

THEREUPON, the State of Ohio, further to maintain the issues on its part to be maintained, and to rebut the testimony adduced on the part of the defendant, called as a witness DR. ROGER MARSTERS, who, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION OF DR. ROGER MARSTERS

By Mr. Spellacy:

Q For the record would you please state your name?

A Roger Wescott Marsters.

Q Spell your last name?

A M-a-r-s-t-e-r-s.

Q Where do you live, sir?

A I live in Cleveland Heights, Ohio.

Q The street and the address, please?

A 1319 Cleveland Heights Boulevard, Postal Zone 21.

Q Now, sir, do you have a profession?

A Yes, sir, I do.

Q And what is that?

A I am a clinical chemist and immunochemist.

Q What is that?

A Well, a clinical chemist works with blood and he is a specialist interested in the biochemistry of blood and other body fluids. An immunochemist is an expert in blood banking.

Q How long have you been engaged in that type of work?

A For almost 19 years. Since 1947.

Q Since 1947?

A Yes.

Q Will you give us an outline of your educational background, please, doctor?

A Yes, in 1939 I graduated from the State University of New York at Albany with an A-B degree in chemistry.

In 1942 I received a Master of Arts degree from Cornell University at Ithaca, New York, in human physiology.

In 1948 I received a Doctor of Philosophy degree in biochemistry from Western Reserve University here in Cleveland.

Q In connection with those degrees did you have occasion to teach anything?

A Oh, yes, I taught physiology and biochemistry, and in the last 19 years I have specialized in blood banking and immunochemistry, and have taught this to medical students, to clinical pathology residents, in the medical school in our Department of Pathology, and also to medical technology groups.

I was associate director of the school at Metropolitan General Hospital; and also to medical and laboratory technician groups, on invitation.

Q Doctor, while you were at Cornell did you have occasion

to teach there?

A Yes, physiology and physiological chemistry.

Q You indicated that you also had occasion to teach at Western Reserve University, is that correct?

A Yes, mostly there -- not so much biochemistry, but blood banking in immunohematology.

Q You indicated blood banking; what is that, doctor?

A Well, blood banking is the typing of patients and also donors, the matching up of donors with patients, and certifying that a particular donor is compatible with a particular patient for blood transfusion.

Q Have you had occasion to work at hospitals with regard to the blood banking?

A Yes, I have. At the present time I am associate head of the Department of Clinical Laboratories at St. Luke's Hospital here in Cleveland, where I have been since October of 1964, and in that capacity I am associate head with the Director, Doctor Clydeman, over all clinical laboratories which includes chemistry, blood banking, where my principal interests lie in these two areas, and also hematology and bacteriology.

While at Cleveland Metropolitan General Hospital where I was from 1955 up until October of 1964 I was Director of the Blood Bank and also Director of Clinical Chemistry.

Q What were your duties as Director of the Blood Bank,

doctor?

A Well, my duties were instruction and training; supervision of the technicians which amounted to five at Metro; and at St. Luke's we have four, we have a smaller transfusion service.

And the duties of the Blood Bank Director are to make sure that the blood typing is carried through correctly, to insure that the techniques are up to date, that they are safe and accurate and reliable, and to train new people, and also to investigate transfusion reactions, which occasionally occur, and I had the same experience at the University Hospitals, although there I did starting my consultation work.

Q What is your consultation work?

A Well, in September of 1950 I began to perform blood tests in disputed paternity cases, and I have done this continuously since September of 1950, and I have now completed 665 of these blood tests personally in cases of disputed paternity.

Q In connection with your profession, doctor, do you belong to any organizations, are you a member of any organizations?

A Yes, I have been an individual member of the American Association of Blood Banks since 1948, which was just the second year of its existence.

I have been a member of the American Association of Clinical Chemists. In fact, I have fellow status in the Clinical Chemists.

I have been a member of the American Academy of Forensic Sciences for at least ten or eleven years, I don't know exactly when I became a member, but I have fellow status in the American Academy of Forensic Sciences.

And I have the usual memberships of Sigma Psi, and American Association for the Advancement of Science.

Q Are you certified, doctor, with any organization?

A Yes, I am certified by the American Board of Clinical Chemistry, which is very much analogous to the medical certifying boards in medicine and surgery, and I am certified as a certified clinical chemist, certificate number 82.

Q Doctor, what is your specialty?

A Well, my specialty is blood and I guess most aspects, at least, the biochemistry and the serology aspects.

Q You mentioned biochemistry and serology aspects; what would that be?

A Well, by serology I was referring in broad terms to all blood banking, that is, blood typing.

Q Blood typing?

A Yes.

Q What do we mean when we say blood typing?

A Well, blood typing or blood grouping and some people

differentiate between these two, but the differentiation is really a delicate one, and not of concern here.

It simply means that you take red cells from an individual as whole blood and separate the red cells, and then by the use of appropriate antisera you can then group these red cells for certain factors, and this is what blood typing consists of.

Q How about dried blood?

A Well, I have done some work in the dried blood field over the years, and I have also worked with saliva, and a few occasions with human perspiration and with human urine. You can actually type urine, saliva --

MR. BAILEY: I object. I think he is going way past the answer.

Q All right. Have you had occasion to do work with dried blood?

A Yes.

MR. BAILEY: Excuse me. May we have a time when he began these?

MR. SPELLACY: Yes.

Q Will you tell us when you did this?

A I began this during my time at the University Hospitals, and I began there in August of '47, and I was starting the saliva work by the early 1950's.

Q Doctor, have you any research interests?

A Yes. My research interests have included the use of albumin in blood banking practice. Albumin happens to be important in some of the RH antibody titrations. I have publications in my disputed paternity work, I have at least two, one with Walter Whitlatch here in Juvenile Court, and other articles that I have written.

Q And have you had occasion to write other articles with regard to blood?

A Well, I contributed a chapter in Doctor Moritz' last book, the Handbook of Legal Medicine, on the Individuality of Blood, Chapter 14, which just came out about two years ago.

I also collaborated with about fourteen other professional people in getting together the Handbook of Clinical Laboratory Data, which was just published about a year ago by the Chemical Rubber Publishing Company, up here on Superior Avenue.

Q And have you had occasion to design or patent anything?

A Yes, I have. When I was at Cleveland Metropolitan General Hospital I got an idea for a new type of incubator, that is, a water bath, except this one was a waterless water bath, it was made of aluminum block, for use in blood banks.

And, actually, I made the first one in my home basement workshop, and we applied for a patent, and I have a

patent in my name, and this is now being manufactured and sold, and over eight hundred of these have been sold and are in use in blood banks all across the United States.

Q Doctor, you indicated you are associated with St. Luke's Hospital?

A Yes.

Q What is your capacity there?

A My capacity is associate Head, Department of Clinical Pathology, which is just another term for Department of Clinical Laboratories.

Q What are your duties there?

A My duties are to have associate chief responsibilities in operating the clinical chemistry laboratory, the blood bank, hematology, and also the bacteriology laboratories.

Q You indicated before that your specialty is blood, is that correct?

A This is correct.

Q Any particular phase of blood?

A Well, I am interested in I would say all phases of it, because of my work with fresh blood, and my work with blood-stains, and also my work in the biochemistry of blood.

Q Now, doctor, for the purposes of this question I want you to assume the following statements as true:

That on July 4, 1954, blood was left on a wall, that the blood -- that there were two spots of blood left on the

wall on July 4, 1954, and that those spots remained on the wall until February of 1955.

I want you to assume further that the wall on which these spots remained was dusted with fingerprint powder and was covered with fingerprint powder.

I want you to assume further that there were windows in the room where the blood was located on the walls, and that sunlight at various times and occasions would come in those windows.

I want you to assume further, as I indicated before, that these spots remained there until February of 1955; that they were removed in February of 1955, and sent by mail to California, where approximately February of 1955 the two spots that we refer to as "A" spot and "B" spot were dissolved in distilled water; that one spot, namely, the "A" spot dissolved more readily than the "B" spot.

I want you to assume further for the purposes of this question that these were then placed in a refrigerator overnight, that the following morning the spots or the distilled water containing these two spots was then tested for blood grouping.

I want you to assume further that the two spots both as a result of this test were type "O".

I want you to assume further, however, that one spot did not agglutinate at the same rate of speed as the other.

Now, based on the statements that I have just given you, doctor, do you have an opinion as to whether or not it is possible to tell whether or not those two spots came from a different origin?

A I do, yes.

Q Pardon me?

A I have an opinion.

Q What is your opinion?

MR. BAILEY: I object.

THE COURT: May I see counselors?

(Thereupon counsel and the Court conferred at the Court's bench out of the hearing of the jury, as follows:)

MR. BAILEY: I object to the following facet of the hypothetical question:

First, there is no evidence that these were covered with fingerprint powder at any time, nor is that term clear.

Second, there is no evidence that sunlight ever came into the room and landed upon that door, and the geography of the case as shown by the evidence makes it unlikely that that did happen.

Third, the use of rapidly, more rapidly, or less rapidly, does not conform to the testimony given by Doctor Kirk showing the degree of difference

in the solubility, and the same objection applies to the degree of difference in agglutination.

Next, the hypothetical question does not embrace the fact that Doctor Kirk immediately noticed a very rapid solubility, in his terms, of the blood attributable to Marilyn, as against the blood of the large spot on the wardrobe door.

Fourth, it does not show the presence of controls taken from other segments which were matched up; and, next, it does not assume as the evidence shows that these spots were treated identically from the moment they landed on the doors to an environment, dusting, removal, and everything else.

I think on all of those points, the question does not sufficiently embrace the evidence which has been demonstrated in the case, and therefore the answer would be irrelevant.

MR. SPELLACY: The question is
is it possible.

MR. SHERMAN: I think it is
speculative.

MR. BAILEY: It is admitted this
witness never tested any of the blood, so he is
answering strictly in terms of answering as to

evidence in this trial, which came only from Doctor Kirk. Certainly his question has not embraced the facts which Doctor Kirk has alleged as supporting bases.

He placed great emphasis on the marked degree of solubility, the unusually high solubility of Marilyn's blood, not only on the lower spot but also as demonstrated by controls.

He placed great emphasis on the marked difference in the rate of agglutination.

All this witness has been told is that there was a difference and we concede that minor difference wouldn't make a basis of distinction, whereas major ones do, in the opinion of Doctor Kirk.

MR. CORRIGAN: I think that we will have no difficulty amending the question to embrace those things that you have made reference to.

MR. BAILEY: Okay. May it be so amended, then.

(Thereupon proceedings were resumed within the hearing of the jury, as follows:)

By Mr. Spellacy:

Q Doctor, I will rephrase the question that I just asked

you, and delete from that portion of the question the having to do with sunlight shining in the windows, and for the purposes of the question the fact that it remained on that wall from July 4, 1954, until February of 1955, a room in which there were three windows located, and it remained there both day and night during that period of time.

And I want you to assume further that upon arriving in California, that the following tests were made, that the blood from the two spots represented by -- as we have referred to them before -- as Exhibit A and B, were treated simultaneously, the same amount of each in the same way, with the same amount of reagents throughout, that the material was placed in a small tube, then distilled water was placed thereon, the same amount in both tubes, and they were shaken to dissolve the blood;

That immediately there was a very notable difference apparent because the blood from the lower spot, which is depicted as Exhibit A, went into solution and colored the solution red immediately, just with two or three shakes of the tube that solution became red.

Assume further as true that the other solution never became red as this; that the hemoglobin was not soluble to anything like the same degree, and shaking it even for a prolonged period did not show any color.

Finally both of them were placed in the refrigerator overnight, and the next morning you could see a trace of color in the large spot, which is represented in Exhibit B, full color. It looked almost as dark as blood, in the little bit represented in the spot in Exhibit A.

The solution was then evaporated on the slides and an antiserum added, and test cells were added, and the grouping was carried out in duplicate in the same manner, the same material, the same dilution of antiserum, from the same bottle, made at the same time, actually from the same tube of antiserum.

And observations were made with respect to agglutination which results with O blood, with both the A and the B factors test.

There was a very marked striking difference. The cells added to the sample which contained the blood from the lower spot, or, the extract from the lower spot, agglutinated almost immediately.

This was very rapid agglutination, even a little faster than our controls which contained no extract.

The other spot barely agglutinated in twenty minutes, and we refer to the B spot.

So there was a drastic difference in the rate of agglutination, and this was true both with the A test and the B test.

That anti A serum, plus A cells, and anti B serum and B cells were used, in the indicator system for B, that is, the B cells, and that these two differences were noticeable, very marked, and instantly noticed just in connection with the grouping of the blood.

There was later another test run, months later, a test which is referred to as the electrophoretic test. This test was used with remnants of what little blood was left, and that there were differences with regard to this test. However, they were not so marked.

Now, based upon what I have just read you, and upon your experience, do you have an opinion as to whether or not it is possible to tell if the A spot and the B spot came from a different origin?

A Just so I am not confused, Mr. Spellacy, you are asking me if I have an opinion whether or not these two spots could have a different individual origin, this is the question?

Q Whether or not it is possible --

A On the basis of all of this that you read me?

Q Yes.

A Yes, I have an opinion.

Q What is your opinion?

A Well, my opinion would be that it would not be justified to infer a different individual origin of these two spots

on the basis of these long extensive tests that you read to me.

MR. BAILEY: Move to strike the opinion. It is non-responsive. The question was could they have a difference in origin.

THE COURT: Overruled. The answer may stand.

Q And why do you say that, doctor?

A Well, I say this because the technique of grouping dried blood -- and this is true even if it is a day old dry stain or a seven month old dry stain -- is a very difficult and a very tedious field to work in. It is time-consuming. There are many problems.

In the first place, when you have a stain you first have to establish that it is blood.

You then have to establish that it is human blood.

MR. BAILEY: I object to this answer and ask that it be stricken. It is not responsive to the question, and it is irrelevant.

THE COURT: Overruled.

A In the grouping reactions you have no intact red cells to work with, which you have in fresh blood, and therefore you have to set up a complicated system of grouping called absorption or inhibition, and this is fraught with all kinds of problems and modifications and variations in the

activity.

In many stains you are fortunate if you can come up with the same group. In many bloodstains, perhaps fifty percent of them, in the experience of many experts in this field, half of the stains that you work with you cannot reliably decide the major blood group.

So establishing that these stains were from both type O group would be an accomplishment in itself, and would be where I would stop.

MR. BAILEY: Move to strike the answer, again, as non-responsive.

THE COURT: Overruled.

Q Doctor, what percentage of the population is type M?

A About 29 percent of Caucasians are type M.

Q Doctor, you indicated that in 1954 -- in 1954 where did you work?

A I was Director of the RH laboratory at McDonald House, University Hospitals of Cleveland. At that time I was also Director of the main blood bank at University Hospitals of Cleveland.

Q In 1954 did you know one Mary Cowan?

A Yes, I did. I have known her for many years.

Q And did you have occasion in July of 1954 to examine a watch in connection with Mary Cowan?

A Yes, I examined two watches, one that she told me was

from Marilyn Sheppard, which was a small gold watch, a typical lady's watch; and a second watch which was a man-type gold watch which she told me was from Doctor Sam Sheppard.

Q What did you notice about that man's watch?

A Well, it was speckled with blood spatters.

Q Doctor, was that contact blood?

A If by that you mean, Mr. Spellacy, could the blood have been attached to the watch by smudging or contact, the answer is no, definitely not.

Q What type of blood was it?

A It was spatter stain, which we group for the M and N factors.

MR. BAILEY: Excuse me. I am going to object to this witness giving this testimony unless he gives some qualifications in this area. He has shown none on blood spatter. He is no criminalist.

THE COURT: Overruled.

MR. SPELLACY: No further questions.

MR. BAILEY: May we have for our cross examination State's Exhibit 42, with an appropriate projector screen? I will begin the cross while it is being obtained.

THE COURT: May I see counselors?

(Thereupon counsel and the Court conferred at the

Court's bench out of the hearing of the jury.)

CROSS EXAMINATION OF DR. ROGER MARSTERS

By Mr. Bailey:

Q Doctor Marsters, do you know Coroner Sam Gerber?

A Yes, I do.

Q Can't hear you?

A Yes, I do.

Q How long have you known him?

A I would say at least 16, 17 years.

Q You knew him before the first trial of Doctor Sam Sheppard and in fact the murder of Marilyn?

A Oh, yes.

Q And you had done work for him prior to that time?

A No, I hadn't.

Q Had you done any work for or with Doctor Gerber prior to your connection with this case?

A I honestly don't know, Mr. Bailey. I can say this, that we would type from time to time fresh blood specimens which were referred from the Coroner's Office, but none on bloodstains, and I assume that is what you are getting at.

Q No; my question was had you done any work for him?

A Well, I am not sure, I honestly --

Q Your answer is you are not sure?

A That's right.

Q But in any event you had done no work for him with dried blood?

A I believe that is true, yes.

Q He hadn't called on you previously?

A No, sir.

Q How long had you been available in Cleveland as a man working with blood prior to 1954?

A Since '47.

Q When did you first meet the Coroner?

A I honestly can't remember.

Q Well, was it two or three or four years before the murder, if you know?

A I honestly don't know.

Q All right. Had you had any specific training in the grouping of dried blood, doctor, before 1954?

A I had extensive with grouping reactions, and antibody titrations, which grouping of dried blood is based upon.

Q My question was, had you had experience with the grouping of dried blood as such?

A No, I haven't.

Q Had you ever tried prior to 1954 to group dried blood yourself?

A No, I hadn't.

Q So the first effort you made was with respect to the

two watches presented to you by Mary Cowan?

A This is so.

Q Would it be fair to say that prior to 1954 you had no experience whatsoever in making such grouping tests, would it?

A In this narrow field, yes.

Q Your work was with whole blood, wasn't it, doctor?

A This is correct.

Q You worked on paternity cases, with blood banks, and this is all liquid blood?

A That is correct.

Q There are some different problems encountered in grouping dried blood, are there not?

A Yes.

Q Doctor, were you requested at some time in 1954 to examine the murder room of Marilyn Sheppard?

A No, I was not.

Q Have you ever seen that?

A No.

Q Did anybody ever ask that you make comparisons of the dried blood that was found in that room by the police?

A No.

Q Are you a criminalist, doctor?

A No.

Q Are you called in on criminal cases at any time as an expert on dried blood?

A No, I am not.

Q Is this the first case you have ever testified in as to dried blood?

A Yes, I believe so.

Q Prior to 1954 and in fact early in 1955 no one had given you, no one experienced in the field, had given you any training or supervision in the grouping of dried blood, had they?

A This is correct.

Q This is correct. You filed an affidavit in 1955, after reading an affidavit filed by Doctor Paul L. Kirk, did you not?

A Yes.

Q And at the same time you filed that affidavit, questioning some of the things in Doctor Kirk's affidavit, had you actually tried to group any dried blood?

A Yes, by that time I had.

Q Did you try it only because you were called in on this case in connection with Doctor Kirk?

A Yes, I would say that's right.

Q Doctor, as a man of science, it is common among scientists in a given field, to consult one with the other, is it not?

A Yes.

Q Of course, it is also common to read the various

publications which may bring one up to date in the field of general concern of the particular science, true?

A That's correct.

Q Prior to 1954 had you read anything about the grouping of dried blood?

A Oh, yes.

Q You had?

A Yes.

Q You just hadn't tried it. Now, after you were called into this case -- and, by the way, when was that?

A Well, this was in early July, 1954.

Q For the purpose of checking the watches with Miss Cowan?

A That's correct.

Q What steps did you take in order to determine the best method of grouping dried blood prior to the time that you made the tests that failed to type the blood, that is, to group it?

A Would you repeat that question?

Q Certainly. What studies did you make, or what sources did you go to, in order to learn the proper method for grouping dried blood before you made your unsuccessful attempt to group the blood, that is, dried blood, on both watches?

MR. SPELLACY:

Objection.

THE COURT: Objection sustained

as to the characterization, counselor, of the
result. You may restate the question.

Q Did you make an attempt to group the blood?

A Our grouping for the M factor was not unsuccessful on
the watches.

Q Of course, M factor is a sub-type, is it not?

A It is just another system, Mr. Bailey.

Q Doctor, didn't you in fact try to get an O-A-B group
on this blood?

A Yes, and --

Q Did you get an O-A-B group on the blood?

A No, we --

Q That's all. Now, prior to the time that you tried
to get a group, not a type, but a group, O-A group on this
blood, did you make some studies or consult some authoritative
sources as to how the tests should be made?

A Yes, I did.

Q You read up on the subject some?

A Yes. I had great interest in all aspects of blood
grouping long before the Sheppard case.

Q You had great interest but not great experience so far
as dried blood?

MR. SPELLACY: Objection to the
statement.

THE COURT: Objection sustained,

Counselor. It is argumentive in form as to whether or not he was experienced.

Q Among the authorities that you consulted on how dried blood should be grouped, did you read anything by Paul Leland Kirk?

A No, I didn't.

Q Did you know at that time whether or not he was an authority in the field of grouping dried bloodstains?

A No, I didn't consider him to be an authority in that field.

Q You didn't?

A No.

Q Do you know how many papers he had written on the subject and how much work he had done on it prior to 1954?

A No.

Q Had you ever read anything that he had written?

A Yes, I had.

Q And have you kept up pretty well with the things that Doctor Kirk has published with relation to dried blood?

A Well, I know, Mr. Bailey, that in '57 he published a paper in the Journal of Forensic Medicine on the electrophoresis of dried blood.

Q Of course, you know he has published many many more articles than that, don't you?

A Yes, I do.

Q Have you read generally just about what Doctor Kirk has written in this field, do you know?

A No, I haven't, because he publishes in a journal that is published in South Africa.

Q Of course, they are distributed in the United States, aren't they?

A Yes.

Q The Journal of Forensic Medicine is commonly available in the United States?

A Yes, but I don't happen to read it.

Q You don't happen to read it. You say that you were unaware, if he is such an authority, that Doctor Kirk was an authority on the grouping of dried blood, is that right?

A That's correct.

Q Did you ever hear of Charlotte L. Brown?

A I believe she was one of the female graduate students.

Q You read something by her?

A Yes, in 1957.

Q What about Frederic R. Sylvia?

A I don't know of Sylvia.

Q Did you know he had written an article with Doctor Kirk about the Individuality of Dry Blood, reprinted in the Journal of Forensic Medicine in January of 1961?

A No.

Q You don't know that article existed?

A I don't know that paper.

Q Now, do you know what electrophoresis is?

A I think quite well, yes.

Q Do you use it in the grouping of dried blood?

A No, never.

Q You never have?

A Never.

Q Do you know whether it is used by people in the profession?

A I don't believe that it is.

Q Then, of course, I take it that you never read any articles about electrophoresis?

A Yes, I have.

Q You have?

A Many.

Q And having read these articles do you still say that you are unaware that it is used for blood testing or grouping?

A I know of no one that is using it outside of Paul Kirk and his graduate students.

Q I see; and you have never tried it?

A That's correct.

Q Now, since the connection you first had with the Sheppard case, where you were initially confronted with the

problem of grouping dried blood, how many other cases have you been involved in where you had to group dried blood?

A Oh, perhaps two or three dozen.

Q Two or three dozen?

A Yes.

Q Some were criminal cases?

A Yes.

Q And in these cases you were working with dried blood? Right?

A Yes; or with semen stains or body secretions.

Q Of course, semen doesn't type the way blood does, does it, doctor?

A Well, yes, it does.

Q It has an A and B factor?

A And that is exactly why we do it.

Q You say your experience in semen stains is applicable to the testing of bloodstain?

A Very definitely.

Q Had you done that prior to 1954?

A Yes, I probably have, but I honestly can't remember. I never kept records on this.

Q Prior to the time you filed the affidavit in connection with this case, doctor, which affidavit was filed in April, 1955, I believe -- is that correct?

A I don't recall when it was filed, Mr. Bailey.

Q I assume that you had given some study to the findings that Doctor Kirk claimed to have made?

A Yes, I had.

Q Had you ever called him to ask for any detail in his affidavit disclosed as to the size of the samples, the amount tested, the method used, and so forth, or consulted with him personally?

A No.

Q That was not done?

A I have never met Doctor Kirk.

Q The method which he described as to differences in solubility and agglutination was something with which you were not then familiar, I take it?

A No, that it not so.

Q That is not so?

A No.

Q Had you prior to your entry into this case attempted to resolve differences in bloods, dried bloods of the same group by differences of solubility or agglutination?

A By agglutination, but certainly not of solubility.

Q So that you had no experience in doing that?

A Well, as a practicing biochemist for some years previous to this, I think I am reasonably well qualified in the solubility of blood and blood pigments and hemoglobin in water and other solutions.

Q My question, doctor, was did you have any experience in distinguishing between dried bloods of the same group that came from different origins, prior to 1955?

A No.

Q Now, I believe you said in your affidavit that the presence of fingerprint dusting powder on the blood samples might affect the difference in solubility, is that right?

A Yes, I think that's true.

Q You do?

A Yes.

Q This, of course, would assume that one sample had fingerprint powder and not the other, I take it?

A Well, I assume that both of them had fingerprint powder but in different amounts.

I don't see how you could decide whether they had the same or unlike amounts of fingerprint powder.

Q Did you ever attempt to determine whether or not they had been given different treatment with fingerprint powder?

A No, I don't know what samples Doctor Kirk had.

Q Well, did you talk to the fingerprint man right here in Cleveland to find out if he gave them different quantities of powder?

A Well, all I know that those stains were liberally dusted with fingerprint powder.

Q My question was, did you talk to a fingerprint man to determine whether or not he treated them --

A No, but I seen pictures of the wall, and the entire pictures of the wall seems to be dusted quite liberally with fingerprint powder.

So I assume that the stains had been covered with it, too.

Q Doctor, from your experience that you accumulated since entering the Sheppard case, can you tell us whether or not fingerprint powder or its presence in blood samples affects the rate of solubility?

A Well, I assume that it would have an effect, yes.

Q You assume it, but you haven't tried it, right?

A Well, actually, I have tried it, and I can't say that fingerprint powder changes the rate of solubility, but it tends to make the reading of the reactions less easy.

Q It makes it less easy?

A Yes, it is not as certain.

Q So that your assertion in this affidavit -- and I realize this is pretty difficult to read -- that fingerprint dusting powder might affect the results, was not borne out by your tests?

MR. SPELLACY: Objection.

THE COURT: Objection is

overruled. He may answer.

A Would you ask that question again, Mr. Bailey, please?

Q Yes. The assertion that you made here in your affidavit that the presence of fingerprint dusting powder on Doctor Kirk's samples might affect the outcome of his tests, through contamination, was not borne out by the test you made, was it?

A Well, I didn't test the samples that Doctor Kirk tested.

I simply said that they might interfere and I think that is still correct.

Q You do?

A I think so, yes.

Q I must ask you, doctor, whether or not you are the author of a paper or chapter called Factors Affecting the Deterioration of Dried Blood Stains, in conjunction with one Frederick C. Schlein, B.S., Cleveland, Ohio?

A Yes.

Q This was a report of your studies of the different factors which might affect the examination and identification of dried blood stains?

A Yes.

Q Is that correct?

A That's correct.

Q This study was published in 1958, was it?

A I don't remember exactly but it was published in the Journal of Forensic Sciences.

Q And it reported experiments that you had made, very carefully, taking samples of dried blood and subjecting them to different conditions to see what contamination might take place, right?

A That's correct.

Q And, as a matter of fact, you reported 22 different pairs of samples, all subjected to different things like temperature and urine and soap?

A (Witness nods.)

Q And about six of the samples were mixed with fingerprint powder, were they not, subjected to it?

A Yes.

Q One of your purposes was to attempt to determine whether or not the presence of the fingerprint powder would in any way contaminate or interfere with later examination of the dried blood, is that right, sir?

A That's correct.

Q Now, tell the jury what you found?

A Well, I believe that we found that the fingerprint powder, even though it confused the readings, we were still able to make proper readings in all of those reactions.

Q So that there was no interference according to the studies that you did, so far as testing the blood later on?

A As far as the fingerprint powder under the conditions of our experiments, this is true.

Q Now, based on this, doctor, do you have an opinion as to whether or not the fingerprint powder, if any there was, of the type used by Lieutenant Poelking in dusting that door, did or did not interfere with the tests run by Doctor Kirk?

A Well, I don't know how Doctor Kirk ran his tests.

Q Do you mean that without determining how his tests were run, you filed a counter affidavit suggesting the incorrectness of his procedure?

A I simply suggested, Mr. Bailey, the possibility of incorrectness.

Q You suggested the possibility?

A That is right.

Q You never meant to say that his tests were not accurate, did you?

A I simply meant to say that I would certainly never draw the conclusion that Doctor Kirk did under the circumstances of his tests.

Q And this, of course, was your first experience with dried blood?

A That's right.

Q As a matter of fact, when you suggested that his conclusions were unwarranted, you had never in a prior case worked with dried blood, I believe you told us?

A That's right.

Q By the way, when you wrote this paper on blood identification, do you recall citing an article by Kirk, Paul L.; Brown, C.; and Connors, B., as authoritative?

A Well, I think I cited quite a few references.

Q No, I don't think you heard me. Did you cite an article by Kirk, Paul L., Brown, C., and Connors, B., called "Some Problems in Blood Testing and Grouping," Journal of Criminal Law, Criminology and Police Science, 45: 80-84-1954, did you cite that?

A I don't recall, but if you are reading it from my bibliography, then the answer is yes.

Q Does that refresh your recollection by looking at it, here, from your bibliography?

A Yes, yes, I did.

Q You cited it as authoritative for the propositions contained in it, do you remember?

A I am not sure whether we used it to support or whether we criticized his work. I would have to read the paper again to decide. We cite a lot of papers sometimes to criticize, as you know.

Q Surely. But in this case you reported in your article, "Attention has been previously called to non-reliability of tests performed on bloodstains contaminated with surface agents such as" -- what is that word, do you know? --

"safranines and detergents," by Kirk, Brown and Connors?

A Right.

Q So you were relying on the tests they made to determine which contaminants would interfere with blood grouping?

A No. We knew that detergents had a deleterious effect on blood cells, and that is basically why we use them.

In that reference I was apparently quoting Kirk and his co-workers in their previous statement that this would interfere.

In other words, we found the same results that apparently Kirk had found previously.

Q So you adopted the statement he had made in his paper about these particular items that would interfere, is that right?

A Yes.

Q Up until that time when you published this book, is that the only article by Kirk you had read?

A No, I don't believe so, because I had used his biochemistry book some years before.

Q Now, at the time you published this article, you of course had been involved in this case and you read Doctor Kirk's affidavits, and filed your own, had you not?

A Yes, that is correct.

Q The title of your article is "Factors Affecting the Deterioration of Dried Bloodstains," and that was your general subject matter?

A Yes, that is correct.

Q Now, did you find any of the factors which have been brought to your attention in this case, that were present in the Sheppard case to have affected the two spots that Doctor Kirk removed?

A Well, we found in our research, and I had known this from my studies with blood grouping, semen, and vaginal contents in rape cases, that body secretions will very definitely interfere with the results from the inhibition technique of bloodstains.

Q Do you know anything about any body secretions ever being placed upon or contaminating the blood samples in question?

A No, I don't --

Q Your answer is no.

MR. SPELLACY: Objection.

A Well, with a qualification, Mr. Bailey, that I think it is perfectly probable, certainly possible --

Q No, I am sorry, please don't speculate. I asked you if you knew of any contamination by body secretions, personal knowledge?

A I have never been in the house --

Q All right.

MR. SPELLACY: Pardon me; let him finish the answer.

MR. BAILEY: He says he has never been in the house.

Q Then you know of no such contamination?

A I assume it to be present.

Q Why do you assume body secretions to be present on the closet door?

A Well, I would assume a closet door in a bedroom, that inevitably human skin would be in contact, people being in the process of disrobing and all you need to do is brush against the painted wood surface to leave a smear of perspiration and this will contaminate and it will very definitely interfere as we showed in our work.

Q You mean because the panel is near the knob, human hands might have brushed against it?

A Or somebody's knee, any skin surface with perspiration on it can contaminate.

Q Doctor, do you know how far off the floor on this panel these spots were?

A I don't believe it was above the door knob level.

Q No, I asked you do you know how far in inches off the floor these spots on this panel were?

A No, I can't tell you in inches how far off the floor

it was.

Q Then how were you able to make assumptions about what portions of the body might or might not touch the door, whether or not they might have clothing on them, without any idea where they were located?

MR. SPELLACY: Objection.

THE COURT: He may answer.

A Well, I saw pictures of these spots and I seem to recall that they were below the level of the door knob. Now, I may be wrong on this.

Q Of course, before you draw your conclusion you took note of the height of these spots off the floor, right?

A I just assume in a bedroom that human skin is from time to time going to come in contact with the paint on a closet door.

Q You mean the whole closet door is probably covered with human secretions?

MR. SPELLACY: Objection.

Q Tell us what portions you think would be covered in a matter of course, from your experience on human secretions?

A I would say up to about a foot above the door knob would be an area reasonable to suspect that would be contaminated with human secretions.

Q You mean from the very bottom up to a little above the door knob you expect to find on any surface on the closet

door in the bedroom human secretions?

A I would not want to rule out the possibility.

Q Did you ever make tests on closet doors to find out what human secretions were present on that area?

A No.

Q Had you ever done it in your life?

A No, not on closet doors.

Q So you are just assuming that from speculation?

A No, I am assuming it from our work on human secretions.

Q You are able to understand from your work on human secretions the probability that they would be found on bedroom doors?

A Well, just from living I assume that.

Q Well, from your experience with living, you are referring now to your own closet doors, they probably have secretions?

A Perspiration, yes, I would suppose that.

Q You brush up against your doors, then, in your own experience when you perspire?

MR. SPELLACY: Objection.

THE COURT: Sustained. The jury

is instructed to disregard the comment of counsel.

Q Doctor, did you ever read a paper called ^{Latties'} Individuality of Blood?

A Yes, I did.

Q Did you read it before or after you entered this case?

A Well, I honestly don't know, Mr. Bailey, but I can tell you that I have been keenly interested in blood for many years and I think the probability is very good I read it before this case, really.

Q Did you take into consideration before you filed your affidavit, the material that you found from Latties' experiments, and so forth?

A Yes.

Q You did?

A Yes, I think so.

Q Did you regard that paper as authoritative or that the work was competently performed?

A I think Latties did his work before World War I, didn't he? As I recall it was 1916. That is a very old paper.

Q I am asking you if you regarded the paper as the work of a competent expert in the field?

A I would say that Latties was competent at that time, yes.

Q Have you undertaken to prove or disprove any of the facts which he states as being facts in his paper on the Individuality of Blood?

A No, I haven't.

Q Now, you would agree, I take it, that there are means

of determining within the Group O individualities of the blood?

A Not in the field of bloodstain identification, no.

Q You mean you never have done it or it has never been done?

A I have never done it and it has never been done, to my knowledge.

Q Never been done to your knowledge. So I take it in giving us your opinions based on what you have read by others, you completely discount anything Doctor Kirk said?

A Pretty much, yes.

Q Do you agree with the statement in Latties that the blood of a pregnant woman is apt to be highly soluble than that of a non-pregnant woman, of similar conditions?

A I don't know of any recent corroboration of that statement.

Q Do you know of anything to contradict it?

A No, I don't know of any data on that point.

Q You do know that Mr. Latties said that this was true, from reading his paper?

A No, I can't say that I recall that, no.

Q Now, doctor, I believe that you said that you examined the watch attributed to Sam Sheppard and you found spatter all over it?

A That's correct.

Q Now, have you ever been involved in a case before where you were asked to distinguish between blood spatter and bloodstains of other origins, such as smears and drips, and so forth?

A Never.

Q Is there any way that you have in your experience of telling from looking at a drop of blood whether it came from spatter, from drip, or from being placed there with an eye dropper?

A Not on a small drop, no.

Q Tell the jury what you saw when you looked at this watch by way of blood spatter, just describe what you saw on the watch for us?

A Well, the watch was flecked with very small blood droplets.

Q What parts of the watch?

A All over the case and the expansible band.

Q I take it that the only thing visible to you at the time of your examination were droplets?

A Yes, that is correct; there was a very large droplet that seemed to have a peculiar shape that was on the band but very close to the case. I remember this very vividly because Miss Cowan and I were attempting to find stains which there would be enough bulk to them that we could lift for our absorption test.

Most of the stains were so thin you could actually

see right through them and see the metal of the case or of the band, right through the blood.

Q How much blood do you say it takes, dried blood, in order to successfully group it, what quantity?

A Well, usually it is very difficult to measure, but I would say somewhere around eight to ten milligrams.

Q Eight to ten milligrams. Would that be half a thimble-full?

A Oh, no. It would be enough to cover the head of a small pin.

Q So a pinhead of blood would be sufficient to make a grouping, ordinarily, of dried blood?

MR. SPELLACY: Objection.

Q Is that your statement?

A Well, this would be difficult to do, satisfactory grouping, on this quantity.

Q Keep your voice up.

A A quantity of dried blood that you could put on top the head of a small pin would be I would say the absolute minimum quantity that you could use for a reliable grouping of dried blood.

Q Supposing you had five whole pinheads of blood, would that be enough to make a grouping?

A I would say so, yes.

Q It shouldn't be any problem with that amount, isn't

that right?

A Yes, I would say so.

Q And this is in order to make a determination of the O-A-B group?

A Yes.

Q So when you made your tests, I take it you didn't have a sufficient quantity to get the grouping, is that right?

A Actually, Miss Cowan did the O-A-B groupings, and I worked with her on the M-N grouping, and for that we did have an adequate quantity, and we were able to successfully M and N type this blood and we found it to be type M.

Q At the time you made the M and N groupings, had Miss Cowan reported to you some difficulty in getting an O-A group?

A She reported, Mr. Bailey, that she felt that the probability was very high that the blood on the crystal of Doctor Sam's watch was type O.

But she said that she did not feel enough confidence in it to report it out as such.

Q And she reported it out as inconclusive, is that right?

A I think that is correct.

Q What further test did you make whether or not it was in fact type O, did you make any?

A I did not make any, Mr. Bailey.

Q Was it because you did not have enough blood?

A That is correct.

Q How many spatters would you say you saw on the crystal when you examined it or little droplets of blood?

A Well, I didn't see very many, and I think that Miss Cowan had already lifted one or two stains on the crystal for the O-A-B typings.

Q How many spatters would you say you saw on the band?

A Well, there were just dozens.

Q Dozens of spatters?

A Yes.

Q But no evidence of smearing either on the crystal or the band, isn't that right?

A I didn't see anything that I would consider smearing, no.

Q You didn't see any smears across the face of the crystal, then?

A No.

Q And you didn't see any smears on either side of the band?

MR. SPELLACY: Objection. Let him finish his answer.

Q Have you finished your answer?

A I didn't see any smears, and the flecks of blood were on the side of the case. They were down in the cracks between the joints of the expansible band, and they seemed to

me to be spatters.

Q Did you make a careful examination of the watch, I mean did you hold it or put it under a microscope to satisfy yourself that what you saw in fact was a group of spatters?

A I did not touch it, but we were working on a clean surface and we handled it with forceps and we turned it over many times.

I remember very very vividly we spent a half an hour working on this watch trying to find an area where there was an adequate quantity of stain to work with.

Q Was that your primary interest, just to find a quantity to work with?

A Yes, because there were --

Q Where was the greater quantity of blood, on the face of it, that is, on the crystal, or on the band?

A There was one rather peculiar and crustaceous on the band, I remember very well it was close to the case, and I think it was at the 6:00 end of the case.

Q Now, did you make an examination of the band or the face of the watch for blood spatters that might disclose the direction of travel of possible flying blood?

A No, not at all, Mr. Bailey.

Q Did you have any experience with diagnosis of direction and velocity?

A No, I don't. I wouldn't want to try to answer that

question.

MR. BAILEY: May we have the projector, please, is the equipment available? May we have one minute, your Honor? It appears to be available, or would you prefer to have a recess?

THE COURT: Ladies and gentlemen, we will have our afternoon recess. While you are away bear in mind the instructions given you on each occasion when you are gone from this room.

You are not to discuss this case or what you have heard of it amongst yourselves; you shall not permit anyone else to discuss it with you, nor shall you permit yourselves to overhear anything that relates to this case by any means of communication.

We will have our afternoon recess.

(Thereupon a recess was had.)

THE COURT: Are we ready to proceed, gentlemen, with the equipment?

MR. BAILEY: Yes, your Honor.

By Mr. Bailey:

Q Doctor Marsters, I believe before the recess we were discussing your examination of the Sam Sheppard watch.

THE COURT: Is that the State's Exhibit 24, counselor?

MR. BAILEY:

It is, your Honor,

the male watch.

Q Doctor, I would like you to look at State's Exhibit 24 and tell us whether or not you recognize it as the watch you examined with Miss Cowan in 1954?

A Yes, that looks like the watch, although I --

Q And absent the blood, of course?

A That is what I was going to say. I was wondering --

Q The blood is gone?

A Yes.

Q I take it you noticed the broken band when you made your examination?

A Yes, I remember.

Q Do you remember the date of that examination?

A No, but it was during that first week of July, probably it was around the 8th or the 9th of July. I don't remember the exact date.

Q How long did you spend examining it?

A Well, we spent about 25 minutes going over it.

Q Pretty thorough examination?

A Well, I thought so.

Q Doctor, I wonder if you would point out to the jury as I hold up Exhibit 24, with the numeral 12 at the top, the areas where you observed spattered blood?

A Well, the spattered blood was all over the case, and

particularly on the band, and one large droplet that was unusual was down here, on, perhaps maybe on the second link, I have forgotten now exactly.

But it was very close to this connecting link on the end of the band where the case joins it.

Q If you will observe I have the watch on my left wrist; did you make an examination to determine whether or not all of the spots of blood were on surfaces exposed when the watch is worn thusly?

A No, I did not.

Q Then you didn't make any observations as to whether there was some spattered blood on surfaces that could only be exposed if the watch were held and folded, is that right?

A No, I didn't make any such examination.

Q But you do have a good mental picture of it and recall no smears?

A That's correct.

MR. BAILEY: May I have the able assistance of Mr. Lockwood?

(Thereupon the projection screen and projector were set up in the courtroom.)

Q Now, Doctor Marsters, is that a fair representation of the watch as you saw it on or about the 8th of July?

A Yes, this looks like the watch as I remember it.

Q I call your attention to this area down in here, doctor, and ask you if you observed that area when you first examined the watch with Miss Cowan?

A Yes.

Q And you say that this is not smeared at all?

A I didn't feel that this came from contact at all, because much of the blood was in fine flecks down in the cracks of these spaces.

Q Doctor, my question, do you say this area of the band is not smeared?

A I would say that it is not smeared, yes.

Q And do you say that this area of the crystal is not smeared?

A I don't believe it is smeared, no.

Q And did you discuss your observations with Miss Cowan when you made them?

A Yes.

Q As you look at the watch now, does it appear to be, the blood, as you see it here, in just the same position as it was then?

A Yes, I believe so.

Q By the way, when you had your discussion with Miss Cowan, did she agree with you that there was no smear on the crystal?

A Well, I don't remember whether we were discussing the

crystal blood.

Q Do you remember whether or not you discussed smears?

A Well, yes, I remember that very vividly, that we decided the great bulk of the blood on the watch was spatter.

I am not saying there couldn't be a single area of smear on this.

Q Did you jointly agree at that time, Doctor Marsters, that there was no smearing down on the band?

A Yes, we did, very definitely.

Q And do you remember any opinion that you may have jointly held as to the smearing on the crystal?

A No, I can't say that we had any opinion about that.

Q Doctor, I want to call your attention to these two spots right here, do you see them?

A Yes.

Q Did you notice those on July 8, 1954?

A I can't recall, Mr. Bailey.

Q Do you notice where they are located?

A Yes, I see them.

Q Now, do you see on the top of the photograph where the back of the watch band is folded so it is at 90 degrees to the body of the watch and slopes downward?

A Yes.

Q And do you see from the photograph where the inside of the connecting link is facing at 90 degrees to the watch,

instead of parallel to the body such as this one?

A Yes.

Q And did you notice at that time these blood spots right here were on the inside of the link?

A No, I honestly can't say that I did.

Q This is the first time that has been brought to your attention?

MR. SPELLACY: Objection.

A Yes, I believe that's right.

MR. BAILEY: No further questions.

That is all. Thank you.

- - -

REDIRECT EXAMINATION OF DR. ROGER MARSTERS

By Mr. Spellacy:

Q Doctor, in dealing with whole blood, that is, blood that is in liquid form -- is that correct, when we talk about whole blood?

A Yes.

Q In dealing with whole blood, is it possible even in whole blood when you have the same type O blood to tell that it came from different origin or a different person when you have the same type?

A No.

Q You indicated that dried blood is much more complicated, is that correct?

A Yes, it is, it is very difficult to group.

Q When you have the same type present in two particular spots, dry blood, is it possible in dry blood that they came from two different origins?

A I know of no way to establish this.

Q Have you ever heard of any way?

A No, with the possible exception of some of the work of Paul Kirk.

Q Do you know anybody else in this field that has ventured or even given an opinion in this matter?

A Absolutely not.

MR. SPELLACY: No further questions.

- - -

RECROSS EXAMINATION OF DR. ROGER MARSTERS

By Mr. Bailey:

Doctor, how many papers have you authored on the subject of dried blood beside the one I called your attention to?

A That's the only one.

Q That is the only one?

A That is correct.

Q You represent to this jury that there is no way to determine or separate out people who are in the same blood group, by examining the blood?

A Yes.

Q So if you are given O blood, once you group it as O, that

is as far as you can go?

A Yes. I would be pleased if I could correctly establish that it was group O.

Q And that is about as far as you can go, a man is either O or something other than O, but within the O groups there is no sub-grouping, is that correct?

A That is correct.

Q The presence of the M or the N or M-N factor, that is meaningless to you?

A No, that is not so.

Q And the presence of the R-h factor --

MR. SPELLACY: Objection.

A I am sorry, Mr. Bailey, I thought you were talking about the major blood group system.

Q Just so we understand each other, doctor, my question is, whether or not you are telling this jury that within blood group O there is no way for a competent man to distinguish human origins for blood of the same group?

A Of group O, that is correct.

Q So there are no M-N factors in group O?

A Yes, but do you want to talk about group M-N or M, or the M-N system, let's talk about that.

Q Those are basis of distinction within the group, are they not?

A Yes.

Q What about the R-h factors, is that a basis of distinction?

A Not with dried blood, no.

Q With whole blood that Mr. Spellacy was just talking about?

A With fresh blood, very definitely.

Q As a matter of fact, it would be extremely dangerous to give somebody with group O positive, some negative O blood, is that correct?

A That is correct.

Q You have to make these distinctions all the time?

A That is my business.

Q When you do paternity testing, doctor, of course you have to sub-group considerably sometimes to eliminate a punitive father?

A Yes.

Q And you do eliminate some punitive fathers by matching the blood of the baby and the man who is supposed to be the daddy, is that correct?

A Yes.

Q How many different sub-factors do you find beyond the M-N, and the R-h, within a given blood group?

A Well, within the R-h system we are dealing with five different R-h factors, and we can separate these down to almost a hundred different classes, but this is with fresh

whole blood.

Q You have never been successful in sub-grouping dried blood?

A Not for the R-h factors, no.

Q Did you ever take two samples of O blood of known different origin and simulate the tests that you read in Doctor Kirk's affidavit that he performed?

A No, I never did.

MR. BAILEY: That is all.

MR. SPELLACY: Nothing further.

THE COURT: May I see counselors?

(Thereupon counsel and the Court conferred at the Court's bench out of the hearing of the jury, as follows:)

MR. BAILEY: The defense in order to rebut a possible charge in final argument, if one might be made, that Doctor Horace Don, who testified about a certain threatening statement made by Coroner Gerber early in July of 1954, a charge that this statement on the part of Doctor Don was recently fabricated for purposes of this trial, was not true, the defense is able to offer the testimony of Mr. R. E. Dwight of Willoughby, Ohio, who would say that prior to the 1954 trial Doctor Don told him about this incident, and after