

was na dit verskyn het? --- Niemand het gekla nie.

GEEN VERDERE VRAE NIE.

JONATHAN GLUCKMAN (s.u.o.)

MR. CILLIERS (cont.): Dr. Gluckman, can you give his Worship any idea of approximately how long it would take for keratin to appear at the point where the two epithelial tongues meet after they have met, over that area? --- Are you talking generally or ...

No, generally? --- The question is keratin at the margins ?

No, keratin at the point where the two epithelial tongues meet, taking a point, where they meet, first one^{to}/two cell layers thick, now how long it will take the keratin to appear over that point? After they have met? --- Well, obviously this is a function of the rate of growth of the epidermis, generally its rate of maturation, the way it proceeds up from the basal cells to the surface, I don't know that we have knowledge of that. I think it would be speculative on my part to say that, it would vary from individual to individual and I would say it is a fairly rapid growth but I don't know.

Now in regard to A you describe under (c) Dr. Schepers' portion as you have examined it and you say " on newly-developed underlying epithelium which was up to 5 - 6 cell layers in thickness", have you got that passage? --- Yes.

Now we have Robertson's view that in the case of a small abrasion complete epithelial covering at first one to two cell layers thick is something which, as Robertson puts it, develops after day 4 or 5? --- From where are you quoting?

I'm quoting from the top, I'm paraphrasing from the top of page 22 of Robertson, he puts it this way,

/ " In ...

"In small abrasions, complete epithelial covering of the abrasion has occurred by day 4 or 5". Now we have had an argument about it, has occurred, I know your view on it. "Thereafter the covering epithelium, at first 1 - 2 cells thick, becomes progressively thicker and develops ..." So what we have here under this scab is (a) is an epithelium which is not only one to two cells thick but is now 5 to 6 cell layers thick? --- Yes.

Which means that it is a bit older than it would have been if it had only been one to two cell layers thick? That is right, isn't it? --- Yes.

And that is also obvious from the presence of keratin already, that this is not, that there are already those different layers, the basal layer, the granular layer ... --- Yes, quite so.

Now if one reads Robertson the way in which I have suggested, that one gets a keratinized surface over the completely covered epithelium which is in itself growing progressively thicker, only after the fourth or fifth day, then this would put this, those features would put this lesion older than 4th or 5th day? --- Do you mean on the basis of the keratin?

Yes... --- Because keratin can grow in hours, I mean we take it off our faces every day and then it grows itself back by the evening on some of us.

But you have explained to us that where the whole epithelium is damaged, as the tongues grow in keratin starts forming firstly on the sides? --- Yes.

And they may form there even before the epithelial tongues meet? --- Yes.

But as the epithelial tongues meet the one or two cell layers, these cells have to develop into several layers

/ right ...

right up to the keratin layer ? --- Yes. But that can happen in hours, from the mature cells of the remainder of the epidermis to keratinize cells, I mean this is a continuing process.

I understand it is a continuing process, Dr. Gluckman, but are you suggesting that from the time that the epithelial tongues meet on small abrasions within hours there will be ... --- Oh no, not at all, I was referring to epithelium which you have put to me, of 5 to 6 cells in thickness.

Yes, but it takes time to develop your 5 or 6 cell thickness? --- That is a separate point, isn't it?

It is a separate point. Well now having regard to the thickness of the epithelium under the scab here, 5 to 6 cell layers, if one assumes that the epithelial tongues meet at the fourth or fifth day, what would you say, how much time after the fourth or fifth day would it take for the 5 to 6 cell layers to develop? --- I'd say a day or so.

A day or so? --- I would say so.

I understand you can't be accurate but you mean a day or two or three or what do you mean, a day or a day and a half? --- You see when one reflects that one is constantly shedding scales of keratin from our body all the time, you know when you rub a dry skin you are rubbing off a lot of keratin and when I'm shaving I'm cutting off the whole keratinized layer. I wouldn't like to go a day or two or three, I think, if we have a proper thickness of epidermis and 5 or 6, I think subject to the location of the body... the skin is thin, I would say it is a pretty fair thing to say that 5 to 6 cells is pretty well up to normal thickness and I'd say in a day you would be making keratin.

You think about a day? --- A day, perhaps two days, but I really can't see it longer for the arguments that I have
/ given ...

given.

So if one accepts the epithelial closing at 4th or 5th day, that would mean the keratin you think the 5th or 6th, that was the basis why you said this was about 5 to 6 days old? --- Well, originally we are taking it in relation to Dr. Schepers' original statement and I then put a plus or minus and as you will recall I modified it to 4 to 8 to fit in with our general approach.

Yes, but having regard to the epithelial thickness now, would it not be fairer not to say 4 to 8 in this case, judging it clinically as an expert here wouldn't it be fairer to say 5 to 8? --- Well, I can't differentiate between 4 and 5.

Alright. This second lesion which we have referred to lies some distance from the first lesion. You originally didn't mention it because you took it as normal skin, is that right? --- Well, let me say I don't necessarily say it is normal skin but I didn't think it was relevant to recent injury.

Do you think it is extremely old injury, if at all an injury? --- It could be, no it is not normal, taking in the context of that appearance, taking it in the context of the adjacent epidermis, it is not normal and it could be, as far as I'm concerned it could be six months old, it could be a year old.

It could be 12 days old? --- And I imagine it could probably be 12 days old, I imagine it could probably be so. I mean I am not able to debate that.

If another expert expresses an opinion for reasons which may or may not be acceptable, that he considered these two lesions to really have been one lesion, then that would date the whole lesion at about 12 days? --- They are two entirely

/ different ...

different lesions, I mean the histological structure is completely different, I can't correlate the two lesions.

Anyway, you think that A, you have stated is about 4 to 8 but you say that you can't differentiate between 4 and 5? --- No. I take it that we are talking purely on the basis of the scab?

At the moment we are, yes, and this is also, you can't deviate that this has been your conclusion, 4 to 8, hasn't it ... --- Yes, taking all the local pictures together... I must stress that at no stage have I taken any one picture of any one lesion and drawn a conclusion. In each I have taken the surface, the middle layers and the deeper layers and that is the only way I can do it.

You have referred to a thin layer of keratin on newly developed underlying epithelium, just the second last paragraph of your affidavit, on that part of the newly developed underlying epithelium, is that the epithelium under the scab that you are referring to? Underlying, is that underlying the scab? --- The epithelium underlying the scab ... (keeps on turning head away from microphone).

I read that paragraph to be that your reference to a thin layer of keratin on newly developed underlying epithelium is that part of the epithelium which underlies the scab? --- Yes.

Did you notice, Dr. Gluckman, whether there is evidence of the lesions stretching more peripherally than the scab in this case? --- No, I did not see it extending more peripherally.

Well, then we can leave A. If in your section, Dr. Gluckman, one reads your microscopy it would not appear that the lesion itself was noticeable and it was only the examination of Dr. Schepers' section showing a scab which brought

a lesion to your attention? --- No, long before I saw Dr. Schepers' section I saw the infiltrate in the deeper layers.

Yes, perhaps I should have used lesion, but you, did you notice whether this was a bruise or whether there had been an abrasion from your section? I got the impression on reading A and B, small (a) and small (b) before we come into Dr. Schepers' section that you didn't refer to evidence that there had been an abrasion? --- No, not in my section.

Yes, it looked as though you were dealing with a bruise. --- Well, there was no evidence of an abrasion, I mean I was drawing no inference from my observations.

In other words, the epithelium in your section, if there has been an abrasion, must have recovered almost completely? --- No, I can't draw that inference at all, we are cutting slices off our block of tissue, embedded in wax and one very often meets a situation where the lesion is present there and two or three levels further is not there at all and I'm sure Prof. Koch will have noted in our special stains when we tried to show a scab in one of the others it wasn't there anymore, it had gone, these things are small and the fact that it is not in your section doesn't mean to say that it has been there and it has disappeared or that it was there ... all I can say is that there is no lesion and there is now normal skin.

Do I understand that the changes in the epithelium which were noticeable to you on Dr. Schepers' section were in fact also present on your section? --- Well, all I can recall and I have made no specific note about it is the normal epidermis.

I take it, Dr. Gluckman, that where you take a range, you originally take it plus-minus 5 to 6 days, that would be a range inclusive, it would be a range of three days, at least of two days, 5 and 6 and you used a plus-minus there?

/ --- Yes ...

--- Yes, meaning when I say 5 to 6, it could be 4, it could be 7.

Yes, but having adopted a wider range of 4 to 8 of course, the wider the range the more, one could speak with so much more certainty? --- I don't know, this is on the basis of accepting Robertson and Hodges' observation, that they found that within those limitations they reached the highest degree of accuracy in a blind situation as has been pointed out yesterday. This is a blind situation.

Just as a proposition, the wider the range the more certainty? --- I suppose that is correct.

If the age is between 1 day and 100 years then you can be absolutely certain you are right? --- Undoubtedly.

So having qualified your plus-minus 5 to 6 and having changed that to 4 to 8, on the strength of what Robertson says, can we take it that we don't need the plus-minus anymore, one can say this is 4 to 8? --- Yes.

Then can we go on to Section D. Now here again.. I just want to add on the 4 to 8, having said that you can't distinguish between 4 and 5, if Dr. Koch says that he finds 4 unacceptable, you couldn't quarrel with that? --- I know no basis upon which anybody, Dr. Koch or anybody else, can differentiate between 4 and 5, I just don't, I mean I must quarrel with it because I would say immediately what is the basis upon which this is done. We are dealing, to repeat, with a very tenuous and difficult situation to try and separate it out to a day.

COURT: Here again 4 to 8 would not be a plus-minus, just 4 to 8? --- Precisely.

MR. CILLIERS: In regard to D, Dr. Simson read out to us that there was a haemorrhage in the tissues between the surface of the skin without significant infiltration. Necrotic epithelium

of the scab, the scab laterally extended over a reasonably normal epithelium. A slight increase in fibroblasts. Now the scab here, is the scab also a full thickness, consisting of full thickness epithelium including a basal layer? --- At one point only, as I visualize it about 8 cells. On my section, the section that I have done.

Where Prof. Simson has used the word reasonably normal epithelium, I take it that here is also keratin present? And you have said so in your affidavit, a thin layer of keratin? That is in Dr. Schepers' section that you saw this? --- Yes.

Dr. Gluckman, do you think that, is there any evidence here that the lesion may have extended a bit wider than the area of the scab?--- Yes, as I recall it from my notes here (Witness not speaking into microphone, busy with papers)..

Dr. Koch has a note here which you added to your affidavit, "the scab attenuated laterally for a considerable distance", that is what you added to your affidavit? --- This is correct, I did say that. I'm visualising the wrong picture, this is correct.

So we have here, do we have then the position of a lesion which extended beyond the area of the original scab? The big scab that is described? --- My note is that the scab extends laterally for a considerable distance over dermis which looks normal, relatively normal and this scab extends ... (not speaking into microphone).

Now your earlier view of 5 to 6 days was based on the presence of a thin layer of keratin, those were the facts on which you based your view, that is what appears in the typing? --- No, it wasn't based on that alone, it was based on the facts underlying the lesion, there was no evidence of ...

/ (Absolutely ...

(absolutely inaudible, witness doesn't speak into microphone, head turned away completely)... taking the two together I have a conclusion solely upon the basis of a scab.

But could I ask you this, Dr. Gluckman. Is the thickness or thinness of a keratin layer part of the evidence on which one judges the age of the lesion? --- Yes, I think all other things being equal, the thinner the keratin ...

The younger the lesion? --- Depending on where the epidermis was sheared off, if it was sheared off very near the surface you could visualize a layer of keratin happening in a day or two, it depends on the level. Yes, I would think that is a fair proposition.

Not comparing it to another lesion, comparing it to itself, the thinner the keratin the younger the stage of regeneration? --- If there were all the other features but not keratin alone.

I understand that but it is part of the evidence, isn't it, because throughout your report where there has been a thin layer of keratin, although clear layer of keratin, you have pointed that out? --- Yes.

So you do draw the attention to the fact that where the keratin should be described as thin, that rather tends to show that it is younger than older? --- I think so.

Now in your second last paragraph, page 4, under (d) you said "On inspection of the section of this lesion prepared and stained by Dr. Schepers, this small area of scab was seen to be part of a slightly larger scab, overlying a thin layer of keratin which had been formed by the newly-developed epithelium beneath it. Dr. Schepers concluded that this was 5 - 6 days old and I would say \pm 5 to 6 days old."

/ That ...

That was the evidence on which you then expressed that opinion?

--- Yes.

Now you have drawn to his Worship and to the learned Assessor's attention that the scab is attenuated laterally for a considerable distance and under that part of the lateral extension or tenuation there is a reasonably normal epithelium and thereby I take it that you mean that the keratin is no longer just a thin layer, it is a reasonably normal or as you put it almost normal skin, an almost normal layer of keratin? So the basal layer including the keratin would be, as you put it, almost normal? --- I am trying to recall in my mind the thickness of keratin in this adjacent tissue. As I recall it it was normal, it was pretty normal, I don't recall that it was either thin or thick, it was a sort of average thickness. It is difficult to visualize so many sections ...

Well, I'm sure you wouldn't, by describing as you have said that the skin there was almost reasonably normal, there weren't any particular features .. otherwise you would have said so? --- Quite so, I hope so.

Well, taking then as a reasonable inference from this, that the keratin layer need not in that area be described as thin, that it was described as almost normal, that means that the regeneration of that area was a bit older than regeneration in regard to which you spoke originally when this affidavit was typed? --- I'm not satisfied that the adjacent area was necessarily damaged, as I recall the appearances it was undamaged and I'm not sure that the bits of scab were attached.

You mean that when you said scab was attenuated laterally for a considerable distance, you were leaving it open whether the scab was attached or not? --- Yes, well I say so now. I'm not sure about it at all.

/ Attenuated ...

Attenuated means stretched out? --- Thinned out.
Alright, it is a long thin ... --- It is a long
thin thing in diminishing thickness.

Doesn't it mean that the two scabs are connected
or that there is one long scab ? --- I don't think it was so
in my section, not in my section.

If there is one long scab or a scab attenuated
laterally then certainly having regard to Dr. Schepers' section
it would have been attached because his scab is attached? ---
It may be that because at one edge of the scab there was full
thickness and that it become progressively thinner as it moved
outwards, that the, whatever the force applied to it was, the
shearing force was becoming progressively more superficial, not
that the scab itself was drawn out but that that portion of
the epidermis that was damaged was becoming progressively more
superficial. It may be that, I mean I am speculating entirely.

We are talking about something like a B imprint
on a skin, that at the deepest point of the B it would be
deepest damage and at the edges it would be superficially
damaged .. --- Yes, sort of scraping along the surface, that
is the only sort of way I can visualise it.

But if Dr. Gluckman, we accept that that part
under the laterally attenuated scab was all part of the same
lesion, the scab is attached, it is all part of the same
lesion, then we find in the more peripheral areas are almost
complete repair of the epithelium which can then only mean one
of two things, can't it? Either the damage was more super-
ficial there or the regeneration period is further than the
period, the regeneration period is longer than the period which
you estimated it with regard to that part under the scab? ---
But there is a third possibility and that is that the, that that
/ part ...

part came from adjacent tissue...

I understood but that is why I qualified that if you were to accept that this is a laterally extended scab which is attached to the epidermis.... would you agree that having regard to this almost normal epithelium, if that was part of the lesion, the recovery stage according to Robertson would place it round about 12 days? Paragraph 4 on page 23. Almost recovered? --- Well, if it was part, all part of one lesion and it was almost recovered, whether paragraph 4 is strictly correct, I don't know because he expresses himself extremely loosely in this paragraph. I mean he is very loose, I mean I must draw your attention for example to the fact that he has used the word epithelium, he doesn't mean epithelium at all, he means epidermis. He is very loose ... (speaking together)

.... It would seem as if the stage in which such an almost recovered epithelium would fall would be stage 4 there on page 23? --- It is a healed normal looking epidermis.

But according to Robertson the stage is about 12 days? That is right, isn't it, Dr. Gluckman, with all .. --- Yes, subject to the qualification about my own ...

PROF. SIMSON: Have you got any evidence, Dr. Gluckman, of this report you alternative ... --- No, none at all, just the lack of adhesion in my own section.

What about the appearance of the scab, could that not give some idea of the thickness of the original necrosis? --- Well, simply the scab at the periphery evidenced full thickness. And I only got the one section, of course.

The scab right at the periphery of the lesion was still full thickness? --- No, as I recall it, at the periphery of the scab there was a very distinct cluster of basal cells and then ...

/ Right ...

Right out at the edge ... --- Right out at the extreme edge of the scab and then there was the scab.

You were able to recognise the basal cells in the attenuated .. --- No, not in the attenuated portion, only in the thick portion.

But we are talking about the periphery of the lesion? --- In the scab portion of the periphery, no I saw some flattened cells containing melanin.

Where does melanin occur in the epidermis? --- Well, its highest concentration is in the basal cells and it diminishes in quantity upwards but very often one can see melanin extending well out towards the granular layer and in the melanin stains which we did, this was confirmed. I was interested in this particular point and on going into the literature a little on this subject one finds that in non..... skins melanin can be present at a very much higher level than one is used to seeing it.

So that the presence of melanin in a scab doesn't necessarily indicate a basal layer? ---No. In my own case, at least in my own assessments in order to say a cell is a basal cell, I have demanded of myself that I see a cylindrical cell containing melanin.

And did you see these cells at the periphery of the lesion? --- Of the main scab yes, I did. A little squashed at the extreme..

At the periphery? --- Well, there is your scab and then the attenuated portion out and at the edge of the scab itself ...

Where do you think was the periphery of the lesion? --- Well, one Assumes, I don't know, the thing is strung out...

/ Their ...

Their attenuated portion you are not regarding as the lesion? --- That may be part of the lesion but there are certainly flattened pigment containing cells in that attenuated portion.

What is the importance of it, the flat pigment containing cells? --- Assuming it came from the underlying skin, then it came at a level higher than the basal cells.

Because they are not basal cells, they are flattened out almost ...

But you don't think, you are not certain whether they are part of the lesion or not? --- No, I am not certain.

MR. CILLIERS: In regard to F, I will read out as I got it, Prof. Simson's view, "haemorrhage in the tissues beneath the surface of the skin, infiltration of neutrophils and macrophages, Necrotic epidermis extending beyond regenerated epithelium and covered reasonably normal epithelium. Dr. Gluckman's section shows regeneration to granular layer and Dr. Schepers' section there is also keratin. Dr. Gluckman's laboratory under the microscope macrophages is shown in the deeper layers". --- I don't follow, did you say F, I don't seem to have this passage.

No, I was reading from Prof. Simson's summary of the inspection. --- Oh, I'm sorry.

That is something that when it was read out, I understood you agreed with that? --- Yes.

Now just one small point, there is a scab here, isn't there? --- I must refresh myself

I think you added something to F here, what you added was necrotic epidermis extended beyond immediate area of scab and something else, I didn't quite catch the last part? --- Immediate area of scab and then you said and some,
/ could ...

could you just assist us by completing what you had added?

--- I said the necrotic tissue extending upwards there ...

And some variation in the thickness, I think that is how you put it? --- Yes, that is all I got written down, I may have said something else, but that is all I have written down.

Did you see this bit of scab on your section as well? --- Well, I described it in my original section as a small crust made up of numerous polymorphonuclear leukocytes.

In this case the scab is lying adjacent to the epidermis? --- Yes, quite free from the epidermis.

It is free from the epidermis? --- Yes.

And are there small pieces more laterally? --- I don't think I saw pieces of scab, I saw what could well be necrotic epidermis, not actual scab because with scab I include disintegrating polys and so on.

Now this part of the scab that you saw was loose, do you think that had been shed from that area? --- I don't know. I have nothing on which to form an opinion, I don't know.

Well, you agree with the description which Prof. Schepers gave that it is, that there is necrotic epidermis extending beyond regenerated epithelium and covered reasonably normal epithelium, do you agree that there is reasonably normal epithelium and regenerated epithelium that shows on this section? --- I don't recall that observation of Prof. Schepers and nor do I have a record ...

Prof. Simson? --- Prof. Simson, oh. Oh I see, yes.

This was the observation in which everybody agreed? --- Yes.

And did you understand regenerated, I just want to know one thing so that there is no terminology difference between

us, Dr. Gluckman, that regenerated epithelium refers, as far as you are concerned, to epithelium which had been damaged and had recovered, not to something which has never been damaged?
 --- Well, it was normal looking epithelium that wasn't quite normal.

I see. --- I think there is room for argument on the, on separating the concept of regenerating epithelium, epidermis from normal epidermis.

Well, in the absence of any cause other than the trauma which caused the scab, is there any reason to think that this is not epithelium which had been damaged or epidermis which had been damaged and had recovered? Or almost recovered? Isn't it the only cause which appears from the evidence before you? --- Well, one observed on the surface and extending into it this little surface necrosis which suggest that there had been damage there.

Would you describe that area of almost normal epithelium, regenerated epithelium as slightly hyperplastic?
 --- No.

You understand something different by hyperplastic?
 --- Quite differently.

Well, you agree, Dr. Gluckman, with the proposition that on the evidence on the slide, the only cause which is suggested for the abnormality in the epithelium is the trauma?
 --- Yes, I think that must be so, this is confirmed by underlying tissue.

WITNESS: There is evidence of trauma in die underlying tissue.

MR. CILLIERS: Now if the epithelium here is regenerated and reasonably normal, that shows a late stage of recovery, doesn't it? --- Well, it depends entirely on how much the skin was

/ damaged ...

damaged.

How deep it was? --- How deep it was, ^{if} it was a surface thing it could have, as I have pointed out, covered probably in 24 hours.

Well here again then, wasn't the scab .. oh I see your point, you mean even peripherally to the scab it may not have been so deeply damaged? --- No.

But the scab itself was, consisted of a full thickness epithelium, did it? --- No.

Didn't it or don't you know? --- No, I have a note of those which contain full thickness epithelium and this is not one of them.

Could it have been omitted? --- I doubt it, I was rather concerned with this.

Dr. Koch has the view that it is a full thickness epithelium but you of course differ? --- I think we must agree to differ.

You know I submitted, Dr. Gluckman, to Mr. Maisels for your perusal what we had considered may serve as a summary of what had been agreed upon and ultimately didn't serve for that purpose and you gave some typed comments on that and in those typed comments you didn't differ from this statement that there was a scab that consisted of epithelial cells, some containing melanin granules and a thin layer of keratin? --- I go along with that.

You didn't comment on that? --- No, I adhere to that.

Well, isn't that full thickness epithelium? --- No.
PROF. SIMSON: ... The presence of melanin in no way indicates basal layer as Dr. Gluckman has established.

MR. CILLIERS: Well, in any event, Dr. Gluckman, if this

/ regenerated . . .

regenerated epithelium, reasonably normal epithelium forms part of the lesion area, wouldn't that place it again in stage 4, approximately stage .. paragraph 4, page 23 of Robertson's article? --- We are dealing here with a completely separated scab, it overlies according to my notes here and I took another look at my sections last night, completely normal .. (coughing) and only peripherally is there evidence of this necrotic epithelium. Now I cannot relate this scab to the underlying skin. I think I can relate the peripheral lesions to the necrotic epidermis and the conclusion I draw from that is that within that region there was a very superficial ... Now I don't know, we are speculating, how rapidly it takes for the upper half of the epidermis to regenerate to normality, I submit on the basis of the arguments I have already given, that this is a short time.

Apart from the area covered by the scab or perhaps even including that area, are you suggesting this is a very superficial injury? --- I can only talk about the periphery because I have a loose unconnected scab. At the periphery I have just spoken about.

Well, how wide is the area lying between the two peripheries, just how big is the area which is not peripheral but the central area of this lesion? --- It is very difficult you know, I look at these things under the microscope.

Isn't it very narrow? --- It is several microscopic fields..

What does that mean? --- I tried to translate it to measurements, I would say it is probably in the region of about half a centimetre. As I recall, I mean I would have to take another look directing my mind to that specific point,

/ which ...

which I haven't done.

Well, in a sort of layman's term, the central area would certainly be a small lesion? --- Yes.

And that small lesion you have again estimated between 4 and 8 days, that is right? --- Yes, my comment is clear on this big schedule. On the basis of the leukocytic ... it is early, it is very early but then because we get involved with a scab I pushed it right up.

And if one did not have a shallow lesion at the periphery but also a deep one, then the extent of the recovery of the epithelium would push it into a much older age, round about 12? --- Anything is possible if you wish to speculate. I can only confine my feelings and my observations to what I see here. I haven't, as we pointed out earlier, done research **into** this question and I think it is fruitless to speculate.

Yes, there is one thing you might clear up for us, you said that, in the last paragraph on page 5, in regard to F you said "Because of the small size of the scab", you thought if anything, it was towards the earlier period ^{of} the 4 to 8 day period? --- Yes.

Well, don't you only draw that conclusion if the scab is attached to the skin? That is part of the wound, surely you don't draw that conclusion from a loose-lying skin? --- I think that would be a more proper observation.

Yes, I would agree with you. So the scab is part of the wound here? --- Oh the other way round, where I was agreeing with you is that it is probably not a justifiable observation.

Oh I see. Well, I don't want there to be a misunderstanding. You are therefore saying, having regard to what you have said about the scab, you don't want to press that
/observation ...

observation that if anything more probably towards the earlier period because of the small size? --- Yes.

You think that is not justified scientifically? --- I think so because it lies entirely separate, I don't think I was justified in talking on the basis of the main scab but on the other hand, as I have pointed out, there is the peripheral spreading out, going into the necrotic epidermis which is entirely consistent with the possibility that we have got a very superficial shearing force.

That means that your opinion in regard to F simply comes down to 4 to 8 days without qualification? --- Yes.

G, it may be the last one we will have the opportunity of doing, or would it be inconvenient for you to complete the abrasions? Can I go onto the other abrasion, H and come back to the bruises later? --- I don't think it matters except ...

Well, if it doesn't matter to you may I do it that way? --- Yes, I imagine that H will take us a long time, why not dispose of the shorter one.

Very well, let's deal with G. Here Prof. Simson read out "haemorrhage into the dermis and subcutaneous tissue, evidence of fat necrosis, iron pigment in macrophages in the areas of fat necrosis". Now I wonder, Dr. Gluckman, .. Prof. Koch tells me that you and he amongst others, not everybody looked at this, you and he saw a giant cell in the area around the fat ... do you recall that? --- I saw a multi-nuclear cell, it wasn't particularly big.

A multi-nuclear cell? --- Say several nuclear, that was in the fat necrosis, in the fat cyst.

Is there for our purpose any difference between a multi-nuclear cell and a giant cell or is it just that you don't
/ like ...

like ... --- (Reply inaudible).

Was this a very tiny cell? --- No, it was larger than the adjacent cells, it was perhaps two or three times larger. I wouldn't call it, it was a multi-nuclear cell. A small giant cell I would agree with.

Was it larger than a macrophage? --- Well, it was a hystiocyte, it was a large macrophage. It was a macrophage in several nuclei. It contained fatty material and iron.

Does a cell like this form with a chronic irritation? --- I think this is going to get us into very deep waters, it depends what doyou mean by chronic irritation.

Well, irritation not quite acute, not acute inflammatory reaction? --- This cell is quite characteristic of the process known as fat necrosis, quite characteristic, it occurs with unfailing regularity, if not invariably, in association with the condition known as fat necrosis, whatever it is.

At the early or later stages of fat necrosis? --- I could imagine it occurring at either stage, although on general principal possibly later.

Can trauma bring about fat necrosis? --- Yes, it is one of the commoner causes of fat necrosis. In fact, in some text books the condition is referred, incorrectly I think, as traumatic fat necrosis. It is a very common understanding of the lesion.

Would you assist us by giving us any indication of how long traumatic fat necrosis takes to develop? --- I don't think we have specific learning on the point, I could visualize it happens very quickly.

Or very slowly? --- Or very slowly.

What sort of period do you have in mind when you

/ talk ...

talk about very quickly? --- A day or two. I think that Moritz suggests that it can happen even more quickly than that, I think, I would have to refresh myself on that.

And does this condition develop progressively, this fat necrosis condition or is it a static .. --- No, it depends on the degree of damage .. it depends on how much is damaged, if that is the cause.

No, I asked this because you referred just now to the later stages of fat necrosis, so I got the impression that there could be a condition of progression in the state of fat necrosis? --- Yes, I think this is so, in the early stage you would see only damage fat cells and I think somewhere in one of the others I did in fact refer to early fat necrosis and by so doing I was referring to the damage, to the early stages of damage in the fat cells without the reaction. In one of the other lesions where there is fat necrosis. You see what happens in this condition is that the fat cell gets damaged, clinical changes take place, reactions occur and then we got a morphological picture which enables us to identify the process.

You know the work of Roberts on Pathology, no doubt?
--- Robins, yes. I'm familiar with it.

Is this an acknowledged authority? --- Yes, it is a student text book..

Do you accept him as an authority? --- I understand it is an excellent text book, it is not one I use myself.

The third edition, at page 1168, there the author makes the following statement: "Histologically the central focus of necrotic fat cells is surrounded by macrophages and an intense neutrophilic infiltrations. Then over the next few days progressive fibroblastic ... increased vascularization

/ and ...

and lymphotic and hystiocytic infiltration wall of the focus". Do you agree with that so far? --- That makes reasonable sense.

"By this time the central necrotic fat cells have disappeared and may be represented only by foaming macrophages and " Is that acceptable to you? --- Yes, I think he is referring to large full blown lesions, we are referring to a microscopic lesion.

Yes, he has spoken about the time of neutrophilic infiltration which we know measured in hours could be six hours after trauma and then has already now referred to the next few days and then the author says still later foreign body giant cells calcium blood pigments make their appearance and eventually the focus is replaced by scar tissue (inaudible). Is that an acceptable statement to you? --- Yes, without accepting any of the time intervals.

Without accepting any of the times? --- Yes.

Well, that was the only point I was interested in? --- Well, I mean...

COURT: Mr. Cilliers, how long are you still going to be with Dr. Gluckman?

MR CILLIERS: About an hour.

COURT: I was thinking about the time, I'd like to finish this Inquest before I go on leave, I'm not trying to cut anybody short, I'm just trying to work out whether I should sit later in the afternoons as from tomorrow.

MR. CILLIERS: I don't know if my learned friend desires ...

COURT: No, no, we must try and resolve this question, you say Dr. Gluckman will be about an hour. I think it is almost time to adjourn today so it will be an hour tomorrow and then there is Dr. Koch. I take it that will conclude the evidence in this matter?

/ MR. CILLIERS ...

MR. CILLIERS: I think your Worship must ask my learned friend.

MR. MAISELS: Subject to one possible witness which I shall address you on tomorrow.

COURT: Who is the witness?

MR. MAISELS: Your Worship will recall a Daily Mail reporter ...

COURT: Do you want to call the Daily Mail reporter?

MR. MAISELS: Yes, we want to try and call him.

COURT: Will he be available tomorrow?

MR. MAISELS: We are trying to get hold of him, it is not easy to get hold of these men.

COURT: Well, he shouldn't take long.

MR. MAISELS: No, that is a short witness.

COURT: So as far as you are concerned, Dr. Gluckman will be the last witness.

MR. MAISELS: Yes, it will be placed on record by my learned friend that General Buys is not available for further cross-examination.

MR. CILLIERS: I will place it on record now, your Worship. I had the opportunity to speak to Dr. Marquard de Villiers who is the specialist treating General Buys and he told me that in his opinion it is indvisable for General Buys to give evidence in a Court, his state of health does not permit this and he will reconsider the position in two months' time and he cannot prognosticate any more at this stage.

COURT: Now Mr. Maisels, then in the circumstances I take it you will not require General Buys for any further questions.

MR. MAISELS: Well, the situation is whether your Worship is vested with the discretion.

COURT: Well, as far as I'm concerned you have brought this man Swart, I personally feel that as far as the Cort is concerned I would not need General Buys, it is the question

/ whether ...

whether you want to put further questions.

MR. MAISELS: Well, I did have, sir, but as far as I'm concerned, may I reserve my answer to that until tomorrow.

COURT: Of course, it won't mean that we will have to postpone this matter for two to three months?

MR. MAISELS: Oh no, sir, I can assure you that there is nobody more anxious to end this Inquest and get out of this refrigerator than I am.

COURT: I have already intimated I don't want to intervene and cut the proceedings short to the detriment of anybody but my position is this that at the end of next week I am proceeding on leave and I will be away for 4 to 5 weeks and I certainly would like to have this matter behind my back. You will not require him?

MR. MAISELS: No, sir, at present advised I will .. may I put it this way we would like to have him but we must accept the realities of the situation.

COURT: Then you accept the realities?

MR. MAISELS: Yes, that is what I said. But I want to make it absolutely clear, sir, so that there is no misunderstanding about that I'm not going to have any submission by my learned friend that General Buys has given evidence about something he didn't give evidence, I want to make it absolutely clear. This witness gave evidence as to what he wrote, he said he thought it was a correct report. A number of hypothesis were put to him, those remain hypothesis.

COURT: You mean to this witness who gave evidence here, Swart?

MR. MAISELS: Yes.

MR. CILLIERS: Your Worship, I just want to place on record, as I understood my learned friend, that he accepts

/ that ...

that General Buys states that he was incorrectly reported by the Rapport newspaper, no more than that. I agree with him that hypothesis are put to a witness are hypothesis but as I understood my learned friend and otherwise I will get an affidavit from the General of one sentence, but I understood my learned friend to accept that General Buys disputes the correctness of the Rapport newspaper report of what he said.

COURT: I think ...

MR. MAISELS: This is what my learned friend told me, I have no reason to doubt what my learned friend tells me, I have not spoken to General Buys about it, if my learned friend tells me that I accept what my learned friend tells me.

COURT: Just for my own information then, thinking about the work that I have got to put into this before I leave, could I accept then that unless anything unforeseen happens there will be only Dr. Gluckman to be completed tomorrow...

MR. MAISELS: And possibly a newspaper man.

COURT: Prof. Koch and this man from the newspaper, Daily Mail.

S.P.: And Dr. Kemp.

COURT: Dr. Kemp must put in an affidavit.

MR. MAISELS: I indicated at an early stage that I have no objection against Dr. Kemp putting in an affidavit but I understood and I want to say it in fairness to my learned friend ... but for some reason Mr. Kotze told me he was appearing, that the police wanted Dr. Kemp called and I think in fairness that is the reason why.. I'm just telling your Worship, in fairness to Mr. Buys..

S.P.: In any case, if that is the position I can assure your Worship this will not take longer than Thursday.

/ COURT ...

COURT: Where is Dr. Kemp, hasn't he gone overseas?

S.P. No, he is back.

COURT: In any case, I can accept that by Thursday we will conclude the evidence?

MR. MAISELS: Sir, I want to make one thing quite clear, you have no guarantees with regard to the conclusion of cross-examination of any medical witness.

REMANDED TO 14.6.1972.

was na dit verskyn het? --- Niemand het gekla nie.

GEEN VERDERE VRAE NIE.

JONATHAN GLUCKMAN (s.u.o.)

MR. CILLIERS (cont.): Dr. Gluckman, can you give his Worship any idea of approximately how long it would take for keratin to appear at the point where the two epithelial tongues meet after they have met, over that area? --- Are you talking generally or ...

No, generally? --- The question is keratin at the margins ?

No, keratin at the point where the two epithelial tongues meet, taking a point, where they meet, first one^{to}/two cell layers thick, now how long it will take the keratin to appear over that point? After they have met? --- Well, obviously this is a function of the rate of growth of the epidermis, generally its rate of maturation, the way it proceeds up from the basal cells to the surface, I don't know that we have knowledge of that. I think it would be speculative on my part to say that, it would vary from individual to individual and I would say it is a fairly rapid growth but I don't know.

Now in regard to A you describe under (c) Dr. Schepers' portion as you have examined it and you say " on newly-developed underlying epithelium which was up to 5 - 6 cell layers in thickness", have you got that passage? --- Yes.

Now we have Robertson's view that in the case of a small abrasion complete epithelial covering at first one to two cell layers thick is something which, as Robertson puts it, develops after day 4 or 5? --- From where are you quoting?

I'm quoting from the top, I'm paraphrasing from the top of page 22 of Robertson, he puts it this way,

/ " In ...

"In small abrasions, complete epithelial covering of the abrasion has occurred by day 4 or 5". Now we have had an argument about it, has occurred, I know your view on it. "Thereafter the covering epithelium, at first 1 - 2 cells thick, becomes progressively thicker and develops ..." So what we have here under this scab is (a) is an epithelium which is not only one to two cells thick but is now 5 to 6 cell layers thick? --- Yes.

Which means that it is a bit older than it would have been if it had only been one to two cell layers thick? That is right, isn't it? --- Yes.

And that is also obvious from the presence of keratin already, that this is not, that there are already those different layers, the basal layer, the granular layer ... --- Yes, quite so.

Now if one reads Robertson the way in which I have suggested, that one gets a keratinized surface over the completely covered epithelium which is in itself growing progressively thicker, only after the fourth or fifth day, then this would put this, those features would put this lesion older than 4th or 5th day? --- Do you mean on the basis of the keratin?

Yes... --- Because keratin can grow in hours, I mean we take it off our faces every day and then it grows itself back by the evening on some of us.

But you have explained to us that where the whole epithelium is damaged, as the tongues grow in keratin starts forming firstly on the sides? --- Yes.

And they may form there even before the epithelial tongues meet? --- Yes.

But as the epithelial tongues meet the one or two cell layers, these cells have to develop into several layers

/ right ...

right up to the keratin layer ? --- Yes. But that can happen in hours, from the mature cells of the remainder of the epidermis to keratinize cells, I mean this is a continuing process.

I understand it is a continuing process, Dr. Gluckman, but are you suggesting that from the time that the epithelial tongues meet on small abrasions within hours there will be ... --- Oh no, not at all, I was referring to epithelium which you have put to me, of 5 to 6 cells in thickness.

Yes, but it takes time to develop your 5 or 6 cell thickness? --- That is a separate point, isn't it?

It is a separate point. Well now having regard to the thickness of the epithelium under the scab here, 5 to 6 cell layers, if one assumes that the epithelial tongues meet at the fourth or fifth day, what would you say, how much time after the fourth or fifth day would it take for the 5 to 6 cell layers to develop? --- I'd say a day or so.

A day or so? --- I would say so.

I understand you can't be accurate but you mean a day or two or three or what do you mean, a day or a day and a half? --- You see when one reflects that one is constantly shedding scales of keratin from our body all the time, you know when you rub a dry skin you are rubbing off a lot of keratin and when I'm shaving I'm cutting off the whole keratinized layer. I wouldn't like to go a day or two or three, I think, if we have a proper thickness of epidermis and 5 or 6, I think subject to the location of the body... the skin is thin, I would say it is a pretty fair thing to say that 5 to 6 cells is pretty well up to normal thickness and I'd say in a day you would be making keratin.

You think about a day? --- A day, perhaps two days, but I really can't see it longer for the arguments that I have
/ given ...

given.

So if one accepts the epithelial closing at 4th or 5th day, that would mean the keratin you think the 5th or 6th, that was the basis why you said this was about 5 to 6 days old? --- Well, originally we are taking it in relation to Dr. Schepers' original statement and I then put a plus or minus and as you will recall I modified it to 4 to 8 to fit in with our general approach.

Yes, but having regard to the epithelial thickness now, would it not be fairer not to say 4 to 8 in this case, judging it clinically as an expert here wouldn't it be fairer to say 5 to 8? --- Well, I can't differentiate between 4 and 5.

Alright. This second lesion which we have referred to lies some distance from the first lesion. You originally didn't mention it because you took it as normal skin, is that right? --- Well, let me say I don't necessarily say it is normal skin but I didn't think it was relevant to recent injury.

Do you think it is extremely old injury, if at all an injury? --- It could be, no it is not normal, taking in the context of that appearance, taking it in the context of the adjacent epidermis, it is not normal and it could be, as far as I'm concerned it could be six months old, it could be a year old.

It could be 12 days old? --- And I imagine it could probably be 12 days old, I imagine it could probably be so. I mean I am not able to debate that.

If another expert expresses an opinion for reasons which may or may not be acceptable, that he considered these two lesions to really have been one lesion, then that would date the whole lesion at about 12 days? --- They are two entirely

/ different ...

different lesions, I mean the histological structure is completely different, I can't correlate the two lesions.

Anyway, you think that A, you have stated is about 4 to 8 but you say that you can't differentiate between 4 and 5? --- No. I take it that we are talking purely on the basis of the scab?

At the moment we are, yes, and this is also, you can't deviate that this has been your conclusion, 4 to 8, hasn't it ... --- Yes, taking all the local pictures together... I must stress that at no stage have I taken any one picture of any one lesion and drawn a conclusion. In each I have taken the surface, the middle layers and the deeper layers and that is the only way I can do it.

You have referred to a thin layer of keratin on newly developed underlying epithelium, just the second last paragraph of your affidavit, on that part of the newly developed underlying epithelium, is that the epithelium under the scab that you are referring to? Underlying, is that underlying the scab? --- The epithelium underlying the scab ... (keeps on turning head away from microphone).

I read that paragraph to be that your reference to a thin layer of keratin on newly developed underlying epithelium is that part of the epithelium which underlies the scab? --- Yes.

Did you notice, Dr. Gluckman, whether there is evidence of the lesions stretching more peripherally than the scab in this case? --- No, I did not see it extending more peripherally.

Well, then we can leave A. If in your section, Dr. Gluckman, one reads your microscopy it would not appear that the lesion itself was noticeable and it was only the examination of Dr. Schepers' section showing a scab which brought

a lesion to your attention? --- No, long before I saw Dr. Schepers' section I saw the infiltrate in the deeper layers.

Yes, perhaps I should have used lesion, but you, did you notice whether this was a bruise or whether there had been an abrasion from your section? I got the impression on reading A and B, small (a) and small (b) before we come into Dr. Schepers' section that you didn't refer to evidence that there had been an abrasion? --- No, not in my section.

Yes, it looked as though you were dealing with a bruise. --- Well, there was no evidence of an abrasion, I mean I was drawing no inference from my observations.

In other words, the epithelium in your section, if there has been an abrasion, must have recovered almost completely? --- No, I can't draw that inference at all, we are cutting slices off our block of tissue, embedded in wax and one very often meets a situation where the lesion is present there and two or three levels further is not there at all and I'm sure Prof. Koch will have noted in our special stains when we tried to show a scab in one of the others it wasn't there anymore, it had gone, these things are small and the fact that it is not in your section doesn't mean to say that it has been there and it has disappeared or that it was there ... all I can say is that there is no lesion and there is now normal skin.

Do I understand that the changes in the epithelium which were noticeable to you on Dr. Schepers' section were in fact also present on your section? --- Well, all I can recall and I have made no specific note about it is the normal epidermis.

I take it, Dr. Gluckman, that where you take a range, you originally take it plus-minus 5 to 6 days, that would be a range inclusive, it would be a range of three days, at least of two days, 5 and 6 and you used a plus-minus there?

/ --- Yes ...

--- Yes, meaning when I say 5 to 6, it could be 4, it could be 7.

Yes, but having adopted a wider range of 4 to 8 of course, the wider the range the more, one could speak with so much more certainty? --- I don't know, this is on the basis of accepting Robertson and Hodges' observation, that they found that within those limitations they reached the highest degree of accuracy in a blind situation as has been pointed out yesterday. This is a blind situation.

Just as a proposition, the wider the range the more certainty? --- I suppose that is correct.

If the age is between 1 day and 100 years then you can be absolutely certain you are right? --- Undoubtedly.

So having qualified your plus-minus 5 to 6 and having changed that to 4 to 8, on the strength of what Robertson says, can we take it that we don't need the plus-minus anymore, one can say this is 4 to 8? --- Yes.

Then can we go on to Section D. Now here again.. I just want to add on the 4 to 8, having said that you can't distinguish between 4 and 5, if Dr. Koch says that he finds 4 unacceptable, you couldn't quarrel with that? --- I know no basis upon which anybody, Dr. Koch or anybody else, can differentiate between 4 and 5, I just don't, I mean I must quarrel with it because I would say immediately what is the basis upon which this is done. We are dealing, to repeat, with a very tenuous and difficult situation to try and separate it out to a day.

COURT: Here again 4 to 8 would not be a plus-minus, just 4 to 8? --- Precisely.

MR. CILLIERS: In regard to D, Dr. Simson read out to us that there was a haemorrhage in the tissues between the surface of the skin without significant infiltration. Necrotic epithelium

of the scab, the scab laterally extended over a reasonably normal epithelium. A slight increase in fibroblasts. Now the scab here, is the scab also a full thickness, consisting of full thickness epithelium including a basal layer? --- At one point only, as I visualize it about 8 cells. On my section, the section that I have done.

Where Prof. Simson has used the word reasonably normal epithelium, I take it that here is also keratin present? And you have said so in your affidavit, a thin layer of keratin? That is in Dr. Schepers' section that you saw this? --- Yes.

Dr. Gluckman, do you think that, is there any evidence here that the lesion may have extended a bit wider than the area of the scab?--- Yes, as I recall it from my notes here (Witness not speaking into microphone, busy with papers)..

Dr. Koch has a note here which you added to your affidavit, "the scab attenuated laterally for a considerable distance", that is what you added to your affidavit? --- This is correct, I did say that. I'm visualising the wrong picture, this is correct.

So we have here, do we have then the position of a lesion which extended beyond the area of the original scab? The big scab that is described? --- My note is that the scab extends laterally for a considerable distance over dermis which looks normal, relatively normal and this scab extends ... (not speaking into microphone).

Now your earlier view of 5 to 6 days was based on the presence of a thin layer of keratin, those were the facts on which you based your view, that is what appears in the typing? --- No, it wasn't based on that alone, it was based on the facts underlying the lesion, there was no evidence of ...

/ (Absolutely ...

(absolutely inaudible, witness doesn't speak into microphone, head turned away completely)... taking the two together I have a conclusion solely upon the basis of a scab.

But could I ask you this, Dr. Gluckman. Is the thickness or thinness of a keratin layer part of the evidence on which one judges the age of the lesion? --- Yes, I think all other things being equal, the thinner the keratin ...

The younger the lesion? --- Depending on where the epidermis was sheared off, if it was sheared off very near the surface you could visualize a layer of keratin happening in a day or two, it depends on the level. Yes, I would think that is a fair proposition.

Not comparing it to another lesion, comparing it to itself, the thinner the keratin the younger the stage of regeneration? --- If there were all the other features but not keratin alone.

I understand that but it is part of the evidence, isn't it, because throughout your report where there has been a thin layer of keratin, although clear layer of keratin, you have pointed that out? --- Yes.

So you do draw the attention to the fact that where the keratin should be described as thin, that rather tends to show that it is younger than older? --- I think so.

Now in your second last paragraph, page 4, under (d) you said "On inspection of the section of this lesion prepared and stained by Dr. Schepers, this small area of scab was seen to be part of a slightly larger scab, overlying a thin layer of keratin which had been formed by the newly-developed epithelium beneath it. Dr. Schepers concluded that this was 5 - 6 days old and I would say \pm 5 to 6 days old."

/ That ...

That was the evidence on which you then expressed that opinion?

--- Yes.

Now you have drawn to his Worship and to the learned Assessor's attention that the scab is attenuated laterally for a considerable distance and under that part of the lateral extension or tenuation there is a reasonably normal epithelium and thereby I take it that you mean that the keratin is no longer just a thin layer, it is a reasonably normal or as you put it almost normal skin, an almost normal layer of keratin? So the basal layer including the keratin would be, as you put it, almost normal? --- I am trying to recall in my mind the thickness of keratin in this adjacent tissue. As I recall it it was normal, it was pretty normal, I don't recall that it was either thin or thick, it was a sort of average thickness. It is difficult to visualize so many sections ...

Well, I'm sure you wouldn't, by describing as you have said that the skin there was almost reasonably normal, there weren't any particular features .. otherwise you would have said so? --- Quite so, I hope so.

Well, taking then as a reasonable inference from this, that the keratin layer need not in that area be described as thin, that it was described as almost normal, that means that the regeneration of that area was a bit older than regeneration in regard to which you spoke originally when this affidavit was typed? --- I'm not satisfied that the adjacent area was necessarily damaged, as I recall the appearances it was undamaged and I'm not sure that the bits of scab were attached.

You mean that when you said scab was attenuated laterally for a considerable distance, you were leaving it open whether the scab was attached or not? --- Yes, well I say so now. I'm not sure about it at all.

/ Attenuated ...

Attenuated means stretched out? --- Thinned out.
Alright, it is a long thin ... --- It is a long
thin thing in diminishing thickness.

Doesn't it mean that the two scabs are connected
or that there is one long scab ? --- I don't think it was so
in my section, not in my section.

If there is one long scab or a scab attenuated
laterally then certainly having regard to Dr. Schepers' section
it would have been attached because his scab is attached? ---
It may be that because at one edge of the scab there was full
thickness and that it become progressively thinner as it moved
outwards, that the, whatever the force applied to it was, the
shearing force was becoming progressively more superficial, not
that the scab itself was drawn out but that that portion of
the epidermis that was damaged was becoming progressively more
superficial. It may be that, I mean I am speculating entirely.

We are talking about something like a B imprint
on a skin, that at the deepest point of the B it would be
deepest damage and at the edges it would be superficially
damaged .. --- Yes, sort of scraping along the surface, that
is the only sort of way I can visualise it.

But if Dr. Gluckman, we accept that that part
under the laterally attenuated scab was all part of the same
lesion, the scab is attached, it is all part of the same
lesion, then we find in the more peripheral areas are almost
complete repair of the epithelium which can then only mean one
of two things, can't it? Either the damage was more super-
ficial there or the regeneration period is further than the
period, the regeneration period is longer than the period which
you estimated it with regard to that part under the scab? ---
But there is a third possibility and that is that the, that that
/ part ...

part came from adjacent tissue...

I understood but that is why I qualified that if you were to accept that this is a laterally extended scab which is attached to the epidermis.... would you agree that having regard to this almost normal epithelium, if that was part of the lesion, the recovery stage according to Robertson would place it round about 12 days? Paragraph 4 on page 23. Almost recovered? --- Well, if it was part, all part of one lesion and it was almost recovered, whether paragraph 4 is strictly correct, I don't know because he expresses himself extremely loosely in this paragraph. I mean he is very loose, I mean I must draw your attention for example to the fact that he has used the word epithelium, he doesn't mean epithelium at all, he means epidermis. He is very loose ... (speaking together)

.... It would seem as if the stage in which such an almost recovered epithelium would fall would be stage 4 there on page 23? --- It is a healed normal looking epidermis.

But according to Robertson the stage is about 12 days? That is right, isn't it, Dr. Gluckman, with all .. --- Yes, subject to the qualification about my own ...

PROF. SIMSON: Have you got any evidence, Dr. Gluckman, of this report you alternative ... --- No, none at all, just the lack of adhesion in my own section.

What about the appearance of the scab, could that not give some idea of the thickness of the original necrosis? --- Well, simply the scab at the periphery evidenced full thickness. And I only got the one section, of course.

The scab right at the periphery of the lesion was still full thickness? --- No, as I recall it, at the periphery of the scab there was a very distinct cluster of basal cells and then ...

/ Right ...

Right out at the edge ... --- Right out at the extreme edge of the scab and then there was the scab.

You were able to recognise the basal cells in the attenuated .. --- No, not in the attenuated portion, only in the thick portion.

But we are talking about the periphery of the lesion? --- In the scab portion of the periphery, no I saw some flattened cells containing melanin.

Where does melanin occur in the epidermis? --- Well, its highest concentration is in the basal cells and it diminishes in quantity upwards but very often one can see melanin extending well out towards the granular layer and in the melanin stains which we did, this was confirmed. I was interested in this particular point and on going into the literature a little on this subject one finds that in non..... skins melanin can be present at a very much higher level than one is used to seeing it.

So that the presence of melanin in a scab doesn't necessarily indicate a basal layer? ---No. In my own case, at least in my own assessments in order to say a cell is a basal cell, I have demanded of myself that I see a cylindrical cell containing melanin.

And did you see these cells at the periphery of the lesion? --- Of the main scab yes, I did. A little squashed at the extreme..

At the periphery? --- Well, there is your scab and then the attenuated portion out and at the edge of the scab itself ...

Where do you think was the periphery of the lesion? --- Well, one Assumes, I don't know, the thing is strung out...

/ Their ...

Their attenuated portion you are not regarding as the lesion? --- That may be part of the lesion but there are certainly flattened pigment containing cells in that attenuated portion.

What is the importance of it, the flat pigment containing cells? --- Assuming it came from the underlying skin, then it came at a level higher than the basal cells. Because they are not basal cells, they are flattened out almost ...

But you don't think, you are not certain whether they are part of the lesion or not? --- No, I am not certain.

MR. CILLIERS: In regard to F, I will read out as I got it, Prof. Simson's view, "haemorrhage in the tissues beneath the surface of the skin, infiltration of neutrophils and macrophages, Necrotic epidermis extending beyond regenerated epithelium and covered reasonably normal epithelium. Dr. Gluckman's section shows regeneration to granular layer and Dr. Schepers' section there is also keratin. Dr. Gluckman's laboratory under the microscope macrophages is shown in the deeper layers". --- I don't follow, did you say F, I don't seem to have this passage.

No, I was reading from Prof. Simson's summary of the inspection. --- Oh, I'm sorry.

That is something that when it was read out, I understood you agreed with that? --- Yes.

Now just one small point, there is a scab here, isn't there? --- I must refresh myself

I think you added something to F here, what you added was necrotic epidermis extended beyond immediate area of scab and something else, I didn't quite catch the last part? --- Immediate area of scab and then you said and some,
/ could ...

could you just assist us by completing what you had added?

--- I said the necrotic tissue extending upwards there ...

And some variation in the thickness, I think that is how you put it? --- Yes, that is all I got written down, I may have said something else, but that is all I have written down.

Did you see this bit of scab on your section as well? --- Well, I described it in my original section as a small crust made up of numerous polymorphonuclear leukocytes.

In this case the scab is lying adjacent to the epidermis? --- Yes, quite free from the epidermis.

It is free from the epidermis? --- Yes.

And are there small pieces more laterally? --- I don't think I saw pieces of scab, I saw what could well be necrotic epidermis, not actual scab because with scab I include disintegrating polys and so on.

Now this part of the scab that you saw was loose, do you think that had been shed from that area? --- I don't know. I have nothing on which to form an opinion, I don't know.

Well, you agree with the description which Prof. Schepers gave that it is, that there is necrotic epidermis extending beyond regenerated epithelium and covered reasonably normal epithelium, do you agree that there is reasonably normal epithelium and regenerated epithelium that shows on this section? --- I don't recall that observation of Prof. Schepers and nor do I have a record ...

Prof. Simson? --- Prof. Simson, oh. Oh I see, yes.

This was the observation in which everybody agreed? --- Yes.

And did you understand regenerated, I just want to know one thing so that there is no terminology difference between

us, Dr. Gluckman, that regenerated epithelium refers, as far as you are concerned, to epithelium which had been damaged and had recovered, not to something which has never been damaged? --- Well, it was normal looking epithelium that wasn't quite normal.

I see. --- I think there is room for argument on the, on separating the concept of regenerating epithelium, epidermis from normal epidermis.

Well, in the absence of any cause other than the trauma which caused the scab, is there any reason to think that this is not epithelium which had been damaged or epidermis which had been damaged and had recovered? Or almost recovered? Isn't it the only cause which appears from the evidence before you? --- Well, one observed on the surface and extending into it this little surface necrosis which suggest that there had been damage there.

Would you describe that area of almost normal epithelium, regenerated epithelium as slightly hyperplastic? --- No.

You understand something different by hyperplastic? --- Quite differently.

Well, you agree, Dr. Gluckman, with the proposition that on the evidence on the slide, the only cause which is suggested for the abnormality in the epithelium is the trauma? --- Yes, I think that must be so, this is confirmed by underlying tissue.

WITNESS: There is evidence of trauma in die underlying tissue.

MR. CILLIERS: Now if the epithelium here is regenerated and reasonably normal, that shows a late stage of recovery, doesn't it? --- Well, it depends entirely on how much the skin was

/ damaged ...

damaged.

How deep it was? --- How deep it was, ^{if} it was a surface thing it could have, as I have pointed out, covered probably in 24 hours.

Well here again then, wasn't the scab .. oh I see your point, you mean even peripherally to the scab it may not have been so deeply damaged? --- No.

But the scab itself was, consisted of a full thickness epithelium, did it? --- No.

Didn't it or don't you know? --- No, I have a note of those which contain full thickness epithelium and this is not one of them.

Could it have been omitted? --- I doubt it, I was rather concerned with this.

Dr. Koch has the view that it is a full thickness epithelium but you of course differ? --- I think we must agree to differ.

You know I submitted, Dr. Gluckman, to Mr. Maisels for your perusal what we had considered may serve as a summary of what had been agreed upon and ultimately didn't serve for that purpose and you gave some typed comments on that and in those typed comments you didn't differ from this statement that there was a scab that consisted of epithelial cells, some containing melanin granules and a thin layer of keratin? --- I go along with that.

You didn't comment on that? --- No, I adhere to that.

Well, isn't that full thickness epithelium? --- No.
PROF. SIMSON: ... The presence of melanin in no way indicates basal layer as Dr. Gluckman has established.

MR. CILLIERS: Well, in any event, Dr. Gluckman, if this

/ regenerated . . .

regenerated epithelium, reasonably normal epithelium forms part of the lesion area, wouldn't that place it again in stage 4, approximately stage .. paragraph 4, page 23 of Robertson's article? --- We are dealing here with a completely separated scab, it overlies according to my notes here and I took another look at my sections last night, completely normal .. (coughing) and only peripherally is there evidence of this necrotic epithelium. Now I cannot relate this scab to the underlying skin. I think I can relate the peripheral lesions to the necrotic epidermis and the conclusion I draw from that is that within that region there was a very superficial ... Now I don't know, we are speculating, how rapidly it takes for the upper half of the epidermis to regenerate to normality, I submit on the basis of the arguments I have already given, that this is a short time.

Apart from the area covered by the scab or perhaps even including that area, are you suggesting this is a very superficial injury? --- I can only talk about the periphery because I have a loose unconnected scab. At the periphery I have just spoken about.

Well, how wide is the area lying between the two peripheries, just how big is the area which is not peripheral but the central area of this lesion? --- It is very difficult you know, I look at these things under the microscope.

Isn't it very narrow? --- It is several microscopic fields..

What does that mean? --- I tried to translate it to measurements, I would say it is probably in the region of about half a centimetre. As I recall, I mean I would have to take another look directing my mind to that specific point,

/ which ...

which I haven't done.

Well, in a sort of layman's term, the central area would certainly be a small lesion? --- Yes.

And that small lesion you have again estimated between 4 and 8 days, that is right? --- Yes, my comment is clear on this big schedule. On the basis of the leukocytic ... it is early, it is very early but then because we get involved with a scab I pushed it right up.

And if one did not have a shallow lesion at the periphery but also a deep one, then the extent of the recovery of the epithelium would push it into a much older age, round about 12? --- Anything is possible if you wish to speculate. I can only confine my feelings and my observations to what I see here. I haven't, as we pointed out earlier, done research **into** this question and I think it is fruitless to speculate.

Yes, there is one thing you might clear up for us, you said that, in the last paragraph on page 5, in regard to F you said "Because of the small size of the scab", you thought if anything, it was towards the earlier period ^{of} the 4 to 8 day period? --- Yes.

Well, don't you only draw that conclusion if the scab is attached to the skin? That is part of the wound, surely you don't draw that conclusion from a loose-lying skin? --- I think that would be a more proper observation.

Yes, I would agree with you. So the scab is part of the wound here? --- Oh the other way round, where I was agreeing with you is that it is probably not a justifiable observation.

Oh I see. Well, I don't want there to be a misunderstanding. You are therefore saying, having regard to what you have said about the scab, you don't want to press that
/observation ...

observation that if anything more probably towards the earlier period because of the small size? --- Yes.

You think that is not justified scientifically? --- I think so because it lies entirely separate, I don't think I was justified in talking on the basis of the main scab but on the other hand, as I have pointed out, there is the peripheral spreading out, going into the necrotic epidermis which is entirely consistent with the possibility that we have got a very superficial shearing force.

That means that your opinion in regard to F simply comes down to 4 to 8 days without qualification? --- Yes.

G, it may be the last one we will have the opportunity of doing, or would it be inconvenient for you to complete the abrasions? Can I go onto the other abrasion, H and come back to the bruises later? --- I don't think it matters except ...

Well, if it doesn't matter to you may I do it that way? --- Yes, I imagine that H will take us a long time, why not dispose of the shorter one.

Very well, let's deal with G. Here Prof. Simson read out "haemorrhage into the dermis and subcutaneous tissue, evidence of fat necrosis, iron pigment in macrophages in the areas of fat necrosis". Now I wonder, Dr. Gluckman, .. Prof. Koch tells me that you and he amongst others, not everybody looked at this, you and he saw a giant cell in the area around the fat ... do you recall that? --- I saw a multi-nuclear cell, it wasn't particularly big.

A multi-nuclear cell? --- Say several nuclear, that was in the fat necrosis, in the fat cyst.

Is there for our purpose any difference between a multi-nuclear cell and a giant cell or is it just that you don't
/ like ...

like ... --- (Reply inaudible).

Was this a very tiny cell? --- No, it was larger than the adjacent cells, it was perhaps two or three times larger. I wouldn't call it, it was a multi-nuclear cell. A small giant cell I would agree with.

Was it larger than a macrophage? --- Well, it was a hystiocyte, it was a large macrophage. It was a macrophage in several nuclei. It contained fatty material and iron.

Does a cell like this form with a chronic irritation? --- I think this is going to get us into very deep waters, it depends what doyou mean by chronic irritation.

Well, irritation not quite acute, not acute inflammatory reaction? --- This cell is quite characteristic of the process known as fat necrosis, quite characteristic, it occurs with unfailing regularity, if not invariably, in association with the condition known as fat necrosis, whatever it is.

At the early or later stages of fat necrosis? --- I could imagine it occurring at either stage, although on general principal possibly later.

Can trauma bring about fat necrosis? --- Yes, it is one of the commoner causes of fat necrosis. In fact, in some text books the condition is referred, incorrectly I think, as traumatic fat necrosis. It is a very common understanding of the lesion.

Would you assist us by giving us any indication of how long traumatic fat necrosis takes to develop? --- I don't think we have specific learning on the point, I could visualize it happens very quickly.

Or very slowly? --- Or very slowly.

What sort of period do you have in mind when you

/ talk ...

talk about very quickly? --- A day or two. I think that Moritz suggests that it can happen even more quickly than that, I think, I would have to refresh myself on that.

And does this condition develop progressively, this fat necrosis condition or is it a static .. --- No, it depends on the degree of damage .. it depends on how much is damaged, if that is the cause.

No, I asked this because you referred just now to the later stages of fat necrosis, so I got the impression that there could be a condition of progression in the state of fat necrosis? --- Yes, I think this is so, in the early stage you would see only damage fat cells and I think somewhere in one of the others I did in fact refer to early fat necrosis and by so doing I was referring to the damage, to the early stages of damage in the fat cells without the reaction. In one of the other lesions where there is fat necrosis. You see what happens in this condition is that the fat cell gets damaged, clinical changes take place, reactions occur and then we got a morphological picture which enables us to identify the process.

You know the work of Roberts on Pathology, no doubt?
--- Robins, yes. I'm familiar with it.

Is this an acknowledged authority? --- Yes, it is a student text book..

Do you accept him as an authority? --- I understand it is an excellent text book, it is not one I use myself.

The third edition, at page 1168, there the author makes the following statement: "Histologically the central focus of necrotic fat cells is surrounded by macrophages and an intense neutrophilic infiltrations. Then over the next few days progressive fibroblastic ... increased vascularization

/ and ...

and lymphotic and hystiocytic infiltration wall of the focus". Do you agree with that so far? --- That makes reasonable sense.

"By this time the central necrotic fat cells have disappeared and may be represented only by foaming macrophages and " Is that acceptable to you? --- Yes, I think he is referring to large full blown lesions, we are referring to a microscopic lesion.

Yes, he has spoken about the time of neutrophilic infiltration which we know measured in hours could be six hours after trauma and then has already now referred to the next few days and then the author says still later foreign body giant cells calcium blood pigments make their appearance and eventually the focus is replaced by scar tissue (inaudible). Is that an acceptable statement to you? --- Yes, without accepting any of the time intervals.

Without accepting any of the times? --- Yes.

Well, that was the only point I was interested in? --- Well, I mean...

COURT: Mr. Cilliers, how long are you still going to be with Dr. Gluckman?

MR. CILLIERS: About an hour.

COURT: I was thinking about the time, I'd like to finish this Inquest before I go on leave, I'm not trying to cut anybody short, I'm just trying to work out whether I should sit later in the afternoons as from tomorrow.

MR. CILLIERS: I don't know if my learned friend desires ...

COURT: No, no, we must try and resolve this question, you say Dr. Gluckman will be about an hour. I think it is almost time to adjourn today so it will be an hour tomorrow and then there is Dr. Koch. I take it that will conclude the evidence in this matter?

/ MR. CILLIERS ...

MR. CILLIERS: I think your Worship must ask my learned friend.

MR. MAISELS: Subject to one possible witness which I shall address you on tomorrow.

COURT: Who is the witness?

MR. MAISELS: Your Worship will recall a Daily Mail reporter ...

COURT: Do you want to call the Daily Mail reporter?

MR. MAISELS: Yes, we want to try and call him.

COURT: Will he be available tomorrow?

MR. MAISELS: We are trying to get hold of him, it is not easy to get hold of these men.

COURT: Well, he shouldn't take long.

MR. MAISELS: No, that is a short witness.

COURT: So as far as you are concerned, Dr. Gluckman will be the last witness.

MR. MAISELS: Yes, it will be placed on record by my learned friend that General Buys is not available for further cross-examination.

MR. CILLIERS: I will place it on record now, your Worship. I had the opportunity to speak to Dr. Marquard de Villiers who is the specialist treating General Buys and he told me that in his opinion it is indvisable for General Buys to give evidence in a Court, his state of health does not permit this and he will reconsider the position in two months' time and he cannot prognosticate any more at this stage.

COURT: Now Mr. Maisels, then in the circumstances I take it you will not require General Buys for any further questions.

MR. MAISELS: Well, the situation is whether your Worship is vested with the discretion.

COURT: Well, as far as I'm concerned you have brought this man Swart, I personally feel that as far as the Cort is concerned I would not need General Buys, it is the question

/ whether ...

whether you want to put further questions.

MR. MAISELS: Well, I did have, sir, but as far as I'm concerned, may I reserve my answer to that until tomorrow.

COURT: Of course, it won't mean that we will have to postpone this matter for two to three months?

MR. MAISELS: Oh no, sir, I can assure you that there is nobody more anxious to end this Inquest and get out of this refrigerator than I am.

COURT: I have already intimated I don't want to intervene and cut the proceedings short to the detriment of anybody but my position is this that at the end of next week I am proceeding on leave and I will be away for 4 to 5 weeks and I certainly would like to have this matter behind my back. You will not require him?

MR. MAISELS: No, sir, at present advised I will .. may I put it this way we would like to have him but we must accept the realities of the situation.

COURT: Then you accept the realities?

MR. MAISELS: Yes, that is what I said. But I want to make it absolutely clear, sir, so that there is no misunderstanding about that I'm not going to have any submission by my learned friend that General Buys has given evidence about something he didn't give evidence, I want to make it absolutely clear. This witness gave evidence as to what he wrote, he said he thought it was a correct report. A number of hypothesis were put to him, those remain hypothesis.

COURT: You mean to this witness who gave evidence here, Swart?

MR. MAISELS: Yes.

MR. CILLIERS: Your Worship, I just want to place on record, as I understood my learned friend, that he accepts

/ that ...

that General Buys states that he was incorrectly reported by the Rapport newspaper, no more than that. I agree with him that hypothesis are put to a witness are hypothesis but as I understood my learned friend and otherwise I will get an affidavit from the General of one sentence, but I understood my learned friend to accept that General Buys disputes the correctness of the Rapport newspaper report of what he said.

COURT: I think ...

MR. MAISELS: This is what my learned friend told me, I have no reason to doubt what my learned friend tells me, I have not spoken to General Buys about it, if my learned friend tells me that I accept what my learned friend tells me.

COURT: Just for my own information then, thinking about the work that I have got to put into this before I leave, could I accept then that unless anything unforeseen happens there will be only Dr. Gluckman to be completed tomorrow...

MR. MAISELS: And possibly a newspaper man.

COURT: Prof. Koch and this man from the newspaper, Daily Mail.

S.P.: And Dr. Kemp.

COURT: Dr. Kemp must put in an affidavit.

MR. MAISELS: I indicated at an early stage that I have no objection against Dr. Kemp putting in an affidavit but I understood and I want to say it in fairness to my learned friend ... but for some reason Mr. Kotze told me he was appearing, that the police wanted Dr. Kemp called and I think in fairness that is the reason why.. I'm just telling your Worship, in fairness to Mr. Buys..

S.P.: In any case, if that is the position I can assure your Worship this will not take longer than Thursday.

/ COURT ...

COURT: Where is Dr. Kemp, hasn't he gone overseas?

S.P. No, he is back.

COURT: In any case, I can accept that by Thursday we will conclude the evidence?

MR. MAISELS: Sir, I want to make one thing quite clear, you have no guarantees with regard to the conclusion of cross-examination of any medical witness.

REMANDED TO 14.6.1972.

Collection Number: A3388

Collection Name: Ahmed Timol Inquest, records, 1971-1972

PUBLISHER:

Publisher: Historical Papers Research Archive

Location: Johannesburg

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