IN THE COURT OF COMMON PLEAS
CUYAHOGA COUNTY, OHIO

KEVIN KISS a Minor, etc., et.al.,

Plaintiffs,

vs. Case No. 402393

CLEVELAND CLINIC FOUNDATION,

Defendant.

THE DEPOSITION OF DR. FREDERICK A. BOOP

January 14, 2002

CONDENSED TRANSCRIPT

H & N COURT REPORTING
3610 Philwood Avenue
P.O. Box 41971
Memphis, Tennessee 38174

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The deposition of DR FREDERICK **A.** BOOP, taken on behalf of the Plaintiffs, pursuant to Notice, on January 14, 2002, beginning at approximately 3:00 p.m. in the offices of Semmes-Murphey Clinic, 220 S. Claybrook, #600, Memphis, Tennessee.

This deposition is taken in accordance with the terms and provisions of the Ohio Rules of Civil Procedure.

All forms and formalities are waived, and objections as to relevancy, materiality and competency are reserved, to be presented at or before the hearing. Objections as to the form of the question must be made at the times of the taking of the deposition. The signature of the witness is waived.

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APPEARANCES

FOR THE PLAINTIFFS:

MS JEANNE M TOSTI
.Attorney at Law
Becker & Mishkind Co.,LPA
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Clevelmd. Ohio 441 13

FOR THE DEFENDANT.
CLEVELAND CLINIC FOUNDATION:

MS ANNA M CARULAS
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REPORTED BY US CATHY 4 HASTINGS CCR

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MS. TOSTI: Let the record reflect this is a deposition being taken pursuant to Ohio Civil Rules and that this is a discovery deposition being taken under Civil Rule 126 for discovery purposes only and under cross-examination to elicit the opinions held by Dr. Boop relative to the case; that this deposition is being taken by agreement with defense counsel and plaintiffs' counsel.

May I have a stipulation from defense counsel that there is no problem in using a Tennessee court reporter and that will be waived?

MS. CARULAS: Correct.

DR. FREDERICK A. BOOP,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. TOSTI:

Q. Doctor, this deposition is being conducted a little bit later than we had planned due to some problems. Hopefully we'll be able to finish this deposition but in order for defense counsel and myself to catch our plane, which is the last flight, we may not be able to complete it today.

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In which case we'll make arrangements to finish it at a later date.

A. All right.

Q. Would you please state your full name for us.

A. Frederick Allen Boop, B-O-O-P.

Q. And your business address?

A. It's Seinmes-Murphey Clinic, that's S-E-M-M-E-S dash M-U-R-P-H-E-Y, 220 South Claybrook, Suite 600 Memphis, Tennessee, 38104.

Q. Have you ever had your deposition taken before?

A. I have.

Q. How many times?

A. Oh, I would say an average maybe once a year over the last ten years, something like that, maybe twice a year.

Q. Now I'm sure that counsel has had an opportunity to speak with you but I'm going to go over a few ground rules. This is a question and answer session under oath.

It's important that you understand the questions that I ask you. If you do not understand a question, let me know and I will be happy to repeat the question or rephrase the

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question. Otherwise, I'm going to assume you understood my question and you're able to answer it.

At some point defense counsel may choose to enter an objection. You're still required to answer my question unless she has grounds to specifically instruct you not to do so.

If at any point in time it's helpful for you to refer to your medical records that you have in your file, please feel free to do so. This isn't a memory test whatsoever.

I would also ask that you give all of your answers verbally because our court reporter can't take down head nods or other motions.

A. I understand.

Q. Has anything been removed from your file that I have just had an opportunity to take a look at?

MS. CARULAS: I did remove the correspondence that he had from experts, but other than that nothing from my standpoint.

Q. (BY MS. TOSTI) Does the file, aside from the correspondence that defense counsel has just mentioned, contain all the materials you have reviewed on the case?

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A. It contains all that I've been able to find in this last week. I believe that I've been sent depositions by Dr. Savino and I may have a deposition by the child's mother's, but I couldn't find it in my review so I'm not sure whether or not I've seen it.

Q. You don't recall reading either of those'?

A. I don't recall specifically reading either of those, that's correct.

Q. Anything else that is not currently sitting on the desk in front of you that you've reviewed'?

A. Not that I'm aware.

Q. I believe -- have you had that report of plaintiff's experts?

A. Yes.

Q. And is there a reason why those aren't in your file?

A. I have Dr. Neff's deposition. Is that what you're talking about?

Q. Dr. Neff's report and Dr. Savino's report?

A. I've seen those. I don't know that I have a copy of those.

Q. How is it that you've seen those and don't have a copy; where they sent to you?

A. I believe so.

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MS. CARULAS: They were sent initially and they're referenced in his report. They must be at his home or whatever.
Q. (BY MS. TOSTI) Is there anything else that you didn't bring with you today that you've reviewed on this case other than those items that we've just talked about'?
A. Not specifically for this case, no. I mean, I have literature on arachnoid cysts and textbooks but nothing specific to this case.
Q. Did you review any of those testimonies specifically for this case for your report or your testimony today or anything else that you referenced to this case?
A. I did read portions of a book on pediatric neuroophthalmology by Brodski.
Q. Do you know the title of that book?
A. I believe it's Pediatric neuroophthalmology.
Q. What portions did you refer to?
A. I think they have a chapter on optic disk swelling in children.
Q. Why is it that you consulted that particular text?
A. I consulted it because in reading through

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Dr. Neff's deposition he seemed to emphasize the need for Dr. Luciano to have followed the child's visual acuity and my understanding, my education was that when we're concerned about papilledema we follow visual fields because visual acuity is something that goes at the last minute and that visual fields are the much better test to follow so I referred to this textbook which confirmed what I thought to be true.
Q. Were you provided with any fact summaries or timelines regarding this case?
A. No, I don't believe so.
Q. And were you given or asked to review any medical literature?
A. No.
Q. Did you receive any deposition summaries?
A. Just I have the depositions here. No summaries, no.
Q. Approximately how many hours of expert services have you spent on this case to date?
A. Probably eight or ten. I don't know exactly.
Q. Have you provided any bills for your time to Ms. Carulas on this file?
A. Not to my knowledge. That's handled by my

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business office so I wouldn't know.
Q. Now I'd like you to tell me about your experience in medical legal matters. When was the first time that you offered your services as a medical legal consultant?
A. As a rough guess I would say probably I finished my training in '89, finished my fellowship in 1990 and entered practice that year. So probably thereabouts is when I would have begun.
Q. 1990 approximately'?
A. I would say so.
Q. Approximately how many medical legal matters do you consult on per year'?
A, Maybe a handful, not a lot.
Q. Can you quantify that a little bit as to what you mean by handful?
A. Maybe five or six per year.
Q. How many do you have right now that you are currently consulting on?
A. Probably about that many, five or six.
Q. And what proportion of the medical legal matters on which you've consulted have been for the plaintiff and what proportion have been for the defendant?

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A. Well, I don't discriminate one way or the other. It's a matter a merit. I would say the cases where I rendered an opinion the majority have been defense cases but I've also given opinions in plaintiff cases.
Q. Can you give me an approximate percentage of what percent defendant and what percent plaintiff?
A. Maybe 80/20 defense plaintiff, something like that.
Q. Of the cases where you consulted for the plaintiff how many times did you find that there was substandard care'?
A. I couidn't give you an answer. There were more than one but I couldn't tell you a percentage.
Q. Many more than one or closer to one or two'?
A. I couldn't tell you. Probably -- I mean if I reviewed a half dozen plaintiff cases, I found fault in half of those I would say.
The reason it's difficult is sometimes I'll get called by someone saying, let me run this by you; I think we have a case and I may say it sounds like you do or it doesn't sound like you do, but it's not a formal opinion.

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Q. You previously mentioned that you've had your deposition taken once or twice a year over the course of the last ten years.
How many times have you had your deposition taken as an expert in a medical legal matter?
A. Maybe once a year or so -- no, I'm *sorry* deposition taken, not testified in court?
Q. Right, deposition.
A, Probably two or three times a year.
Q. When is the last time that you had your deposition taken'?
A. As an expert in a medical defense?
Q. Yes, as an expert in a medical legal matter.
A. Within the last six months I believe, but it was probably close to six weeks ago.
Q. Have you ever testified at trial?
A. I have.
Q. How many times?
A. In the medical legal setting not as a fact witness?
Q. Well, let's just say how many times have you testified as a medical person at trial?
A. Three that I can recall.
Q. Then how many times have you testified as a

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medical legal expert?
A. Two that I can recall.
Q. Were either of those times for plaintiffs?
A. No, both of those were defense.
Q. What is your charge for consultation on a medical legal matter?
A. My office has the fee schedule. They can provide you that information. I don't know what the charge is to be honest.
Q. Is that something that's readily available?
A. I would think so. I would think my secretary could get you one.
MS. TOSTI: Well, I would like to know what the doctor is charging us for this. Do you know?
MS. CARULAS: I have no idea but we can get that.
Q. (BY MS. TOSTI) Well, I'm making a request for your fee schedule, Doctor.
A. Okay.
Q. Do you charge the same for a consultation as you do for deposition testimony?
A. I believe there's a difference in the charge.
Q. You don't know what that is?

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A. I honestly don't.
Q. Do you know what your charge is for trial testimony'?
A. No.
Q. Approximately how much money did you make last year consulting on medical legal matters'?
MS. CARULAS: Note my objection.
A. It was less than one percent of my income.
Q. (BY MS. TOSTI) Have you ever provided your name for a professional service or medical legal consulting finn indicating that you're available to do medical legal consultations'?
A. No.
Q. Have you ever been named as a defendant in a medical negligence case'?
MS. CARULAS: Objection, you can answer.
A. Yes.
Q. (BY MS. TOSTI) How many times?
MS. CARULAS: I have a continuing objection to this line of questioning, but go ahead.
A. I only have one case that is currently outstanding. That's it.
Q. (BY MS. TOSTI) Well, my --

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A. There were three times when I was a resident in training where everybody in the department was named. I was named in that part of those. Those all fell by the wayside, but where I've been named specifically there is one case.
Q. And where is that case filed; is that here in Memphis?
A. It's in Arkansas.
Q. That case is currently pending'?
A. Um-hmm, yes.
Q. Who is the plaintiff in that case?
A. Leslie is the last name. The patient's name was John Paul Leslie. It's his wife and children that have filed the case.
Q. What was the alleged negligence made by the plaintiffs'?
A. There was a portion of **a** cotton ball that remained in the patient's head following surgery and it fonned some scar tissue and led to his being reoperated on to see what it was and he subsequently expired a few days after surgery,
Q. Is that case set for trial'?
A. Not yet.
Q. Has your deposition been taken in that

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case'?
A. No.
Q. Has your medical license ever been suspended or revoked or called into question'?
A. No.
Q. Have you ever been subject to any state disciplinary action in regard to your medical license?
A. No.
Q. Have you ever been asked to review a medical legal matter involving issues of vision loss and increased intracranial pressure'?
A. Probably. I've had cases I've reviewed that dealt with issues of shunt malfunction. I remember one case specifically that I reviewed. I don't think I gave a deposition in that case but it involved a child who went blind from a shunt malfunction.
Q. How old was that child?
A. I want to say 12 or 14, somewhere in that ball park. That's been several years ago. I don't remember much of the details.
Q. What was your opinion in regard to the cause for that child's blindness?
A. The child's blindness was related to

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increase in intracranial pressure.
Q. Did you render an opinion in that case that there was a shift in pressures that caused the blindness'?
A. No.
Q. Did your opinion in that case rest upon the fact that the child had increased intracranial pressure papilledema that led to the blindness?
A. I don't remember the nature of the case. It was a child that -- that -- state your question again.
Q. Yes. I said in that case did you render an opinion that the child's vision loss was related to increased intracranial pressure and papilledema'?
A. I don't remember.
Q. Do you recall who the plaintiff's attorney was on the other side of that case?
A. No, I wouldn't.
Q. Aside from that case do you recall any other cases in which you acted as a medical legal expert that involved issues of increased intracranial pressure and vision loss?
A. And vision loss, not that I can recall.
Q. The case that you just mentioned was your

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deposition taken in that case?
A. I don't even remember.
Q. Did you render a written report in that case'?
A. I don't recall.
Q. Is that something that you keep in your records when you render a report as an expert?
A. No.
Q. Other than this case have you ever worked with Ms. Carulas?
A. No.
Q. Other than in this case have you ever been consulted in a medical legal matter by Ms. Canrlas' law firm'?
A. Not to my knowledge.
Q. Do you know how it is that you came to be contacted regarding this case?
A. No.
Q. When were you first contacted'?
A. I don't have the date. It's probably been a year, year and a half ago.
Q. Is that on one of those letters that Ms. Carulas has removed from your file'?
A. Could be.
Q. Were you contacted by letter or by phone;

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do you know'?
A. I don't even recall.
Q. Do you recall who contacted you initially'?
A. I believe she did but I can't recall whether it was a phone call or letter that came first.
Q. Did Dr. Luciano ever contact you and ask you to review the case?
A. No.
Q. Do you know if Dr. Luciano was the one that may have suggested you to review the case'?
A. I have no knowledge of that.
Q. Do you know when the case is set for trial?
A. I was told today it was set for trial in February.
Q. Have you been asked to come to Cleveland in February to testify in trial on this matter?
MS. CARULAS: I've been bugging his secretary to get a schedule.
Q. (BY MS. TOSTI) I'm sorry, I didn't hear your answer.
A. To my knowledge I have not formally set a date to go to Cleveland in February.
Q. Do you intend to be there for trial in February'?

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A. If asked I'll be there.
Q. Doctor, I have what's been marked as Plaintiff's Exhibit 1 which I believe is your CV and I'm going to ask you if you would just take a look at it and if you would identify it for our court reporter as to what that document is.
(Whereupon, the above-mentioned document was marked as Exhibit 1.)
(Document passed to the witness.)
A. That is a copy of my curriculum vitae last updated April 2001.
Q. (BY MS. TOSTI) Is it current and up-to-date?
A. As of April 2001.
Q. Well, are there any additions or corrections that you would like to make to it'?
A. I think there is a more current version but I don't think there is anything that's been added that would be relevant to this case.
Q. What additions would be in the more current version that are not on this one?
A. Any publications that may have come out in the last year, any lectures I may have been invited to give over the last year, any new committee responsibilities I may have been given

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over the last year, things like that.
Q. Your recollection is that any additional publications would have no direct bearing on the issues of this case; is that correct?
A. That's correct.
Q. Just keep that copy because we're going to have some questions that we're going to go through and you may want to refer to that.
I note on your curriculum vitae that you have a fellowship in pediatric neurosurgery that I believe you've got dated on here from December through June of 1990?
A. That's correct.
Q. Would you describe that pediatric fellowship for me as to what that --just in general terms what that entailed?
A. Certainly. That was performed at Arkansas Children's Hospital and my mentor was William Chaddick and basically I served as a clinical instructor for the University of Arkansas. My role was clinical and the daily care of patients. It also involved some research at that time.
Q. I'm sorry, you said research?
A. Correct.

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Q. What proportion of your responsibilities were research'?
A. I believe at that time a third of -- between January and July of 1990 I believe a third of my time was research time.
Q. Now you have several board certifications listed on your curriculum vitae. Did you pass all of those on your first attempt?
A. Yes, ma'am.
Q. One certification that I see listed here Gamma Knife certification; is that correct?
A. That's a course, that's correct.
Q. Would you explain briefly what Gamma Knife certification is?
A. Gamma Knife is a technology that involves using highly focused radiation beams targeted at areas inside the brain. Primarily used for treating brain tumors and vascular malformations.
And being relatively new technology you have to take a course and the course I took I believe was a week long. It was at Pittsburg and it was about a year ago.
Then with their certification we perform a number of cases with a local mentor before we can start treating patients with that technology on

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our own.
Q. Do any of your opinions in this case involve the Gamma Knife?
A. No.
Q. Who is your present employer'?
A. Semmes-Murphey Clinic.
Q. And do you provide professional services for any other entity besides Semmes-Murphey Clinic?
A. You mean like am I on an advisory board, anything like that?
Q. Well, professional services where you're paid.
A. I'm paid as a consultant to Medtronics PS Medical. It's a company that makes shunt products.
Q. And what type of consulting services do you provide to them?
A. I serve on their professional advisory board.
Q. And as an advisor what do you do; what type of issues are brought to your attention that you have an opportunity to give input into'?
A. The development of new technologies.
Q. Any other entities that you provide

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professional services for besides Semmes Clinic and the Medtronics Medical for shunt products?
A. I have an appointment at the University of Tennessee Medical School as an associate professor but I'm not paid for that appointment. But I do some university work based on this, like training residents and I sit on committees, that sort of thing.
Q. Is the training that you provide to residents, is that the clinical, mostly, supervision of residents'?
A. Primarily. It may involve research as well.
Q. Do you do any formal classroom instruction for the residents'?
A. Yes.
Q. How often do you do that?
A. We have teaching conferences several times per week.
Q. Is that in the hospital situation?
A. It's usually in the conference room type setting.
Q. How long have you been employed with the, I'm going to call it, the Semmes Clinic?
A. Two and a half years.

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Q. Now your appointment with the University of Tennessee you supervise residents in the clinical area --
A. That's correct.
Q. -- as one of your portions of responsibilities and you sit on some committees and you also teach at some conferences.
Do you have any other responsibilities?
A. We have didactic sessions with medical students.
Q. Is the Semmes-Murphey Clinic owned or operated by the University of Tennessee?
A. No.
Q. It's an independent --
A. That's correct.
Q. -- institutional organization?
A. That's correct.
Q. Are you a part owner of Semmes Clinic?
A. A shareholder I think is the way they term it.
Q. And how many other shareholders arc there in the clinic?
A. I don't have the exact number but between 20 and 30 I would think.
Q. Are these all physicians practicing in the

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area of neurosurgery'.)
A. Yes, I believe so or neurology.
Q. Do you maintain any medical offices outside of your office here at the Semmes Clinic'!
A. No, the group does but -- or I should say the group has offices outside of this office but I'm not part of those.
Q. How many other places do they maintain offices besides this institution'?
A. There is another office in east Memphis; there is an office in Jackson, Tennessee and one in Florence, Alabama and I believe one in Muscle Shoals, Alabama.
Q. Now, Doctor, you have quite a few publications on your curriculum vitae. Are there any that you feel have particular relevance to the issues in this case as you understand them'?
A. I have publications that relate to arachnoid cysts. Those may be relevant.
Q. Okay. The Plaintiff's Exhibit Number 1 I would appreciate it if you would look through your publications, and if there are any that you feel have particular relevance, if you would mark those with a circle around the items and then indicate for the court reporter what the items

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you're circling are under.
A. Okay. On page twenty item number one a book chapter entitled, Arachnoid Cysts of the Middle Cranial Fossa and Convexity and then item number 13 a book chapter entitled Congenital Intracranial Cysts and on page 12 item number 15 is a presentation at the American Society of Pediatric Neurosurgeons meeting entitled, Behavior Abnormalities Associated with Middle Fossa Arachnoid Cysts. I believe that's all.
Q. The last presentation that you mentioned, is that something that has been put down on paper, taped, videotaped, audio taped?
A. No. There was an abstract in the program book for that meeting, that's all. We're in the process of starting to pull the data together to publish a paper on that topic.
Q. Now I understand that you hold an administrative position at, and I'm not sure how to say the name here --.
A. LeBonheur.
Q. -- LeBonheur Children's Hospital, correct'?
A. That's correct.
Q. You're Chief of the Division of Pediatric Neurosurgery; is that correct?

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A. That's correct.
Q. How much time do you spend per week with regard to administrative duties as chief?
A. It varies from week to week but I may go a week where I have relatively few responsibilities or I may have a week where I spend several hours working at it. It's not a certain percentage of my time.
Q. Well, I'd like for you to describe to me your professional responsibilities and how you divide your professional time.
Tell me just on average how you split up your time between clinical practice, administrative duties, academics, research or any other professional activities that you do.
A. Okay. Again, it's fairly fluid but the vast majority of my time is spent in clinical practice and that involves teaching conferences, that involves making rounds with residents. It's working with fellows and residents in the operating room.
Q. What percentage of your time would you say is spent on the clinical practice such as you just described?
A. Probably 80 percent.

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Q. Then how about administrative duties, academics and research?
A. A lot of that time is nights and weekends so it's a little bit hard for me to quantify it but the administrative I would say maybe five percent and academics slash research time probably the difference, the remainder.
Q. Is your current neurosurgery practice limited to pediatric cases?
A. No.
Q. If you would break it down for me. How many --, what portion of your practice is pediatrics as opposed to adult?
A. Off the top of my head I would estimate probably 60 to 70 percent is pediatrics and the remainder is adults.
Q. Do you see any pediatric patients that do not have neurosurgery related concerns, such as a neurologist or pediatric type case?
A. No, not typically. I see -- one of my areas of special interest is epilepsy surgery and I do see patients where I do medical management of their epilepsy as well.
Is that what you're trying to get at?
Q. Um, aside from that special interest, though, generally most of the patients that you see have some neurosurgery related concern, either they're being referred for evaluation with you or possible surgery, those types of cases'?
A. Right. We'll see the occasional patient referred to us because neurological symptoms that turn out to have a neurological rather than a neurosurgical condition.
Q. But the concern was the possibility of maybe needing neurosurgery or neurosurgical evaluation?
A. Right.
Q. Have you been involved in any research dealing with the subject matter of papilledema?
A. Not specifically.
Q. Research dealing specifically with increased intracranial pressure'?
A. Not specifically.
Q. How about fenestrations of arachnoid cysts, any particular research dealing with specifically that area'?
A. The study that we've talked about with behavioral abnormalities within children with arachnoid cysts, all of those children were treated surgically.

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Q. Was what a study that was conducted here?
A. No, it was conducted at Arkansas Children's Hospital.
Q. And has that -- what was the question, the research question, that was being looked at in that research study?
A. It's an evaluation of children with middle fossa arachnoid cysts. Basically we had a clinical observation that most of the kids we were seeing with middle fossa arachnoid cysts had behavioral problems, either attention deficit disorders or behavioral problem and yet the literature pertaining to arachnoid cysts doesn't address behavioral problems in these children and doesn't describe it very well.
So we performed detailed neuropsychological testing on some of these children both before and in some cases after surgery to define their behavioral problems, behavioral abnormalities to see whether they got better with surgery or not.
Q. Is that research concluded?
A. Yes, but as I said we're just now starting to put together the result.
Q. So data has been selected; is that correct?
A. Correct.

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Q. Have you -- has any of it been analyzed to the point where there is a report on that data?
A. Not a written report, no.
Q. Has any of it been reported in the scientific literature even the preliminary findings'?
A. Just the abstract that I mentioned to you.
Q. In that particular study how inany -- what was the population, what size sample did you use when you were studying?
A. We had, I think, 24 children in the study.
Q. Were all of those drawn from Arkansas Children's Hospital or were they coming from, reporting from, other centers and sites?
A. They were all tested there.
Q. Who was the chief investigator in that study?
A. I was the neurosurgeon and Carolyn Patterson is the neuropsychologist.
Q. And there was just the one study site; is that correct?
A. That's correct.
Q. At Arkansas Children's Hospital?
A. That's correct.
Q. After you had an opportunity to collect all

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this data what were your findings? I mean, I understand you don't have a final report written but must, I'm sure, have some impression.
A. The gist of it was that 80 percent of those kids had behavioral abnormalities, either attention deficit disorder or some other psychological problem and in most cases it didn't seem to get much better following treatment of the arachnoid cyst whether it was by shunt or operation.

The point is that these children need to have formal psychological evaluations if they have a history suggesting these sorts of problems.
Q. Were you able to have any theories as to why these children have behavioral problems even after they have treatment?
A. Not yet.
Q. Is that part of the research study to come up with some theories as to why these particular findings are occurring even after the children received treatment?
A. That was not the goal of the study. The goal was to determine how often this happened, whether treatment seemed to influence the

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problem.
Q. Doctor, you don't hold yourself out as an expert in neuroophthalmology, do you?
A. No.
Q. Or vocational counseling?
A. No.
Q. Where do you have hospital privileges'?
A. I have privileges at LeBonheur Children's Hospital, at Methodist Hospital, Baptist East Hospital, Collierville Hospital, St. Francis Hospital, the Regional Medical Center called the Med, the VA Hospital here in town.

I have consulting privileges at St. Jude Children's Cancer Research Hospital and at Arkansas Children's Hospital.
Q. Have your hospital privileges ever been suspended or revoked?
A. No.
Q. And the places that you've named, other than the consulting privileges that you've mentioned, are those admitting privileges for those hospitals?
A. Yes.
Q. Doctor, have you ever given a formal presentation on the subject matter of papilledema

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and increased intracranial pressure'?
A. In what regard? I mean I give teaching conferences to medical students and things like that to residents.
Q. Have any of those presentations or lectures ever been reduced to written form, to videotape, or audio type in regard to papilledema and increased intracranial pressure?
A. I don't think so.
Q. Do you have any notes or outline or syllabus for presentation on that topic'?
A. No.
Q. Is there a textbook that you consider to be the leading textbook in the field of neurosurgery, pediatric'neurosurgery?

MS. CARULAS: Note my objection to the leading, but go ahead.
A. Oh, there are two that come to mind. There's a publication, a textbook on pediatric neurosurgery, that was published by the pediatric section in Congress this last year. It's in my office. I don't have the name of the textbook unless it's in here.

It's called Pediatric Neurosurgery, Surgery of the Developing Nervous System, Fourth Edition,

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David McClellen editor, published by W.B. Saunders in Philadelphia.

There's another textbook that rivals that one entitled Principals of Practice of Pediatric Neurosurgery, editors Albright, Pollack and Adelson published by Thieme, T-H-I-E-M-E, publishers and that copyright is 1999, I believe.

Q. Are those texts that you recommend to the neurosurgery residents that you work with?

A. I do.

Q. Are those texts in your personal library, also'?

A. Yes.

Q. Do you refer to them from time to time?

A. Yes.

Q. Do you find the information in them to be reliable'?

A. Fairly reliable. Depends on the chapter.

(Doctor's pager sounds.)

MS. TOSTI: If you need to answer that, go ahead.

(Short pause.)

Q. (BY MS. TOSTI) In regard to the reports that you reviewed I want to go through those and put them on the record. I'm going to mention

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some of them and if you can tell me if you recall reviewing them. Please look at the materials that you have in front of you if you have a question.

You reviewed the records from Kids in the Sun which I believe were the pediatricians records, correct'?

A. Correct.

Q. Also the Signature Eye Association records with Dr. Marcotty's notations?

A. I have those.

Q. There was a Southwest General Hospital emergency room visit 1believe November 20 of '97 just prior to the --

A. I have that.

Q. -- Cleveland Clinic admission. You've seen the Cleveland Clinic outpatient records, correct?

A. Correct.

Q. And the two Cleveland Clinic Hospital admissions, the first one on December 17 of '97 for the cyst fenestration as well as the April 14, 1998 admission for the shunt procedure, correct?

A. Yes.

Q. How about the psychological counseling

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records of Deddo (phonetic) & Associates?

A. I have some of those.

Q. The pediatric ophthalmology records of Dr. Amy Jeffrey, who I believe saw Kevin sometime after his care at the Cleveland Clinic, do you recall seeing those?

A. I don't know that I've seen those, Amy Jeffrey'? If there in this compendium I have them. If they're not, I don't have them.

Q. How about Dr. Allen Cohen?

A. Yes, I have his deposition certainly and I have some of his records, yes.

Q. There is a Dr. Allen Cohen and then there is a Dr. Bruce Cohen. Dr. Bruce Cohen I believe was the Cleveland Clinic neurologist.

A. Correct, I have a letter from Allen Cohen and I have Bruce Cohen's deposition.

Q. I believe there is also an evaluation by a neurologist by the name of Dr. Howard Tucker, do you recall seeing anything from him'?

A. No, I don't.

Q. The depositions that you have reviewed, I believe you have Dr. Mark Luciano's deposition before you, correct, you've read it?

A. Yes.

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Q. Dr. Andreas Marcotty ophthalmologist, have you received his --

A. Marcotty's deposition I don't recall.

Q. Okay. It's not in the group of depositions that you have before you?

A. No, it's not.

Q. You don't have recollection of specifically reading his deposition or receiving it?

A. I don't.

Q. Dr. Gregory Kostnorsky the neuroophthalmologist that saw Kevin, did you see his deposition, have you received it?

A. I don't believe so.

Q. And Dr. Bruce Cohen's you have Dr. Bruce Cohen's?

A. I do.

Q. Have you read Dr. Bruce Cohen's deposition'?

A. Yes.

Q. Have you read the depositions of plaintiff's expert Dr. Peter Savino and Dr. Samuel Neff!

A. I read Dr. Neff's. I don't have Dr. Savino but I have a letter that says I've received it but I don't know if I've read that or not.

Q. In regard to Kevin's parents the

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depositions of Ann Kiss his mother and Raymond Kiss, his father, have you read those depositions'?
A. I believe I have but I don't have them with me today.
Q. Now, Doctor, you also had an opportunity apparently to review some imaging films that you have on the desk in front of you. If you could just tell us what the film was and the date of the film that you reviewed.
A. I have a CT scan of the head dated February 10, 1998, Kevin kiss. I have the CT scan of the head dated 22 of January 1998. I have an MRI of the head dated 8 July 1990. I think that's it. Hold on a second. I have some more.
Q. Are those multiple images from the same date'?
A. These are, yes. I'm not sure that is the correct date. Maybe I told you wrong. I have of April 1998.
Q. I haven't heard you mention -- I believe there may have been an MRI on November 21 of 97 and a CT scan on April 17 and another one on June 4. I haven't heard those dates as yet.
A. Here's the 21st of November 1997 MRI.

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Q. Okay. Anything from April 17 a CT of the head or June 4?
A. These are all November 21, 1997. This is January 22, 1998 CT and this is 10 February '98 CT. That's all I've got.
Q. Okay. Now you mentioned that you believe that you did have a report of Dr. Neff but you don't have it in your file and I don't recall whether or not you said you had a report of Dr. Savino?
A. I believe I do but not in my file.
Q. Have you reviewed the report of Dr. Hedges, the other defense expert in this case, have you ever reviewed that report?
A. No, I haven't.
MS. CARULAS: I sent that to you, too.
A. He's -- what kind of doctor is he?
Q. (BY MS. TOSTI) Neuroophthalmology. So you have had that sent to you?
A. Um-hmm, yes.
Q. Did you have it before you rendered your report in this case?
A. I don't recall.
Q. Have you reviewed the reports of the

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vocational counseling experts in this casc'?
A. No.
Q. At anytime did you request that defense counsel send you any additional materials other than the ones that you originally received?
A. I don't believe so.
Q. Now you mentioned that you did take a look at a neuroophthalmology chapter or text in formulating your opinions.
Did you do any other research or refer to any other medical journals or textbooks in formulating your opinions in this case, anything else that you did?
A. Not specifically to this case but I have pretty much an up-to-date file of all the medical literature on arachnoid cysts in children because of the book chapters in the research project I've been involved with. So I think I reviewed literature but it wasn't specifically pulled for this case.
Q. In preparation for this deposition did you do any research or review of any of the medical literature specifically for this deposition?
A. No.
Q. As you sit here today are there any

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publications that you believe have particular significance to the issues in this case?
What I'm asking for is there a particular publication or journal article or set of standards that you feel have particular implications here?
A. No,
Q. Did you consult with any physicians at anytime regarding this case?
A. No.
Q. Have you ever spoken to Dr. Luciano?
A. Yes.
Q. When have you spoken to him?
A. Um, I interviewed for a job at Cleveland Clinic before I took this job and we met as part of that interview process. So that was probably three years ago or so.
Q. Did Dr. Luciano conduct part of your interview, all of your interview?
A. We met for 30 minutes or something like that out of a day.
Q. But was it his responsibility to speak with you as part of the interview process --
A. Yes.
Q. -- for the Cleveland Clinic position'?

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A. That's correct.
Q. What was the reason why you did not obtain a position with Cleveland Clinic and ended up here?
MS. CARULAS: Just note my objection.
A. I thought this was a better job for me.
Q. (BY MS. TOSTI) Let me rephrase the question. That was a bad question. Did Cleveland Clinic offer you a position'?
A. No.
Q. They did not?
A. No.
Q. Okay. And aside from the meeting that you had with Dr. Luciano three years ago in regard to the possibility of a position with Cleveland Clinic have you ever spoken with him at any other time?
A. Yes.
Q. When else?
A. We crossed paths at a professional society meeting.
Q. When was the last time that you met with Dr. Luciano'?
A. I don't think I've ever met with him other

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than the interview at Cleveland Clinic but as I said, we may pass paths at meetings and say, hi, to one another.
I can't recall specifically when the last time would have been. We had our annual meeting in December of this year in Manhattan. Both of us were at the same meetings but I don't recall any specific conversations with him.
Q. How many times do you think that you have come across Dr. Luciano?
A. What do you mean come across?
Q. Well, you've had contact with him?
A. Well, I'm in charge of the membership for the American Society of Pediatric Neurosurgeons, so we've had some e-mail correspondence regarding his application for membership within the last several months that would have probably been three or four e-mails.
Q. And the e-mail correspondence has that been strictly related to the organization Association'?
A. Yes.
Q. Have you had any conversation with him, e-mail contact or any other contact with him in regard to this case?
A. No, he and I have never discussed this

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case.
Q. Now aside from the face-to-face meeting and coming across him at on organizational meeting and the e-mail contact have you had any other contact with him'?
A. Not to my knowledge.
Q. How about with Dr. Bruce Cohen?
A. I met him once as part of the interview process that day at Cleveland Clinic. That's the only time to my knowledge that he and I have ever spoken.
Q. Did you have a face-to-face interview with Dr. Cohen?
A. I did.
Q. How long did that last'?
A. I believe it was 30 minutes.
Q. Aside from that encounter with Dr. Cohen have you come in contact with him any other way?
A. No.
Q. Dr. Kosmorsky, he's a neuroophthalmologist at Cleveland Clinic, have you had any contact with him?
A. No.
Q. Dr. Marcotty the ophthalmologist that saw Kevin, have you had any contact with him?

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A. No.
Q. How about Dr. Neff, have you ever come in contact with Dr. Neff?
A. Not that I know of.
Q. And we ran through some of the other physicians that had contact with Kevin after all of the -- these occurrences, Dr. Amy Jeffrey and Dr. Allen Cohen, Dr. Howard Tucker.
Have you ever met or come in contact with any of those physician'?
A. Allen Cohen I have.
Q. How did you come in contact with Dr. Allen Cohen?
A. He and I are in the same professional societies together.
Q. Have you ever had any conversation with Dr. Cohen where you sat down and talked with him'?
A. We have conversations quite a bit but not about this case.
Q. When is the last time you talked with Dr. Cohen?
A. Probably at that December meeting.
Q. So most of your contact would have been through a professional organization'?
A. Yes.

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Q. Have you ever had any contact with Dr. Peter Savino --
A. No.
Q. -- who is acting as the plaintiff's expert in this case?
A. No.
Q. I can't recall if 1mentioned this, Dr. Thomas Hedges'?
A. Don't know him.
Q. Aside from the interview process that you went through was that a one day interview process or was it longer than one day at the Cleveland Clinic'?
A. It was one day.
Q. Who else did you interview with when you interviewed'? You mentioned Dr. Luciano and Dr. Cohen. Who else did you see?
A. Dr. Yung Lee. Dr. Mark Mayberg the chairman there, I'll think of his name in a few minutes, there is another one that I know of for sure. Elaine Wiley the neurologist that runs the pediatric epilepsy unit.
I'm sure there were others. It was a full day of interviews. Thomas Babb is a Ph.D who does research in epilepsy there.

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Q. Did they ever tell you why the position wasn't offered to you there?
A. Well, I never pursued the position there.
Q. Wasn't that the objective of the interview process? Weren't you going there specifically for a position; weren't they interviewing for a position'?
A. Well, an interview works two ways. You decide if you like the place and they decide if they like you.
Q. Do you know who eventually got the position that you were interviewing for?
A. They've never filled that position.
Q. (BY MS. TOSTI) Have you ever had any training at the Cleveland Clinic?
A. No.
Q. Have you ever attended professional conferences there?
A. Yes.
Q. When is the last time you've done that?
A. It's been a number of years ago. They have regular conferences on epilepsy and I've been to two of those that I can recall. Both of them were probably in the early 90's. I don't think I've been to any in the last five years.

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Q. Aside from the interviewing that you did and those conferences have you been to the Cleveland facility for any other reason'?
A. Not that I recall.
Q. Now I believe on your CV it indicates that you previously were with the Neurological Surgery Associates in Little Rock, Arkansas.
Why did you leave that position'?
A. To take the job here.
Q. And what was the incentive to come here?
MS. CARULAS: Note my objection but go ahead.
A. It's not at all relevant to this case but I came here because I had joined a six man private practice group but was the only person in the group that did pediatrics so I had no call coverage because all my other partners did adults. So I didn't have any time for my children and my family.
Q. Have you generated any personal notes on this case?
A. No.
Q. Have you -- okay. I'd like you to describe for me what your -- just an overview of your neurosurgical practice for like in a week's time

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what you normally do in the course of a week, how you split up your time, what it is that Dr. Roop does during the week.
A. Well, typically I have a full day of clinic on Tuesdays and a half day of clinic on Thursday afternoons. The rest of my time is generally spent on patient care.
And on Monday nights we have a teaching conference which is a clinical conference and on Wednesday mornings we alternate between a brain tumor conference and a journal club.
Wednesday afternoons we have a pediatric brain tumor conference at St. Jude that's a multidisciplinary conference. Friday mornings we alternate grand rounds and morbidity and mortality conferences.
Q. Do you do spine surgery'?
A. Yes.
Q. What percentage of your practice is spine surgery?
A. Maybe 20 percent, something like that.
Q. And what percentage would you say deals chiefly with issues involving the brain'?
A. The majority of it.
Q. Doctor, I have a copy of what I believe is

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your expert report that I've marked as plaintiff's Exhibit 2. If you would just identify that for our court reporter.

(Whereupon, the above-mentioned document was marked as Exhibit 2.)

(Document passed to the witness.)

A. That is a letter I had written offering a formal opinion on this case.

Q. (BY MS. TOSTI) That letter is dated July 26 of 2001; is that correct'?

A. That's correct.

Q. Did you provide defense counsel with any drafts of your report before rendering this July 26, 2001, report?

A. No.

Q. And this is the only report that you provided to defense counsel?

A. Yes.

Q. Aside from your report have you provided defense counsel with any written memoranda on this case?

A. No.

Q. Have you ever written out answers to questions for defense counsel in this case?

A. No.

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Q. Did you speak with anyone from Ms. Carulas' office or Ms. Carulas to discuss the contents of your report before you finalized it?

A. Yes, I believe I did.

Q. What did that discussion entail?

A. I don't recall specifics of it. She had called and asked if I would be willing to prepare a written report. I think we just talked in general terms what that report might contain.

Q. Did she or anyone else in her office request that you make any changes to your proposed report?

A. No -- I'm sorry, yes. On the second paragraph it says, severe visual loss in his right eye. I was informed that that was the left eye.

Q. And does your report of July 26, 2001, memorialize opinions that you currently intend to express as an expert in the trial of this matter?

A. It contains all the opinions I've been asked to express. If I'm asked to express other opinions, I'd be happy to do so.

Q. Well, at this point in time are there any opinions that you intend to express at trial that aren't summarized in this July 26, 2001 report'?

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A. No.

Q. And do you still maintain all the opinions that you've expressed in your report?

A. I'll stand corrected on the left eye, but other than that --

Q. With that correction. Do you intend to do any additional work on this case or review any additional material in this case before the time of trial'?

A. Not unless I find a need to do so.

Q. Have you been asked to do any additional work?

A. No, ma'am.

Q. Tell me what your assignment was that you were given relative to this case. When it came to you what were you asked to do?

A. I was asked to look at the care offered Kevin Kiss by Mark Luciano and determine in my own mind whether that care was appropriate or not.

Q. Was Dr. Luciano's care the only physician that you were asked to look at and make that determination'?

A. Well, I don't know that I was specifically directed to only examine his care but being a

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neurosurgeon, being that he received neurosurgical care, that was my primary objective.

Q. Doctor, tell me what an arachnoid cyst is just in general terms.

A. It's a cyst that generally contains spinal fluid and that spinal fluid is contained by a thin membrane that is arachnoid tissue which is one of the left meninges.

Q. And what is the incidence of arachnoid cysts in the pediatric population?

A. I don't know that number.

Q. Are there signs and symptoms associated with arachnoid cysts when they are symptomatic'?

A. When they are symptomatic there are usually signs and symptoms. They may be seen incidentally.

Q. In regard to the type of cyst that Kevin had, I think it was a left middle cranial fossa arachnoid cyst, what would be the type of signs and symptoms that you would see with the type of cyst that Kevin Kiss had?

A. Most common, headache.

Q. Anything else'?

A. Well, we've discussed behavioral problems

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that we've seen in these children, symptoms of raised intracranial pressure may be associated with the cysts, seizures can be associated with them, visual disturbances associated with the cysts.

If they're large, enough they can cause hemiparesis. Particular to the left side occasionally it will interfere with speech development.

Q. What would be the signs of increased intracranial pressure that would be a sign if that was present'?

A. Typically headaches, possibly nausea and vomiting more common in the morning, sometimes double vision or blurred vision.

Q. And would those be the visual disturbances that you were talking about, also, part of the visual disturbances that you were talking about?

A. Yes, ma'am.

Q. What other visual disturbances have you seen with those types of cysts'!

A. Well, those would be far in the way the most common. Occasionally you have a visual loss if it progresses where you may have visual hallucinations and they cause seizures, temporal

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lobe seizures.

Q. Are there complications associated with arachnoid cysts'? Now some of the signs and symptoms I understand may also be determined a complication, but are there any additional complications that can occur that you haven't already mentioned?

A. Certainly.

Q. What would be those complications associated with it?

A. Those cysts have been reported to rupture and cause fluid collection in the brain, such as hygromas that can cause increased intracranial pressure.

They have been reported to rupture and cause acute subdural hematomas or chronic subdural hematomas. They have been reported to cause endocrine abnormalities when they involve the portion of the brain that controls hormones. They have been associated with visual loss.

Q. How is an arachnoid cyst diagnosed?

A. Nowadays mainly by MRI.

Q. Is that the best test for arachnoid cysts, the best diagnostic study'?

A. In my opinion.

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Q. Was that true in 1997 at the time Kevin first started with his problems'?

A. Yes.

Q. And how is an arachnoid cyst treated? I understand there are different options.

A. That's correct.

Q. What would basically be the different options?

A. Well, are you asking for my opinion or for a summary'? If the cysts are asymptomatic or if they only cause minor symptoms, they may be treated with observation. Generally an MRI to make sure that they're not enlarging.

If arachnoid cysts cause only headaches, then an option is to treat the headaches with headache medicines and if they cause seizures, an option is to treat the seizures with medication. If they cause behavioral problems, an option is to use behavioral modifying medications to control outbursts.

Regarding surgery for increased pressure there are two main options that have been used. One is surgery to fenestrate either by open craniotomy or by endoscopic, minimal evasive approaches. The other is to divert the fluid

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through some sort of a shunt.

Q. And you appeared to have a preference as to how you normally would proceed. What is your opinion as to how those should be treated?

A. Well, when I first got into practice I used the shunt on them. I found in a hurry that if you shunt them, you may alleviate the symptoms but patients are usually deemed to have their shunt the rest of their lives, and anytime they have a headache or if a fever or do poorly in school, the family is in the emergency room wondering if the shunt has quit working and needed to be revised.

Fairly often shunts will malfunction and have to be revised or perhaps get infected and have to be dealt with, whereas in most instances if you fenestrate these middle fossa arachnoid cysts, you can cure the patient. So in my opinion curing them is much better than treating their cysts with a shunt.

Q. So as a primary procedure do you treat them with the medications that you've outlined here, or would you move for fenestration of the patient if they're symptomatic?

A. It depends on the patient. I would say

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with the majority of patients who present with headaches I will proceed with medical management of the headaches first as long as their vision is stable. If their symptoms progress or if they fail the medications, then we'll proceed with surgery.

Q. You mentioned if they were asymptomatic or had minor symptoms, one option would be to follow with observation and follow up with MRI.

How often you do an MRI in a situation like that?

A. Typically 1'11 do one in six months and if it's stable I do one in a year and if it's stable, then I won't do another one unless their symptoms change.

Q. You mentioned that if a child had headaches and their vision was stable, how do you determine if their vision is stable?

A. I refer them to an ophthalmologist.

Q. So if they come in and have diagnostic evidence on MRI of an arachnoid cyst, they're complaining of headaches, would that be an instance where you would send them to an ophthalmologist for general visual field tests?

A. Generally, yes. Not just visual.

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Q. For a vision examination that would include formal field testing?

A. That's correct.

Q. How often in your practice do you see pediatric cases with arachnoid cysts?

A. Oh, as a guess three times per year, two or three times per year, something like that.

Q. How many have you seen in pediatric cases with arachnoid cysts the size that Kevin had?

A. I've seen several that size. I couldn't tell you an exact number. His is large.

Q. Now I take it you perform arachnoid cyst fenestration procedures in your practice, correct'?

A. I do.

Q. How often do you do fenestration cyst procedures'?

A. You mean cysts other than arachnoid cysts'?

Q. Arachnoid cyst fenestration, how often do you do that procedure?

A. That would be my first choice for any patient that has a cyst that was easily accessible.

Q. So the two or three cases that you see a year would those likely also be having cyst fenestrations'?

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A. Not necessarily. I don't operate on every cyst I see.

Q. Back to my original question, how inany arachnoid cyst fenestrations would you do in a year's time usually?

A. One or two.

Q. Now you do other cyst fenestrations, correct?

A. I do.

Q. Arc those others brain fenestration?

A. Brain and spinal cord, yes.

Q. How many -- of all the 'types of cysts there are, how inany cyst fenestrations do you do in a year or month's time'?

A. I suspect it varies a lot from one year to the next, but probably half dozen or so.

Q. And do you currently do shunt procedures in pediatric cases?

A. Absolutely.

Q. How inany have you done in the last year'?

A. I don't know the numbers. It's one of the most common operations I do.

Q. You do those not only for cysts but also for hydrocephalus situations?

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A. Correct.

Q. Can you give me a ball park in a month's time how inany shunts you do or a week's time if that's easier for you?

A. I've not done many since I moved to Memphis as I have done in Arkansas and there our service would typically perform 25 or 30 shunts a month. Of those typically half of those would be mine.

Here I tend to do a lot more intracranial craniotomy type work, brain tumors, epilepsy work. So I'm not doing near the number of shunts I was then. Probably somewhere between five and ten a month, something like that.

Q. Now is the diagnosis of arachnoid cyst is usually made prior to the time that you first see the child; does the child usually come to you with that diagnosis'?

A. Most commonly they come with MRI's in hand .nowadays.

Q. And could you explain just briefly what fenestration is. I'm speaking of an arachnoid cyst.

A. It involves cutting windows in the cyst wall, removing as much of the cyst wall as you can. The arachnoid cyst walls are often stuck to

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vital structures like arteries, cranial nerves and so forth, so you typically can't remove the cyst wall, but you can communicate the fluid spaces with the adjacent CSF space.
Q. Now these cysts, are they usually fluid filled, cerebral spinal fluid filled?
A. That's correct.
Q. When the cyst is fenestrated where does the excess cerebral spinal fluid go'? Is it absorbed by the body system if you have a successful fenestration'?
A. Correct.
Q. #at is a shunt procedure in regard to a cyst?
A. That involves placing a tube inside the membranes into the CSF space contained by the cyst membrane and then diverting the fluid to some other body cavity, usually the abdomen.
Q. Now generally speaking does a child have to be symptomatic before -- symptomatic with arachnoid cyst before there is a recommendation for surgery for fenestration of the cyst?
A. That's a matter of opinion.
Q. Well, in your opinion does a child have to be symptomatic before you would recommend

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fenestration of the arachnoid cyst?
MS. CARULAS: Just note my objection, but go ahead.
A. In general they are. Occasionally if we see an MRI scan where it looks like there's a lot of deformation or shift in the brain in a child -- sometimes in young children it's hard to tell whether they're symptomatic or not. But if it looks like there's a lot of mass effect, then sometimes we make a recommendation to treat them on that basis.
Q. (BY MS. TOSTI) What's a Third Nerve Palsy?
A. That means the ocular motor nerve doesn't work properly.
Q. #at would be the signs and symptoms of a Third Nerve Palsy?
A. It can be petosis, P-E-T-0-S-I-S, which is a lid lag on one side or it can be an asymmetry in the pupils.
Q. So, Doctor, just so I have this down, when surgical intervention is indicated for arachnoid cysts you would generally recommend fenestration over shunting?
A. I do.
Q. Just in general terms'?

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A. That's correct.
Q. Is there anything that would cause you to move to shunting rather than fenestration'? Are there certain symptoms or certain things that would occur that may cause you to say in this case a shunt would be more appropriate?
A. Yes. First of all, if the patient is too ill to tolerate a craniotomy, the shunt is not as big an operation. Secondly if the cyst is in a location where fenestration is not likely to work or where it may be risky.
For example, supercellular arachnoid cysts the cysts are usually involving both the optic nerves and pituitary glands and in those cases often shunting is the better operation.
Q. Does the size of the arachnoid cyst make a difference as to whether fenestration or shunting would be most appropriate?
A. No. The presence of hydrocephalus preoperatively does. Sometimes children have hydrocephalus when they present with arachnoid cysts.
Q. So when you are in a position to say, I'm going to recommend fenestration for a child, what signs or symptoms would be the indicators that a

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surgical option would be appropriate for an arachnoid cyst'?
MS. CARULAS: Note my objection, but go ahead.
Q. (BY MS. TOSTI) We've mentioned all these other options, but what indicators would there be for saying that this particular arachnoid cyst should be treated with the surgical option?
One you mentioned was mass effect that might cause you to go to a surgical option.
A. Yes.
MS. CARULAS: I'm just objecting because I think it's beyond the scope of this case in that your own expert is not criticizing this and we're under a constraint of time and I just don't see the relevance to this case, but go ahead.
A. Well, we've already talked about failure of the medicine to alleviate symptoms as a potential for surgery, progressive symptoms in a child. In other words, if they seem to be deteriorating, that could be an indication for surgery.
Q. (BY MS. TOSTI) If the child has a large arachnoid cyst, is there an increased risk for hydrocephalus if you don't do a shunt, if you

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just fenestrate it?
A. Not to my knowledge. I don't know that that issue -- I should say I haven't seen that specific question answered in a study.
Q. In what percentage of the cases is a single surgical procedure, such as a fenestration, or let's say a fenestration, successful in controlling the problems associated with arachnoid cysts'?
A. For me probably somewhere in the vicinity of 70 percent, 75 percent. Of the children we treated with fenestration if not required a shunt, had a good resolution of their symptoms.
Q. Do you in your practice if you do a fenestration, do you do a second fenestration'?
A. It depends on the case.
Q. Have you done that in the past?
A. A second fenestration?
Q. Yes.
A. Yes.
Q. Once a cyst fenestration is done how do you determine if it's successful or not; what are the indicators; what do you look for?
A. Sometimes that can be difficult especially in a child with behavioral problems, but you'd

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like to see a resolution of their symptoms. On the other hand sometimes it can take a period of time before their symptoms improve clinically.
Q. Would you -- if the fenestration was not successful in relieving increased intracranial pressure, what signs and symptoms would you see?
A. You may see signs and symptoms of increased intracranial pressure which includes headaches nausea, vomiting, papilledema, those clinical indicators of increased intracranial pressure that would be commonly recognized.
Q. What is papilledema?
A. Papilledema from a clinical perspective is elevation of the optic nerve head and blurring of the optic disk margins. Is that your question'?
Q. Does it involve swelling of the optic nerve?
A. It can, yes.
Q. How do you diagnose papilledema?
A. Usually by endoscopi examination.
Q. That's utilizing an ophthalmoscope and looking at the interior of the eye, correct?
A. That's correct.
Q. What is chronic papilledema?
A. It's papilledema that has been present for

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a period of time.
Q. How long does it have to be present before you term it chronic'?
A. I don't know the specific definition for that.
Q. Doctor, in the course of your practice do you inspect the interior of your patient's eyes with an ophthalmoscope when it's indicated to look for papilledema, is that something that you do?
A. Absolutely.
Q. And providing patients are cooperative, how long does it take you to check patients eyes specifically to determine if papilledema is present or not present?
A. Depends on the patient. If they're cooperative, it usually takes a couple of minutes.
Q. Now do all neurosurgeons in their training learn how to do a visual inspection of the interior or the eye with an ophthalmoscope to look for papilledema?
A. Yes.
Q. During the course of their training do they learn that?

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A. Yes.
Q. Would you agree that anytime a patient has brain surgery one of the complications that can occur is increased intracranial pressure'?
A. Depending on the brain surgery it's a possible complication, yes.
Q. Would you agree that a fundoscopic exam to check for papilledema should be part of every routine follow-up exam after brain surgery for an arachnoid cyst fenestration?
MS. CARULAS: Objection.
A. Every routine follow-up exam? No, I don't think that's necessary.
Q. (BY MS. TOSTI) Would you agree that during the initial period, the initial first few months, after an arachnoid cyst fenestration a fundoscopic exam should be part of every follow-up visit'?
MS. CARULAS: Note my objection.
A. For me personally I would do that.
Q. (BY MS. TOSTI) What about in general as the standard of care, is that what a reasonably prudent neurosurgeon would do in those circumstances after an arachnoid cyst fenestration in every follow-up visit for the

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first few months after the surgery, check the fundus of the eye to see if there is papilledema'?
MS. CARULAS: Note my objection, go ahead.
A. I think there is no standard of care but a prudent surgeon would.
Q. (BY MS. TOSTI) Doctor, isn't it true that one of the things that can happen after a cyst fenestration that the fenestration or drainage hole can close up and the cyst can again cause problems for a patient'?
A. Yes.
Q. And isn't it also true that even when a cyst is successfully fenestrated -- in other words, there is a hole put into the membrane, it doesn't always relieve the increased intracranial cranial pressure and sometimes a shunt may be necessary'?
A. That's true.
Q. And have you had patients where there's been a fenestration done and it did not relieve the symptoms and you've gone on to recommend that a shunt be done?
A. Yes.
Q. Would you agree that it's a neurosurgeon's

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duty to watch the patient carefully for signs and symptoms that may indicate the fenestration did not resolve the problems? Meaning the increased intracranial pressure caused by the arachnoid cyst.
A. Yes.
Q. Doctor, in a patient that has a cyst fenestration and then has symptoms of relief but then goes on to develop new signs and symptoms of headaches and blurred vision, would that raise a concern that the fenestration may not have worked and that the intracranial pressure may be increasing again?
A. Yes.
Q. Is headache one of the early signs of increased intracranial pressure?
A. If you don't mind, let me back up to your previous question for clarification. In patients who have had chronically increased intracranial pressure, i.e., chronic headaches related to arachnoid cysts, sometimes it can take a number of weeks, sometimes two or three months for their symptoms to settle down.
So just for clarification if they came back in a month and said they were still having

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headaches, then you would not jump into a second surgery.
Q. Well, I wasn't asking if you should move to a second surgery, but if you had a patient that had surgery and had their symptoms relieved, headaches gone away, vision had gotten better and then after several weeks headaches come back, vision problems start over, would that be a scenario that would raise a level of concern that there may be increased intracranial pressure occurring'?
MS. CARULAS: Note my objection.
A. Sure.
Q. (BY MS. TOSTI) Isn't it true that one of the earliest signs of increased intracranial pressure is swelling of the optic disk'?
A. It may be signs, not symptoms.
Q. So if you have a new finding of papilledema in a patient who has just recently undergone an arachnoid cyst fenestration, would that raise the level of concern for increased intracranial pressure?
A. Yes.
Q. Doctor, once your suspicious that the patient has increased intracranial pressure,

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we're speaking of the patient that has had an arachnoid cyst fenestration, would you agree that it's important to monitor the patient to determine if the condition is getting worse, getting better or staying the same?
A. The patient should be monitored whether it's by a neurosurgeon or ophthalmologist. It's very -- in my practice I generally ask a pediatric neuroophthalmologist to follow that aspect of the child's care for me and let me know if they think the child is getting worse.
Q. If the neuroophthalmologist comes back to you and says, gee, this papilledema did not resolve itself, and, in fact, it looks like it's gotten somewhat worse, what do you do in that case?
MS. CARULAS: Note my objection. Go ahead.
Q. (BY MS. TOSTI) It's your impression that this child from your evaluation has increased intracranial pressure and the neuroophthalmologist has warned you that the papilledema has not improved, in fact may be advancing, is that --
A. That's two different things. So for

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clarification if the papilledema is not improving, that is if it's stable and if I've satisfied myself that the child's intracranial pressure is not dangerously high, I may just follow it.

I may not do anything accept make sure that the ophthalmologist and I follow it together. On the other hand, if it's progressive, then generally we'll recommend treatment.

Q. And one of the things that the neuroophthalmologist does is do a complete visual examination including the visual fields that we talked about'?

A. Correct.

Q. Including the inspection of the fundus of the eye and including the visual acuity?

A. That's correct.

(Doctor's pager, short pause.)

Q. (BY MS. TOSTI) Doctor, we had an interruption here but when you monitor a patient's increased intracranial pressure after cyst fenestration, one of the things that should be done is to monitor the patient for papilledema that you, as a neurosurgeon, may do that or you may refer the patient to a neuroophthalmologist

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to have a complete eye evaluation and to monitor that situation on an ongoing basis, correct?

A. Correct.

Q. Now if the child did not have papilledema before surgery, undergoes a cyst fenestration and then develops papilledema after surgery, after undergoing a cyst fenestration, is that cause for concern?

MS. CARULAS: Note my objection. Go ahead.

A. Obviously it's -- first of all, that's something that I don't know that I've ever seen before. If I have, it's uncommon. But, secondly, obviously you'd be concerned anytime you saw papilledema particularly if it wasn't there before and it was afterwards.

Sometimes around the time of surgery, by that I mean in the first month or so after surgery I may see some transient rises in intracranial pressure related to changes in CSF circulation or whatever. That may be transient.

So if the child is not too symptomatic and if the clinical exam is not too alarming, it's something that we may just follow. On the other hand. if it's something associated with nausea

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and vomiting in an ill appearing child, we obviously are more concerned.

The point being that papilledema in and of itself is not normal, it's something we like to keep an eye on, but not all papilledema is the same.

Some papilledema is mild, visual acuity is stable, it's not progressive and we may just follow it and hope that it goes away. Other times it may be rapidly progressive and we may be forced to do something about it in a hurry.

Q. (BY MS. TOSTI) But that would mean that you would want to keep track and be watching to determine if it is stable or if it is changing and becoming worse, correct?

A. Hopefully, or in many instances we have to rely on the families to let us know if they think their child is getting worse. Many times we consult with neurologists or neuroophthalmologists to help us *to* sort out the child, if you would.

Q. If the patient has chronic persistent papilledema after a cyst fenestration, are there complications that can be associated with that?

A. With papilledema'?

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Q. With chronic cyst papilledema after fenestration.

A. Yes.

MS. CARULAS: Note my objection.

Q. (BY MS. TOSTI) You may continue.

A. What was your question?

Q. Are there complications associated with chronic papilledema after cyst fenestration'?

A. My answer was yes.

Q. What are those complications?

A. Complications associated with chronic papilledema may be progressive visual loss, progressive constriction of visual fields, those would be the primary things.

In the long run if it's severe enough, it could lead to optic atrophy, which again clinically manifests in visual loss.

Q. What is optic atrophy'?

A. It's actual loss of the nerve fibers within the optic nerve.

Q. And would you agree that it's well recognized in your field of neurosurgery that chronic papilledema can lead to optic atrophy resulting in visual field loss'?

MS. CAKULAS: Note mv obiection. Go

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ahead.
A. It is in some instances. It doesn't necessarily have to.
Q. (BY MS. TOSTI) Isn't optic atrophy something that occurs over a period of time, usually months, rather than something that's sudden that happens in a few hours or a day'?
A. Right.
Q. And with a patient who has chronic papilledema would you agree that the patient should be followed for signs of atrophy'?
A. I don't know how to answer that question. That's not a well stated question. We've already talked about the fact that --
Q. Let me rephrase it. When a patient has chronic papilledema would you agree that the patient should be followed closely for signs of visual field loss?
A. I think looking for signs of visual field loss is an appropriate way to follow children with chronic papilledema. Again, if it's mild, depending on the severity of the papilledema one might -- and the chronicity of it -- one might see them once a year as we might with some of our other patients, or we may see them once every six

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months, or if it's severe or we're worried about them, we may see them twice a week.
Q. So it would be dependent on a complete visual examination, correct, so that you can make the determination is this stable or is it something that's becoming more severe; you would need to evaluate the child.
A. That's correct, not just a visual examination but the child as a whole.
Q. When I say visual I mean fundoscopic, visual fields, visual acuity, those types of examinations, a complete assessment by a neuroophthalmologist.
A. Complete neurosurgical assessment, right.
Q. Isn't it *true* that when there is gradual vision toss in one eye the vision loss may not be recognized by the patient until it's fairly well advanced?
A. Absolutely.
Q. So you would agree that in a child it wouldn't be unusual for a child not to be aware *of* a gradual vision loss that occurs predominantly in one eye?
A. Child or adult.
Q. And with the vision loss associated with

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chronic papilledema would you agree that peripheral vision is usually affected first?
A. Yes.
Q. I think you've already told me that a serial, formal visual field test is helpful in monitoring a patient with chronic papilledema for visual loss, correct'?
A. Correct. I guess we should make it plain that most neurosurgeons I know don't do normal field testing. That's something an ophthalmologist does.
Q. Right, and that you would co-manage a patient with the neuroophthalinologist doing that, probably, portion of the evaluation of the child and reporting back to you?
A. Right.
Q. Do you have an opinion as to whether confrontation visual fields are effective in evaluating a patient for field visual loss'?
A. Yes, I think we do that every day as a screening test on our part.
Q. Do you think that in regard to the patient that may have chronic papilledema with visual field defects that it's an effective way to evaluate the patient to determine if they have

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lost vision?
A. I think it can be effective in a cooperative child.
Q. Why then do you refer a patient with chronic papilledema to a neuroophthalrnologist if it's just as effective -- is it just as effective as formal visual field testing'?
A. I didn't say that. You didn't ask that.
Q. I'm going to let you clarify your answer then. Is it as effective as formal field testing?
A. No.
Q. Can you get a normal result on confrontational visual field testing and then have formal visual field testings done and find out that you have defects in the visual fields'?
MS. CARULAS: Note my objection. Go ahead.
A. You may be able to pick up subtle abnormalities in the visual fields by formal testing that you might not pick up by confrontational testing, but in a cooperative patient any significant deficit I think you should be able to pick up, at least in an experienced examiner's hands, you should be able

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to pick up --
Q Do you -- excuse me.
A Again, if you have a child that has behavioral problems and may not be the most cooperative or has problems with attention, then you may rely on someone who does it for a living rather than on yourself.
Q Doctor, would you agree that in the pediatric patient that is experiencing increased intracranial pressure after cyst fenestration the risk of optic nerve damage increases with the duration of the papilledema?
A Your question is whether the risk of losing vision is greater over time in a patient with chronic papilledema'!
Q After cyst fenestration. If a patient has increased intracranial pressure after cyst fenestration, does the risk for optic nerve damage increase with the duration of the papilledema?
A I can't say that with certainty. If it's inild and stable, it may not be at risk for visual loss.
Q Are there any signs or indications on fundoscopic exam that would indicate to you that

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the papilledema has been present for awhile and is in its early stages?
A. Usually if it's severe papilledema we assume that it's -- well, let me rephrase that. Just by looking at the back of someone's eye I can't tell you with certainty how long the papilledema has been present. You can have papilledema develop within a day or two in some cases.
On the other hand, we see children with chronic shunt malfunctions who came in with raised intracranial pressure for weeks who never show papilledema.
Q Is that something that you would defer to a neuroophthalmologist as to whether or not you can tell how long the papilledema has been present'?
A I would be surprised if they could tell you how long it had been present with certainty.
Q Do you use any type of grading system to note the seventy of the papilledema?
A Just my monitor.
Q Doctor, would you agree that a CT scan and an MRI of the brain are not reliable diagnostic studies to rule out the presence of increased intracranial pressure; that you can't use those

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two studies, the MRI or CT. to nile out increased intracranial pressure'?
A. I would say in general you can't measure intracranial pressure with an MRI or CT scan. Sometimes you can get clues from MRI's and CT scans that the pressure is kind of not a problem.
For example, if we see a child with large ventricles and we put a shunt in and the follow-up scan shows the ventricles have gotten smaller and there is now fluid in the subarachnoid space, it is generally presumed that the pressure is decreased.
Q. It tells you something about the position of structures or the size of structures, but it can't tell you how much pressure those structures are under, correct'?
A. That's correct.
Q. Now before you take patients for cyst fenestration do you check them for papilledema'?
A. Yes.
Q. Is that something that reasonably prudent neurosurgeons would do with their patients is check for papilledema before doing a cyst fenestration'?

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MS. CARULAS: Note my objection,
A. At some point. If you're trying to say do I do it immediately before I take them to surgery, I don't, but as part of my history and physical that's part of the workup.
Q. (BY MS. TOSTI) The preoperative evaluation --
A. That's correct.
Q. -- would include a check for papilledema --
A. That's correct.
Q. -- before cyst fenestration?
A. That's correct.
Q. Why is it that you do that?
A. I'd like to know if it's present so that if something changes postoperatively I will have something to compare it to.
MS. TOSTI: We are going to suspend this deposition and I reserve the right to continue it as both defense counsel and I need to catch an airplane. It's the last flight out of Memphis this evening. We will continue this deposition probably by telephone at a mutually agreeable time and date.
THE WITNESS: Okay.

COURT REPORTER'S CERTIFICATE

STATE OF TENNESSEE:

COUNTY OF SHELBY:

I, CATHY A. HASTINGS, Certified Court Reporter and Notary Public, Shelby County, Tennessee, CERTIFY:

1. The foregoing deposition was taken before me at the time and place stated in the foregoing styled cause with the appearances as noted;

2. Being a Shorthand Reporter, I then reported the deposition in Stenotype to the best of my skill and ability, and the foregoing pages contain a full, true and correct transcript of my said Stenotype notes then and there taken;

3. I am not in the employ of and am not related to my of the parties or their counsel, and I have no interest in the matter involved.

WITNESS MY SIGNATURE, this. the ____ day of _____, 2002.

_____
CATHY A. HASTINGS, CCR
Court Reporter
Notary Public for
Shelby County, Tennessee

My commission expires:
October 13, *2003*

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