valve stem tolerance – if not exactly .250 inches – would result

⁴ GE states the opposite in its Statement of Facts - “As a result of the fire, the burner control valve and ignition switch for the left rear burner sustained extensive damage and the plastic control knob was completely melted away.” Def.’s SOF ¶ 20. The Bertrands admit the statement. Pls.’ Mem. at 14. In discussing the burners in his report, Chen’s orientation appears to have been facing the stove.

in an “interference fit” causing a bypass of the detent safety feature.⁵ *Id.* ¶ 26. Chen concludes “[i]n the absence of any human interaction with the stove just prior to the fire (or the entire day prior), circumstantial evidence points to animal involvement with turning the control knobs.”⁶ Pls.’ Ex. 16 at 11.

GE moves to strike Chen as an expert witness and, if the motion is granted, for an entry of summary judgment. GE submits that plaintiffs have failed to demonstrate that Chen (“an all-purpose engineer”) is qualified to offer opinions on stove design, and

⁵ Specifically, Chen is of the opinion that

without any product definition, there was no manufacturing inspection or requirement, and thus exists the possibility of producing an insufficiently sized through-hole in a valve switch which could grab the stem upon a push to detent[.]. The return push force for the stem was only 1 to 2 lbs. Which might not overcome an interference fit between the stem and the through-hole. Normally, an interference fit would not be an issue because the valve switch could then go in and out with the stem. However, the left front burner location, there was a bracket on the gas supply manifold (see Figure 7) which would hold the valve switch and subsequently keep the stem of the Valve Burner Control compressed and thereby defeating the push to detent[.]. With the information provided, CED considers this a design escape.

Pls.’ Ex. 16 at 12.

⁶ In his report, Chen states that GE was aware of at least one reported incident in which a cat caused the knob on a gas stove to turn, igniting the flame. Chen relates that GE “never did a root cause or took corrective action as required for ISO 9000 certified companies.” *Id.* ¶ 34. *See generally* Mikhail Bulgukov, *The Master and Margarita* (New York: Grove Press, 1967).

that Chen, in any event, fails to opine with the requisite degree of reasonable scientific certainty and therefore fails the *Daubert* test. Def.'s Reply Br. at 11, citing *Tokio Marine & Fire Ins. Co. v. Grove Mfr. Co.*, 958 F.2d 1169, 1174-1175 (1st Cir. 1992) (“In a field like accident reconstruction that is more art than science, the trial judge has particular liberty to eschew ‘professional witnesses.’”). In support of its substantive summary judgment motion, GE offers the affidavit of Martin Vink, stating that the GE drawings of the burner valve switch show the valve stem through hole diameter as .256 inches with a tolerance of “plus or minus .002 inches.” Vink Aff. ¶ 4.

DISCUSSION

Federal Rule of Evidence 702 states that

[i]f 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.

In *Daubert*, the Supreme Court abandoned the general acceptance test of *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), noting the considerable academic and judicial criticism of *Frye's* ultra-orthodox approach to the admissibility of expert testimony based on scientific principles, and finding it superseded by the more liberal

relevancy test of Fed. R. Evid. 702. “That the *Frye* test was displaced by the Rules of Evidence does not mean, however, that the Rules themselves place no limits on the admissibility of purportedly scientific evidence.” *Daubert*, 509 U.S. at 589. *Daubert* imposes a duty on federal trial judges to play the role of a “gatekeeper,” insuring that the fact-finding process does not become distorted by “expertise that is *fausse* and science that is junky.” *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 159 (1999) (Scalia, J., concurring).

Two gateposts frame the exercise of a judge’s discretion to admit or exclude expert testimony. First, the witness must be shown to be sufficiently qualified by “knowledge, skill, experience, training, or education.” Fed. R. Evid. 702. Second, the Federal Rules of Evidence require that the judge “ensure that any and all scientific testimony or evidence admitted is not only relevant, but [also] reliable” (and helpful to the finder of fact). *Daubert*, 509 U.S. at 589. “[T]he trial judge must determine at the outset, pursuant to Rule 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or

methodology properly can be applied to the facts in issue.” *Id.* at 592-593.⁷

Daubert, as stressed in the advisory note to the December 1, 2000 amendment to Fed. R. Evid. 702, “did not work a ‘seachange over federal evidence law,’ and ‘the trial court’s role as a gatekeeper is not intended to serve as a replacement for the adversary system.”” *Cf. United States v. Mitchell*, 365 F.3d 215, 245 (3d Cir. 2004) (“[T]he court is only a gatekeeper, and a gatekeeper alone does not protect the castle”). “*Daubert* does not require that a party who proffers expert testimony carry the burden of proving

⁶ A footnote in *Daubert* had led many courts and commentators to conclude that the Supreme Court had intended *Daubert*’s “gatekeeper” provision to apply only to expert opinion based on novel scientific theory and hypothesis and not to opinions based on experience, training, empirical observation, or technical expertise. *See Daubert*, 509 U.S. at 590 n.8. The uncertainty, however, was resolved in *Kumho*. “We conclude that *Daubert*’s general holding – setting forth the trial judge’s general ‘gatekeeping’ obligation – applies not only to testimony based on ‘scientific’ knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge.” *Kumho*, 526 U.S. at 141. Justice Breyer, writing for a nearly unanimous Court, emphasized that no bright line divides “scientific” knowledge from other types of knowledge about which experts are called to testify. “[W]hether the specific expert testimony focuses upon specialized observations, the specialized translation of those observations into theory, a specialized theory itself, or the application of such a theory in a particular case, the expert’s testimony often will rest ‘upon an experience confessedly foreign in kind to [the jury’s] own.’ . . . The trial judge’s effort to assure that the specialized testimony is reliable and relevant can help the jury evaluate that foreign experience, whether the testimony reflects scientific, technical, or other specialized knowledge.” *Id.* at 149. *See also Cipollone v. Yale Indus. Prod., Inc.*, 202 F.3d 376, 380 (1st Cir. 2000) (*Daubert* admissibility of expert engineering testimony in product liability case); *Habecker v. Clark Equip. Co.*, 36 F.3d 278, 290 (3d Cir. 1994) (same, applying *Daubert* to an examination of the methodological soundness of accident reconstruction testimony).

to the judge that the expert's assessment of the situation is correct. . . . In short, *Daubert* neither requires nor empowers trial courts to determine which of several competing theories has the best provenance. It demands only that the proponent of the evidence show that the expert's conclusion has been arrived at in a scientifically sound and methodologically reliable fashion." *Ruiz-Troche v. Pepsi Cola of Puerto Rico Bottling Co.*, 161 F.3d 77, 85 (1st Cir. 1998) (citations omitted). "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky, but admissible evidence." *Daubert*, 509 U.S. at 596. *See also Milward v. Acuity Specialty Prod.s Group, Inc.*, 639 F.3d 11, 15 (1st Cir. 2011).

As to Chen's qualifications, the court is satisfied. A licensed mechanical engineer with an advanced degree and years of hands-on experience with jet engine design and structural analysis, Chen is well within his competence in examining the workings of a burner switch on a simple kitchen stove. GE's objection to Chen appears based less on any real question about his qualifications than a distaste for the fact that he makes his living as a hired expert in plaintiff's cases. If the fact of Chen's employment has allowed a bias to creep into his opining, that is a fair subject for cross-examination, but it is not grounds for excluding his testimony altogether.

GE's secondary claim is that Chen's conclusion that the push-to-turn detent

feature of the left rear burner control was not functioning properly at the time of the fire is not based upon any reliable engineering methodology. It is not clear, however, that methodology comes into the picture at all. The evidence from the perspective of the plaintiffs – the one that the court must apply – includes the following: (1) no alterations were made to the stove from the time of its purchase; (2) the Wakefield firefighters found the knob activating the left rear burner – the undisputed source of the fire – in the “on” position; (3) the Wakefield fire investigator was able to turn the knob from the “off” to the “on” position three times without depressing it first; (4) Chen was able to replicate this in his own testing of the stove on two of six attempts; and (5) as improbable as it may sound, at least one other instance is known in which a cat was responsible for igniting a burner on a similar stove.

“In proving negligence and causation, the plaintiff may rely on the circumstantial evidence that the injury was caused by the occurrence of an unusual event.” *White v. W.W. Grainger Co., Inc.*, 1988 WL 290663, at *3 (D. Mass. Feb. 16, 1988), citing *Evangelio v. Metro. Bottling Co., Inc.*, 339 Mass. 177, 180 (1959).

In order for the fact finder to be allowed to infer negligence, the occurrence causing the injury must be one that usually does not happen absent negligence. In showing that the occurrence is one that ordinarily does not happen absent negligence, the plaintiff need not eliminate all possible causes of the occurrence. Rather, the plaintiff need only show that this occurrence was more likely than not the result of the defendant’s negligence. Also, the instrumentality causing the injury need not be in the

defendant's exclusive control, as long as the plaintiff shows that the instrumentality has not been misused or tampered with after leaving the hands of the defendant.

Id., citing *Coyne v. John S. Tilley Co., Inc.*, 368 Mass. 230, 237 (1975). See also *Gelinas v. New England Power Co.*, 359 Mass. 119, 123 (1971) ("The test is not whether the evidence was such that it required the jury to infer negligence by the defendant, but only whether it was sufficient to permit such an inference."); *Petchel v. Collins*, 59 Mass. App. Ct. 517, 522-523 (2003) (in light of the circumstantial evidence, no expert was necessary to demonstrate a causal connection between propane tanks and the origin of a fire). Compare *Triangle Dress, Inc. v. Bay State Serv., Inc.*, 356 Mass. 440, 441-442 (1969) (expert testimony required where the only evidence was that a fire broke out two hours after defendant repaired an air conditioner). Viewing the evidence in the light most favorable to the Bertrands, they have demonstrated a trial-worthy issue. It, of course, remains their burden to demonstrate at trial that, more likely than not, the fire was caused by GE's negligence. See *Wilson v. Honeywell, Inc.*, 409 Mass. 803, 807 (1991).

ORDER

For the foregoing reasons, GE's motion to preclude expert testimony and for summary judgment is DENIED. The Clerk will set the case for trial at the next available trial date.

SO ORDERED.

/s/ Richard G. Stearns

UNITED STATES DISTRICT JUDGE