

Thereupon the State of Ohio, further to maintain the issues on its part to be maintained, called as a witness MARY COWAN, who, being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

By Mr. Parrino:

Q Would you state your name, please?

A Mary Cowan.

Q Where do you live?

A 84 Ennis Avenue, Bedford.

Q By whom are you employed?

A Cuyahoga County Coroner's office.

Q How long have you worked there, please?

A Fifteen and a half years.

Q In what capacity?

A As medical technologist.

Q In that respect, what are your duties?

A The examination of blood and other trace evidence.

Q How long have you been doing that, please?

A My duties have been restricted to that for the past two years, I believe it is.

Q And what did you do before that?

A I also did that work in connection with other laboratory work.

- Q And in a general way, would you describe what that work consists of, please?
- A The examination of hairs and fibers or any substance which may offer proof or collateral evidence.
- Q And do you do some work with blood, too?
- A Yes, sir.
- Q And how long have you been doing that, please?
- A At the Coroner's office?
- Q Yes.
- A For the full time, fifteen and a half years.
- Q Where did you receive your training for this work, Miss Cowan?
- A My medical technology training I received at Mt. Sinai Hospital of Cleveland.
- Q What college did you go to, please?
- A Dennison University.
- Q When was that, please?
- A I was graduated in 1929.
- Q With what degree did you graduate?
- A Bachelor of Science.
- Q And what subjects did you major in at that time, please?
- A Zoology and chemistry.
- Q Upon your graduation from Dennison, what did you next do?
- A I took some graduate work at Western Reserve in biochemistry, physics, immunology, bacteriology, parasitology and

spectroscopy.

Q How long did you continue with those studies?

A That has been over the period up until the last six years.

Q What further training have you had, please?

A I attended the seminar in Scientific Proof at the Law Medicine Center of Western Reserve University.

Q What did that work consist of?

A Lectures by outstanding authorities on various subjects on scientific proof.

Q When did you do that?

A This past fall and spring.

Q What further have you done in that field, if anything?

A Experience in the field, and I have written one paper published -- given before the Academy of Forensic Scientists in 1953, and published in the Journal of Criminal Law and Criminology in September and October of 1953.

Q What work did you do before you came to work for the Cuyahoga County Coroner's office, please?

A I was employed as medical technologist.

Q By whom?

A At the East 100th Street Medical Building and at the Cleveland Clinic.

Q For what period of time did you work there?

A I worked at the 100th Street Building for two years, and at the Cleveland Clinic for about a year.

Q And what did your work consist of there?

A For part of the time at the Cleveland Clinic, I did the blood groupings in the hospital laboratory, and part of it was done in the routine laboratory, and part in chemistry. My work at the 100th Street Building consisted of clinical laboratory work.

Q What work is involved in making blood groupings, please?

A Blood grouping is determined by an anti-body, antigen anti-body reaction.

In the blood cells is a factor called an antigen, which will react only with a specific anti-body. In the blood grouping of the OAB group, for instance, there is the A and the B antigen. There may be the A antigen present in cells, and we have group A. We may have the B antigen group and have group B. We may have no antigen present, and then we have a group O, or we may have both antigens present in the cells, and then we have a group AB.

Now, if we have in the cells the A antigen we will have in the serum the anti B anti-body, which will cause an agglutination if the blood of the patient is put with the blood of a B patient, and that is a specific reaction.

Q Now, did you do work for any other person or organizations before that, Miss Cowan?

A No, sir.

Q Now, coming back to the Coroner's office, what facilities do you have there for performing the work that you do?

A To do blood grouping, actually all that is required is sterile glassware and the microscopes.

NS
MAG
tk 21

- Q What type of microscopes do you have?
- A We have the regular clinical microscope, and we have the stereo-microscope, and polarizing scope, which doesn't enter into this picture.
- Q Now, you say you have a complete laboratory there at your disposal, do you, Miss Cowan?
- A Yes, sir.
- Q Did you ever go to the Sheppard home, Miss Cowan?
- A Yes, sir.
- Q When did you first go there?
- A July 11th.
- Q Was there anyone there when you got there?
- A Yes, sir.
- Q And who was present, please?
- A Dr. Gerber and Sergeant Hubach and Patrolman Drenkhan of the Bay Village Police Department.
- Q And what did you do there on that day?
- A I tested certain blood stains -- or, certain stains that were to be tested for the presence of blood.
- Q When did you go there again after that, please?
- A On August 6th and on August 9th.
- Q And who was there on those occasions?
- A Men from the Scientific Unit of the Cleveland Police Department: Dombrowski, Roubal, Poelking.

THE COURT:

Did you say that

was August 6th?

THE WITNESS: August 6th and
August 9th.

THE COURT: And 9th?

THE WITNESS: Yes.

THE COURT: All right.

Q Now, Miss Cowan, will you state to the jury, please, what the leuchomalachite green test is, please?

A That is a color reaction to demonstrate the presence of blood.

Q And would you state to the jury, please, what the phenolphthalein test is, please?

A That is another color test for the presence of blood.

Q Now, did you use the leuchomalachite green test there at the Sheppard home at any time?

A Yes, sir, I did.

Q And on what day did you use that?

A On All three days that I was there.

Q Referring to the time that Detective Dombrowski was there, did you use that test there on that occasion?

A I did.

Q Where in that home did you first use that test?

A I used it first on the basement steps on August 6th when I was there.

Q Tell us what you saw there in the basement on August 6th?

- A. I saw the steps with stains with the physical appearance of blood.
- Q And you say you made an examination of these steps, did you?
- A On all of those stains I tested with both the leuchomalachite green and the phenolphthalein, at the same time testing an area nearby on each step where there was no stain.
- Q Now, as I understand it, then, you have at least three tests that you know of to determine the presence of blood over a suspected spot, the leuchomalachite green test, the phenolphthalein, and is there also a benzidine test?
- A Yes, sir.
- Q And you performed the first two that I have mentioned, is that correct?
- A Yes, sir. When I was there on the 11th I also performed the benzidine test on some of these spots.
- Q So at one time or another you performed all three of those tests at various places in that home, is that correct?
- A Yes, sir.
- Q Now, at the place where you performed the leuchomalachite green test there at the basement steps, did you also perform the phenolphthalein test at those same steps?
- A Yes, sir.
- Q Beginning with the leuchomalachite green test, will you tell us how you did that, please?
- A The leuchomalachite green is made up with a two to one

dilution of glacial acetic acid.

Q Is that pre-made or did you make it yourself?

A I made that there, sir.

Q There at the scene?

A Made fresh on the scene.

Q All right. Continue.

A I made the tests by taking a piece of clean white bibulous paper and wetting it with distilled water, applying it to the area and then pouring the reagent over it noticing whether or not the color developed at the site of extraction of the stain.

Q Yes.

A And then I took an area nearby which was unstained and did exactly the same thing, and when no color developed there, that was considered a negative, satisfactory negative control.

Q Now, will you state what happened after you first performed that leucomalachite green test over the suspected spot, what results did you get?

A At the suspected spot there would be a blue color develop.

Q Yes.

A And on the negative, or where there was no stain, there would be no color develop.

Q You say you performed the phenolphthalein test on the same steps, is that correct?

A. Yes, sir.

Q Now, you said something about controls. What is that, please?

A A control is done to show that the test is satisfactory, that it will not give false reactions. In other words, where there was no stain, had I got any color developing on the paper, I would have considered it unsatisfactory. Getting no such reaction, it was a satisfactory negative control.

Q And did you perform your control test on the same steps, Miss Cowan?

A Yes, sir.

Q In other words, assuming that here we would have one of the steps on which you would find a spot, and this being a spot here, you would make your leuchomalachite green test at that spot, is that correct?

A That is right.

Q And there you got a positive reaction for blood, is that correct?

A Yes.

Q And then on the same step, some distance away, you would perform the same test over a control area where you would get a negative reaction, is that correct?

A Yes, with the control being as close as suitable to the stain.

Q I see. Now, you say that you performed the phenolphthalein

test also?

A Yes, sir.

Q How did you do that?

A It was done in the same manner, that is, using the clean white bibulous paper dampened with the distilled water and applied to the stained area, and then applying the phenolphthalein reagent to it and noticing the color developing at the site of the extraction of the stain, the color being a pink development.

Q And about how many steps there of the basement did you get a positive reaction for blood using these two tests?

A I shall have to refer to my notes on that.

Q Yes, go right ahead, please.

A Your question was on how many steps, is that right?

Q Of the basement did you get a positive reaction to these two tests?

A On six steps.

Q Do you have a notation as to what steps those were, please?

A Yes, sir.

Q What will you want to start with, from the top or bottom?

A From the top.

Q All right. Always start from the top.

A Yes, always start from the top.

Q All right.

A On step number 1, one stain; on step number 3, two stains;

on step number 5, one stain; on step number 6, two stains; on step number 7, two stains, and step number 8, one stain.

Q Now, leaving the basement for a moment and going into the steps that lead to the second floor, you are familiar with that area, are you?

A Yes, sir.

Q You have three steps extending from the kitchen to a landing, is that correct?

A Yes, two treads, yes.

Q And then you have the similar number of treads from the living room leading to the same landing, is that correct?

A That's right.

Q Did you make an examination of those treads?

A On the kitchen area?

Q Yes.

A Yes, sir.

Q And what, if anything, did you find?

A I found positive reactions on the riser between the first step and the landing, and also on the edge of the metal strip on the edge of the tread number 1.

MR. CORRIGAN: Wait a minute.

I got the riser on the first landing. What was the next one?

MR. DANACEAU: Have the reporter read the answer.

(Answer read by the reporter.)

A (Continuing) And on the middle riser and on the riser between the kitchen floor and the bottom step.

Q And how many blood spots were there altogether that you found on those two steps leading to the first landing?

A On both steps leading to the first landing?

Q Yes, and the risers, all of that.

A On the riser between the first step and the landing there are three stains; on the riser between the first and second tread, three stains, and the tread which I mentioned, the edge of the tread; and in the riser between the kitchen floor and the second tread, five.

Q Now, did you examine the area leading from that landing to the second floor, Miss Cowan?

A Yes, sir.

Q And what, if anything, did you find?

A I found, in all, 26 stains on the stairway between the landing and the second floor.

Q In various places on that stairway, without going through all of them now, is that correct?

A Yes, sir.

Q And you performed what tests on this stairway?

A The leucomalachite green and the phenolphthalein reaction.

Q And did you also perform your control tests in these areas, also?

A Yes, sir.

Q Now, getting back to the basement stairs, did you make a test as to any of those spots on the basement stairs for human blood?

A Yes, sir.

Q On how many of the spots?

A On two.

Q Now, will you relate to the jury the steps that you took in performing this test, from the very beginning?

A Of doing the precipitant reaction for human blood?

Q Yes, that's right.

A I cut out a piece of the wood from the third tread in the basement step.

Q Now, when did you do that?

A On the 9th of August.

Q You cut that out yourself, did you?

A Yes, sir. And also from the same step, and very close to it, I cut out a second piece of wood.

Q And what was the purpose of that, please?

A As a control.

Q What did you do with the first piece of wood that you cut out with the blood spot on it?

A It was placed in an envelope and marked and sealed.

Q And what did you do with the second piece of wood?

A In the same manner, it was put in an envelope and sealed

and marked.

Q Were they put in the same envelope?

A No, sir.

Q Different envelopes?

A Yes.

Q Did you do the same thing in various other parts of the house?

A Yes, sir.

Q Did you do the same thing on any other parts of the basement stairs?

A No. A sample was taken from the sixth step but not in the same manner.

Q I see. Then what did you do on the sixth step?

A On the sixth step I placed some distilled water on apparent stain or a stain which had --

Q Now, how did you do that?

A It was taken from a clean dropper and a clean vial with distilled water, the clean dropper putting the water on the stain and allowing it to stand for five minutes, and then it was taken --

Q Now, did you permit this water to go over the entire stain, this distilled water?

A Yes, pretty much so.

Q All right. Then after you put the water, the distilled water, over the stain, with this dropper, what did you

next do on the sixth step there?

A Then it was taken back up in the same clean dropper and put into a very small test tube, sealed and put in an envelope, and marked and the envelope sealed.

Q Did you take any control from that step?

A Yes, in the same manner.

Q Over another part of the same step you used distilled water in the same way, is that correct?

A Yes, sir.

Q And you drew that distilled water up and put that into another tube, did you?

A Yes, sir, using a clean dropper on my control, different from the one I had used on the first.

Q You used different droppers for both of these procedures, is that correct?

A Yes, sir.

Q Did you do that in any other parts of the house?

A I took a chip from the kitchen stairway between the first tread and the landing and took a control chip, taking them in the same manner which I have outlined before and putting them in separate envelopes, sealing them and marking them, and I took a chip in the same manner from the riser between the first and second steps on the stairway to the second floor, and also took a control in the same manner, and put them in separate envelopes and marked and labelled them.

From the third tread I recovered an extract in the manner which I have described in the basement, using clean distilled water, a clean dropper for each one, for both the extract of the stain and for the control.

Q I see. Then, Miss Cowan, if I understand your testimony, at various places on the basement stairs and on the stairs leading to the second floor, you either took a chip of the suspected spot or, by using the saline solution --

A Distilled water.

Q -- or the distilled water solution, took up a portion of that suspected spot, as you have described, isn't that correct?

A Yes, sir.

Q Using both methods?

A Yes, sir.

Q All right. Then what did you do with these things after you had them all gathered?

A I took them back to the laboratory and did the precipitant reaction for human blood. This is done by placing the anti-human serum in a tube and then layering on top of it --

Q Now, before we get to that will you describe to the jury what anti-human serum is, please?

A Anti-human serum is prepared by injecting an animal, usually rabbits, with O type human blood.

Q O type human blood?

A Yes. Some specific anti-bodies are not formed in the A and B group.

Q Yes.

A And then after the animal has been stimulated to create the anti-body, the anti-human body in its serum, then the animal is bled and the serum taken for testing purposes.

Q Now, where did you get your serum to perform this experiment?

A Actually, in using -- in doing the tests I had serum from three different sources.

Q Now, what were the sources from which you got your anti-human serum?

A Highland Laboratories.

Q Where are they located?

A In California.

Q Yes.

A Wiener Serum Laboratories of New York and Michigan State Health Laboratories, Lansing, Michigan, East Lansing.

Q And have you used these sources before this time to procure your serum?

A Yes, sir.

Q Now, then, you got back to the laboratory with these various things that you have described, isn't that correct?

A Yes.

Q With these test tubes and with these small pieces of wood

with the suspected spot on them, is that correct?

A Yes, sir.

Q Now, when you got to the laboratory, as you were about to perform any one of these tests, beginning with the serum that you had taken up over the suspected spot, what did you do with that?

A The extract from the suspected spot?

Q Yes.

A Nothing further was done with them until I was going to apply to it anti-human serum for testing purposes. The paintchips had to be soaked in distilled water to extract the stain.

Q Now, when did you perform the first test in that respect?

A I performed the first test on August 10th.

Q Now, when you returned these --

A Using just the extracts.

Q -- these extracts to the laboratory at the Coroner's office, where did you put them until you were able to use them?

A They were put in a locked cabinet in the refrigerator on the second floor.

Q Then it came to the point where you were about to perform your experiment, is that correct?

A Yes, sir.

Q Then you took this extract, and what did you do?

A The anti-human serum was prepared and placed in the test

tubes, and then the extract of the stain was layered on top of it so that there would be a line, a junction line between the two fluids. At the end of five minutes, where there was human blood from these steps, there was a white line shown.

Q And did you find that white line in any of your experiments?

A Yes, sir, on the extract from tread 3 and the extract from the sixth step in the basement. The paint chips I did at another date.

Q All right. First, let's confine ourselves to the extract.

Now, this experiment you performed as to the basement steps, that was from an extract that you had taken or was that from a chip that you had taken?

A The extract.

Q The extract. Now, you performed the precipitant test with that extract using the anti-human serum, is that correct?

A Yes, sir.

Q And what was the result of your test in regard to that extract, please?

A It was positive for human blood.

Q Now, how many portions of extract did you have with which you made a test, a precipitant test, that is, other than the spot that you had received from the basement?

A I don't think I understand you.

Q Well, let me put it this way: You had this extract taken

from the third step in the basement, isn't that correct?

A That's the paint chip -- or, the wood chip from the third step in the basement.

Q Did you have any extract?

A The extract I prepared from that at a later date.

Q I see. Well, how did you do that?

A That was by placing it in distilled water and allowing it to stand overnight, and then taking off the supernatant fluid in the morning and applying the test.

Q I see. So then in making the precipitant test, you would have the extract that you would directly remove from the spot, or you would have the extract that you would receive from permitting a piece of wood to remain in the test tube with the saline solution overnight; is that correct?

MR. GARMONE:

Object to the

question as to its form.

Q Is that correct, Miss Cowan?

THE COURT:

Objection overruled.

MR. GARMONE:

Exception.

A Yes, sir.

Q Now, did you make a precipitant test for more than one spot in that home?

A Yes, sir, the steps which I have mentioned.

Q Now, you have stated that you got a positive reaction for blood in one of the spots in the basement in this precipitant

test, is that right?

A Yes, sir.

Q For human blood, is that correct?

A Yes, sir.

Q Now, in how many other spots, if any, did you receive a positive reaction from a precipitant test that you made?

A All of those that were taken from the stairs from the suspected stains; none on the controls taken from the same stairs.

Q And will you describe again, please, where these spots were that gave a positive reaction for human blood?

A The riser between the first and second tread; the third tread on the stairway between the first and second floor; on the riser between the first step and the landing on the kitchen stairs; the third step on the basement stairs and the sixth step on the basement stairs.

tke 22
mg

Q Now, did you make a control test for all of the areas where you got a positive for human blood?

A For each one, yes, sir.

Q And how did you do that?

A The control -- the test was run in this manner:

There was the control, which I have described, which was taken from the step itself, the stain; a control using distilled water; a positive control using human blood diluted one in 2500; and dog blood, and also using normal rabbit serum, that is, serum from rabbits which had not been injected with human blood. The normal rabbit serum, plus extract of the stain, normal rabbit serum, plus the extract of the control, normal rabbit serum plus human blood, and normal rabbit serum plus dog blood.

Q And what were the results in these control tests that you made?

A The controls -- the human blood with a positive control gave a positive reaction. The negative controls or controls on the materials used, the distilled water, were negative.

All reactions with the normal rabbit serum were negative, and both the anti-human serum and the normal rabbit serum with the diluted dog blood were negative.

Q Did you test your anti-human serum in any way?

A The anti-human serum was tested with dog blood, and also diluted in various dilutions of human blood to determine its potency.

Q And what did you discover?

A I discovered that it would detect human blood in a dilution of one to 8,000, and in no dilution did it give a positive reaction with the dog blood.

MR. PARRINO: I am going to go into something altogether different at this time, if the Court please.

THE COURT: It is close enough, but you are not overlooking the fact that that clock is still fast, are you?

Ladies and gentlemen of the jury, we will now be adjourned until 9:15 tomorrow morning.

In the meantime please do not discuss this case.

Without any formality at all, we will be adjourned.

- - -

(Thereupon at 4:25 o'clock p.m. an adjournment was taken to 9:15 o'clock a.m., Tuesday, November 30, 1954, at which time the following proceedings were had):

tke 1
mg

Tuesday Morning Session, November 30, 1954.
9:15 o'clock p.m.

Thereupon MARY COWAN resumed the stand
and was examined and testified further, as
follows:

DIRECT EXAMINATION (CONTINUED)

By Mr. Parrino:

Q Now, Miss Cowan, are you familiar with the benzidine test?

A Yes, sir.

Q Would you describe in a general way the manner in which
a benzidine test is performed?

A The technique of the performance of the test as I do it?

Q Yes.

A The stain, in the case we are speaking of, for instance,
in dried stains on wood, or such, are absorbed onto clean,
white blotting paper which has been dampened with distilled
water, and the stain allowed to absorb onto the paper,
and the paper is removed and held over a glass dish, and
the benzidine reagent poured over the paper.

Q Can that be absorbed by means of a cotton swab, Miss Cowan?

A Yes, sir. It may be done that way, too.

Q And after you absorb the solution then what do you do?

A You apply the reagent. As I use it, I use benzidine and
sodium perborate carefully weighed out and put in capsules.

and then the contents of the capsule dissolved in glacial acetic acid, 10 cc's, and the reagent then is poured over this paper and a color reaction, a blue color indicates the presence of blood.

Q And where you do not have the mixture that you refer to, and you pour a reagent over the cotton swab or the absorbed stain, you pour benzidine over that swab or the blotting paper?

A Yes, sir, it may be done either way.

Q And then after that you pour the hydrogen peroxide over that, is that correct?

A In the reagent that I prepare with the benzidine and sodium perborate on it together in the capsule, it is not necessary to use the hydrogen peroxide.

Q And why is that?

A Because the perborate acts as a slow oxidizing agent.

Q In other words, in preparing your solution you add the perborate -- you say?

A Yes, sir.

Q Which would be the same as the hydrogen peroxide before you begin to perform the test, is that correct?

A That's right.

Q And do you do the same thing in making the leuchomalachite green test?

A Yes, sir.

Q And how do you prepare that solution?

A That again, the leucomalachite green and sodium perborate are weighed out into capsules, and immediately before the test, the contents of the capsule are dissolved in 10 milliliters of glacial acetic acid diluted with water two to one.

NS
MAG
2

Q Now, as I understand it, Miss Cowan, there are certain substances that will give a positive reaction to the benzidine test as will blood, is that correct?

A Yes, sir.

Q Now, are there also certain substances that will give a positive reaction in the leuchomalachite green test as will blood?

A Yes, sir.

Q And will you describe what some of those substances are and how the reaction occurs in point of time?

A Some fresh vegetables, however in the dried stage, they do not give the reaction. The reaction with leuchomalachite green is weaker and slower in appearing than is in the case of the benzidine. However, in both instances it is possible for an experienced person to recognize the difference.

Q I see. And have you had previous experience in using both the benzidine and the leuchomalachite green before this occasion?

A I have.

Q For a period of years?

A Yes, sir.

Q Now, how does the phenolphthalin react in this respect?

A Some authorities state that phenolphthalin is specific for blood. I think, again, this is true when one has had experience in interpreting the test. There is nothing else

that will give the reaction in the same manner, in the same time and the same intensity of color, with the exception, as stated, of some chemicals.

Q Then in so far as the vegetables in a fresh state is concerned, would they give a positive reaction in the phenolphthalin as with the benzidine?

A No, sir.

Q So far as your experience is concerned?

A No, sir.

Q And then you have stated you used benzidine, phenolphthalin and the leuchomalachite green, is that correct?

A Yes, sir.

Q In various places.

Now, coming again to the various places where you found these spots, beginning with the basement stairs, can you tell us the exact locations from where you returned or retrieved the solution or the paint chip or the wood chip from which you got a positive reaction for blood?

MR. GARMONE: Objection. This is repetition of the testimony that was submitted yesterday by the witness.

MR. PARRINO: I do not believe that I asked her for the exact location. We have got the step in the evidence, but she is

going to give us the dimensions, if you want them. If you don't want them, fine.

THE COURT: She may state the location if the premise is correct.

A May I refer to my notes on that?

Q Yes.

MR. GARMONE: Your Honor, while the witness has her notes out, she made reference yesterday to two of the notes that she testified from. May I have a look at those? The two that you referred to yesterday.

MR. PARRINO: If you can remember which ones they are.

THE COURT: Can you wait a little while and we will keep that in mind so that we don't break into this at the moment?

MR. GARMONE: All right, I'll be glad to.

MR. PARRINO: We have no objection to that, your Honor, at any time.

THE COURT: All right. We will do it a little later.

A The steps are all numbered from the top to the bottom. The source of the specimen taken from the riser between the first and second tread of the stairway between the

first and second floor was at 15 1/2 inches from the baseboard at the east wall and 4 inches up from the tread of the second step.

Q What was the nature of that specimen, please? Was that a wood chip or a paint chip or an extract?

A That was a paint chip.

Q All right. Continue, please.

A The size of the paint chip was 3/16 by 1/4 of an inch.

Q Do you have that paint chip with you here, by the way?

A Yes, sir.

Q Will you get it out, please?

A Yes, sir.

MR. PARRINO: Will you mark
this, please?

(State's Exhibit 82,
being a paint chip, was
marked for identification.)

MR. GARMONE: You better open
this, Miss Cowan.

Q Will you continue, then, with your description?

A You want the next extract taken from tread 3?

Q Yes. The exact position of it, first, please.

A The stain was located 6 inches from the baseboard at the east wall and 2 3/4 inches from the outer edge of the tread, and that was removed by extract.

The next stain is from the riser between the first

tread and landing, 3 inches from the board at the north and 3 inches up from the tread.

Q Was that a wood chip or an extract?

A That was a paint chip.

Q May I have that?

A Yes, sir.

(State's Exhibit 83, being a paint chip, was marked for identification.)

4648

STATE'S
84

intro.



3045

tke 3
g

Q What is the next one, please?

A The basement stairs, the third step from the top at 18-1/4 inches from the east edge and 4-1/2 inches from the outer edge.

Q Is that a chip or an extract?

A That is a wood chip.

Q Do you have that with you?

A Yes.

THE COURT: Will you state
the number of each, Mr. Parrino, as we come
to them so we will know which is which?

MR. PARRINO: Mark this State's
Exhibit 84.

(State's Exhibit 84, being
an envelope containing
wood chip, was marked
for identification.)

Q Would you state the next one, please?

A The next one is the extract from tread No. 6 of the basement stairs, 12-1/2 inches from the east edge and 4-1/2 from the outer edge of the step.

Q Now, showing you what is marked for identification here as State's Exhibit 84, what is this, please?

A That is the paint chip -- or -- that is the wood chip from which the blood stain was extracted for the precipitant test.

Q Whose writing is that on the envelope, please?

A Mine, sir.

Q And when did you put that writing on the envelope?

A On August the 9th when I took the specimen, at the same time I took the specimen.

Q Showing you what is marked for identification as State's Exhibit 82, what is that, please?

A That is the stain -- or the paint chip from which the stain was extracted for the precipitant test, the paint chip from the riser between treads 1 and 2.

Q And whose writing is that on the envelope, please?

A It is mine.

Q When did you place that writing on there?

A The pen was put on August 9th, and the additional pencil writing was put on when I did the test itself.

Q Showing you what is marked for identification as State's Exhibit 83, what is that, please?

A That is the paint chip from which I extracted the stain for the precipitant test, the paint chip taken from the riser between the first step to the landing.

Q And there is certain writing on that envelope also.

A Yes, sir.

Q Is that your handwriting?

A It is.

Q And when did you place that writing on there, please?

A The first three lines were placed on August 9th, and the others the day that I did the test.

MR. PARRINO: At this time,
your Honor, I want to offer State's Exhibits
82, 83 and 84.

MR. GARMONE: No objection.

THE COURT: They will be received.

(State's Exhibits 82, 83
and 84 were offered and
received in evidence.)

Q Now, Miss Cowan, referring to the paint chip and wood chip
that you removed from those steps, how did you do that?

A Each one was cut out with a clean, new razor blade, using
a different razor blade for each stain, and immediately
placed in the paper and sealed in an envelope.

Q Now, I think you stated also yesterday that you were at
the home of Dr. Sam Sheppard on July the 11th, is that
correct?

A Yes, sir.

Q And what time of the day was it that you were there?

A About 4:15 in the afternoon I arrived.

Q What did you do there that day, please?

A I tested certain stains to determine whether or not there
might be blood present.

Q And would you describe to the Court and jury what stains

4651

STREAK
OF
BLOOD
ON LOCK
INSIDE
DOOR

8408
3048

you tested, and by what means you tested them?

A There was a stain under the screen door leading off of the screened porch which gave -- may I check my notes on that?

Q Yes.

A That was a positive benzidine test. Then there were five thin, brown stains in front of the door leading from the porch into the living room, and those gave a positive benzidine and positive leuchomalachite green test.

Q Now, exactly where were those spots, please?

A They were in front of the door. I have no measurements on those, sir.

Q On the porch?

A On the porch.

There was a small streak stain on the lock, the receiver ~~for~~ the bolt of the lock of the door leading from the living room out onto the porch.

Q That would be on the north door?

A Yes, sir.

Q All right.

A Which was tested with benzidine and failed to give a positive reaction.

Q Now, exactly where was this spot?

A It was at the top of the receiver for the bolt lock for the door.

Q Is that what we refer to as a night chain, that contraption to lock the door? Is that what you refer to that as, please?

A I believe so.

Q Now, was this spot in the vicinity of the chain itself or the bolt that was permanently attached to the door?

A That permanently attached to the door.

Q To the door jamb?

A To the door jamb, yes.

Q And where was this spot in relation to that permanent bolt?

A It was on top.

Q Above it?

A On the metal itself.

Q And what kind of a test did you make on that?

A Distilled water was applied with a dropper and allowed to stand, and then was taken up with the dropper and the benzidine test applied, and it was negative.

Q What else did you do there that day?

A There was a brown, streak stain to the left of the door at the west end of the living room, which was also tested with benzidine by applying the clean, wet bibulous paper to the stain, and testing the paper, and it was negative with benzidine.

4653

USED
A
CONTROL
TESTING
ALL
STAINS

3052

Q Did you do anything further there that day, Miss Cowan?

A I also tested with benzidine and with leuchomalachite green, spots on the kitchen stairway on the riser between the first tread and the landing, and on the edge of the metal strip of the first tread, with benzidine and leuchomalachite green, and got a positive reaction.

Two stains on the third and fourth step from the bottom in the basement were tested with leuchomalachite green and gave positive reactions.

I would like to call attention to the fact that each time I did these tests, I did a control in a nearby area to the stain, using the same method, and applying -- where I got a positive, I did the negative control in the area applying the benzidine and leuchomalachite green, and got a negative reaction.

Q Did you do anything further on the 11th?

A I recovered a red, frayed fiber from underneath the desk in the den at the bottom edge of the righthand side of the desk.

Q What did you do with that?

A I took it back and examined it at the laboratory.

Q What did your examination disclose, if anything?

A Merely confirm that it was a red fiber, apparently mercerized cotton, and the presence of one animal hair, apparently dog hair.

Q

Do you recall anything further that you did?

A

No, sir.

NS
AG
K 4

Q Now, as to any of these spots that you discovered either on the 11th or on the following days in August when you were at that home, did you attempt to type any of those?

A No, sir. The quantity was insufficient to assure satisfactory typing.

Q Now, on the landing, as you go up the two or three steps leading to the first landing from the kitchen and the living room, was there some object on the floor there, some rug?

A On the landing at the foot of the steps down from the second floor, there was a round rug, yes.

Q Did you do anything with relation to that rug?

A Yes. I tested two spots on that.

Q And what did you find?

A I got positive leucomalachite green and positive phenolphthalin reactions.

Q Now, the leucomalachite green, the phenolphthalin and the benzidine tests are merely tests to determine the presence or absence of blood, is that correct, or some other substance that might give a similar reaction, is that correct?

A Yes, sir.

Q Those tests do not give you any information as to the presence of human blood, is that a fact?

A That is a fact.

4652

M's
BLOOD
TYPE
—

3053

Q Did you do anything else with that rug?

A I tried to extract some of the stain to perform a precipitant test, but I was unable to extract enough of the stain to give a satisfactory test.

Q Now, at a later time in the month of August or at any time -- withdraw that.

At a later time, did you receive a sample of Marilyn Sheppard's blood from Dr. Adelson?

A Yes, sir, I did.

Q And when was that, please?

A At 11:20 on the 5th of July.

Q And did you type that blood?

A Yes, sir, I did.

Q And what was the result of your experiments?

A The typing was type O blood. It was later determined that the type was OM.

Q Yes. And what does the M mean, please?

A M is another factor, another system of typing, that is, people have more than just the AB factor in their blood. They may have M or N or a combination.

Q As I understand it, Miss Cowan, there are a great variety of types of blood, is that correct?

A Yes, sir.

Q Many variations?

A Yes, sir.

4557

Q. Now, Miss Cowan, showing you what is marked for identification as State's Exhibit No. 26, will you look at this object, please, and tell us if you have ever seen that before?

A Yes, sir, I have.

Q And where did you first see that?

A I first saw that at the Coroner's office on the 5th of July.

Q And what, if anything, did you do with this bag at the time that you saw it or at a later time?

A At a later time I examined it for blood.

Q And how did you do that?

A By cutting out a piece and soaking it in distilled water and testing it with leuchomalachite green and phenolphthalin, I believe. May I check that, please?

Q Yes.

A With benzidine and phenolphthalin.

Q And when did you do that, please?

A The test was performed on July 13th.

Q And what were the results of your test?

A Negative; no indication of blood.

Q Now, did you examine the interior and the exterior of this bag, Miss Cowan?

A Yes, sir.

Q In what way did you examine the interior of the bag?

A By stereo-microscopic examination.

Q And did you examine it thoroughly?

A I believe so.

Q And what, if anything, did you find?

A I found nothing of -- I found nothing.

Q Did you find any stains on the interior of the bag?

A No fresh stain.

Q Any blood stains on the interior of the bag?

A No, sir.

Q Nor on the exterior?

A No, sir.

Q Showing you what is marked for identification as State's Exhibit 26-A, would you look at that watch, please, and tell us if you have seen that before?

A Yes, sir, I have.

Q And where and when did you first see that?

A At the Coroner's office, July 5th.

Q And at a later time, did you make an examination of this watch?

A Yes, sir, I did, on July 5th and on later dates.

Q Now, what did you do on July 5th with reference to this watch?

A When I first received it, it was wrapped in cleansing tissue, and I took it to the lab and examined it under the stereo-microscope with oblique lighting to determine whether or not there was any indication of fingerprints.

4659

3056

MOISTURE
UNDER
WATCH
CRYSTAL

SHOULDVE
DRIED BY
NOW W/
SAM'S STORY

Q And did you find any indications of fingerprints on this watch?

A No, sir.

Q And what parts of the watch did you examine?

A Principally the back and the bracelet itself.

Q Did you examine the face of the watch?

A Yes, sir, I examined the face of the watch.

Q Now, would you describe the appearance of the watch when you first saw it?

A There were blood crusts on the watch itself, blood into the crevices and on the wrist band.

Q And did you observe the area underneath the crystal of the watch?

A Yes, sir.

Q And what, if anything, did you see there?

A I saw a droplet of moisture.

Q Underneath the crystal?

A Yes, sir.

Q Now, you say that you placed this watch under the stereoscopic microscope, is that correct?

A Yes, sir.

Q Now, will you please, so that we may understand it, describe to the jury exactly what is a stereoscopic microscope?

A A stereoscopic microscope is one with the lens so arranged that one gets a three-dimensional image, or, rather, one

looks at it and sees the object in three dimensions, with --

Q Now, -- I'm sorry.

A -- with magnifications of 10 power, 10 times, 30 times and 60 times.

Q And how did you place this watch under that microscope?

A As I said, when I received it it was folded in cleansing tissue. I laid the packet on the microscope stage and opened up the Kleenex. Then with forceps I turned it as I wanted to look at different surfaces.

Q And did you, while you were looking at this watch through the microscope, did you take the watch into your hands at any time?

A No, sir, not at that time.

Q How did you manipulate it?

A With forceps.

Q Now, as you made your examination of this watch under the stereoscopic microscope, did you see any fingerprint ridges on it?

A No, sir.

Q At any point?

A No, sir.

Q Now, showing you what is marked for identification as State's Exhibit 26-B, have you ever seen that before?

A Yes, sir.

Q And what is that, please?

- A That is a ring which was also shown to me at the Coroner's office on July 5th.
- Q And what, if anything, did you do with this ring on the 5th?
- A That also was wrapped in cleansing tissue, and in the same manner it was examined under the stereo-microscope.
- Q And did you find any fingerprint ridges on that, please?
- A No, sir.
- Q Showing you what is marked for identification as State's Exhibit 26-C, will you look at that, please, and tell us if you recognize that?
- A Yes, sir.
- Q And what is that, please?
- A That is a key chain and keys and charms and knife shown to me at the Coroner's office on July 5th.
- Q And what did you do with that on the 5th?
- A That was examined in the same manner under the stereoscopic microscope.

tke 5
mg

Q And did you find any fingerprint ridges on any of the items here in this exhibit?

A No, sir.

Q Now, Miss Cowan, referring again to State's Exhibit 26-A, the watch, you say that you found certain blood on that watch -- withdraw that.

You saw a red substance on that watch, is that correct?

A Yes, sir.

Q And did you make an examination of that substance?

A Yes, sir.

Q And what type of an examination did you make?

A It was tested with benzidine, phenolphthalin and leuchomalachite green, that is, portions of the stains were removed and tested -- portions of the stain was removed and tested for the presence of human blood with a precipitant reaction, and portions of the stain were removed and tested with type anti M and anti N serum to determine the blood group.

Q Now, did you remove the samples of blood from the watch, State's Exhibit 26-A, before or after you had the watch under the stereoscopic microscope?

A After.

Q Now, will you tell the jury, please, how you removed these stains from that watch?

A ✓ The blood crusted on was removed by a clean, sterile little spatula that I use for such work.

Q ✓ These stains were dry at that time, I take it?

A ✓ Oh, yes, sir, they were dry when I saw them.

Q ✓ And what did you do with those stains then?

A ✓ This is over various stages. The first step was taking some of the dry crust itself and applying it to the wet, bibulous paper and the benzidine test applied. Then on another occasion --

Q ✓ Now, I take it you performed these tests on different days?

A Yes, sir.

Q ✓ You could not perform them all on one day, is that correct?

A ✓ That's right.

Q ✓ Or you did not perform them all on one day, is that a fact?

A ✓ That's right.

At another time the crust was removed and placed in 15 drops of distilled water and the precipitant test performed, and on the remainder, the test for blood, the leuchomalachite green and phenolphthalin and benzidine tests were performed.

2 Q ✓ What was the result of your first test, the benzidine test?

A It was positive.

Q ✓ And what was the result of the leuchomalachite green test?

A Positive.

Q ✓ And what was the result of your precipitant test?

A ✓ It was positive for human blood.

Q ✓ Now, did you attempt to type that blood, Miss Cowan, that was found on the watch?

A ✓ I attempted a crust typing with the OAB group, and it was inconclusive. Then it was typed with the anti M and anti N serum to determine the M factor, and the M factor was found to be present.

Q ✓ And I think you have previously stated that the M factor was found to be present in Marilyn Sheppard's blood, is that correct?

A ✓ That's right.

Q ✓ Now, showing you what is marked for identification as State's Exhibit No. 35, have you seen that before, Miss Cowan?

A ✓ Yes.

Q ✓ And what is that, please?

A ✓ That is a watch submitted to me by Dr. Gerber on the 6th of July at 10:50 in the morning, reputed to be the property of Marilyn Sheppard.

Q ✓ And what did you do with that watch, if anything, when you observed it? Excuse me a moment, please.

As I understand it, Miss Cowan, this^{is}/State's Exhibit. No. 35 is the photo of this watch, so we are referring now to State's Exhibit No. 19. What did you do with this watch after you received it?

A ✓ This was examined under the microscope and the crusted stains observed.

Q ✓ Did you examine it under the stereoscopic microscope?

A Yes, sir.

Q And did you observe any fingerprint ridges on that watch at any point?

A No, sir, I saw none.

Q ✓ What, if anything, did you observe on that watch?

A ✓ I saw crusted blood on the watch and the bracelet.

Q ✓ And, of course, that was crusted and dry, you say?

A ✓ Yes, sir.

Q And what did you do with that at a later time?

A ✓ That was tested with benzidine, and the blood typing -- again I tried the crusted stain with the OAB group, and the results were similar to the results on the other watch, but were inconclusive.

The typing with the anti M and anti N sera demonstrated the presence of the M factor.

Q ✓ Did you make a precipitant test on the crust that you took from this watch?

A ✓ No, sir. The M factor is present only in human blood.

Q Now, showing you what is marked for identification as State's Exhibit No. 25, have you seen that before, Miss Cowan?

A Yes, sir.

4666

3063

LEFT
PANT
LEG
STAIN

TYPE
O

Q Where did you see that for the first time?

A At the Coroner's office on July 5th.

Q And from whom did you receive it?

A From Dr. Gerber.

Q Did you make an examination of it at that time?

A On July 5th?

Q Yes.

A Only a visual examination on July 5th.

Q And describe to the jury what you saw visually on July 5th.

A I saw this stain on the left leg, which measures -- the entire stain was determined to measure six by six and one-quarter inches, with a central spot which was more concentrated. I noticed the rip over here at the end of the right pocket extending down about three and a half inches.

Q Now, did you do anything further relative to this stain here on the left pant leg at a later time?

A Yes, sir.

Q I see that there are certain material removed here from this left pant leg. Who did that, please?

A I did.

Q When did you do that?

A The date?

Q Yes.

A I will have to check on that.

Q All right.

A I think it is the 8th. On the 8th of July.

Q What was the purpose of removing these pieces of material?

A In this instance, it was removed to perform the precipitant test with a control area taken from this region.

Q And did you perform a precipitant test, then, with the material removed from the area in the vicinity of the left knee? Is that correct?

A Yes, sir.

Q And what did you find?

A It was positive for human blood.

Q Did you make any further tests with regard to that area?

A Yes, sir. The blood grouping by the absorption technique, that is, a section was cut out and placed in anti A and anti B sera in two separate tubes, again from the stain and from the control, allowed to stand over night and tested the next morning with known OA and B cells, to determine whether there had been any absorption of either the anti A or anti B substance. There being no antigen in the O blood, there was no absorption of the anti A or anti B substance, and that was the result of this test, no absorption, indicating that the blood could be group O.

Q Did you do anything further with these trousers?

A Examination of the whole -- the trousers for any other stains and examination of the pockets.

Q And did you see this stain here on the left pocket?

A Yes, sir.

Q And what, if anything, did you do relative to that stain?

A Nothing except examine it visually.

Q Showing you what is marked for identification as State's Exhibit No. 23, will you look at those gloves, please, and tell us if you have ever seen them before?

A Yes.

Q And when did you first see those gloves?

A 5 o'clock on July 5.

Q Where did you see them?

A Dr. Gerber brought them to my laboratory.

Q And did you make a visual examination of the gloves at that time?

A Yes, sir, and also tested some of the smaller stains with benzidine.

Q When did you perform those tests?

A That was done immediately upon receipt, also at the same time the other glove was tested. The tests with the benzidine from the smaller stains on the right glove were positive, and the stains from the left glove were negative.

Q And did you perform a precipitant test for any of the spots on the right glove?

A Yes, sir.

Q And what happened there, please?

A The precipitant test was positive with anti human serum. It was also checked using anti-beef and anti-horse serum, and was negative to the anti-beef and anti-horse.

Control areas were taken from an unstained area and were negative in all cases.

Q Did you attempt to type the blood on this right glove?

A Yes, sir.

Q What happened with regard to that?

A The typing was unsatisfactory.

Q And as to the left glove, did you make an examination of the left glove of this exhibit?

A Just the benzidine reaction.

Q And what, if anything, did you find?

A The benzidine reaction was negative.

Q Did you test these red spots on the left glove?

A Yes, sir.

Q And with the benzidine reaction?

A Yes, sir.

Q And those were negative, you say?

A That's right.

Q Now, you have stated that in making the precipitant test of the right glove, that you got a positive reaction.

A With the anti human serum.

Q That would be a positive reaction for what, please?

A Human blood.

NS
MAG
K 6

- Q Showing you what is marked for identification as State's Exhibit No. 24, have you ever seen those gloves before?
- A Yes, sir. They were presented to me at the same time as the other gloves.
- Q And did you examine them?
- A Visually, yes, sir.
- Q And did you find anything unusual about them in your examination?
- A I found nothing suspicious.
- Q Showing you what is marked for identification as State's Exhibit No. 44, will you look at that, please, and tell us if you recognize that?
- A Yes, sir.
- Q And what is that, please?
- A That is a piece of brown leather that was handed over to me by Dr. Gerber on the morning of July 7th, I believe.
- Q And did you examine this piece of leather?
- A Yes, sir. I examined that under the stereo-microscope and compared it with other leather items or items which had leather on them which were submitted to me.
- Q And what, if anything, did you find?
- A I found no piece of leather which matched this in anything submitted to me.
- Q Now, did you make a chemical test with this piece of leather at any time?

A. No, sir, because evidence of this type has its greatest value --

MR. CORRIGAN: I object.

MR. GARMONE: Object to this,
if the Court please. She has answered the
question.

Q You say you did not make a chemical test, is that correct?

A No.

Q Now, will you tell us why you did not make a chemical test?

MR. GARMONE: Objection.

MR. CORRIGAN: Object.

THE COURT: Well, she may say
why.

A Because evidence of this type has its greatest value in
being able to fit it directly into a defect, if found, in
the same manner that is ordinarily done with paint chips
and hit-run cars, and that sort of thing. So, therefore,
we do not destroy this type of evidence.

Q What is the size of that piece of leather, please?

A I do not have those measurements. That, I believe, is in
the card that Dr. Gerber brought down here from my file.

Q Were you able to connect this piece of leather up with
anything in this case?

A No, sir.

Q And showing you what is marked for identification as State's

Wasn't it 44 that

The leather fragment,

Q Now, referring to State's Exhibit 44 again, this piece of nail polish, looking at these other two cards, State's

Exhibit 42-A and 47, can you give us the dimensions of the nail polish when you first saw it?

A These are estimated dimensions in that the material was curved and could not be measured exactly. The estimated dimensions are $3/32$ of an inch at maximum width by about $1/4$ inch in length.

Q Now, referring again to State's Exhibit 43, a piece of leather, can you give us the dimensions of that, using those cards?

A About $5/8$ inch wide by $5/8$ inch at maximum length.

Q And were these cards prepared by you, Miss Cowan?

A Yes, sir.

Q Now, if you had submitted that piece of leather to a chemical examination or chemical test, would that have destroyed the leather?

A Yes, sir.

Q Or the use of it?

A Yes, sir.

MR. GARMONE: May we see the cards?

MR. PARRINO: Yes. They are in the evidence already.

MR. GARMONE: I know they are. I just want to see the cards is all.

MR. PARRINO: Yes.

4674

SHEET
WAS
TYPE
O

11-03

Q Showing you this sheet here, Miss Cowan, referred to as State's Exhibit No. 37, did you see the sheet before?

A Yes, sir.

Q And where did you first see that, please?

A At the Coroner's office on July 5th.

Q And what, if anything, did you do with the sheet at that time and at a later time?

A It was examined visually and a portion of it cut out and typing performed, and it was found to be type O blood.

Q And did you take any controls from this sheet, Miss Cowan?

A Yes, sir.

Q And what was the purpose of that, please?

A To demonstrate that there was nothing in the material itself that would give a false reaction in the blood grouping.

Q And did you make any other test of this sheet, examination?

A Well, visual examination for any staining outside of the blood-stained area.

Q And what, if anything, did you see?

A I found no significant thing.

Q Now, did I ask you what the blood typing was on the sheet?

A I stated it. It was a type O.

Q Did you compare this fingernail polish that we have just been talking about, State's Exhibit 44, I believe, with any other substance at any time?

A With the fragments, microscopic fragments of red material

found under some of the fingernails -- found in the fingernail scrapings from Marilyn Sheppard.

Q Now, from whom did you receive those fragments of the scrapings from her fingernails?

A From Dr. Adelson.

Q And when did you receive those?

A About 9:20 in the morning on July 5th.

Q Now, upon receiving those scrapings, what did you do with them?

A They were examined, first of all, in their original packets under the stereo-microscope, and then after thorough identification, fibers and hairs were removed and mounted on glass slides.

Q Now, will you describe to the jury what comparison you made and what conclusions you came to as a result of your comparison of the State's Exhibit 44 and the fingernail scrapings of Marilyn Sheppard?

A The red fragments from the fingernail scrapings appeared to be the same color as near as could be determined visually under the microscope as the color of the fingernail -- or polish submitted.

Q Would you describe generally the quantity of the material that you received of the fingernail scrapings from Dr. Adelson?

A It would have to be measured in thousandths of an inch.

They were microscopic fragments, could not be seen visually at all.

Q And were you able to make any chemical test with those fragments?

A No, sir.

Q And why not, please?

A The material was not -- there was not sufficient material and, again, had I done any microscopic tests, I would have destroyed the material itself.

Q Now, referring again to State's Exhibit No. 25, the trousers, did you examine the cuffs of those trousers, Miss Cowan?

A Yes, the cuffs were examined.

Q And what, if anything, did you discover?

A Nothing except sand. I recovered from the right trouser cuff about 300 milligrams of sand.

Q And was there sand anywhere else, either in the cuffs or on those trousers?

A Yes, sir; in the pockets.

Q And in what pockets?

A I believe in all of the pockets.

Q Do you have any notes on that?

A Yes, sir.

Q You can check them.

(Witness examines cards.)

A I find no mention of sand in the left side pocket, but

4677

2076 Marilyn's hair
found in Sam's
pockets.

there was in the --

Q In the other pockets?

A Other pockets.

Q I see. Now, did you find any other substances in any of those pockets?

A Yes, sir. I found hairs and fibers.

Q And did you make a comparison with that hair at any time?

A Yes, sir.

Q With what did you make a comparison?

A With the hairs received from the head of Marilyn Sheppard removed at autopsy.

Q And from whom did you receive that hair?

A From Dr. Adelson.

Q And from what pockets did you remove hair from State's Exhibit No. 25?

A From the left front and the right rear, or the left side pocket and the right rear.

Q Will you describe how much hair you removed?

A There were four hairs found in each -- four human hairs found in each pocket.

Q Now, you say you made a comparison of that hair with the hair given to you by Dr. Adelson, is that correct, the hair of Marilyn Sheppard?

A Yes, sir.

Q Will you describe what you discovered?

- A The hairs were similar and compatible with the hairs from the head of Marilyn Sheppard determined by scale count and diameter measurements, and also by color and amount of curl.
- Q Now, referring again to the statement you made a moment ago as to the fingernail scrapings, you stated that you found some fingernail polish in those fingernail scrapings, is that correct?
- A Yes, sir.
- Q Now, if you had submitted those fingernail scrapings to a chemical test, what would have happened?
- A The material itself would have been destroyed.
- Q And did you submit those scrapings to a microscopic examination, however?
- A Yes, sir.
- Q And that microscopic examination, of course, would not destroy the identity of that substance or material, would it?
- A No, sir.

MR. PARRINO:

You may inquire.

THE COURT:

Perhaps we better

have a few minutes' recess at this point, although it is a few minutes early, perhaps.

Miss Cowan, Mr. Garmone would like to see some notes that you had and which you used in connection with some testimony that

you gave yesterday. Would you be kind enough to let Mr. Garmone have those?

MR. PARRINO: We have no objection, your Honor.

THE COURT: Ladies and gentlemen of the jury, we will have a few minutes' recess at this point, and will you please be careful not to discuss this case?

(Recess taken at 10:30 o'clock, a.m.)

tke 7
mg

(After Recess, at 10:45 a.m.)

CROSS EXAMINATION OF MARY COWAN

By Mr. Corrigan:

Q Miss Cowan, referring to Exhibit 25, you received these pants, trousers -- you received these on the 5th of July, is that correct?

A Yes, sir.

Q And you made a thorough examination of them?

A Yes, sir.

Q The only blood spot that you found in that pants was this at the knee?

A No, sir. There was another area.

Q Where?

A Of apparent blood stain.

Q Yes.

A That has the appearance of blood on --

Q Did you test it?

A With benzidine.

Q Where do your records show that you tested it?

A I do not have that in my records, sir.

Q You do not have it in your record?

A No, sir.

Q You are testifying from your memory?

A Yes, sir.

4681

STAIN
ON
PANTS
ABOVE
KNEE

Q Well, then, the only thing that you have in your record, as a medical technologist of Cuyahoga County, is this spot that appears in what appears to be the vicinity of the knee, is that right?

A Yes, sir.

Q And nowhere else, correct?

A Yes, sir.

Q And you examined the belt?

A Yes, sir.

Q And there was no blood on the belt?

A No, sir.

Q You examined the shoes?

A Yes, sir.

Q And there was no blood on the shoes?

A No, sir.

Q You examined the socks?

A Yes, sir.

Q And there was no blood on the socks?

A No, sir.

Q Now, referring to State's Exhibit 23, a pair of canvas gloves -- I think I will take these apart -- one glove, I understand has nothing significant on it at all?

A That's right. The left one.

Q Which one is that, Miss Cowan?

A The left.

Q Left glove?

A Yes, sir.

Q And on the right glove you found some evidence of blood?

A Yes, sir, on the back of the glove.

Q On the back of the glove?

A That's right.

Q Is that where these holes are?

A Yes, sir.

Q I notice that there are two holes in the first finger.

Were those holes made by you?

A Yes, sir.

Q And were they tested?

A Yes, sir.

Q And did you find some evidence of blood in those two holes, or on the cloth where those holes appear now? Do your records show? Will you look at your records?

(Witness examines records.)

A It isn't necessary to take the time now, Mr. Corrigan. I remember that these -- the stains -- the stains were small type stains that I tested, and this stain is the one that I did the precipitant reaction on, and attempted to do the grouping on, and this area is the one which I used for a control on both the grouping test and the precipitant reactions.

Q Well, now, so we get it in the record correctly, let's dispose of the two holes in the first finger. Do your records show what you did about those two holes, or the cloth that was in those two holes?

A On that first -- the index finger?

Q Yes, the index finger.

(Witness examines records.)

A The stain from the back of the index finger is the one that was used in doing the precipitant reactions, using the anti-horse, anti-beef and anti-human sera.

Q And what did you discover in regard to that?

A I got a positive reaction for human blood and negative reaction with the horse -- anti-horse and anti-beef.

Q Now, this other lower hole, what did you find there?

A That is one that was taken for the benzidine. I do not have it described as to which one was taken, but it was -- this one was taken for the benzidine reaction.

Q That is the lower hole on the index finger?

A That's right.

NS
MAG
K 8

Q Now, then, how about the second finger, there are two holes there, one below the other?

A Yes. The one on the back, this one, was taken in different segments for the anti-human precipitant test, and the area over here was taken for control. Also from this same area I took portions of it and attempted to type the blood.

Q You couldn't type it?

A No, sir. It was inconclusive.

Q Now, on the front of the glove -- in fact, these gloves have some colors, for instance, on the right hand glove there is red stains, do you notice, Miss Cowan?

A Your left hand, sir.

Q Left hand. Thank you. You determined that was paint, I suppose?

A Yes, sir.

Q Now, on the right hand glove, on the front, there is a red stain. Did you determine what that was?

A I did not determine what it was, but it was negative for benzidine reaction.

Q That is, you got no reaction from it. It is apparent that the gloves have been used in doing some work, they are dirty. And the red stain that is in front is covered by a film of dirt, is it not?

A Yes, sir.

- Q And the red stain that is in front, you got no reaction at all when you used these tests?
- A That is right.
- Q Miss Cowan, you have been with the County doing this work for a period of some six years?
- A I have been doing this work, sir, for 15 1/2 years.
- Q But with the County you have been how long?
- A With the Coroner's office, for 15 1/2 years.
- Q Well, that's the County?
- A Yes, sir.
- Q You receive your pay from the County Treasurer?
- A Yes, sir.
- Q And have you discussed this case with anybody?
- A Yes, sir.
- Q Who have you discussed it with?
- A Generally with people at the -- Dr. Gerber and Dr. Adelson in regard to the work I was doing; with the Prosecutor's office, and to some extent with members of the Scientific Unit of the Cleveland Police Department.
- Q Would you sit back, please? When you talk into that, Miss Cowan, it muffles your voice.
- A I'm sorry.
- Q I think you would do better without it.

And in the Coroner's office you have the best of equipment?

A I think so.

Q And you have worked in this blood field for a great many years?

A Yes, sir.

Q So that you understand, you have a knowledge of blood?

A Certain aspects, yes, sir.

Q And as I understand it, you stated you have written some articles about blood?

A No, sir.

Q Well, I thought I understood you to say on direct examination in answer to Mr. Parrino that you had written some articles. Was I mistaken?

A Not about blood, sir.

Q Oh, about something else?

A Yes, sir.

Q What was that?

A Associated evidence --

Q What?

A Associated evidence as a means of identification in mass disasters.

Q That is, where you have a great number of people killed, the means of identifying the people that were killed, was that the subject?

A Generally, yes.

Q And you say it was published?

A Yes, sir.

Q And what magazine was it published in?

A Journal of Criminal Law, Criminology and Police Science.

Q And when was that published?

A I believe it's the September-October issue, 1953. I may be wrong on the issue.

Q That magazine or that publication, as I remember, is a publication of Northwestern University Law School?

A It was formerly, yes.

Q And it is now published by a Board of Editors of eminent criminologists and people that are interested in the development of police science?

A I believe that's right.

Q Do you subscribe to it?

A Yes, sir.

Q And it is an accepted authoritative magazine, as I understand?

A Authoritative, if you mean by that that everything in it can be accepted without question, I would have to say no. Worthwhile articles are included in it.

Q Well, it is governed by a Board of Directors of eminent people in the field of criminology?

A Yes, sir.

Q And it was to such a magazine that you made your contribution?

A Yes, sir.

Q And was that contribution written by you?

A Yes, sir.

Q Entirely?

A And co-authored by Dr. Gerber.

Q Both your names were signed to the article, were they not?

A Yes, sir.

Q And it hadn't anything to do with blood, but it had to do with this identification in the case of mass disaster?

A Yes, sir.

Q And am I right when I say that it grew out of some work that you did, you and Dr. Gerber did, in the Noronic disaster?

A The East Ohio and before that, sir.

Q East Ohio?

A And before the East Ohio.

Q There was a great many people killed in the East Ohio disaster?

A Yes, sir.

Q And a great many people killed in the Noronic disaster? That was the ship that sunk up in Toronto.

A I actually had nothing to do with that myself, sir.

Q Now, then, there are a number of tests for blood, Miss Cowan?

A Yes, sir.

Q And blood, when it is spilled, when it flows forth from the body, comes forth like water?

A It has a water content to it. I misunderstood your exact

wording there.

Q It is a watery -- we all understand it is a sort of a watery content and it is liquid?

A It is fluid.

Q Then, after it hit the surface of, say, for instance, these stairs that you examined, then a change takes place in it, doesn't it?

A It dries.

tke 9
mg

Q Well, do you understand the change that takes place in the blood after it is shed?

A I don't know as I can give you any chemical reaction or anything like that.

Q Well, do you understand that blood is made up of a number of constituent parts?

A Yes, sir.

Q Red corpuscles?

A Yes.

Q And fluid?

A (Witness nods affirmatively.)

Q And white corpuscles?

A (Witness nods affirmatively.)

Q Do you understand the function of blood plates?

A Of platelets.

Q Blood plates.

A Platelets.

Q P-l-a-t-e-s. Blood plates.

A I am not familiar with that expression, sir.

Q You are not familiar with that expression?

A No, sir.

Q Well, did you ever learn in your study of blood that when blood is loosened from the vein, that there is a substance in the blood known as blood plates?

A I have never heard that expression, sir. Platelets.

2

Q You have never heard it?

A Platelets, yes.

Q What?

A Platelets.

MR. PARRINO: Platelets.

Q Will you spell that for me?

A P-l-a-t-e-l-e-t-s.

Q And what happens to that substance when the blood is shed?

A In ordinary shedding of blood, the platelets are involved in the clotting process.

Q Do you know what happens to the platelets?

A It has been quite a while since I was -- since I have gone through that. I would have to --

Q You don't know. All right.

A Let's say I don't know that.

Q But, anyway, when the blood is shed, there is a new formation takes place in the blood, isn't there?

A The fibrin -- the clot formed, you mean?

Q Do you know how the clot forms?

A I don't know any more.

Q All right. Well, if I should refresh your recollection and say that the fibrogen in the blood produces prothrombin and the thrombin then units with the calcium and fibrin is formed, which unites with the corpuscles to form a clot, does that refresh your recollection?

- A That is a general statement. I think there are some other factors involved, and actually the -- there isn't a union with the clots --
- Q What I am trying to show, Miss Cowan, -- you are an expert, I am not.
- A That's why I can't explain it.
- Q I am just a lawyer. I just know what I read in books.
- A I read too many.
- Q There is a difference in a blood spot when it lands on a surface, almost immediately when it lands on a surface, a difference takes place or a change takes place from the constituency of the blood as it is flowing in the vein? That is correct, isn't it?
- A Yes. To what extent?
- Q Now, then, the serum in the blood, which is the fluid as apart from the corpuscles, gradually disappears, doesn't it? It separates from the blood?
- A It doesn't disappear, sir.
- Q What?
- A It doesn't disappear. You said serum?
- Q Yes, the sera.
- A It doesn't disappear.
- Q What becomes of it?
- A It may be absorbed into the material on which the stain is deposited.

Q Well, I am saying that when you get this blood spot you get a separation of the red blood corpuscle and the white blood corpuscle from the serum?

A No, sir, You don't get the same thing in a stain which is deposited that you get in blood in the test tube.

Q I am talking about the landing -- or about it landing on a surface. Wait till I get a picture here, which I think illustrates what I am talking about.

By the way, the serum in the blood has a distinct color when separated?

A It is clear.

Q It is clear. Sort of a yellow, isn't it?

A Yes. It may be.

Q As distinguished from that of the blood which contains the -- when you separate the corpuscles?

A Yes, sir.

Q Showing you, Miss Cowan, a picture that is in evidence, marked Exhibit O, and referring -- this was one of the spots you examined, I think, wasn't it?

A Well, I couldn't -- I judge this is the stairway?

Q Yes. This is the kitchen.

A I couldn't from that tell you which one, but it was -- this is the landing and this would be the first tread, then.

Q Now, there is a spot here, a spot here which I think has

4694

DEFENSE
CHALLENGES

DATE
WHEN
BLOOD
WAS
DROPPED

1000

been identified. This was a picture taken by Mr. Drenkhan on July 11th when you were there. Do you notice that in the spot that at the lower part of the spot there is a thickening and above that is a lighter space?

A Yes, sir.

Q That shows, does it not, separation of the red blood corpuscles from the serum?

A I'm not sure that it does, sir.

Q All right. But this is true, is it not, Miss Cowan, that the serum will separate itself from the red blood corpuscles?

A It will in the test tube, yes, sir, but in one droplet it is difficult to see such a separation.

Q Well, it is difficult to see it, but the action takes place? For instance, if I took a cup of blood, if I let it stand for a while, part of it would solidify into a jelly mass, wouldn't it?

A In the test tube, you are speaking of now?

Q And part of it would become liquid?

A Yes, sir.

Q Now, then, that liquid part is the serum?

A Yes, sir.

Q Now, when you examined these spots that you testified to, you could not tell how long they had been on the steps, could you?

A No, sir.

- Q There was no way of you determining whether they had been there prior to the 4th of July or after the 4th of July of this year?
- A No, sir.
- Q Now, the test that you subjected these spots to, did you make measurements of the spots on the cellar steps?
- A Yes, sir.
- Q Without going over it again, have you stated in your direct examination the size of the spots on the cellar steps?
- A I believe not, sir.
- Q Would you do that for me?
- A I may refer to my notes?
- Q Yes.
- A You said on the basement steps?
- Q On the basement steps. I think you said there were six, or something like that.
- A There are nine stains.
- Q What?
- A There are nine stains. I believe the question yesterday referred as to the number of steps on which there were stains.
- Q Well, now, will you just this so I can get it in the record and have it accurate? Take starting on the first step going down. Was there any stain on that step?
- A Yes.

Q Was there more than one stain on that step?

A One stain only.

Q And will you give the size of it?

A One-quarter inch in diameter, located nine inches from the east edge and five inches from the outer edge.

Q Now, let's go to the second step.

A No suspicious stains.

Q Then let us go to the third step.

A There are two stains on the third step. The dimensions: 3/16-inch in diameter, located 18-1/4 inches from the east edge and 4-1/2 inches from the outer edge, and one round stain a quarter-inch in diameter, 8-7/8 inches from the east edge and 4-1/2 inches from the outer edge.

Q Now, take the --

A No. 4.

Q 3?

A 4.

Q 4.

A No suspicious stains noted.

Q No. 5.

A No. 5: One stain, 3/16 of an inch in diameter, 16-3/4 inches from the east edge and 2-3/4 inches from the outer edge.

No. 6: Two stains, a quarter of an inch in diameter at 12-1/2 inches from the east edge and 4-1/2 from the outer edge of the step. A second stain, 1/8 of an inch

in diameter, 11-1/4 from the east wall and 5 inches up from the edge.

Step No. 9, two stains: One, 1/8 in diameter, 20-1/4 inches from the east and 6 inches from the outer edge, and one, 3/16 inches in diameter at 18-1/2 from the east edge and 4-3/4 from the outer edge.

And step 8, one stain, one-quarter-inch in diameter at 7-1/2 from the east edge and 1-1/4 from the outer edge.

Q Now, the stains on those steps were tested by you on July the 11th?

A Not all of them, sir.

Q Can you tell what was tested on July the 11th?

A On July the 11th --

Q I am talking about the basement steps.

A The basement steps. The stains on step 5 and 6.

NS
MAG
t 10

- Q And those were tested by this phenol --
- A On the 11th?
- Q Yes.
- A On the 11th they were tested with the leuchomalachite green.
- Q Did you take anything away to your laboratory on the 11th from those steps?
- A No, sir.
- Q You did not. The only testing that was done on that day was to discover whether you would get a reaction that would probably show blood?
- A Yes, sir.
- Q Now, you also testified that you made an examination of the steps going from the kitchen up to the landing?
- A Yes, sir.
- Q Did you make those on the 11th?
- A Yes. I made tests on the 11th, yes, sir.
- Q You made your examination on the 11th?
- A I made an examination on the 11th.
- Q And have you a record of those spots?
- A You want the measurement on those spots?
- Q Yes, I would like the measurement on those spots. You haven't given it before, have you? I am going from the kitchen up to the landing.
- A I have my memorandum numbered always from the top down, so this is measured from the landing to the kitchen floor.

Q I will change it, then, from the landing down to the kitchen floor.

A The first step, then, had three stains on the riser and one on the metal strip on the tread edge.

Q Would you give the measurements of those, please?

A Do you want the measurements where they were located or only as to size?

Q I didn't understand you, Miss Cowan.

A Only as to size or as to location?

Q Size, I think.

A Just the size?

Q You might as well give location, too, at the same time.

A This is on the riser between the first step and the landing, a brown stain measuring $1/8$ inch vertically and $3/8$ inch horizontally, 3 inches from the board at the north and 3 inches up from tread number 1.

A brown stain $1/8$ inch in diameter, 5 inches from the north, and this is the board at the north, by 6 inches up from the tread.

A brown stain $1/8$ inch in diameter, 9 inches from the north and 1 inch up from tread 1.

Step number 2: There are four stains on the riser between treads 1 and 2, none on the tread. On the riser, a brown stain $1/4$ inch long, 9 inches from the north edge by $6\frac{1}{2}$ inches up from tread 2.

A brown stain $\frac{3}{16}$ inch horizontally by $\frac{1}{4}$ inch vertically at $13 \frac{1}{2}$ inches from the north edge by $4 \frac{1}{2}$ inches up from tread 2. A brown streak vertically, measuring $\frac{3}{4}$ of an inch by $\frac{1}{32}$ of an inch in width at $5 \frac{1}{2}$ inches from the board at the north edge by $1 \frac{1}{2}$ inches up from tread 2.

I have on this card the measurement of a spot on the metal edge of tread 1 which is $2 \frac{1}{2}$ inches from the north on the upper third of the metal strip.

On the riser between the kitchen floor and tread 2, a brown stain $\frac{1}{8}$ inch in diameter and 8 inches from the north, $6 \frac{1}{2}$ inches up from the floor; a brown streak $\frac{1}{16}$ inch at $16 \frac{1}{2}$ inches by $2 \frac{1}{2}$ inches up from the floor; a brown streak $\frac{3}{4}$ of an inch long by $\frac{1}{16}$ of an inch wide at $13 \frac{1}{2}$ inches from the board at the north by $2 \frac{1}{2}$ inches from the floor; a brown circular stain $\frac{1}{8}$ inch in diameter on the carpet molding strip, 13 inches from the north end of the steps; a brown stain $\frac{3}{16}$ inch in diameter at the bottom $\frac{1}{4}$ of the metal strip on the edge of tread 2, 4 inches from the north edge.

Q Now, that completes your measurements on the basement steps and the kitchen steps?

A Yes, sir.

Q Now, did you measure any other blood spots on the 11th?

A These were not measured on the 11th, sir.

Q Oh, I thought they were.

A No, sir. I made no measurements on the 11th.

Q There were no measurements made on the 11th?

A That is right.

Q All right. I'll come to it, I'll get that date.

Now, did you make any other examination other than visual and the use of this malachite green test on the 11th?

A Some of the tests were performed with the benzidine reagent.

Q Did you make any examination in any other part of the house on that day, on the 11th?

A The ones that I mentioned on the stains on the porch.

Q You made those on the 11th?

A Yes, sir. And the lock on the door, the two doors were examined.

Q The locked door you got no results, you saw something there but without result.

And then out on the porch, you stated that you found out there that attracted your attention?

A Yes, sir.

Q And that was just at the threshold of the door that leads out onto the porch?

A On the porch floor immediately in front of the threshold.

Q Yes. How far in front, do you recall?

A No, sir, I do not.

Q Does your record show?

A No, sir.

Q But what did you find there?

A There were five stains in a semi-circular pattern.

Q Did you measure those?

A No, sir.

Q Did you ever measure them?

A No, sir.

Q I see. Now, then, on the 11th -- well, before I go to the 11th, there is question I have in mind.

Did you examine any other part of the house on the 11th for the purpose of determining whether you could see stains?

A Visual examination?

Q No. You could see them, but I mean an examination by which you determined something that indicated to you that that spot might be blood?

A No further chemical examinations.

Q I see. So, if I have it correctly, on the 11th, outside of looking around the house, you found on the cellar steps stains, on the kitchen steps, that is, going down from the landing to the kitchen, stains, and you found some stains on the porch. Now, does that accurately state what you found on that day?

A Yes.

Q Now, did you submit all these stains to a test on the 11th?

4703

3/00

CAN T
TELL
WHEN
STAINS
WERE
DROPPED

A Each separate stain that I read off?

Q Yes.

A No, sir. The only ones that I examined I have testified to.

Q The spots on the porch, did you submit that to a test?

A Yes, sir.

Q And that was what kind of a test, what substance was used for it?

A May I check my notes?

Q Yes. Or chemical, I should say, instead of substance.

A The one on the -- the stains in front of the door were tested with both benzidine and leuchomalachite green.

Q Malachite?

A Leuchomalachite green.

Q Leuchomalachite green, that's a chemical?

A Yes, sir.

Q And did you test them all?

A Yes, sir.

Q And you got a reaction?

A Yes, sir.

Q Indicating that that possibly might be blood?

A Yes, sir.

Q But how long it was there, you can't tell?

A No, sir.

Q Now, then, you tested -- did you test all the spots on the cellar steps?

4704

△
AGAIN
STATES
NO
DATE STAMP
ON
(BLOOD)

A On the 11th?

Q On the 11th, yes.

A No, sir.

Q How many did you test on the 11th?

A The 5th and 6th steps.

Q The 5th and 6th step. And that was with this, what do you call it, leucho --

A Leuchomalachite green.

Q And you got a reaction there on the 5th and the 6th step?

A Yes, on the stained areas.

Q But how long it had been there, you couldn't tell?

A No, sir.

Q Then did you test, on the 11th did you test the kitchen steps?

A On the 11th?

Q On the 11th.

A Yes, sir.

Q Did you get a reaction -- did you test all the spots?

A No, sir.

Q What spots did you test?

A I tested the spot on the edge of the metal tread of tread number 1 and the spot -- one of the spots on the riser between the first step and the landing.

Q And was that with the malachite green, or whatever that word is, leuchomalachite green?

A That was done with the benzidine, sir, on that date.

Q Did you get a reaction from both spots?

A Yes, sir.

Q I see. Now, did you scrape any blood up on that day or any stains?

A Yes, sir. I took the stain from under the screen door on the porch.

Q And how did you take that up?

A I lifted it up with a clean spatula which I had with me.

Q Was there some sand there or something?

A I saw no sand.

Q What?

A I saw no sand in the spot that I am talking about. The crusted stain itself had no sand in it.

Q And could you lift any of these stains up, or did you have to use some method of removing the stain from the wood?

A You are speaking of the ones that I tested on the 11th?

Q Yes.

A Those were all tested by applying the clean white blotting paper wetted with distilled water and applying it to the stain and extracting the stain.

Q Maybe you didn't understand my question, Miss Cowan. Were you able to remove any blood from any of those -- or any of that stain from any of those steps on the 11th?

A It was removed to the extent that some of it was extracted

onto the paper, but none of it was scraped. I made no attempt to scrape any stains there on the 11th.

Q That is, you extracted some of it onto a paper?

A Yes, sir.

Q Did you take that paper back to your office?

A No, sir. I tested it directly, I tested it there immediately.

Q I see. Now, then, when blood strikes a surface, like the steps of this house, it begins to disintegrate, doesn't it?

A No, I don't think you can say it disintegrates.

Q Well, it will corrupt just like any other part of the human body that is separated from the body, the blood will corrupt, will it not, and disintegrate?

A I know that you can test stains a great many months afterwards, so I don't know how you can say it disintegrates.

Q Well, you can test stains that have existed for a great many years, as a matter of fact?

A Yes, sir.

Q You know that, don't you?

A Yes, sir.

Q And that a blood stain will remain on a surface for a great many years; you know that, don't you?

A Yes, on an undisturbed surface, yes.

tke 11
mg

Q As it flows out of the vein it is red? You know the color of blood?

A (Witness nods affirmatively.)

Q And the color changes, doesn't it?

A Yes.

Q It becomes black, very dark?

A Brown.

Q And you know the reason for that, don't you?

A Not completely.

Q Well, do you know what is in the corpuscle?

A You mean the hemoglobin?

Q Yes.

A Yes, sir.

Q What is it?

A What the hemoglobin is?

Q What is in a corpuscle?

A Well, one of the elements in it is the hemoglobin which gives it its color, which is an iron compound.

Q That is, the corpuscle is somewhat like the shape of a fried-cake without a hole in it? Would that be a description that would be apt?

A Well, it is a bi-concave disc.

Q That is, it is thicker at the ends and thinner in the middle?

A Yes, sir.

Q And within that covering is a substance that is known as a hemoglobin, that is what it is called in anatomy, isn't it, hemoglobin?

A Hemoglobin.

Q And that is a red substance to which the oxygen attaches that we pull into our system, is that correct?

A Yes.

Q And the base or the principal constituent of that hemoglobin is iron, isn't it?

2 A One of the constituents, yes, sir.

Q Well, that is a very important constituent?

A Yes, sir.

Q When the blood stands for some time it gets this sort of an iron look, doesn't it?

A Yes, sir.

Q And that means that the -- that is the result of the blood or of the hemoglobin separating itself from this corpuscle, do you know that? Do you remember that, Miss Cowan?

A I don't know --

Q Let me put it this way: If you look at dried blood that has been standing for quite a long time, you will see under a high-powered microscope shriveled-up corpuscles? Do you know that?

A If you are speaking of crenated cells that you may see in freshly spilled blood, which on drying --

Q Did you --

MR. PARRINO: Let her finish.

MR. CORRIGAN: I will let the young lady talk all she wants. I won't interrupt.

A There are certain cellular elements that you will see in a stain. I don't think I quite follow you on that.

Q You used the word crenated blood cells?

A Yes.

Q Now, that means shriveled, doesn't it, or dried-up blood cells?

A Roughly, yes.

Q You have got to use ordinary language, you know, or I won't understand you.

Now, then, it is that iron content in the blood that causes, when it is dry, this dark appearance of the blood, that changes it to the dark appearance of the blood from the bright red as it flows from our hand? Let me put it:

Is that one of the things?

A That I will agree with.

Q So that you will get a reaction in a test, and you will get an interference in a test, a benzidine test, and these other tests, from any substance which contains an iron base?

A No, sir.

Q You will not. You will get no interference?

A No. That is, in the test properly done and properly

evaluated.

Q Well, isn't it one of the things that has been bothering the experts in this field, the interference that comes from other substances when these tests are being made?

A From some other substances, yes, sir.

Q And principally, one of the substances that does interfere and that bothers them about the test is chemicals that contain an iron base?

A Not necessarily in the way the test is done, sir, in criminalistic practice.

Q No. I just want to see if you will answer that question the way I put it. Isn't it one of the things that is bothering and has bothered the profession that follows this particular line, the interferences that arise from other substances, so that when you make a test, the only thing you can say is that it is probably blood?

A That is true.

Q Yes. All right. Now, then, you used, as far as I could tell, as far as I remember, a benzidine test and a malachite --

A Leuchomalachite green.

Q Leuchomalachite green, and they -- there was another test that you used.

A Phenolphthalin.

Q I can't pronounce it.

Q Phenolphthalin.

- Q Now, Miss Cowan, in your experience, some of those tests are better than others, aren't they?
- A There are authorities who state that the phenolphthalin is specific for blood.
- Q Well, the phenolphthalin is the best -- has been determined by experts to be the best test?
- A Yes, I think so.
- Q And phenolphthalin, even in the best test, even in phenolphthalin, you get interferences, so that you can only say, when you submit it to that test, that it is probably blood?
- A Yes, sir. To that one test alone.
- Q Well, now, I will go over it again. That is the best test. We have determined that. And even in that test, the experts know that the only conclusion they can come to when it is submitted is that it is probably blood, is that right?
- A Yes, sir.
- Q Now, then, you made no tests in your laboratory after you made your visit on July the 11th?
- A Microscopic examination of the particle removed from under the screen door, and microscopic examination of the fibers removed from the desk in the den.
- Q Well, now, before I continue with July 11th, I want to go back to your examination on the 5th day of July of the

substances that were submitted to you by Mr. -- or Dr. Adelson. The gloves were submitted on that day, were they?

A No, sir.

Q What day were they submitted?

A On the 7th of July, I believe it is. May I check?

Q All right.

A That is correct.

Q The trousers were submitted on what day?

A On the 5th of July.

Q And you made your examination on the 5th?

A The examination was continuing, sir. I made a visual examination on the 5th. On the 6th I examined it more extensively for stains, and measured them accurately, and examined the contents of the pockets, and so on. I mean it was done over a period of time.

Q Well, you took the trousers over a period of time, and in the course of your work you completed your examination of that so that you could make a report of it?

A Yes, sir.

Q Now, when did you complete your examination of the trousers, that includes all the tests you made? You say you made a precipitant test of that stain that is on the knee, is that correct?

A Yes, sir. The precipitant tests were performed on two

dates, and the final one was on the 7th of September.

Q On the 7th of September?

A Yes, sir.

Q So that you were not ready to make your complete report about the trousers until September 7th, is that correct?

A Yes, sir.

Q That was after Dr. Sheppard was indicted, you know that, don't you?

A I do not know the date, sir.

Q Well, he was indicted sometime in August. You remember reading it in the paper that he was indicted?

A I don't recall it, no, sir.

Q I see. All right. The 7th of September that was completed.

Now, as I understand it, in addition to finding the blood stain on the knee, you found some sand?

A On what?

Q You found some sand. In addition to finding the blood stain on the knee, you found some sand?

A Yes, sir.

Q And that was in the cuffs of the trousers?

A I found some in the cuff and some in the trouser pockets.

Q And can you state that that was white sand, lake sand?

A I wouldn't want to state that it was definitely lake sand. It was sand.

Q What was your opinion of it?

A I have no opinion on it, sir.

Q Have you any now?

A No, sir.

Q That it was white sand?

A No, sir.

Q What was it? Black sand?

A It was ordinary sand, to my vision.

Q What?

A I say it was ordinary sand, to my vision. I am not a specialist in sands.

Q Well, now, all we know, Miss Cowan, is that you found sand?

A Yes, sir.

Q Now, then, can you give us something further on that particular point?

A No, sir.

Q There is yellow sand, and there is boulder sand, and there is lake sand.

A It had the appearance of being a grayish sand, but I was looking at it only under the microscope as far as characteristics are concerned, and I did not compare it with any other samples, so I cannot state.

Q Well, you are familiar with lake sand here. You have lived on the lake all your life, haven't you?

A Yes, but I have never identified it.

Q What?

A I don't recall ever having identified it.

Q I suppose you have gone swimming once in a while on the lake somewhere, Cedar Point, or someplace like that?

A (Witness nods.)

Q Did it compare with -- the sand that you found in the trousers, did it compare with the sand that you find on the lake shore?

A I would think so, but I did not make any comparison.

Q But that is your opinion, it compares, is that right?

A That would be merely a guess. I made no comparison.

Q Is the sand still out there in the County office?

A Some of it. The material from the cuffs I brought with me.

Q What?

A I brought the material from the cuffs, the sample of sand from the cuffs.

Q Oh, well, let's see it as long as we are on the point.

Don't spill it.

Now, Miss Cowan, --

MR. CORRIGAN: Did we mark this
as an exhibit? We better mark the envelope.

(Defendant's Exhibit BBBB,
being an envelope containing sand, was marked
for identification.)

Q Now, Miss Cowan, referring to Defendant's Exhibit BBBB, will

you state for the record what is Exhibit BBBB?

A It is sand recovered from the right trouser cuff of the brown and white cord trousers.

Q Dr. Sheppard's trousers?

A Yes, sir.

Q You put it under the microscope?

A Yes, sir.

Q And you examined it under the microscope and determined it was sand?

A Yes, sir.

Q Not dirt?

A Yes, sir.

MR. CORRIGAN: May I let the jury
look at this now?

MR. GARMONE: Offer it, Mr. Corrigan.

MR. CORRIGAN: I offer it in
evidence.

THE COURT: Yes. It will be
received.

MR. PARRINO: No objection.

(Defendant's Exhibit BBBB
was offered and received
in evidence.)

MR. CORRIGAN: Just hold it so it
won't spill.

NS
MAG
: 12

Q I will let you restore it.

(Witness puts exhibit back in envelope.)

Q Now, does your record show what date it was that you recovered the sand from the cuffs?

A Yes, sir. That was done on the 6th of July.

Q The 6th of July?

A Yes.

Q Was there sand in the pockets?

A Yes.

Q Was that preserved or kept?

A Not all of it, sir.

Q Was some of it?

A I'm not certain. I would have to check the packets.

Q Well, you can check your record and see if it was.

MR. DANACEAU: Do you want her
to do it now or later?

MR. CORRIGAN: Yes, we will
check it now and then we will pass that point
and be through with it.

A I know I weighed them from one pocket and it did get lost out.

There is a very little amount of sand in these.

MR. PARRINO: Speak up, please,
Miss Cowan.

A I'm sorry. There is a very small amount of sand in each

(Defendant's Exhibit BBBB was passed among the jury.)

MR. GARMONE: Do you have a vial for that?

MR. PARRINO: She is going to try to get one.

one, a few particles of sand.

Q Does it show where it was removed from?

A Yes, sir.

Q And what does it show? Don't open it.

A There is just a few particles of sand. The only other place that there was a measurable amount that I could weigh was from the left front pocket.

Q Well, now, I have the right pocket, right front pocket, and I want you to look at it for just a moment, and would you use my very inadequate glass -- you haven't got one with you, have you?

A No, sir.

Q -- and I will ask you if it isn't a fact that there are still some particles of sand?

A Yes, sir.

Q Along the edge of the pocket there?

A Yes, sir.

THE COURT:
now, Mr. Corrigan?

Can you discontinue

MR. CORRIGAN:
Honor.

Yes, I can, your

THE COURT:
for you?

Will it be all right

MR. CORRIGAN:

Yes, all right.

THE COURT:

Ladies and gentlemen

of the jury, we will now adjourn for the noon hour and return at 1:15 this afternoon. In the meantime, please do not discuss this case.

(Thereupon, at 12:00 noon, an adjournment was taken until 1:15 o'clock, p.m.)

- - - -

tke 13
mg

Tuesday Afternoon Session, November 30, 1954.
(1:15 o'clock p.m.)

Thereupon MARY COWAN resumed the stand
and was examined and testified further, as
follows:

CROSS EXAMINATION (CONTINUED)

By Mr. Corrigan:

Q Miss Cowan, when we adjourned we were talking about your
work in the laboratory. I think it was on the 5th of July,
do you remember?

A Yes, sir.

Q That is where we left off.

Now, did you determine the type of cloth that this
pants -- that these trousers are?

A Not completely so. That it is a synthetic fabric.

Q You don't know what it is?

A I didn't go into whether it was nylon or --

Q Did anybody, as far as you know?

A No, sir.

Q You know this, Miss Cowan, do you not: That blood will
cling very tenaciously to cloth?

A To some types of cloth, yes, sir.

Q And even washing will not take out blood stains?

A To some extent, that is true.

Q What was that?

A To some extent, that is true.

Q Now, have you read about the experiments that have been performed by criminologists to determine the amount of washing that will remove all traces of blood?

A I don't recall such a reference.

Q But there have been articles written on that subject, you know that, do you not?

A I believe all I can recall are reports of isolated cases. I don't recall any experimental work.

Q Well, let me see if I can refresh your recollection. This Journal that your article was printed in, The Journal of Criminology and Police Science, one of the associate editors of that magazine is a man named Paul Kirk, do you know that?

A I don't know, as I recall right now, that he is an associate editor. I know that there is a Kirk who writes for it.

Q Well, you know this, that he is a famous criminologist?

A I know he has done a great deal of work.

Q And that he has written a book called Criminal Investigation, which I believe Dr. Gerber said you had in the library?

A Yes, sir.

Q You have read it?

A Parts of it.

Q Or referred to it?

A Yes, sir.

Q And I believe that it is used in the classes out at Western Reserve Law School?

A At the Law-Medicine Center courses, it was a reference book, yes, sir.

Q Yes, used as a reference book. And do you know that Mr. Kirk -- by the way, he is professor of biochemistry at the University of California, do you know that?

A Yes, sir.

Q And they also have a school out there of criminology, and he is the professor of that?

A He is one of them, yes, sir.

Q Have you read any experiments that Professor Kirk has performed to determine how much washing will eliminate blood stains from cloth?

A If I have, I don't recall.

Q How?

A I don't recall it right now, no, sir.

Q But you do know this: That mere washing of cloth, even in hot water, will not remove blood stains?

A Not completely remove them.

Q Yes, that's right. Do you know this: That cloth stained with blood, submitted to boiling water, will not remove blood stains?

A It would not necessarily remove the stain, no, sir. |

Q Now, then, take the leather belt that appears upon -- that
is attached ^{to} that trousers, a spot of blood upon a piece
of leather will cling very tenaciously and sink into the
leather, do you know that?

A Not into a well-tanned surface, necessarily so.

NS
MAG
T 14

Q Did you ever experiment with blood on leather?

A No, no experiments.

Q Now, then, you examined the green bag that was handed to you by Mr. Parrino on what day?

A The examination for blood?

Q The green bag.

A Yes. The examination for blood on it?

Q Yes.

A May I refer to my notes? I believe it was the 13th.

Q Yes, surely.

(Witness refers to notes.)

A The examination for blood was made on the 13th of July.

Q The 13th of July?

A Yes, sir.

Q And how did you examine that bag for blood?

A The section of the bag which under the stereoscopic microscope presented appearance different from the rest of the bag was cut out and placed in distilled water, and then the supernatant fluid was tested with phenolphthalin and benzdine. A control section was also cut out from the inside seam of the bag.

Q Now, you made that test by subjecting it to these chemicals, is that right?

A Not the bag itself, sir.

The extract, the extract which was obtained from soaking.

Q That is, you soaked the piece of bag and got an extract, and then the extract, what did you do, put that on a slide or something?

A No, sir. Portions of it were divided into test tubes and the reagent applied directly to the portion in the test tube.

Q Then these chemicals were poured into the test tube onto the solution?

A Yes, sir.

Q And you got no reaction?

A No, sir.

Q Well, if there was blood there, the amount of blood that would be soaked out would be very small, would it not? Let's get the bag and see what the size of --

MR. GARMONE: Here it is.

Q The piece that you cut out of the bag is this piece now that I have my finger in?

A Yes, sir.

Q It about covers the top of my index finger?

A Yes, sir.

Q About a half an inch by a half an inch?

A Roughly.

Q Now, of course, what you would get from that would be a

very minute solution of anything that was on there?

A Well, that would depend upon the concentration of the material on there.

Q Well, you tell me the concentration on it?

A It would be small, because it wasn't apparent -- there was no apparent blood, shall we say, and so, therefore, the amount would be very slight.

Q Now, there are some other spots on this green bag, notably this one here. Do you know what that is?

A I can't see it, sir.

Q May I hold it over so the jury can see it?

A No, sir, I do not.

Q I see. Now, as I understand, in answer to a question by Mr. Parrino you examined the inside of the bag?

A The inside and the outside, sir.

Q And when you examined the inside of the bag, your answer was that there were -- wait until I get it -- there were no fresh stains; you used the word fresh, do you remember?

A Yes. I don't recall that I said that exactly, but that is true.

Q Well, when you say there was no fresh stains, were you distinguishing it from unfresh stains that might be on the bag?

A Yes.

Q All right. Now, you examined on that day, or during the

progress of that time from July 4th up until September 18th the other articles that were brought into the Coroner's office?

A Yes, sir.

Q And that included a bed spread or a bed sheet, do you recall that?

A I examined the lower sheet from the bed, yes, sir.

Q The sheet that was represented to you as being the sheet that was under Marilyn Sheppard?

A Yes, sir.

Q Now, you have talked about a control, and the fact is that in a chemical analysis you first take the suspected part and make your examination of the suspected part -- or you do take, let me leave out the word "first," you do take the suspected part in a precipitant test and you submit that to an examination.

Now, in order to check yourself as to the accuracy of the examination you make of the suspected part, you also take a part of the same article that has no stain on it?

A Yes, sir.

Q And while you put into the first test tube the substances that will give you a determination of the extract that you took from the sheet or from the steps, you put into another test tube the same extracts that you put into the

first test tube, don't you?

A

I don't know whether I follow you, sir.

tke 15
mg

Q Well, that is rather a little involved, but I want to get it clear.

In the first test tube, for instance, you would put in the anti-human serum?

A Yes, sir.

Q And then you would put in the extract saved from the bedsheet?

A Yes, sir.

Q And you bring the anti-human serum and the extract from the bedsheet --

A This is hypothetical, because I did not check the bedsheet for human blood.

Q Well, we will make it hypothetical so that it is understandable.

A Yes, sir.

Q Let me start over again. You would put into the first test tube the anti-human serum, wouldn't you?

A Yes, sir.

Q And then you would pour on top of that anti-human serum the extract that you got from the bedsheet?

A Yes, sir.

Q From the discolored part of the bedsheet?

A Yes, sir.

Q And you would look at it to see if a line formed in between

the two substances?

A Eventually, the others will run all at the same time.

Q Yes.

A Yes, sir.

Q I want to take one at a time.

A Yes, sir. I want to be sure we understand each other.

Q Then you would also have another test tube in which you would put anti-human serum, the same as you put in the first test tube, is that correct?

A Yes, sir.

Q And then you would put into that a test that didn't have any blood on it?

A That would be one control, yes, sir.

Q That would be a control, wouldn't it?

A Yes, sir.

Q Now, in order to have a control, a proper control, you take the spot where the blood is, and as near as possible from that spot, you take an uncontaminated spot for your test, for your control, is that right?

A Yes.

Q So that when you took the piece of wood from the step of the cellar stair -- you did take a piece of wood from the step?

A Yes, sir.

Q You then, very close to that place where you removed that

piece of wood, you removed a piece of wood that was not contaminated, as far as you could tell, by any other substance other than the paint that was on it and the dirt that had accumulated on it?

A Yes, sir.

Q Now, that is a necessary process, isn't it?

A Yes, sir.

Q Now, when you examined the bed sheet of Marilyn Sheppard, did you take any control from that bedsheet?

A Yes, sir.

Q And does it show on the bedsheet where you took the control from?

A Yes, but I repeat, I did not do a precipitant reaction.

Q What did you say?

A I did not do a precipitant reaction.

Q Not what?

A I didn't do a precipitant reaction on the sheet.

Q Oh, you didn't do a precipitant on the sheet. Well, of course, you would only take a control when you do a precipitant?

A No, sir.

Q Well, you always do take a control -- let me put it this way:

You always do take a control where you make a precipitant test?

A Yes, sir.

Q Now, I looked at this sheet, and that is the sheet that is identified as the sheet that was under Marilyn Sheppard, and of necessity I must take it out, and I find that in the sheet there are two sections taken out, there is the section here which, of course, contains a blood spot, doesn't it?

A Yes, sir.

Q And there is a section over here which is in the middle of the blood spot?

A Yes, sir.

Q And is this the control that you took out of that sheet?

A That's right.

Q I see. And that contained no blood?

A No, sir.

Q Now, that report on that examination was completed about the 18th of September?

A Yes, sir.

Q Now, in addition to those examinations that we have discussed, you received some material that was taken from under the fingernails of Mrs. Sheppard?

A Yes, sir.

Q And they contained hairs and fibers?

A Under two fingers -- I take that back -- there were hairs -- there were fibers found.

Q Well, there were also some hairs under her fingernails?

A Only in -- may I check?

Q Yes. Check.

A Only in one instance did I find a hair.

Q In one instance you found a hair. May I see your record, Miss Cowan?

(Witness hands record to Mr. Corrigan.)

Q Now, this is the record that you made of the -- you call it trace evidence?

A Yes. Those are memorandum notes.

Q These are memorandums of your examination of the substance that was submitted to you by Dr. Adelson, which was represented to you came from the fingernails of Mrs. Sheppard?

A Yes, sir.

Q Now, which is the first?

A They are marked which is left and which is right. This is the left hand and this is the right hand.

Q There is a card for each hand?

A Yes, sir.

Q Now, let's see what it says here. You received from Dr. Adelson one petri dish sealed with Scotch tape containing fingernail scrapings, each finger in separate packages of filtered paper, from the left hand.

Now, your laboratory examination was made by the use

4735-

Microscope
power
in
lab in
1954

3/32

of the microscope on all this material, is that correct, Miss Cowan?

A You are speaking of the material from the fingernail scrapings now?

Q Yes. I am just on that entirely. I am not going to ask you about anything else.

A Yes.

Q And your microscope -- or the microscopes that you have in that laboratory magnify up to one thousand times, do they not?

A 950.

Q And is that the microscope you used on this particular substance?

A Yes, sir.

Q Now, then, your index finger -- the thumb showed dried blood, is that correct?

A Yes, sir.

Q And the index finger showed microscopic -- showed dried blood and microscopic fragments of red nail polish?

A Yes, sir.

Q The middle finger, middle and ring finger showed dried blood, is that correct?

A Yes, sir.

Q And the little finger showed dried blood and one short fragment of brown plant fiber, is that correct?

A Yes, sir.

Q Did you ever determine what that fragment of brown plant fiber was?

A No, sir, not identifying the plant.

Q All right, you did not identify it. Then, turning to the -- this would be the report of the right hand, you again received a petri dish sealed and containing fingernail scrapings of each finger separate, and you made a microscopic examination of each one of those substances that were in the envelope as to each finger.

Now, the thumb: Under the thumb you found "Dried blood and one red wool fiber similar to red wool fiber found adhering to man's sock, TE 106, may have come from carpet."

Now, will you kindly explain to the jury what that TE 106 means?

A That is my laboratory number for each evidence.

NS
MAG
TK 16

Q That's a reference. And this wool fiber found adhering to man's sock, what man's sock were you referring to?

A The white wool sock that was submitted as property of Dr. Sam Sheppard.

Q But this was a red wool fiber?

A Yes. It was found adhering to it, sir, not part of the sock itself.

Q "May have come from the carpet," that is, that wool fiber may have been a fiber from the carpet?

A Yes, sir.

Q That was your conclusion.

"Middle: Dried blood. One dark blue wool fiber, one fine blue fiber."

Then you have, "Mercerized cotton" and a question mark back of it, meaning that you had not determined --

A No chemical tests were done.

Q I see. "No similarity to fibers from clothing of tree-trimmer (TE 125) or pajamas of victim."

That TE 125 is again your laboratory number?

A Yes, sir.

Q "One fractured hair similar to hair #4 from left side pocket of trousers (TE 101)" right?

A Yes, sir.

Q "Fleck of red nail polish, ring and little finger" -- it just says "little," but I suppose you mean little finger,

is that right?

A Yes, sir.

Q "Dried blood."

Now, are those fibers still in the Coroner's office?

A No, sir. They are with me.

Q What?

A I brought them with me.

Q You have them with you?

A Yes.

MR. CORRIGAN: Well, we might

just as well put them in evidence then,

Miss Cowan. Do you have them now, Miss Cowan?

THE WITNESS: Yes, sir. These

are the slides, and they will have to be handled
with care.

Q All right. Will you get your card again so that you can
check this?

(Defendant's Exhibits
CCCC to FFFF, inclusive,
being slides, were marked
for identification.)

Q Now, Miss Cowan, referring to Exhibit CCCC, Defendant's
Exhibit CCCC, will you tell what that is?

A That is the bit of plant fiber from the little finger of
the left hand.

MR. CORRIGAN: I wish to introduce

that in evidence.

THE COURT: Fiber from what,
Miss Cowan?

THE WITNESS: From the little
finger of the left hand.

Q This I can't see.

A I checked those microscopically, not grossly, sir. I
checked them before I brought them down here. I know
that they are still there.

Q I can't see it. Anyway, we will take Exhibit DD, and
will you tell what that is?

MR. DANACEAU: Isn't that DDDD,
Mr. Corrigan?

MR. CORRIGAN: DDDD.

A I have two slides here on it.

Q Do you have to have a microscope?

A Yes, sir. But I did check these before I brought them
down.

Q Well, you tell me what it is?

A This is the one that contains the dark blue wool fiber
and the fine blue fiber and the fractured hair.

Q This slide here contains a blue fiber and a red fiber?

A No. A blue wool fiber and a blue cotton fiber.

Q A blue wool fiber and a blue cotton fiber and a fractured
hair?

A Yes.

Q And that was under the finger of which hand?

A The middle finger of the right hand.

Q And that can be seen only under a microscope?

A Yes.

Q That is, as you look at it and as I look at it now, you can't see anything, is that correct?

A No. If we had proper light, we might be able to see a tiny amount.

Q Well, it is there, anyway; you state that it is there?

A It was there when I last looked at it. I don't know of any reason why it would be gone now.

Q Well, are you able to see this? I confess I can't. Would my inadequate magnifying glass help you on that?

A I doubt it, because we need illumination underneath to see it, I believe. I don't see it, sir.

Q You don't see it?

A No.

Q But it was there?

A Yes, sir.

Q And you have described it?

A Yes, sir.

Q Now, then, handing you Exhibit EEEE, will you state what that is?

A That is the fiber from under the nail of the right thumb.

I can't see it.

Q Did we have another one?

A Yes. There is this one that is --

Q What is that number? Handing you Exhibit FFFF, will you tell what that is, Miss Cowan?

A I believe that that is the fleck of red nail polish. I don't recall reviewing this slide recently, but I do believe that that is it.

Q But there was under the fingernail of the right hand, or among the substance submitted to you from the fingernail of the right hand a fleck of nail polish?

A Yes, sir.

Q And you believe this is it?

A Yes, I believe so. There is a spot you can see.

Q Yes. It is a very tiny spot?

A Yes, sir.

MR. CORRIGAN: I introduce
these four slides in evidence.

MR. PARRINO: No objection.

THE COURT: They will be received.

(Defendant's Exhibits
CCCC to FFFF, inclusive,
received in evidence.)

MR. CORRIGAN: And ask the jury
to look at them.

MR. DANACEAU: Well, if they can't

be seen -- we have no objection, but if they
can't see them --

MR. CORRIGAN: Well, they can
see something. They can see it on two.

MR. DANACEAU: We have no
objection.

MR. CORRIGAN: It is very clear
on two of them.

(Thereupon Defendant's Exhibits CCCC to
FFFF, inclusive, were passed among the jury.)

tke 17

- Q Miss Cowan, those exhibits can be enlarged, can't they?
- A You mean photographed and enlarged?
- Q Yes.
- A Yes, sir.
- Q That is, you can take a substance that is only visible under the microscope and photograph it and enlarge it so it gives you a good, visual picture?
- A Yes, sir. There are different --
- Q Was there any attempt to photograph the substances shown on these four slides that have just been submitted to the jury and the enlargement of the substance shown on them?
- A No, sir.
- Q And they have been in your possession since the time they were submitted to you by Dr. Adelson?
- A Yes, sir.
- Q You also stated that you found, I think, two hairs in the right-hand pocket -- or was it four?
- A Four.
- Q Four hairs in the righthand pocket and four hairs in the left rear pocket?
- A No. The left side pocket and the right rear.
- Q The left side pocket and the right rear pocket?
- A Yes, sir.
- Q There was four, four in each pocket?
- A That's right.

Q Now, were those found by you or were they found by someone else?

A They were found by me.

Q When you examined the trousers during the course of your examination?

A Yes, sir.

Q Does your record show when you found them?

A Yes, sir. The right rear pocket, the fibers and hairs were removed at 2 o'clock on July 6th, and the left side pocket, removed at 1:45 on the 6th of July.

Q The same day?

A Yes, sir.

Q You got some of the hair of Marilyn Sheppard?

A Yes, sir.

Q And made a comparison?

A Yes, sir.

Q And would you describe to me the hairs that you found in the front left pocket? Have you got your report there?

A Yes, sir.

Q Have you got your report for both pockets?

A Yes.

Q Would you take them both out so I can see them both?

Well, now, let's see what it says here. You found four hairs. You state that in your examination that two

were light brown with roots?

2

A Yes, sir.

Q And then one was coarser brown with root, right?

A Yes, sir. That was to visual appearance.

Q And one light brown, fractured. What does that mean, fractured?

A Broken, but not completely parted.

Q I see. Had no root on it. Is that what you mean?

A No. I mean the hair itself was broken, but not into two pieces. It still clung together.

Q And one curved brown, and after that you have a questionmark, "Eyelash"?

A Yes, sir.

Q And one animal hair. What does that mean?

A Wool.

Q Wool. "One animal hair, dyed black and red."

Will you explain that?

A Well, wool --

Q "One animal hair (wool), dyed black and red."

A Well, wool is usually a general term, but we usually think of it coming from the sheep, which is an animal, and there was an animal hair with the appearance of wool. The hair had been dyed -- or the wool had been dyed and showed black and red color under the microscope.

- Q Now, then, the other pocket, have you got that?
- A Yes, sir.
- Q This would be the right rear pocket?
- A Yes, sir.
- Q "Four light brown hairs." And then you have the measurements of two hairs, scale count and diameter.
- A They are the measurements of all four hairs.
- Q I don't see --
- A Two hairs measure one inch in length.
- Q That is the measurements?
- A That's the actual measurement.
- Q Four light brown hairs. Well, now, did you know that Marilyn's hair was brown?
- A No, sir, other than the examination of the hair. I mean I had no --
- Q Well, I am just referring to the statement in the autopsy that we have here in the evidence that says Marilyn's -- the hair was brown.
- A Well, I have the hairs, from that, I knew it was brown.
- Q And these hairs were light brown, correct?
- A Yes.
- Q Now, then, have you made any study of hair?
- A Yes.
- Q Did you make any comparison with the hair of the Ahern's children?

- A No, sir. I had no other hair submitted for comparison.
- Q Hair is a very difficult matter of identification, isn't it?
It is classified as an uncertain manner of identification?
- A Yes, sir.
- Q I have a note here that was issued by Mr. Paul Kirk, who has made extensive study in hair. You know that, don't you?
- A Yes, sir.
- Q Written many articles on it?
- A Yes, sir.
- Q And he stated in the --

MR. MAHON: Well, if your Honor please, I want to object to what Mr. Kirk stated. The lady is here on the stand to testify. If he has anything to rebut on her testimony, call in Mr. Kirk. He is referring back to this article of Kirk's. I don't think it is proper in this case.

THE COURT: I think we ought not to go into any text book.

MR. CORRIGAN: What?

THE COURT: I think we ought not to go into any text of what someone else says.

MR. CORRIGAN: I just want to see if she agrees with it. I can use a text, an authority.

MR. MAHON: Whether she agrees with it

or not --

THE COURT: Well, no, he may be an authority all right, but he isn't here.

MR. CORRIGAN: Can't you use authorities in court? Since when?

MR. MAHON: Well, she has agreed with you that it is difficult to identify from that source.

MR. CORRIGAN: I see.

THE COURT: The witness admits it.

MR. CORRIGAN: Well, I except, and if I had been permitted to question the witness, I would say -- step over here, Mr. Reporter.

(Thereupon the following was dictated into the record by Mr. Corrigan out of the hearing of the jury):

MR. CORRIGAN: The question that I would have addressed to the witness was whether or not she would agree with this statement made by Professor Kirk, professor of biochemistry and Doctor of Medicine, professor of criminology, school of criminology, University of California, and appearing on page 262-263, July-August edition, 1952, of the Journal of Criminology

and Police Science, to-wit:

"The use of hair as a means of positive identification is much more uncertain, and indeed, few experts will venture a definite statement as to the individual origin of hair. As a matter of common observation, human head hair is subject to enormous variations between individuals and a variation between hairs of the same head."

(Thereupon proceedings were resumed in the hearing of the jury, as follows):

Q Will you look at your notes, Miss Cowan, and tell me whether you determined the scale count?

A Yes, sir. Are you referring now to the hairs from the pockets?

Q From the pockets.

A Yes, sir.

Q And scale count, so the jury understands it, is like fish scales on the cuticle of the hair, on the outside of the hair?

A That's right.

Q That is, when you put it under a microscope, you see scales like you see on a fish?

(Witness nods affirmatively.)

ns
mag
t 18

- Q Did you determine the pigment of the hair?
- A You mean the pigment distribution?
- Q Yes.
- A Yes, sir. These were all non-medullated hairs, and the pigment was --
- Q Non what?
- A Non-medullated.
- Q I don't understand that.
- A There wasn't a central canal through the hair that was differentiated. The pigment was evenly distributed in the cortex.
- Q Well, the medulla of the hair is like the marrow in the bone, isn't it?
- A Yes, roughly.
- Q To roughly describe that to the jury, as I understand, you have the central part, which is the marrow, and that is called the medulla, and then you have the cortex, which is the outer covering of that medulla and the main part of the shaft, and then you have the cuticle, which contains the scale; is that roughly a description of a hair of one's head?
- A Yes, sir.
- Q And the medulla, you say, in these particular hairs were absent?
- A Yes, as far as I determined.

Q So that they must have been dried up hairs, then?

A No, not necessarily, sir.

Q Well, how would you have a hair with the center portion of it gone?

A There are many people, particularly younger people, who do not show a medulla in every hair, and several of those from the head of Marilyn Sheppard showed no medulla.

Q No medulla. And did you determine the diameter of the hair?

A Yes, sir.

Q At what point did you determine the diameter?

A It was determined at various places from the tip to the end. In speaking of these hairs from the pockets, the measurements were made along the hairs for as many measurements as we could take. Everytime that we took a scale pattern, we also took a diameter.

Q If you had no medulla and you couldn't get the distribution of pigment in the hair -- there is a certain pigment in everybody's hair that distinguishes it, makes the color, red or brown or blond, so you couldn't distinguish the pigment in the hair if there was no medulla, could you?

A The pigment was in the cortex, sir.

Q What?

A It was evenly distributed in the cortex.

Q It was in the cortex?

A Yes, sir.

Q And did you make a note of the color in the cortex or the distribution of the pigment and color of the pigment?

A No, sir.

Q But your conclusion is it was light brown?

A Yes, sir.

Q Did you determine the refraction of the hair?

A No, sir.

Q You did not. Now, the refraction of hair is the passing of a light through the hair, isn't it?

A Yes.

Q And then as the light hits the hair, the light bends and you get a degree of refraction?

A Yes.

Q You didn't put it to that test?

A To do that test, sir, to determine the refractive index and get a value for it, it is necessary to put the hair into various media of different refractive indices.

Q But you didn't do it, now? Let's get that straight.

A No, sir.

Q And the refraction, the test of refraction is a method by scientists in this line whereby they determine whether the hair is a man's or a woman's, isn't it?

A Not necessarily so, sir.

Q Well, did you ever hear of that before?

A I have heard it claimed that it could be done.

Q Well, it is claimed by Mr. Kirk. That is all I know.
I read his book on it, and that is where I got my information.

And is this not a fact: That it is a test, because the refraction in a man's hair submitted to this beam of light passing through it is greater than the refraction in a woman's hair?

A I haven't run enough tests on that myself to pass an opinion.

Q ✓ I see. All right, we will pass it, then.

Now, then, when did you do the blood typing tests?

You said you did some blood typing.

A ✓ You are speaking of the blood of Marilyn Sheppard received from autopsy?

Q ✓ Yes.

A ✓ At 1 o'clock on the 5th, the day I received it.

Q ✓ Now, you typed the blood and you discovered -- am I correct in this as to your testimony -- you discovered that the type of blood that Marilyn Sheppard had and the type of blood on the two watches was the same?

A ✓ That they had one factor in common.

Q ✓ Well, I understood you, and am I mistaken in this, that when you typed the blood of Marilyn Sheppard, you found it was an O type?

A ✓ Yes, sor.

Q ✓ And when you typed the blood on the watch, on the two watches,

✓ It was on the same day?

A ✓ No, sir. The watches were not typed the same day, no, sir.

Q ✓ Well, anyway, they were typed for the purpose of obtaining
a comparison between the blood on those watches and
Marilyn Sheppard's blood?

A ✓ Yes, sir.

Q ✓ And you found that the type of blood on the watches was
the same type as Marilyn Sheppard's blood, type O?

A ✓ No, sir.

Q ✓ You did not. Well, then, I misunderstood your testimony.
Your typing of Marilyn Sheppard's blood revealed
O?

A ✓ Yes, sir.

Q ✓ And that was done on July 4th or the 5th?

A 5th.

Q ✓ And your typing of the man's watch was what day? You may
refer to your notes, if you want to.

A ✓ On the 16th of July.

Q ✓ On the 16th of July. And when you typed that blood, you
found it to be what type?

A ✓ M.

Q M?

A ✓ Yes.

Q ✓ And you typed the blood on the lady's watch, and that was
also on the 16th of July?

A ✓ Yes, sir.

Q ✓ And you found that type to be what type?

A ✓ M.

Q ✓ Now, you had a different type of blood, then, in regard to Marilyn and the two watches?

A ✓ No, sir. Marilyn Sheppard's blood also had the M factor in it.

Q ✓ Well, the two watches didn't have the O factor in it?

A ✓ That, I couldn't say. The typings for the OAB grouping were inconclusive.

Q ✓ Now, when you type blood, you take a specimen of the blood and then you have the serums that are put out by manufacturers, is that so?

A ✓ When you are typing blood itself, whole blood, yes.

Q ✓ They will give you a package of A serum, of B serum, AB serum and O serum, that is, you can buy those and you have them in your laboratory.

Now, in order to determine what type a blood is -- and you do this all the time in regard to transfusions, you know that -- you take Marilyn Sheppard's blood, or you took Marilyn Sheppard's blood and you submitted it to the A serum, is that correct?

A Yes.

Q ✓ And you used the word -- what was that word you used, agglutinated?

A ✓ Agglutination?

Q ✓ Yes. Is that the word you used? There was some other word you used there.

You attempt to mix Marilyn Sheppard's blood with the A serum?

A ✓ Yes, that was done.

Q ✓ And it wouldn't mix?

A ✓ No, sir. There are two ways of typing. We type for the antigen, which is in the cell, and when we do that, we use the cell suspension of the patient and test it against the typing sera, the anti-sera, which contain the anti-bodies. O serum -- O cells contain no antigen. Therefore, there is no reaction with the anti-bodies of the anti-A and anti-B serum, so there is no agglutination with O cells.

Q ✓ Well, I want to get this just as simple as I can, Miss Cowan, because all I can think of it is simply.

You take Marilyn Sheppard's blood -- you had some of that, didn't you?

A Yes, sir.

Q ✓ Then you wanted to determine what type that blood was, so you mixed it with something else, didn't you?

A ✓ Yes.

Q ✓ Now, what did you mix it with?

A ✓ With the anti-A, anti-B and anti-AB, or reverse it and let's call it the AB and O serum.

Q ✓ When you mixed it with the A, it didn't mix?

A ✓ There is no -- it isn't a matter of mixture, sir. There was no agglutination. So I can say yes, you can say it did mix.]

Q ✓ Isn't it true that when you make a blood group, that you submit the blood to a serum of a particular type?

A ✓ Yes, sir.

Q ✓ Then if the two bloods, that is, the blood that you have and the serum that it is submitted to go together and do not curdle, then you can say that is a particular type; if it is A serum used, that's A blood, A group?

A ✓ That is true.

Q ✓ What?

A ✓ That is true, yes.

Q ✓ And if it does curdle, then you use -- if it curdles with A, then you use B, and if it curdles with B, you know it isn't B type blood?

A ✓ Yes.

tke 19
mg

Q ✓ And then if you submit it to AB type serum, and it doesn't curdle, then you know it is AB blood?

A ✓ Usually -- yes.

Q ✓ Yes. All right. To put it simply, it is very much like getting -- in getting these blood types, it is very much like when you put milk into coffee it will go all together, but when you put milk into vinegar it will curdle. That is an illustration, isn't it?

A ✓ Perhaps.

Q ✓ Now, then, you got the M type by submitting it to various serums?

A Yes.

Q ✓ You can do this, Miss Cowan, can you not, in regard to blood and blood stains -- by the way -- withdraw that.

With regard to blood stains, can you type blood stains?

A It is sometimes possible, yes, sir.

Q Did you type any of the blood stains in the house of Sam Sheppard that were found on the stairs?

A No, sir. The quantity was insufficient.

Q I didn't hear you.

A The quantity was insufficient in any single spot.

Q So you don't know what type that blood stain is, do you? ✓

A No, sir.

Q Now, you went on the 11th, and you told me what you did on

the 11th. You didn't take anything back to the laboratory on that day?

A No, sir, except the fiber and the one --

Q Now, on the 6th you went to the Sheppard home. Did you go there in the daytime or the nighttime?

A In the daytime.

Q And who was there on the 6th when you went there?

A Detective Dombrowski, Roubal and Poelking. I believe that is all.

2 Q And they were making an examination on that day of blood spots around the house?

A Yes.

Q Or what they claimed to be blood spots. Did you make your examination independent of them?

A On the 6th, when I was there, I tested the stains on the basement stairs that they pointed out. I made them independently, yes, but in their presence.

Q And did you take anything with you on that particular day after your examination? Did you take anything with you to the laboratory?

A No, sir.

Q Now, then, you went back again on the 10th?

A 9th.

Q On the 9th. And was that in the daytime or the nighttime?

A In the daytime.

Q And with the same gentlemen there? Were the same gentlemen there?

A Yes.

Q And did you make an independent examination?

A Yes, sir.

Q Did you take anything back to the laboratory on that day?

A Yes. That is the day I took these specimens for the precipitant tests.

Q Now, then, how many specimens did you take? Just tell me where they were taken from. You can look at your notes, if you want to.

A I think I can recall it probably just as quickly.

The paint chip from the riser between the first and second tread of the stairway to the second floor, and a control paint chip taken from the same riser. The extract of the tread, No. 3 on the same stairway, and a control from the same stairway. The paint chip with a stain and the control paint chip from the riser between the first step and the landing on the kitchen stairs. The paint chip -- or the wood chip -- stained wood chip and the control wood chip from the tread 3 in the basement, and extract -- control and extract of the stain from tread 6 in the basement stairs.

Q Then you took those back to your laboratory and you made precipitant tests on those particular pieces of wood that

you took out of there?

A Yes, sir.

Q And when were these precipitant tests made?

A The tests on the extracts were made on the 10th.

Q That was the next day?

A That's right. Only part of the extracts from the basement stairs were used in the test on the 10th. That was included in the tests that were also run on September the 7th, when the paint chips were tested and the precipitant was done on those at that time.

Q And you have done these precipitant tests before, many times, I take it?

A Yes, sir.

Q So you know all the requirements of doing the precipitant test.

Now, then, you say that when you examined the watches, you examined them for fingerprints, is that correct?

A By microscope, yes.

Q Well, you don't claim to be a fingerprint expert, do you?

A No, sir.

Q And do you know how to bring out latent fingerprints?

A No, sir.

Q Do you know the use of iodine fumes in fingerprints?

A Only roughly.

Q You just know that there is such a test, is that it?

A Yes.

Q Did you ever use it?

A No, sir.

Q You did not. But you know there is a test, like I know there is a test?

A (No response.)

Q And when you made these precipitant tests, Miss Cowan, you described to the jury what you did, and you said that you used anti-dog blood. Do you remember that?

A No, sir, not anti-dog blood. I used dog blood.

Q Why did you use dog blood?

A It is a requirement by some authors to test the serum to be sure that it is specific. In --

Q Did you know at that time --

MR. MAHON: Wait a minute.

Did you finish your answer?

Q Did you finish? I thought you had.

A No, sir. In commercial serum, which is obtained from commercial houses, this is done in the laboratory. However, with a new lot, it is always wise to check myself, and I obtained dog blood because it is easiest to obtain and check it for the specificity of the anti-human sera.

Q Did you at that time know that there was a dog involved in that picture?

A I did by the time I ran the tests, yes, sir.

Q That was in August, August the 10th?

A Yes, sir.

Q You knew there was a dog?

A Yes, sir.

Q Involved, dropping blood around the house?

A I know nothing of that, sir.

Q What?

A I know nothing of that, sir.

Q When did you first learn that there was evidence of a dog dropping blood?

A I didn't know there was such evidence, sir.

Q You didn't know that?

A No, sir.

Q You never heard of it? Haven't heard of it up until this day?

A No, I wouldn't say that, but I wouldn't recall --

Q What?

A No. I have heard that since.

Q You have heard that. Now, --

MR. CORRIGAN: Pardon me just a moment.

THE COURT: Would you want to take a recess at this point?

MR. CORRIGAN: Yes, I think so.

Do you want a recess, Miss Cowan?

THE COURT: Ladies and gentlemen
of the jury, we will have a few minutes' recess
at this point.

Please do not discuss this case.

(Thereupon at 2:45 o'clock p.m. a recess
was taken.)

NS
MAG
T 20

(After recess, 3:00 o'clock, p.m.)

Q Miss Cowan, at the conclusion of your work on this case, you made a report, did you not?

A Yes, sir.

Q And I have here three sheets of paper that I have already marked Defendant's Exhibit U, V-1 and V-2. I will ask you to examine them and state to me whether you recognize those papers?

A This I have never seen.

Q Well, that is about the usual thing, it is a letter from the Coroner?

A I don't know. I presume. I am not in the office, so I don't know the routine. I say that I have never seen it.

Q You recognize Dr. Gerber's signature?

A Yes.

Q Now, the other two?

A These are photostatic copies of the report which I made.

Q That is your report?

A Yes.

Q And that was a complete report that you made at the end of your examinations?

A Yes.

Q Dictated by you. And when was it completed, Miss Cowan, do you remember?

A No, I do not, sir.

Q Sometime in September?

A Yes.

Q Now, before I introduce this in evidence, I want to ask you just a few questions more about blood typing, and then I think I am through with my examination.

You know this from your study of blood typing, or do you know this from your study of blood typing, that there are many different blood groups?

A Yes.

Q That the common blood groups that we think about are the A group, the B group, the AB group and the O group?

A Yes.

Q Now, it has been discovered in research -- and I ask you if you know this, Miss Cowan -- that there are up to 1000 different blood groups?

A Blood types, yes, sir.

Q Yes, blood types. And we have been talking about -- we have been using the word that you used here, agglutinating, and I have been using the word for agglutinating "mixture."

A No, sir. They are not interchangeable. The agglutinating is the anti-body which occurs in the serum of the blood.

Q I see. Well, I used the illustration of the mixture of milk and coffee and the curdling of vinegar and milk.

A Yes.

Q When you put milk together and vinegar together, they curdle?

A Yes.

Q And that is true of tomato juice and a number of other substances, it will curdle when you put it with milk, that is true, isn't it?

A Yes, that is true.

Q Now, when you are getting a blood type, if you get an A blood type, for instance, you want a transfusion, you are in the hospital -- you have worked on transfusions in the hospital, haven't you?

A Not for quite some time. I have, yes.

Q But you know that you will test the patient's blood and find out what type of blood it is, is that right?

A Yes, sir.

Q And then if you get an A type of blood, then you get a donor with the same type of blood?

A Yes, sir.

Q If you would use a donor who had a different type of blood, you would bring about -- might bring about fatal consequences because the two types of blood would curdle?

A Yes, sir.

Q Or form -- that isn't the word they use.

A Agglutination.

Q What?

A Agglutination.

Q Yes. Now, are you familiar with the literature dealing

with the blood transfusions during the London blitz?

A No, sir.

Q You don't know about that?

A No.

Q Did you ever hear of the fact in this blood transfusion and this blood typing, that even in instances where you transfuse an A type blood into an A type person, that you will get sometimes a fatal result?

A Yes, sir.

Q And the consequence is that the experts in this matter have been running these blood types out into a great many different types? They have used all the letters of the alphabet, haven't they?

A I don't know as all the letters of the alphabet, but there are quite a number of them, yes.

Q Then they began to use groups, like the Brown group and Smith group and Kelly group, and so forth?

A Yes.

Q And did you know that they came from the experience in the London blitz, those names?

A No, I didn't, sir.

Q Now, then, it is possible, is it not, Miss Cowan, by a correct analysis of the type of blood that may be at the scene of a crime, if it is the blood of a criminal that is picked up, that that blood may be typed and you may

be able to reduce the number of people in a group that have that type of blood to a very small number?

A If there is a sufficient amount of blood present, yes, sir.

MR. CORRIGAN: Now, then, I wish at this time, your Honor, to introduce in evidence Exhibits V-1 and V-2.

THE COURT: These aren't marked.

MR. CORRIGAN: Yes, they are marked on the bottom. I marked them early in the case.

THE COURT: Don't you follow with the GG's? Don't you follow your four letters?

MR. CORRIGAN: No. These were marked on an early day of the case.

THE COURT: V-1 and V-2?

MR. CORRIGAN: Yes. I would now like to read them to the jury.

THE COURT: They may be received.

MR. CORRIGAN: I would now like to read them to the jury.

Q Before I read them to the jury, Miss Cowan, you have this divided into two sections. V-1 shows your microscopic examinations?

A And also the stains.

Q Well, now, that is what caused my question. You have on this page "microscopic examinations" and you have down here, "stains examined, removed from the Sheppard residence," and then you have some information about the positive tests for human blood and prescribed controls performed on all tests with satisfactory results.

When you say that at the bottom of this page, are you referring to your precipitant tests?

A Precipitant tests and also the chemical tests for blood.

Q Well, really it should be headed "laboratory findings" there, too, should it not?

A Yes, sir, it should.

(Defendant's Exhibits
V-1 and V-2, were received
in evidence.)

tke 21 Q

In other words, there is an error in the manner in which this is set up?

A

Yes, sir.

Q

That instead of this heading "Laboratory Findings" being on one page, there should be included in "Laboratory Findings" some of the matter that appears on the first page?

A

Yes, sir.

Q

Our letter shows we received this on September 30th. Do you agree on that, that that is the time we got this?

A

I wouldn't know, sir, when it was sent out from the office.

MR. CORRIGAN:

(Reading to the

jury): "Microscopic examinations. County of Cuyahoga, Coroner's office, Cleveland, Ohio.

"Address all communications to S. R.

Gerber, M.D., 2121 Adelbert Road. Telephone RA-1-5610.

"County of Cuyahoga, Coroner's Office, Cleveland, Ohio.

"Microscopic Examinations. In re Marilyn Sheppard, Case No. 76629 - Autopsy M-7280.

"Scrapings removed at autopsy from underneath fingernails of Marilyn Sheppard: No significant fibers or hairs noted.

"Examination of cuffs and pockets of trousers

(property of Dr. Samuel Sheppard): Left side pocket: Sand present. Matted fibers (white, red, blue, brown, light blue and chartreuse green.) Four light brown hairs," -- how do you say that?

THE WITNESS: Morphology.

MR. CORRIGAN: "Morphology consistent with human origin; scale counts, diameter measurements and morphology compatible with hair from head of Marilyn Sheppard.

"Right rear pocket: Sand present. Brown and white fibers, compatible with material of trousers. Four light brown hairs, morphology consistent with human origin; scale counts, diameter measurements and morphology compatible with hair from head of Marilyn Sheppard.

"Cuffs: Sand present (300 milligrams recovered).

"Stains examined and removed from Sheppard residence 28924 West Lake Road, Bay Village:

"One crusted stain on porch floor under screen door yielded positive test for blood. Microscopic examination revealed brown crusted

material compatible with blood."

Now, by that you mean you didn't determine what kind of blood it was, did you?

THE WITNESS: No, sir.

MR. CORRIGAN: "Specimens taken from the third and sixth step of basement stairway (numbered from kitchen landing to basement) yielded positive tests for human blood.

"Specimen taken from the kitchen stairway on the riser between the first step and the landing yielded positive tests for human blood.

"Specimens taken from the riser between the first and second treads of the stairway between the first and second floor and from the third tread (numbered from top of stairway) yielded positive tests for human blood."

Q Now, before I go any farther, you found, in your report, that specimens taken from the third and sixth step of the basement stairway numbered from the kitchen to the basement yielded positive tests for human blood?

A Yes, sir.

Q Now, but you don't give me the number of specimens that you took. Was it one or two?

A It was one from each step.

Q That would be two there, then, wouldn't it?

A Yes.

Q Two on that step?

A Two steps.

Q What?

A One on each step.

Q One on each step. But the number of specimens that you examined was two on that particular --

A Of stains, yes.

Q From the third and sixth step. Then a specimen taken from the kitchen stairway to the riser between the first step and landing yielded positive tests for human blood. That is three?

A Altogether, yes.

Q Three altogether. Then specimens taken from the riser between the first and second treads of the stairway between the first and second floor and from the third tread yielded positive tests for human blood. That is two more?

A Yes.

Q That is five altogether, isn't it?

A Yes.

MR. CORRIGAN: "Prescribed controls
performed on all tests with satisfactory results."

Q By that you mean that you either submitted them to this

precipitant test, or -- those five spots, were they all submitted to the precipitant test?

A Yes.

MR. CORRIGAN: "Laboratory Findings.
In re Marilyn Sheppard." The same heading as
I read before. "Case No. 76629 - Autopsy M-7280.

"Blood: Marilyn Sheppard, M-7280."

That means the number of the autopsy?

THE WITNESS: Yes, sir.

MR. CORRIGAN: "Group O RH negative,
type MS."

That was the grouping that you got from the
blood that was given to you by Dr. Adelson?

THE WITNESS: Yes, sir.

MR. CORRIGAN: "Sheet: Removed from
under body of Marilyn Sheppard: Blood stain:
Group O (direct typing for agglutinins)."

In that particular instance, you were able
to show by subjecting the blood that you got from
the sheet to this O serum --

THE WITNESS: No, sir. The test
for agglutinins is the test for the anti-bodies
in the serum, and that is tested by adding known
red cells, that is, known type A, known type B
and known type O cells.

4776

SHEET
SATURATED
IN
WATER
AND
SOLUTION
TESTED

3173

- Q Well, if I get you correctly, you made a solution from the samples you took from the sheet?
- A Yes, sir.
- Q And then to that solution, you added the O type serum?
- A No, sir.
- Q The O type what?
- A Cells, the O cells, A cells and B cells added in different portions.
- Q You added the O type cells and you discovered that the O type cells and this liquid that you reduced from the sheet agglutinated?
- A No, sir. The O cells -- did I follow you that the O cells would agglutinate with this?
- Q Yes.
- A No. There was no reaction with the O cells, but there was reaction with the A cells and the B cells, indicating the presence of the anti-A, anti-B factor which is present in the serum of O's blood.
- Q You took the sheet, or you took -- you saturated the sheet in water and got a solution?
- A Yes.
- Q You got the blood out of that particular part of the sheet?
- A Yes.
- Q Then you subjected that to the blood cells of the A group?

4777

SHEET
ALL
TYPE
O
BLOOD

3174

A Yes, sir.

Q And when you did that you got the curdling?

A Yes, sir.

Q And then you subjected it to the blood cells of the B group, is that correct?

A Yes, sir.

Q And when you did that you got the curdling?

A Yes, sir.

Q Now, then, did you go any farther?

A O cells were used.

Q And when you used the O cells, then you found out there wasn't any curdling?

A Yes, sir.

Q But they mixed together like the coffee and the milk?

A Yes, sir.

Q And then you concluded that because you had had this smooth mixture, this smooth-joining-together of the blood cells of the O group and the solution that you got out of the sheet, that it was the O group. Now, do I state correctly what your findings were?

A Yes, I think that --

Q I do, all right.

MR. CORRIGAN: "Trousers: Property
of Dr. Samuel Sheppard: Stain on front of left leg

4778

TROUSERS
TYPE
O.

3-75

about six inches in length extending from about 18 inches to 24 inches from bottom of trousers, yielded positive tests for human blood. Indirect typing for agglutininogen content (absorption technique) resulted in no absorption of known agglutinins, indicative of blood group O."

Now, I have got to ask you a few questions about that.

Q You took this piece of cloth out of Dr. Sheppard's trousers and you got a solution from that?

A No, sir.

Q What?

A No, sir. Those specimens -- the specimen was cut in two, and one portion was put into anti A serum and one portion into anti B serum and allowed to stand overnight, and then tested the next day with known A and B cells and O cells.

Q Well, one piece was put into the anti A serum?

A Yes.

Q What would that be?

A That would be the serum of group B blood. The bloods are designated according to the antigen which occurs in the red cells.

Q The piece of cloth was put into A serum, is that correct?

A Yes, sir.

Q I have got to go slowly because --

A I know it is difficult.

Q I don't know too much about this subject. I have got to ask questions of you.

That serum that that piece of cloth was put into, what was that?

A The serum that the cloth was put into was put into -- well, let's say the serum from A blood and the serum from B blood.

Q Now we are talking about the red blood corpuscles of A, is that correct?

A That is the way the blood is designated. If I can, I will try to explain it, if I can, sir, that in A blood the cells of the antigen A, which we call the agglutinin, the serum of A blood will have an anti-body to the B blood, to the B factor, therefore, when you put B blood with A serum, you will have the agglutination, you will have this reaction.

Q You will have this curdling?

A Yes.

Q I have been using the word curdling.

A Yes, I think that is a good --

Q So that we all can understand that.

Now, then, when you put it into A serum for the anti-body of the A serum, you did get this curdling?

A No, sir. That is not the reaction.

Q What reaction did you get?

A There was no reaction in this instance because the type O blood contains no antigen, therefore, there was -- the factor was not present there to react with the anti-bodies present in the serum.

Q So you got no reaction?

A No reaction, which is indicative of the absence of the antigen, which is true with type O blood.

Q Then you determined that that wasn't A?

A Yes.

Q A type. And using the same method, you determined it wasn't B type?

A Yes.

Q And did you try for AB type?

A The reaction with AB would have been absorption in both of the anti A and the anti B serum. It isn't a matter of trying for one thing and then the other. These are done, and the results --

Q Now, then, did you submit it to the O type serum, or did you draw your conclusion because you got no reaction in A or B that, therefore, it would fall into the O group?

A No. On this case I did use the group O serum.

Q You used group O serum?

A Which is anti AB.

Q And then what kind of reaction did you get when you used O serum?

4781

CONFIRMS
TROWERS
ARE
TYPE
O.

8
1
7
8

A There was no reaction in any of these.

Q No reaction in any of them?

A That's right.

Q So that the best thing you got was a guess, wasn't it?

A No, it is not a guess, sir.

Q Well, it says here "Indirect typing for agglutinin content resulted in no absorption of known agglutinins, indicative of blood group O."

A Yes, sir. That is the normal expected result with group O blood.

Q You got no absorption, you got no mixing or joining together?

A No joining together, because the antigen was absent.

MR. CORRIGAN: All right. Now, then:

"Watches: Man's yellow metal wrist watch (property of Dr. Samuel Sheppard): Crusted stains yielded positive tests for human blood, type M.

"Lady's yellow metal wrist watch (property of Marilyn Sheppard): Crusted stains yielded positive tests for blood, type M.

"Canvas gloves (found on premises of Sheppard residence): Stains on back of right-hand glove yielded positive tests for human blood. Stains on lefthand glove yielded negative tests

for blood.

"Prescribed controls performed on all tests with satisfactory results."

And I believe you testified in regard to the gloves that you didn't know when the stains -- how old the stains were?

THE WITNESS: That is correct.

MR. CORRIGAN: That is all.

MR. PARRINO: We have no further questions.

(Witness excused)

- - -