**EXCERPTS FROM DIRECT EXAMINATION OF PHYSICIAN REGARDING BURN INJURIES TO A CHILD IN A PHYSICAL ABUSE CASE**

##### State of California

**By Prosecutor:**

**Q.** Would you state your full name for the record, please, and spell your last name.

**A.** S.M.A., \_\_\_\_\_.

**Q.** And are you a physician?

**A.** That's right.

**Q.** And where do you practice medicine, Dr. A.?

**A.** I am on the faculty of the medicine school at the University of California,….

**Q.** And how long have you been on the faculty at the University if California,…?

**A.** Since 1983.

**Q.** And in what capacity are you a faculty member? What types of things to you do?

**A.** I am the medical director of the pediatric intensive care unit. That is my primary

function. I take care of very sick and injured children in the intensive care setting. I am also the

medical consultant of the Child Advocacy Program, which is a group of doctors, nurses, and

social workers who take care of children who are with injuries when there is a question of

whether they have been abused or neglected.

**Q.** And in part of your duties as a faulty member there, do you teach medical school courses?

**A.** Yes, sir.

**Q.** Is that for medical students, or do you teach other individuals as well?

**A.** I teach senior medical students, and I teach pediatrics trainees, intern students who finish

medical school who are learning pediatrics as a specialty. I teach surgery residents who are

learning surgery, particularly in our regional burn center. Our hospital has a regional burn center

and all the surgery residents rotate there. I also teach other physicians in my department and the

community as well as various people through the community, nurses, paramedics, social workers

in various capacities all over San Diego and other hospitals as well, outside hospitals.

**Q.** What types of training or teaching areas do you specialize in?

……………………………………..

**Q.** Now, you mentioned that you have a regional burn center in SD. Would you describe

that?

………………………………….

**Q.** And as a result of having that particular burn center there, do you get to see more burn

patients than you would at a normal hospital?

**A.** Yes, sir.

**Q.** And, in fact, most of the people who have serious injuries or significant burn injuries are

referred to your hospital for treatment; is that correct?

**A.** That's right?

**Q.** Now, you had mentioned the fact that you did some training specifically in the area of

burns. Have you done that training both locally and nationally?

**A.** Yes, I have. In additional to attending the kind of hospital based conferences by burn

surgeons or other specialists, I have also attended an annual meeting of the American Burn

Association two years ago. And in additional, during various pediatrics seminars and courses,

there are sometimes lectures on burns, which I attend.

**Q.** Now you train, in terms of burn investigations, both doctors as well as lay witnesses?

**A.** Well, doctors and social workers, paramedics, and anybody who is interested in learning

more. I have any number, usually professionals of some kind, but any number of specialists in

my classes.

**Q.** And that would include police officers, detectives?

**A.** Absolutely.

**Q.** Have you published any papers in connection with your practice involving burn

investigations?

**A.** Right now I have an article that has been in press,…

………………………………………….

**Q.** You received your medical training at what institution?

**A.** The University of PP.

**Q.** When did you receive your medical degree?

**A.** 1980.

**Q.** You did your undergraduate there?

**A.** That's right.

**Q.** After that, you did a residency?

**A.** At U.C., where I am now practicing. I did an internship and full pediatric residency from

1980 until 1983.

**Q.** You're licensed to practice medicine in the state of California?

**A.** That's right.

**Q.** Are you licensed to practice medicine in any other states?

**A.** No, sir.

**Q.** You have been asked by our office to, or you were asked by our office to do an evaluation

in connection with this particular case, is that correct?

**A.** That's right.

**Q.** When did you first receive that request from our office?

**A.** It was the either the end of last year or the beginning of this year.

**Q.** And in connection with that request, what type of documentation or information were you

provided?

**A.** I was provided with some medical records from the Milwaukee Children's Hospital as

well as social service summaries and detective investigation summaries and photographs of the

patient that were taken on two different occasions.

**Q.** Specifically, the photographs which are indicated in State's Exhibits 28, 29, and 30. Do

you recognize those photographs?

**A.** Yes, these are the ones.

**Q.** The numbers that are contained in those particular exhibits underneath the photographs or

on top of the photographs, are those numbers that you used in connection with the report that you

prepared?

**A.** Yes, sir.

**Q.** Since that time, have you reviewed any other documents?

**A.** Not that I recall.

**Q.** You prepared a written report in connection with your findings?

**A.** Yes, sir.

**Q.** And you submitted that report to our office as well; is that right?

**A.** That's right.

**Q.** I show you what's been marked as State's Exhibit No. 32, and ask if you recognize that

exhibit?

**A.** Yes, sir. That is the letter I prepared regarding my review of the case and my findings

**a**nd opinions.

**Q.** Is there anything about your report or your conclusion that you would change today?

**A.** No, sir.

**Q.** Now, doctor, how many burn cases have you had occasion to investigate or participate in

reviewing in your capacity as a physician?

**A.** I reviewed approximately 100 cases per year over the last four or five years.

**Q.** Do these cases involve both adults and children?

**A.** They are almost all children, but occasionally I see some of the findings in adult patients.

**Q.** Of that percentage or of that number of cases, what percentage would you estimate are

cases involving suspected abuse or neglect?

**A.** About a third.

**Q.** Now, are you familiar with the protocols involved in the investigation of burn cases?

**A.** Yes, sir.

**Q.** And, in fact, you have helped develop these protocols especially in your area?

**A.** That's correct.

**Q.** Did you have knowledge regarding the general state of knowledge of burn investigations

back in 1985 when this case started?

**A.** Yes, sir.

**Q.** Was that state of knowledge about burn investigations different that it is today.

**A.** I wouldn't say so much that it was different. It just wasn't as widespread. We know from

our courses that we provided for law enforcement officers from around the country who come to

SD for training that have told us that in many places the techniques that we used just don't exist.

**Q.** Now, what is the single most important factor when you look at a case in making your

conclusions?

**A.** Well, the single most important factor is the general appearance of the injuries, which

include the type of injuries, distribution pattern, depth of the injuries, and how they relate to the

age and developmental abilities of an individual child.

**Q.** Why, in your opinion, is that the most important factor?

**A.** Well, I think that really the only thing that we can be reasonably objective about. Number

one, we can see the injuries. We can examine them. When I see cases that involve historical

information, that historical information may or may not be accurate depending on who is

providing it for us. Sometimes we get more than one story for injuries and in general that is the

most important because it's the most objective. The other reason I feel it's very important is that

a lot of times people like to use background information such as, you know, prior histories or

what is called socioeconomic status of a family as an indicator or as a risk factor for problems,

and I agree those things are risk factors, but it doesn't help me determine whether one particular

set of injuries is as a result of an accident or a non-accidental event because it turns out that the

same children who are at risk for non-accidental injuries are children who are very high risk for

accidental injuries as a result of increased frequency of accidents or neglect so a lot of these

background factors are important in risk assessment but the thing that is far and away, you know,

95 percent plus if the weight that I give to an opinion is based upon the physical appearance of

the injuries; whether they are consistent with the age and developmental ability of a particular

child, and whether these physical objective findings are consistent with any history that is

provided for me by someone who would bring a child to a hospital, for example.

**Q.** Now, as a pediatrician, are you generally familiar with the age and physical abilities of

various children at those different ages?

**A.** Yes, sir.

**Q.** Now, in this particular case, did you draw any conclusions regarding this incident before

you read the historical summaries, the medical reports, and the documentation from the sheriff's

department, police reports, just by looking at the photographs themselves?

**A.** Yes, sir.

**Q.** And so the first step that you took in this particular investigation was simply to look at

the photographs and make an assessment as to how these injuries took place?

**A.** Well, you know, I can't, sometimes by looking at pictures, completely assess how an

injury took place, but I think that I have enough experience to know what the range of

possibilities are so I may not be able to tell exactly. You know, I don't have a crystal ball. In

other words, but I can tell by looking at an injury whether it's a scald burn, contact burn, what the

distribution is, what the likely position of the child might have been, where the child might have

been, where the child was injured, those kinds of things. With that range sort of, you know,

focus my attention, and I come to some hypothesis about what are the possibilities and I test that

hypothesis by looking at the other facts in the case.

**Q.** And the other facts that you considered in this particular case that you considered were

the historical information, that was provided to you through the medical reports and police

reports?

**A.** That's right.

**Q.** Had you received any information from Dr. M.W. about his findings or conclusions

before you wrote your opinion?

**A.** No, sir.

**Q.** And did you consult with any other individuals in connection with your assessment in this

particular case?

**A.** Yes, sir.

**Q.** Who did you consult with in that regard?

**A.** Detective P.P. of the SD County District Attorney's Office. Detective P.P. is my co-

worker with regards to our training seminars for investigation of suspect non-accidental burn

injuries, and the reason I consulted with Detective P.P. is for our mutual education in the sense

that he is interested in how investigations are done. And we talked about how one would have to

approach and things that may or may not be missing from an investigation like this particularly

the water heater temperature, which was unavailable to me at the time I saw the injuries.

**Q.** Now, you have reviewed the police methodology in this particular case, and you are

aware of some shortcomings in terms of the investigation; is that correct?

**A.** Well, the information is incomplete, in my opinion.

**Q.** Some things that you would want to have done if you were leading the investigation were

not done in this case?

**A.** That's correct.

**Q.** Does the absence of those particular factors in this case affect your findings and

conclusions at all.

**A.** No.

**Q.** And specifically, what types of information did you consider to be not present that you

would have liked to have present in terms of your assessment?

**A.** Well, there are two pieces of information. One would be the water temperature from the

tap at the location where the injuries occurred. This would help me to some degree to determine

what if any the rate of rise of the water temperature of the water coming out of a spigot and I

know what the peak water temperature was when you ran a bath. If you ran it about full, what

the water would be in the bathtub, that would help me. It would only help me in terms of the

range of possibility or whether I could narrow that range a little bit. It doesn't necessarily tell me,

doesn't change my opinion on whether the injuries were accidental or non-accidental. It only tells

me it took - it may have taken more or less time to produce these injuries one way or the other.

In other words, what I am saying is I know that there is a relationship between the time of

exposure to hot tap water and the depth of an injury. There is also a relationship between the

temperature of exposure and the depth of the injury, and these two are related to each other so

with relatively lower temperatures it takes a long time to produce an injury of a similar depth.

But within those brackets, it may take higher temperatures for a shorter time or a lower

temperature for a longer time. But within those brackets, I think this is a range in which, you

know, there are reasonable possibilities and the other possibilities are not reasonable. And it's

my opinion that in this particular case I knew, you know, knowing that the burns are partial to

full thickness, I know approximately what the range of what the temperatures are likely to have

been and the exact temperatures would be a little bit helpful but it wouldn't change my opinion.

**Q.** What is the second factor?

**A.** The second factor is just the location of the scene. The scene itself as close as possible to

the time of the injury whether there were certain -- the location of the tub, the size, what objects

are in the surrounding area, particularly metal objects or other things that might be heated that

could cause injuries. In this particular case, one of the historical mechanisms that was offered

was a floor heater, register or floor register from a heater, and the dimensions were listed as 3

inches by 10 inches. A more complete description or photograph would have been helpful in

trying to match up some of the impressions on the child's skin with the objects in the house.

Those kind of things would have helped me, you know, put things together side by side.

**Q.** Does the absence of that particular bit of information change your opinion at all?

**A.** No.

**Q.** Now, would you describe what a burn is for the jury.

**A.** It is a destruction or injury to cells of the skin caused by the transfer of energy. Most of

the time, especially in children, that is heat energy and the heat energy is more than the skin cells

can take. They were either injured or sometimes destroyed. Other things can do it like chemical

burns and electrical burns. These are much less common and very, very rare in children. For

practical purposes, it's a matter of there being a source of heat and that heat is applied to the skin

surface of some kind. It could be internal surface. Usually it's an external surface. When heat is

applied to the skin the cells are destroyed, and there is also a tissue reaction from the body to that

destruction.

**Q.** Why is that important in making a determination as to the mechanism or cause for burn

injuries?

**A.** Well, the skin is destroyed where the heat was and you know the injury is worse where

the heat is applied either at a higher temperature or for a longer period of time. And in the

absence of injury, there was little or no heat applied to that area during the time of exposure so

we can tell where the heat was applied, and we can tell where it wasn't. With that same

understanding, we know what way the distribution of injuries on the skin, what kind of things

whether it was a hot object or whether it was a hot liquid or whether even sometimes it was hot

air applied to skin which produced the damage. These things when they are applied have

different physical injuries.

**Q.** Now, do different types of -- I think you just touched on this. Different types of heated

objects then produce different types of injuries in terms of their visible signs?

**A.** Yes, sir.

**Q.** And are you familiar with these different types of burn injuries in your experiences?

**A.** Yes, sir.

**Q.** What are the general types of burn injuries that you see in terms of their types if you can

categorize them?

**A.** We see direct contact injuries with hot objects. Those are the most common kinds of

injuries in children. Anything from a hot steamer to a curling iron to pots. You know, anything

that can be heated to a temperature high enough to cause a burn injury can produce an injury to

the skin and where contact is made with these objects we usually see something presumably that

on the contact area is limited. The shape of the contact on the skin either resembles the object

directly or delineates an edge of the object depending upon the angle of contact with the skin.

Sometimes, we see burns from flames either from clothing on fire or someone who is in a house

fire, and that also has a characteristic distribution. In many cases the skin, you know, the heat

comes, the skin is injured unless the child is totally on fire. The skin is injured from heat coming

from the direction of the flames, and you see injuries on one side of a patient. Sometimes on

both sides or areas where clothing catches fire, you see deep injuries so we have flame injuries.

Sometimes we have contact with other objects like cigarettes. They produce a fairly

characteristic circular lesion as you would expect on the skin. And then we see scald injuries,

and those are burn injuries from hot liquids of various kinds. Anything from tap water to kitchen

liquids like grease, soups from the stove, and those also have very different characteristics from

things like contact injuries. For example, one very common injury is a child reaching for

a cup, bowl of soup, or both on a table or both on a stove, and the child will pull that soup or

coffee or whatever the hot liquid might be on the child and we see a very characteristic pattern

where the liquid hits the child and scalds down the body and that produces a sort of type of injury

that is very distinctly different than contact injuries have, involving hot objects, because the

liquid takes the shape of the skin as it flows. And we see injuries from tap water where children

are either in a situation where hot water comes too slow or they are placed in a tub or other

container that has hot water in this, and they are injured this way. This has a somewhat different

appearance than the pattern of injury, you know. The pattern of injury is a different appearance

then the other types of injury.

**Q.** Would you describe what an immersion type injury is?

**A.** Well, immersion just means that the child is physically in something that, you know, a

vessel, a tub, a sink, wash basin that contains enough water for the child to be underneath a level

of the water like immersed or submersed below the level of -- top level of the water as opposed

to a splash injury where either water from a faucet or liquid from a hot tap like I described

splashes on a child. In this case, the child is in the water. That is what we mean.

**Q.** If water is running out of a tap and a child is held underneath that tap, what kind of

characteristic or label would you give to that type of injury?

**A.** Well, I think it depends on the physical findings. In some of these circumstances, if the

child were held under a stream of running water, one might see the stream. You might see the

pouring or the streaming of the water over the child, and that is the area that is burned. In other

cases when that occurs in a sink or in a bathtub where the child is not only in the stream of the

water but also in a pool of water at the bottom of the tub or sink, there might be a picture where

there are some types of immersion and signs of flow injury.

**Q.** Doctor, you indicated that the principle form of burn injury for children involves contact

injuries with a hot object. Is there a difference in the types of injuries that are generally produced

in accidental cases versus non-accidental cases?

**A.** Yes, sir.

**Q.** And what is that difference?

**A.** Well, you know, there are a number of factors. The degree of injury, how deep it is. You

know, for example if a hot object grazes against the child's skin in an accident, that would not

produce nearly as deep an injury as if the object were held forcibly for a long time. I also look

for multiplicity of injuries. In other words, children get into lots of accidents by touching hot

objects especially on their fingertips, and usually there is one or two at the most in these kinds of

circumstances. Children, even very young ones, know if something is hot. They draw from it

and don't go back to it right away so you rarely see multiple injuries in different locations on the

body from contact with hot objects. Sometimes you see a fingerprint of a hot object and that

suggests that there was direct contact with little motion. Sometimes there does need to be a lot of

contact. If the object is extremely hot like a home iron on full. But in general if one can see the

impression of the object clearly, no rough edges or smearing pattern, it suggests there wasn't a lot

of movement at the time, and that suggests again that that was more likely to be non-accidental

than accidental.

**Q.** What does the location of the injury itself tell you as it relates to the developmental age of

the child and the child's physical abilities?

**A.** Well, children as the age acquire certain developmental abilities. They start to explore

their environment. They usually start with very poorly defined motor skills. They kind of reach

randomly and try to reach and touch. As they age, they develop more fine motor coordination

and touch more with their fingertips. It would in general -- Most of the contact injuries that I see

are accidental occur on the hand, fingertips. Sometimes, they occur in other locations if a child

pulls an air cord of a line from an ironing board and the iron falls on the child. We might see a

contact from that kind of thing. That can occur anywhere on the body, but in general you know

if, for example, I were to see an injury on the back of the wrist of a child and a care giver would

tell me the child were reaching for this hot object to just explore and got this burn and if this burn

were very deep and had characteristics that suggested that wasn't quite such, I would say that is

not logical, especially for an older child who has the ability to pick up with their fingertips. That

is not how they approach their information with the back of the wrist. That is the kind of

information I would use to assess how that correlates with the ability of the child.

**Q.** Is there a different or more prominent injury that you see in abuse case as opposed to

accidental in terms of whether the injury is produced by contact or scalding type injuries?

**A.** Well, there are certain known percentages or frequencies of injuries when there are hot

objects. Approximately, what percentage of these injuries turn out to be non-accidental and or

accidental? Some things were scalded. Scalds are somewhat more frequently non-accidental

than contact injuries, but I do not use those numbers to make my determinations because, you

know, most of the injuries are accidental. Most injuries whether they are scalded or contacts are

accidental so those percentages don't help me.

**Q.** Let's turn to the photographs in this particular case, doctor, and get down to the specifics

in this particular incident, if you will. I am going to ask you if you would come down, and we'll

give you the changer here and I am hoping you know how to use this, because I don't. For the

record, again this is State's Exhibit No. 1 and Dr. A. if you would indicate what you see in this

particular exhibit.

**A.** Well, I see a shoulder of a child. There are two main injuries to the skin. They are

circular on the outside, not complete circles. They are wide, more in the shape of a large C, the

letter C, and they appear to be approximately from these photographs what are called partial

thickness injuries which means they go they destroy the upper layers of the skin, not completely

through the skin. There are also some additional marks scattered around the shoulder and the

trunk. One is right above one of the two injuries just parallel to it. There are two larger marks

which are crescent shaped. One appears a little bit deeper than the other, but not much, and there

are a few scattered spots around this particular spot up above or on the shoulder around the

clavicle. It looks like an I.V. insertion to me where an I.V. was pit into a large vein under the

collar bone and a couple of other little injuries on the arm. One is also very small and crescent

shaped and a couple more round marks. This one over here on the side near the bicep almost

looks reminiscent of a small pock mark. We don't do that anymore so that is not likely.

**Q.** Dr. A., do have an opinion as to the nature of the burns on the shoulder itself in terms of

whether they are immersion or a contact type of injury?

**A.** Yes.

**Q.** What is that opinion?

**A.** Well, I think this is a contact injury. Their shape is regular. They look reminiscent of

each other in the sense the outside edges are very round. Most of the other injuries, the little line

that is parallel to one of the main injuries on the shoulder as well as the two other crescent

shaped injuries on the trunk near the arm also look like contact injuries to me. They have sharp

edges. They are shaped, you know. The linear shape to these edges gives them the appearance of

being a contact from a hot object, because again burns when the occur form hot objects resemble

the object where as burns from liquids are much more random and less organized in their pattern.

**Q.** Do you have an opinion as to whether those two burns in the shoulder are produced by

the same object?

**A.** Yeah. I think that in most likelihood they are produced by the same object. They have

about the same diameter. They are both C shaped around the edges, and they are clustered

together. Certainly it is not a random event and probably likely to be from the same object.

**Q.** Now, doctor, what is the significance of the area of sparing in terms of the particular

injury on the shoulder?

**A.** Well, I think that if we -- This area you are referring to, this area of sparing within the

center of both of these injuries. That may give some information as to the shape of the object or

what the object was. We can compare the area of sparing and the fact that they both have a

spared center, and I have viewed other photographs of legs on this child that have a spared center

too and the injuries suggest that these are -- These are again organized repetitive patterns not

random events like you would see from splashing from hot liquids, for example.

**Q.** Doctor, do you have an opinion as to whether or not these injuries on the shoulder are

consistent with accidental trauma or non-accidental trauma?

**A.** I think that these are consistent with non-accidental trauma, and the reason I think that is

because of how many there are. The fact that these two are so close to each other yet very

distinct injuries doesn't occur when a hot object contacts a child who is in motion. The object

would slide or there would be some signs of movement. There isn't a lot of signs of movement.

There are some rough edges here as well some incomplete imprinting here in the skin, but there

doesn't appear to be a lot of movement. But there are not less in my count one, two, three, four

five contact injuries and just that number alone is a very high number in a localized area suggests

repeated contact. That is something that an 8-month old would not be likely to do himself.

These are a set of non-accidental injuries, in my opinion.

**Q.** Doctor, there is some discussion in the course of this child that these injuries may be the

result of contact with a hot water faucet. Do you have an opinion in that regard?

**A.** Yes, I do.

**Q.** What is your opinion?

**A.** I have seen contact injuries from hot faucets before. These do not resemble those. I think

that this -- It's possible that a small injury like this where you only see very small edge could be

from any number of objects, but the larger injuries, you know -- I don't know of any faucet that I

have ever seen if any that would follow -- This is from the very tip of the faucet. I can't imagine

how this injury could have occurred from that faucet, because no faucet is that thick. The metal

is unusual, a fraction of the injury. This is a very, very wide band of injury and that is not

consistent with typical faucets. The other thing that is relatively not consistent is the fact that if

there was a faucet that was hot, it would be so because there was hot water running through it

and if there were hot water running through the faucet, I would expect to see some running scald

injury accompanying the contact injury with the hot faucet unless that faucet was heated up, the

water was then turned off, and then the injury occurred which I think is less likely. If there was

water running through the faucet, I would expect to see signs there was water running over this

area in the middle. If the faucet were hot enough to burn the child, certainly the water would be

hot enough, and I don't see any signs to suggest there was water anywhere near anywhere near

these injuries.

**Q.** You're familiar with the factual histories that have been provided in this case indicating

when Mr. P.B. came back into the bathroom that the water was still running?

**A.** Yes, sir.

**Q.** And in your opinion, that particular history would be inconsistent with the faucet then

producing this type of injury?

**A.** Yes, sir.

**Q.** Would you proceed to the next slide, please. Dr. A, for the record, this is State's Exhibit

No. 2. What does that particular photograph show?

**A.** This shows a frontal view of the trunk of the child and one can see some of the injuries to

the shoulder that we have seen. The small crescent, the two small crescent shaped ones we saw in

the previous slide. In addition, there are some minor injuries. One near, just to the right of the

left nipple. There is a constellation of one round, one more blotchy small lesion. There is also

some lesions that are incompletely seen on the left side of the trunk, but the main lesion-- Oh,

there is also an injury down here on the right flank, but the main injuries are these injuries to the

very center of the child's trunk just about the level of the rib cage, you know, and these are two

injuries that appear to be just about near or against each other superimposed. Again, these have

an area of sparing. Both of them. Each have an area of sparing in the center of the injury

reminiscent of the injuries in the shoulder in the previous photograph, and these again appear to

me to be injuries that were caused by contact with something hot.

**Q.** Do you have an opinion as to the degree of injury in this particular case?

**A.** Again, this is partial thickness injury. Clearly, the epidermis is gone on these two injuries

but the skin is not burned through, and this is called a partial thickness--used to be called second

degree.

**Q.** Do you have an opinion as to whether or not these burns were superimposed over one

another?

**A.** Well, it looks that way to me in the sense that, you know, one -- You see much of the

image of one. You see part of the image sort of one area of injury, and then you see the two

merging, but this one, the one on the right side of the child's body, looks like it's superimposed

partly on the left one and in some areas in the middle. It's hard to tell. It's sort of a blurred

margin. It looks like they are one over the other.

**Q.** Do you have an opinion to a reasonable degree of medical certainty as to whether or not

these injuries are consistent with accidental or non-accidental trauma?

**A.** Well, I think the fact that there are two of them, the fact that there seems to be mirror

images of one another, just those facts alone, makes me have a high degree of opinion that these

were non-accidentally caused but in association with the clustering of the other injuries

especially to the shoulder which we've seen in these injuries, I have an extremely high degree of

certainty that these are non-accidental injuries.

**Q.** Now, do you have an opinion as to whether or not the injuries you noted in the previous

slide to the shoulder area were produced by the same object that produced the injury on the

abdomen?

**A.** I think it's highly probable that they were. The things that make me say that and if I can

go back to the first slide is again this sort of area of sparing. Whatever this area of skin that

remains normal in the face of surrounding injury. Going back to the second slide looks exactly

the same in both pictures. If there were a ruler in these photographs, if we could know these

were exactly the same size, that would be even more helpful, but again this shape of these

injuries is almost identical in at least three of the injuries, one, two and one on the shoulder. And

the edges on all these injuries and part of the location is very similar. Over here the edges are

much less similar and these injuries are wider in terms of the comparison with the area of sparing

in the center and the areas on the shoulder. The injuries on the shoulder area of burn is about as

wide as the area of sparing in the center or as the injury on the abdomen. The area of burn is

much greater when compared to the area of sparing in the center. That can be from one of two

things. Either when contact was made on the shoulder in the first--as seen in the first slide, the

contact was incomplete. I don't think that is the case, because the edges here are so round and

this is just a sharp line distinguishing the burn area from the non-burn area and it's reproducible

in both injuries. I think that is less likely. I think what is the more likely explanation is that there

was contact and movement. You know there was contact and whatever contact just moved and

caused a blotchy injury as this was either rolled or moved in some way against the skin.

**Q.** Would you expect Mark at his developmental age of 8 months to be able to move away

from a hot object that was placed on his abdomen and take some form of protective

measurements away--

………………………………………

**A.** Well, you know, they are. At 8 months or so of age, it's possible that he could take some

evasive action depending upon the circumstances that he was in. There are some children who

at this age may actually freeze when they come in contact. I have seen children touch oven doors

and at that age if they are cruising or able to walk holding on, not walk intentionally, they may be

able to touch an oven door and they are uncertain what is worse whether falling is worse or

touching an object is worse and they freeze when they are burned. On the other hand, they have

the ability certainly if they make contact, they have some ability to withdraw from the hot object.

**Q.** Would you proceed to the next slide. I'm sorry, one final question. Again, do you have

an opinion as to whether or not that injury is consistent with contact with a hot water faucet?

**A.** For the same reasons as the previous slide, I don't think so.

**Q.** Thank you. For the record, State's Exhibit No. 3. What does this photograph show?

**A.** This shows the left side of the trunk of this child.

**Q.** What is the significance of the injuries in this slide which have not been previously

testified to before?

**A.** Well, what is in this slide that wasn't in the previous slide is an injury on the lower left

flank about at the level of the hip bone, and there is also partial thickness injury here. It's a little

bit more-- It appears to me to be somewhat reminiscent of the prior injuries, that is also in a

semicircular pattern. It doesn't look like from the injury itself-- I can't tell whether or not it was

produced by the same object. I think because of the surrounding blisters around this injury and

also my knowledge that Mark had scalded burns lower down. I think this injury is as likely to be

a splash injury from water, from scalding water rather than contact from a hot object. I can't tell

by looking at this particular injury.

**Q.** Doctor, if you will please proceed four slides up. This for the record is State's Exhibit

No. 8 which was taken three days later. Doctor, this was taken on February 11th. The slide that

you just finished testifying to was on February 8th and again referring to that area or that lesion

that is on the left-hand side, what is notable about the appearance of that lesion now in terms of

the development of the injury as it relates to the four other injuries that you have been talking

about?

**A.** Well, this is now more C or U shaped. One of the satellite blisters was broken, and one

could imagine that there was continuity between those marks depending on how heat touched the

skin. It makes me consider more highly the possibility that this occurred from the contact with

the same object as some of the other injuries, but I can't say with certainty.

**Q.** Would you proceed to slide number one which is two more forward. Again, this is a

close up of that same lesion. Does that particular photograph now offer you anymore

conclusions or less conclusions in terms of its cause?

**A.** In this view, you can really see how sharp the edge is of the C or U shaped area

particularly at the point closest to the dressing over here and again that makes me more likely to

think that it was related somehow to the objects that touched the skin above, but again there is a

lot more going on in this particular area because we still see a lot of satellite areas where there

are some additional injury. It's possible that there were two injuries there. It's possible only one

injury that occurred that explained all of this. The area of skin here tissue is very soft. It's the

side of the flank. There is no bone. Underlying contact with a hot object may not produce,

because the surface is curved and the subsurface is not as firm, it may not produce as well an

impression, contact over there as opposed to contact in another place, but you know it has some

of the characteristics that are suggestive of contact injury but it also is a little bit more random

and resemble the other injuries especially in the surrounding area over here and these blisters so

again I think it's certainly conceivable there was contact with the some object, but it's also

conceivable part of these injuries were from some other mechanism.

**Q.** Would you go back to slide number five then. What injuries do you observe in this

particular photograph?

**A.** I'm sorry, I might have gone back too far. This is number two.

**Q.** State's Exhibit No. 4. What injuries do you observe in this particular photograph?

**A.** Well, there are a number of injuries to what we call the extensive surface of the left

elbow. Extensive meaning the sides where muscle cause extension of the arm. That surface has

that one large blotchy partial thickness injury on the forearm. There are a number of smaller

again more blotchy thickness injuries, and there are a number of blisters that are in the upper part

of the arm again also in a more blotchy kind of pattern. The fact that skin is blistering there also

suggests these are partial thickness, at least.

**Q.** Do you have an opinion as to the mechanism for producing these kinds of injuries?

**A.** Yes. I think they are more of a random character. The distribution-- The appearances are

more likely to be from splash of a hot liquid.

**Q.** And doctor, the location of these injuries and the nature of those injuries, what does that

tell you in terms of the likely water temperature that was needed to produce these injuries?

**A.** Well, I think that the water temperature would have to be certainly considerably greater

than 130 degrees. At 130 degrees, it would take thirty seconds or so to produce an injury like

this. The chance of there being contact of, you know, sort of a drop--a large clump of water for

that long is not very great. I think it would more likely be higher and it could be higher from 140

degrees to 150 degrees Fahrenheit or so.

**Q.** Why is that?

**A.** Much higher than 150 degrees Fahrenheit within only a second of contact, you would

produce a deep partial thickness or even full thickness burn injury, third degree, and this is a

relatively superficial injury. It's not very deep from what I can tell from this photograph.

**Q.** Now, doctor, you were provided with information about the history indicating that when

M. was found by his father, he was lying on his back in a tub of water, floating in the water

with simply his arms above the water, elbows out of the water and his face out of the water.

What does this photograph tell you in terms of that accuracy or reliability of that particular

history?

**A.** Well, I think that this is not possible given the fact that there are injuries above his elbow

and below his elbow that look like splash injuries. If the water was hot enough to produce splash

from a large droplet or large clump of water over here on his arm, then the water would have

been hot enough to burn him, whatever part of his trunk was immersed especially when one

considers the fact that with greater exposure time there will be a greater degree of injury. If this

trunk was exposed to water even anywhere near close to the temperature that this forearm was

exposed to, then I would expect most of his body to be burned to a similar or greater depth and it

is not.

**Q.** So that particular history is consistent or inconsistent with the medical findings that you

have made in this particular case?

**A.** I think it's inconsistent. I think the other part that demonstrates that if this shoulder were

below water, there is an injury here that has a particular shape to it. You can see again his injury

to his left shoulder that is a partial thickness injury. The injury on his arm is partial thickness

injury. If the water was hot enough to produce partial thickness and he was floating in this, this

injury wouldn't look like a C shape or a shape of an object. There would be burns where there

was hot water, and there wouldn't be burns where there wasn't. This wouldn't be a shape. Even

these are blotchy discrete lesions as I said in the beginning. It's a matter of applying heat to the

skin. Where heat is, there is injury. If there is heat, there isn't nearly the heat applied to, for

example, the back of this little guys arms is not much different than the heat applied in other

parts of his body whereas the heat that met other areas of injuries that we see is clearly much

greater. So the concept that he could have been floating in water with only his head and hands

out of the water is not conceivable to me based upon this physical evidence.

**Q.** Would you proceed to the next slide, please. For the record, State's Exhibit No. 5, and

what does this photograph tell you, if anything, in terms of M.’s injuries?

**A.** Well, again what this reviews is that his penis-- There is swelling. His scrotum looks

injured. There is some revelation of injury on his left thigh. You can see that in part of the thigh

towards the back closer to his bottom, the upper part or front of his thigh, this is injured deeply

like a partial thickness injury whereas the front of his thigh is relatively spared of any injury and

also his toes and left foot look like there is not much injury there as well. Other than that little bit

of information, there is not much I can see from this picture.

**Q.** Move to exhibit 6, the next slide. What does this photograph depict?

**A.** There is an I.V. in the lower portion of the picture, but there is injury to the ear lobe in the

back part of the ear which is seen here taken up about a third of the back part of the ear lobe. It's

hard to tell from this photograph, but it looks like there might be a small blister at the top of the

ear lobe as well.

**Q.** And do you have an opinion as to the mechanism for producing this type of injury?

**A.** Well, this could of had contact with something hot. It's impossible to tell where you

know exactly what it was that contacted him by just looking at this isolated photograph;

however, if this was a hot water injury from a splash of hot water, I would be very surprised that

there weren't any other injuries, you know, anywhere near by. Certainly, if he was laying in hot

water. If the water were high enough of a level to reach his ear, you certainly would see injuries

to the back of his head, the back of the scalp over here, the back of his neck perhaps so all though

it's possible that this might have been caused by a splash of a droplet of water on the back of his

ear, I don't think that is very likely.

**Q.** So this particular photograph in your opinion is consistent or inconsistent with the

defendant's statement about finding his son floating in a pool of water?

**A.** That part to me is not consistent.

**Q.** Would you proceed to the next slide, please. State's Exhibit No. 7. What does this

photograph depict?

**A.** Well, this depicts a burn to the back of the lobe of the left ear, and this is a little bit

different shape injury. It's more irregular and does not curve over the entire curvature of the ear

lobe like the other one. In this one, you can clearly see blistering on the top of the ear lobe and

around the front and also blistering that is not yet completely-- The skin is not yet completely

come off adjacent to the main injury on the other lobe.

**Q.** Do you have an opinion as to the mechanism for producing the injury on this ear?

**A.** No. You know, I really can't say what produced this injury. You know, there is just-- I

can't see all the sides. I don't really know what produced this injury.

**Q.** In terms of the area surrounding that ear, does that give you any indication as to the

accuracy of the defendant's statement regarding finding his son floating in a pool of water?

**A.** Well, I think that there is some redness to the skin around behind his ear, but again. it's

not deep all though you know when one has injuries from a scald from hot water, one can

sometimes see some variation in the depth of that injury. It's not likely that one could have a very

superficial injury over here and a deeper injury that uses blistering in a place that is higher above

that. That does not seem consistent to me.

**Q.** Now, what is the significance in your opinion of that fact that M. has the injures as

noted in both these last two photographs in those areas of the ear?

**A.** Well, it's symmetry in the sense they are injuries behind both ears without injury to the

surrounding tissue suggests, makes me think, there is a likelihood that this was a non-random

injury. Like not from a splash; the fact that both, injuries were in similar places without any

surrounding significant injuries makes me think that there was a reasonable possibility that

someone or something contacted both ears whether it was water or whether it was something else

that contacted both ears without contacting the scalp had to be sort of a non-random event. It

does not happen just by chance.

**Q.** Your opinion as to whether those injuries were accidental or non-accidental?

**A.** I think they are non-accidental.

**Q.** Will you proceed to the next slide. State's Exhibit No. 8, I believe. What does this

photograph depict?

**A.** Again, this is his trunk. We looked at part of this photograph. Again, this shows his

injuries, you know, this is his head to his trunk. I think we pretty much talked about all the

injuries that are seen in this photograph. We can see that this looks like the injury to the front of

his trunk as well as the crescent shape injuries on the left side of his upper chest have begun to

heal. I believe this is an older photograph. Again, you have this pattern of these sort of C or U

shaped injuries to the front of his trunk. Now, that they are healing again looks like that one

occurred and then one was superimposed on the other.

**Q.** The area of injury around the perineum, would you touch on that and the significance of

that?

**A.** There is some blotchy area above at the upper part of the pubic area, but this looks like

some of the skin is denuded off here so that is a partial thickness injury. You can't see very

much. Also, the same at the right side of the groin rather. Other than that, I really can't see much

on this view.

**Q.** Proceed to State's Exhibit No. 9. What does this photograph represent?

**A.** Again, this looks like the same injury in the set of injuries in the center of the abdomen.

You can see one injury is healed. They are both starting to heal. One injury is facing one way.

The other facing the other way. Again, there are sharp edges around most of the injury and in the

area of sparing where some of the other edges are starting to heal, and you see the edges are

starting to be sort of spot area that were less deep, but it looks like the other injuries we talked

about show a sign of healing.

**Q.** Proceed to Exhibit No. 10. You touched on this as well. Would you proceed to the next

slide. State's Exhibit No. 11. What is the significance of the injuries in this particular

photograph, doctor?

**A.** This is the back looking at mostly -- It appears to me to be the right side of his back. In

this position one sees a number of injuries ranging from below the neck where there is sort of an

arrow shaped injury with some small blotches to the side of it. There is some blistering behind

his right shoulder towards the center of his back. There is another blister like irregularly shaped.

You can't tell. The dead skin has been scraped off, and there are a couple other injuries that are

seen on his flank--right side of his flank over here.

**Q.** Do you have an opinion as to the mechanism for producing these particular injuries?

**A.** Well, the injury-- The back of his neck below his neck rather on the upper back, this

looks to me mostly like an injury from some kind of water. It has that appearance of an arrow

down appearance or where the injury contact gets narrower and narrower as the water cools over

the surface of the skin. Clearly, there was hot water here. There was not the same exposure in

the surrounding areas, it's a relatively distinct injury. This injury, I think, this was caused by

contact with hot water from either a splash or spill or a stream that trailed down over his back

over here. These injuries could be from splash from hot water. They could be from contact with

an object. I think the former explanation is more likely. They are sort of round scattered blotchy

injuries. This set of injuries over here is-- Can you tell me when these photographs were

taken?

**Q.** This was taken February 11, 19--, four days after his injury.

**A.** The border of these injuries are very distinct, but four days later especially depending on

the technique used to clean off the blisters, this may have been more of a cluster injury that has

the appearance of having sharp borders because of the way the skin was cleaned. In any event,

this is a partial thickness injury. This could be caused by either splash with hot water or it's

possible it could have been caused by contact of a hot object. Not enough of the injury for me to

tell.

**Q.** What is the significance of the absence of injury on the other areas of the back in terms of

the medical history that was provided at the hospital and the history that was provided by the law

enforcement officer?

**A.** Again, clearly there are different types of injuries here. These look like blotches. This

looks like an area down where something--where liquid was trailing over the surface of his skin.

That relays a couple kinds of injuries here with absence of surrounding significant injury to the

rest of the skin so; therefore, it's inconceivable to me that these injuries could have occurred

from a single event where M. was in a tub of water with water on all sides of him making

contact. These look like to me separate contacts and that again the area of sparing all the way

around these injuries suggests that this is not immersion of his back in water. This is a different

set of circumstances.

**Q.** Would you proceed to the next slide then, State's Exhibit No. 14. What is depicted in this

photograph in terms of injury?

**A.**  This is a photograph of the lower back, buttocks, and partial picture of the thighs. There

are partial thickness injuries, perhaps some are full thickness. They are a light weight. I can't tell

from the medical record these are not described as full thickness injuries, because usually you

can tell by touching some things. You can tell by touching. In any event, these are partial

thickness injuries. They occur on all of the left buttocks, visible portion of the right buttocks in

this area down here below at the very bottom where the-- There is a very sharp line of

demarcation between these burned areas and more healthy looking skin above it. The skin looks

a little bit red, but not very much, and there is also injury all along the back of the left thigh, goes

up. You can see it going up almost to the top of the thigh. It appears the front of the knee is

somewhat spared of injury, and this is where you can see-- I guess this is the part of the injury

that comes up above the thigh that we saw on the prior slide and also you can see injuries to the

back of the legs here. This looks like there is a little sparing of the skin behind the left knee, and

that is seen in injuries where they are accidental or non-accidental because if the knee is in a

flexed position when liquid comes around the area you get some sparing in there because liquid

is not there because the knee is bent. This slide shows a large partial thickness injury mostly

around the buttocks and around the thighs.

**Q.** What is the significance of the burn pattern in this particular photograph in terms of the

mechanism of burn injuries?

**A.** Well, this is-- You asked me before what is an immersion injury. This is an immersion

injury. This is a child who was in hot water or in hot liquid for some period of time. How much

time again may vary anywhere from several seconds to as much as a half a minute or so,

sometimes even longer but usually not and if it was hot enough to cause a full thickness burn in

other places, I would not predict it would cause such a superficial burn if there was prolonged

exposure in these areas. In any event, you can see the line of demarcation between where the

water was and where the water wasn't, and it's clear that this child was immersed bottom down in

the hot liquid.

**Q.** Do you have an opinion as to whether that injury is consistent with accidental or non-

accidental trauma?

**A.** This injury to me is most consistent with non-accidental.

**Q.** Why is that?

**A.** Well, the relatively sharp lines of demarcation between the normal skin and healthy skin

suggests there wasn't a lot of moving or struggling. There might have been some motion of the

water. There is a little bit. Sometimes, we see a perfectly straight across appearance. There may

have been some movement here, but there wasn't a lot of random movement. If there had been

more random movement, I would expect to see blotchy areas of burn in some areas and not so

many in other areas. It looks like this child was in water about so deep, whatever that

measurement is. We don't have a ruler of any kind to produce this injury.

**Q.** Would you proceed to the next slide, State's Exhibit No. 14. What is depicted in terms of

the injury and burn pattern on this?

**A.** This is the same thing only on the other thigh. Again, you can see very clearly the

significant injury to the back of the right thigh, the back of the right leg where as the front of that

thigh or leg are spared from injury, and again there is quite a distinct line of demarcation between

the area that is burned and the area that is not significantly injured and this is also consistent with

being immersed. The amount of surface that is covered, the fact it's on the back of the thigh, the

back of the buttocks, on the inner side of the thigh, there is only one type of exposure that

produces this type of injury. This is hot liquid. Hot flames can produce very, very diffuse

injuries but not usually located to three sides and all sides are affected. Sometimes, flame

injuries-- When you have a flame injury, you have a good history of somebody being pulled out

of a fire or near a fire. In any case, this does not look anything like the kinds of distribution lines

I see in flame injuries. This is where the water is-- This is where the water isn't. You

can see some of that in the picture on the left leg where the knee is above the area of significant

injury whereas the back of the left leg again has this line of demarcation where this is water here

and there isn't water here.

**Q.** Proceed to the next slide, State's Exhibit No. 15. What is the significance of the burn

injuries that you see in this particular photograph?

**A.** Well, these show, in addition to the knees of the upper legs, show reinforce that the skin

on the front of the knees, left knee especially, the right knee right thigh is spared of injury. There

is injury to both lower legs with a very sharp line of demarcation between the injury to the lower

leg and heel. I see on the knee on both sides it appears that the left foot is somewhat spared

especially at the toes and the heel compared to the right foot which is burned all the way from

this line of demarcation below the knee all the way to the tip of the toes. This area appears to be

burned all the way down where on the left side there is some sparing of the foot. There is a little

blistering. It does not look as if there is any injury here from the tips of the toe, back of the left

heel look fairly clean, and in the area that required skin grafting in this patient was the area some

of it apparently on the left foot and some of it, most of the skin grafting required was on the right

ankle on top of the right foot. That appears consistent with the finding here. This appears to be a

very damaged area of skin particularly over here where it's very white, not much blood. It looks

like very seriously damaged skin.

**Q.** What is the significance of the areas of demarcation on the leg just below the area of the

knee?

**A.** Well, if one looks-- If one were to look at the right foot, right leg alone, I would think that

this was a foot that may have been immersed in hot water. Again, we call the classic description

a stocking distribution. The injury is all the way around the leg. It looks like a pattern almost but

what is not consistent with a classic immersion injury in this particular case is how deep the

injury is on the top of the right foot and the sparing of the heal on the left foot. When one leg--

At the left leg, you see lots of injury to the thigh with demarcation above and sparing of injury on

the bottom of the foot so in order for this area to be burned by liquid, the water would have to get

here up this high without burning the toes and that can't happen if the foot was placed in hot

water. That wouldn't happen, because the foot would have to go through the water before the

calf could get there so it's more consistent to me that with water flowing over these calves

especially in the area by the right foot where there is very significant injury, it seems like there

was very hot water coming into contact with the top of this right foot. Both calves and the top of

the right foot--that water flowed over it that allowed sparing of the right foot. It's possible we see

sparing of the bottom of feet when children are held in water. Usually, that is more of a foot print

pattern. You wouldn't see sparing of the top of the toes.

**Q.** If this child were held under a stream of hot water that was flowing out of a bathroom

spigot without water filling in the bottom of the bathtub, would that produce the pattern of

injuries you see in this particular slide and the slide you testified to previously?

**A.** Yes, sir, that is my opinion as to what the most likely mechanism was for these injuries to

have occurred.

**Q.** Do you have an opinion as to whether or not these injuries are consistent or non-

consistent with accidental trauma?

**A.** Yes, sir. I don't believe these are consistent with accidental trauma.

**Q.** Why is that?

**A.** Well, I think that the degree of the center of the injury, the sharp lines of demarcation

here and here suggests that there was not a lot of movement of this child during the time the

injuries were occurring. The combination of injuries to the feet, the buttocks, and back of the

thighs and the reddened areas and the association of all these injuries with the different kinds of

injuries on the trunk. The trunk injuries are clearly different than the injuries to the legs so there

are two sets of injuries. The injuries to the legs alone, I have seen children who have burnt

themselves from accidental contact with hot water to the lower extremities. Then you see lines

from streams of water from faucets. What makes me think that this is not that kind of injury

again is the sharp line of demarcation from this healthy skin over here to this burned skin. This

child was not moving a lot during the time of this injury and I also don't believe he was--at his

age--likely to be in a position where he would have been able to sustain a position where he

could have sustained these injuries accidentally for any long period of time. He would have

fallen back or tried moving somewhat. I don't see a lot of signs of motion. This area of sparing

of the foot, the knees suggests that this was a more organized pattern of injury. I don't think this

happened accidentally. That in combination with the fact there is a completely different set of

injuries above the legs that I also believe are non-accidental make my opinion that the entire

constellation of injuries is not accidental.

**Q.** When you say the entire constellation, you are talking about the entire set of injuries

M. sustained?

**A.** Correct.

**Q.** Now, doctor, is it possible that there was more than one instance in which M. was

brought into contact with a hot liquid on that evening? In other words, is it conceivable that his

feet were placed under a stream of hot water, and he was later dipped into a tub containing hot

water?

**A.** It's not out of the realm of possibility depending on the relative temperatures of each of

the two separate events, but I think that the line of demarcation, you know, the position one

would think the child was in a semi-sitting position with knees flexed, this is the level of water,

is all consistent with that so it would have to again nearly duplicate the injury. The second injury

would have to be similar to the first injury. I mean, it's not outside of the realm of possibility. It

does not fit that set of injuries to me.

**Q.** So your opinion is that this child had basically one exposure in terms of the hot liquid to

produce the injuries below his waste?

**A.** That's correct.

**Q.** Now, doctor, this is the last slide that I want you to touch upon. Will you describe what

is depicted in this particular photograph?

**A.** Why this is the right foot with injuries on the top of the foot that are shown in this view.

The foot is very, very swollen. The injuries extend to the toes up of the top of the surface of the

foot up the ankle. These appear to me to be deep partial thickness injuries and perhaps full

thickness injuries. Again, I have to examine the skin itself to know that for sure.

**Q.** For the record, this is State's Exhibit No. 17. This photograph of the injuries to this area

of Mark, how do they range in terms of severity with the other injuries that you have touched

upon earlier?

**A.** These appear to be the most severe of the set of injuries.

**Q.** What does that indicate in terms of the exposure of this particular area to the heat source

producing the injury?

**A.** Well, this had the greater exposure whether that was by heat or by exposure.

**Q.** Now, let's shut this off. I will let you resume the seat. Would you talk, doctor, about your

experience in terms of investigating cases where you have made a determination of physical

abuse, the types of circumstances in which there may be incidents or events that happen that

trigger the abuse to take place?

………………………………………..

**A.** Behaviors-- A lot of violence against children is precipitated by unrealistic expectations.

Sometimes, the children fail to meet realistic expectations. More often the care giver's unrealistic

expectations about the behavior of children and things that are known to make care givers loose

their tempers such as incessant caring, a child who is not consolable, a child whose behavior does

not conform to the care giver's expectations or other things. In particular in burn injuries, soiling

accidents, or wetting accidents are often something that is an associated behavior prior to the

onset of a child scalded by water.

**Q.** In this particular case, you read the history that the defedant provided to the Detective

H.V., in which he mentioned the fact that the child soiled his diaper. Did you find that

significant in terms of the history involved in this particular case?

…………………………………………

**A.**  Children soil their diapers all the time. That is one of their jobs. The act of soiling the

diaper itself is not necessarily meaningful other than in the contention children have usually

messy diapers. Where it's stated that the contents of the diaper overflow and get outside of the

diaper tends to load some care giver's who just don't -- they have low tolerance for anger, or have

unrealistic expectations about these kinds of events to do things such as taking their children and

putting them in a tub and running hot water over them or putting them in hot water as a form of

simultaneous cleaning them and punishing them.

**Q.** Now, doctor, you have mentioned or touched upon histories involved in determining

abuse cases and accidental trauma.What is the significance in your experience of individuals

who are involved in abuse type situations providing either false histories or changing histories?

**DEFENSE ATTORNEY:** I am going to object, qualification. We are not getting into an area of psychiatric testimony. There is absolutely no foundation the doctor has any experience in the area of psychology or psychiatry.

**PROSECUTOR:** I will be happy to lay the foundation, if the Court wishes.

**THE COURT:** Do that. He has indicated his present capacity, and I think that qualifies him in certain respects. Perhaps, there is some further foundation that there should be.

**Q.** Doctor, part of your job in investigating a case is to take information from the care givers

of the child as to how the accident took place; is that correct?

**A.** Yes.

**Q.** And you do that in every case in which you investigate a suspicion of abuse or neglect?

**A.** Yes.

**Q.** What are some of the factors and how many cases have you done that in?

**A.** I would say several hundred now.

**Q.** What are some of the factors that you look for in taking these histories from the parents or

care givers?

**A.** Well, I think that the most important part is whether the statements made are consistent

with the injuries that I see, and these are statements that are offered as answering the simple

questions like how did the injuries occur. But in addition, we do take into account the manner in

which answers are offered; whether they are offered in a defensive manner, or whether they are

.offered in a open manner. We also take into account the relative concern about the person

giving the history as to the child versus themselves. A lot of times when we were asking

questions about injuries, the kinds of answers we get are more focused on the parent or care

giver's concern about themselves and how they fit into the picture as opposed to being concerned

about the child. These are kinds of flags. We also take histories from many different sources.

We get histories from a paramedic which brings the child to the hospital. We get information

from that source. We get information from other referring emergency physicians or care givers

who bring the children to the hospital. They sometimes come in the middle of the night. The

night doctor may take a history. Sometimes, I get asked to do a consultation so I take a history so

we compare these versions of history to see if they are consistent with each other. If they are not,

circumstances would it be more likely that the person providing the history would be more

concerned about the consequences to himself as compared to the consequences to the child?

**A.** Well, that serves a general characteristic of children from various forms of dysfunctional

families. Sometimes, these are children who received accidents as a result of serious neglect,

people just not watching over them. Sometimes, it's from non-accidental reasons but in that part

of it is one flag because to amplify on how it relates to the previous questions, these are things

again as I testified earlier this morning, these are kinds of red flags that raise people's suspicions

on saying, you know, this is something we really have to get more information about that. That's

the point where I will start consulting with a child protective service agency or law enforcement

agency to do a scene investigation or detailed further investigation, these are the kinds of things,

you know, that precipitate these kinds of actions as a physician. However, in basing my medical

opinion, you know, whether the story changes or not, the question is still in my mind. Most

important is the story consistent with the injury even after it's changed. With the exception of the

rare event when we have documented that someone has given information, a care giver gives a

history and there is a witness who says well, you know-- Sometimes, it happens that a doctor will

in an emergency department who doesn't have experience in dealing with some of these issues

will say gee those aren't my findings, couldn't it have happened like this, and the parent goes yeah

and then when I get to them when I take a history, that history has already been changed. If that

is documented and that history was changed under those circumstances, that is something I will

use to formulate an opinion most of the time. And in this particular case what I used to formulate

an opinion was whether the injuries were consistent with any of the histories offered. The fact

that the history changed, again is something that is a red flag that leads to further investigation

but doesn't necessarily per se absolutely make a case for a non-accidental injury or not.

**Q.** Doctor, so in this particular case some of these matters that you are touching upon here

since we have returned from lunch really did not affect the conclusions that you made initially in

your report; is that correct?

**A.** That's correct.

**Q.** Would you briefly discuss the significance of what you testified to earlier regarding the

individual patterned injuries that you observed on this particular child.

**A.** Well, I think there are two or at least two separate sets and types of injuries. There are

the scalds to the buttocks, lower extremities, and they are in a pattern that suggests a child was in

a seated or near seated position with his buttocks--his legs down and again I think their proximity

to a stream of hot water based upon the findings on the top of the feet so my conclusions for

these patterns is that this is a child who again as I talked about earlier, there wasn't a lot of

suggestion from these photographs of a lot of movement of the water, seems to be not a lot of

movement of the child. The lower extremities are burned severely. The upper torso has much

less injury and thus the kind of pattern one sees in an immersion injury and based upon the sharp

lines of demarcation, the location of the injuries themselves on the posterior part of the thighs

and legs as well the tops of the feet. That is how I came to my opinion of these injuries. I think

the sets of injuries above the waist are very different. There are multiple sets of contact injuries in

the center of the chest. Those crescent shaped injures by the left breast, the injuries on the left

shoulder as well the drip marks down the center of the back which are different in appearance

than the more circular splash kinds of injuries that I see on the side of the trunk and the back so

these are all multiple different things to that boy. Some of them may be related, of course.

Obviously, if there is lots of hot water around some of these can splash and produce some of the

satellite injures. Clearly to me, all the injury to the upper extremities were not caused by

splash of water that were around. It was around his lower extremities during his injury to the

lower extremities. I don't know which came first.

**Q.** Now, you have defined for us two incidents, separate types of injuries In your opinion,

the injures to the upper part of the body and you have indicated previously your opinion that

these injuries were not accidentally caused.

**A.** That's correct.

**Q.** What forms the basis for your opinion that those injuries to his upper torso are not

accidental?

**A.** I think the multiplicity of injuries. There are so many contact injuries. Usually, we see

one or a couple injuries from accidental contact, but this child had many injuries, at least two on

the front of his stomach, two on his shoulders, one additional--one that was next to one on the

shoulder. The couple of crescent shaped ones, the side by his breast so these are just too many

too far apart to account for by an accident or mechanism. Also, the way the injuries are so

discorrectly placed on the skin. You can see the edges of the injuries very clearly demarcated.

These round circles or semicircles and the fact there were mirror images of what, I believe, are an

object contact from some object against his skin means that whatever it was that made that

contact was turned around. And that if a child was accidentally bumping into something or

something was hitting him, that is just not reasonable to expect that he could have this mirror

image lesion that was on the front of his abdomen from an accidental contact.

**Q.** If you ignore the injuries that M. had to the lower half of his extremities, consider that

those injuries don't even exist. Would your opinion in that regard change?

**A.** No.

**Q.** Now, let's go to the second half of these injuries to the bottom half of his body. You have

also offered the opinion that this was non-accidental. Now is that made in connection with the

injuries to the upper half of his body, or is it just based on your observations of the injuries

themselves to the lower half?

**A.** It’s based upon my observations of the injuries to the lower half of the body as I stated

earlier. I think these are two separate sets of injuries, and they were caused by different ways so

that alone makes me separate them in my mind, and I analyze the injuries in each area with –

with the possibility, hypothetical possibility, that they may be somehow related, but I don’t think

they are related. I believe I stated I think they are two separate sets of injuries, and I made trhe

conclusion the injuries to the lower extremities, the buttocks, were non-accidental even in the

absence of injuries to the upper extremities.

**Q.** Now, take both sets of injuries together and what does that do to the realm of possibility

in terms of your medical opinion as to whether they could be accidentally produced?

**A.** Well, I think it takes it to a very high level of medical certainty, to an extremely high

level of medical certainty.

**Q.** Now, doctor, there has been some suggestion during the course of testimony that the

water temperatures in the bathtub were subject to fluctuation at various points in time. In your

opinion, what types of injuries would you expect to see had M. been sitting in a tub of water

which at one point in time the water temperature was okay, tolerable, and suddenly the water in

the faucet began to get very hot to the point it could produce some burns?

**A.** In that particular case, again, I would expect to see injury where there was heat and the

heat would be mixed more if there was water that was not hot enough to burn or do much injury

and water was coming into the area that was hot enough to cause an injury. I would expect there

to be some areas that are very, severely injured. Some areas that are spared. I would expect to

see much more graduation between the areas that were injured and the areas that weren't. In other

words, it wouldn't go from a significant burn with a sharp line of demarcation to healthy skin so

dramatically. There would be more graduation in-between. I have seen a number of injuries

where that has occurred where a child was in a bath and a sibling or parent even a child

themselves added hot water and caused a burn in one area, but then it looked quite different than

the kinds of burns seen in this case.

**Q.** You have expressed at one point in time your opinion as to the water temperature that

was necessary to produce the injuries here. Do you have an opinion as to whether or not this

water temperature in the bath was less than 140 degrees at any time when these injuries were

caused?

**A.** It really depends greatly on how much water was in the tub., If the tub was made of cast

iron, the water may cool faster than if the tub was something like fiberglass. It doesn't make a

difference. I can't tell you whether it was 140 or 137 and three quarters or 145 exactly. I can

give you my range of estimation and the injuries that were caused to M.'s skin. Most of these

injuries, in my opinion, had to be at water that was 140 degrees or above just simply because if

the temperature was much lower than that, the amount of time it would take to produce the

injuries would be extended greatly. It's not a linear relationship. As the water temperature falls

off, it takes a lot longer to produce significant burns to the skin and if he was in the tub for a

prolonged exposure, I wouldn't expect to see the pattern with the sharp lines of demarcation with

limited areas of injury that you see again except to see a more gradual demarcation of the areas

from deep to superficial and much more random, less organized pattern of injury where he is

burned in some areas, not burned in other areas where he is trying to move around and turn

around where he is not likely to have the ability to pull himself over the side of a bathtub and

make purposeful attempts. As he is escaping, he certainly would make non-purposeful attempts

as he is escaping. He may be thrashing, flailing about. He may not lay there and let the water

flow under his thighs and have a lot of motion.

**Q.** Doctor, had M. been exposed to the water at above 140 degrees for much more than a

few seconds, what would you expect to have seen in terms of the degree of injuries that he

sustained?

**A.** If it was significantly higher than 140 approaching 150, after a couple, three seconds, one

would expect full thickness injury much deeper injury and the only place M. had a deep injury

were the tops of the feet so I will expect if he had been exposed to a lot of water that was hot--a

higher temperature for a few seconds, the remaining injuries were scalds would be deeper.

**Q.** You are familiar with the medical history in State's Exhibit No. 3. In your opinion, what

is the significance of the absence of burns to M.'s hand?

**A.** Well, I think that it's an area that wasn't exposed to significant heat. I think that it's an

area that was out of the way of the heat that would cause the injury and the possibilities include

the fact that he may have been held by his hand when he was in the water or somehow his hands

were held out of harms way.

**Q.** If M. was left unattended in a tub of water that scalded him to produce the injuries that

you have testified to, would you expect to see some burn injuries on his hands?

**A.** I would be surprised if there weren't more diffused injuries to his body in general not just

his hands, other parts of his arms and trunk than there were. It really depends on whether he got

his hands into the water. It would seem unlikely to me that if he was left by himself in a tub, that

his hands would completely escape injury that other parts of his body did get.

**Q.** What was the risk to M. from being left unattended in a tub of water that was filling up

for a period up to five minutes?

**A.** Well, there is a significant risk of drowning for an 8-month old to be left unattended even

in a few inches of water.

**Q.** How long would it take for an 8-month old infant to drown under circumstances where he

could get his face under the water?

**A.** Not very long, just a matter of ten, fifteen seconds. Sometimes, even less if he choked

into the water, sucked it into his lungs especially in his case where he had a history of apnea. I

don't think that makes a significant difference. Any child who is 8-months of age left in a tub of

water for more than a few seconds has a potential for serious injury or death as a result of

suffocating or drowning in that water.

**Q.** What were the medical consequences, potential medical consequences as a result of these

burn injuries themselves?

**A.** One of the potential consequences he did have, he had to have prolonged hospitalization,

treatment of the skin which included cleaning, applying antibiotics, good skin attention. He had

to have skin grafting which is surgery where skin is taken from a healthy part of the skin and put

on the damaged areas of the skin so that it has some covering. Without the covering to the skin,

there is a risk for on-going damage to the tissue below and infection. The other risks that are

common in patients with this degree of burn injury are shock from fluid, loss--the skin loss, a lot

of fluid if they don't get I.V. rapidly, they can get dehydrated and go into shock rapidly. In

addition, the skin gets infected. The infection can spread to the blood and you get blood

poisoning or sepsis, and both of these things, shock and sepsis are life threatening.

**Q.** Are they more life threatening the younger the victim?

**A.** Certainly, at a high percentage of body surface area burned, young victims are at high risk

for shock, because they have less body water to spare, but the relative degree of risk in anybody,

you know, even a healthy adult if they are burned over a substantial portion of their body can go

into shock from fluid loss from a relatively period.

**Q.** Given the severity of M.'s injuries, what is your medical opinion as to those risk factors in

terms of shock and death?

**A.** With his partial thickness injuries were approximately in my opinion 20 or 35 percent of

his total body surface area, that with treatment has a very low incidence of death. Even in the

mid 80's with proper treatment, death is uncommon with 30 percent injury so that, in fact, since

the risk was low but untreated there is a substantial-- It's more than a percent or two. I couldn't

give you a specific number, because we these days see so few injuries that are untreated and

treatments have changed. It's more than a trivial risk of serious complication and death.

**Q.** You are aware of the history in this particular case that after these--after M. was injured,

he did not receive prompt medical attention for a period upwards of l5 minutes and the fact that

Vaseline was applied to his injuries. In your opinion, did that increase the risk f6r any of these

other complicating factors you discussed?

**A.** I think it increased the risk. Vaseline, itself, is not necessarily good therapy for burned

skin. It tends to hold the bacteria in. It's not a good way of protecting the skin from infection.

The 15 minutes itself, the amount of fluid loss that can occur through the skin in a 15 minute

period would not usually be sufficient to cause a child to go into shock; although, if the burns

were severe, it's possible children do go into shock within less than an hour when burns are

severe. In this particular case, I don't think 15 minutes one way or the other made a major

difference; however, if it had gone on significantly longer it could have made a difference in his

outcome.

**Q.** Now, is it your opinion that the injuries M. sustained would have been recognizable as

serious injuries to a lay person?

**A.** Yes, sir.

**Q.** And would that have been right after the injuries occurred?

**A.** Yes, sir.

**Q.** What are the potential long-term consequences for M. as a result of these injuries?

**A.** Well, the areas that he has skin grafting on are likely to be scarred permanently. The

other areas may have a varying degree of healing depending on how good the burn care was, the

wound care, and how well the skin healed at his age. Most partial thickness burns will heal very,

very well and there may be some minor pigmented change. Some areas may be scarred and some

that are not in general. The biggest concern would be the area of the foot in terms of scarring.

Also of concern to me in that foot area is the fact that the most serious part of the injury was

around the ankle. The ankle is a joint that requires full mobility in order for an individual to

walk well and have good function of that joint and with time burned skin, even skin with a skin

graft is never normal. It's scarred for life, and that skin is tougher and less flexible and that

requires lots of physical therapy where angle of motion is down to keep that skin cleaned out and

healthy. Other forms of treatment such as pressure garment is a type of treatment that is used to

keep the skin flexible. In the absence of that, even with good therapy a number of children go on

to need additional surgery at these joints in order to loosen the skin up to keep it flexible enough

for motion as they grow. Scarred skin doesn't grow as well as healthy skin and so it gets tighter

and tighter with time, and they often need surgery where the skin has to be cut to release the

tension there so there can be mobility in the joint. Many children with injuries like this will need

additional surgery as time goes on.

**Q.** Doctor, you have heard the--or you have seen three different versions of how these

injuries supposedly happened. First version of M. sitting on the heating register. The second

him sitting in a pool of hot water that came out of the water heater and the third version, the

version of his being left unattended in a bathtub. In your medical opinion, are any of these

explanations or all of these explanations taken together consistent with the injuries that you

observed?

**A.** No, I don't think they are consistent with the injuries.

**Q.** Can you conceive of a factual circumstance that would account for these injuries being

accidental?

**A.** No.

**Q.** Are these injuries consistent with abuse?

**A.** Yes, sir.

**Q.** Now, I'd like to finish up here doctor and talk about the circumstances surrounding the act

of abuse itself. You have had experience in seeing other kinds of abuse cases besides burn cases;

is that correct?

**A.** Yes.

**Q.** And those have involved incidents of physical abuse and neglect?

**A.** Yes.

**Q.** How do the circumstances involved in burn cases where there is an intentional burning or

an abusive burning differ in terms of the mindset of the person who is committing that abuse as

compared to other forms of physical abuse that you have seen?

**A.** Well, I think it's-- It is in the medical literature and papers I have reviewed and lectures I

have attended and discussed with my peers and colleagues and teachers that this is something

that is a consideration that burn injuries tend to be the most--tend to be circumstances where I

can't testify to mindset but what I can tell you there is the greater degree of loss of control and it

takes time to do these injuries unlike the kind--other kinds of physical abuse that I see such as

infants who are shaken or beaten or battered where their is loss of control by a care giver and,

you know, an assault takes place. Burn injuries take time--takes time to run water in a tub.

Takes time to heat objects. Takes time for the injury itself to occur and even though it may be as

little as a few seconds, that is a long time when a child is screaming, especially a child at the age

of eight months so that it's generally considered--and my experience agrees with what is in the

medical literature--that people who are involved in non-accidental burn injuries to children are

sort of the ones with the least degree of impulsive control. The least concern about the welfare of

their child and not really able to deal with many of the circumstances surrounding the physical

pain of children.

**Q.** In this particular case given the fact that you have indicated that you believe there are two

separate types of injuries that were involved with M., does that degree of thinking and time factor

involved here in your opinion, is it greater than in other types of burn cases you have been

associated with?

**A.** Yes. Most of the time the mechanism is limited to a single type of injury whether it's a

hot object or a scald from a hot liquid. Occasionally, they may not necessarily be burns. They

may be burns. There may be other physical traumas to children that have been burned. This is

one of the more extensive in terms of the combination of different types of injuries that I have

seen.

**Q.** Finally, doctor, there has been some reference some time here about the fact that the

defendant may not have had any injuries or burns to his hand and yet he has provided a history to

the police officer and to medical staff that he reached into this water and pulled the child out and

that the water felt hot to his touch. How can you account for that particular scenario in the

absence of burns on the hand?

**A.** Well, again I think that the burns occur when there is sufficient time and sufficient

temperature even in fairly hot water. If it's a quick in and out it is not a significant injury, but in

general it's really not helpful to me. I know it's said I think what you are alluding to, it's said in

medical text books that it's good to look for burns on the hands of the care giver who is involved

at the time of an injury to a child to see whether that area was exposed to heat. But in my

opinion, you know, in all the cases I have seen now, I have never seen that the care giver is in

control of the situation. If it's hot enough to get uncomfortable that is usually below the

threshold where they will get burned. Most of the time the adult care givers will withdraw or

have their hands in a position where they are not at risk for burning their hands. The absence of

burns to the hands doesn't say one thing which way or the other whether the fact hands could

have been immersed in hot water and taken out without burning and likewise hands could have

been immersed or around the area of immersion and exposure to heat because adult hands have

control and can withdraw.

**PROSECUTOR:** Thank you, doctor.