IN THE INTERMEDIATE COURT OF APPEALS

OF THE STATE OF HAWAIʻI

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CHRISTINE B. STALLWORTH, Individually and as Prochien Ami for CHRISTIAN WESLEY KOA-KIA STALLWORTH, a Minor, Plaintiff-Appellees,
v.
GEORGE S. BOREN, M.D.; GEORGE S. BOREN, M.D., INC. and MAUI RADIOLOGY CONSULTANTS, Defendant-Appellants,
and
JOHN DOES 1-10; JANE DOES 1-10; DOE PARTNERSHIPS 1-10; DOE CORPORATIONS 1-10; ROE "NON-PROFIT" CORPORATIONS 1-10; and ROE GOVERNMENTAL AGENCIES 1-10, Defendants.

NO. 23515

APPEAL FROM THE FIRST CIRCUIT COURT
(CIV. NO. 99-1161)

August 20, 2002

(Burns, C.J., Watanabe, and Lim, JJ.)

OPINION OF THE COURT BY LIM, J.

In this medical malpractice action, Defendants-Appellants George S. Boren, M.D. (Dr. Boren), George S. Boren, M.D., Inc. and Maui Radiology Consultants (collectively, the Boren Defendants) appeal, by leave of court to take an interlocutory appeal, the March 15, 2000 order of the circuit court of the first circuit that granted a new trial after the jury found in their favor. Because the court abused its discretion in granting the motion for new trial, we reverse the March 15, 2000 order.

I. Background.

Christian Stallworth (Christian) grew up on the island of Maui with his mother, Christine Stallworth (Christine), two older brothers, Ijon and Issac, and grandparents. He was an active child, basketball being his favorite sport.

On June 11, 1988, when he was six years old, Christian tripped and hit his head while playing at home with his brothers. When Christine returned home, Christian was "throwing up and sick," so she took him to the hospital. The hospital gave him an X-ray in the emergency room. The result was negative. Christian stayed overnight, and the hospital discharged him the following day.

On June 20, 1988, Christine took Christian to see a neurologist, Dr. Loren Direnfeld (Dr. Direnfeld), because Christian was having difficulty in school with learning and information retention. Christine was concerned that Christian's difficulties were related to oxygen deprivation at birth. The umbilical cord had been wrapped around Christian's neck twice. Dr. Direnfeld's examination of Christian did not reveal any neurological defect. There was no sign of any brain injury related to Christian's June 11 fall.

On March 23, 1989, Dr. Direnfeld re-examined Christian "because of concerns for problems with dyslexia or a reading problem or a learning problem." Dr. Direnfeld arranged for

Christian to undergo both a CT (or CAT) scan[1] of the brain and an electroencephalogram (EEG), a brain wave test. Dr. Direnfeld made the decision to order a non-contrast CT scan, as opposed to a contrast CT scan. He explained that a contrast CT scan requires sedating the patient and injecting the patient with an x-ray dye known to cause allergic reactions in some patients. Further, according to Dr. Direnfeld, Christian's elemental neurologic exam was normal, "[s]o there wasn't a clear -- there wasn't an indication to use contrast in the CAT scan in Christian's case at that time. Like -- if I may say, like with the EEG I expected the result would be normal or negative."

On March 31, 1989, Maui Radiology Consultants administered Christian's CT scan without contrast. Dr. Boren, a general diagnostic radiologist, interpreted the CT scan and dictated a report detailing the results. The report listed Dr. Direnfeld as the referring physician, and the section calling for "pertinent clinical history" noted post traumatic headache and dyslexia. Dr. Boren reported:

> CT SCAN OF THE HEAD WITHOUT CONTRAST.
> Procedure: Multiple contiguous thin section CT cuts are taken through the brain without IV contrast administration. No complications were encountered.

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[1] A CT scan involves a specialized, computerized x-ray which permits examination of parts of the body by means of multiple "slices," which may be of varying thickness, across the body. The "slices" cut parallel to the ground and, in a CT scan of the brain, move successively upward from the base of the brain towards the top. These "slices" are then examined and reconstituted by the computer before being read and interpreted by a radiologist. A contrast CT scan is a CT or CAT scan performed after the intravenous administration of iodine-based contrast material.

> Findings: The frontal sinuses are undeveloped. The sphenoid sinus appears normal. The mastoid air cells appear normal. The ventricular system is normal in size and shape, is symmetric bilaterally, and reveals no evidence of midline shift. I see no evidence of either high or low density lesions within the brain substance, and there is no evidence of sub or epidural fluid collections.
>
> CONCLUSION: Normal CT scan of the brain without contrast.

Dr. Direnfeld did not see Christian again after the March 1989 visit, as both the CT scan and the EEG were normal.

In 1992, Christian and his family moved to Georgia. Prior to October 1996, Christian did not experience any significant health problems and, in fact, excelled at athletics. He played both football and basketball for his school. His mother pointed out that he was his school's "star player" in both sports. He also played basketball extra-scholastically on a state team and was ranked nationally.

Christian's health problem surfaced on October 10, 1996, when he was in the ninth grade. Christian was attending a Christian camping retreat in Clayton, Georgia, over two hours from his home. Apparently, Christian went swimming and was attempting a somewhat difficult dive when his neck jerked and he heard a pop. Twenty minutes later, he had the worst headache of his life. Christian was also experiencing some weakness, so his coach took him to the emergency room of a local hospital that night. Immediately after speaking with Christian's coach, Christine called Dr. Patricia Glenn (Dr. Glenn), the family

doctor. Dr. Glenn recalled being concerned about Christian's head. Later, the school's principal called Christine to inform her that the hospital had released Christian and prescribed him Tylenol, apparently attributing his symptoms to a viral infection. Christian went back to camp.

The next day, Christine picked Christian up at his school as he returned from his retreat. Christine testified that "he didn't look like my Christian. He was kind of dragging his, um, right leg, and he was, um, complaining about his head. And the first thing he said was 'Take me to Egleston.'" Christine took him to see Dr. Glenn. Dr. Glenn directed Christine to immediately take Christian to Crawford Long Hospital for a CT scan. The results revealed that Christian had a blood clot in his brain.

On October 14, 1996, Christian was transferred from Crawford Long, a general community hospital, to Egleston, a pediatric hospital affiliated with Emory University. At Egleston, Christian was placed in the care of Dr. Joseph Petronio (Dr. Petronio), a pediatric neurosurgeon. Dr. Petronio determined that Christian's brain harbored an arterio-venous malformation, or "AVM." He explained that an AVM is:

> an abnormal connection between arteries which carry blood from the heart to the brain and veins that carry blood from the brain back to the heart. And typically the classical arterio-venous malformation has what we call a nidus. It has a small tangle of blood vessels and, you know, you can use various terms to describe this. People have talked about bowls of spaghetti or

> tangles of spaghetti or balls of yarn. And what this is is an abnormal ball of blood vessels. It's not a normal structure. And because of that it is prone to hemorrhage. So --
>
> [Stallworths' attorney]: So a nidus again, Doctor, is what?
>
> [Dr. Petronio]: A nidus is a small tangle of abnormal blood vessels that are typically part of an arterio-venous malformation. The funny thing about arterio-venous malformations in children is that they can have several different forms and they can be quite dynamic. They're actually quite different than adults. In children this nidus can be quite small and can be very difficult to visualize sometimes at all. And AVMs in children can have a big fistulas [(sic)] component where arteries shunt blood directly to veins and not all of the arteries feed into a nidus. There are several -- those are the main anatomic differences in children.
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> Sometimes in children AVMs expand or grow throughout childhood so that they can start as a relatively small lesion and enlarge, but the major risk . . . is that it can act as a mass. It can act as a structure pushing on a normal brain and therefore it can cause headaches than [(sic)] can cause neurologic symptoms like weakness, sensory disturbances. And one of the catastrophic problems that can occur with an AVM is that it can hemorrhage. And, you know, over the years we know that that's the devastating thing that can happen with AVMs. It happens at a rate of somewhere between one and a half and two percent per year so that it's a cumulative life expectancy. The longer someone is going to live with an AVM, the greater their cumulative risk of hemorrhage is. If I saw a patient who was 85 and had an AVM, I might not recommend that we treat it at all because the life expectancy of the patient would be relatively short whereas a younger child with an AVM who would be expected to live 70 years would have a much greater cumulative risk of hemorrhage.
>
> Having said that, in children AVMs tend to hemorrhage more than in adults. So when I see an incidental AVM in a child, it's something that we typically strongly recommend be treated. It's not an emergency to treat it because the risk of hemorrhage is only one and a half percent per year.

Dr. Petronio opined that Christian's AVM was "a congenital malformation that's had 14 years to mature[.] . . . We believe in most patients . . . these are congenital malformations that can mature, grow, or change over time[.]"

Dr. Petronio formulated a plan for Christian's treatment. Christian's hemorrhage "was in a very important area of his brain. It was in the parietal lobe which is just behind the ear of the brain. That's important for movement, for control of the opposite side of the body as well as for sensation. Lower down in the parietal lobe language function is served and things like mathematical function[.]" Dr. Petronio testified that, with a hemorrhage in a crucial area of a child's brain,

> we tend to try to treat it medicinally first until some of the swelling and inflammation around the hemorrhage resolves. To try to remove the clot in somebody who's relatively stable [(sic)] I think would not be a wise maneuver.
>
> So in addition to formulating a plan to remove the malformation electively we put them on medicines to reduce likelihood of having seizures and to reduce the swelling around the clot and the malformation.

Dr. Petronio estimated that he operates "between 10 and 20 times per year on arterio-venous malformations in children." Dr. Petronio planned to wait approximately four to six weeks before operating on Christian. "We like to wait until the children have plateaued and that typically takes anywhere from 4 to 6 weeks after an acute hemorrhage." Some of Christian's symptoms were improving due to the medications, but were "still present."

Dr. Petronio noted that the risk of rebleeding in a child who has had an AVM hemorrhage is six percent per year during the first year after the hemorrhage, as opposed to the standard risk of one and a half to two percent per year

thereafter. Dr. Petronio explained that he balances the risk of spontaneous rebleeding against the risk of disastrous consequences to critical areas of the brain attendant upon an immediate operation.

Unfortunately, a few days later, Christian suffered a rebleed. Up until that point, Christian had been awake and had shown improvement. However, on October 17, 1996, Christian "deteriorated acutely" when he had a seizure which catalyzed the rebleed.

Dr. Petronio happened to be in the hospital at the time making his late-evening rounds. He performed immediate emergency surgery on Christian. Dr. Petronio surmised that Christian "probably would not have survived" had Christian not already been in the hospital. The emergency surgery essentially became "a salvage operation, an operation to take out the majority of the blood clot." After the operation, a pathology report confirmed that Christian had a "classic [AVM] with a nidus." Following the emergency operation, Christian underwent a number of other surgeries as a result of what Dr. Petronio referred to as Christian's "catastrophic hemorrhage."

Christine remembered that Dr. Petronio asked her after the emergency surgery whether Christian had ever had a CT scan of his brain. Christine said no, but her son Ijon, who was also present, reminded her of the CT scan taken more than seven years

earlier by Maui Radiology Consultants. Dr. Petronio asked Christine to get that CT scan. Dr. Petronio testified that when he viewed the March 31, 1989 CT scan provided by Christine, he recognized "some abnormalities in the same area of this malformation that were consistent with an arterio-venous malformation." Dr. Petronio maintained that the abnormalities were "pretty apparent. I mean it was very easy to see."

Unfortunately, Christian did not significantly improve after the rebleed and remains in a "semi-vegetative state." According to Dr. Petronio, although Christian has "made small improvements to the point where he does open his eyes and he is able to perhaps recognize his family[,]" he "has no meaningful function . . . . doesn't do anything purposefully." He is unable to talk or care for himself. Complicating Christian's care is his size. He is between 6'7" and 6'9" in height and weighs over two hundred pounds, which makes him "very hard to care for[.]"

Dr. Petronio predicted that Christian should have "a very normal life expectancy into his '60s or early '70s." However, Dr. Petronio made a somber observation: "Well, at this point it's been three and a half years since his hemorrhage, and I don't hold out much optimism at all that he's ever going to improve significantly from a neurologic standpoint."

On February 12, 1999, Christine initiated a lawsuit, individually and as Christian's *prochein ami* (collectively, the

Stallworths), against the Boren Defendants. The complaint alleged, in pertinent part:

> 9. On or about March 31, 1989, Christian Wesley Koa-Kiai Stallworth became a patient of defendants Dr. Boren, Dr. Boren, Inc. and Maui Radiology, and defendants Dr. Boren, Dr. Boren, Inc. and Maui Radiology undertook to interpret a radiologic study for Christian Wesley Koa-Kiai Stallworth by means of a non-contrast CT scan of his brain.
>
> 10. Defendants carelessly and negligently interpreted the March 31, 1989 non-contrast CT scan of Christian Wesley Koa-Kiai Stallworth's brain, and/or carelessly and negligently examined, monitored, diagnosed, prescribed, cared for and treated Christian Wesley Koa-Kiai Stallworth, causing Christian Wesley Koa-Kiai Stallworth severe injuries, including a ruptured arteriovenous malformation in Christian's brain, resulting in permanent and irreversible brain damage for which Christian requires complete care and total assistance with all activities of daily living, mental and emotional distress and other disabilities.
>
> . . . .
>
> WHEREFORE, plaintiffs demand judgment against defendants, jointly and severally, for general and special damages in amounts that will be proven at trial, and for their costs, pre- and post-judgment interest from the date of the incident, reasonable attorneys' fees, and such other and further relief as the Court deems just and proper[.]

On March 8, 1999, the Boren Defendants filed an answer to the Stallworths' complaint.

Jury trial began on January 10, 2000. The trial was part of a "jury innovations project[,]" which allowed the jurors to take notes, submit written questions to be asked of witnesses, and receive partial jury instructions just before closing arguments. The parties agreed that there were two primary issues at trial: what was the applicable standard of care in this case, and did Dr. Boren breach that standard?

Dr. Boren testified initially as an adverse witness for the Stallworths. He confirmed that the March 31, 1989 CT scan of

Christian's brain utilized the standard distribution of images -- successive slices four millimeters thick moving upward through the base of the brain, then switching to cuts eight millimeters thick through the rest of the brain. For some reason no longer in memory, a few re-cuts two millimeters thick and a few four millimeters thick were taken in the central area of the brain, starting about five slices above the location of the AVM. The following exchanges took place during direct examination:

> [Stallworths' attorney]: You in fact, sir, were the radiologist that read the CT performed on Christian Stallworth at Maui Memorial [Hospital] on March 31, 1989; is that correct?
>
> [Dr. Boren]: Yes, sir.
>
> [Stallworths' attorney]: And that CT was what's referred to as a CT of the brain without contrast; is that correct?
>
> [Dr. Boren]: Correct, sir.
>
> [Stallworths' attorney]: And as I understand it you have no particular -- you have no independent recollection of doing this particular CAT scan some ten years or so ago; correct?
>
> [Dr. Boren]: That is correct. I do not remember.
>
> . . . .
>
> [Stallworths' attorney]: And that history -- so it's fair to say that you knew of the history of post-traumatic headaches and dyslexia at sometime [(sic)] before reading, interpreting, and reporting your findings on the CT?
>
> [Dr. Boren]: Yes, sir.
>
> [Stallworths' attorney]: And it was your conclusion after reading and interpreting this CT that it was a normal CT of the brain without contrast; correct?
>
> [Dr. Boren]: Yes, sir.
>
> [Stallworths' attorney]: You don't have any recollection whether Dr. Direnfeld actually reviewed this film or not; is that correct?
>
> [Dr. Boren]: No, I don't.
>
> [Stallworths' attorney]: And as I understand it you don't recall any conversation with Dr. Direnfeld either back in 1989 about Christian or your interpretation of the CT; is that correct?
>
> [Dr. Boren]: That is correct.
>
> [Stallworths' attorney]: You've looked at the 1989 scan of Christian for March on several occasions

more recently; isn't that true?

[Dr. Boren]: Yes, sir.

[Stallworths' attorney]: And you looked at them again both before and at your deposition back in April of this year in Reno?

[Dr. Boren]: Yes.

[Dr. Boren's attorney]: Actually last year.

[Stallworths' attorney]: I'm sorry. It is last year. Thank you.

[Stallworths' attorney]: And I think at that time it was your testimony that you still believe that you read this CAT scan correctly when you reported it as normal, and you still believe it does not show any abnormality; is that correct?

[Dr. Boren]: In April 1999 at that deposition; that's correct.

. . . .

[Stallworths' attorney]: And you agree at the time of your depo and I assume now that with all the information that we presently have that that higher density, lighter spot on image 21 could have been an AVM back in 1989; correct?

[Dr. Boren]: Could have been, yes.

[Stallworths' attorney]: Okay. But at the time of your deposition you explained that the higher density, lighter spot on Image 21 was due to volume averaging[2] it with the structure you see on the next slice here meaning Image 22? Isn't that what you said?

[Dr. Boren]: I -- I said at the deposition that I didn't have any particular recollection of reading that scan in 1989, but by way of explaining it to you I thought that was a plausible explanation.

[Stallworths' attorney]: Didn't you say you were sure you interpreted at that time and that Slice 21 is part of volume averaging with a structure you see on the next slice here meaning 22?

[Dr. Boren]: I said "I am sure"?

[Stallworths' attorney]: Yes. Would you like your deposition?

[Dr. Boren]: No. That's -- I believe you.

[Stallworths' attorney]: Okay.

[Dr. Boren]: I, uh -- I know that you and I discussed this at deposition.

[Stallworths' attorney]: Okay.

[Dr. Boren]: And I said this is probably or what I felt was that this was probably how I explained that to myself as I looked at the scan.

[Stallworths' attorney]: Okay. 'Cause you saw

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[2] Volume averaging, also referred to as partial voluming, occurs when only part of a structure is transected by one slice of the CT scan. The adjacent slice or slices may capture the same structure, but each might have a different appearance due to the different locations of the transections. In the course of computer reconstitution of the images, an inaccurate representation of the structure may result.

something and you explained it in all probability you believe back in 1989 is volume averaging?

[Dr. Boren]: Yes.

. . . .

[Stallworths' attorney]: Doctor, this isn't an easy question, but you're under oath. As you look back at it now in '89, putting yourself back there, would it be fair to say that really what happened is -- and I'm not picking at you as an individual, as a radiologist -- that you just made a mistake on this film and should have read it as abnormal but in fact called it volume averaging?

[Dr. Boren]: Well, I -- the bottom line here is that I don't think that I felt the scan was abnormal which is why I called it normal.

. . . .

Well, in retrospect -- in retrospect now having seen the films of Christian, the CT films, the MRI, and the angiogram, it is clear to me as a radiologist that there was a vascular abnormality in that region.

[Stallworths' attorney]: And do you believe that you should have reported it back in 1989 with you having read thousands of brain CTs and knowing that there are areas there that are abnormal that cannot be explained by volume averaging?

[Dr. Boren]: I think the non-contrast head CT which I read on Christian in 1989, the findings that you're talking about were too subtle for me to pick up otherwise I would have -- had I noted anything abnormal, I would of said so.

[Stallworths' attorney]: Well, but you did pick something up. It's not as though you saw nothing. You picked something up and called it volume averaging; isn't that true?

[Dr. Boren]: I did not dictate anything in my report about a structure that I believe is volume averaging. You had asked me what I thought, what could explain that.

[Stallworths' attorney]: Right.

[Dr. Boren]: And I -- and this was in 1999.

[Stallworths' attorney]: Right. And you said that you had seen the higher density back in 1989; correct?

[Dr. Boren]: Yes.

[Stallworths' attorney]: Okay. And you gave an explanation as to why you saw that higher density as volume averaging; correct?

[Dr. Boren]: Yes.

[Stallworths' attorney]: All right. All right. Let's move on then.

Just a moment. Let me just clear a couple of points because -- clarify a couple of points that may be important.

You will agree that when you initially saw these films in '89 you would have seen the higher density we discussed on Image 21; correct?

[Dr. Boren]: Yes.

> [Stallworths' attorney]: And that you would have seen that bright area, the punctate lesion, on Picture 20, just that dot?
> [Dr. Boren]: In all likelihood.

(Footnote supplied.)

Dr. Boren also testified in his own defense. The following exchanges occurred during the course of this later testimony:

> [Dr. Boren's attorney (on direct)]: Now as you sit here today, Doctor, do you remember nearly eleven years ago actually reviewing the CT scan of Christian Stallworth?
> [Dr. Boren]: No, I don't.
> . . . .
> [Dr. Boren's attorney]: Do you have an independent recollection as you stand here today in this courtroom, knowing you're under oath, of actually dictating, of the time you had sat down and dictated this [March 31, 1989] report?
> [Dr. Boren]: No, I don't remember this report specifically.
> . . . .
> [Stallworths' attorney (on cross)]: When something is reported as a lesion, is that a density which can be either normal or abnormal?
> [Dr. Boren]: In general a lesion implies abnormal, but it does not necessarily mean -- and there are degrees of abnormal.
> [Stallworths' attorney]: Okay. So it could really be either normal or abnormal depending on the way it's written?
> [Dr. Boren]: The way it's written and what you're talking about, yes.
> . . . .
> [Stallworths' attorney]: Okay. Isn't it true, sir, that as you're sitting here today knowing normal brain anatomy as you do that Section 20 of the 3-31-89 CT, that punctate lesion, that dot, you now recognize as an abnormality?
> [Dr. Boren]: I recognize, yes, in retrospect after seeing further studies.
> . . . .
> [Dr. Boren's attorney (on redirect)]: Dr. Boren, just to follow-up briefly. If in interpreting back in 1989 you were unsure of something on a CT scan, would you have dictated a report calling it normal?
> [Dr. Boren]: No. No, I would not have.
> . . . .
> THE COURT: Thank you.
> Dr. Boren, these are labeled as questions from

> the jury panel.
> Do you agree with Dr. Hesselink's testimony that Images 19, 20, 21, have abnormalities on it?
> [Dr. Boren]: In retrospect, yes, I do.
> . . . .
> [Dr. Boren's attorney]: You indicated in response to one of the jurors' questions that you agree in retrospect with the abnormalities that Dr. Hesselink saw and described. Do you recall that?
> [Dr. Boren]: Yes, I do.
> [Dr. Boren's attorney]: You said "in retrospect.["]Can you explain what you meant by that to the ladies and gentlemen of the jury[?]
> [Dr. Boren]: What I meant by that was that after seeing the examinations which were performed at the time that Christian had his bleed in 1996, the CT scans, the MRI, and the angiogram, I could go back to that region where that occurred, where the abnormality occurred, and look at the described -- the, uh -- the things that Dr. Hesselink describes as abnormal I believe are part of that abnormality which was shown in 1996.
> [Dr. Boren's attorney]: And did you -- you looked at those same scans back in 1989; correct?
> [Dr. Boren]: I what?
> [Dr. Boren's attorney]: You looked at the 1989 CT of Christian Stallworth in 1989; correct?
> [Dr. Boren]: In 1989 in reviewing that scan I -- if I had seen something that I thought was abnormal, I would have said so in my report. I honestly did not see an abnormality at that time.

The Stallworths called two expert witnesses to address whether Dr. Boren had measured up to the applicable standard of care.

Dr. John Hesselink (Dr. Hesselink), a neuroradiologist, testified just before Dr. Boren in the Stallworths' case-in-chief. He identified an abnormality on images 19, 20 and 21 of the March 31, 1989 CT scan. He recognized an "abnormal high density" on image 21 which was "whiter than the other areas of the brain" and had "an elongated configuration." The following dialogue ensued:

> [Stallworths' attorney]: Was it at all difficult in your looking at . . . the scan of March

> 31, 1989, that has sections 19, 20 and 21 on it, for you to observe the abnormality?
>
> [Dr. Hesselink]: No.
>
> [Stallworths' attorney]: There are lesions as I take it that are subtle in radiology; is that correct?
>
> [Dr. Hesselink]: Yes.
>
> [Stallworths' attorney]: How would you characterize this one?
>
> [Dr. Hesselink]: Uh, this one certainly -- I mean it's not subtle. It's -- you look at the scan and it's clearly higher density than the other part of the brain. And I think from a distance away you can see it. You don't have to get close up to the film. It's clearly an abnormality.
>
> . . . .
>
> [Stallworths' attorney]: In your opinion, Dr. Hesselink, to a reasonable medical probability knowing everything you know about this case do you believe that Dr. Boren breached the standard of radiologic care in not reporting the March 31, 1989 scan as having some abnormality on it?
>
> [Dr. Hesselink]: Yes, I do.

Dr. Hesselink discounted Dr. Boren's speculation, made in his 1999 deposition, in which he hypothesized he might have thought the image was the result of partial voluming. Dr. Hesselink explained: "Partial voluming is where you have a lesion and only part of the lesion is included in the slice so you don't get a full thickness slice of the lesion." Dr. Hesselink opined it was not reasonable to attribute the image on the slices to partial voluming, because "it's not partial voluming." Dr. Hesselink further observed:

> Again in my opinion a radiologist who is looking at these images -- first of all in my opinion he should recognize that it's abnormal. There's something funny on the images but you can't see on the other side. I'm not saying that a general radiologist should be able to say, oh, this is obviously a vascular malformation, but whenever you see something that looks suspicious you have other options. You can do additional studies, and in this case the easiest thing to do would be to do a contrast CT.

The Stallworths also called Dr. Stephen Holmes (Dr. Holmes), a neuroradiologist, to address the applicable standard of care. Dr. Holmes, like Dr. Hesselink, opined that Dr. Boren had breached the standard of care:

> [Stallworths' attorney]: Do you believe, sir, . . . that Doctor Boren breached the standard of care when he reported the film we're looking at as normal?
> [Dr. Holmes]: I believe there should have been a discussion about the area of increased density and perhaps further discussion whether or not it was obvious as to what type of abnormality it was, but I think it perhaps should have been seen.
> [Stallworths' attorney]: And so just for legalese, you believe there was a breach of the standard of care by Doctor Boren when he read those as normal?
> [Dr. Holmes]: I believe so.

Dr. Holmes also discounted the notion that volume averaging could explain the structure on slices 19, 20 and 21. He acknowledged on cross-examination, however, the rarity of Christian's affliction:

> [Dr. Boren's attorney]: Okay. Now, the thousands of head CT scans that you see every year, if we just do the math from 1980 forward and, you know, average it, it comes out to quite a few head scans, including MRIs and CT scans; correct?
> [Dr. Holmes]: Yes.
> [Dr. Boren's attorney]: And based upon what you were able to determine in this case looking at the angiogram, the intracranial angiogram in a pediatric patient, there have only been several times in your career when you've seen anything like that; isn't that true?
> [Dr. Holmes]: You mean a fistula?
> [Dr. Boren's attorney]: Like the one in this case.
> [Dr. Holmes]: Yes. After I saw the arteriogram, I mean, based on the arteriogram it would be a fistula, and fistula[s] are uncommon, arteriovenous malformations are much more common and AV fistula is a subtype, if you will. [S]o the arteriograms, as far as I'm concerned, allowed us to subcategorize it as a little more uncommon abnormality. However, apparently at surgery they

> found an AVM so they found more than we could see on the film.

In their case, the Boren Defendants called two expert witnesses to address the applicable standard of care.

First, the Boren Defendants called Dr. John Cieply (Dr. Cieply), the only general diagnostic radiologist among the four principal expert witnesses who testified at trial. Dr. Cieply explained that radiologists "are, in a sense, consultants to the other physicians[,]" because what they do is "take x-rays, interpret x-rays to give findings to the physicians." He further explained that radiology is not pure science, but "sort of a combination of science and an art. The science part is the generation of the x-ray. The art part comes in interpreting it." Dr. Cieply analogized the general diagnostic radiologist to the "old fashion [general practitioner,]" in that they are "consultants to everybody across the board." The practice of general diagnostic radiology, he explained, concerns the entire body, as opposed to the various radiology sub-specialties, such as neuroradiology.

Dr. Cieply described how radiologists work:

> [Dr. Boren's attorney]: What is it that you do in general in making your -- how do radiologists such as yourself go about their work?
>
> [Dr. Cieply]: In a way, it's a little harder to describe. But effectively, you start off in radiology in your residency, and you start looking at films. Essentially, you look at films for years. And that's where the three-year or the four-year residency would encompass. And you look at films in every different section.
>
> You rotate from gastroenterology -- that's the stomach and the colon -- to chest radiology, we've

talked about, to neuroradiology. And you just keep looking at films and looking at films with professors with you. And you build up a font of knowledge. And I sort of think of it as sort of a template in your brain that this is a normal.

And that's where we're learning. We're learning the abnormal because we're going to spend our life looking for the abnormal. So what you do is you set a whole series. You get a library in your head of normal templates of each thing. And we're talking about hands and fingers and feet and knees and chest and the brain. And then we're talking about the brain in children and the brain in adults and the heart and the chest of a young person, an old person.

. . . .

So anyway, your mind has all these templates. And each time we look at a film, we throw one of these templates on there. And the things that are abnormal stand out to us. And then once they stand out to us, then we know it's abnormal and then we have to make our decisions of is this abnormal bad or is this abnormal not too bad or is this an abnormal meaning there's a disease or is this an abnormal. . . . So that's basically how we operate each and every time we see a film.

. . . .

We're always comparing what we've seen in the past to what we have now. Because if you don't have any basis to compare, you wouldn't have any idea what's normal or abnormal.

. . . .

[Dr. Boren's attorney]: In your opinion, do general diagnostic radiologists have the same level of skill as a neuroradiologist in detecting, identifying subtle abnormalities on head CT scans?

[Dr. Cieply]: No, [neuroradiologists are] definitely much better.

[Dr. Boren's attorney]: Why is that?

[Dr. Cieply]: Because they've had additional training. And they have -- [a]gain, the only way I can explain it, they just have more of these templates in their mind. They have seen more abnormalities. The abnormalities that they see and their knowledge of the disease in the brain is just -- far surpasses the general radiologist. And that's why they spend two additional years.

If a regular residency is four years, they, in general, spend 50 percent more time -- half again the same time they spend in learning everything about all of radiology just becoming an expert in one of those lines that we saw. So their knowledge is extremely deep compared to the general radiologist.

Dr. Cieply testified about his review of Christian's March 31, 1989 CT scan:

> [Dr. Boren's attorney]: Now, Doctor, you indicated that your interpretations of that CT scan -- that if you'd been doing it as part of the scan rotation in March of 1989 -- would have been normal?
>
> [Dr. Cieply]: If that had come through in a stack of films with that history, I think I would have called it normal.
>
> [Dr. Boren's attorney]: And would you have dictated a report?
>
> [Dr. Cieply]: Yes.
>
> [Dr. Boren's attorney]: And what would your report have said?
>
> [Dr. Cieply]: It would have been pretty much identical to what Dr. Boren said.
>
> [Dr. Boren's attorney]: Would your formal report have indicated it was a normal exam?
>
> [Dr. Cieply]: Yes.
>
> [Dr. Boren's attorney]: If the referring neurologist had called you back in 1989 and asked you what the scan showed, what would you have told him?
>
> [Dr. Cieply]: I would have told him it's normal.
>
> [Dr. Boren's attorney]: And would that interpretation that you made have been as accurate and as correct as you could have made at that point?
>
> [Dr. Cieply]: Well, for me at that time, that was what I would have done.
>
> [Dr. Boren's attorney]: And before concluding your report, would you have shown the report to a neurologist?
>
> [Dr. Cieply]: No.
>
> [Dr. Boren's attorney]: Why not?
>
> [Dr. Cieply]: Well, because it looked normal. I -- [f]rom the history, the odds on finding a subdural in this kind of a situation are extremely small because people who have had brain trauma and have blood in their brain, usually it occurs quickly. And it very very very uncommon in a pediatric case to have a chronic subdural, which is that blood over the brain, and have it show up in a scan somewhere down the line.
>
> So I would expect it to be normal. We were just making sure there was nothing. And I wouldn't have thought anything more about it.
>
> [Dr. Boren's attorney]: Now, if you had dictated a report, would that report have ended up in the patient's medical records?
>
> [Dr. Cieply]: Yes.
>
> [Dr. Boren's attorney]: And based upon your experience as a general diagnostic radiologist, do you have an opinion as to whether Dr. Boren's interpretation, as reflected on [Dr. Boren's March 31, 1989 report], met the standard of care which applied

as a general diagnostic radiologist?

[Dr. Cieply]: I think as a general diagnostic radiologist, that would be the standard of care.

[Dr. Boren's attorney]: What do you base that on?

[Dr. Cieply]: Well, the fact that when I looked at it, I thought it was normal, So I'm part of the standard. And, you know, there are --

[Dr. Boren's attorney]: Back in 1989, do you believe that the standard of care which applied to a general diagnostic radiologist in interpreting a CT scan of the head was the same as that which applies to neuroradiologists?

[Dr. Cieply]: Oh, not at all.

[Dr. Boren's attorney]: Why?

[Dr. Cieply]: Well, they should be better. We hold them to a higher standard. So there is a certain difference in the standard of care, I think that -- You can't expect a general radiologist to have all the knowledge and visual acuity of somebody who has spent a considerable extra time training for that and also doing it on a regular basis. Just doesn't happen.

. . . .

[Dr. Boren's attorney]: Now, you spoke to a Dr. Stephen Holmes. And he's already been in this courtroom.

You know Dr. Holmes?

[Dr. Cieply]: Yes, I do.

[Dr. Boren's attorney]: How do you know him?

[Dr. Cieply]: He's one of my partners.

[Dr. Boren's attorney]: And does he have a specialty?

[Dr. Cieply]: He's a neuroradiologist.

[Dr. Boren's attorney]: After you had concluded your initial evaluation of the films in 1998, did you show them to Dr. Holmes?

[Dr. Cieply]: I did.

[Dr. Boren's attorney]: And what did Dr. Holmes tell you?

[Dr. Cieply]: He thought that there was an abnormality in the film.

[Dr. Boren's attorney]: How long did it take him to pick it out?

[Dr. Cieply]: Very quickly.

. . . .

[Dr. Boren's attorney]: Now, when Dr. Holmes picked it up quickly, did that in any way, shape or form change your opinion that Dr. Boren, as a general diagnostic radiologist, met the standard of care?

[Dr. Cieply]: No.

[Dr. Boren's attorney]: Why not?

[Dr. Cieply]: Well, because standard of care. Again, Dr. Boren is a general radiologist. The general radiologist is not going to be able to make every diagnosis that a specialist in any of the radiology field would, whether it be neuroradiology of chest radiology or any of those. And Dr. Holmes is a

> sub-specialist.
>
> [Dr. Boren's attorney]: How about in detecting, just detecting a subtle abnormality? Do you believe a general diagnostic radiologist is as skillful as a neurologist in detecting subtle abnormalities on CT scans?
>
> [Dr. Cieply]: If they were, we wouldn't need sub-specialists, and we wouldn't need neuroradiologists. But they clearly are not.
>
> . . . .
>
> [Dr. Boren's attorney]: Doctor, can you recall any case in your experience like this where you were asked to do only a non-contrast CT scan on a pediatric patient and on reviewing the scan you found an abnormality which led to a diagnosis of an AVM?
>
> [Dr. Cieply]: First of all, this general radiologist could go through his entire career and never see a case like this. So it's very very uncommon. And to see one would be, maybe, all you'd ever see. If I'd ever seen one, I do not remember it.

Dr. Cieply analogized looking at radiology films to a popular children's book series entitled, "Where's Waldo." Dr. Cieply referred to this analogy as the "Waldo concept":

> Well, again, it's an attempt to visually explain something to somebody that you know is going to be real hard to put into words. And the reason I brought up the Waldo concept is because I think it's fairly obvious now that there's an abnormality on the CAT scan that all of us can see. I mean, I saw, also. I'm sure you can appreciate it, and you're not a trained radiologist.
>
> So how do I explain to you that to not see this on the original film is perfectly understandable. And one of the things that I think sort of explains it to a certain extent is the Waldo concept. I suppose most of you are familiar with Waldo. You know, Waldo is a character. And he's put in a picture with a "gazillon" other characters, and you're supposed to find him.
>
> Now, your three-year-old probably finds him, and you're still looking all over the place and you can't find him. But the important thing is, once you see Waldo, if you put that same picture up, which just looked to you like a sea of people before . . . your eyes are immediately drawn to where Waldo is because you know where Waldo is.
>
> And once you look at that picture, every time you look at that picture, you see Waldo because he's been pointed out to you. And that, to me, is the easiest way to explain how we have a CAT scan now where we can point to some little densities on a

> series of CAT [s]cans and say "That's an abnormality; that's abnormal." But it wasn't seen originally and nobody -- [w]ell, some people are not terribly surprised that it wasn't seen because it's very subtle. But once you know it's there, now, every time you look at it, your eyes are drawn to it; and it seems obvious.

Dr. Cieply also added that, unlike in the Waldo book series, radiologists do not assume there is a Waldo in every film "because most x-rays in general tend to be normal, you're kind of bias[ed] that this is going to be normal. And you feel relaxed almost when you find the abnormality because, you know, well, we found something abnormal." "There's no Waldo in every x-ray," he summarized. The jury asked Dr. Cieply about the "Waldo concept," stimulating the following dialogue:

> THE COURT: Thank you.
>
> "Q. Given Christian's history of headaches and dyslexia, wouldn't you look harder for a "Waldo" line for all of Waldo versus assuming the x-rays were normal during your first look?
>
> [Dr. Cieply]: Let me clarify one thing.
>
> When I said we assumed the x-rays are normal, I'm just saying that's a personal bias you can't get away from. If you read a hundred films a day and 99 of them are normal, you just know films are going to be normal.
>
> What we do is, we put that normal template over every film to find the abnormality. The fact that he had head trauma makes you look very closely for blood. But what I'm trying to get across with the template idea is once you look at something and it's normal, do you keep looking at it and looking at it and looking at it to see if there's some abnormality.
>
> Since it's very uncommon to have blood be the source of a headache in a young child with head trauma without seeing blood there, you would not look and look and look for some other abnormality because you've already looked at it and it's normal. And I guess that's the hardest thing for me to get across to you.
>
> . . . .
>
> Are there subtle abnormalities that could be on that scan and someone else might pick up? That is true, and that is what Dr. Holmes did. He could look at what I would call a normal scan, and he'd see

> something that his eye catches it, and he thinks it's abnormal. And maybe that's the basis for all of this.
>
> I think no one would disagree that a neuroradiologist looking at this film would find it to be abnormal. And I contend that I and other general radiologists would very likely read this film as normal. I mean, I know I did and Dr. Boren did. And maybe we could find 20 others that would come in and tell you that. And there's going to be one or two I'm sure would have seen it. But we don't know.

Dr. Boren's second expert witness was Dr. William Dillon (Dr. Dillon), a neuroradiologist. Dr. Dillon's opinions about the case were similar to those of Dr. Cieply:

> [Dr. Boren's attorney]: I asked -- Doctor, did you -- were you asked -- did you form an opinion as to whether or not Dr. Boren's interpretation of the film met the standard of care as it applies to a general diagnostic radiologist?
>
> . . . .
>
> [Dr. Dillon]: I believe it did meet the standard of care for a general radiologist.
>
> [Dr. Boren's attorney]: And what was the basis of that opinion?
>
> [Dr. Dillon]: Well, I believe that the case and the CT findings were extremely rare. They are extremely rare and a very subtle abnormality, one that a general radiologist may never see in his or her practice; findings that I, as a neuroradiologist, am able to detect because I have a wealth of information just simply based on experience and in seeing these cases, many cases over the course of many years exclusively in this field. So I would not expect, in my opinion, a general radiologist, who probably would never see such a case, to be able to make a diagnosis based on those kinds of subtle findings, particularly in that area of the brain.
>
> . . . .
>
> [Dr. Boren's attorney]: Now, you have just described these abnormalities. Doctor, in your opinion, do you believe that the standard of care which applies to the general diagnostic radiologist would require them to be able to identify the abnormalities you have identified on scans 19, 20, and 21[?]
>
> [Dr. Dillon]: Well, I mean, that question really is the meat of this whole controversy. And I really don't believe that we should hold a general radiologist practicing in all of the specialities that we've shown here on the screen to a standard that someone like myself or a well-trained neuroradiologist should be held to.
>
> And the reason is that his is a very subtle

lesion. As I pointed out, it's adjacent to a structure that looks quite similar to it but is not abnormal. It's a rare lesion. Very rare. And I would not expect a general radiologist to probably ever see a lesion like this in their practice -- or if they did, one, at the most two, during their entire practice would be a very high number.

So I think because it is subtle and because it is a rare lesion, I think it's unfair and, personally, impractical to hold that general radiologist, that general practitioner, to the same standard that I should be held to as a neuroradiologist.

. . . .

[Dr. Boren's attorney]: The findings that you have just described to the Ladies and Gentlemen of the Jury, the CT scan of Christian Stallworth, in your opinion, are those common or rare findings?

[Dr. Dillon]: Those are rare findings.

[Dr. Boren's attorney]: And why is that?

[Dr. Dillon]: Well, the problem with this patient is a very rare disorder. It's seen very infrequently, even in our hospital where we see many patients from all over the United States and indeed the world being sent for treatment being of this lesion, for these kinds of lesions. And it's rare to see a child with a vascular lesion like this, arterio-venous fistula malformation like this.

And it's certainly not something you would expect to see in a patient referred with no focal findings -- no focal neurologic findings and with a history of dyslexia and post-traumatic headache. So it's rare. It is certainly an incidental finding most likely unrelated to his presenting complaints that he had to the neurologist. And it is a finding that is extremely subtle, certainly on a non-contrast CT scan.

. . . .

[Dr. Boren's attorney]: Doctor, you have indicated that this is a rare subtle lesion. Do you recall that?

[Dr. Dillon]: Yes.

[Dr. Boren's attorney]: You're also aware, there's nothing subtle about Christian Stallworth's condition today; correct?

[Dr. Dillon]: Correct.

[Dr. Boren's attorney]: Why shouldn't a general diagnostic radiologist be required to pick up such subtle lesions when failure to do so can lead to such a permanent condition?

[Dr. Dillon]: Well, I mean this is a tragedy. No question. And if one could turn back the clock, I'm sure many in this room would like to do so. But the fact of the matter is that there are many diseases and many patients that we are incapable of recognizing on scans by virtue of the lack of our experience or the lack of understanding about the appearance of a disease, or just the inability of the technology, itself, to see a disease.

> And I know this is a very difficult case for the family, and my heart goes out to them. But the fact of the matter is that this was a very rare condition. The findings on this film, in my view, are subtle and not within the reach of the majority of general diagnostic radiologists to diagnose.
>
> I would, of course, hope that they would and hope that my own trainees would. And if you did, you'd hit a home run. And you may save someone from a devastating illness. But it is, I think -- I truly believe it's too high a standard to hold someone of the background of a radiologist, general diagnostic radiologist. It's too high of a standard. It's not fair to expect them to detect and diagnose such a lesion that they may never see in their practice.

Dr. Dillon also explained that, with respect to the CT scan of a patient with a history of dyslexia and post-traumatic headache, like Christian, "before even looking at the scan, I would expect that scan to be normal in 99.9 percent of the patients that I would see."

The parties delivered closing arguments on January 19, 2000. The crux of the argument for the Stallworths was their assertion that Dr. Boren saw the abnormalities when he examined Christian's CT scan on March 31, 1989. The Boren Defendants disagreed, and argued that the abnormalities on Christian's CT scan were too subtle and rare to be recognized by a general diagnostic radiologist operating within the applicable standard of care.

The jurors began their deliberations the next day, January 20, 2000, at 8:50 a.m. Amongst the exhibits they took with them into the jury room were copies of Christian's March 31, 1989 CT scan. A few hours into its deliberations, at 12:57 p.m., the jury issued its first communication: "We would like to see

Deposition of Dr. Boren's [(sic)]." At about 1:45 p.m., after telephone consultation with counsel, the court responded: "You must only consider the evidence, and the deposition is not in evidence. Therefore, you may not see it." Later the same day, at 4:00 p.m., the jury issued its second communication: "We would like to hear the testimony of Dr. Boren when he was on the witness stand both times."

At 8:40 a.m. the next morning, January 21, 2000, the court held a hearing to discuss the second jury communication. The court ultimately reasoned:

> At this time the record shall reflect that the cases are quite clear in this jurisdiction that the decision to permit the readback is within the discretion of the Trial Court. Within the context of this particular case the record should reflect that over two calendar weeks we have had eight days of trial testimony with fourteen live witnesses in addition to various deposition testimonies. The Court has further, as part of its innovations project, permitted jury notetaking, and further indicates that for the record the particular witness in question, Dr. Boren, had testified, I believe, more than a week and a half ago.
>
> Given that framework, the Court at this time will not be permitting the readback and will be directing the jury to continue their deliberations, relying on their respective individual and collective recollections of the testimony.
>
> However, at this point I am placing the attorneys on notice that if there is a further request by the jury panel that given the state of the record I may be persuaded to release and permit the readback. I am also suggesting to the defense that what you are arguing is a double-edged sword, that if in fact the jury is able to further specify a particular area that is of concern, that is basically meeting your objection as to the current ambiguity of their question.

Shortly thereafter, at 9:00 a.m., the court instructed the jury: "Please continue your deliberations without hearing the read back of Dr. Boren [(sic)] and rely on your individual and collective

recollection of the testimony." At 3:10 p.m. the same day, the court addressed the Stallworths' request to reconsider its response to the second jury communication. As one alternative, counsel for the Stallworths suggested the court tell the jury that "if Dr. Boren's testimony or any part of it is crucial to your deliberations, and you cannot solve your factual findings without it, please advise the Court, and I will reconsider your request." After ample discussion, the court ruled that "at this juncture I will be compelled to deny the request for reconsideration absent a further communication from the jury." Within the hour, at 3:50 p.m., the jury returned its verdict. The jury found, by a ten-to-two majority, that Dr. Boren did not breach the standard of care. On January 31, 2000, the court entered judgment in favor of the Boren Defendants.

On February 7, 2000, the Stallworths filed a motion for new trial, asserting the following grounds:

> (1) the verdict is against the manifest weight of the evidence; (2) the jury's request for a read-back of Defendant George S. Boren, M.D.'s entire trial testimony should have been granted; and/or (3) when the jury's second request to review testimony by Dr. Boren was denied, they should have been instructed that the Court would reconsider its ruling if the jury continued to believe that the read-back was necessary.

The substantive arguments for and against the motion for new trial mirrored those made during closing arguments. The Stallworths led off their memorandum in support of the motion for new trial, thus:

> The undisputed evidence in this medical

> malpractice case is that the standard of care for a general radiologist like [Dr. Boren] requires him to distinguish between normal and abnormal anatomy. By his own admission, Dr. Boren observed an abnormality on [Christian's] March 31, 1989 brain CT scan but misinterpreted it a normal anatomy. Not only did this admission by Dr. Boren establish his breach of the standard of care, it annihilated his experts' efforts to exculpate him by claiming that the defect was "too subtle" to be detected. Thus, the clear and manifest weight of the evidence was in [the Stallworths'] favor, and absent misunderstanding or confusion by the jury about this testimony the verdict should have been for [the Stallworths]. The fact that the jury found for the defense clearly indicates that there was in fact grave misunderstanding about the testimony, particularly Dr. Boren's testimony.
>
> During deliberations, the jury asked twice to review testimony by Dr. Boren. When the requests were denied, they returned a 10-to-2 verdict in favor of the defense. The multiple requests to review Dr. Boren's testimony, coupled with their ultimate 10-to-2 verdict when the requests were denied, clearly indicate that there was conflict among the jurors about Dr. Boren's testimony, and serious concern by at least some of the jurors about this critical witness's credibility. For that reason, the juror's [(sic)] request for a read-back of Dr. Boren's testimony should have been granted.

(Emphasis in the original.) The Boren Defendants, on the other hand, maintained in their memorandum in opposition that the evidence showed that Dr. Boren had not recognized the abnormalities on March 31, 1989, and that they were too subtle and rare for a general diagnostic radiologist to detect.

The court held a hearing on February 28, 2000 to address the motion for new trial. After argument from both sides consonant with their respective written submittals, the court observed:

> One of the troubling issues that the court has further reflected on as part of the jury innovations project, the court elected to abide by the current directive which was to permit note-taking. And I will state for the record that I believe that that one requirement has caused this court to further reflect

carefully on what transpired in this trial proceeding.

In addition, I have read carefully both [the Stallworths' and the Boren Defendants'] submittals, both in support of, in opposition to, and in reply to the request for a new trial. Clearly [the Stallworths], in the court's view, [have] identified the issue on standard of care, and that is, in fact, that Dr. Boren did note something, and it did obviate or, I would say, diminish the impact of the experts' opinions of Dr. Cieply and Dr. Dillon. That said, for the reasons stated by [the Stallworths' attorney] in his submittal to the court, I am granting the request for a new trial based on my careful review of the arguments raised by [the Stallworths].

On March 15, 2000, the court[3] filed its written order granting the motion for new trial:

1. Jury trial of this case began on January 10, 2000. On January 12, 2000, [the Stallworths] called defendant Dr. George S. Boren, who testified as an adverse witness. Dr. Boren testified again on January 14, 2000, as part of [the Boren Defendants'] case-in-chief.

. . . .

4. Pursuant to the jury's verdict, Judgment was entered for [the Boren Defendants] on January 31, 2000. [The Stallworths] timely filed their Motion for New Trial on February 7, 2000.

5. Trial of this case was conducted in accordance with portions of the Order Authorizing Implementation of the Pilot Project in [Jury] Innovations issued by the Supreme Court of the State of Hawaii on June 25, 1998. Pursuant to that Order the Court permitted juror note taking during trial and gave the court's standard introductory instruction 1.2 on juror note taking to the jury. The Court's decision to abide by the current directive, which was to permit note taking, has caused this Court to further reflect carefully on what transpired in this trial proceeding.

6. Defendant Dr. Boren expressly testified that he saw the areas of higher density on images 20 and 21 of the March 31, 1989 non-contrast CT scan performed on Christian Stallworth and interpreted by Dr. Boren. Dr. Boren testified that he interpreted those densities to be normal findings. Dr. Boren's admission that he saw these densities on the March 31, 1989 CT scan at the time he interpreted the film on March 31, 1989, diminishes the foundation for the opinions of [the Boren Defendants'] standard of care experts that Dr. Boren complied with the standard of

[3] The Honorable Linda K.C. Luke, judge presiding.

care because the abnormalities that appeared on the CT film were too subtle for a general radiologist to detect.

7. During Dr. Boren's trial testimony, references were made to Dr. Boren's deposition. The jury's request in communication no. 1 from the jury to see Dr. Boren's deposition evidences the jury's concern about Dr. Boren's credibility and/or his testimony about whether he in fact saw and identified areas of higher density on images 20 and 21 of the March 31, 1989 CT scan. The jury's later request, in communication no. 2 from the jury, to hear the entirety of Dr. Boren's trial testimony indicates there were unresolved questions about exactly what Dr. Boren had said in his testimony and/or a need to evaluate Dr. Boren's credibility in light of his entire testimony. The repeated requests regarding Dr. Boren's testimony indicated that significant factual issues needed to be resolved by the jury regarding Dr. Boren's testimony. Dr. Boren's testimony was critical to the issue of whether he in fact saw and identified areas of higher density on images 20 and 21 of the March 31, 1989 CT scan.

8. In addition, the Court has carefully read both the [the Stallworths' and the Boren Defendants'] submittals, both in support of, in opposition to, and in reply to the request for a new trial. The Court finds that [the Stallworths] have clearly identified the issue on standard of care, and that Dr. Boren did note something on the March 31, 1989 non-contrast CT scan performed on Christian Stallworth, and that, that in the Court's view, obviated or diminished the impact of the opinion testimony given by [the Boren Defendants'] experts, Dr. Cieply and Dr. Dillon. In the Court's view, there was sufficient evidence by which the jury could have found that Dr. Boren breached the standard of care.

9. Therefore, the Court is persuaded and concludes that:

a. The jury's verdict was against the manifest weight of the evidence and that [the Stallworths'] evidence regarding Dr. Boren's breach of the standard of care clearly outweighs the evidence that Dr. Boren complied with the standard of care.

b. Dr. Boren's testimony was critical to the issue of whether he in fact saw and identified areas of higher density on images 20 and 21 of the March 31, 1989 CT scan; the jury had unresolved questions about exactly what Dr. Boren said in his testimony and/or a need to evaluate Dr. Boren's credibility in light of his entire testimony; and thus a read back of Dr. Boren's testimony to the jury was appropriate and critical to the jury's determination as to whether Dr. Boren breached the standard of care.

c. The Plaintiffs presented sufficient

> evidence to support a finding that Dr. Boren breached the standard of care, notwithstanding the contrary testimony of Dr. Boren, Dr. Cieply and Dr. Dillon.
>
> 10. Therefore, [the Stallworths'] Motion for New Trial is hereby granted, the Judgment entered herein on January 31, 2000 is hereby set aside and the case shall be scheduled for a new trial.

On March 22, 2000, the Boren Defendants filed a motion for reconsideration of the March 15, 2000 order or, alternatively, for leave to take an interlocutory appeal of that order. The Boren Defendants argued that

> the trial Court applied the wrong standard for determining "manifest weight" of evidence and disregarded [the Boren Defendants'] constitutional right to a **jury** (not judge) trial when it granted a new trial. The trial judge is not authorized to act as a thirteenth juror. This Court's ruling disregarded rules and principles of law and thereby deprived [the Boren Defendants of their] constitutional rights.

(Emphasis in the original.) On June 6, 2000, the court denied the motion for reconsideration, but granted the motion for leave to take an interlocutory appeal of the order. The Boren Defendants filed notice of this interlocutory appeal on June 9, 2000.

Issues Presented on Appeal.

On appeal, the Boren Defendants argue that:

1. The court abused its discretion, invaded the province of the jury and violated the Boren Defendants' constitutional right to a jury trial when it granted the Stallworths' motion for new trial on the following erroneous grounds: (a) that the jury's verdict was against the manifest

weight of the evidence, and (b) that Dr. Boren's trial testimony should have been read to the jury.

2. In granting the Stallworths' motion for new trial, the court invaded the province of the jury and violated the Boren Defendants' constitutional right to a jury trial by making the following unsupported and clearly erroneous findings of fact: (a) that Dr. Boren admitted he saw the abnormalities when he viewed Christian's CT scan on March 31, 1989, (b) that Dr. Boren in fact saw the abnormalities at that time, (c) that the foregoing undercut the foundation for the opinions of the Boren Defendants' expert witnesses, and (d) that the two jury communications evinced the jury's serious concerns about Dr. Boren's testimony and credibility.

3. The court invaded the province of the jury when it held that the Stallworths' evidence regarding the applicable standard of care clearly outweighed that adduced by the Boren Defendants.

II. Discussion.

There was only one genuine issue in the jury trial below: Did Dr. Boren breach the applicable standard of care when he failed to detect the abnormalities on Christian's March 31, 1989 CT scan? After the jury answered this question in the negative, the court set aside the jury's verdict and ordered a new trial. The question on appeal is whether the court erred in

granting the motion for new trial.

Hawaii Revised Statutes (HRS) § 635-56 (1993) provides:

> In any civil case or in any criminal case wherein a verdict of guilty has been rendered, the court may set aside the verdict when it appears to be so manifestly against the weight of the evidence as to indicate bias, prejudice, passion, or misunderstanding of the charge of the court on the part of the jury; or the court may in any civil or criminal case grant a new trial for any legal cause.

Hawai‘i Rules of Civil Procedure (HRCP) Rule 59(a) (2000) provides, in pertinent part:

> A new trial may be granted to all or any of the parties and on all or part of the issues . . . in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the State[.]

We review a trial court's grant or denial of a motion for new trial under the following standards:

> Both the grant and the denial of a motion for new trial is within the trial court's discretion, and we will not reverse that decision absent a clear abuse of discretion. An abuse of discretion occurs where the trial court has clearly exceeded the bounds of reason or disregarded rules or principles of law or practice to the substantial detriment of a party litigant. Unlike motions for a directed verdict or a [judgment notwithstanding the verdict], the movant need not, on a motion for new trial, convince the court to rule that no substantial evidence supports its opponent's case, but only that the verdict rendered for its opponent is against the manifest weight of the evidence.

Carr v. Strode, 79 Hawai‘i 475, 488, 904 P.2d 489, 502 (1995) (citations and internal quotation marks omitted).

In addition, it is our longstanding understanding that "a stronger case must be made for interfering with the exercise of [the trial court's] discretion where a new trial has been

granted than where it has been refused[.]" Ahmi v. Cornwell, 14 Haw. 301, 302-3 (1902) (citation and internal quotation marks omitted). All the same, although Hawai'i courts have not expressly defined the term "manifest weight," it appears to be a demanding standard upon which to grant a motion for new trial premised on the weight of evidence:

> A trial court may set aside a jury verdict when it appears to be "so manifestly against the weight of the evidence as to indicate bias, prejudice, passion, or misunderstanding of the charge . . . on the part of the jury; or . . . for any legal cause." HRS § 635-56; Rule 59, HRCP. But it must be remembered that respect for the jury's assessment of the evidence is constitutionally mandated.

Harkins v. Ikeda, 57 Haw. 378, 381, 557 P.2d 788, 791 (1976) (footnote[4] omitted; ellipses in the original). Cf. Peterson v. City and County of Honolulu, 53 Haw. 440, 442, 496 P.2d 4, 7 (1972) (affirming the trial court's denial of a motion for new trial where the evidence was "evenly balanced[,]" and noting in passing that a motion for new trial "could be granted" where "one party's evidence clearly outweighs the other party's evidence"); Stewart v. Brennan, 7 Haw. App. 136, 147, 748 P.2d 816, 824 (1988) (in the course of holding that the trial court abused its discretion in granting a new trial, noting that "there was substantial evidence presented at trial to support the verdict"). See also Duncan v. Duncan, 377 F.2d 49, 52 (6th Cir. 1967)

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[4] "U.S. Constitution, Amendment VII; Hawaii Constitution, Article I, Section 10." Harkins v. Ikeda, 57 Haw. 378, 381 n.4, 557 P.2d 788, 791 n.4 (1976)

("while the district judge has a duty to intervene [to grant a new trial where the verdict is against the clear weight of the evidence], the jury's verdict should be accepted if it is one which could reasonably have been reached"); Carter v. Johnson, 617 N.E.2d 260, 266-67 (Ill. App. Ct. 1993) ("A court should set aside a jury verdict and grant a new trial only where the verdict is contrary to the manifest weight of the evidence. A verdict will be deemed against the manifest weight of the evidence only if it is palpably erroneous and wholly unwarranted, clearly the result of passion or prejudice, or appears to be arbitrary, unreasonable, and not based on the evidence." (Citations omitted.)); Knuth v. Emergency Care Consultants, 644 N.W.2d 106, 113 (Minn. Ct. App. 2002) ("A new trial may be granted by a district court only if the verdict is so contrary to the preponderance of the evidence as to imply that the jury failed to consider all the evidence or acted under some mistake or from some improper motive, bias, feeling or caprice, instead of honestly and dispassionately exercising its judgment." (Citation and internal block quote format omitted.)).

Moreover, as our supreme court has recognized, the grant of a new trial after a jury verdict is of constitutional moment. Harkins, 57 Haw. at 381, 557 P.2d at 791. The United States Supreme Court has elaborated this point, in the context of a judgment notwithstanding the verdict:

> In holding that there was no evidence upon

> which to base the jury's inference as to causation, the court below emphasized other inferences which are suggested by the conflicting evidence.
> . . . .
>
> It is not the function of a court to search the record for conflicting circumstantial evidence in order to take the case away from the jury on a theory that the proof gives equal support to inconsistent and uncertain inferences. The focal point of judicial review is the reasonableness of the particular inference or conclusion drawn by the jury. It is the jury, not the court, which is the fact-finding body. It weighs the contradictory evidence and inferences, judges the credibility of witnesses, receives expert instructions, and draws the ultimate conclusion as to the facts. The very essence of its function is to select from among conflicting inferences and conclusions that which it considers most reasonable. That conclusion, whether it relates to [negligence], causation or any other factual matter, cannot be ignored. Courts are not free to reweigh the evidence and set aside the jury verdict merely because the jury could have drawn different inferences or conclusions or because judges feel that other results are more reasonable.
>
> Upon an examination of the record we cannot say that the inference drawn by this jury that respondent's negligence caused the fatal accident is without support in the evidence. Thus to enter a judgment for respondent notwithstanding the verdict is to deprive petitioner of the right to a jury trial. No reason is apparent why we should abdicate our duty to protect and guard that right in this case.

Tennant v. Peoria & P.U. Ry. Co., 321 U.S. 29, 34-36 (1944) (internal citations omitted). Thus, "in reviewing a trial court's decision [to grant a new trial because the jury's verdict was against the weight of the evidence,] we must closely scrutinize the trial court's justifications in order to protect the litigant's right to a jury trial." Holmes v. City of Massillon, Ohio, 78 F.3d 1041, 1047 (6th Cir. 1996) (citation omitted).

It follows from the foregoing that on a motion for new trial after a jury verdict, it is ordinarily not the province of

the trial court to decide disputed issues of credibility, determine what inferences may reasonably be drawn from the evidence or otherwise resolve conflicts in the evidence. See, e.g., Carter, 617 N.E.2d at 267 ("Although this court is required to scrutinize the evidence in a medical malpractice action when reviewing a motion for [judgment notwithstanding the verdict] or a new trial, we will not sit as a second jury and reweigh the evidence or reevaluate the credibility of the witnesses." (Citations omitted.)); Smith v. Shaffer, 515 A.2d 527, 529 (Pa. 1986) (the trial court's grant of a new trial was an abuse of discretion because its conclusion that the jury verdict was against the weight of the evidence "was based on *its* reassessment of the credibility of the witnesses, a matter exclusively within the province of the jury" (emphasis in the original)); Shiel v. Ryu, 506 S.E.2d 77, 83 (W. Va. 1998) (in a medical malpractice case, clarifying that although the trial court is authorized "to weigh the evidence in the context of granting a new trial, such authorization does not obviate the essential role of the jury in resolving conflicting evidence"). Cf. Linquist v. Moran, 662 P.2d 281, 284 (Mont. 1983) ("In considering a motion for a new trial, the trial court is not to weigh the evidence where conflicting evidence is presented. Rather, the trial court's discretion to grant a new trial for insufficiency of the evidence

is exhausted when it finds substantial evidence to support the verdict." (Citations omitted.)).

The involvement of expert witnesses does not diminish our respect for the exclusive province of the jury in the context of a motion for new trial. See, e.g., Bevevino v. Saydjari, 574 F.2d 676, 687 n.31 (2d Cir. 1978) (in denying appellant's motion for new trial in a medical malpractice action, the trial court "certainly was correct in holding that notwithstanding his preference for appellant's expert ophthalmologists over plaintiff's, the appraisal of expert testimony is a matter within the jury's province" (ellipsis, citations and internal quotation marks omitted)); Carter, 617 N.E.2d at 267 ("The well-established principle is that where conflicting expert testimony is introduced at trial, it is the province of the jury as the trier of fact to resolve the conflict." (Brackets, citations and internal quotation marks and block quote format omitted.)); Knuth, 644 N.W.2d at 113 (on a motion for new trial in a medical malpractice action, the trial court "improperly made credibility determinations about Dr. Pfortmiller's testimony when it found that his testimony is unreliable. The [trial] court failed to recognize that it is the jury and not the [trial] court that must pass on the expert's credibility." (Citation omitted.)).

After reviewing the record of this case in its entirety, we agree with the Boren Defendants that the court abused its discretion in granting the Stallworths' motion for new

trial. The court usurped the rightful role and constitutional prerogative of the jury in "[t]he very essence of its function[,] to select from among conflicting inferences and conclusions that which it considers most reasonable." Tennant, 321 U.S. at 35.

This case was "a classic example of what has become by this time the ubiquitous 'battle of the experts.'" Carter, 617 N.E.2d at 267 (citation omitted) (affirming the trial court's denial of a motion for new trial in a medical malpractice action in which the parties presented opposing medical experts and the jury resolved the conflict in favor of the defendant doctor). Both the Stallworths and the Boren Defendants presented substantial and competent, albeit conflicting, evidence and expert testimony regarding the applicable standard of care and whether Dr. Boren breached that standard. Neither party objected to the competency or expertise of the other's expert witnesses, or to the giving of the opinions they expressed at trial. The respective expert witnesses simply disagreed, and we do not believe the jury's ultimate resolution of the competing evidence was "against the manifest weight of the evidence." Carr, 79 Hawai'i at 488, 904 P.2d at 502 (citation omitted). Nothing in the record indicates, in any event, that the jury failed to evaluate all of the evidence or was led astray by "bias, prejudice, passion, or misunderstanding of the charge of the court[.]" HRS § 635-56. See also Harkins, 57 Haw. at 381, 557 P.2d at 791. The jury's verdict was palpably "one which could

reasonably have been reached[,]" and hence, should have been accepted, Duncan, 377 F.2d at 52, as "[i]t is the jury, not the court, which is the fact-finding body. It weighs the contradictory evidence and inferences, judges the credibility of witnesses, receives expert instructions, and draws the ultimate conclusion as to the facts." Tennant, 321 U.S. at 35 (citations omitted).

In granting the Stallworths' motion for new trial, the court put great store by its factual finding, that

> Dr. Boren expressly testified that he saw the areas of higher density on images 20 and 21 of the March 31, 1989 non-contrast CT scan performed on [Christian] and interpreted by Dr. Boren.

That finding led directly to the court's conclusion, that

> Dr. Boren's admission that he saw these densities on the March 31, 1989 CT scan at the time he interpreted the film on March 31, 1989, diminishes the foundation for the opinions of [the Boren Defendants'] standard of care experts that Dr. Boren complied with the standard of care because the abnormalities that appeared on the CT film were too subtle for a general radiologist to detect.

That conclusion, in turn, was a major factor in the court's decision to grant a new trial.

Although the court made its fulcrum finding of fact in the face of Dr. Boren's vigilant insistence that he had no memory of reviewing Christian's March 31, 1989 CT scan or detecting any abnormalities therein, and in spite of Dr. Boren's contemporaneous written report stating, "I see no evidence of either high or low density lesions within the brain substance," it was nevertheless a reasonable inference from Dr. Boren's

surmise at trial and in his 1999 deposition that he might have, or probably did, see something in the area of the AVM on the 1989 CT scan. As such, it was based upon substantial evidence and therefore not clearly erroneous,[5] contrary to what the Boren Defendants argue on appeal. However, it did not, as the Stallworths contend and the court concluded, render nugatory the opinions of the expert witnesses for the Boren Defendants that the abnormality in Christian's brain was "very very uncommon" and too subtle to be appreciated by a general diagnostic radiologist like Dr. Boren. Nor did it negate Dr. Cieply's opinion that the CT scan "looked normal[,]" or Dr. Dillon's explanation that the AVM was "adjacent to a structure that looks quite similar to it but is not abnormal." And it did not, in any event, obviate the substantial evidence supporting opposing factual findings adduced by the Boren Defendants at trial.

But all of this debate between the parties on appeal about whether the court's linchpin finding of fact was clearly erroneous is simply beside the point. This was not a bench

[5] "A finding of fact is clearly erroneous when (1) the record lacks substantial evidence to support the finding, or (2) despite substantial evidence in support of the finding, the appellate court is nonetheless left with a definite and firm conviction that a mistake has been made." State v. Okumura, 78 Hawai'i 383, 392, 894 P.2d 80,89 (1995) (citation and internal quotation marks omitted). "We have defined 'substantial evidence' as credible evidence which is of sufficient quality and probative value to enable a person or reasonable caution to support a conclusion." State v. Kotis, 91 Hawai'i 319, 328, 984 P.2d 78, 87 (1999) (citation and some internal quotation marks omitted).

trial.[6] It was a jury trial. Therein,

> [i]t is the jury, not the court, which is the fact-finding body. It weighs the contradictory evidence and inferences, judges the credibility of witnesses, receives expert instructions, and draws the ultimate conclusion as to the facts. The very essence of its function is to select from among conflicting inferences and conclusions that which it considers most reasonable. That conclusion, whether it relates to [negligence], causation or any other factual matter, cannot be ignored. Courts are not free to reweigh the evidence and set aside the jury verdict merely because the jury could have drawn different inferences or conclusions or because judges feel that other results are more reasonable.

Tennant, 321 U.S. at 35 (citations omitted). Although a trial court must necessarily "weigh the evidence in the context of granting a new trial, such authorization does not obviate the essential role of the jury in resolving conflicting evidence." Shiel, 506 S.E.2d at 83. See also Carter, 617 N.E.2d at 267 ("Although this court is required to scrutinize the evidence in a medical malpractice action when reviewing a motion for [judgment notwithstanding the verdict] or a new trial, we will not sit as a second jury and reweigh the evidence or reevaluate the credibility of the witnesses." (Citations omitted.)). In making its pivotal factual finding, the court supplanted the jury in an area that is "peculiarly one for the determination of the

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[6] The test on an appeal arising out of a bench trial is "whether there was substantial evidence to support the conclusion of the trier of fact. Indeed, even if it could be said in a bench trial that the conviction is against the weight of the evidence, as long as there is substantial evidence to support the requisite findings for conviction, the trial court will be affirmed." State v. Eastman, 81 Hawai'i 131, 135, 913 P.2d 57, 61 (1996) (citations and internal quotation marks and block quote format omitted).

jury[,]" Ahmi, 14 Haw. at 303, and in doing so determined the direction in which it would ultimately err.

The court also based its grant of a new trial upon its misgiving that Dr. Boren's testimony was not but should have been read back to the jury. This conviction stemmed from the court's determination that the two jury communications evinced, respectively, "the jury's concern about Dr. Boren's credibility and/or his testimony about whether he in fact saw and identified areas of higher density on images 20 and 21 of the March 31, 1989 CT scan[,]" and its "unresolved questions about exactly what Dr. Boren had said in his testimony and/or a need to evaluate Dr. Boren's credibility in light of his entire testimony."

About this justification, suffice it to say that there is absolutely no indication in the record what the jury was thinking in this respect. The court's findings and misgivings about the jury's concerns were pure speculation. Indeed, the jury was nonetheless able to reach a verdict the day after its second -- and only legitimate -- request to the court was denied. Cf. Medeiros. v. Udell, 34 Haw. 632, 637-38 (1938) (where the jury returned a verdict despite the fact that its earlier request for a read back of certain testimony could not be fulfilled, deciding that "the jury concluded that a verdict could be fairly reached without it").

In this case, as has been the case for over a century, "[i]t may be that the trial judge thought that the verdict should

have been for the plaintiff, and it may also be that that view would find support in the evidence. The matter, however, was peculiarly one for the determination of the jury and, clearly, no sufficient cause appeared for disturbing its finding or verdict." Ahmi, 14 Haw. at 303.

IV. Conclusion.

We therefore reverse the court's March 15, 2000 order.

On the briefs:

Arthur F. Roeca,
April Luria,
Jodie D. Roeca, for
defendant-appellants.

L. Richard Fried, Jr.,
John D. Thomas, Jr.,
Bert S. Sakuda,
Patrick F. McTernan, for
plaintiff-appellees.