

Bay Village, is that correct?

A That is correct.

Q And that is in Cuyahoga County?

A Yes.

Q And the State of Ohio?

A Yes.

MR. SPELLACY: You may inquire.

THE COURT: Counselor Bailey
or Sherman?

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CROSS EXAMINATION

By Mr. Bailey:

Q Miss Cowan, in connection with your work in the field of blood, do you subscribe to any periodicals in order to stay abreast of developments in the field?

A Yes.

Q Will you tell me which of those you regularly receive?

A Regularly, the Journal of Forensic Sciences that I receive and read regularly.

Q You read that regularly?

A Yes.

Q I take it a good deal of your work with the Coroner's office involves work with dried blood as opposed to cold

blood or wet blood?

A That's right.

Q Typing, and so forth?

A Yes.

Q Are you familiar with an article that appeared in the Journal of Forensic Medicine in January-March, 1961, by Frederic R. Sylvia and Paul L. Kirk, do you ever read the Journal of Forensic Medicine?

A Rarely do I ever see the Journal of Forensic Medicine.

Q Are you conscious of reading any articles in there relative to the study of dried blood or typing of dried blood?

A I have. You would have to read me the title before I would recall specifically the article. Yes, I have read some of Forensic Medicine.

Q What about an article appearing in a January-March 1961 issue, "Individuality of Dry Blood," by Frederic R. Sylvia and Paul L. Kirk?

A I have read an article on this subject, of which Dr. Kirk was one of the authors. I am not positive if it is that article that I read.

Q What about in the same issue of the same magazine,

"Purification of Plant Lectins by Continuous Electrophoresis"

-- I would say?

A Electrophoresis is correct.

Q "-- and their Application to Grouping of Dry Blood Stains," by Charles I. Leister and Paul L. Kirk?

A I have read that one.

Q And an article in the April-June issue of Journal of Forensic Medicine, 1961, "Possible Application of Plant Lectins to Genotype Determination," by Charles Leister and Frederick R. Sylvia and Paul L. Kirk?

A I do not recall if I read that one.

Q An article in October-December of 1961, the Journal of Forensic Medicine, "Specificity in Blood Grouping with Plant Lectins," by Frederic R. Sylvia and Paul L. Kirk?

A No, I have not read that.

Q And in the same publication, April-June issue of 1963, "Individuality of Human Whole Dry Blood by Immuno-electrophoresis on Cellulose Acetate," by Albert F. Laudel and Benjamin W. Greenbaum and Paul L. Kirk?

A No.

Q In July-September, 1963, the same publication, "Individualizing Dry Blood Samples," by John I. Thornton and Paul L. Kirk?

A No.

Q And in the October-December issue of that publication in 1963, "Rheumatoid Arthritis Factor, A Sensitive Method

for its Detection by Individualizing Dry Blood Samples,"
by Charles I. Leister and Paul L. Kirk?

A No, that is another electrophoretic method.

THE COURT: I am sorry?

A I think that is another electrophoretic method.

Q Now, you have told us there are four basix blood groups,
A-B-O and A-B, and within the four basic groups there are
sub-groups, and I believe you mentioned the figure 12?

A No, I am sorry, sir. I said there are 12 that are
generally routinely determined. There are many more.

Q And beyond 12 there are many more?

A Yes.

Q So, if for instance half the people in the room have
O blood, you might nonetheless be able to separate them out
by sub-factors within the O group?

A Theoretically when you are dealing with whole blood,
this could be possible.

Q Now, is there a limitation in the examination of
dry blood in sub-grouping?

A Yes, there is.

Q Will you tell us what that limitation is?

A Because of the fact you do not have the condition of
the fluidity of the blood, you cannot have -- you do not
know how much serum you are dealing with and how much is

red corpuscles.

It depends upon the surface upon which the blood is deposited, whether it be absorbent or non-absorbent, whether it is clean, whether it is oily, greasy, whether detergents are present.

There are many unknown factors in the typing of dried blood as contrasted with cold blood.

Also, you are usually dealing with small amounts, so that you do not have sufficient blood to determine these minor sub-types which are not as reactive generally as the O-A-B grouping.

Q Now, what can you distinguish by way of sub-grouping by way of dry blood samples, given a sufficient quantity, of course?

A Will you restate that question?

Q Certainly. What sub-groups can you distinguish within the four basic groups from dry blood samples, given a sufficient quantity for testing?

A You want to know what sub-groups we can do.

The MN I have had success with on some occasions. We have -- Dr. Marsters and I working together -- have had success with the S factor. That is all I have had success with.

There is reported in the literature some success with

the Rh factors.

Q Any other factors that have been reported in the literature as distinguishable in dry blood sub-grouping?

A Not that I recall at this time.

Q Now, the red appearance of fresh blood is caused by the hemoglobin, is that not true?

A Yes.

Q The hemoglobin consists of small sacs?

A No, the hemoglobin is the protein present in the red blood corpuscles.

MR. SPELLACY: I can't hear you,
Miss Cowan.

Q Keep your voice up.

A The hemoglobin is the protein present in the red blood corpuscles.

Q When you say that blood has been hemolized, what do you mean?

A It means that the cell has been ruptured so that the contents of the cell escapes.

In other words, you look at blood that has been hemolized under the microscope, you will no longer see the individual corpuscles.

Q If blood is dropped in water, if a drop of blood is placed in a vial of water, what happens to the blood?

A The blood will be hemolized.

Q It will turn the water pink, but it breaks down?

A Yes.

Q Because of the rupture of these little sacs or cells?

A Yes.

Q Now, you say you examined the trousers of Dr. Sheppard and found only one area that tested positive for blood?

A That is correct.

Q So you were able to eliminate the other little stains you described, and I take it in your opinion they were something other than blood?

A No, sir.

Q You did not?

A I did not completely exclude them because of the appearance and because of the luminol reaction.

Q How do you account for the fact that the benzidine reaction was negative?

A From the fact that in this type of fabric I know from experience that blood put on will wash out very easily and leave behind a little reddish brown streak that will not give a reaction to benzidine.

Q So that the stains that you are able to visualize you say may be the remnants of blood that was washed away by the water?

A Yes.

Q But from your chemical test you are unable to say that it is?

A Correct.

Q Now, what kind of fabric is it that these trousers are made of?

A It is a rayon fabric. It was very difficult to identify. I am not too experienced, I am not a textile microscopist. But some of the fibers were coated. There was a very small amount of nylon present.

Q I believe you testified earlier that water would more easily wash blood out of synthetic fabrics than out of natural fiber?

A Than out of cotton, certainly, yes.

Q Now, this area of hemolized blood led you I assume to the opinion that the blood you found in there had been diluted with water, or hemolized?

A Yes.

Q Now, did you examine the bed sheet of Marilyn Sheppard?

A Yes.

Q Did you find a spot on the lefthand edge of the sheet, that is, where the mattress curves around, and I say lefthand, assuming you are facing the head of the bed standing at the foot, did you find a spot of hemolized blood?

A There were other areas of hemolized blood that we see normally when a person voids their urine mixed with the blood.

Q You found evidence that she did void?

A Yes.

Q As is common with anyone who is brutally beaten?

A Yes.

Q But my question was, Miss Cowan, whether or not you noticed in the spot I described a spot of hemolized blood, can you tell us from memory?

A No, I would not want to, the exact location. I say there were areas hemolized.

Q How many, do you know?

A No.

Q Some of these areas, or at least one you say was caused by the voiding of the bladder sometime at about the time of the beating?

A This would be the normal conclusion.

Q Did you make any chemical tests to establish the presence of urine in the blood?

A No.

Q Now, did you ever see the sheet before it was removed from the bed?

A No.

Q Did you examine it in the laboratory?

A Yes.

Q You tested it for blood?

A Yes.

Q And did you find more than one kind?

A I tested it only as it would be possible to do at that point for the antigens which are absent from O blood, and I was not able to detect any antigen, which would be the natural reaction for O blood.

Q The result of that test is that you found O blood, is that right?

A My results were compatible with results of O blood.

Q And did you test several different areas on the sheet?

A No.

Q Just one?

A Yes.

Q Where did you take that sample from, if you recall?

A No. I have mentioned it in my report, but I do not recall.

Q Did you make a microscopic examination of any section of the sheet?

A No, it was examined by putting it on the -- as we do in all these cases -- putting it on -- first of all, putting down a clean paper sheet on the X-ray table, and

Sheet
"0"

then examining it with lighting from various directions, and visually there was nothing of significance.

Q Are you able by examination, visual or microscopic, to distinguish dry blood which is not hemolized from that which is?

A In dried stains, not always, because with the drying, the cells will dry up and not be able many times to be visualized microscopically. The drying process itself tends to cause rupture of the cells.

Q Are you finished with your answer? Okay.

Miss Cowan, I will show you State's Exhibit 58, showing the body of Marilyn Sheppard, and the sheet on which it was found before it was removed from the bed, and I am pointing to an area now with my right index finger of apparent blood stain lighter in color than some of the other blood we see on or about the sheet, and I ask you if you made any examination of this particular area?

A Not that I recall.

Q Did you receive some information prior to your examination of the trousers as to what the Defendant had said about how that stain got on the knee?

A I do not recall that I received such information, but I would like to say that in looking at this type of staining, we always look for any pattern imprint.

Q Did you compare the pattern imprint that we see in State's Exhibit 28 with the stain on the Defendant's knee?

A That is not a pattern imprint as I see it.

Q You say --

A What I mean, a pattern imprint would be a design of the cord trousers, the stripe.

Q I see. Did you have any information that the Defendant had been in Lake Erie prior to the time that the police and others began to arrive on the scene?

A Yes.

Q You knew that the trousers when first taken into custody by the Coroner were wet?

A Yes, damp I believe was the word.

Q All right, damp, consistent with the Defendant's story that he had been in Lake Erie?

A Yes.

Q You examined the trousers and found a hemolized blood stain on one knee?

A Yes.

Q Consistent with a wet knee being placed against a bloody surface?

A No.

Q No? Tell us why not.

A Because the center of that stain is concentrated, and

it is a stain -- it is apparent that the stain was there first and diluted out from that.

Q You say that you were able to tell from your examination that as between the two fluids that contacted the trousers to produce that stain, the blood necessarily came first?

A Yes.

Q Have you done some experiments to indicate -- do you have some body of knowledge or experience in this area as to which came first, the blood or the water?

A My contention is supported by the fact that this stain in contrast with the other stains at the top, this stain was visible also on the under-surface, and since rayon and this type of material does not absorb a stain easily, and it was certainly consistent with a stain soaking through, and in the fact that the center of this stain was stiffened as would be with a dense stain. The edges then are lighter. This is consistent with the stain being there first.

Q You say it is consistent with it. Now, do you also say that in your opinion the blood stain was necessarily there before the trousers were wet?

A In my opinion, yes.

Q All right. If that is so, Miss Cowan, would you tell us why the blood did not wash out?

A Because it was in greater concentration than the other, the minute spots.

Q How great a concentration does it take to survive a period of time which I assume you were unable to estimate from any information you received, in cold water?

A I would not want to estimate, and I have not done experiments on that.

Q Did you do any experiments with the part of the knee that you removed to see if soaking would remove the blood?

A It certainly was done in extracting. This is not an experiment. This is part of the technique.

Q Did you try to wash that blood out at any time?

A No. It was merely an extraction in performing the test.

Q Miss Cowan, I think you said that in synthetic fibers the blood is more easily dissolved or washed away than other fibers such as cotton, is that true?

A Yes.

Q But you have an opinion, as I understand it, that this knee with the blood stain on it was soaked in water for an indeterminate period of time, and then remained after the soaking?

A Yes.

Q Now, did you seek any information as to how long the

pants were in the water?

A No.

Q Would you consider that irrelevant to determining whether or not the blood could have survived that soaking?

A Yes, but these are -- we have many unknown factors. No, I did not.

Q Many unknown factors, no question about it. Did you ever try to find out the probable limit of time, that is, the shortest probable time as against the longest probable time that these trousers were in Lake Erie?

A No.

Q Did you know that the Defendant's skin when he was taken to the hospital was all puckered up?

MR. SPELLACY: Objection.

THE COURT: Sustained.

Q Did you have any information as to how long he was in the lake wearing these trousers?

A No.

Q Did you obtain information as to whether or not the body of water in which these trousers for a time reposed was stationary or moving?

A Would you restate the question?

Q Certainly. Did you obtain any information as to whether or not the body of water in which these trousers were

laying for a period of time was stationary or moving?

A We were told that the lake was very high and the waves were high.

Q You were told that?

A This would be moving water, I mean, this is not -- yes, I was told that the waves were high.

Q Who told you that?

A In the investigation.

Q You were told that, and I assume that you figured in making your conclusions that the water was washing back and forth, due to the wave action on the beach?

A Yes.

Q Now, of course, the length of time that any fabric is immersed in cold water is a factor in determining the extent to which blood will be washed out of it?

A Yes.

Q And the agitation of the water, that is, the extent to which it is swirling or swishing back and forth through the fibers and the fabric is another factor, true?

A Yes.

Q Did you do some experiments duplicating such information as you had to determine whether or not your theory of the order of the blood and the water arriving on the pant leg was correct?

A Yes.

Q Will you tell us the experiments that you did?

A I did some with rayon fabrics and found that with dense stain it required a long time, and that when the fabric was not coated, some of the fibers were not coated, that you would have a remainder of a brown tint.

Q So in your opinion the fabric in these trousers is perfectly capable of containing blood stains, even though soaked, for an indefinite period of time in cool water?

A I will not concede the indefinite, sir.

Q For an hour?

MR. SPELLACY: Objection.

THE COURT: Overruled.

A No, I wouldn't want to put a time of an hour on it.

Q For how long a period of time?

A This depends.

Q Excuse me. For how long a period of time could this blood-soaked knee, if it was blood-soaked before it was immersed, have stayed in that water and not lost the blood?

A This is not possible to tell with so many unknown factors as to the concentration of the blood first, how long it had dried before it was in the water, as well as the agitation, and the temperature, and so forth.

Q Without knowing those factors, are you able to give us

an opinion as to whether or not a blood stain could have survived the immersion?

A Yes.

Q Tell us how you do that without the factors that you say are necessary?

A Because of experience that I have seen the stains of that have not been completely washed out.

Q You mean in these trousers?

A No, I would not put stain on those trousers.

Q Have you tested this fabric under identical circumstances?

A No.

Q You had some available cut out?

A Only as I said with the extraction, and I do know that having extracted the portions cut out, in distilled water, it still had a color left in the stained portion.

Q Now, blood coming in contact with water will hemolize, you told us that?

A Yes.

Q And it makes no difference which reaches the fabric first, the blood or the water, it will still hemolize, is that true?

A Yes.

Q Supposing it is dry before it gets into the fabric,

will it still hemolize?

A Yes, you would still have essentially the same.

Q Did anyone ever ask you before today whether or not you had an opinion as to the time of arrival of the blood and the water, that is, the order of their arrival on these trousers?

A Yes.

Q You did testify to that fact in the last trial, did you?

A No.

Q Now, you say that in your opinion that blood stain could not have survived as long as an hour, if it were immersed and the water is consistent with the temperature and the tidal action of Lake Erie?

A I said I would hate to make a definite statement.

Q Why would you hate to?

A Because we are not dealing, we do not know how much blood was present in the first place, and the conditions under which it was immersed. I would not make a categorical statement.

Q Now, I take it that part of your duties or efforts on behalf of the Coroner's office were to reconstruct so much of this crime as was possible from the physical evidence that you examined?

A No.

Q It was not?

A No.

Q Did you and Mr. Dombrowski make some examination of the murder room?

A Yes.

Q Can you tell us as to the division of responsibility, if you are aware of any, in other words, what job you from the Coroner's office were undertaking, and what job the Cleveland Police were undertaking, insofar as reconstructing this crime?

A We do not divide our activities. We work together. It is, however, the responsibility of the entire investigation to do the reconstruction. The laboratory furnishes the information from objective tests.

Q Did you participate with Mr. Dombrowski in any reconstruction attempts?

A In discussion, yes.

THE COURT: Counselors, may

I see you, please?

(Thereupon Court and counsel conferred at the Court's bench, out of the hearing of the Jury.)

THE COURT: Miss Cowan, there will be further examination of you. Will you return,

please, after the luncheon hour.

Ladies and gentlemen of the Jury, we have reached the luncheon hour, and we will recess. While you are away on your luncheon hour, you will bear in mind the instructions given you on each occasion when you have gone from this room, and that is you shall not discuss this case or what you have heard of it amongst yourselves.

You shall not permit anyone else to discuss it with you, nor permit yourselves to overhear anything that relates to this cause, by any means of communication.

We will stand recessed for lunch until 1:30.

(Thereupon an adjournment was taken to 1:30 p.m., Wednesday, November 9, 1966, at which time the following proceedings were had:)

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