THE COURT RESUMES ON 14.6.1972.

JONATHAN GLUCKMAN s.s.

MR. CILLIERS (cont.): Dr. Gluckman, when we adjourned, just before we adjourned I read you a passage from Robins whom you said that it is a text book used by many people and it is an acknowledged authority although you don't use it yourself? And the passage I quoted to you from Robins, you said, you made certain comments on. I just want to recapture what I was reading from Robins and it was this passage ... (MR. CILLIERS READS FROM ROBINS). Then over the next few days, and I'm stressing the time because that is what you made a comment on and I would like you to tell his Worship again, "over the next few days ... (continues reading, inaudible).

Now can we pause there, specifically with regard to using the phrase over the next few days, that is after the neutrophilic infiltration, we get the fibroblastic ... do you agree with that? It is not very specific but for what it is worth? --- I don't think I can answer that with a simple yes or no. Robins, I mean I haven't consulted Robins, I would like to look at the passage, but I have been thinking about this question last night and clearly Robins is talking about the lesion of fat necrosis, sometimes referred to as traumatic fat necrosis, it is not always traumatic, where you are dealing with a full blown lesion, something of palpable significance and I think that Robinson is not basing his remarks on any experimental evidence that I can imagine, I was thinking to myself how I could devise an experimental model on which to be able to work out time relationships in this condition and I simply cannot imagine it. Certainly not in man and nor am I aware of any experimental evidence to justify a conclusion in relation to time. I think Robins, on general principles,

/ referring ...

referring to what I describe as a palpable lesion is perfectly justified in talking about that but we are not talking about anything like that, we are talking about a microscopic lesion which is barely visible to the naked eye, it might be visible with a hand lens but it is a microscopic lesion and all pathologists and all surgeons are familiar with this condition of fat necrosis but generally the type of lesion that we see is of the order of the size of a hazel, you know a couple of centimetres in diameter and the commonest ones, one meets it in other types of pathological conditions which we needn't go into. But obviously Robins is talking about this condition which is well recognised, which is not uncommon but which is a palpable lesion and I know of no justification for applying the time intervals which is clearly a massive inflammatory reaction which does occur in such lesions to a lesion of the order which were discussed.

I follow you very well, Dr. Gluckman. In other words, you are telling his Worship we are dealing with a very minute bit of evidence here, very small reaction if there is any reaction and you don't want to apply Robins' remarks to this type of phenemenon? --- I'm dealing with a very small but highly significant lesion.

We will probably come to the question of significance... --- I must say that on much smaller lesions sometimes in the course of my practice I have to condemn a woman to having a breast removed or a child to have a limb on smaller lesions than this.

Are you talking of matters such as cancer? --- Yes. Well, really I was considering sizes and in certain lesions decisions are made on a dozen cells.

But the reference to having a breast removed ...

/(both ...

(both talking together) .. --- Naturally.

Well, in any event, the evidence of the size of the lesion we are dealing here, refers to a very minute lesion, that is correct, isn't it, Dr. Gluckman? --- In comparison with the other lesions we are discussing, no.

Are they all ... --- The other lesions that we have been discussing round the skin, no. I mean it is as large a lesion as a focus that has been described by some as epithelial hyperplasia.

Well, how big is the area here, how large is the area which we have evidence of a lesion? --- As I recall it, we are dealing with G?

Yes. --- I would say it would be about between 50 and 100 new, that is between 50 and 100 1/1000th of a millimetre. That is a large lesion histologically.

But if you had to show his Worship now with your fingers, Dr. Gluckman, it would be a very very small area, wouldn't it? As you say it is only part of a millimetre? --- Yes, but when we are talking about all these stages, I must point out that we are generally talking about levels which are between 5 and 10 one-thousands of a millimetre and now I'm talking about 50 to a 100.

Do you think that there is a significant infiltration of neutrophils and macrophages here? --- I haven't recorded many neutrophils but there were plenty of macrophages which are more important. Neutrophils disintegrate very rapidly in tissue.

And the macrophages come later? --- No, no, they start coming simultaneously, the macrophages survive, the neutrophils disintegrate.

/ Your ...

Your Description of KK, Dr. Gluckman, says that iron were shown to be present in macrophages in the area of fat necrosis, that description doesn't say whether there are many or few macrophages, it is a significant infiltration? --- I would regard one macrophage with iron in it as highly significant.

The fact that the macrophages show up iron means that there has to be a breakdown of red blood cells which has been as it were consumed by the macrophages? --- Precisely.

Now while we are on that, Doctor Gluckman, could you assist us by telling his Worship the breakdown of red blood cells, can it also have non traumatic cause? --- By that you mean in disease?

Can any person in the body have, I think, it is called haemosiderien, isn't it? --- Well, haemosiderosis, yes, this is a pathological condition.

Can that be caused otherwise by trauma, by force? --- Oh yes, indeed.

Now in fat necrosis, you have told his Worship, I think, already that you get traumatic fat necrosis, I think the inference that you pointed out is that you also get non-traumatic fat necrosis? --- You get fat necrosis in conditions unassociated with trauma, yes.

Isn't it true that the actual cause of fat necrosis is often obscured? --- No, the commonest cause, I'm trying to avoid getting into deep pathological water, the fat necrosis is the result of enzymatic action which results in breakdown.

PROF. SIMSON: I think, your Worship, we are going to get into deep water unless we restrict this somewhat. Mr. Cilliers is referring specifically to fat necrosis in this situation, in the subcutaneous tissue?

/ MR. CILLIERS ...

MR. CILLIERS: Yes. --- Well, in subcutaneous tissue, the ordinary subcutaneous tissue apart from the condition which I know about and which occurs in new-born infants, other than in the female breast I think it is always traumatic. I think, I cannot imagine any other condition, other than this one that I know about, it is a natal condition and in the female breast which is also subcutaneous tissue, the whole breast is part of the skin, it may be associated with trauma and then there is a theory that it is related, there are various theories as to its causation including vascular damage and vascular changes.

Doesn't one find toxic agents operative in subcutaneous tissue? --- I must ask you to elaborate on what you mean by toxic substance? I can imagine the injection of some material might result in it, yes indeed, say following an injection of irritant material which damages the fat cells, yes, I would say that that couldhappen.

I obtained this reference from the work of Anderson on Pathology, you know the work? --- Indeed, yes.

His fifth edition, page 75, I just picked it up, I don't know if you think it is out of context or worthless, where Anderson says: "Fat necrosis can be caused by toxic agents and circulatory disturbances"? --- Yes, the circulatory disturbances were the vascular things to which I refer but I don't know what the toxic agents mean. The only, you know, talking without going deeply into it, the only toxic agent that I could imagine producing local subcutaneous fat necrosis would be injected material.

Want I want really your assistance on, Dr. Gluckman, is this, that having regard - and as Prof. Simson pointed out we are dealing with this particular situation - to the fact

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that as you have told his Worship that fat necrosis does have non-traumatic origin and that iron can show up in macrophages because there is haemosiderin present, both which have a traumatic origin, do you think it is possible in this situation, I am putting it now higher than that, is it possible in this situation that presence of fat necrosis and of the iron in macrophages has a non-traumatic origin? --- Such as generalized disease?

Well, whatever ... --- In this context?

Yes. --- No.

You don't think so? --- No.

Well then assuming, accepting for the purpose of this examination that there is a traumatic origin here, let's direct our attention to the question of time, you initially in the fashion which you had followed right throughout your report, referred to the cellular reaction and said that cellular reaction by itself suggest that the age of the lesion is 24 hours or more and then you went on and the next thing that you referred to was that Dr. Schepers had mentioned the presence of a scab in his naked eye description./ Sorry, I'm reading from the wrong one. And then you go on to say that as it is at least 24 hours old and then "as red blood cells are still present, it is likely (but not absolutely certain) that the lesion is less than 5 to 7 days old. That is what you said? --- Yes.

Now do you know, Dr. Gluckman, how soon if one has a trauma you must get an inflammatory reaction? --- It probably starts immediately but is rarely visible before a number of hours.

Can you tell his worship how long one can have a trauma without a cellular reaction? --- Well, that is the period which I covered at the opening of my affidavit when I

/ referred ...

referred to the peri mortal group of injuries.

PROF. SIMSON: Can you give us the time, Dr. Gluckman, I think this is important? --- I think it is generally accepted that a vital reaction which probably starts within minutes is not readily visible until a couple of hours.

Could you give us a time limit at the other end of the scale, in other words up to what period one might have no reaction present, a maximum period or not even a maximum period but a range, you said a couple of hours, could it be longer than this? --- I'm not quite clear.

If one has an injury and the person dies at varying intervals after that injury you said that one would expect to find evidence of vital reaction by which you mean, what do you mean by vital reaction? --- I mean an inflammatory excitate.

Of what cells? --- Of the leukocytes within the blood starting with polymorphonuclears and other mononuclear cells.

Now may this interval be longer than a couple of hours? --- I think it is unlikely, I think that the authorities generally agree that two-three hours is readily visible.

Could you tell us what Robertson said in his paper? --- In Robertson in the original paper on bruises?

No, no, not on bruises, in connection with abrasions? --- I don't think he deals with this point, I'm sure that he touched on it in the other paper on bruises which I do not have available. Oh yes, he describes twelve cases in which a survival period of 4 to 6 hours, peri-vascular cellular infiltration of polymorphs being discernable in all of these. I think that would be a relevant passage.

I think he describes one in which was as early as

/ two ...

two, it means that in some of these it was as late as six hours. --- Yes, I have forgotten about this.

So would you agree that this period might also be quite long? --- Yes.

In connection with bruises, have you any evidence from the literature about how long this might be? In other words, where there are red cells present in the tissue without evidence of inflammatory infiltration? --- Moritz deals with that in several passages. ... Initially that emigration of leukocytes commence almost immediately, on page 21. If I might read from the middle of page 32. "It is not possible to estimate accurately the time since injury from the gross appearance of the bruise. Knowledge and the rate at which extravacated red blood cells and haemoglobin deteriorate and disappear is essential in the estimate of age. The rate of their disintegration varies. Diffusely extravacated .... usually disappear within a few days following a small haemorrhage into well vascularized tissue. Thus in the case of a mild contusion it is unusual to see any red blood cells free in the tissue spaces after between 5 to 7 days". That is where I derived the time 5 to 7 days and of course then he goes on to talk about haematoma development.

We have the same difficulty here, Dr. Gluckman, have we not, as we have with Robertson's article, inother words the definition of small? --- Ja.

Would you say this is a major deficiency? --- In the whole argument, yes, indeed.

We still haven't established the answer to the question, in other words what the maximum time can be or what a maximum time can be in which red cells are present in the bruise without evidence of an inflammatory reaction? ---

/ The ...

The intact red cells can survive for a considerable period...

Not the survival of the red cells, the presence of an inflammatory reaction? --- I think that the inflammatory reaction is dependent, well we know that the inflammatory reaction is dependent as much upon damage to tissue as it is on the extravacation of the red cells and the degree of reaction which response the insult depends on how much tissue, surrounding tissue is involved. I don't know that I have authority for saying, for answering your question properly.

It was mentioned yesterday by Counsel for the Police that Prof. Koch had in his possession a section of a bruise which he knew to be eight days old, I think this is correct, in which there was no inflammatory reaction? --- Yes, well, I think the absence of inflammatory reaction, as I said earlier, would be directly related to the degree of adjacent tissue reaction. Taking the matter further, assuming there were some bruise of non-traumatic cause where there was bleeding in the tissue, as does occur in certain disease or artifidally induced condition, then one can imagine survival of red cells going on a considerable length of time without any reaction. I recognise this possibility.

How far can one go then in attempting to date a bruise of the type that we have been dealing with her? --- I don't think we can go very far, as Robertson found in his earlier paper, that the dating by means of bruises was extremely unreliable. The dating of bruise was extremely unreliable on the evidence available to them.

Are you able to distinguish between a fresh bruise and an old bruise, in other words a bruise caused at the time of death and a bruise that was caused some time before? --- This is the peri mortal period, if it is a short period...

/This ...

This was the very, the original point that I put at the start of this, when we discussed terminology, if this period is as long as 6 hours, which is possible according to Robertson, then peri mortal becomes no longer a reasonable definition? --- Correct.

And would it be possible to have a bruise such as some of the ones that we have here that had been caused a fair time before the person's death but without evidence of a reaction? --- I don't think that we have any bruises as I recall them in which there is some reaction and, in which there is not some degree of reaction, not necessarily .. some degree of reaction. I think there is nothing..

There is one that we haven't discussed yet but could I refer you to O.1. --- Yes, I remember O.1, there was no reaction at all.

Do you think those bruises from their appearance were caused at the time of the deceased's fall? --- As I recall it O.1 was the left forearm ..

The left upper-arm? --- No, to me, in terms of ordinary judgment, were not caused at the time of the fall.

Have you any opinion as to how they might have been caused? --- Well, in the opposite group, that is to say the group on the other side, G, to which we, which we have been discussing at the moment I went so far as to make the comment that they were consistent with having produced, having been produced by vingers and these were a mirror image of G.

So you gold the same opinion on the bruises on O.1? --- Yes, this was in fact my reason for asking for O.1, this was the, I think the only extra one which I asked Dr. Schepers to take.

/ This ...

This was your reason for asking for it, were you then surprised to find no infiltration? --- Exceedingly surprised and my own internal reaction was that we just had a bad sample.

Well, that is the important point, Dr. Gluckman. In other words, the sampling might be important, fundamental to the whole issue? --- How do you see this bruise, O.1 in the light of the naked-eye appearance and the microscopic appearance? --- It is very difficult to reconcile, I was exceedingly surprised not to have an appearance exactly comparable to G, this I would have expected.

Now if we take that a little bit further and the lesion that we have been discussing in G is a small lesion, is it not? --- Yes.

In other words, it could easily have been missed in the section? --- Indeed.

If it had been missed how would that compare with O.1? In other words, if you remove the area of fat necrosis and remove the macrophages containing iron? --- I think they would have been indistinguishable.

What is your opinion about these two bruises, taking everything into consideration? The two sets of bruises? When do you think they were caused? --- I think that they were ante mortem and applying as it were the judgment of a doctor, of an observer, I would have said that they were fingermarks.

When do you think they were caused, are you able to say with any degree of certainty at what period ante mortem they were caused? --- I couldn't say that. I can't say that. Just looking at them from naked-eye I couldn't say that.

I think this affects the interpretation of the other bruises? --- The only evidence upon which I say this is a few

/ days ...

days old and by a few I mean fewer rather than more, is on the basis of the fat necrosis.

But if the fat necrosis were not there, your opinion is/that the appearances would be difficult to distinguish from the section of 0.1? --- Absolutely.

And do you think that one is able to say that these two bruises on the upper arms on both sides were caused at any time period in relation to the other bruises, is one able to give an opinion on this? --- It looked very similar.

To the other bruises? --- They looked very similar. in colour to theother bruises except one on the back which was discoloured.

Do you think that all these bruises were caused at the same time? --- I can't say that.

In other words, you are not able to offer an opinion on the time relationship, this was my original question? --- No, I don't think I can do that.

How far would you be prepared to go considering all the bruises together? You have already said that your opinion is that they were ante mortem? --- I am being asked to say how many hours prior to death they took place, is that the question?

I am asking you how far you are prepared to go in saying, in qualifying, if at all, that these bruises were ante mortem? Can the Court accept Dr. Gluckman, that you feel that all the bruises included in the schedule are ante mortem bruises? --- No, there were some which looked very, which looked fresher than others, I wouldn't say that they were all exactly the same, there were some that looked fresher than others and on the other hand there was one on the back and I'm not making anything of this because we don't have...

/ I'm ...

I'm just talking about the ones that you included in your schedule, KK, Exhibit KK? --- Yes, there is one which I have included in my schedule and which I haven't mentioned a point. On naked-eye examination at the time of the necropsy I expressed regret to Dr. Schepers that we did not have colour photography available to demonstrate a greenish discoloration.

Which one was that? --- It was ...

H you thought looked? --- Well, it had the varigated colour of the dissolving bruise and when the photographer prepared I asked whether this was colour film and I was told no it was only black and white and I said well this was very unfortunate because we could have recorded the colour.

Do you accept that H is associated with an abrasion? --- There was an abrasion in H as well.

So that one could get a little closer to the dating perhaps by taking the abrasion in conjunction with the bruise, I will leave that alone, I don't want to go into this any further, it is just the question of how far one is able to, exactly what one is able to say in connection with these bruises in relation to the time before death that they were caused? --- I think on naked-eye appearances one cannot go any further than that of the ordinary experienced observer ...

Now taking everything inconjunction, including the discussion, including your comment on the bruises on the upper arms, how would you summarise them, would you say that these were caused at different times, at the same time, how far are you able to say before death they were caused? --- I don't think I can be pinned down closer than to saying a

/ few ...

few days before death except for a few obvious fresh bruises.

When you say a few days, what are you referring to, what do you mean by a few days? I don't think the Court is trying to tie you down, Dr. Gluckman, but just to find out how far you are able to go on the basis of the examination of literature? --- Well, the features vary, for example the existence of macrophages ...

I don't want to go into a detailed discussion on this, I just want to know on your own opinion how far you really honestly feel that you are able to help the Court in deciding how long before death these bruises were caused? --- Well, I think that as a general statement I would say that they would be round4 to 5 days.

Most of them. Have you a basis in the literature to help you to come to what is a fairly restricted time area, 4 or 5 days? --- No, I don't have a basis, I'm familiar with Robertson's previous paper, I'm familiar with certain observations in Moritz where he talks about the development of the granulation tissue/at certain periods.

Well, could you tell us how you come to this period of 4 or 5 days? --- I think that I depend to a certain extent, where we do have a subcutaneous or a dermal tissue here, where we have fat necrosis, where we have iron containing macrophages and reaction to haemorrhage ...

How long does it take for iron to appear in macrophages in a bruise? --- I think 24 hours.

24 hours, so this doesn't help us to get 4 or 5 days? --- No. Then we have some situations where there are increased numbers of fibroblasts...

When do fibroblasts first appear in a bruise? --- Well, fibroblasts are normally present.

/ In ...

In the fat? --- Well, in the fat septa.

Good plump fibroblasts in normal fat septa, would you accept that? --- Yes, one sees numbers of them in fat septa, not in any great number but it is only in septa that they get there, that one normally encounters them.

Dr. Schepers also mentioned the presence of fibroblasts in dermis and subcutaneous fat and the presence of occasional macrophages, is this something that one normally sees, a plump fibroblast, not a thin fibrocyte, a plump fibroblast in fat ... --- In subcutaneous fat, no, one sees more of the bibrocytic ones, the elongated fibroblast in septa.

So if you see plump fibroblast ... (both speaking together).

When do these occur in a bruise? --- I think I would rather work it back, according to the authorities that one has, granulation tissue develops round about a week, now I think it is crucial to my viewpoint that nowhere have I seen granulation tissue. I have seen fibroblasts in dermis ...

Granulation tissue would be, the presence or absence of granulation is of no assistance in these particular bruises? --- Excepting that it hasn't yet developed.

Except that it hasn't yet developed. The question is concerning your estimate of four or five days granulation is of no assistance to us ... --- Except as I say that because granulation tissue has not yet developed, I am at a lower level.

Yes, but your lower level was 5 days and you said granulation tissue ... --- I said 5 to 7 days, my authority is to say.

And fibroblasts? --- Fibroblasts start developing, well, first of all fibroblasts are you know, they are present hibiquitus (?) and then additional fibroblasts form and one

/ presumes ...

presumes that the increase in the numbers of fibroblasts associated as it is with increased numbers of capillaries, constitute a stage towards the development of granulation tissue. They start appearing very early and if the lesion is large enough to lead to the development of granulation tissue I presume that there will be a progressive increase associated with the progressive increase in capillary development to form granulation tissue up to, the literature tells me it takes place in 5 to 7 days. So I am all the time below that level.

Well, below the maximum level would that not be a more correct way of looking at it? --- Yes.

In other words, this could be anything from 24 hours to 7 days, would you accept that? --- I think it must be because this is what led Robertson into need for this exercise that wehave been discussing.

So could we summarise this, is this a correct interpretation of this evidence, Dr. Gluckman, that these bruises are ante mortem bruises but thatyou are unable to say whether they are between 24 hours or up to 7 days old? --- I don't think one can say this with certainty.

I'm sorry, I must have misunderstood your evidence. --- I mean I was concurring with your final remark.

In other words, are you agreeing that one must put this into a period of 24 hours or up to 7 days and you are not able to help the Court to take this any further on the basis of the time limit? --- I can speculate as to it, I would expect in the case of fat necrosis for example, I would expect that it would be beginning, at the later period it would be beginning to fibrose up a lesion so small as this but I don't have a basis upon which to date it.

/ Thank ...

Thank you, doctor.

MR. CILLIERS: Dr. Gluckman, to come back to a few points we have made, you have referred to the article of Robertson and Mansfield, these are people who have done research, Robertson and know of? --- Yes.

Now onpage 7 of that article Robertson says, these authors say it is common knowledge that a bruise of the skin .... changes over a period of days or weeks following infliction. These colour changes depend on processes which canonly occur to any extent during life .... (inaudible). These changes take several days to develop". Do you agree with this? --- I think it varies from individual to individual. Broadly I agree.

In other words, would it be fair to say, Dr. Gluckman, that discolouration of bruises is a very uncertain guide and can only give very wide limits? --- Oh yes, I can't by looking at colour say this is one or two or three or four days old, no.

Or one or two weeks old, isn't it? --- I think it would have to be a colossal bruise to survive two weeks.

Well, according to what I have just read which you said broadly speaking you agree with, the colour changes can take place over a period of days or weeks? --- Yes, I think this is the quantity of the thing, the bigger the bruise, the longer it will take, this is reasonable.

But the changing of the colour according to these authors can take place even over weeks? --- Well, you see the changing of the colour, the colour changes are due to degradation of blood products and transformation into other blood products. If it is a small bruise it will happen quicker. If it is a big bruise there is more blood to be

/ processed ...

processed as it were chemically and there will be more of the colour ...

Or to put it differently, just dealing with this particular case, you have already told Prof. Simson now that for reasons which you gave, that you think that the age of this bruise can be up to about 7 days, up to 7 days you said. --- We were making a general statement, which bruise were you referring to?

We are talking about G, that is what you said in your report as well. --- I said I have no basis on which I can state it precisely, I have, my observation stands, it is likely but not certain that the lesion is less than 5 to 7 days and I gave my reasons for saying 5 to 7 days.

And as I understood the discussion between you and Prof. Simson a few moments ago, I don't know whether you were intending to include this particular bruise under that discussion, that it can be up to 7 days? --- That is what I have said.

Well, the only thing that struck me is that it is less than 5 to 7, do I understand your evidence now up to 7?---- As a general statement, yes, but I give my reasons for, in this specific case, why I thought it was younger. The reasons may not be valid but these are my reasons.

In other words, it can be up to 7 days..

PROF. SIMSON: I am not sure what the reasons were? --- My reasons were the fat necrosis surrounded by relatively little reaction, relatively little reaction.

But if you relate this to what we have already said about 0.1? --- Then of course that stands.

MR. CILLIERS: Sorry, I did not catch the question.

PROF. SIMSON: If we relate this to what we have already

/ discussed ...

discussed about 0.1, in other words, a lesion that Dr. Gluckman considered could possibly be caused at the same time as G but in which no reaction was present.

MR. CILLIERS: When you refer to little reaction do you call this what I refer to as a giant cell or a large cell, do you call th t comparatively little reaction? --- No, I don't regard that as reaction, that is part of the process of fat necrosis.

This now ... (both speaking together) .. consisting of more than one macrophage that formed one cell? --- It is so difficult to explain, there are many kinds of giant cells, I may say that I have actually given a 45 minute lecture on giant cells alone. There are many kinds of giant cells and this is a special kind of giant cell, this is part of the process of fat necrosis where there is a little cell, the hystiocytes containing fact or ... and a couple of them have come together and coalate and I don't know how long this takes, it could happen in a couple of hours. I can quite visualize it in general principles happening in a couple of hours. I mean as far as I was concerned I attach no special significance to the fact that there was a multi-nuclear and if it were a very old one I'd expect a lot more, if it was part of an inflammatory reaction unrelated to the specific fat necrosis I'd expect it is a different kind of acell that happens.

I just asked you because you mentioned little reaction and I thought that whatever the reason for it, or the significance of it, it was perhaps not a little reaction? I understood you also in your discussion with Prof. Simson to say that the question of how long red cells can survive without provoking inflammatory, how long red cells could

/ survive ...

survive undamaged is again, is related to the question of inflammatory reaction ... --- No, what I said, yes, well naturally. You have to have macrophages to take the red blood cells away or the product of the red blood cells, yes.

Now it is not known, is it, for how long they can survive without provoking inflammatory reaction? --- As I said this is an expression of surrounding tissue damage.

Do you agree with the statement that it is not known how long they can survive? --- No, I think that it is agreed by all that they can survive for quite long periods of time without provoking a reaction just by themselves.

More than seven days? --- I think so, yes.

As Prof. Koch will say, you accept that? --- I do indeed.

In other words, if one based it only on the question of the presence of red blood cells in the area of the lesion then that by itself would not be a justification for putting an upper limit of 7 days? --- If I saw blood cells alone in tissue, the only comment I could make would be there are blood cells in the tissue.

And of any age? --- That was my comment, I would say there are blood cells, like this is a microphone I draw no further conclusion.

If I asked you if there were, if you found those blood cells alone in the tissue could they have been there for 8 days for instance? --- I would say I don't know.

Now as you have said you don't know, you can't draw an inference about how long blood cells have been present in the tissue merely because you see them there, then what is the other factor that you rely on for placing an upper limit of 7 days on this bruise? --- On this bruise?

/ Yes ...

Yes. --- Indeed, on fat necrosis.

Now how long can fat necrosis survive in this form? --- I don't think anyone can answer that question but I can apply general and hystological principles to this and I would say that the day, within a very short period of time this little bit of fat necrosis would provoke more than inflammatory reaction and in a matter of days would be gone or there would be a scar, a microscopic scar.

Do you know how soon the fat necrosis would develop after ... --- It can happen very fast.

I know you have said it can but do you know how long it can take before it does develop? --- May I look up my notes, no I have no authority for time.

Well, Dr. Gluckman, all I really wanted to say and wanted to link it to what you have said in the last part that you have added to your original affidavit, you said because the scab is present it is more difficult to establish the age of this lesion and I think you have said so repeatedly, would it be scientifically correct for you as a scientist, Dr. Gluckman, to say that the seven day maximum period is itself an uncertainty, itself an uncertain limit, it could be eight? --- Yes, I think right through our discussions where we have perhaps possibly more precise data than we have in a bruise we have agreed that 5 to 7 could be 4 to 8.

Yes, well that was in connection with abrasions, I'm just asking you, I want to be quite certain, Dr. Gluckman, that I know where you express a firm view and where you express a view subject to such reservations as a scientist you should make. Now let us suggest, I'm suggesting, I'm asking you would the period which you have, to the best of your ability, given as a maximum period of 7 days, could that

/ be ...

be 8 or 9 or 10 days maximum? --- At this stage to answer your question will be speculating. I have applied in reaching this assessment such knowledge as I have to judge a lesion in tissue. Now the question you have asked me, as so often happens in medical legal problems, is only properly answerable by reference to standard works, to research, to standard works, to text books and unless there is somebody who has specifically directed themselves to this point, one can only say that the text books aren't written to deal with this kind of problem and unless there is specific research and I said right at the beginning, I just don't know how one could devise a model to study this type of fat necrosis. Any answer I give you is the purest speculation on that but my previous answer was based upon what I believed to be one's own judgment and experience of pathological processes under the microscope.

I understand that this is your judgment for such reasons and such limitations as the available literature imposes on you. I just ask you could it be a maximum of more than seven days, up to 7, 8, 9, 10 days, could it be? --- My Answer stands, for me to answer to you it would be purely speculative, we are speculating now.

So you don't know if it could be 10? --- No, I don't know, this is what I'm trying to say, I'm sorry I should have said that in the beginning.

And in the judgment that you formed, would you then say up to 7 days? --- Yes. And I would say that could be 8 too.

So doctor, would it, after having the benefit of the discussion with Prof. Simson and after telling us what you have now told us be correct to take the first two lines of page 6 the more correct or safer, the first two lines of

/ page ...

page 6 of your affidavit and say, it read this way, "as red blood cells are still present, it is likely (but not absolutely certain) that the lesion is less than 5 to 7 days old". Can we say that your considered opinion now is that this lesion is up to 7 days old? --- Well, I think I said it there, I said I'm not certain.

Well, here you said less than ... --- I have no objection to your rewording of the ...

But I'm not the witness, doctor? --- Then I say it is your opinion, I adhere to that mode of expression.

Up to 7 days old? --- Yes.

Now just one other point on G, you told us at the outset of your evidence that Dr. Schepers was most co-operative and I think you said he couldn't have been more co-operative? --- I did.

And that he took sections and that on only one occasion did you ask him to take an additional section? --- Yes.

You also told us that you ensured at the time that you had such sections as you thought would or may be useful? --- Well, I mean I went along with Dr. Schepers who was perfectly able to work out would be useful and when he said do you think we should take something more and I said well I think we ought to take the corresponding one on the other arm.

And that was the only one which you then suggested as an additional section to what Dr. Schepers had himself already taken? --- As I recall it, yes.

And was that because that bruise looked to you as if it may have been an old bruise and you wanted to examine it? --- No, I wanted to compare it with G.

/I ...

I take it then there were no other bruises which struck you as may have significance and of which there were not sections taken? --- Oh I think we should have taken sections of everyone.

But of course at the time? --- At the time, no, I went along with the statement that Dr. Schepers selected representative areas of the injuries.

So at the time then and this is only macroscopically, is it fair to say that sections were taken of all bruises which you thought may be significant? --- No, I didn't say that.

Well, were there bruises which struck you that they may be significant and which you didn't ask for sections? --- I didn't assess significance.

At all? --- At all. I was noting observations, significance would have come later in the light of further studies. I mean I did not go along with Dr. Schepers' statement that he selected only ante mortem bruises. I mean I agreed with the statement that he selected representative areas of all the injuries...

Did you think Dr. Schepers' examination was a thorough one? --- Well, with hind sight I think there were many things we should have done, that should have been done and were not done.

COURT: But at the time, doctor, when Dr. Schepers held the post-mortem what did you think of his work? - Not with hind sight now, let's find out what you thought of what he did at the time? Did you think he did a thorough job? --- Well, the only thing that ...

When one looks back one thinks one should have done this and that ... --- Yes, at the time yes.

MR.CILLIERSDid Dr. Schepers make the notes of his macroscopic examination in his own handwriting or did he read that out to somebody who noted it? --- He dictated it subsequent to my departure.

From notes or from memory? --- No, he dictated them, well I don't know, I wasn't there.

But at the time of the examination didn't he make a note, bruise on the right clavicle ...

COURT: Did he make notes as he was going along? --- No, what he did was he applied a label and would say A, that is the bruise on the right clavicle and called outA, bruise on the right clavicle. But the final description he did subsequently, he dictated to whoever it was,he dictated it.

But he did call out as he ... --- Oh naturally, that is how we acquired the labelling.

And these labels, I think there are nine, are these the bruises which Dr. Schepers thought may be ante mortem bruises? --- Well, we didn't discuss this question.

You obviously didn't put a label on every bruise? --- No, Dr. Schepers put labels only on those sections, on those tissues which he thought it proper to sample, on those areas, that is all. That is the purpose of them. The description, the detailed description was made subsequently.

And to this you then added one and said I would also like that one? --- Yes.

Just to put it this way, was your impression at the time that Dr. Schepers did not fail to put a label on any bruise which you thought he may have put one on? --- Well, if I thought that there was a further section that should have been taken, I'd have asked him to take it.

Now coming to this question of the theory which you

/ put ...

put forward, I don't think you put it higher than a theory of fingermarks, the possibility of fingermarks. Could we just refer to the photograph. The theory was put to Dr. Schepers, it would be photograph 1 and 2. This was put to Dr. Schepers, 1 and 2 show the right arm, don't they? --- Yes.

Now I'm dealing with section G, that is the right arm. Now you can see on photograph 1, how far do you think those marks, I can visibly see four marks, one below G and the other three above G, do yousee them, doctor? --- Yes.

How far apart do you think these lowest marks is from the mark which is just to the left of the label? Or don't you want to say? --- Do you mean the ...

The distance? --- I don't know but that is not part of the marks we were studying, that is a different mark. The group we were studying were these three on the biceps.

I see. --- The mark at the bottom is on the lateral side...

That is not part of the pattern? --- No.

The suggested pattern? --- No, not suggested pattern, I have the clearest description about G, the biceps region, the lower mark is not on the biceps region.

No, I understand that. Are you suggesting that, I don't think you did but just to clear this up, the three marks above G then, you are not suggesting that they could be marks of this arm being gripped once by one hand? --- I don't know, this is a realm of speculation that I'm not prepared to enter at all. I just applied ordinary common sense of an ordinary person who is familiar with marks on peoples' arms, on peoples' hands, we have all seen it grab somebody or something like that and they looked like finger marks to me. I can't put it higher than that.

/ I'm ...

I'm not quarreling with the common sense, if you had an uncommon sense too it would be something exceptional. --- I hope so.

Now the three marks which we see above G, do you think that those three marks could be finger marks of a person who was gripped once? --- Well, applying ordinary, it looks peculiar to have suggested it, I mean it isn't anordinary pattern, you know, it is a triangular pattern.

I don't know how you could get three fingers into that position with force? --- It is a triangle pattern.

Well, my learned friend, Mr. Maisels, put it to Dr. Schepers, and you heard it, and he put it to Dr.Schepers that it could be consistent with a person being gripped several times? --- I can't quarrel with this.

Now would that then be in your view, if that is the origin of these marks would that mean that eachof the three bruises would be caused by a separate grip. In other words, that each bruise would be representative of one take of the arm? --- My answer to it it could be but it is speculative, I'm merely saying if you put it up, I said well it could be, I don't have a viewpoint.

You don't have a viewpoint? --- No.

Then we can step off that except for one thing, there are no, no section was taken of the rear of the arm, towards the back or the inside, the posterior part of the arm, there is no ...--- No, there is no section.

Now it would be reasonable, wouldn't it, Dr. Gluckman that if somebody did grip another person so hard that fingermarks were left on the front of the arm, then the thumb which is essential to the grip must either on the posterior part of the arm or on the inside leave a corres-

/ponding ...

ponding mark? --- On the face of it your proposition seems reasonable but I don't know what this has got with me as a pathologist examining a dead body.

No, well perhaps your common sense ... --- As I said it sounds a reasonable proposition but I can't take it further than that.

No, but you have no recollection or do you, of a corresponding mark on the posterior or inside of the arm? --- No, I have no such recollection.

PROF. SIMSON: Did you look for something there, Dr. Gluckman? --- We examined the whole body.

But you looked specifically? --- I didn't look to see if there was a corresponding fingermark no. But we carried out the normal examination.

MR. CILLIERS: If Dr. Schepers did a thorough job as you have said he has done and if there were a corresponding mark on the posterior or inside of the arm, then as you were there presumably you would have noticed it? --- I am sure of it.

Thank you. And the propositions we have now been discussing with the assistance of your opinion apply equally to the other? --- I'd like to have a look at the other arm. Well, we don't have the triangular pattern, here there is a more linear pattern. Youknow if one were to apply the eye of faith to picture No. 6, one could in fact visualize the four fingers running down.

Is the mark which is not so much in a line to the right-hand side, that is more posterior or more on the outside of the arm, is that part of the four fingers that you refer to? --- No, I think the more anterior group, the upper group. You see, these things, it is not really possible to draw even that kind of a conclusion because you must remember that in

/ life ...

life where one gets hold of an arm or tissue anything, the whole tissue moves and the skin is elastic and the subcutaneous tissue mobile and there may be a movement of an inch or two in this sort of thing. This is within the bounds of speculation and it is not my job here.

... I just wanted your assistance. --- It is not my job.

But the remarks in regard to the absence of a thumbprint would apply whatever we said about the right arm, it would apply equally to the left arm, wouldn't it? --- You mean if it was there we would have seen it, yes I am sure we would have. We looked for all marks.

PROF. SIMSON: Do you think the lower mark could be a thumbprint, Dr. Gluckman? --- On the left arm?

Yes? --- Taking it by itself it is consistent with it.

Taking it together it could be? --- Taking it together it could be consistent, it depends on the size of the hand and of the person who did the grip and how it was done, there are so many potential variables, certainly it is consistent.

MR. CILLIERS: The last remark when you said, it could be the lower mark on photograph, I think you are referring to 5 there or 6, it is consistent with a thumbprint. Does that mean that the hand would have gone right round the arm so that the thumb print comes again in line with the other fingerprints? --- Why not?

I'm saying but that is what it is? --- Yes, the hand would have been right round but remember my qualification made earlier, the skin is mobile over the subcutaneous tissue, the skin is elastic in itself and mobile over the subcutaneous

/ tissue ...

tissue.

No, I was just wondering because I put my own hand on my own arm and I get halfway round ... --- Yes, but you must put it on somebody else's arm, I tried to on my own arm, it doesn't work.

So that there is no factual support for the theory? --- No.

My learned friend wants to demonstrate on me.

PROF. SIMSON: Could we do this, I think it will assist the Court. I think that could be done on somebody else, not on one's own arm.

COURT: Are you prepared to say, Mr. Maisels, that in thinking about gripping somebody's arm it could be done in various ways, it all depends upon, I mean if I stood this side I could have gripped it like, it all depends upon the circumstances?

MR. MAISELS: And also which is an obvious thing, we are now looking at a dead body. That is the point that the witness is trying to make. You grab the fellow, you can grab him here, you can grab him all over, there are so many variables...

COURT: It is really impossible, as Dr. Gluckman has said we are all speculating more than anything else.

MR. MAISELS: And also, sir, may I remind your Worship that the deceased was not a heavy weight boxer, he was a very slightly built man and he was in the hands of some people who were, if I may say it, of somewhat better build.

MR. CILLIERS: I don't know if it is an appropriate time to talk about the deceased being in the hands of anybody and I don't know to which persons my learned friend seeks to refer.

In regard to the next bruise, can I just ask you, who were all present at this post mortem examination where

/ you ...

you were present? Yourself and Dr. Schepers and the photographer? --- And various other assistants.

Were there any other doctors? --- I think one or two of the other district surgeons wandered in and out at various times.

Do you have anyclear recollection on whether there were other doctors or not? --- Yes, I'm sure that oneof the district surgeons came over for a moment or so and peered over ...

Dr. Kemp? --- I don't think Dr... I think Dr. Kemp came in one moment but I don't think he took any, that he came and actually looked, I think he walked around and Dr. Bukofzer came and stood next to us for a moment or two, he was busy with other jobs there.

So your recollection about other doctors refer to district surgeons? --- There were no other pathologist there.

So it was yourself, Dr. Schepers and the district surgeons you have a recollection? --- Yes, and major Fick was there most of the time, on the sidelines as it were and there was Dr. Schepers' scribe and various other people whose identify I'm ignorant of.

Well, may we go on to ...

MR. MAISELS: My learned friend asked a question, just so that I can understand it perhaps it, if he would be good enough to tell me, is there a suggestion of some other pathologist...

MR. CILLIERS: It has nothing to do with any further evidence which I wish to introduce. My learned friend doesn't know why I asked the question but maybe he will find out.

Section H, may I read what Prof. Simson read out abot H. Haemorrhage in the upper layers of the dermis with dilated vessels. Peri-vascular neutrophilic leukocytes in-

/ filtration ...

filtration, small area of necrotic epithelium on edge next to largely reconstituted epithelium, a small area of hyperplasia. Neutrophils and macrophages and fibroblasts in the deeper layers.

MR. MAISELS: Sir, we have obtained a transcript, perhaps it would be more convenient and save the witness peering down his own notes if I gave him this transcript.

COURT: Yes, if there is one available, we would want one on the bench.

MR. CILLIERS: I think it is common cause, doctor Gluckman, that you agreed with what Prof. Simson has read out? --- Yes.

Here again the description. Now on the transcript in the 5th line, the sentence starts on the third line, "there was a very small area of necrotic epithelium at the periphery of what appear to be a fairly large area of reconstitute epithelium. I take it that had to be reconstituted, if we may just put that d in. A reconstituted epithelium with a focus, a small focus of epithelial hyperplasia." Now could you just tell us at what stage of recovery this reconstituted epithelium was, when you agree with the description of reconstituted does that mean that the skin is almost normal or normal? --- Yes.

Including here the presence of basal layer and up to the keratin layer? --- Basal cell layer.

Basal cell layer? --- Yes.

And the keratin layer? --- Yes.

Now that feature by itself on the way that you have spoken about, the way you follow Robertson's article would put it between 4 to 8 days? --- Yes, I regarded most of the skin as completely normal skin.

Well, Dr. Gluckman, if most of that skin, when you

/ say ...

say completely normal skin, do you mean area where there had been a lesion the skin had completely recovered? --- I can't say if there had been an area if the skin has recovered, this is my difficulty all through.

PROF. SIMSON: Dr. Gluckman, could we just clear up that point, do you accept the description of a large area of reconstituted epithelium? --- Well, if Iunderstand correctly this means that theepithelium has now healed but that there is evidence of past damage.

That is correct. --- Well, in only a few small areas do I think there is evidence of past damage.

I think this is an important point and it seems to me, your Worship, that Dr. Gluckman does not accept this description, it may be advisable to bring the section and a microscope and clear up this point. The description, if I can give it in a little more detail as I saw it on that day was a lesion, a little larger than but very similar to the second lesion that was noted in Section A. --- Yes.

In other words, a flat epithelium? --- Yes.

That looked as though it had reformed completely up to keratin layer? --- Yes.

With at one edge a small focus of necrotic epithelium still visible? --- Yes.

And at the other edge the very small focus of epithelial hyperplasia? --- Yes.

But clearly distinguishable the area of the original lesion which had now completely reconstituted? --- I accept that, I think that there is a tiny area of hyperplasia to which you refer, there is the necrotic epithelium and I think it certainly was comparable to the lesion in A to which you made reference.

/ MR. CILLIERS ..

MR. CILLIERS: Do you accept, Dr. Gluckman, that the reconstituted epithelium is epithelium which had been damaged? --- Yes, but as I said in respect of A, I don't know when.

I understand that. You accept that what we have here is one lesion? Nobody has ever suggested anything else? You yourself referredto it as one lesion? --- You see, my difficulty is this, that on my section there was no scab. It was only on Dr. Schepers' section that I saw the scab. And I accept it as one lesion.

Now then if the skin has, as you said recovered to a condition which is as you have described it, normal, completely normal you said, that would place this, according to Robertson, on page 23, at not less than about 12 days? --- My original report on Exhibit KK is 24 hours or more, I said I can't go higher, I can't put an upper limit on this.

I'm not suggesting that there is aconflict between the exhibit and what I'm asking you reply on, I'm not for a moment suggesting it, Dr. Gluckman.

PROF. SIMSON: Dr. Gluckman, would it be true to say that when you looked at this originally, even with the presence of a scab, you had not in fact seen this area of epithelium to which we refer? --- It would be so, it was at our joint meeting.

And this puts an entirely different picture on this lesion? --- Well, right at the very beginning I thought to myself well I mean this is an early lesion, we have no scab. I was really basing myself on subcutaneous situation that this was a lesion which was probably 24 hours old or more.

Alright but now with the presence of this reconstituted epithelium it can no longer still be placed in 24

/ hours ...

hours, wouldn't you agree to that, if one accepts that they are not two lesions? --- Certainly.

And where would you put it in Robertson's category, we have no other authority except Robertson? I'm talking about the epidermal lesion only? Perhaps we can help a little bit, I have become a little bit confused, Dr. Gluckman, I feel that we are getting a little bit confused because we haven't actually defined how these lesionsheal. Could you just very quickly for us recap how these lesions heal and what the limiting factors are in the healing of an abrasion like this, without going into detail? --- Well, the quickest way, the first thing that happens is a scab forms. Well the injury is a shearing off ...

You use the word shearing, how would you classify these abrasions? --- Well, they can either be as a result of a force approaching at a different angle which dips inor out...

But these particular ones? --- Or there is an imprint out of force, I think Robertson uses that expression.

Now which do you think these are that we are dealing with? --- I don't know. I think that were we see ...

If you have a searing force would you expect to find necrotic epithelium overlying the .. --- You mean on the surface, no, I would expect that that is the imprint variety.

Except for the ones where we have no evidence of a necrotic epithelium at all, would you accept that these are imprint abrasions that we are dealing with? ---I think so, if I might at this stage go further, looking at this necrotic epithelium I have been back and back to this particular section and looking at it, I am not entirely sure of it, I can't satisfy myself in my mind that I am dealing with necrotic epithelium for surface or rolled over epithelium.

/ But ...

But if you look at some of the other abrasions do you have any doubt about the necrotic epithelium in them? --- No.

Not at all? --- No.

Now could you just tellus how the abrasions heal? --- Well depending upon the ...

Well, let's put it this way, what are the limiting factors? --- The limiting factors are the levels at which the epidermis is damaged.

The depth of epidermal damage? --- Yes.

Is one ever in a position to assess this in any of these that we have? --- I think we are where we have a clear full thickness one, where we have a full thickness we can assess it.

Are there any other limiting factors, apart from the depth of epidermal damage? --- The depth of epidermal damage, I should imagine that the degree of collagen damage underneath it must also have an influence on the occurrences. What happens, if it is a superficial one of the epidermis, the regeneration of the normal epidermis takes place reaching up to the mature layer.

The depth of the epidermis is important, is the size of the abrasion of importance? --- The smaller the abrasion, one can assume that as one has said repeatedly that the size of the abrasions means the smaller the abrasion the more rapidly would such an abrasion heal.

Now does Robertson help us in this? --- Yes, I think he does.

Does Robertson mention the depth of epidermis affected in the abrasion? --- (Witness replies, speaking away from microphone, inaudible).

/ What ...

What does he mean by small abrasion? --- Well, this is the debate we had yesterday.

Well, does he help us in this do you think? --- I don't think he helps us.

Do you think this is of importance, could it make a difference in time interval? --- I would believe it would. I would believe it because I believe that the principle the smaller the abrasion the more rapidly it will grow, I believe so.

And Robertson doesn't help us apart from using the word 'small' which he doesn't define in any way? --- This is the way I feel.

Is this perhaps the reason, do you think, for this wide time interval? --- It could well be.

How could you relate this to H, if you go backto H now, in which category would you put H? --- H was a very large, as a single, as opposed to one of the collections of marks, H as my memory serves me, was a single large bruise on which there was this abrasion and as was indicated my section, my particular section, did not include the scab.

There was also very little scab on Dr. Schepers' section, is that correct? --- It was very small.

In other words, if there was a scab it has already been shed? --- No, it was very small.

And the epithelium has reconstituted and covered the defenct, if there was a defect? --- Yes, I have no scab, I have this little area of necrotic surface epidermis and I have healed skin.

And a small focus of hyperplasia, do you accept that? --- Well, it is a very small one but I had the mental reservation that it could be a bit of a .... cut, for

/ example ...

example Robertson's, I think Robertson's illustration of hyperplasia is certain a .... cut, without any doubt whatsoever..

Now could you help the Court by putting this into a Robertson category.--I would say it is in one of the upper ones.

How do you mean, 4 to 8 days or 8 to 12 days and so on? --- You see, this is the difficulty that you yourself has pointed out, Prof. Simson, that if it was a small one it would reconstitute itself more rapidly than if it were a big one. We are all ad idem that there was only a small abrasion on the surface. This is confirmed by the fact that there is so little on the microscopic section, which presumably Dr. Schepers cut through that one doesn't say ..

I think it is wrong to say, Dr. Gluckman, would you agree with this, I don't want to put my own opinion here but would you agree that it is not correct to say that the lesion itself is minute? --- The scab is visible naked-eye.

I'm not talking about the scab, I'm talking about the area of reconstituted epithelium because this is really the ... --- No, it is quite right.

The scab, if it had been there, has already come off largely except for a small fragment on Dr. Schepers' section? --- Yes.

Now could you help us by putting this in a category? --- If there had been a loss of full thickness which we don't know because we haven't got the scab, then it would have to be in one of the upper categories of Robertson's classification.

Yes, Robertson has left us in the lurch by referring to small, could you not refer to upper category, what do you mean by that, what category would you... --- Well,

/ Dr. ...

Dr. Schepers had said that he prefers it to be in the region of 8 to 12 days basing himself on the area of hyperplasia and he may well be right if this were a full thickness but I think if it was taken through the middle of the epidermis much more superficially, it could well be much younger. This is my difficulty.

Would you then expect to find a flat epithelium? --- Yes.

Even if it were only half thickness loss? --- Yes.

WITNESS: Oh you mean with the absence of rete pegs?

PROF. SIMSON: With the absence of rete pegs. --- On general principles, no, but I think it would be correct to say no. I don't know whether this is a part of the body where there are a lot of rete pegs, I think that this must qualify any observation anywhere regarding rete pegs. But I certainly agree on that.

Well, could you give us a final opinion on your category? --- Well, if it were a part of the body and if it were where there were numerous rete pegs and if it was a full thickness removal of epidermis then I would say it would be 8 to 12 days. If it were a part of the body where there were not many rete pegs and if it was a superficial damage to the epidermis, then it could well be much younger.

How much younger? This is the same lesion, Dr. Gluckman, is it not where you thought the bruise was naked eye very much older than the others? --- Yes. I was about to say 4 to 8 days, take it down to a lower category, I was going to take one stage less.

Could we perhaps resolve the other abrasions now, where would you put them? --- I think we put nearly all at 4 to 8.

/ So ...

So can we say that your opinion is then that all the abrasions fall into the category 4 to 8 days? --- Yes.

And as far as the bruises are concerned, we are not able, you are not able to help us to bring them any closer than 1 to 7 days? --- Yes.

MR. CILLIERS: Just a few questions arising from your discussion, Dr. Gluckman, if one places reliance on Robertson and if this is not a small abrasion in the sense used by him, then of course the category would go higher, it would be an older lesion, wouldn't it? --- Well, this is what was said.

And if the area of reconstituted epithelium represents not the superficial shearing off but an actual skin that has grown after a deeper injury, then this would be in your opinion a large abrasion? --- I think the term large abrasion refers to surface area and not to depth.

Yes, I realise but if the scab was bigger, as demonstrated by the regenerated epithelium lying beyond the scab more peripherally? --- Oh yes.

One takes that whole surface area of the regenerated epithelium that you told us, Dr. Gluckman, you could see with the naked eye? --- See the scab? The abrasion rather?

Yes, the abrasion...

PROF. SIMSON: I didn't hear that, did you refer to the abrasion naked eye? --- No, I was referring to the appearance of the bruise naked eye but I don't think ...

MR. CILLIERS: In any event, if the whole surface area of reconstituted epithelium represented a surface area where there had been damage and not just superficial damage, then of course this would have been a large abrasion, although the scab now doesn't or then didn't show it any more? --- My description was multiple bruises, a big bruise and I'm

/ sorry ...

sorry, I wasn't concentrating adequately, I was looking at something here. Would you mind repeating it?

I understood from your discussions with Prof. Simson that the scab that you saw, that you observed may only be the remnant of what had been a larger scab? --- Yes.

Histologically and therefore that the abrasion may well have been larger than the remnant of the scab indicates? --- Yes, I think that was the burden of what we have said.

And doyou think that that was so? --- Well, I mean that follows from the discussion.

Yes. Well, if that was so, then would you not say that this was not a small abrasion but a large abrasion? --- Well, we are in the same difficulty, I don't know what is small and what is large.

I ask for your usage of the word? --- No, I would still say this is a small bruise.

You would still call it a small abrasion? --- Yes.

I just have one other question arising from that discussion, Dr. Gluckman. The period of 8 to 12 which in the body of his article Robertson, on the top of page 23 refers to as 9 to 12 days, of that period he says the following: "The sub-epithelial reparative activity and the epithelial hyperplasia are most prominent during days 9 to 12 after injury. By this time new collagen fibres are demonstrable in the dermis". Now here we have some hyperplasia, isn't that so? --- Well, you may have hyperplasia.

Well, didn't you agree that we have a focus of epithelial hyperplasia? --- Well we have a small focus which could be hyperplasia and which could be an artefact. I mean Robertson's illustration of hyperplasia is not hyperplasia.

/ Dr. ...

Dr. Gluckman, we are going into detail now and I don't want to do you an injustice because your Counsel agreed that, Mr. Maisels agreed, said they agreed with everything Prof. Simson said. I don't want to hold you to that if we fall into detail but doyou, Prof. Simson read out that there was a small focus of epithelial hyperplasia? --- Yes.

Prof. Koch agrees with that? --- Yes.

Do you also agree with it? --- I have agreed with it.

Do you still agree? --- There is a minute focus of hyperplasia, one single focus.

One small focus, I don't want to have an argument between small and minute.

PROF. SIMSON: Mr. Cilliers read out from Robertson's article that these features were most prominent for 9 to 12 days. Would you put that sort of adjective to this hyperplasia? --- No. Anything is prominent.

MR. CILLIERS: But don't you think this hyperplasia may be disappearing now and skin become almost normal because you said it is, as far as you are concerned, normal? In other words, do you see what I'm asking you, Dr. Gluckman, aren't we rather in stage 4 than stage 3, according to your own observations, back to normal skin? --- You mean the hyperplasia has been there before and it has, it is now disappearing?

Yes, it is reducing, it is disappearing? --- All I can say is that there is a minute focus of hyperplasia.

But it is possible that this is the stage where the hyperplasia the.. is disappearing? --- Well, if it is in 9 to 12 days, he says it is most prominent, this is anything but prominent.

Well, that is why I'm suggesting and I'm linking

/ this ...

this to what you have said at the outset, Dr. Gluckman, that in your view what we have here is skin which is back to normal and there I'm saying that having regard to that, the only inference about the remnant of hyperplasia which supports that there was a lesion is that this is now 12 days plus, the skin has repaired that far? --- I don't think that I can think of any basis to refute that but nor can I think of any basis to support it.

PROF. SIMSON: What do you think about the remnant of scabs still present, Dr. Gluckman? Is that the bit of necrotic epidermis that you call the remnant scab? --- Well, it wouldn't be there at 12 days later, I can't imagine it, it would have been shed long ago. It couldn't still survive, I mean I pointed out that scales disappear all the time, it was a minute surface area. If it was all part of one and the same lesion and that it is now fully reconstituted, I don't know how long this lesion has taken fully to be reconstituted.

MR. CILLIERS: It depends on how large it was? --- Yes. Well, I didn't record it with my naked-eye observation. Then I think that we must regard the whole thing, the reconstituted epithelium, with this remnant of scab or necrotic surface epithelium and my tendency always is to put it younger than you would like me to put it in this particular case for the reasons I have given, that it is a minute focus on the one hand, that you got ...

PROF. SIMSON: I'm sorry to keep coming back to this, but have you not already conceded that this is not a minute focus? --- No, no, I was referring to hyperplasia, the hyperplasia only. And that you have got the remnant still of the original scab. I can only give you my view, I don't know on one basis, on what basis I can support it.

MR. CILLIERS: I must ask you that if you have a larger area of scab, part of which is shed, can you not get a small bit of scab still extant after 12 days microscopically? --- I'd be exceedingly surprised but I don't know, I don't think anybody has ever covered this point.

But that is a possibility? --- I'd be amazed frankly. Anything is possible but I think it is most improbable.

Dr. Gluckman, then if one does not base a conclusion on the presence of small remnant of scab which is also microscopically observed, then I come back to what you said earlier, you cannot refute that this lesion may be more than 12 days old, is that right? --- I have never departed from my original viewpoint that this lesion was 24 hours or more.

Yes, but now I'm asking, I told you I don't suggest a contradiction, I'm asking you to add to this, you cannot refute and you don't want to refute as Iunderstand you, that this lesion could then be 12 days old? --- Yes.

And that would be consistent with a regenerated epithelium? --- It would be consistent with a regenerated epithelium.

Well Dr. Koch is going to agree to that proposition. Now then we move on to K and here Dr. Simson, you have got it in front of you says, Section K. It is from the upper aspect of the right thigh. Dr. Gluckman has noted haemorrhage throughout the dermis and subcutaneous tissue and I agree with him. There are also neutrophil leukocytes and macrophages. I also saw which have not been previous noted the presence of freelying fibrin in the area of haemorrhage and also small fibrin thrombi within vessels in the deeper layers of the skin. Looking at the section again in Dr. Gluckman's rooms

/ it ...

it was also evidenced that there were fibroblasts present, within this area.

Here we have the picture, haven't we, Dr. Gluckman, of a fresh bruise over, superimposed on a deeper older bruise? --- It could be.

You thinkit could be? --- I don't know how to age a bruise.

Just in passing, the leukocytes and the macrophages here are extra-vascular, aren't they? --- Yes.

Isn't it generally as a proposition correct to say that these leukocytes and macrophages land in an extra-vascular position after a peri-vascular position? --- Yes, I mean it is very simple, you have the blood vessel, these leukocytes come out of a blood vessel. At the first stage as one can visualize it they are peri-vascular and then they move outwards.

But that would be then at a later stage, the peri-vascular? --- Yes, well it starts and moves out.

Now Robertson has described, Dr. Gluckman, in the case of abrasions, he has described the development of fibroblastic activity after epithelial covering but here we don't have an abrasion, here we have a bruise. On page 22 Robertson describes that, that you get the development of fibroblastic activity after the epithelial covering ...

PROF. SIMSON: Mr. Cilliers, are you relating this to the bruise? This has no relation to a bruise.

MR. CILLIERS: I'm aware of that. Can you say anything about the appearance of fibroblasts in a traumatized area where there is only a bruise? --- I can say there are fibroblasts.

I know there are normally fibroblasts as you have said or fibrocytes. The fibroblast which is, as I understand it, a fibrocyte that is growing, that is more active and is

/ larger ...

larger, is that correct, Dr. Gluckman? --- Yes, a fibrocyte is a more mature stage.

A fibroblast is an active fibrocyte, isn't it? --- I don't know what that means.

It is much larger than the fibrocyte? --- The nucleas?

Yes. --- Not necessarily the cell.

And would the fibroblast appear as a result of trauma and after the trauma? --- Yes, the fibroblast, first of all the fibroblasts are normallypresent and as part of the inflammatory reaction fibroblasts are one of the elements that increase in number.

Can you give us any assistance on what sort of stage that appears in time? --- Oh they may come and be there as early as at the very very beginning of the lesion.

Or they may come later? --- After all they are located, they are located normally in the tissues and some fibroblasts may develop from macrophages, from .. a nuclear surface.

What about the presence of the freelying fibres, is that any indication as to age? --- To age?

Yes, could it assist in age, dating the age of a bruise? --- This is very difficult because fibrin, it can clot or you can see a fibrin thrombis very very rapidly in pathological conditions. I don't know how fast, how it can assist us in dating, I can only say that it is potentially a very rapidly occurring process, depending on so many variables and complexities that I'd hate to even begin to talk about it.

COURT ADJOURNS.

DR. GLUCKMAN: (Still under oath)

CROSS-EXAMINED BY MR. MAISELS: Dr. Gluckman, is it correct that red blood cells evoke a reaction slowly? --- I think that depends on the situation, I think it depends on tissue damage, red blood cells live very comfortably in tissue, if there isn't much damage to the surrounding tissue.

If there is no or no substantial tissue damage, would they then evoke a reaction slowly? --- Presumably yes.

And how long can such an inflammatory action continue, as long as the irritation is there? --- No, but you said there is no inflammatory reaction.

No, I didn't, I understand it is a general rule that when there is no substantial or no tissue damage, then red blood cells evoke a reaction slowly, you said that as a general rule that proposition is correct? --- But once the reaction is established or is evoked, then I have no reason for imagining that the velocity would change in any way, inflammation is inflammation and the processes proceed, this is quite unrelated to when the inflammation started, I should imagine on general principles that once inflammation started, it goes on.

And it will go on as long as the irritation is there? --- It will go on until whatever has happened, has healed.

So can one not lay down a general rule and say how long an inflammatory reaction will go on in any particular case? --- No, it is a quantitative situation, it depends on the nature and the degree of the stimulus.

Referring to section K, we have a cellular reaction of leukocytes, which include polymorphs and macrophages, that is correct, isn't it? --- Yes.

The macrophages, by and large, would it be correct, Doctor, when there is a concentration of macrophages / ....

that they are, during the later stage, that they come later than the leukocytes? --- No, macrophages are leukocytes.

They come later than the polymorphs ? --- Macrophages are leukocytes.

Well, they are white cells.

PROF. SIMSON: Perhaps we should use the qualifying adjective.

CROSS-EXAMINATION: (CONT.) Fixed macrophages or macrophages that form from monocytes out of the blood? --- I think if we refer to leukocytes, it will perhaps help the court if we refer only to neutrophil leukocytes.

If you refer to neutrophil leukocytes as leukocytes, are macrophages then something different from neutrophil leukocytes? --- Yes, they are a different type of cell.

And do they usually come, I'm talking about inflammatory reaction, come to the scene of the reaction later than neutrophil leukocytes? --- Yes, it could be minutes.

It could be longer? --- Yes, I should imagine.

But in the sequence of events, they follow? --- Yes.

Now, I take it then, in view of what you said, Dr. Gluckman, that in regard to K, one does not know for how long that reaction there has been going on, by looking at the slide, it is there but one does not know for how long it has been going on? --- Well, all one can say is that it is an established inflammatory process, that it must have been there for at least 12 hours and that it hadn't yet developed into granulation tissue, which puts it very early.

At what stage - what is the latest stage at which granulation tissue must develop? --- Well, again, we are not dealing with absolutes, these are - we are not dealing with absolutes, these are, all of these are guidelines - granulation tissue, in about a week you would expect established /...

granulation tissue if the lesion was large enough.

I recall that you had said earlier that, to Professor Simson, that the granulation tissue - by the 7th day, you are saying a week now, that is the same thing? --- Yes.

So by the 7th day, again within limits, one would expect granulation tissue to be observable? --- Yes, if it was a lesion of the order that was going to, big enough to lead to the development of the formation of granulation tissue and scarring, this is again a quantitative guide.

Do you think this is such a lesion that would have led to granulation tissue? --- I don't know.

Well, even if it were such a tissue then, one would have to place the range of this lesion on the available evidence and its difficulties, as between 12 hours and 7 days? --- No, I don't think so. We have got fibroblasts, this has been reported, Dr. Schepers reported, there are macrophages around, in other words, this is an active inflammatory process, it is difficult to visualise that an active inflammatory process which includes macrophages containing iron which consists of a white cell or leukocytic infiltrate, which has some fibroblasts around - I would say this is a lot earlier than the upper limit which you have given, this is an early lesion I think.

But you told us that this reaction, cellular reaction goes on as long as the inflammation is there, this goes on, we have heard about generations of leukocytes, and we have heard about macrophages remaining at the site of such a reaction, can one really say just on the strength of that for how long that reaction has been going on? --- I don't think you can say when it started except apply the general principles, just as - if your tissue slice missed the area in which the reaction was taking place, you would say that

there /......

there is no reaction, but we were fortunate enough in this section to have this reaction, therefore we have got something to study and all the changes described, are the early stages of inflammation and the early phases of inflammation happen in the first couple of days.

Nobody suggested that this sort of reaction would not begin early, the only question of interest to me at the moment is whether one can terminate, one can say for how long it has been going on. Now, I understood you to give as your reason earlier, Dr. Gluckman, you said well, at a certain stage I would expect granulation tissue although you sound doubt - no, if this is a bruise which would cause granulation tissue, but even if it weren't and that day you said, round about the seventh day you would expect it to be. Now, if one doesn't know for how long this reaction goes on and you don't have the granulation tissue yet, is there any real scientific basis for saying this thing cannot be seven days old? --- You see, here we are faced with the difficulty at all times of agein a bruise, and where dealing with the ageing of a bruise, I can only say that I, apart from a bit of fibroblastic activity, I can see nothing moving in the direction of granulation tissue development, remembering that fibroblastic activity can start just as soon as you get macrophages coming in.

PROF. SIMSON: Dr. Gluckman, it is my impression that we have been over this ground already that you, in reply to a question of whether you were prepared to date these bruises in general, your answer was that you would not be prepared to put them between anything more than between 24 hours and 7 days, and yet with this one, you say that this must be earlier. What have we in this particular bruise that we didn't have in the

others / ....

others, in fact in the others we had a lot less, if I remember correctly, in O.1 for example. Or in G? --- Yes, I would concede that we were tracing the same ground and I accept your point.

You hold to your original opinion? O --- Yes.

CROSS-EXAMINATION:(CONT.) So, at the end of your affidavit, where the last two sentences under K said - the cellular reaction suggests - and I'm stressing those words, and you put it vaguely and you made it no more than a suggestion - the cellular reactions suggest that the age of the bruise is of the order of - again vague - 12 to 24 hours. Here again then we must say that this bruise can be from 12 hours to 7 days? --- Yes, we'll put it in the general classification of bruises.

So that would then modify those last two lines. Then we can go on to N, in regard to N, that is the left forearm bruise, the record of what Professor Simson read out - "Section N is from the left forearm and is a fairly large abrasion. There is a very large area of regenerated and regenerating epithelium under a scab which consists of full thickness necrotic epithelium, at the edges of this lesion it overlies an epidermis which appears fairly normal. Deep to this extensive abrasion there is a change in collagen and the underlying collective tissue which was described by various observers ...

PROF. SIMSON: It must read - "connective tissue"

MR. CILLIERS:(CONT.) Connective tissue which was described by various observers and I accept all these deseriptions as increased basophilia or an appearance suggesting crushed collagen, crushed connective tissue fibres, crushed under the altered staining. I think were agreed by everyone but not everyone was prepared to accept the term basophilia./...

I don't think this point is of much importance." Those are Professor Simson's words - some bad punctuation in the transcript. Now, we have here then a full thickness necrotic epithelium, or to put it in layman's terms - full thickness scab? --- Yes.

Well then it follows, doesn't it, Dr. Gluckman, that when one finds keratin after the skin has been damaged to its full thickness, we can determine from Robertson, as you read him, that it is at least 4 - 8 days, or it falls in that period? --- Yes, that is the period we have put it into.

And subject to some other questions, just on the basis of that and accepting Robertson's research, that is then the period in which it would be placed - 4 - 8 days, wouldn't it? --- Yes.

So again here, Dr. Gluckman, can we say that at the top of page 8, your reference - the lesion is probably 4 days or less, because the almost complete lack of keratin may be perhaps more safely stated as it would be in the 4 - 8 day period described thereon? --- It would be in the 4 - 8 days period, but as I said yesterday when we were canvassing this point, that this is a small lesion, it is a small abrasion in the sense of healing ..

PROF. SIMSON: Dr. Gluckman, the "small" is something that we have had difficulty with all along? --- No, this is the one with the measurement.

Yes, but we don't know what Robertson means by small, this is our difficulty, would you compare this with the other abrasions, is it smaller or bigger than the other abrasions? --- This is the largest scab we have, this is the biggest scab.

Could you answer the question, is it smaller or bigger than the other lesions? --- I'm just consulting some /......

sketches that I have made of the other scabs. I would say that it is of similar order.

I don't know whether my own observation is relevant here, but I - my observation is that this is larger than any of the other abrasions? --- Well, the intact scab is certainly much larger than anything we have, but when I said "of a similar order", I was including the attenuated fragments that we spoke about yesterday.

Now you accepted that the other abrasions fall into the 4 - 8 day period? --- Yes, and here too.

And in the case of this one? --- 4 - 8 day period.

MR. CILLIERS: (CONT.) So the words "4 days or less" probably 4 days or less" is now on consideration, and I accept what you say, Dr. Gluckman, you prefer to put it in the 4 - 8 day period? --- Yes, I made that as a general statement when I spoke.

Now, that is on the basis that the scab was a full thickness epithelium and that we already have keratin forming in the underlying epithelium, that is the basis for this conclusion and that is what puts it in that period of Robertson's? --- I don't know that we have keratin in the underlying epithelium, we have got keratinising epithelium, we have got no noted keratin in the epithelium, except minimally, - what did I say?

You refer, the earlier stages of the formation of keratin and then again - almost complete lack of keratin. The fact is, the keratin is there? --- No, you see, in the process, in the maturation of epidermis, as the cells mature from the bottom to the surface, they become progressively flattened, changes take place in the substance of the cells. they lose their nucleus and it is only when you get an

anuclear / ....

anuclear keratinised surface layer, that we talk about keratin it is the keratin layer, the horny layer and we are just below that level, that is why I say "the earlier stages in the formation of keratin."

Does the word "almost complete lack of keratin" not mean that there is some presence of keratin, or do you want to, were those words badly chosen,I don't want to argue? --- It is so, again so tenuous a distinction, I don't think either of us should make anything of it.

In any event, you are satisfied after what Prof. Simson said, that 4 - 8 days is the period here? --- Yes, and for the reason about this tenuous keratin, my inclination was towards the earlier one, but we put it into this 4 - 8 day category.

PROF. SIMSON: Dr. Gluckman, I don't think we can leave that there - do you accept that this abrasion is larger than the others? --- Well, in the description it is undoubted the largest abrasion that we have had to study, so that if we acept what you said earlier, that a larger abrasion takes longer to heal, that if anything this would be put more towards the greater period than the lesser.

My difficulty is - how large is large, it is larger than the others? --- Yes, when we are comparing it with the others.

I don't know what is large and what is small? --- It is large compared with the others, yes.

I accept that? So that if anything, this, if we are going to qualify the grading that you have accepted, do you think one can qualify the grading? To come back to the question that was put to Dr. Schepers, where this original time period comes from in the first place, and this is the result of Robertson's classifying a whole

series / ....

series of cases, is that correct? --- Well, I don't - I think I must leave it on the basis of in the 4 - 8 day category.

And not qualify it at all? --- Without qualifying it.

MR. CILLIERS: You have just declined to qualify it because of the, on the basis of the size of the abrasion because you think you have difficulty with what sizes Robertson referred to, that is basically what you have just said, isn't it? --- Well, I have difficulty ..

MR. SIMSON: Is that what he has just said in fact, he just said that he is not prepared to qualify it at all.

MR. CILLIERS: I said - "You have declined to qualify"

PROF. SIMSON: Yes, but he has declined to qualify them, not necessarily for that reason, is that correct, Dr. Gluckman? --- That is correct. I'm putting it into the 4 - 8 day category.

MR. CILLIERS: Just let me, I don't want Professor Simson to be under a misunderstanding of what I was saying, the invitation to qualify, if I invite you to qualify it because of the size of the abrasion, you will reject that invitation? --- I'm rejecting the invitation without qualification, saying 4 - 8 days.

Now I want to put another invitation to you. We have here, you accept Professor Simson's description of N, you have got it in front of you? --- Entirely.

Entirely, you say. Now, the description in the second part says - "There is a very large area of regenerated - under a scab which consists of full thickness necrotic epithelium" Now, we have here then epithelium which is already regenerated If you accept this description, we are now a bit further than the earliest stages of the formation of keratin, because the regenerated epithelium contains the keratin layer, doesn't it? --- Yes.

Now / ....

Now, if then, Dr. Gluckman, you accept this description and you said "entirely", can you now perhaps assist us by on the basis now that we have a keratin layer and we have a regenerated epithelium, wouldn't it be fair to say that we are now in the fourth stage described by Robertson, the stage where there is, at least as to that part of the lesion, the regression of cellular activity.

PROF. SIMSON: Could we perhaps just revise the fourth stage, could you read out? I don't know if "fourth stage" is quite correct, because if it refers to the ... the period 4 - 8 days is five, I'm not sure where you get your fourth stage?

MR. CILLIERS: I'm referring to page 18 where Dr. Robertson says there are four recognisable stages in the healing of abrasions.

PROF SIMSON: But in the last paragraph he has in fact seven periods.

MR. CILLIERS: Yes, these are periods. When I refer to the stages, I'm referring to the body and not to the last paragraph.

PROF. SIMSON: Would it not be easier for the court's purposes to use the last, because they have been using the last ones?

MR. CILLIERS: Well, there are descriptions in the stages, I'll use both. The first stage - scab formation; the second stage - epithelial regeneration and covering; the third stage - sub-epithelial granulation and epithelial hyperplasia; and the fourth stage - regression of epithelium and granulation tissue. Now, the fourth stage, as I understand the position, here we get epithelium which is now almost normal, regenerated and if we have here, we don't

have / ....

have only regenerated epithelium, I realise that, Dr. Gluckman, we also have regenerating epithelium which certainly fits the description which you have given of the earliest stages of the formation of keratin. But if this description is of one lesion, and I think it is accepted that it is of one lesion, isn't it? --- Yes.

Then that part of the area of the lesion which is properly described as regenerated epithelium, would be a bit, would show recovery older than the recovery on the basis of the earliest stages of the formation of keratin, that is obvious, isn't it? --- Well, in the ageing of a situation like this and adopting Robertson's approach, the overriding consideration at all times is - what is the most prominent feature.

PROF. SIMSON: Dr. Gluckman, if we tackle this from that point of view, using the four stages that Mr. Cilliers has presented, scab formation, epithelial regeneration and covering, sub-epithelial granulation and epithelial hyperplasia and regression of epithelium and granulation tissue. Using those four, into which category would you put section N? --- Well, I don't know that I can do that on that basis, I don't think that Robertson attempts to do it, as I regard this paper. Robertson describes what he regards as the most prominent feature in each of these stages.

Can we take them one by one then, stage 1, would you say that this is the stage of scab formation? --- Yes.

You say that this is the stage of scab formation? --- There is scab formation.

Yes, but is this the stage of scab formation? --- A lot of changes have taken place in addition to scab formation, so it is not the stage of scab formation.

Is it the stage of epithelial regeneration and /......

covering? --- It is partly covered and epithelial regeneration is taking place but the covering is not complete.

Would you say it is the stage of sub-epithelial granulation and epithelial hyperplasia? --- I saw no epithelial hyperplasia and there is no sub-epithelial granulation.

And the stage of regression of epithelium and granulation tissue, would you put it in that stage? --- No, I can't put it in that stage.

Well, could you put it in a stage? --- I don't want to put it in any one of these stages, because we are dealing with an overlapping state of affairs, which you can't summarise finally.

Dr. Gluckman, you can't put it in stage 3, is that correct, if I understand you correctly? --- Well, it is somewhere I think between 2 and 3 because epithelial regeneration is not complete.

But is there sub-epithelial granulation and epithelial hyperplasia? --- No.

Can you put it in stage 3, you would put it between stage 2 and 3? --- If I am compelled to do it on that basis. I would put it between stages 2 and 3, but I'm unhappy about doing it, for the reasons given.

For what reasons? --- That Robertson describes an overlapping series of events, an overlapping series of four events, some of which are taking place simultaneously.

Can you tell us where the overlap occurs in relation to this, in other words, what part of the overlap there is that makes you put it into the stage of sub-epithelial granulation? --- Well, epithelial regeneration is occurring.

Epithelial regeneration is in stage 2? --- Yes, that is occurring, but adjacent to it, the - if it is accepted

that / ....

that that is, and we have accepted that that is completed a few points, it is not entirely complete under the scab.

I still can't find out your overlap, do we have sub-epithelial granulation? --- No, we do not have sub-epithelial granulation, we have I think fibroblasts, I think that is the description.

Couldn't we have under the epithelium, because you are referred to your description? --- We have altered staining of the collagen.

This is the section that has the appearance of crushed collagen? --- Yes.

We have got sub-epithelial granulation? --- No, the only phases that we have, in the deeper tissue where there is commencing, or there is some fibroblastic ..

Is that related to the abrasion, the deeper tissue? --- Yes, it is under the abrasion, that is why I described it.

Do you think that changes relate to the abrasion? --- Well, it is an assumption that this occurred simultaneously, it is purely an assumption.

It occurred simultaneously, but is it related to the abrasion? --- I can't answer that question.

What about epithelial hyperplasia? --- There is some epithelial hyperplasia adjacent to it.

Was there epithelial hyperplasia, did you note epithelial hyperplasia? --- I think that that was one of the observations that we made ...

The description was - necrotic epithelium overlying a reasonably normal epithelium? --- No, I'm sorry, I was looking at the wrong page. No, I did not notice epithelial hyperplasia.

Could you tell us where your overlap occurs, because

I'm / ....

I'm still at a loss to see where you, what you have described overlap with phase 3? --- There is epithelial ingrowth from the sides, maturation of the ingrowing tongues is occurring but it is not yet mature and in the final stages, it assumes that it has to be matured, but it is not yet matured under the scab, in the adjacent tissue it might be.

I'm still uncertain about the overlap, Dr. Gluckman unless I'm confused on this, but I don't see what descriptions you have given the court that indicates that there is an overlap? --- My reference to overlapping referred to Robertson's approach with his study. As I see it, there are different changes of epithelial regeneration and that could put it in stage 2.

Are you prepared to give an opinion then, do I understand you correctly, that your opinion now is that you would put it in stage 2? --- Yes, I think that if we have to classify it on this basis, then I must put it in stage 2.

MR. CILLIERS: (CONT.) And of course, if this is not a small abrasion, then the stage wouldn't apply at all, not with the time limits which the stage indicates? --- I'm sorry, I don't quite follow?

This is not a small abrasion in Robertson's meaning, if that were, then of course you wouldn't be able to place it on a time limit according to Robertson at all, I think we'll stop at that, it is obvious. I just want to return to this one point that you have made, Dr. Gluckman and that is that your assessment which you have now given, 4 - 8 days was based on your, as I understand you, on the earliest stages of the formation of keratin? --- It was based on assessing the lesion as a whole, not only on the earliest stages of the formation of the keratin, the presence of

keratin / ....

keratin would make it 4 days or more, not less than 4 days.

And if the keratin layer is well developed, that would put it closer to the 8 days, would it? --- I don't know, I suppose the more keratin, again this is dependent on so many variables, it might, it might not.

It seems to follow if you say - if there is a very slight keratin, then it would put it in the 4 days, that is what you said? --- No, I said keratinisation is occurring, the development of keratin was taking place but properly developed keratin I have not seen in this lesion.

And if you had seen it, then you would have placed it rather to the 8 than to the 4? --- No, I would have said it is more than 4 days.

PROF. SIMSON: Mr. Cilliers, have we not established that he does not want to qualify his reason. We are trying to make him qualify it when he has said that he is not prepared to qualify it.

MR. CILLIERS: Yes, I wanted to put again the facts to the witness to see if he has any basis to decline to qualify it but I'm prepared to leave it at that.

Then we come to Q.

PROF. SIMSON: Your Worship, I must just correct an error, while we are on Q,

MR. CILLIERS: I'm sorry, I want to deal with O first.

PROF. SIMSON: Perhaps I can just correct this while I am here, I had misread my notes, in reference to Q, on page 660 of the court record, the words about the middle of the page - "with an underlying regenerated epithelium" should be deleted, "underlying" refers to the collagen, no underlying regenerated epithelium.

MR. CILLIERS: Should the words - "with an underlying/regenerated epithelium" be deleted?

PROF. SIMSON: Be deleted.

Mr. /......

MR. CILLIERS: In regard to O, which is the bruises on the chest, we have this - "multiple bruises on the left side of the chest. Here I saw haemorrhage into the subcutaneous tissue with collections of macrophages and neutrophil leukocytes with areas of fat necrosis and the formation of large fatty cysts. This was an extensive lesion and large numbers of fibroblasts and large numbers of capillaries were also present." This really is the picture of G, it is the same picture as the picture which we got in G, wasn't it? --- It contained elements of the picture that we saw on G.

Was there anything substantially different with regard to expressing a view upon the age of this bruise, is there any substantial difference between O and G? --- Well, there were more fibroblasts, there were more capillaries, there was fat necrosis.

You are talking about O? --- Yes.

So you would say that if anything between the two, G is the younger one? --- No, I say quantitatively we are dealing with the different quantities.

But I asked you - is there anything significant in regard to ageing the bruise? --- No, I think we have the same problem with regard to the ageing of the bruise that we have had all the time. The elements that are present in G, are mostly present in O.

PROF. SIMSON: Do you mean Q? --- No, we are talking about O.

MR. CILLIERS: We are comparing - I invited the witness to compare O with G.

PROF. SIMSON: Well, why can't we just deal with O?

MR. CILLIERS: It might be a bit shorter. I would like

you / ....

you to compare this, Doctor.

PROF. SIMSON: What was the conclusion regarding G.

MR. CILLIERS: I want to ask you before we deal with the conclusion, on the facts, on what you found, is there - you have said largely the same picture, would it be correct to say that whatever one concluded in regard to age with G, you should draw a similar conclusion with O because of the features that are substantially the same? --- This is a much larger lesion, I think that it contains more capillaries, it undoubtedly does contain more capillaries, more capillaries had opened up, there are more fibroblasts, we have iron and we have fat necrosis, we have fatty cysts and fat necrosis.

Do any of these features indicate that O is older than G? --- I think we have disintegrating polymorphs, there is still plenty of polymorphs around, polymorphs disintegrate rapidly and disappear from the tissue. I think it is of a similar order.

Similar order as G. Well, we ended up G by saying it is, up to 7 days, could be 8 days and you are prepared to say that again in regard to O? --- Yes.

BY THE COURT: 4 - 8?

MR. CILLIERS: The witness put it this way, Your Worship, I don't want to change it, the note is - he said up to 7 days and it could be 8 days? --- And it could be 4 days.

Yes, that is what I mean "up to"? --- I don't think it could be one day.

No, you have said it is at least, in the order of 4 days, I just want to know the upper limit? --- Yes.

And this is taking all these features into regard, we must leave these limits, must we? --- Well, I don't have a basis that is obvious to me at this moment on which to

alter these limits.

So again on mature reflection, where you said originally if the capillaries were new, it would be 4 - 8 days and if they are not new, it would be 4 days, perhaps that qualification should not be made? --- Did I say that?

You said if the capillaries were new, you would place it 4 - 8 days, if they were not new, you would place it at 4 days? --- No, I said, what I read out when I gave the affidavit, on the assumption that the capillaries and fibroblasts are new, it would be 4 - 5 days, but if they are not new, then the lesion is younger.

Well, would it be at this stage, on reflection and discussion, would it be wiser to leave out this qualification? --- Yes, I have already conceded that point.

And you also expressed the opinion that they were not new, so we could leave that out as well then? --- No, I insist that they are not new.

Here again we have somewhere between 4 and 8 days? --- Yes.

In regard, Doctor, to Q - I haven't dealt with O.1, I'm sorry. O.1 which didn't appear on your report? --- Correct.

Professor Simson asked for this, the record reads as follows - "Section O.1 a section from bruises on the left upper arm. This showed the presence of widespread haemorrhage in the subcutis but there is no significant increase in the number of neutrophil leukocytes." Well, I think what we have said about O.1 we have already discussed? --- Yes.

This could be a fresh bruise or it could be an old bruise where the? --- Where the section has failed to incorporate the lesion.

One / ....

One doesn't really know? --- No.

In regard to? --- I can draw no conclusion about it except that there is a bruise.

So you wouldn't disagree with Dr. Schepers there who said that it is a fresh bruise, it may be? --- Well, on the evidence before us.

In fact on the evidence before us, it does look like a fresh bruise and nothing else? --- The microscopic appearances of my section are those of a fresh bruise.

Section Q, Professor Simson's report read as follows - "And lastly section Q, which is a section from the left side of the neck. This showed the presence of a scab in which there was patchy epithelial necrosis, in most parts full thickness and deep to this altered staining in the collagen on a much smaller scale but similar to the appearence present in section N. There was also deep haemorrhage within the tissues beneath the skin but without evidence of cellular reaction." Now, there was no cellular reaction in Q, that is correct, isn't it? --- Correct.

And Q may have been a peri-mortal crushing of the skin or a bit of blood which had collected there which looked like a scab? --- Yes, that is why I didn't deal with it.

So Q, on the face of it, is a perimortal injury? --- Yes.

If it is an injury at all? --- Yes, it falls into the category of my opening remarks, beginning the affidavit.

We can leave Q out in regard to ante-mortum injuries, is that right? --- I have no comment to make about Q.

PROF. SIMSON: I think there is one thing that we must correct about Q in Dr. Gluckman's original affidavit, this was the one that he made several days old because of the

appearance / ....

appearance of the scab, page 9 of your affidavit, Dr. Gluckman, you said - "Neither of the two microscopic sections therefore includes the scab, which must make this lesion at least several days old." Would it be true to say that that epidermal necrosis which was agreed to on a combined meeting was not recognised as a necrosis by you originally, would that represent the scab described naked-eyed? --- Dr. Schepers - I should imagine so, yes.

So that you would retract the original statement? --- Yes.

MR. CILLIERS: Dr. Schepers described that what he had thought was a scab, appeared later not to be a scab at all but it was either just a small crushing, perimortal crushing of the ..

PROF. SIMSON: I think Dr. Schepers also did not recognise the necrotic epithelium, which is the scab.

MR. CILLIERS: In any event, this on the evidence, would be a perimortal injury and not something several days old, is that correct? --- It might be if there is a scab there.

PROF. SIMSON: Dr. Gluckman, what was seen as a scab, you have accepted as this crushed epidermis? --- Yes.

So we are not discussing this on the question of scab or not, this is crushed epidermis? --- Yes.

MR. CILLIERS: Now, Dr. Gluckman, you have given us your opinion and your assistance on the basis of the evidence that was given to you. You yourself, however, have made further stains, asked for by Professor Koch and one of these stains was the P.A.S. stain, the Pas stain, is that correct? Now, we touched on this point before we dealt with these points about the sections in detail and we found on page 23, in paragraph 4, that Robertson says, in the middle of that paragraph - "The vascularity of the sub-epidermal

tissue / ....

tissue diminishes, collagen fibres are restored and the epithelium has a stainable basement membrane" and he says this of a period usually at about 12 days, and you have told His Worship that Robertson is an authority, so you will also see, Dr. Gluckman that this is the first time that he mentions a stainable basement membrane in connection with the sequence of healing processes? --- I don't know that Dr. Robertson is an authority on basement membranes, first of all, the word "epithelium" is obviously a mistake, it should be epidermis, epithelium doesn't have a basement membrane.

PROF. SIMSON: Dr. Gluckman, could you explain that to us, I'm not quite with you. Do you not use epithelium, is this not epithelium, epidermis? --- Yes, of course. I take it he means at the epidermal junction.

When you say epithelium doesn't have a basement membrane, what do you mean by that? --- Well, I mean individual cells, the rest of the epidermis that the basement membrane, whatever it is, is located at the bottom of the epidermis.

Yes, but that could be the bottom of the epithelium? --- Yes.

Some epithelia have a basement membrane, would you agree with that? --- Certainly.

MR. CILLIERS: And then he says - a stainable basement membrane? --- I don't know what he means by this whether he means whether it is detectable on special staining, on special staining or whether it is detectable on ordinary staining, I don't know, I don't know what he means by that. His statement is a very vague - it may be correct, it may not be. He deals with this in the most general terms and I would not like to comment upon this basement membrane situation without study of his sections.

Just a moment, Dr. Gluckman, I'm landing in difficulty again / ....

again.

PROF. SIMSON: If you think this is not a fair question, then I won't put it, but perhaps it will resolve the situation. Dr. Gluckman, would you on the basis of the presence of a basement membrane alone, place a lesion in a different category - do you accept that, Mr. Cilliers?

MR. CILLIERS: May I consult, I don't think it is going to make any difference after the learned Assessor has put it, but it is for His Worship of course to decide.

BY THE COURT: As I recall the illustrations which I saw of Robertson's lecture, the 35 mm. transparencies, a basement membrane was visible very early on, this puts a high upper limit, but I speak subject to correction. In Robertsons transparencies, which we have all been fortunate to see, a basement membrane was visible very early on? ---- ... My mind to this issue, but as I read this statement, there is now a basement membrane, it doesn't say when it begins to form and as I recall Robertson's projections, a basement membrane was visible, or pink blush, on his P.A.S. stain because he was specifically canvassing the damage to the collagen and perhaps the basement membrane is part of the collagen, the surface collagen, it probably is.

PROF. SIMSON: Do you think a pink blush is a good description of a positive basement membrane stain, pink blush? --- No, but I haven't studied it with this specific issue in mind, there is in the projection that I saw, a pink rim immediately beneath the epidermis.

But you are not prepared to answer the question? ---No, I don't think so because I'm unclear really about what Robertson says here. He indicates that the mature epidermis or the mature epithelium has a basement membrane but he does not indicate when the basement membrane begins to form, and

I / ....

I don't know the answer to that question.

MR. CILLIERS: You have made that qualification, can I just now ask you a few questions, if we could proceed perhaps just a little quicker, Dr. Gluckman? --- We are entering an extremely difficult field when we start talking about basement membranes.

Well now, we started this enquiry when you and Dr. Shapiro, who was with you, produced this article of Robertson and you, it was put to other witnesses and you had said Robertson is the authority on this field of dating abrasions? --- No, I didn't say that, I said Robertson was the only authority available to us.

Do you consider him as an authority, Dr. Gluckman? --- I think Robertson has done an exceedingly good paper and I like this paper, I think it is very good and I think it is valuable. I think as a general statement - I know of nobody else who has directed his mind specifically to this.

You have relied, or at least my learned friend Mr. Maisels with your assistance has relied on this paper especially to make the points that he thought to make? --- Yes, this paper has provided all the guidelines for our assessment of the situation.

And you have said that you have no independent research to dispute what Robertson has recorded on the basis of his research? --- Precisely, but he has recorded nothing about the basement membrane except that it is complete at 12 days.

Can you just pause, can you just deal with my questions please, because I do think that we are rehashing a bit. Do you think - it is quite clear that between pages 8 and pages 19 and 23, he is dealing with four different stages, what he calls stages and they are headed 1 to 4? --- Yes.

Is / ....

Is it not correct, Dr. Gluckman, that at each stage, he describes the symptoms which become obvious at that stage? --- Which become most prominent.

Now, it is only in stage 4 that he mentions a stainable basement membrane, that is right, isn't it? --- Yes.

Now, do you think that - and he puts it here, he doesn't say "most prominently" he says - "and the epithelium has a stainable basement membrane". I know he doen't say when it arrived, he says it has it, now do you think, Dr. Gluckman that if the epithelium had a stainable membrane in stage 3 or 2, that he wouldn't have pointed it out there? --- I don't know, but if my recollection of his original, of his transparencies which all of us have, is that very early on, one can see a basement membrane.

Well, let me read you what Dr. Robertson said and this is a verbatum transcript? --- We also have the benefit of his actual transparencies which were projected.

This is the only time he talked about a P.A.S. staining. "This is a section of normal skin" - we can play his voice if you prefer that - "This is a section of normal skin stained by P.A.S. and apart from the staining of the basement membrane of the epidermis, the collagen of the stratum reticularis fails to stain positive. By contrast, a P.A.S. stain of an abrasion shows a marked P.A.S. positive, both positive reaction in both the damaged epidermis and also partial positive P.A.S. staining on the stratum reticularis."? --- No, the second one, wouldn't you read your second quote?

"By contrast, a P.A.S. stain of an abrasion shows a marked P.A.S. positive of both positive reaction in both the damaged epidermis and also partially positive P.A.S. staining of the stratum reticularis? --- What does he mean by damaged epidermis.

He / ....

He doesn't mention a basement membrane in this connection, he only mentions it in connection with a normal skin? --- It might have been an omission on his part, I don't know.

I just say it because you have some recollection, this might refresh your recollection. Therefore, this being what he said, the lecture that you heard, I'll come back to it, Dr. Gluckman, I suggest to you that they way to read this article is that the basement membrane will stain, in this case on a P.A.S. stain, at stage 4? --- I accept that it stains at stage 4, I don't know that it won't stain prior to that, I don't know.

Because if the basement membrane is being damaged by the original epithelial damage, the basement membrane has to form? --- What is that again?

The basement membrane has to be regenerated if it has been damaged with the whole rest of the epithelium? --- Well, your question assumes that the basement membrane is part of the epithelium, I don't think this is a justifiable assumption.

Well, if the damage was deeper than the basement membrane.

PROF. SIMSON: Where does the basement membrane come from, Dr. Gluckman? --- Well, I think that the current viewpoint, I think that this is an uncertain, this is uncertain. I think the current phase, of basement membranes is that it arises from the surface layer of the collagen, that something happens at the surface layer of the collagen. In refined immunilogical techniques once can demonstrate the basement membrane as it were clearly, and later more closely to the collagen than to the epithelium and I think that E.M. studies also seem to indicate that the basement membrane is more of upper collagenous origin than of epithelial origin. I think that / ....

that the strict answer to your question is that I don't know.

You have already said earlier on that in coming to a decision as to what group you are going to place a particular lesion, you take all the factors into account, is that correct? --- Yes.

Are there any other factors, apart from the basement membrane, that would make you place these lesions into the period 8 - 12 days. You have already told the court that your classification for the abrasions is 4 - 8 days? --- I think there were some that could be longer, specifically I don't recall.

I'm not talking about any that you have placed in that category? --- I would like to say that at no stage have I included in my thinking a basement membrane, this may be a defect in my thinking.

Apart from the basement membrane, what would you say are the features, if you had to say in two words, the features of this period 8 - 12 days? --- Reconstitution.

Are there some histological features? --- The histological features, an intact epidermis, I think that is the basis upon which Robertson approaches it.

What about epithelial hyperplasia? --- And/epithelial hyperplasia which we have barely heard anywhere.

And sub-epithelial granulation? --- And sub-epithelial granulation we have nowhere heard.

What features do we have at all that make this 8 - 12 days? --- Well, I have not suggested this 8 - 12 days, my learned friend had put it to me.

In other words the only possible feature is the presence of a basement membrane? --- This is why I have been tryin to avoid the basement membrane.

And / ....

And does Robertson define the basement membrane in his earlier stages? --- No.

Could we ask the original question - on the basis of the basement membrane alone, are you prepared to put this in a higher category? --- I'm not prepared to do anything at all on the basis of the basement membrane alone.

MR. CILLIERS: Now, Dr. Gluckman, just to take an overall view, we have here your summary now as fully considered, in the light of my questions, Professor Simson's discussion with you. In A we have 4 - 8 days, in D we have 4 - 8 days, in F. we have 4 - 8 days, in G we have up to 7, possibly 8 days, in H - I have made a note 9 - 12, this is the one on the back, or perhaps - Professor Koch reminds me, 4 - 8, possibly 9 - 12, which means we can simply say 4 - 12, acceptable? --- Yes.

In K we have it again up to 7, N 4 - 8, O is the same as G, that is also up to 7 or possibly 8, and then O.1 and Q are not important. This is the overall view to which you have come, Dr. Gluckman, isn't that so? --- Well, it is not an overall view, it is a description of the individual injuries.

This is your considered view on each one as it stands now? --- Yes, I think we have refined them down to that region.

Now, yesterday I mentioned that there was a conflict between what Dr. Schepers had said and what Dr. Koch will say and I now want to come back to that, what I was referring to was before the cross-examination of Dr. Schepers and Dr Schepers was cross-examined by my learned friend and myself. My learned friend cross-examined him on the basis of your report and on the basis of your report Dr. Schepers made certain concessions which he then retracted when I

cross-examined / ...

cross-examined him. Now, I want to just - you were present during the examination of Dr. Schepers and the cross-examination? --- Yes.

Dr. Schepers has formed the view, the way he has read Robertson's article, that whenever you have said 4 - 8, he has said 5 - 8, this is what he said after I cross-examined him and in some of the cases he has said possibly older, I won't go through the details, possibly up to 12 days or even older in some cases. Now, Dr. Koch's view, have you had an opportunity of reading the affidavit of Dr. Koch yet? --- I have just gone through it, I haven't studied it.

Dr. Koch's view is that the abrasions really appeared to him to be all of approximately the same age and his overall view is that the abrasions are in the region of 8 - 10 days. He has formed the view that this is, that these are the abrasions, you know professor Koch, don't you? --- Very well.

And do you regard Professor Koch as a specialist? --- Well, I don't know if he has done any research on bruises.

No, I think we all have this difficulty, he is in a same position as yourself as a specialist pathologist? --- I understand that he is a forensic pathologist in Pretoria he is the Senior State Pathologist in Pretoria and as such, in a position of respect.

Now, it would then seem that the only day, this is a view, I don't know if Professor Koch is going to possibly stretch those periods, but as he has expressed it, in regard to the abrasions, Dr. Schepers says in regard to all of them that it could be 8 days old, you say they could be 8 days old and Dr. Koch says they could be 8 days old. The 8 days is Dr. Koch's minimum, it is your maximum, except in one

case / ....

case where you are prepared to go to 12. That is, when one takes all the possibilities into account, the only common ground on the abrasions between the three doctors, as a possibility? --- I mean the situation is an analysis as you have stated it.

But the only day, on the analysis of the abrasions on which all three doctors agree, is a possible assessment of the age of the abrasions, is the 8th day? --- I think this is a matter of legal argument, I don't think this is a matter for me to discuss at all.

Very well, Dr. Gluckman. My learned friend came back to the facts of this case and put it to one of the, I think Dr. Schepers, putting it to him that the late Ahmed Timol was arrested on a Friday night at 10.30 and he met his death on a Wednesday afternoon round about 4 o'clock, which is just over 4½ days and he questioned Dr. Schepers on the basis of whether, which of these injuries could have been sustained during the period of a bit more than 4½ days in which he was under arrest.

BY THE COURT: Mr. Cilliers, I see the clock says a quarter to one.

MR. CILLIERS: Dr. Gluckman, just before the adjournment, I pointed out that I had stated that there was a conflict between what Dr. Schepers had said and what Dr. Koch will say. Now, I just want to ask you a few questions now to see if you agree, whether in view of certain corrections that is made, what the area of the dispute still is. Now, Dr. Gluckman, it is correct, isn't it that the inspection which Professor Simson and yourself and Dr. Schepers and Dr. Koch had, was had almost after my learned friend, Mr. Maisels had cross-examined Dr. Schepers, it was towards the

very / ....

very end of his cross-examination, do you remember that that was the stage at which the inspection was held? --- I can't say, I have no clear recollection.

Well, that is so. Now, you do also recall here that my learned friend, Mr. Maisels, on the basis of your affidavit put certain questions to Dr. Schepers, he put to him the version which you had set out in your affidavit and on some of these points, Dr. Schepers made concessions, he agreed with what was put to him on certain bases. Now, at this joint examination, you had the opportunity of seeing certain sings on the slides which you had not incorporated in your affidavit and that is why you add it to your affidavit? --- Yes.

And I think it has been clearly demonstrated this morning that where you obtained additional evidence, that you had not originally included as your basis for your affidavit, you adjusted your opinions correspondingly? --- Not because of the additional observations. I think that the alterations that I made, arose out of the detailed analysis which included those additional observations, I don't think that they followed directly from the additional observations.

So it was the observations and other considerations which made you qualify what you had originally said? --- Yes, well, that is why we are here.

Now, I just want to compare what was originally a conflict between Dr. Schepers' evidence and what you have now said to just briefly see whether there is any conflict left between you and Dr. Schepers or whether you are basically in agreement now? --- Your Worship, I have not recorded the various modifications which have come forward verbally.

BY THE COURT: I wonder if it is really necessary.

Mr. / ....

MR. CILLIERS: There are a few points which I wish to clear Your Worship, I shall be very brief in it.

MR. MAISELS: I don't care how brief he is, we have had assertions of that nature before. This is a matter now which will be argued before the court, we have got the evidence, we have got the summary, my learned friend can ... ... any way he likes, I don't know where he is going with this..

BY THE COURT: I personally don't think it is very necessary Mr. Cilliers, to ask this witness to comment upon that.

MR. CILLIERS: Well, just let - I'll put him one blanket question.

BY THE COURT: Yes, put a blanket question.

MR. CILLIERS: Except for the fact that Dr. Schepers has in some cases said that lesions can be older, you and Dr. Schepers are now basically in agreement that the abrasions fall in the 4 - 8 day period, one you have said could go to 12 days, that is correct, isn't it? --- I would have to have them tabulated side by side before I could truthfully answer that question. It may well be correct, it may not be, I don't feel justified in answering, I may give the wrong answer,it may be quite wrong if I were to have them tabulated side by side and see it, because as I said, Your Worship, at the beginning, I have not made any ...

BY THE COURT: What is the point acutally, Mr. Cilliers, that you wish to make, I think we are all aware now of what Dr. Schepers said and we are all aware of what Dr. Gluckman said and how he modified his opinion.

MR. CILLIERS: Yes, there was slight differences and I just wanted to see if this doctor agreed now that - to determine perhaps restate, the common area between them. I'll leave it at that.

By / ....

BY THE COURT: I think the court can take notice of what is common now between him and Dr. Schepers.

MR. CILLIERS: As Your Worship pleases. Were you in court when Dr. Schepers gave his views on the way in which these injuries could have been inflicted? --- At the commencement of his evidence?

No, at the end of it? --- Yes, I was, I was in court to the conclusion of his evidence.

And he demonstrated for instance how many of these could have been self-inflicted? --- Yes, I recall this happening.

Dr. Schepers also in regard to each injury at the end of his evidence, gave a view upon the question of what degree of force is shown by the evidence on the slide, to have been applied, anyway he said - look, this is not a sign of excessive force or this is a bit more and that one and so forth, did you hear that evidence? --- I recall his discussing this, yes.

Did you basically agree with what Dr. Schepers said there? --- I neither agreed nor disagreed, I felt that this was an area on which I wouldn't express any opinion at all.

Very well, then you refrain from an opinion on that point? --- Yes, I feel that it is an area which none of our learning enables me to comment upon.

Fine. Dr. Gluckman, did you find any fractures or broken bones in this body? --- Yes, together we found fractures and broken bones.

As a result of the fall presumably? --- The assumption was that it was as a result of the fall, yes indeed, but one didn't analyse it as to whether this could have occurred other than from the fall, we noted the injuries.

But in respect of these abrasions and bruises which

you / ....

you specifically dealt with in your affidavit, you didn't find supporting evidence, you didn't find further evidence of fractures related to these bruises and abrasions? --- I think on the leg there were, on the leg, I think there was a fractured femur.

/You....

You haven't dealt with the leg in any of your...? --- Ja, I think one of them refers to the upper part of the thigh.

Yes, K. Let me put it this way, Dr. Gluckman, do you think that the serious injuries and fractures that were found in the post-mortem, are consistent with having been caused with a fall? --- Yes, Sir.

Thank you. Now I just want to ask you lastly then this, Dr. Gluckman, having regard to the time periods, which to the best of your ability, you gave an opinion on when these abrasions and bruises were caused, within the time limits that you have given. Would it be correct to say that there is no proof that any of these injuries were caused during the first 4½ days or a bit more than 4½ days?

BY THE COURT: No, I think it is the function of the Court to trying to ask the witness to be certain enough, after all the Court must decide, taking all the medical evidence and all the rest of the evidence, what the proof actually is.

MR. CILLIERS: As Your Worship pleases. Let me ask you then this way, Dr. Gluckman, in regard to those - each injury, were you given time limits, from 4 to 8 days? You can't take it any further, whether it was - or a particular day in that period? --- Yes, Sir.

Thank you.

NO FURTHER QUESTIONS.

GEEN VRAE DEUR MNR. CILLIERS.

CROSS-EXAMINED BY MR. MAISELS: In regard to the examination that was made by you, were you assisted by Dr. Shapiro? --- Yes, Sir.

It was your report, a report of your own, or did Dr. Shapiro - was he a party to it? --- Well, throughout the

/investigation...

investigation, Dr. Shapiro and I worked intimately together.

What is Dr. Shapiro's qualifications, do you know, what are his qualifications? --- I can't offhand recall his academic qualifications, but I know him to be a man who has spent a lifetime studying medicine.

Yes. Sir, I want to make it clear that Dr. Shapiro is in Court and he is available for Your Worship to call him if you wish to.

BY THE COURT: Yes.

MR. MAISELS: That is all that I am doing on that point.

BY THE COURT: Yes, I will intimate at this stage that I don't think that I will call him in view of the evidence given by this witness.

MR. MAISELS: Yes.

BY THE COURT: I take it that if they work together, their evidence will be just about the same.

MR. MAISELS: Exactly, Sir, but he is here and he is available.

The only other matter which I want to discuss with you is this. Would you mind looking at O, which is multiple bruises on the left side of the chest, Dr. Gluckman? --- Yes, Sir.

Your examination was a histological examination, generally speaking, in regard to ...? --- Yes.

I don't know whether you are prepared to express an opinion on this form. It has been suggested by Dr. Schepers, I think it was, that these injuries could be self-inflicted in many cases. A man may wave his arms about, and they throw themselves against the wall, they scrape themselves against all sorts of things. Look at O? Do you consider that these ante mortem injuries could be self-inflicted and how?

BY THE COURT: Are you for instance referring just to O, or

/are...

are you referring to them all?

MR. MAISELS: I am referring to O. Can you visualise that as self-inflicted? --- No, Sir.

Take the N one, N, the one above that, can you visualise that as self-inflicted?

BY THE COURT: Are you referring to N now?

MR. MAISELS: Yes, N for Nellie? --- As a self-inflicted injury?

Yes? --- No, I can't visualise this.

Take K, do you visualise that as a self-inflicted injury? --- No, Sir.

Well, I don't want to go back any further, but let's go back to O, for a moment, Doctor. This man was apparently a young man, according to the evidence. What was his age, Sir?

BY THE COURT: 30.

MR. MAISELS (CONT.): 30. It was suggested, with regard to the injuries on O, which we are talking about, the O injury, that if the blows - assuming that this man had received a blow or a kick, assume that, now if that had been of any real severity, the ribs underlying, would have been broken. Do you remember that question? --- Yes.

Does the age of the person receiving the blow, have any bearing, if you can or can't answer this question, on the likelihood of injury to ribs? --- I would say that with advancing years, the ribs in company with the rest of - with other bones, become more brittle, less elastic as it were, as will apply in the case of a rib, and that in a young man, I think that one could see, and we all know this from the field of - in rugby, for example, that pretty severe blows are given around the chest, received and inflic-

/ted...

ted, that they tend to bend rather than fracture, in a young man.

Now just to conclude it, the question that I want to put to you, Doctor, there seems to be a suggestion in the questioning put by my learned friend, at the very beginning, it really has got nothing to do with this case, but he raised it, that when you wrote a letter to the observer, which has been handed in or read it, do you remember that letter? --- Yes, Sir.

That you should have gone further and stated what injuries you did find? --- Well, my viewpoint, regarding that, and this informs the brevity and the wording which I adopted, was that this was a matter that was before the Courts, was subjudicial, was in any event in the hands of the Senior State Pathologist, and all that I could properly do, was to deny a statement which shocked me, but which was in part, or so I thought, attributed to me, and I felt that to go beyond that territory, would be to enfringe the right of propriety in view of the situation or the role that I was playing in the matter.

BY THE COURT: Doctor, you said that you could not agree that certain of these wounds were self-inflicted? --- Yes.

Could they have been accidentally inflicted, in falling or bumping? Anything like that? --- Well, all that I am entitled to say, from these wounds, is that they were achieved as a result mostly of blunt force.

Yes, you see, because you have already specifically said that they were not self-inflicted? --- Ja, I couldn't imagine how a man could so punch himself in the chest.

Yes, but could he fall, could he have an accident? --- Well, I am sure this is possible, if he fell on those situations, I am sure.

/Yes...

Yes, or bump himself, that is? --- Yes, I am sure, I have achieved bruises by bumping myself accidentally.

Yes, thank you.

NO FURTHER QUESTIONS BY MR. MAISELS.

PROF. H. VAN PRAAG KOCH, beëdig verklaar:

VERHOOR DEUR AANKLAER: Dokter, u het 'n verklaring gemaak in hierdie saak, Statement GG, it will be, Your Worship? --- That is correct, Your Worship.

Professor, will you please read out this Affidavit which you made, EXHIBIT GG, and then - u het self 'n ...? --- Ek het 'n afskrif iewers, ek soek hom net. "I the undersigned, H. Van Praag Koch, hereby make oath and say that I am a registered Medical Practitioner, and registered as a Specialist/Forensic Pathologist with the South African Medical and Dental Council. I am the Senior State Pathologist for Pretoria, and Professor in forensic medicine at the University of Pretoria. I hold the degrees M.D., Pretoria, and a Diploma D.M.J., that stands for Diploma in Medical Jurisprudence, at the Society of Pathologists of London. I qualified as a Specialist in 1968. I have examined the slides in the possession of Dr. Schepers and Dr.Gluckman, which I have been told had been taken from the body of the late Ahmed Timol, and I have studied the reports of both Dr. Schepers and Dr. Gluckman in this connection. I offer the following comments in this regard. As far as the abrasions go, Sections A, D, F, H and N, all these sections show basically the same changes. First of all as regards the scab in these sections, a scab of some kind is present in all", and if I may explain to Your Worship, when I say "scab", I mean either necrotic material, necrotic epithelium or epidermis, or more advanced formation of the scab, with

/infiltration.

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