

(Issued subject to correction upon revision.)

IN THE WARDEN'S COURT

BEFORE:

Mr. K. L. Hall, Warden
Mr. I. Balks, Manager of the Lambton Colliery and
Chairman of the Newcastle Mines Rescue Station,
New South Wales
Mr. D. Rowlands, Senior Lecturer in Mining, University
of Queensland
Mr. N. Monger, General Manager of Queensland Coal Mining
Company Ltd. and Chairman of the Central Queensland
Mines Rescue Committee
Mr. J. Murphy, President of Queensland Collieries
Employees Union of Employees.

IPSWICH, 24 OCTOBER 1972.

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or sold without the written authority of the
Chief Court Reporter, Court Reporting Bureau.)

IN THE MATTER OF an Inquiry (pursuant to
Section 74 of the Coal Mining Act
1925-1969) into the nature and cause
of an accident at the Box Flat Colliery
on 31 July 1972.

SECOND DAY

The Inquiry resumed at 10.06 a.m.

MR. PALMER: I find that I am unable to stay. I have
asked, if the Court approves, if Mr. Ramage would take care
of Mr. Jensen.

THE WARDEN: Yes, Mr. Palmer.

MR. GIVEN: Just before Mr. Hardie's cross-examination is
resumed, there is in Court, and there was in Court yesterday,
a Mr. Gordon Douglas Edwin Abbott, who is the Ipswich Secretary
of the Electrical Trades Union. I understand that he desires
to represent the members of that union before this Inquiry.

THE WARDEN: Yes, Mr. Given.

REGINALD NORMAN HARDIE, further cross-examined:

BY MR. DERRINGTON: You know, of course, that these men
were killed obviously by a very severe explosion?-- Yes.

That is quite clear, is it not?-- Yes.

And you know that the purpose of this Inquiry, among
other things, is to determine whether or not proper precautions
were taken at the time. Is that not so?-- Yes.

MR. TOWNSLEY: I object to that. That is not correct.
That is a matter of law, surely, as set down by the Act as to
what the nature and purpose of this Inquiry is. It is not a
matter for evidence.

MR. CALLINAN: I join with my learned friend in objecting
to that line of questioning. The Act makes it very clear what
the purpose of this Inquiry is, and no doubt it is a matter of

law, as my learned friend says.

MR. DERRINGTON: Quite apart from the fact that what I suggested to the witness is correct, I would also point out to the Board that I am going into the question of what is in this witness's mind, because it is very important from the point of view of credit.

THE WARDEN: Would you mind repeating your question?

MR. DERRINGTON: I do not know that I can do it verbatim, but one of the purposes of this inquiry is to ensure that proper precautions were taken. I would have thought that that would have been an elementary proposition.

THE WARDEN: I am allowing the question.

MR. DERRINGTON: I think the witness answered "yes", anyway.

BY MR. DERRINGTON: You were there for quite a substantial amount of time yourself before the explosion occurred?-- Yes.

It would be clear to you in your mind that so far as the question of precautions relating to the explosion is concerned, an important matter of material before the Court would be what discussions were had by any of the responsible people there as to the dangers of explosion?-- Wrong.

You say that you do not feel that the Court would be interested in any discussion that any of the responsible people would have had about the dangers of explosion?-- The dangers of explosion were not brought up as subject matter within the discussions. The safety or otherwise of the procedures in fighting this fire were thoroughly discussed.

You have perhaps short-circuited my cross-examination, though you did not answer the question. In other words, it seems that there was no discussion whatever by any person in responsible authority there that you know of about the danger of a possible explosion?-- There was no discussion in my presence.

And you did not raise the issue with anybody?-- No.

You know that you said yesterday afternoon that you were of the opinion that this largest explosion at least was a coal-dust explosion. Is that right?-- If it pleases Your Worship, I would like to have that particular question, the last question of yesterday, re-read and the answer re-read because this was under pressure of short notice towards the end of the session, and I might wish to re-frame that.

THE WARDEN: The answer has been given.

BY MR. DERRINGTON: I will ask you another question. Have you been discussing that with any person at all since I asked you that question?-- No.

Not one person?-- No.

THE WARDEN: Perhaps we could have the record read to Mr. Hardie?

MR. DERRINGTON: Yes, I think perhaps it should be so that he knows where he stands.

THE WARDEN: If he feels that he should enlarge on it or change it in any way, he is entitled to do so. This is the whole of the cross-examination that took place yesterday afternoon.

MR. ROWLANDS: It reads -

"BY MR. DERRINGTON: In your opinion were these explosions coal-dust explosions?-- In my opinion they were, but that is only an opinion and it has to be supported by scientific fact before it is conclusive.

You have taken statements from many witnesses?-- Yes.

And you were present at the time?-- Yes.

And you have seen the ferocity of the explosion?-- Yes.

There really is no doubt in your mind that at least the major explosions heard were coal-dust explosions?-- Subject to evidence to the contrary, I believe that they were coal-dust explosions, or coal dust did take part in those explosions that occurred.

Now will you answer the question. There is no doubt²⁰ in your mind whatever that the major explosions were coal-dust explosions, is there?-- No, there is no doubt in my mind that that was so.

MR. DERRINGTON: That will save a lot of preparation overnight."

Then there was the adjournment.

THE WARDEN: Yes, Mr. Derrington?

BY MR. DERRINGTON: Would you tell us where the pressure was?-- Would you qualify that, please?

You said that was a hasty answer given under pressure; where was the pressure?-- In the requirement to answer "Yes" or "No" to that. The answer to that would have been: in my opinion it was an explosion in which coal dust did take part.

Anyway, you certainly were of the opinion that it was a coal dust explosion, in your mind?-- An explosion in which coal dust did take part. 10

Would you tell us just what thought you gave before the explosion occurred as to the possibility of a coal dust explosion?-- During the busy operations, no thought of a probable explosion or coal dust explosion was given.

There was a fire that was raging out of control, was there not, for a number of hours before the explosion?-- Yes. 20

And in those circumstances if there is a gas explosion or a fall that throws up dust in the presence of a fierce fire, a coal dust explosion is always a very real possibility, is it not?-- An explosion is a real possibility and coal dust readily would take part in that.

Why did you not consider that possibility before you participated in 17 men going down into that mine?-- Because investigation had proved that the conditions within the mine and No. 7 were adequate to a brief revisit. 30

How does that answer my question as to the matter of your lack of consideration of a coal dust explosion which would have killed anybody in No. 7 if it occurred? Would you explain to the Tribunal, who are experienced men, why in those circumstances you say you did not consider the possibility of a coal dust explosion there?-- Not at that point.

At any point in those hours before the explosion occurred when the fire was raging fiercely?-- Any mining man in his own mind considers that fighting a mine fire is a potentially dangerous operation. 40

In the circumstances of a fire of this fierceness, it was more than a mere potential, was it not?-- It was not. It was the same as many other fires which have been fought.

This was a fire which was raging out of control, was it not?-- This was a fire which was burning fiercely under the influence of the ventilating current. 50

And out of control?-- Not at that juncture, no.

When do you say, from the time that you arrived there, that anybody had control of that fire?-- At no point did anyone have control of that fire.

Well, it was out of control?-- Endeavours were still being made to control it. 60

It was out of control, was it not, at all stages when you were there?-- During that night, yes.

Now that we have that point established, you had a fire that was raging out of control; it is elementary to anyone who would have the experience that you claim to have that the possibility of a coal dust explosion was there; is that not so?-- The possibility of a coal dust explosion exists all of the time. 70

It exists more particularly if there is a fierce fire raging out of control; is that not so?-- The source of the initiation is present.

The next question is: in those circumstances is it not desirable to know the extent of the possibility of a coal dust explosion if you know that it is a potential? Is it not important to know the extent of the possibility before you send a large number of men underground?-- Yes, it was important.

What inquiry did you make at that time before you participated in those men going underground? What inquiry did you make as to the extent of the danger from coal dust?-- I personally accompanied a reconnaissance team into the area out by of that area which we knew contained the fire.

What then did you know about the coal dust situation in that area?-- There was no evidence of coal dust in that air. The mine condition and the fire condition was as we expected to find it.

You see, coal dust comes into the air from a gas explosion or a fall of timbers or of coal, does it not?-- Yes.

Is that not so?-- Yes.

There had not been an explosion when you were down there; is that so?-- No.

And there had been no fall; is that right?-- There had been no fall.

Any observation that you made at the time would certainly not have been significant on that question, would it?-- Yes.

Why? You see, you do not get your coal into the air until you have some form of explosion or a fall?-- There had been no evidence of either.

No, but they could have occurred, could they not? They were very real possibilities?-- These things can occur at any time.

According to your evidence, when you arrived there the timbers further up the return were burning fiercely, were they not?-- The timbers were catching.

That suggests a strong possibility of a fall in the vicinity of the fire, does it not?-- It is the commencement of a possible deterioration.

And with a lot of heat about; is that not so?-- Yes.

Even more importantly, when you first went underground, at that very first stage, it was obvious that there was recirculation; is that not so?-- No.

The smoke was coming back down the intake tunnel, was it not?-- After our entry. There was no recirculation entry of the mine.

You mean when you first went down, the very first moment?-- That is right.

While you were down there on that first occasion?-- Recirculation did occur at the conclusion of the visit.

That is what forced you out, was it not?-- Yes.

And tell us, from your expert knowledge, what dangers arise from recirculation?-- No. 1 was the carriage of toxic gases down the intake and the travelling way in which people were required to travel.

Yes, is that all?-- These are contained within the coal smoke generating up the fire.

What other dangers might there be, and if you could direct your attention to the dangers of possible explosion by recirculation I would be grateful?-- Coal fire can produce some percentage of a gas which can be flammable.

Particularly if mixed with air?-- Repeat that?

Particularly if mixed with air?-- The particular gas?

Yes, it becomes more explosive if mixed with air, does it not?-- Yes.

And air was still being conducted through that mine in the vicinity of the fire?-- Yes.

And the coal fire was producing then, as you would expect, the probability of explosive gas?-- No.

Why not?-- In the presence of ample air, and from the research overseas, the flammable gases found on the return side of coal fires do not particularly reach the lower explosive limit on mixture with air.

What about if recirculation is taking place, and I would like you to keep that in mind with all my questions - that I am speaking in the circumstances of recirculation? What do these overseas authorities that you refer to say about that?-- A recirculation would add a form of coal smoke back to the ventilating current.

Including these explosive gases?-- Including these percentages which may or may not be explosive.

On mixing with air which is being conducted in by a ventilating system?-- A ventilation system conducts air.

Forming a very high possibility of an explosive mixture being brought into contact with this fiercely-burning fire; is that not-----?-- No. At this juncture, in the estimation of myself and other people, this did not present a danger.

How do you know that it was in the minds of other people if you say that the possibility of an explosion was not discussed?-- A possibility of explosion was not discussed, but the next step towards that next stage of reconnaissance to taking control of that fire was entered into from there.

Would you answer my question? How do you say that that did not enter the minds of these people if you had no discussion about it - these other responsible people that you mentioned?-- Because the subject was not broached by any of the people present.

That is the only basis that you have for saying that?-- Yes.

Simply because somebody else does not broach it does not mean that you should not, does it?-- No.

You see, after all, you were in a position of authority there, were you not?-- Yes.

To ensure above all the safety of the men. Would you not agree?-- Yes.

And with your training it would be obligatory upon you to use the insight and foresight provided by your training to ensure the safety of the men as far as reasonably possible. Would you not agree upon that?-- Yes.

And yet you say that, notwithstanding this matter of the circulation of inflammable gases being passed over this fiercely-burning fire, you did not consider the possibility of a gas explosion?-- Not to the time at which it occurred.

Can you explain why it did not even occur to you?-- Because the observed recirculation was not to terrific density at our time of observation. The quantity of air circulating back over the fire which was observed was extremely brisk.

Was not the cloud of smoke on the intake section of No. 5 mine so thick that the brigade men could not go up to those doors to try to close them to shut off the recirculation?-- In the pit-bottom area, yes, at a later time, yes.

That demonstrates that there was thick smoke including gas passing through, does it not?-- I had the report from the team that the smoke was thick at that point, yes.

Does that not simply contradict your last answer?-- Would you repeat that question and that answer again, please?

(Shorthand notes of relative passage read.)

Surely that is in contradiction of the proposition that the brigade men could not even get up to the doors because of the density of the smoke, together with your own evidence that when you were walking out with Mr. Lawrie your visibility was severely restricted?-- That would be normal smoke.

It would have to be thick smoke to cause that, would it not - the extent that you have described - would it not?-- A thickness of smoke - dense smoke - we couldn't have walked back in.

And it became even thicker while you were there, did it not?--

That has been reported, yes.

Why, when there was such a density of smoke, did it not occur to you that there was a real danger - a high danger - of explosion from gas by its recirculation?-- Because we still had the further dilutionary effects of the ventilation from the No. 7 entrance.

But what is your knowledge about the quantity of gas and air that needs to be mixed to form an explosive mixture? Would you mind telling the Board what you know about that?-- The normally quoted methane percentages in approximation are 5 to 15.

5 to 15 per cent? As long as there is 5 per cent. of methane in air, it is sufficient to cause a gas explosion; is that right?-- Yes.

And you had dense clouds of smoke that you knew about in that mine?-- Yes.

And you did not even think, on your evidence, of the possibility of a gas explosion?-- Not the possibility; the probability.

I asked you before whether you thought of the possibility, and you said "No". Are you going back on that now?-- No.

So you did not think of a possibility of a gas explosion? Is that right? Notwithstanding that you knew of this recirculation of dense clouds of smoke; is that right?-- The answer "Yes" or "No" to that would be out of context. Every mining man in fire circumstances does have within his mind the possibility of that change of condition which could precipitate an explosive condition.

You are going back upon your previous answer that you did not even consider the possibility of an explosion, are you? You are retracting that?-- Not within the planned actions that we were taking.

I am not talking about planned actions; I am talking about what was in your mind as the officer in charge of the safety of these people, with the authority that you had vested in you?-- It was my opinion that the condition of the mine had not deteriorated to that point that it couldn't again be briefly re-entered.

Would you tell me whether or not in that capacity at any stage, whether in the planning or otherwise, you considered the possibility of the gas explosion? Would you give us a clear answer to that, please?-- The possibility of a gas explosion was not discussed.

Would you mind answering that question? Did you consider in your mind at any stage the possibility of a gas explosion? Yes or no? Surely that is a simple answer?-- Yes.

What did you do about it? Nothing. You did absolutely nothing; is that not right?-- I did keep observation on all conditions as far as was possible.

You kept observation of all conditions? Is that all you did? You kept observation of all conditions?. Even the explosion that killed 17 men; you kept observation on that? Is that the truth? Is that the truth? That is all you did: kept observation and did nothing more?-- (No answer.)

Is that the truth?-- I suppose in the context, yes.

Whether it is in the context, or not, it is the same unadulterated truth, is it not, that not one thing was said, nor was one thing done in the hours of this entire evening, to consider or do anything to avoid the death of these 17 men by gas or coaldust explosion? Now, is that not the absolute truth, whether in context or otherwise?-- There was no other measure that could have been taken to avoid the death of these 17 men other than abandon the mine and go home at 10 p.m. 10

Yes, of course. And why was that not done?-- Because it was not considered in all the conditions of the mine necessary at that time.

Because, might I suggest to you, nobody even considered their safety or did anything about it. Now, is that not the truth?-- It is not the truth. 20

You see, what did you do? What did you do to avoid the possibility of the danger - the death of these men - in a gas explosion? You say you kept the affairs under observation; and observation indicated to you clearly that there was this intense recirculation of smoke with gas over a fiercely-burning fire. Now, what was done for the safety of these men to prevent their death? Now, tell me that, please?-- The final visit to within the mine was to the accompaniment of men equipped with closed breathing apparatus for safety precautions. 30

How could that possibly have saved them from an explosion like this?-- No person at that mine in my opinion thought that an explosion was imminent. 40

Can I suggest to you that no person in responsible authority there took the slightest notice of the possibility or did anything about it? And is not that the truth?-- No.

Well, you tell me what was done - one thing that was done by way of testing or otherwise to ensure that there would not be an explosion like this that would rob these 17 men of their lives?-- Personal accompaniment in inspecting parties in conditions tolerable to the people within the party, including the officials present, and the observations as far as possible of that which was occurring within the mine.

This is this observation again? You kept it under observation: is that right? That is all you did? Even the explosion you kept under observation: is that not right? That is all you did: is that right?-- Does that warrant an answer, Your Worship?

You can claim privilege if you wish, I would suggest?-- I have no intention of claiming privilege.

Well, I am asking you: what did you do by way of testing or taking other precautions except this observation that you talk about, which produced nothing, obviously? What did you do to protect these 17 men and the many more who were down there at different times?-- There was no testing.

No discussion?-- Ample discussion.

No discussions about explosions or danger, was there?-- Yes.

What discussion was there about the explosions?-- Not explosions; I told you that previously.

That is what I am interested in, because there was nothing else that killed these people, was there?-- No, it was explosion.

You see, you talk about it as hindsight, but I suggest to you that if those in authority, with the certificates that they hold and the experience that they should have exercised this for the reasonable safety of these men on that night, they would never have been underground when the recirculation occurred: isn't that true?-- It is perfectly obvious that on the event of an explosion no one should have been underground.

And you try to talk about it as hindsight, don't you, that we are using now; but in fact isn't it the truth that you are supposed to have training with insight and foresight as to the dangers?-- Yes.

So it is not really a matter of hindsight after all, is it? It is a matter of whether or not you use your proper training properly, is it not?-- No.

Is it not a question as to whether or not you put safety in its proper position above the economics of the saving of the coal mine?-- Economics were not discussed.

Economics, of course, was uppermost in your mind, was it not - the saving of the mine?-- Not at all.

Well, you see, how much consideration did you give to the danger of explosion as compared with the consideration that you gave to stopping the fire?-- The mining industry has fought fires underground in coal mines ever since I have known it, and my fathers knew it.

I am talking about in conditions of recirculation, you

know? Where recirculation is known to exist, do you say the coal mining industry continues to fight fires underground in circumstances of severe recirculation?-- To within limits.

What limits?-- We have no parameter.

You have no barometer?-- Parameter.

I am sorry. The fact is, of course, if it becomes an obvious danger, then safety demands that the men be withdrawn; is that not so?-- Yes.

And that was not done, was it - to this extent: that although they were withdrawn at times, they were sent back and sent back and sent back?-- Evidence shows that the men were not withdrawn in sufficient time.

What knowledge did you have as to the extent to which the return, the ventilation return, was properly stone dusted?-- Observations during inspection.

What inspections?-- Normal routine inspectors' inspections?

Would it be true to say that you did not attend on No.5 tunnel since November 1970 except to investigate specific accidents?-- No.

All right. Have a look at your book, if you do not mind, and tell us the occasions when you went back other than to investigate specific accidents. Would you mind having a look at these?-- (Shown to witness.)

You see, those are the only books that we have in our possession, and the period might go back much further; but if you would not mind examining those to tell us when you examined No.5 other than for the purpose of investigating specific accidents?-- This record book records 16 November 1971, and that is an accident report - numerous accident reports.

It was an accident report, was it not?-- Yes.

What are you referring to here?-- My own notes.

Should not any inspection that you made be in the book - in the mines book - the mines record book?-- (No answer).

Would you mind answering me, Mr. Hardie, please?-- There are often inspections and discussions had which are not entered in the mine record book.

You are supposed to enter in the mine record book any inspections that you make, are you not?-- Yes.

Well, is there anything in the mine record book that suggests that you made an inspection other than for the purpose of investigating an accident?-- No, there are not.

Now you can refer to any other material that you may have. I would be grateful for the opportunity of seeing all of that too, if I could?-- Do you wish to see these?

You see it first and tell us what else these records produce as to inspections that you made?-- 31 March 1954.

Well, since November 1970 will do, because that is the limit of the time back of the mine records books that have been produced to us, you see?-- 26 September 1969; 9 December 1969; 10 June 1970.

All right. What happened on 10 June 1970? Was that an

investigation of an accident?-- That was an electrical inspection for Mr. Busch.

I am talking about an inspection of No.5, of course?-- November 1970. You want me to read that?

Yes?-- "In the manager's company I did today inspect Box Flat No.5 colliery travelling into the mine along No.2 trunk belt, thence out to the No.7 north via section belt and out of the section along supply road."

Is that No.5? Does that refer to No.5 tunnel at all?--
Yes.

Will you please repeat that?--- You might find, if you looked at No. 7 book, that the numbers of the mines do transfer themselves.

Where do you say you went in No. 5? You went to No. 7 north?-- Yes.

In No. 5?-- Yes.

"...via section belt and out of section along the supply road Jenbach diesel road, thence out to No. 7 south section along the belt, and out of section per supply road, and thence to dip section, and out of mine via underground and main No. 5 haulages."

Why is that not in the record book?-- It is in the record book, but you are looking specifically at a book which is numbered 5 at the head of it.

Why did you go to those particular places? Were you investigating an accident on that occasion?-- No, it was a normal inspection.

And that did not take you anywhere near the return, did it?-- No.

How long would it be since you inspected the return air way?-- Possibly about 12 months.

If it is "possibly about 12 months", will you please find the details of your inspection in that period?-- In 1968 there was a return inspection on 21 October.

In 1968 in October, nearly four years before the accident?-- Yes, this is.

Is there anyone since then?-- We have still got to go through-----

Please do?-- 23 May 1969.

What does that read?-- "Return inspection following report of a heating."

That is in May 1969?-- Yes.

What do you have relating to that? Please read it all out?-- "Box Flat No. 5, 23 May 1969. Following the reporting of a heating in No. 6 south of No. 5 tunnel on the 13th May with work to repair and re-seal by the 14th, followed by an incidence of resultant fire (smell kerosene) in No. 6 south in No. 7 tunnel on the 16th, and further work to clear and re-seal in this area during the 16th, 17th, 18th and 20th. A further inspection was made on 21 May to test the full effectiveness of the sealing and the mine at the seal. During the stated period it was found that plus m.a.c. carbon monoxide content was found in a return section which ceased production pending reduction of C.O. content to minus .01 per cent or 100 parts per million. Testing along seals and return in No. 6 south, No. 7, and No. 6 south, No. 5 mine on 21 May 1969 revealed as follows - No. 6 south No. 7 return along sealed area showed C.O. content as .0034 per cent or 34 parts per million. Stopping face areas on return No. 6 south No. 7 showed stopping leakages giving local and off-return contaminations of in by to out by stoppings .02 per cent, .018 per cent, .23 per cent and .28 per cent. Immediately action was taken to re-ventilate these over m.a.c. locality. Testing at plastered and

1
repaired No. 6 south No. 5 mine return stopping gave
.08 per cent along face of wall under unventilated
condition. Main No. 5 south return at this area
showed C.O. content still existent but well below
m.a.c. Further testing of this return below this
return road point showed a low C.O. content to exist
confined to leakage through and around the intake
road stopping on No. 6 south No. 5 tunnel. Determined
on site was: C.O. contents as found are due to -

- 10
- (a) unsuitability of concrete bricks supplied due
to porosity allowing breathe out of sealed
atmosphere through stopping places in spite of
plastering carried out;
 - (b) leakage of atmosphere around tops, sides and
bottoms of seals where full cleaning up to
spillage, etc., is required to completely double
seal these points to stoppings to ribs, roof and
floor.

20
The above matters are now planned for rectification
by clean-up and application of rigid foam sealant
application to be carried out commencing on this date.
Further tests will be carried out after application
rigid foam. 13 August 1969."

That means that you went there specifically in relation
to a fire and the testing for carbon monoxide afterwards?--
Certainly.

30
That was for a specific purpose, for a fire; is not that
so? It does not portray a general inspection of the return?--
It is a return inspection of the section in and around that
area.

It was not a general inspection of the returns?-- No.

Would you please continue to try to find anything in the way of a general inspection of No. 5 return, and tell us the last time that in fact you inspected No. 5 generally - the return of No. 5?-- On 5 November 1970. Do you want that read?

I think to save time I might tender it. Do you say that that demonstrates that you made a general inspection of No. 5 return?-- Yes.

MR. DERRINGTON: I will tender that. We might have an opportunity of looking at it.

Ex.7 (Admitted and marked "Exhibit 7".)

BY MR. DERRINGTON: In the meantime, would you continue to see if you can find any other record?-- Yes.

MR. DERRINGTON: May we see that last document when the Board has finished with it?

WITNESS: No, that is all the recorded inspections that I have here.

BY MR. DERRINGTON: That is to say that the last one then was on 5 November 1970?-- As recorded.

MR. DERRINGTON: May we have a look at that?

(Handed to Mr. Derrington.)

BY MR. DERRINGTON: Can I go back a little in time and ask you to find for me that reference in the No. 7 mine record book relating to that report that you say - that dealt with No. 5, but would be in the No. 7 book?-- Did we record the date?

It might save some time if you did that?-- There is not in this book.

You see, when I asked you where it was in No. 5, you said it would be in the No. 7 book, did you not?-- Because there is no particular meticulous adherence to the No. 5 and the No. 7 book, if they are not readily available. The report goes in---

No, I have not found it. This is the 1970 one, the one you have just been dealing with a few moments ago. I want it understood that what I am asking you to find is this: that you recall in relation to my question as to your inspection of No. 5, you said that you had inspected No. 5 at a certain stage but that it would not be in the No. 5 book. It was some time in 1971, as I recall it?-- If it was not available in that book you have -----

No, the one I have in my hand was an earlier book that I called for that dealt with the report you last tendered. I am now back to the previous report that you read out in detail. Do you remember that?-- On what date was it?

May 1969. No, that was not the one either. Do you recall that I asked you to have a look at No. 5 tunnel mine record book?-- Yes.

To locate a copy of the report that you were referring to and you said it was not in that No. 5 book?-- Well, I didn't see it.

Do you have No. 5 record book up there for the period from November 1970 onwards? There are two of them, I think?--

Turn 6 1/5

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R. N. Hardie

Yes, 14/11/1970 to 12/11/1971.

Now, I asked you to refer to those and locate for me a copy of the report that you referred to. Do you recall that?-- Yes.

And you said it would not be in that because it would be related to No. 7?-- I haven't found it here.

You will recall that you said that you could not find it because it would be in the No. 7?-- I anticipated it would be in the No. 7 book, but it was not here, because I do know that varying numbers of books have been used from time to time.

Here is the No. 7, or a set of them, that were produced to us. Would you take that also and find it in there?-- (Handed to witness.)

It must be in the No. 5 or No. 7 book, must it not?-- Yes. No, it is not in that book.

Does that mean that it is not recorded in either of them?-- No, but that would be wrong. That is a carbon copy taken from a mine record book, and then copied at the office.

Does that mean that the report you referred to yourself is not contained in either of the mines records books?-- Not the ones that I have viewed, anyhow.

They are the ones that have been produced to us as covering the relevant date. If there are any more, I would be grateful if they would be produced now. Well, they are not produced. Can you explain why a report that you have made, or say that you have made, is not contained in the mines records books?-- It could possibly be contained in a book which is not of the relevant dates.

Why would it be contained in a book which is not of the relevant dates?-- Because that book was available with space, perhaps, as against a current book which might have been almost full.

This is a highly undesirable procedure if in fact it is followed, is it not?-- Yes.

You see, one of the purposes of the mines records books is to record once and for all in a properly recorded fashion examinations that have been made, inspections that have been made, and the like. Is that not so?-- Yes.

So that there can be no doubt later on if there is a disaster and an inquiry that such an event occurred. Is that correct?-- That is correct, yes.

It does not seem to have been done in this case?-- That book would have been available from the Box Flat records.

The recording is not properly done, is it?-- Not in the correct book, no, but it is a mine record book which would have been available for perusal by the miners at the appropriate position.

What other book do you say it could be in?-- I would not know; one of the Box Flat mine records books.

Nothing is produced to us so we will have to proceed.

MR. CALLINAN: What do you want? If my learned friend indicates what he wants, I would be only too happy to produce it.

MR. DERRINGTON: All the mine record books which could contain these records.

MR. CALLINAN: It is not recorded. It is not a record that we made, but I will have a search made.

MR. DERRINGTON: It is a record which should be contained in your books.

MR. CALLINAN: It is all very well saying that but we did not make the record.

MR. DERRINGTON: They are books that you are supposed to have in your control, with respect.

MR. CALLINAN: I would be grateful if you do not interrupt me. What I will do is make available to Mr. Hardie, if the Tribunal sees fit that that course be taken, all of the mine record books at some convenient time so he can look through them and find this entry. That seems to be the best course rather than take up time now, but it is a matter for the Tribunal.

THE WARDEN: They are my feelings too. I feel that a lot of time has been spent on this particular aspect, and whilst I have no desire to limit your cross-examination, I feel this matter is taking an excessively long time.

MR. DERRINGTON: I do not want to protract the matter further, but I would be grateful if that were done so that we have the appropriate records produced, with respect.

MR. CALLINAN: I will make all those available to Mr. Hardie at lunch time, if the Board pleases.

THE WARDEN: Yes.

BY MR. DERRINGTON: What inquiry have you made since the accident as to the extent of stonedusting that was done in the return of No. 5?-- I accompanied members - since?

Since, what inquiries have you made as to the extent of stonedusting?-- I have received reports from tests which were made prior to the explosion.

What tests were made prior to the explosion in the return of No. 5?-- A team of chemists did do some road-dust sampling for analysis during the month of July.

What was the purpose of that, do you know?-- To ascertain the condition of the road, roof and sides' dust within the Box Flat Colliery.

And was there any other purpose behind that recording? Was it anything to do with any variation in the Regulations, for example?-- Not to my knowledge.

Not to your knowledge - just that the chemists went and sampled this particular mine?-- Yes.

For coal dust?-- Yes.

And what was the result of that?-- These results were forwarded to our department in detail.

Turn 7 u/9

MR. DERRINGTON: I call for the departmental records relating to these tests.

MR. TOWNSLEY: I rather think that my learned friend Mr. Given may have some statements in that regard.

MR. GIVEN: I do not know.

MR. DERRINGTON: I call for the records.

MR. TOWNSLEY: I think the records are in the form of statements.

MR. GIVEN: Well, I am afraid I have not got them. I have been supplied with some documents which relate to tests of material taken after the explosion. To the best of my knowledge I have not any information relating to tests before.

MR. TOWNSLEY: Tests taken after the explosion?

MR. GIVEN: Yes, that is all I have.

MR. TOWNSLEY: Will the court excuse me for a moment while I take instructions on it?

THE WARDEN: Yes.

MR. TOWNSLEY: I am instructed that we do not have here any original files or material such as my learned friend Mr. Derrington might want to see and from which to cross-examine. We have copies of certificates received from the Government Chemical Laboratory sent to the Mines Department. We have copies of those if they would suffice.

MR. DERRINGTON: For the time being. It would save time. I call for those and tender them, and any reports that accompanied them.

MR. TOWNSLEY: There is a somewhat bulky set of material here that could perhaps take some time to sort out into readily deliverable material so that my learned friend could pick up what it is all about. I confess I have taken some time to ascertain even what its meaning is.

THE WARDEN: As long as it is made available to Mr. Derrington - I think that is the main thing. Whether you want to look at it now while we adjourn, or whether you want to look through it-----

MR. DERRINGTON: I would like some time to examine it but I do not want an adjournment to take up the Court's time. Perhaps we could look at it when it is available later.

MR. TOWNSLEY: It will be available when it is sorted out from other material with it.

MR. DERRINGTON: We would like to see the results of all tests and reports relating to them which went to the Mines Department.

THE WARDEN: The results of the tests should be fairly easy to produce.

MR. DERRINGTON: That is right, and comments on those results.

THE WARDEN: You could draw your own conclusions from the tests, but the witness could perhaps vouch for that.

MR. DERRINGTON: Anyway, I will continue cross-examining as we are going to see the tests.

BY MR. DERRINGTON: You might give us the benefit of your view as to what these tests revealed as to the quantity of the coaldust in No. 5 return?-- My knowledge of those reports was that within the Box Flat Colliery there was insufficient incombustible dust added to prevent the promulgation of an explosion.

And this report was made before the explosion?-- No.

These tests were made before the explosion?-- The pause between sampling and final analysis might be some weeks.

The tests were certainly taken before the explosion?-- Yes.

And there was a report to that effect, I take it, that there was insufficient incombustible dust added?-- Not prior to the explosion.

You say the report came after the explosion?-- To the best of my belief, yes.

You told the Tribunal before that you were of the opinion this was a coaldust explosion or, at least, there was a coaldust explosion involved in this; is that not so?-- Yes, coaldust participated.

You believe that to be so?-- I believe so, yes.

And you knew that there had been a testing of the coaldust before the explosion; is that not so?-- This had no relationship-----

Would you mind answering the question? You did know, did you not?-- That sampling had been in progress during the month of July.

But when you gave your evidence you knew that there was a report which indicated that there was a dangerous situation from coaldust, did you not - when you gave your evidence-in-chief?-- (No answer.)

You knew that there was such a report, did you not?-- I had seen some results arising from that report.

Which led you to the conclusion that there was a dangerous situation from coaldust; is that not so?-- At what time?

When you were giving your evidence-in-chief you knew that the sampling taken shortly before the explosion demonstrated that there was a danger from coaldust, did you not?-- At a time subsequent to that explosion.

What do you mean, "At a time subsequent"? You knew that the report came later?-- Yes.

With the results, that is so, but when you gave your evidence yesterday in-chief, you knew that that report was in existence - correct?-- Yes.

And you believe the explosion to have been a coaldust explosion?-- I believe it to have been an explosion in which coaldust participated.

Why did you not tell the Tribunal yesterday in your evidence-in-chief as to these tests which indicated a dangerous situation from coaldust, because it must have been relevant?-- The question was not asked.

But you were asked to give an indication as to what you felt were the causes of the explosion and to use your hindsight now?-- No, I was not.

To explain things that might have been done, and you did not refer to this?-- I was not asked a question as to the causes of the explosion.

You were asked, certainly, to use your hindsight and say something which might have been done which had not been done?-- Relative to the fire?

Relative to the disaster?-- The initial fire.

You say that you were only asked or you only directed your answer to what might have been done in relation to the fire?-- I believe that was the question which was asked of me.

But you say you did not make any reference to this coal test because you were not asked to give any information now as to what might have been done to avoid the explosion?-- Not at that juncture, no.

But you certainly would have realised with your experience that the Board would have been very interested in knowing about this coal dust situation, would you not?-- I would further realise that further evidence in this matter by persons more expert than myself perhaps could have been produced.

And do you know whether they are being produced, or is this locked up in the ----

MR. TOWNSLEY: He is not conducting the Inquiry.

MR. DERRINGTON: I am asking him whether he knows if they are being produced, or not, notwithstanding my friend's comment, because this goes to state of mind.

MR. TOWNSLEY: I am objecting to the question, because it is not for this witness to say who is going ----

THE WARDEN: He is not saying who is going to be produced; he is asked if he knows if a witness is being produced. Surely he can say "yes" or "no". If he does not know, he does not know.

BY MR. DERRINGTON: Do you know whether one is going to be produced, or not?-- I believe so.

Irrespective, you were certainly in a position of giving expert evidence about this matter generally, were you not?-- I was in a position of giving evidence.

And evidence of an expert nature; is that not so?-- I don't like the word "expert".

Who is the expert witness who is going to be produced, as far as you know, to speak about these tests and so forth?-- It would be the person who did the analysis of the dust.

Who is that?-- It could be either perhaps Mr. Couper or Mr. Brixius.

I am asking you what do you say now, with hindsight, concerning the explosion which might have been done, but which was not done?-- Are you asking me the prevention of the explosion or the mitigation of the explosion?

Well, both: the prevention of the explosion and the mitigation of the loss of life. I am, of course, most interested in the latter?-- It was my belief that the initiation of this explosion was at the fire. Therefore, our first consideration would be prevention of the fire promulgation. Secondly, in mitigation of the effects of an explosion which might have occurred from that source, treatment of roads to sufficient percentages of incombustible dust must be performed, or the introduction of other means to limit the propagation of coal dust explosion.

Yes. Anything more?-- Nothing further.

There is provision in the regulations in schedule 2 relating to stone dusting, is there not?-- Yes.

If that stone dusting is observed, then it would not produce the result found with these analyses, would it?-- Would you repeat that?

If the regulations were observed relating to stone dusting, the result would not have been produced that would have caused those readings when the samplings were taken, would it?-- No.

What investigation have you made, then, after you became aware of this report of the analysis of the testing as to the stone dusting of the relevant areas?-- Since this report, my full time has been obligated to the investigation of this fatal accident.

One of the prime features of your investigation undoubtedly would be why this mine was not properly stone dusted, would it not, because in your opinion there was a coal dust explosion involved; is that not so?-- Yes.

Surely one of your prime targets would be the discovery why there was not proper stone dusting, would it not?-- The reason why would be obvious. The percentage added was insufficient to the controlling after initiation.

Then you would want to find out why insufficient quantities were added, would you not?-- Yes.

What did you find out?-- That insufficient stone dust yardage was spread in the main roadways throughout the year's production, or the years of production.

You did find that out?-- That would be available in the reports.

Did you inquire from anyone about the stone dusting that was carried out that leads you to this conclusion that insufficient stone dusting was carried out?-- I have the information resulting from the reports of analysts.

Did you inquire from any of the officials of the mine about this in your investigations?-- I asked Mr. Lawrie as to what quantity of stone dust he had purchased during the preceding year.

How much had he purchased?-- I have forgotten the figure.

Surely you would have some record of that?-- In my office, yes.

You did not bring it along to the court?-- No. We have better and further evidence available from scientific reports.

We also want to know how much the mine purchased in the way of stone dust, would we not?-- This evidence would be available from the manager.

You did not even bring along to the court the figure that he gave you?-- Not today, no.

But you do have it recorded somewhere?-- Yes.

Where?-- At my office on a side table, written in biro.

On what?-- Foolscap.

There must be millions of sheets of foolscap in the Mines Department. What type of foolscap? Just a blank sheet of foolscap?-- Just a ruled sheet of foolscap.

A blank sheet with this figure written on it? Is that what you say?-- I don't recall what else might have been with it.

When you saw the quantity, did that suggest to you that it was quite clear that there had been insufficient coal dust?-- As a result of the analysis results which I have observed, it was perfectly clear.

As the result of the amount that you saw that the mine had purchased, was it confirmed?-- That couldn't necessarily confirm that. Results of analysis in tests are the only ----

Surely if you saw that a quantity that your experience would tell you would be insufficient for the purposes, you would be able to say whether it would confirm it, or not?-- Not immediately, no.

Did you check? Did you run out a rough calculation?-- Yes.

What did your calculation reveal? That the amount purchased would demonstrate any insufficiency of stone dusting?-- Insufficiency of dust commensurate with the yardage of advance and the tonnage of coal produced, yes. It was a rough calculation - very rough.

To go a little bit further, did you speak to any officials of the mine at all as to the extent of the stone dusting of No.5 return?-- No; not since this accident we have discussed this further.

You have not discussed this?-- No.

You did not ask them how frequently anybody stone dusted it, if at all?-- I do know that stone dust within the mine was spread, but it was the sufficiency of that stone dust comparable to the amount of road dust, subject, of course, to the analysis and test which tells the story.

It was important to know how frequently stone dusting was carried out in a return airway, was it not, because if the stone dusting had been done last two years ago, there would be a lot more coal dust coming in the return airway, would there not?-- Yes. Tests would determine that.

But it would be then important to know as a matter of procedure how often the mine stone dusted the return, would it not?-- Yes; any airway.

The mechanical miner causes a lot of dust, does it not?-- Yes.

And that dust is taken out along the return airway, is it not?-- Yes.

So that there is an abnormally large build-up of dust in a return airway such as this in No.5?-- Yes, far in excess of your intake air.

And this would be a continuous process, would it not, that this dust would be carried along there from the mining operations?-- Yes. It is continuous on production.

You agree, of course, that it would be important to keep them stone dusted with a certain degree of regularity?-- Yes; to achieve a result.

What knowledge do you have, gained either before or after the accident, as to the degree of regularity with which that was stone dusted?-- I only know from the manager's information that weekly applications of stone dust were carried out.

That is this return air way?-- Not this particular air way; within the mine.

I am speaking about the return air way?-- I can't particularise that for you.

Do you mean to say that you have never asked, either before or since?-- No, I have not asked since, no.

Did you ever ask before whether the return was ever stone dusted, and how often?-- Stone dusting was generally discussed from time to time.

Did you ever discuss whether the return was stone dusted -- that is, back from where the men were working, you see, where the coal dust accumulates? Did you ever ask about how often that was done?-- No, I didn't.

And, of course, you would agree that the tests prove that your lack of enquiry failed to reveal a dangerous situation there; is that right?-- More in particular the lack of testing of the efficiency of that dusting which was done.

Well, you used that return air way, I think, on some occasion, did you not, in No. 5? Did not one of your reports indicate that -- that one that I tendered?-- Yes.

That you used that?-- Yes.

So we have the situation that this fire was occurring in a place which was the return air way, of course, where the coal dust would be carried back from the face; is that right?-- It is within that return stream, yes.

And the dust would tend to be spread by the air flow too, would it not?-- To some extent, yes.

All the ingredients existed for a serious catastrophe there, did they not, when that fire broke out?-- Not particularly more at that point than any other point.

Well, why not more so at that point? This was in the return air way where there was more dust than in other parts of the mine in a mine where the stone dusting was insufficient. Why wouldn't you say that the ingredients were there more so than in another part of the mine?-- Well, ingredients under insufficient stone dusting are either sufficient or otherwise to prevent the promulgation at any point.

Do you think there might have been the possibility of a tendency only to stone dust the areas around the working face and the conveyor, or something like that, rather than bother about the return air way?-- There is always the possibility that some roads may receive perhaps more attention than others.

And others may receive less attention than others?-- That is always so where roads are multiple.

Now that you know there was a danger from coal dust in that mine, would you tell us what passed through your mind in the hours when you were at the mine on that night of the fire what passed through your mind as to safety in relation to the possibility of a coal dust explosion? Did you consider the possibility of a coal dust explosion?-- Not a coal-dust explosion, but there is always an awareness of an ignition source vested in a fire whilst fighting fire underground.

You certainly had a fierce fire blazing here, did you not?-- Yes.

And if there is such an ignition source, then there is a real possibility of a coal dust explosion; is that so?-- The probability is higher under those circumstances than normal circumstances.

Did you consider that that night - the danger of a coal dust explosion - or not?-- These things do enter your head and they do-----

But-----?-- Carry on.

No; carry on. I did not mean to interrupt you, because I do not want to be unfair by cutting you off, you see?-- And they do cause you to give some consideration as to your next actions.

What did you do then if it entered your head that there was a possibility of a coal dust explosion? What did you do about determining the seriousness of that danger? Did you make any enquiry, for example, as to how well stone dusted the No. 5 return was?-- It must be realised that during this number of hours of fire-fighting which was taking place discussions were held to as much brevity as possible and in the channels whereby we were planning our next moves. All men were extremely busy and on the move.

I appreciate that; and of course it should have been uppermost in the minds of yourself and the other officials responsible that that planning would have to incorporate safety as far as possible: is that not so?-- Yes, that is so.

So if your planning was to incorporate safety and the possibility of a coal dust explosion passed through your mind, would you tell me if you did anything at all by way of enquiry or testing or discussion to assist you in considering whether the danger of a coal dust explosion was high or otherwise?-- No, this was not discussed and it was not-----

Did you do anything?-- Nothing other than examination.

What did your examination reveal?-- No. 1 instance: a fierce clean fire, a floor fire; No. 2: a pressure change culminating in a short circuit from the return side of that fire back to the intake.

Can I add: with the possibility then of a gas explosion? That is so, is it not?-- You can, if you wish; and thirdly the fact that the ventilating currents of the mine in respect to No. 7 and their intake to No. 5 were functioning normally, carrying fresh air down 7 to 5 via the 41 and 42 stone drives.

And mixing with these clouds of smoke?-- Yes.

Into possibly combustible mixtures?-- In this case dilution of those possible combustion mixtures is more important than concentration.

What did your observations then reveal in relation to the danger of a coal dust explosion?-- There were no symptoms within the mine that coal dust was being projected into the air.

But there would be coal dust projected into the air if the recirculation caused an explosion?-- If an explosion occurred it would raise coal dust.

And if there was a fall because of the burning timbers and the heat, that would raise coal dust?-- That would raise coal dust.

They would be obvious things too, would they not?-- Yes, they are normal.

What were your observations then relating to the coal dust situation that was there with those very real possibilities existing?-- The coal dust situation was the same then as it had been always.

Does that mean then that the analysis proves that your observations previously must have been quite erroneous as to coal dusting?-- No. The analysis proved that there was insufficient stone dust added, and this was proved at a time subsequent to this disaster.

But the tests were taken before?-- The tests in fact were taken.

And they proved that there was insufficient stone dusting?-- Proof was obtained from analysis, which testing occurred on these tests.

The fact is that there was insufficient stone dusting when you were down the mine there on that night?-- It was proved to be so.

And you said it was the same as it had been before on your previous examination?-- Yes. There was no change.

Does that not mean then that if there was insufficient stone dusting at that time, there must have been insufficient on your previous examinations?-- Yes.

How do you explain then why your examinations failed to reveal the adequacy or otherwise of stone dusting?-- Because tests were not taken and samples analysed.

Is that the only way you can examine, that you can check, for proper stone dusting?-- You can examine and make an arbitrary judgment perhaps of the sufficiency of stone dust by the whiteness strewn around the air ways.

Then do you say you just made a simple error of judgment where you had been mistaken in your inspections: is that it?-- No, I have not done that at all.

You were wrong, were you not?-- That is proven.

How do you explain it? Simply because you had no opportunity of testing it: is that what you are saying?-- Because testing had not occurred, and I didn't have that knowledge.

Why hadn't testing taken place, apart from this one opportunity shortly prior to the explosion?-- It was a function of management which apparently had not been done to detail, or at all.

Who was responsible for that failure?-- In all cases within coal mines and under the Act the manager is always the responsible person.

Are you aware of the situation in New South Wales about testing?-- No.

As to whether or not there are testers, dust samplers, who periodically go round the mines sampling them?-- No.

The district check inspectors of the miners were not notified of this fire?-- It was not to my knowledge whether they would or would not have been because these notifications may or may not be made to them by the manager.

There is no requirement for them to be made under the Act?-- No.

Notwithstanding the seriousness of the matter you did not either make arrangements for them to be notified or check as to whether they had been notified?-- Correct.

Do you know the position in New South Wales relating to that?-- No.

The report that I have tendered indicated that there was a fire in 1969, was it not, which you investigated, in the same general area?-- We spoke within those reports of fire, heating, kerosene smell. There was not a flaming active fire at that period.

There were already seals up, were there not?-- Seals were erected. They had been erected before.

They had been erected before you inspected it?-- On various phases of this examination, yes.

Were these seals erected for the purpose of containing heating?-- Containing and preventing of further heating.

Perhaps you might indicate where those seals were?-- On the plan I have we mentioned No. 6 south.

Can you identify those more directly? Are they the uppermost seals on No. 6 south?-- Yes, we had the out by seals.

What seals were they?-- We had initially seals along the return road in No. 6 south Bluff seam. This is where the incidence of some monoxide percentage occurred, and at a later date we did treat some leakage of out by seals or maintenance of out by seals in the main return airways.

Had these seals been erected to contain heating, contain and prevent further heating?-- Yes.

The area that is defined on these plans as to the location of the fire is just outside a seal, is it not, by about 25 feet?-- Will you say that again?

The area that is pointed to by an arrow as being the location of the fire----?-- You are using another plan. Is this Bluff or Wright?

I am speaking about the fire that caused this disaster?-- The seat of the fire you are speaking of?

Yes. That was a short distance from a seal, was it not?-- Approximately 20 feet.

And that seal appears to be one of a number sealing off

a particular area?-- Yes, Correct.

Do you know what those seals were for or why they were erected? Was it to do with heating?-- This is a story that must be told in relation to this. There was some heating found within the progress of that panel which was contained whilst production proceeded further, and from that section withdrawal was made, and in the normal fashion this area was sealed by sealing the three roads.

Did the heating burn around any of those seals?-- Not to my knowledge.

Do you know why the further seals were put up including that just outside the seat of the fire that occurred in this case? Was that to contain further heating?-- It is to maintain sealing which may become inefficient with weight or crumble.

Did it have anything to do with further heating?-- Not to my knowledge.

You made inquiry of course from the mine officials as to the first indication of possible fire in respect of the fire that occurred in this case?-- Yes.

What information were you given in that direction as to the first indication they received that might indicate the possibility of fire in this area?-- This evidence I gave yesterday, but I will repeat it.

As being the first indication they had of the possibility of fire in the area?-- The manager later told me of a kerosene smell which he with his nose picked up at the pan evassee under the natural ventilation condition within the mine.

At about 4 o'clock or 4.35 that afternoon?-- At approximately 4.15.

And that is the first indication of any heating or fire that was had in relation to that area?-- Something untoward.

And there had been no indication of any heating or fire in that area prior to that time, within any relevant time?-- No, there had not.

When some of the workmen were working on some of those seals there is evidence of heating prior to the fire, is there not, to the extent that one of the workmen, one of the miners, took off his shirt?-- Yes. He indicated that the area in that particular drive was warmer than that in the other two drives or the other drive.

Would you agree that with changes of pressure outside a seal you can have a breathing through the porosity of the coal or in cracks in the seam which will sometimes cause fire or heating inside to increase, and sometimes to reduce, depending on whether the breathing is in or out?-- If there is a leakage or change in pressure it certainly will make differences to the contained atmosphere.

So if there had been heating inside that sealed area, for example when Mr. Abraham was working on the seal he was working on, the heating in there might be temporarily abated because of the breathing process; is that right?-- To the best of my knowledge and the information I have been given, the purpose of that work was to consolidate the face of the stopping to prevent any possible breathe or preclude air.

Would you now answer the question? If there had been heating inside that sealed area, and if there was breathing,

it might account for the possibility that Mr. Abraham might not have felt any heat when he was handling it?-- There is always the possibility of a section of stopping being perhaps that much warmer than another.

Or that much cooler?-- Yes.

Might I suggest to you that the extent to which this fire enlarged itself would suggest very strongly that it was not simply from spontaneous combustion in a heap of coal four to six feet wide, but that the rapidity of the spread of the fire demonstrates that there was much more than that?-----

MR. CALLINAN: I do not think that was the evidence. I do not want to interrupt, but the evidence was that the dimensions of the fire, or the dimensions of the glowing area were about six square feet; not that the heap of coal was 4 x 6.

BY MR. DERRINGTON: I stand corrected; that the glow was 4 to 6 feet, as I recall it. Was that the figure that was mentioned to you?-- That was the figure, yes.

That is 4 to 6 square feet; not in width, of course. Now, I suggest to you that spontaneous combustion of 4 to 6 square feet could not have enlarged itself with the rapidity with which this did?-- It is my opinion that from sufficient temperature with the onset of that fan, that it could have done.

You see, I suggest to you that in view of the results, the very rapid spread of the fire and its progress, and the fact that it was so far out of control, would make much more probable the proposition that there was a heating and a fire behind those seals which burnt its way through?-- On the evidence that I have been given, on the questioning of all the people who have been concerned, there was no evidence that heat existed in that particular road or spalled rib coal prior to that incidence of kerosene smell discovered at 4.15 and the sighting of the glow at approximately 6 p.m.

But nobody had seen it for quite a long time. Nobody had seen the area for quite a long time prior to then, had they?-- To the best of my opinion, the area had not been examined between 3 a.m. on Saturday the 29th and discovery of fire glow at 6 p.m. on Sunday the 30th.

It would be plenty of time for fire or heating behind the seal to eat its way through and under the fallen coal to come out at that particular spot, would it not?-- In my opinion, that fire would manifest itself in closer proximity to the seal around which it burnt.

Fire sometimes does not come to the surface of a heap of coal immediately above where it begins, does it?-- Not essentially.

And, you see, according to your account, which I do not cavil at, you say that Mr. Lawrie had told you that it was a small and unimportant fire. Is that right?-- Yes.

If your thought is correct as to the cause of it, that was a very gross error of judgment, was it not, in view of the results that occurred?-- In view of the results, yes; but in view of experience with fires that are 4 to 6 square feet of area glowing in a heap of coal, I would not regard that as a serious fire at that point at which you observed that. It is in the incipient stage.

Because all of your experience teaches you that such a fire as that could not produce a blast such as occurred in this case, does it not?-- No, it does not.

If your experience does not teach you that, then it means that Mr. Lawrie's view that it was a small and unimportant fire certainly was far from being a conclusive opinion?-----

MR. GIVEN: I do not want to interrupt - and no doubt my learned friend can get these things otherwise - but I think it is perhaps not quite right to ask the witness to comment on the propriety or accuracy of another person's opinion at a particular stage. It will be a matter for you gentlemen to consider in due course whether that is so, but I do not really think it helps very much to ask a witness to sit in judgment,

as it were, on another person's estimation of a particular situation.

THE WARDEN: No, I agree, but I do not know that he was actually doing that at the time.

MR. GIVEN: No, but my learned friend can get all he wants another way.

THE WARDEN: He may have been on the verge of doing it, but I do not think he was quite doing it.

MR. DERRINGTON: I would like to take up this point because we do not know whether Mr. Lawrie in giving evidence is going to say, "I was perfectly justified in my conclusion," or not. If he says that he was perfectly justified in his conclusions, it is proper for another man with the experience that this man says he has to comment on whether that is a proper judgment or not. It is not a matter of Mr. Lawrie's opinion generally. What is in question is Mr. Lawrie's judgment of this matter which led to these ultimate conclusions. Surely I am entitled to ask this witness to say whether he thinks it is a proper judgment exercised by another person, because his judgment was a vital factor leading to the ultimate conclusion.

THE WARDEN: Yes, I agree. The question is allowed.

MR. DERRINGTON: Could I have the question read again, please?

(Shorthand notes of relative passage read.)

WITNESS: We must deal with this in point of time. A fire of 4 to 6 square feet in area at that particular point of time, and all conditions being equal, would not assume prodigious proportions.

BY MR. DERRINGTON: But all conditions were not equal, were they, according to you?-- Subsequent conditions.

Well, the conditions even then were not all equal, were they? Is that not your explanation for how the fire enlarged itself; that conditions were ripe for such a situation, and that is how you explained that the small fire became a raging inferno?-- At this point in time we have reached a fire stage or glow stage - the application of a draft of air such as induced by a mine fan apparently did rapidly change that condition.

Well, do you say then that - obviously, the fan had been blowing for a couple of hours when Mr. Lawrie saw it at 6 o'clock?-- Approximately an hour and a half.

So that when he saw it, there was this fire 4 to 6 square feet with this fan blowing - right?-- Yes.

It must be one way or the other, must it not? Either there must have been the real possibility that that would enlarge itself into a major fire, or there was not. Now, which was it? Do you say that the situation there in that particular situation was such that any man with experience would say, "Yes, that can enlarge itself in these circumstances."?-- Mr. Lawrie saw the fire in its incipient stage, and attempted to treat it in that stage. This hour and a half or two hours let it go from the incipient stage to active - very active stage.

Would you now answer the question? In view of what you say the circumstances were, should he or should he not have

realised the danger that it could enlarge itself rapidly?-- He could have observed that it would increase.

That it could enlarge itself very rapidly; should he have seen that or not?-- Yes, he could have seen that.

BY THE WARDEN: No, the question was "should", not "could"?-- Oh.

MR. CALLINAN: For the record, I want to object to this question too. It is quite improper, in my submission, that this witness should be asked to make the findings, as it were, of this Tribunal.

THE WARDEN: I think the correct question would be, "What would you have done?"

MR. GIVEN: Precisely.

MR. CALLINAN: Thank you.

THE WARDEN: I uphold Mr. Callinan's objection to that extent.

MR. DERRINGTON: I, perhaps, would like to reply.

THE WARDEN: What he would have done; if it is different from what Mr. Lawrie did.

MR. DERRINGTON: We have here a Tribunal which has to determine these issues, and if Mr. Lawrie comes in and says, "Well, as far as I am concerned, there is no reason why I should have expected this.", we do not have the benefit of this witness's opinion.

THE WARDEN: If you ask Mr. Hardie what he would have done, and what is the correct thing to do-----

BY MR. DERRINGTON: I am sure it cannot be objected to this way: if you had been there and had seen that fire, could you in those circumstances have realised that there was a danger that it would enlarge itself rapidly?-- Yes.

Were those factors clear to you - would those factors have been clear to you that it could enlarge itself rapidly?-- I would be quickly decided that firefighting should commence with the least waste of time.

Now, would you answer the question? Would those factors have been clear to you or not?-- Where there is a fire and draft, you could anticipate spreading.

As rapidly as this?-- This rapidity is over a period of fan influence not less than a further hour and a half.

It spread rapidly, did it not?-- In an hour and a half it became active in the return.

It spread rapidly, did it not?-- Yes.

And became very fierce and large?-- Yes.

THE WARDEN: Mr. Monger desires to interpose a question.

MR. MONGER: I think this could clear up this point, Mr. Hall.

BY MR. MONGER: When you first saw that fire, were you under the impression that it could have been put out?-- Yes.

BY MR. DERRINGTON: It was certainly, according to your standards then at the time when Mr. Hardie saw it, and from his description, in such circumstances far from being a small and unimportant fire?-- When I saw it?

No, I am talking about the time when Mr. Lawrie saw it; in those circumstances it was certainly far from being unimportant, was it not?-- From the information, it certainly concerned him to the point of calling the rescue brigade.

It was certainly far from unimportant, was it not?-- Apparently so.

Did you consider whether or not the reduction in the power of the fan might have anything in the way of a deleterious effect upon the fire?-- I would have no information to indicate that it would.

Did you consider whether or not it might have a deleterious effect or did you not consider the possibilities?-- I did not consider that. A responsible man was in charge of it.

Do you have any details as to any tests relating to the volatility of the coal in this mine?-- Are you referring to proximate analysis?

I do not know; what tests do you have? You said that this was a low volatile coal?-- I did not say that.

Did you not? I am sorry?-- I did not.

What did you say? What was the volatility of it?-- The volatility under analysis on an ash-free, dry basis is 37 point something - 8 or 6.

And what do you suggest that indicates?-- Medium to high volatile.

In retrospect, what would you say as to the desirability of having a permanent rescue brigade?-- It would always be desirable within the limits and capacities of our industry to have a permanent rescue brigade resident at a station.

Do you know whether that exists in New South Wales?-- I do know that it exists in New South Wales.

On all of the fields?-- On a number of fields that I know.

That certainly provides greater speed and knowledge for those involved; is that not so?-- It certainly provides greater speed and more intensive training.

In this case what would you say as to the desirability of having a foam extinguisher at each mine?-- Not of paramount

importance at each mine, but certainly of prime importance that fittings are uniform to the point of the application to that which is held in emergency at the mine rescue station so that they can be rapidly applied.

Do you know the position in New South Wales as to the presence or otherwise of foam extinguishers?-- No.

Incidentally, when you first went underground at this mine you spoke to Mr. Abraham and Mr. Levitt?-- Yes.

They were at one of the stoppings?-- Yes.

Was the door of that stopping not burnt out?-- It wasn't burnt out.

You say it was not?-- To my knowledge it wasn't burnt out.

Might it have been without you having seen it?-- That was something I just could not know, otherwise it would have burnt the Polyrack which covered that particular trapdoor.

You say then that at no stage, as far as you were aware, was the door at which these particular men were working burning?-- It was not burnt out, to the best of my knowledge. The Polyrack was still existent.

Immediately before the explosion when the rescue brigade went down accompanied by ordinary miners of Box Flat, the intention was that the miners were to erect screens?-- Yes.

They were to be temporary screens, were they?-- Yes, they were temporary stoppings to exclude air - at least, a high percentage.

They were to be erected from what?-- From Polyrack screen material.

Just Polyrack screen material?-- Yes, and any necessary frame that might be required.

Yes, of course. The only effect of that would be to shut off smoke, would it not?-- No, to cut off the air feed to the fire.

Smoke on one side and air on the other, and it would in no way - would it be a complete seal?-- It would have a high percentage of air deprivation to the fire on that side.

And it would certainly have no protective nature from any blast from inside?-- None whatsoever.

And where were the mine's rescue brigades to be when these miners were erecting these? The mine's rescue brigade had split up into two teams, had it?-- The mine's rescue brigade, as two teams, was travelling as one.

But they were to split up into two teams underground, were they not?-- No. My knowledge of that - Len Rogers' advice was that they were to travel together to the lowest point of the mine - after examining 42, prior to moving further in, they would travel together and withdraw together. They may have later split unbeknownst to me after they had been in the positions of

42 and 41, which were only a difference of 110 yards, one with the other.

Is it not usual for a brigade to split up, with one going forward and one staying back as a reserve team to rescue the other if there is any trouble?-- We do normally run them as a No.1 and a reserve team.

Do you say that that was not to operate on that particular occasion?-- It was not my prerogative to organise the mine rescue boys.

I did not ask you whether you were organising them; I asked you whether that was to operate on that particular occasion. Surely that is nothing to do with whether you organised them?-- I wouldn't know.

I was under the impression that you were present when this plan was made; were you at all?-- Yes, I was present, yes.

Did you hear any organisation being arranged about that?-- No, I was doing other things.

How did you know that they were to go down together rather than split up underground?-- Because they went together and they didn't part.

But they would not part until they got underground, would they? The two teams travelled together and they would split up underground; one goes forward and the other one stays in reserve; so it does not mean a thing whether they go down together, does it?-- It meant everything in this circumstance.

Are you saying that the mine rescue brigade did not intend to split up underground?-- I was not given instructions - I didn't hear their instructions. Mr. Jensen was there.

They may have intended to do that?-- They may have or may not. I wouldn't know. I don't have knowledge.

And the miners who went underground, of course, were not protected by any breathing gear or suits?-- No.

In respect of the stoppings that existed near the seat of the fire, and those associated with it, are you able to tell the Court whether they had any provision let into them for the purpose of extracting air samples for analysis?-- No.

What do you mean - no, you cannot say, or there were not?-- I didn't look at them at that particular time, so it is not within my knowledge to give evidence on oath.

If they did not have them, should they have had them?-- Yes.

Because the taking of air samples or provision for the taking of air samples is very important to determine - to just look at the other side of the seal, is it not?-- Yes.

To assist in finding out whether there is a fire there or heat inside; is that not so?-- Yes.

Did you hear what Mr. Lawrie said to Mr. Roach?-- No.

On the telephone on that last conversation?-- No, I didn't.

You must have been rather concerned when you spoke to Mr. Roach on the telephone?-- I was.

Then he wanted to speak to Mr. Lawrie?-- No, he didn't; Mr. Lawrie wanted to speak to him.

I beg your pardon. You would, of course, appreciate that these men were underground - a number of them - and that there was some emergency going on there?-- I was informed.

By Roach?-- By John Roach; that conditions underground at that point which they were to examine had changed, and my final words to John before handing to Alex were, "That's it, John."

Yes. And you were not concerned to find out what the conversation was between Mr. Lawrie and Mr. Roach?-- We don't have that sort of time under those circumstances. I was out of earshot, and then we had an emergency movement.

When you handed the 'phone over to Lawrie, surely you were still concerned with anything that was going on in relation to the men underground?-- Yes, but not to a second or three seconds.

But would you not want to hear what Mr. Lawrie was saying to Mr. Roach in those circumstances?-- No, not necessarily.

Could it not have been very serious and important to you to know what was being discussed between them, because there were fourteen men underground and an emergency in existence? Would you not want to know what the mine manager was saying to the leader of the men underground?-- No. I accept any conversation between manager and John Roach as being of a sensible nature, and with mining knowledge behind it. I was not inquisitive.

It might have been of importance to you to know what was going on so that you could fit in with the arrangements, surely? It seems to me to be rather strange that you did not find out what arrangements were being made between them in those circumstances?-- Apparently the circumstances of the 'phone position and the deputy's cabin are not understood. The 'phone is located immediately inside the doorway on a bench within that deputy's cabin. A person standing at the doorway and using that 'phone, to hand over to another person must either (a) step inside the cabin, or (b) step a couple of paces outside the cabin.

Why would you have to step a couple of paces outside the cabin? Why could you not just remain behind the person answering the 'phone?-- There were a number of people in the vicinity.

Between you and him?-- No.

Why could you not stand beside him and listen?-- I could have done. It wasn't deemed necessary.

CROSS-EXAMINATION:

BY MR. CALLINAN: At the outset there is one matter I would like to put to you. Is it not a fact that this mine was generally a very well maintained mine?-- It would be, in my general opinion, over the period of my inspecting of the mine, that it was a well organised and maintained mine, yes.

And a mine the management of which was safety-conscious?-- I never found them otherwise.

And, indeed, I think you said this: that Mr. Lawrie was co-operative - and you may not have used the expression "co-operative", but you said he was a responsible mine manager; is that so?-- Yes.

Did you ever make a suggestion to Mr. Lawrie as to any safety procedures or procedures generally about the mine which Mr. Lawrie declined to follow?-- No. Records re this mentioned stone dusting have been made over periods which, under evidence, have been put as being insufficient, and perhaps by analysis proved to be insufficient. That is the only matter.

I will be dealing with those analyses shortly. But one would make a suggestion to Mr. Lawrie, and Mr. Lawrie invariably implemented it; is that so?-- That is so.

Just some other matters: did any of the check inspectors or any of the union officials complain to you at any time about safety procedures at this mine?-- From time to time throughout periods small things do occur, not as complaints, but perhaps as joint inspections of something between the check inspectors and ourselves, to rectify with the co-operation of management anything that has been discovered or found.

In these respects also matters emanating originally from union officials, there was always co-operation of the mine management, and Mr. Lawrie in particular; is that so?-- We have never run to deadlock.

The first time that you spoke to Mr. Lawrie that evening in question, I think you mentioned, was 7.30 in the evening?-- Approximately, yes.

Could it have been earlier?-- I wouldn't know.

You do not suggest that it definitely could not have been earlier?-- I just don't recall. Approximately 7.30.

Your time of 7.30 is the result of re-construction from other events that you had been forced to make; is that so?-- No; an approximation of time, not observation.

At the time of the fire - I mean the days before it - the period before it - fire-fighting apparatus within the mine was adequate and had been brought up to all reasonable requirements; is that so?-- I had examined hoses and hydrants, and from a state of dissatisfaction over a period of years, it was brought to satisfaction - initial dissatisfaction.

Gradually it was improved, and at the time of the fire we can take it that it was adequate and well-maintained?-- I couldn't verify that because I was not at the seat of the fire first.

It had been before the fire on the last occasion?-- The last occasion I saw it.

The foam plugs there are only for the mines rescue brigade; they are for the people who are specially trained for the

operation?-- Yes. I don't know as to whether or not the fire brigade has this.

Those specially trained in the operation of them in coal mines; is that so?-- The men are trained to use the foam machine, and do practise with it.

You mentioned a number of men who went down into the mine with you for the first inspection?-- Yes.

Were these all senior men? You have already enumerated them; but were they in fact all senior men?-- If we are going to determine senior men, that team of rescue men certainly were senior men.

Had any man said to you - put yourself in the position that you were in that night - had any man said to you, "I don't want to go down there.", would you have said that he ought to go down?-- No.

Insisting that he go down?-- No, not at all; certainly not.

Applying this question generally to all of the journeys down into the mine, did any one man express any dissent from the proposition that he go down into the mine?-- No.

Would it be fair to say that the men went down as volunteers?-- Yes, they were volunteers.

And you certainly would not have countermanded any suggestion by any one of them that he would not go down?-- Certainly not.

Can we take it that at these consultations that were had from time to time, cumulatively hundreds of years of mining experience was brought to bear on the problems that were discussed?-- Yes. There were some highly experienced men within those conferences.

Of the unfortunate men who were trapped in the explosions, had any of them been down on the last previous occasion to that journey that resulted in the disaster?-- Yes. John Roach had accompanied us and captained the team that went to 42.

So that he had made his own observations when he was down there; is that so?-- Yes.

Of those men who were trapped down below, apart from the immediately-preceding trip down, had any of the men been on a trip down before that?-- I don't think that there was another man outside of John who had been on a previous trip. These were fresh men in at a later period of time.

I take it that all of these decisions that were made were in fact unanimous decisions?-- If a unanimous decision is one against which there is no dissent, they were.

The men who went down, the Mines Rescue Brigade, were they not the most experienced men in observing and dealing with fires in this coalfield in this district?-- In my opinion they were.

Would they have known more about these fires and how to deal with them than you would?-- They would know as much.

Would they have had more practical experience than you in actually dealing with them?-- Only proportionate with years of life.

You have made the observation that when you went down there you saw the fire being hosed by Jones and Rasmussen, I think?-- Yes.

And at that stage there was high pressure - water was at high pressure?-- Yes.

And, I think, to use your expression, a good capable hose was being used by each man?-- Yes, a proper fire hose, one and a half inches diameter.

You were asked a question by one of the gentlemen on the panel as to whether you thought when you first saw the fire that there was a chance or a reasonable prospect indeed that it could be put out?-- Yes; but not with two hoses.

But at that stage nothing seemed so far advanced that it was beyond being repaired by different methods?-- That was the opinion at that point of time.

By the way, perhaps not in this mine, or indeed not on this field, but was the occurrence of a fire such as occurred here unusual? Does such a heating occur in mines from time to time?-- Yes.

And were the means taken to deal with this fire the traditional and conventional means which are usually applied?-- From observation of its magnitude at that point of time, the means which were brought to that fire would have, at least at that point of time of its development, put it out.

When you went down there you said you observed a clean fire, and the gases were being taken away; is that so?-- Yes, I think I said that.

The fire had apparently spread, but still the conventional methods seemed to be appropriate in the circumstances at that stage; is that so?-- The conventional method of water to the fire to me or in my opinion didn't present any danger.

You also gave some evidence about some double doors in the vicinity of No. 35 telephone, I think it is?-- Yes.

And you said attempts were made to reach these doors; is that so?-- Yes.

It was never actually established that these doors had definitely come open; is that right?-- No, it was not. They weren't reached.

They were just regarded as a possible source of recirculation?-- The most probable source.

But, as you say, that was never established. Those doors

were so constructed that they should, provided the pressure did not become unusual or abnormal, close after they had been opened; they would fall shut - is that so?-- They were designed so that the higher pressure of intake to the lower pressure to return would maintain them in a closed position.

Had you seen these doors on any occasions?-- I had seen the doors.

They were adequate and ordinarily well-maintained doors when you saw them?-- Yes; except that in retrospect or in hindsight, if I recall correctly, they were wooden doors.

I think you have expressed some views about wooden doors?-- Yes.

But of the type, they were adequate and they were the conventional doors; is that so?-- Yes.

You have expressed some views that a coal fire or a coal dust explosion may have played a part in the multiplicity of explosions or in the occurrence of any one explosion, and you have expressed the view, I think it is fair to say, with some qualifications, that you believed that a coal dust explosion played its part?-- Yes.

That is so, is it not? You also gave some figures for the dry ash-free percentage - the dry ash-free test, I think it is - to ascertain the velocity matter, the velocity content of coal in this seam?-- Yes.

I think you gave the figure 36.8 or 36.6?-- 37.6 or 37.8 something - the true figure is contained in the record.

You would accept the publication by the C.S.I.R.O. in relation to fuel research into this field? I take it you would accept their figure?-- Yes.

It is very close to yours. It is 36.4, in any event?-- Yes.

You would accept that as being the figure? Did you take any samples of material deposited about the tunnel mouths after the explosion?-- Yes.

Were these samples analysed or tested in any way for their volatile matter content?-- Yes.

Have you got the results of those samples?-- Yes, they were given me.

And what do they show?-- They show on the mark that there is some fall in volatile and some rise in ash.

There will be evidence on this, but if in fact the samples showed a higher percentage than 36.4 - if other samples were taken apart from yours and they showed a higher volatile matter content than 36.4 - what would your views be as to the significance or the occurrence of a coal dust explosion in the over-all pattern of explosions?-- I would think that we could assume immediately that that particular sample had not burnt wholly or partly.

You do not think that that might be some evidence that this was not a coal dust explosion?-- Not to my knowledge of the subject.

Would you not expect -----?-- Excuse me. We have not determined from where the sample may have been taken.

If you make the assumption that it is probably a sample of matter which was ejected from the tunnel mouth - just make that assumption?-- Right.

Have you got any views about it, if that assumption be correct?-- Then if the volatile were normal, then the condition of the dust was normal coal dust: that's what that would prove.

Might it not also show or demonstrate that it was unlikely that there had been a coal dust explosion?-- It would provide evidence.

Perhaps I put it too high. It would provide some evidence against the proposition that this was conclusively or definitely a coal dust explosion: would you agree with that proposition?-- Yes, it would at that particular point - the sample.

If in fact the proposition I am putting to you is that all representative samples showed a higher volatile matter content in fact than 36.4, which you have accepted as being a fair figure for this seam -----?-- I think that from information received the matter of decrepitation during analysis of this material should be carefully watched. I don't give that with any expert knowledge, but I pass it on from my conversations with the experts.

You gave some evidence about a suction effect that was observed after the first explosion?-- Yes.

You recollect that?-- Yes.

One would expect that with that suction effect some combustible or explosive gas which would be contained in the cloud of the first explosion would be sucked back into the tunnel mouth: would you expect that?-- I certainly did see black material being sucked back to the mine - not at a slow rate; like that (demonstrating).

Very quick?-- Split second.

And very possibly giving rise to a further mixture of combustible and explosive gases within the mine with some oxygen going in, and the further explosion?-- Adding to that which was already there.

Precisely. At some stage of your evidence you were referring to the last journey into the mine, and you made the statement that you were going to go down with them at that stage. Do you remember giving that evidence?-- Yes.

What prevented you from going down with the men on the last journey?-- It was merely a reconsideration from the remark made by Mr. Lawrie that a further look at plans was going to occur, and an acceptance of some responsibility that inspectors of mines were better employed with officials inspecting plans than carrying laths and brattice and putting up stopping below ground.

Was it at that stage your intention to go down into the mine again at some time during the evening to see the progress that was going on?-- It was my intention to go down to the two teams on the last trip into the mine, yes.

Did Mr. Lawrie signify his intention or willingness to go down again if need be?-- We did not discuss it, remembering that Mr. Lawrie is a mine official and I am a public inspector.

You were in a position there to countermand any order that might be given; is that so?-- I considered that I was.

There were suggestions by other witnesses, but there is no question that smoke was coming anywhere but out of the fan up until the last stages?-- There was no other point from which smoke emerged, other than the evassee of the main fan.

We had a series of very very massive explosions, in the result; is that so?-- Yes.

The powerhouse was damaged?-- Yes.

In your judgment and in your opinion, at all relevant times prior to the explosion did it seem to you to be desirable to have the mine sealed off or the fire put out or this actual source of combustion dealt with effectively? Did it seem to you desirable to do that? The proposition has been put to you by my learned friend that considerations of economics were the governing considerations?-- They were not discussed, as far as I am concerned, anyhow.

Did it seem at all on this night that this mine, unless it were effectively and quickly sealed off, might present some sort of danger to the surrounding countryside and people about?-- No. It was just apparent and obvious that the only grip we could take on this fire was by depriving it of air feed.

And temporary screens were going to be erected?-- That was all. That was all the instruction given to Mr. Len Rogers.

Would this normally be a quick and effective way of dealing with the problem?-- It would not be the most effective way of countering this problem but it certainly would be the quickest.

Making a compromise, assuming we have to make a compromise between expedition and effectiveness, is this the best that could be made?-- Yes, this is the best.

Could the men have been engaged - and I am not talking about considerations of expedition now - at the tunnel mouths in actually sealing up the tunnel mouths near the surface? Might that have been a way of dealing with it?-- Yes.

Would that have taken considerably longer to do?-- Considerably longer, and considerably more men.

More men right at the tunnel face?-- Yes.

Normally would that sort of work be done 20 yards down into the tunnel?-- It would be necessary that you enter in by the portal to make a seal that would be worth while.

Because of the grade?-- Because of the measures and the timbering conditions and the fact that you have roof, ribs and floor.

Would one have had to have trenching to make a more effective barrier?-- Yes.

It was somewhat unfortunate, I take it, that this occurred on a Sunday evening because it was more difficult to locate and gather together the people who normally would deal with this situation?-- It certainly would have been the most awkward time and the most disadvantageous time in the whole of the week.

When eventually the mine was completely sealed up with all this earthmoving equipment that was obtained, how long did that take?-- Seven to eight hours, if I remember correctly.

This was a very big job, I take it?-- It involved a lot of filling to make a seal on the very steep grade.

As you understand it, steps were taken by Mr. Lawrie to deal with this fire. In your experience, have those steps been effective in dealing with similar fires in this coalfield over a period of years?-- In my particular experience with any of the fires with which I have dealt I have never used fire hoses on those particular fires because they always needed sealing, for no other reason than this is the process which we adopted and carried out.

With regard to this heating that occurred in the mine in 1969, you understand that that heating was effectively dealt with?-- Yes, it was.

Do you know what means were taken to deal with it, or what steps were taken?-- Deprivation of air by stoppings, and under testing conditions by draeger pump and tubes indicating monoxide.

There was a fire in 1969?-- I did not see any active fire at Box Flat in 1969. There was smell.

Have you ever seen an active fire in Box Flat?-- Yes.

When?-- In 1955, and I venture to say that it was as active as if not more active than this particular fire I observed on the 30th.

How was it dealt with on that occasion?-- It was sealed.

But you could get near it?-- Yes, on the return side to do that.

The Inquiry adjourned at 12.58 p.m. till 2.15 p.m.

The Inquiry resumed at 2.17 p.m.

REGINALD NORMAN HARDIE, further cross-examined:

BY MR. CAULINAN: Just one matter before proceeding with the narrative: you said that when you spoke to Mr. Lawrie he gave you to understand that this was a small fire - is that so - when you first spoke to him?-- Yes; on the telephone conversation, yes.

You used the word "unimportant" - "an unimportant fire". Do you remember saying that in evidence?-- Yes. "Not serious" perhaps would have been a better expression.

What I am suggesting to you is that the effect or the substance of what Mr. Lawrie said was that it was a fire that they thought they could handle?-- Yes.

And that he did not use the word "unimportant"?-- No. "Not serious", I think, was more to the-----

You consider obviously, from the evidence that you have given, that this fire started, or one of the reasons why it started was because the fan had been stopped; is that so?-- Yes, definitely.

The fan had been stopped on two recent previous occasions without the occurrence of fire; is that not so? I will put the dates to you: 14 May 1972 and 16 July 1972, for 11 hours and 9 and a half hours respectively?-- I wouldn't have knowledge of that. They are not reportable to me. The mine is not under a compulsory 24 hour seven day a week cycle.

I am going to come to that. But if in fact the fan were stopped for those two periods which I have mentioned on those two occasions, would you still hold the view that the stoppage of the fan caused or started this fire?-- Rather say that the condition under fan stoppage deprived that which already held some heat of air to allow it to raise in temperature.

Well, in any event, you are under no doubt that this was spontaneous combustion; is that so?-- That is my opinion.

And that the spontaneous combustion occurred in a heap of coal which had spilled or fallen from the ribs or from the roof of that stop area?-- Yes.

You were asked some questions by my learned friend Mr. Derrington regarding this heating actually commencing behind the stop. Do you recollect his asking you this?-- Yes.

In fact I think you gave some evidence about this, but if the glowing area was only 20 feet in from the return - in other words, not more than half way along towards the stop - then that would tend to rebut that suggestion, would it not, that he made - that is, assuming he made that suggestion - that the fire or the heating actually started behind the stop?-- Yes, from the evidence of men who had worked there within previous shifts that the area of the stopping was cool, I conclude that a fire did not exist in the locality of that stopping at that time not many hours before.

There is just one other matter that I want to elaborate on somewhat. Before lunch I was asking you about sealing off the mine or the various tunnels by having men working just below the surface, not far from the pit head: do you recollect my asking you that?-- Yes.

I think you said it would take considerably longer to put up temporary barriers there than it would where the men were hoping to put up barriers at the time of the explosion: do you recollect that?-- Yes.

Would it not have required a great number more men to put up stopping or to put barriers up near the pit heads?-- The sealing of four intake openings would have required more men.

And more men, I take it, would then have been exposed to this danger at the pit head or near the pit head; is that so?-- Yes.

And in fact some unfortunate men were killed who were not very far below the surface in No. 5, I think it was?-- That is right.

So that the tragedy could well have been compounded had there been men putting up barriers near the surface - putting up temporary barriers?-- I do think so.

There almost certainly would have been many more men there exposed to the danger?-- I do think that they would have been.

A number of questions were asked about stone dusting and the presence of coal dust in the air. When you went down into the return, at that stage did there seem to be any undue or indeed any disturbance of coal dust at all?-- No, there was not. It was ventilation only.

You were asked also some questions about the deposition of coal dust in the return. I suggest to you that this area beyond the fire and closer to the surface in the return was not an area to which much coal dust was carried by the current of air; that the working area was too remote from this return area for depositions of coal dust to occur as a problem in the normal course of events?-- Normally deposition should be at its greatest closer to its source; in diminution as it proceeded back along that airway.

How far from the closest working face was the fire?-- Not

less than 1,800 yards.

I will put the question again: was it not the fact that there was little deposition of coal dust in this area in the vicinity of the fire and between the fire and the surface for the return air?-- I couldn't agree that there was or there was not at this juncture.

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Would you not expect there to be only very small quantities of deposition of coaldust because of the remoteness of this area from the working face, that is, the distance of 1,800 yards we have spoken of?-- We could have expected lesser depositions per day at that point than the return point behind the miner.

Was this not also a fairly moist mine?-- In some places it was moist; in other places it was not.

The problem about using stone-dusting when there is a quantity of moisture in the atmosphere is that stonedust becomes caked and does not serve the purpose it is designed to serve?-- That discussion has occurred. It is possible.

And that is a problem from time to time in Box Flat?-- It has made a local problem on occasions.

I suggest to you that in this return area in fact one is having moisture carried into this area all the time because of the normal ventilation of the mine?-- I could not agree that No. 2 south area of the return was moist.

That is not what I am suggesting to you. I am suggesting to you that in the return a great degree of moisture is being carried in because of the normal ventilation pattern of the mine?-- In the return you can expect high humidity of the returning air.

That is what I am putting to you, and some of that moisture or humidity in the air remains in the atmosphere in that area; is not that so?-- Depending on the vigour of the air leaving the mine.

This mine had a practice of running its fans seven days a week, 24 hours a day, unless there was some disruption in the power supply?-- Yes, I knew that to be so.

It was beyond the normal statutory requirements?-- In this case, yes.

And that was indicative of this mine owner's approach to all safety procedures; it would exceed the requirements?-- Yes, he volunteered to do that; he was not instructed to do it.

This return area had in fact a coal roof, did it not?-- Yes.

Seven or eight feet of coal roof?-- In excess of that.

So that if a fall did in fact occur one would expect in that event coaldust to be put in suspension in the air?-- Certainly.

And if that contingency occurred it is difficult to imagine whether all the stonedust in the world could have arrested any explosion, assuming it was a coaldust explosion?-- This again is an academic question. It is a case of the percentage of the incombustible.

Would you agree with this that if one had a fall of the roof there then it would be difficult to put in such a quantity of coaldust as would have prevented, all other things being right for the occurrence of this condition, a coaldust explosion?-- It would have been difficult to have prevented the initiation.

I am suggesting to you that even had there been a percentage above 75 per cent. of incombustible matter in the

atmosphere there it would have been difficult to put that quantity of incombustible matter throughout the return, as a practical matter?-- If 75 per cent was added to a quantity to which had been added another 40 per cent., then it would have been effective.

This is what I am putting to you that with the advantages of hindsight it is difficult to imagine what stonedusting there would have been effective to have prevented a coaldust explosion, if a coaldust explosion did occur?-- In the circumstances of additional dust being raised in the air by a fall the estimation is a much harder one.

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And if in fact there were a coal dust explosion, it seems likely that additional dust did in fact get into the air in that return?-- It would do. In the event of a Bluff fall, additional coal dust ----

In very considerable quantities, having regard to the height of coal roof above the airways?-- Yes.

You mentioned some road dust samples which were taken before this tragedy, but the results of which did not come to hand/after. Do you remember that?-- Yes.

Were they taken by qualified people or by students?-- A mixture, I believe, of both. I am not familiar with all of the people in person.

It was done as a training programme, was it not, rather than as a means of finding out actually what the stone dust content of the air, or the incombustible content of the atmosphere was in the return?-- Initially at the commencement of a training or practice.

In fact, the regulations in relation to the quantities of stone dust in the atmosphere were not enforced before this tragedy. Would that not be so?-- Would you repeat that?

The regulations in relation to the sampling of road dust were not enforced before this tragedy?-- To the point of mining stoppage because of the dust, no, they were not in force.

There did not seem to be any problem at all as far as explosion, or combustion, or heating was concerned in these mines; is that so - in this mine, in particular?-- That problem is inherent in coal mines.

But this did not seem a particular problem; is that so?-- It would be equivalent to the mines of the district.

Would you look at this letter - copy of a letter, actually?-- (Shown to witness).

You recognise the signature which is copied there? I have not got the original, but I can produce it if need be. It bears Mr. Bailey's signature; is that so? Who is Mr. Bailey?-- Mr. Bailey is an inspector of mines employed with our department, and now inspecting the Ipswich mines during my absence from them on this particular accident.

Were you aware that such a letter had been sent to this colliery owner?-- Actually, I was not.

Are you aware whether all of the other colliery owners on this field ----?-- No, I am not aware.

..... received ----?-- I have been out of touch in these matters.

You do not doubt the authenticity of that?-- Not at all.

MR. CALLINAN: I tender it.

MR. TOWNSLEY: Could it be seen by members of the bar table before it is tendered?

(Handed to Mr. Townsley).

BY MR. CALLINAN: Can you tell us where the samples of road dust were taken from before this explosion?-- The document concerning the positioning of the samples and the result of

that sampling I think has been requested by this court, and I think is available.

And it contains all of the available information-----

MR. CALLINAN: This is the letter.

THE WARDEN: A letter from the Inspector of Mines to the manager, Box Flat Colliery, is Exhibit 8.

Ex. 8

(Admitted and marked "Exhibit 8".)

BY MR. CALLINAN: In any event, we can understand that these samples were taken by trainees only?-----

MR. DERRINGTON: He did not say that.

WITNESS: I did not say that.

MR. DERRINGTON: I must object. My learned friend is putting it as though it had already been said.

MR. CALLINAN: He said it was part of a training programme.

MR. DERRINGTON: He said it could be taken by trainees or people who could have been qualified. He did not know which.

THE WARDEN: The witness beat you to it. He said he did not admit that.

BY MR. CALLINAN: There were some trainees taking some samples?-- There were qualified men and trainees in some of these excursions, as I recall it.

How many excursions were there?-- I can't recall to mind, on oath, the number.

You do not know with what care or skill these were taken?-- Yes, they were taken with care and skill. The matter of sampling is not decreed to be carried out by a particularly specialised man, but the method is to be followed.

Are you familiar at all with a document compiled by the Coal Industry National Consolidative Council Safety and Health Committee in England, and the final report of the working party on coal dust explosions published in July 1967? Are you aware of it?-- Under whose hand was the coal dust explosions?

A number of eminent authorities or members of the ----?-- By the name of?

Willetts, Eisner, Hoyle, Saunders, Skinner, Tideswell and Wanless?-- I am not familiar with that publication.

Would you accept this proposition which appears in the publication at page 28, paragraph 85: study of the evidence now available suggests that sampling as carried out at present is not of itself an adequate means of assessing the extent of the coal dust explosion hazard in a mine roadway. While it can indicate that a length of roadway is in a dangerous condition if the samples are below standard, it cannot with certainty do the converse, namely, give an assurance that samples with incombustible contents above standard reflect safe conditions. Would you agree with that statement?-- I would agree with that, but it does not produce an alternative.

What do you mean by that?-- It does not suggest a better manner of sampling.

There was no machinery used in this return. Is that not so?-- No, there was no machinery in the return.

No conveyer belts in this return?-- No.

Sources, or what might be regarded as sources of heat, or the generation of fire, are generally absent from this return airway?-- Other than contained fuel, which is coal.

Yes, but do not fires more often than not, when they occur, occur in close proximity to your belts? Are not these the more frequent ----?-- No, I could not agree. I would say the more frequent causes in my time have been spontaneous heating.

You do not rule out the possibility that the major part of the explosions, or the major causes were distilled gases produced by the burning of the coal and the mixing of those gases with oxygen?-- That certainly would have participation.

You see, can you point to one piece of evidence to show that this was a coal dust explosion? Can you give me one piece of evidence to demonstrate that?-- We can only accept the fact that we do have residue analyses which show the rise in ash and the fall in volatile of some dust collected.

Could I see those? Have you got those?-- I think they were mentioned as being producible by someone more specialised, perhaps, than myself in the evidence.

MR. GIVEN: Something was raised, I think, about this this morning and I owe an apology to somebody for the answer which I gave. I intimated, I think, that I was in possession of some information which related only to tests of samples taken after the explosion. I was not right there because the document which I have in my possession does in fact refer to analyses, I take it, after the accident and some samples taken before. I understand that this document does not contain anything like the full information which was being spoken about earlier today - that is to say, full information with regard to all of the tests - I am sorry, full information regarding the tests which were made from the samples taken before the accident. This document relates only to three tests. I would suggest that I tender it at this stage. It is attached to a brief statement by Mr. Couper who is Senior Chemist with the Government Chemical Laboratory, Brisbane. It relates to tests of six samples, three of which were taken, as I understand it, after the disaster and three before. In relation to certain questioning which has taken place as to, shall I say, the authenticity or the reliability of the samples taken before the accident, perhaps that the Board should keep in mind that these are the results of those three tests. I would anticipate that Mr. Couper-----

MR. CALLINAN: I think we may be talking about samples of different things. As I understand it, we are talking about road dust samples taken prior to the accident.

MR. GIVEN: Yes, this refers to that.

MR. CALLINAN: I think Mr. Hardie is referring to samples of material taken after the accident but not on the roadway.

MR. GIVEN: This document contains both, the three tests of material before the accident and three taken after the accident. The first three relate to the tests of materials before the explosion and number 5 is specifically referred to as, "Sample of Box Flat No. 5 supply roadway dust taken in July 1972." Then there appears, "Composite of three samples of Box Flat No. 7 working area, roadway dust, taken in July 1972." Obviously this is going to be of some interest. So I tender it now with that reservation in relation to the reliability of the samples taken. I tender, therefore, a statement by Mr. Couper, dated 20 October 1972 and an accompanying memorandum dated 18 October 1972. I understand the representatives of the Department of Mines have a few spare copies which they are able to distribute.

MR. TOWNSLEY: One.

(Admitted and marked "Exhibit 9".)

Ex.9

BY MR. CALLINAN: In any event, that is the evidence you say which suggests that a coal dust explosion played its part - the results which have come from the Laboratory; is that so?-- They suggest that coal was burnt in the explosion, further suggesting that it took part in the explosion.

Is there any other evidence to which you could point?-- Nothing other than the multiplicity of the explosions which only suggests that the more violent coal dust explosion did take part in that series.

I am suggesting to you that these explosions were essentially a distilled gas explosion; perhaps some coal dust explosion or explosions played its part or their part, but more probably

than not the explosions were distilled gas explosions?-- On the evidence of the black dust cloud which formed on the first explosion from No. 7 man and supply, and the dull red flash which accompanied that explosion, I see a parallel explosion or conflagration to that which I have eye-witnessed in the vertical holes drilled in open-cut places in the Central Queensland mines where I believe those shots were stemmed with coal dust - a similar explosion.

What is your further evidence on which you rely to make this statement?-- Yes.

Have you any doubt that a distilled gas explosion played its part?-- The term "distilled gas"-----

You know what I mean by that - a specific explosion?-- Derivatives of coal.

-----distilled off the burning coal, mixed with oxygen?-- It is my opinion that volatile hydrocarbons did take part in the initiation of this chain of explosions.

Did any union official ever complain to you or any miner ever complain to you about the lack of stone dust in this return within the last three years?-- No.

Miners from time to time approach you about matters which they regard as creating hazards?-- Any miner may make a complaint to an inspector.

And you have never had a complaint about any lack of stone dust in the return where the fire broke out?-- Not in that regard.

I put to you three years; but over any period did you ever have such a complaint?-- No, I haven't.

Who is Mr. R.J. Murphy? Do you know him?-- Mr. Ron Murphy?

Yes?-- He is one of the miners' inspectors with the Q.C.E.U. working in this and other districts, and he is in Court with us.

Can you recognise his signature on this notification?-- Yes, I would know it.

Dated 25 May 1972?-- (Handed to witness) Yes.

There is a report there; do you know to what area that report refers?-- I would assume from reading that report, that without determining any particular section, that Mr. Murphy saw all of the working section during that inspection.

You have not lost the place, have you?-- No.

MR. CALLINAN: I tender that.

MR. DERRINGTON: What is it?

MR. CALLINAN: It is just an entry that Mr. Murphy found things in order when he inspected it.

MR. DERRINGTON: An entry in what?

MR. CALLINAN: In the mine record books.

Ex. 10 (Admitted and marked "Exhibit 10".)

MR. DERRINGTON: I do not know what the standard would be in relation to objections, but I would object purely to an

assumption unless, of course, the witness points to something that supports the assumption. I would submit that merely an assumption does not get us anywhere.

MR. CALLINAN: It is not an assumption.

MR. DERRINGTON: That is what the man said.

MR. CALLINAN: Because the words speak for themselves and this inquiry can draw whatever inferences it wants from the report.

THE WARDEN: I am admitting this as Exhibit 10.

MR. DERRINGTON: I am not objecting to the admission of the report. I am objecting to the answer which the witness gave as to an assumption. It is merely an assumption without any grounds to support same.

THE WARDEN: Yes.

BY MR. CALLINAN: Would you look at this entry also in the mines record book. It bears the signatures Tait and Stumer. Do you know those?-- Yes.

Who are they?-- The late Maurie Tait was lost in the fire but was at that date a Q.C.E.W. miners' inspector and John Stumer was the local man, the Box Flat miners' inspector with that particular branch.

To what area is reference being made there?-- No. 7 north and No. 8 south dip sections and conveyor belts of this mine.

MR. CALLINAN: I tender that entry also in that mines record book.

MR. DERRINGTON: The date?

BY MR. CALLINAN: The date on it?-- 15/12/70.

Ex. 11 (Admitted and marked "Exhibit 11".)

MR. GIVEN: Might we have a look at that when it is convenient? It might be more convenient later.

BY MR. CALLINAN: This appears to be an entry of yours in the mines record book?-- (Shown to witness.)

Do you see that? What is the date of that entry? It is, in fact, your entry, is it not?-- 17 November 1971 - it is my handwriting over my signature.

What area are you referring to there?-- North sections Nos. 7 and 8 of Box Flat No. 7 Colliery.

You make a reference to stone dusting in that area at that time?-- Not on that particular date.

There is a reference to stone dusting in that entry, is there not - stone dusting as being carried out regularly. Is there not an entry to that effect?-- "Stone dusting within No. 7 is being carried forward regularly." Yes.

That was the observation that you made and that you recorded in that book on that day?-- Yes.

MR. CALLINAN: I tender that entry.

Ex. 12 (Admitted and marked "Exhibit 12".)

BY MR. CALLINAN: The stone dust procedures in this mine were at least as good as any others in this district?-- Yes.

Indeed, in many instances, exceeded the quantity and quality of that work?-- I have nothing other than eye to make comparison of that, but it was at least - at least - equal to any other.

I have now been furnished with these samples which were taken after the explosion of matter presumably deposited by the explosion in the vicinity of the pit head. Do you know what I am referring to?-- Exactly.

You say you derived some support from these results in the proposition that that was a coal dust explosion?-- I did. Coal dust took part in the explosion.

I may not fully appreciate this, but I think you agreed with me before lunch that 36.4 on a dry, ash-free basis was the average percentage of volatile matters in the seam with which we are concerned. Do you recollect that?-- Yes, I do.

Do not these results indicate in every case, upon an analysis, that on a dry, ash-free calculation the samples in every case show a greater volatile matter content than 36.4? Have a look at that, if you like?-- (Documents handed to witness.) I think the method of making these comparisons must be looked at. We have a linear comparison of samples 1, 2, and 3 with other road dust and raw coal samples being 4, 5, and 6, if I recollect correctly. We see that in samples 1, 2, and 3 in equal comparison one with the other, without reference to the ash-free dry basis, on a proximate analysis we have ash percentage of No. 1 of 33.4, an ash percentage for No. 2 of 43.6, an ash percentage for No. 3 of 47, as against the raw coal samples in proximate analysis of 23.2, 31.6, and 20 per cent. These are the comparisons that we are making on these particular samples. Volatile matter in turn, samples 1, 2, and 3: 23.2, 22.5, 25.2, as against 29, 37.8, and 29.6.

I will put this proposition to you. We know that the average volatile matter content of this seam is 36.4 on a dry ash-free basis; is that so?-- We might vary that figure from our own information, and I think that this is within our files: 36.4, 37.8.

37.8?-- I think that was the figure, without reference to the ----

You do not accept the C.S.I.R.O. fuel research pamphlet?-- We must accept the more recent analysis by our chemist.

37.8, is it?-- Yes.

How many samples of matter taken after the explosion below that percentage on a dry, ash-free basis have we?-- I think that this is a matter for discussion ----

Just answer my question, please. How many have we got below 37.8 taken after the explosion?-- We don't have much in that regard.

Do we have any?-- No.

Would you not expect in a massive coal dust explosion that you would have been able to find one sample of material deposited by the explosion showing a volatile matter content reduction as a result of the explosion below the average percentage in the seam?-- I think in the notes that were made here on comparisons we have ----

I am not interested in the notes; I am asking you your opinion. What is it? Do you agree with that proposition, or not? Would you not expect to be able to produce one sample showing a reduction below the average?-- It would be beyond my knowledge to give a "Yes" or "No" on that.

One final matter: I do not want to ask you anything more, but at any stage had it been thought that there was any danger any risk of life or limb to the men who went down on that last journey, would anybody there in your opinion have required them or wanted them to go down?-- Of course they would not.

CROSS-EXAMINATION:

BY MR. TOWNSLEY: Just on one matter that my friend has been asking you about in regard to this percentage of volatile matter: do you have that table before you?-- Yes.

The table which has recently been made an exhibit. My friend was asking you was there in existence any of the matter recovered after the explosion that showed a percentage less than 37.8. I think that is what he was driving at?-- Yes.

When you said "none", what are you referring to? Would you tell me?-- I was simply not further thinking in this particular matter, but we do have specialised chemists who can give expert evidence in this regard rather than answered by an inspector of mines. We do have expert witnesses coming forward.

Were you looking at a particular figure on some document in front of you when you gave that answer?-- On the first page.

I am interested to know where you were looking when you gave that answer?-- I was looking along the proximate analysis.

Looking at the heading "volatile matter per cent."?-- Yes.

1, 2, and 3 are the samples scraped after the explosion, are they not?-- Yes.

And they show percentages - the document speaks for itself - 23.2, 22.5, and 25.2. Is that what you are looking at?-- That is exactly it, yes.

You are looking down at the recalculations of these results?-- I am now.

And you are looking at volatile matter per cent., 36.5 in one - No. 1?-- Yes; 43.43 No. 2.

And 51 in No. 3?-- Yes.

Those three are the samples recovered after the explosion?-- Yes.

I suppose those figures speak for themselves, do they?-- Yes, they do.

Could I have a look at that document you have been going on?-- (Shown to Mr. Townsley.)

Then your answer that no one of those samples was below 37.8 really could not be correct, could it? 36.5-----?-- Not when we accept 37.8 and we favour 36.4. We have to settle on 36.4. That would not be correct.

36.4?-- Yes.

If I may just backtrack briefly to some of the cross-examination that occurred earlier from my learned friend Mr. Derrington? In particular I want to draw your attention to the suggestions that were put to you about what went through your mind, and your thoughts, particularly of the possibility of an explosion, or the probability of an explosion, and also the question put to you that you had not thought of a coal dust explosion - questions along those lines?-- Yes.

What was the object of going down, looking at this fire, and, for instance, first of all hosing it? What was the object of that?-- This is the instance of Mr. Lawrie and Mr. Rasmussen?

Yes; hosing the fire. What was the object of that?-- To hose the fire out.

And once that had occurred, what effect would that have on any potential explosion?-- Eliminate it.

Taking it back a bit further, the attempts of you and others to go down and place stoppings at certain positions, if you had been successful in doing that, what would be the end result of that?-- To watch for a diminution of that fire resulting from a reduction of air feed.

Supposing the stoppings had been successfully placed where you wanted to place them, what would have been the end result of that?-- That the fire should have started to diminish, or the evassee should have carried perhaps a lesser quantity of smoke over a period.

And what effect in turn would that have on the potentiality of an explosion?-- It would have been a stage where careful watch could have been kept without jumping into the breach whilst this adjustment was made on the diminution of the air.

Would stoppings successfully placed where it was intended to place them increase or decrease the risk of explosion?-- If anything, possibly increase.

And with what ultimate end in view if such an explosion occurred?-- Approach to the mine on sealing of the airway from its feed would not have been immediately made.

What was the ultimate object of the stoppings that were desired to be placed in those three positions you have spoken of?-- To rob the fire of air feed and reduce its vigour.

You say that an explosion still could have occurred nevertheless?-- An explosion is always a possibility to any remoteness where you have fire in a mine - a possibility; not a probability.

Was there hope that ultimately those steps would extinguish the fire?-- That was the object.

And eliminate the possibility of an explosion?-- That was the object of the exercise.

You have assisted in fighting how many fires in your career?-- Without looking up records, I couldn't count them.

Well, is it scores, or hundreds?-- It wouldn't be hundreds, but it would be a score or more.

Any of them in circumstances comparable to the set-up that occurred on this occasion - that is, the type of tunnels and so forth?-- Yes, but not in a comparable, say, position within the mine in length from the surface and from the faces.

"Length from the surface and from the faces"?-- Yes. In this instance we were approximately six to seven hundred yards, eight hundred yards, from the surface, whilst the comparable fire dealt with would have been a few hundred yards from the surface.

Nevertheless, you have been concerned in the fighting of fires in similar circumstances, except for that question of distance?-- Yes.

And have those fires been successfully extinguished?-- Yes.

Coming to this particular fire, was there anything that you can tell the Court about this fire which differentiated it, made it more dangerous, than anything you had grappled with before?-- This fire on observation was no more dangerous than any other fire we had grappled with before. It was vigorous, due to a vigorous air current over it.

I think you have already given evidence that at least one previous fire in Box Flat itself was at least equal to the present one, may be worse?-- In my consideration, in thought, that fire was worse than this fire which I observed prior to 10 o'clock.

And that one was successfully quelled?-- Yes.

By methods differing in any way from the methods you were involved in using in this one?-- Firehoses were not used. The fire was not approached at any incipient stage. It was a vigorous fire when containment commenced, and the fire was sealed around and deprived of air and ultimately extinguished.

It was sealed around and deprived of air and ultimately extinguished?-- Yes.

Were the methods used on that occasion any different from the methods proposed to be used on this occasion?-- Not really - deprive the fire of air.

By putting stoppings in tunnels?-- Yes.

Again going back to your first visit down No. 5 main where you were, as it were, driven back by Farrell's indication that smoke was coming back down behind you down the intake - you remember that point?-- Yes.

That smoke that you and the others came back through, what colour was it?-- It had no - grey smoke. It had no real colour differentiation in the blackness of a pit and the glow of your safety helmet.

Anything different about that smoke from smoke that you had encountered in previous fires?-- No. It was coal smoke.

Had smoke come down behind you in an intake before when you had been fighting fires?-- Wisps of smoke, but not to that extent, even though this was not completely dense.

Another thing I want to ask you: what did you actually see that was burning? You have told us it was a floor fire not involving the ribs or the roof, but some timber was catching: is that a fair description of it?-- Yes.

What area in feet on the floor was occupied by the substance on fire?-- The width of the board or the drive.

Which is-----?-- Approximately 20 feet; fire on a heap of coal on the floor which rose ahead of us in that drive due to a canching which occurred at that point.

And what does that mean, for the uninitiated?-- A ledge up; and loose coal on the floor as far as I could observe.

Extending for how many feet?-- X feet from me, and just beyond the throw of the firehoses of one and a half inch diameter and good pressure used by Lloyd Jones and Brian Rasmussen.

I did not get the number of feet. What distance up the rise?-- I couldn't give you an accurate estimate of that distance.

Not accurate, but any idea?-- Possibly 60 feet, but that is not an accurate estimation.

Would it have gone up as far as the next tunnel into No.2 South?-- It could have been roughly up towards that at least.

Was any portion of the burning material up No.2 South Belt tunnel towards the stopping that has perhaps been mentioned?-- This we could not see. The intensity of this fire prevented your advances right to this point, therefore your position of viewing due to the heat which would have been generated was keeping you so far back below that point.

So that you could not assist us as to whether any portion of that burning material was up No.2 South Belt Road?-- No, but we do have evidence that the fire did first start or was first seen by Mr. Lawrie 20 feet in that road.

So would it be reasonable to assume that in effect it had gone round the corner and then up No.5 return?-- That was the progression of that fire as has been described by various people.

And on the floor?-- I saw the fire as a floor fire. The roof and ribs were not burning when I saw it.

Can we take it that the hoses were not doing any good in preventing its extinction, or was it a fact that smoke was coming down No.5 intake and that caused that activity to cease?-- The length of time for which I was able to view the application of water to that fire was not sufficient to give an accurate and reliable estimation, but it did not appear to me during that short time that the hoses were in fact beating the fire but rather that the velocity of air was furthering the fire.

Is it a fact that water would be the best quelling agent at that point and in those circumstances?-- At the point of discovery of that fire and shortly after, it would have been.

Would it be correct to assume that if Mr. Farrell or whoever it was had not said that the smoke was coming back down the intake of No.5 the hosing would have continued?-- Yes, at least for the time being hosing would have continued whilst we evolved a further plan to take reduction of this fire and any spread it might be making.

My learned friend Mr. Derrington put to you the words "raging out of control". Is that an accurate description of anything you saw at any time?-- A dramatic description, but in fact I have given you the opinion that I did have that the fire was beating the effects of two hoses and it certainly was a blazing fire, the blaze running of course in the direction of the return air, the fan fire.

Up to the point of your first retreat through the smoke, getting through the smoke and getting back to the surface, had you seen any signs of coal dust dispersion which would give cause for alarm or fears for the safety of anyone?-- There were no signs of coal dust dispersion nor would there be the ability to see any such thing in a haze of smoke.

Is there any instrument in common use or issued to mine inspectors or available in anyway to test for the existence of such coal dust dispersed?-- Not under emergency conditions.

Did you or any of the others have any such instrument available at the time?-- Not for use with coal dust, no.

What indicia or what signs would you use to form the opinion that there was a coal dust problem in places where you work? Eyesight, nose, smell or what?-- Eyesight.

What would you see?-- You would see fine coal dust on the roof, sides, or across the supporting timbers which you could gauge to be readily dispersable to the air on any pulse.

In the position where you saw this fire and in the No.5 intake that you were in and its companionway did you see any signs at all of coal dust?-- Coal dust exists in every inch of any mine passageway. The only observation one might make would be of a heap of coal dust or an abnormal accumulation of coal dust.

Anything of that nature?-- Yes, that would attract one's eye.

You saw nothing of that nature in the area where you were looking at the fire and then retreating?-- No, I could not see anything of that nature.

Possibly the plans will speak for themselves as to how far these actual working faces are away. Are they right down at the end of the main intake?-- Yes, and north and south of those points.

The history of it is that on the second visit down people could not get as far down as you were down before?-- That is correct.

Because of this smoke coming back against the intake up No.5?-- Against the companion intake, the companion or weaker intake of No.5.

But it was not in the main No.5?-- It was not in the main conveyor man and supply.

That was the position on the second visit?-- Yes.

Again nothing to suggest anything different from other fires that you had been involved with in extinguishing them?-- No, except that we had taken some pressure differential which had caused a short circuit of smoke from the fire to the intake and a backing up in the weaker intake to the extent of some 150 yards.

Had you not struck that before?-- Not under the circumstances of such a vigorous ventilation as provided at Box Flat. Yes, I have struck backing smoke on a number of occasions.

In other words it is a thing you find when you are fighting fires in mines?-- Yes. You produce a convection, even with black smoke.

And it is a question of degree as to how serious it is?-- Yes, it is.

I think I have already covered the attempts to go down No.7 tunnel, and there again I think the burden of your evidence was that on the last run that you went down on when you went into the first stone drive 41, the normal course of ventilation, normal to Box Flat, was occurring, that is intaking air from 7 up to 5; is that correct?-- Yes.

Was there any progress of smoke against the intake coming down 41 stone drive, the last you saw?-- No. The smoke was up at and equal with the Bluff seam level.

That is right at the extremity of the drive?-- Towards the top of the drive.

And not coming down, the last time you saw it?-- No, not coming down.

Suggesting what? That it was going back into No.5?-- That the intake air was travelling its normal course up that drive and down to No.5 intake as was its normal current condition in normal ventilation of the mine.

And can I assume then not coming into 7 in any shape or form?-- There was no smoke whatsoever in 7.

So, as Rogers put it, it was a fresh air job to go down again?-- Yes.

Had you indicated that nevertheless certain equipment had to be taken down as a precaution?-- Yes.

And if there was any change then everybody out?-- Yes. Production of oxygen against monoxide was available to men not wearing apparatus.

In all of that up to the last contact that you had with those men was there anything to indicate anything other than normal potential danger of an explosion that you have in a fire in a mine?-- That is exactly what the situation was.

1
Let me move on then to another area in which you have given some evidence. My learned friend Mr. Derrington put to you that you were in a position of authority to ensure the safety of men. That is my note. I am subject to the correctness of the transcript. Could you indicate to me where such a position of authority flowed from, or what you are referring to by that answer? Is it some section of the Act?-- No, it is not. It is merely a heritage, or custom and practice within our industry.

10
What is that custom or practice? Could you enlarge on that more?-- That we do attend on call mine fires to which reporting is not required for a period of 12 hours, but we do attend and assist with management and men, plus rescue men when required, in sealing that fire or having it extinguished in whatever manner is decided, and assist management with those decisions where necessary.

20
What I was asking you was: this position of authority that you speak of, are you speaking of your precise authority under the Act, or of something beyond that?-- This particular thing is something beyond it, but any dangerous practice could be remedied by myself.

Again, this is a matter of law, but under Section 66 of the Act you cannot a requisition on a mine manager. Is that so?-- That is a blanket section, yes.

And he has to attend to it?-- If it is not otherwise provided for.

30
Were you purporting to exercise any authority over employees of Box Flat as such, directly?-- None whatsoever. I did not have that authority.

Were you purporting to exercise authority in what you did at this mine with the mine rescue brigade men?-- No, we had an assistant superintendent with us, and all I purported to do was give any assistance that he may require.

40
Probably the tribunal knows this, and the New South Wales rescue stations have been dealt with, but the members of this rescue brigade in Queensland are volunteers. Do I understand that correctly?-- With the exception of two permanently - at that time two permanently employed persons, the remainder of the rescue brigade are volunteers.

And certain provision is made under the Act about such a brigade?-- Yes.

Which we can find-----

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MR. DERRINGTON: It might assist my friend if I mention Section 61 to him, which has not been dealt with. It might save him some time.

MR. TOWNSLEY: I think we can look at the Act.

60
MR. DERRINGTON: It dealt with just what you were asking about.

BY MR. TOWNSLEY: In your position out there, you were doing something over and beyond your precise duties as inspector of mines by going down into the mine yourself. Is that so?-- Whilst this may have been so, it is something which we have been accustomed to doing right through the whole of my knowledge of the mine industry in my life, that is, inspectors.

This mines rescue brigade, its name connotes to the un-initiated that they deal with rescuing people from situations

that have occurred, situations that have occurred already, that is, trapped men, etc., and trapped machinery, perhaps?-- Yes.

Is the fighting of fires any part of their duty, in your experience, or is it something that they-----?-- In my experience, it has been most of the duty of mines rescue men, fighting fires.

In the sense of trying to prevent the necessity of having to rescue people; is that the idea of it?-- Yes, as the safety men providing safe conditions as specialists for other people to work in.

Take this particular instance. Were any of them actually employees of Box Flat mine?-- Yes.

Actually current employees, were they?-- Currently employed, and doing duties with the rescue brigade, were Allan Berlin and John Roach.

Just speaking theoretically, this need not necessarily be so?-- This need not necessarily be so at all.

It so happened in this case?-- Yes.

Again, you used the phrase from time to time "my instructions", or that you had administered certain instructions, as I understood you. Is that actually so? Would you enlarge on that a bit, particularly in regard to Mr. Lawrie's position as manager of the colliery? Who was actually giving instructions?-- Management gave the necessary instructions to their employees as they required them to do work. Other plans were formulated in the form of a panel comprised by mine officials, rescue officials, and captains and myself.

Was anyone elected leader or captain of the whole thing, or anything like that?-- Under normal circumstances and conditions, the manager of a mine is the man in charge of that operation which is going to save his mine.

Did Mr. Lawrie take this active part?-- Mr. Lawrie accepted that responsibility, and did it to the best of his ability.

There is just one other aspect. You arrived at 25 to 9 or 8.30?-- Approximately 25 to 9.

It was a Sunday night. You had received word, first knowledge of all this, at about quarter to 9, or thereabouts?-- No, at somewhere-----

Quarter to eight?-- At somewhere in the vicinity of half past seven or quarter to eight, very approximately, a relayed message.

You were away from home somewhere?-- I was away from home.

And you had to get transport, and make certain arrangements, and get to the mine. Was that so?-- Yes.

Did you ascertain that some considerable time before you got there, Mr. Lawrie and Mr. Rasmussen had been down at the site of this fire and come back up again?-- Yes.

About what time did you believe or were you informed that they had done that; gone down and come back up again?-- In the matter of timings, outside of a few reliable people not involved with this disaster, we are able to piece together something of a procession of events leading up to and after this disaster.

Accurate timings are difficult to obtain, and were difficult to obtain because of the aforementioned shocked condition of any person involved with it, either to a greater or lesser degree.

But even within wide limits, have you any idea of when that was that apparently the first viewing of the fire had occurred on the part of anyone?-- On estimations, not later than 6 p.m., approximately.

And we know that the fan started again at 25 to 5, a bit after 4.30?-- Yes.

We also know, do we, that the fan was not at full blast; it was slowed down to some degree. Is that also correct?-- The fan was started, I am led to believe from evidence, at its full load; not complete full load of the motor, but to its normal full loading for mine requirements of 390 amps, in which process, by the characteristic curve of that particular fan, it would have been pulling approximately five inches of water gauge, and approximately 267,000 cubic feet per minute from the mine.

I think your evidence has been, has it not, that that passing over the fire was not the maximum flow of air that could have been passing over the fire if it were going flat out. Is that the idea?-- No, at this juncture, and the mention of approximately 6 o'clock from my evidence, the fan was put to its normal 267,000 cubic feet per minute at 4.35. I am led to believe from evidence given me that at somewhere, in approximation, of 8.45 to 8.50 the speed of the fan was reduced by what is termed winding it back by use of that hydraulic scoop coupling to a point where the load was relayed to me to be at the time of winding back of 150 to 200 amps, and in the light of further experience and advice it would have settled on adjustment of the air to 200 amps.

That in turn, by the characteristic curve of the fan, would produce somewhere in the approximation of 200,000 cubic feet per minute through the mine and a water gauge of approximately three inches.

Then the end effect of that, in layman's language, would be to slow the return air across the fire, slow the velocity of it?-- Reduce the quantity of air across that fire.

And that is what was happening at the time you first saw it?-- Yes.

On your first trip down?-- Yes.

My learned friend Mr. Callinan, of course, put to you that all conventional methods were being used in regard to this fire; would you regard the slowing of the fan as conventional?-- In many cases, yes.

What about in this case?-- A competent person was below ground observing the reaction of airflow to fire progress, and from the evidence that I received it was on his advice that the fan was wound back to that said approximately 200,000 cubic feet per minute.

Just again on this question of conventionality - again this may have already appeared to the Tribunal - but my learned friend Mr. Callinan put to you that there was a conventional door at a certain point, I think, through which the men were hosing; I may or may not have understood him correctly?-- No.

But whether he was referring to that or not, was the opening through which you saw men hosing or through which you saw some brattice, or whatever it was?-- Polyrack.

Or Polyrack - was that a doorway in the ordinary sense?-- It was a trap-door. From the brief look that I took at it - and I was not particularly interested in that aspect at that time - I wanted to get to the fire - it was a trap-door of some two feet square.

Two feet square?-- Approximately, yes.

Set in what?-- Into the normal 9-inch ash-brick stopping. That, on my recollection, was covered by the Polyrack which is a white material, translucent when backed by the glow of fire, and through that at that time I did see a glow there in the return.

Could we say a glow framed by the extent of the doorway?-- Exactly.

And is that a doorway in the normal sense as is marked upon these mine plans or is it not?-- As marked on the ventilation plan as a little trap-door. A little "d" on the stopping it is frequently marked.

And the normal door is a "D" occupying the whole of the tunnel?-- Yes.

Those doors that ultimately you were trying to get back to - I think you had referred to double doors up the rise from the underground haulage that later you were trying to get at and could not get to; were they of the same variety?-- Double trap-doors.

Again trap-doors in the stopping - is that the nature of them?-- My last knowledge of them was such. I had no knowledge of them on that particular night. I never did see them.

Would that sort of trap-door in a stopping be self-closing or rely on the pressure of the fan?-- Mainly relying on the fan pressure.

Whereas the door in what I might call the main sense is self-closing, is it?-- Under fan pressure. It could be self-closing under pressure, but it would not necessarily be fastened by a lever type of fastening which could prevent it opening in the event of some change in pressure.

Normally doors are to be so constructed, are they not, to be self-closing under the Act?-- Yes.

These little trap-doors are not; is that so? Do I understand that correctly?-- They are self-closing in the normal circumstances of ventilation within the mine.

Depending on pressure from the fan?-- Depending upon the inequality of the pressure intake return.

This has probably been brought out, but just for the record, you did collect the samples, did you not, referred to as 1, 2 and 3 in the exhibit recently tendered, Exhibit 9?-- Yes.

Which contains Mr. Couper's - the Government Chemist's - comparison of matter before and after the explosion?-- Yes.

You collected the samples for numbers 1, 2 and 3?-- I did.

From the various positions mentioned in Mr. Couper's report?-- Yes.

It is obvious that you collected No. 1 from the tunnel mouth and bin face of No. 7?-- Yes.

And that is No. 7 coal haulage?-- Yes.

The bin face being the bin connected with the reciprocating alligator conveyor; is that right?-- The bin facing the fill.

Then the other two speak for themselves - No. 5 conveyor mouth where the three men were and then No. 3, straight from the rails at the tunnel mouth and No. 5 man and supply?-- Yes.

I think perhaps my learned friend Mr. Given much earlier may have mistook part of your evidence. Remember when you were giving evidence that you touched Lawrie on the shoulder and went in the direction of No. 5?-- Yes.

And then you saw the first explosion that you saw?-- Yes.

I think my learned friend Mr. Given may have inadvertently thought you were referring to No. 5 man and supply as being where the explosion issued from; did it issue from that entry or from the conveyor belt?-- It was my impression that within the supply sections in which explosions occurred - that the first sight of explosion I had was from No. 5 conveyor tunnel entry.

That is the No. 5 entry closer to Swanbank?-- Yes, the conveyor belt.

Closer to the dam?-- Closer to the dam.

No. 5 man and supply?-- Yes.

No. 5 man and supply - did it actually suffer much blast damage, if any?-- No, it didn't.

What was exhibited there? What appeared to come out of it?-- A black cloud, to my recollection, and the only other manifestation of note was the fact that the area behind the portal or in by the portal collapsed during the explosion or explosions.

Here again dealing with this point of time where the fan was cut off and you stepped out, from there on - you have heard evidence given by two Metropolitan Security Service men?-- Yes.

I think the burden of evidence of at least one of them was that there was a pall or column of smoke going up higher than the stacks of Swanbank before these explosions took place, and I think at least one of them thought that that was coming out of No. 7 coal haulage. Did you see anything to confirm that?-- No. He was totally and utterly incorrect. That particular man has no knowledge whatsoever of coal mines or the location of various entries and their designations as are set up in the Box Flat property.

Have you prepared any sort of map or sketch of the proximity of Swanbank and this guardhouse to these tunnel entries?-- Yes. After hearing the evidence of the Swanbank gatehouse men, I procured from Mr. Cole, the power-house superintendent, a drawn layout of the Swanbank power-houses A and B for the purposes of relating the positions of various things within that area to the entries of No. 5 and No. 7 mines.

Do you produce that?-- I had it with me.

Would you look at that document?-- (Handed to witness.)
Additional to that drawing-----

THE WARDEN: The same objection might be taken to this evidence, Mr. Townsley, that has been previously taken: the witness commenting on the veracity or correctness of another witness's evidence.

MR. TOWNSLEY: I did not want him to do that.

THE WARDEN: I am not taking any notice of it.

MR. TOWNSLEY: What I wanted to get at was some independent evidence of measurements - just how far these places were away, and their relationship to the mouths of the tunnels.

THE WARDEN: It will not make any difference to the weight of evidence given by either the M.S.S. man or Mr. Hardie. It is a matter of opinion. One said he saw it and the other said he did not.

MR. GIVEN: I think there is evidence that from an early hour in the evening there was quite a lot of smoke, quite acceptable, coming out of the evassee exhaust fan at No. 7.

THE WARDEN: Yes. I think you will find that the M.S.S. man was by no means certain as to where it was coming from. He did say he had seen some before the explosion.

MR. TOWNSLEY: I was really concerned, perhaps, with something being before the Tribunal as to the exact location of these things. I suppose an inspection would procure the same result.

BY MR. TOWNSLEY: Is your plan very complicated?-- It is quite a simple plan, with a scale provided for direct reading of any distances.

MR. CALLINAN: If the Tribunal inspects, as I imagine it almost certainly would, these matters would probably become apparent on inspection.

THE WARDEN: Mr. Monger suggested the possibility of recalling that M.S.S. man about the same time as we do the inspection.

MR. CALLINAN: If need be, yes.

THE WARDEN: It would resolve it then without any discriminations whatever.

MR. TOWNSLEY: I am in the Court's hands. I do not want to unnecessarily clutter the record with something if it is not going to be of very great value, but this would establish fairly simply the distance from the tunnel mouths.

THE WARDEN: The document does not need to be explained.

MR. TOWNSLEY: It speaks for itself. I tender it.

Ex. 13. (Admitted and marked "Exhibit 13".)

BY MR. TOWNSLEY: Following on from that plan of that location, what I want to go to briefly is the question of the possible velocity of this explosion in relation to Swanbank, to over what parts of Swanbank it passed. From that point of view could you just describe again what happened in the seconds after you tapped Lawrie on the shoulder and walked quickly towards No. 52-- Alex. Lawrie was on the phone 43 at the

deputy's cabin at the head of 7. I tapped him on the shoulder and said, "Come on, Alex; over to 5. They are getting into trouble there."

I do not want you to go over what you have said, but just a swift summation of the times - the number of seconds that may have elapsed between certain things - and in particular dealing with the four explosions, as some witnesses have said there were?-- This matter of progress to the deputy's cabin towards No. 5 has since been rediscussed, re-enacted, and timed by Mr. Lawrie and myself in agreement. The 25 yards traversed towards No. 5 we approximate to 15 seconds. On 15 seconds the explosion occurred which induced us to take an erratic running course, later measured in time to a point decided upon as a further eight seconds, during which time the three explosions which I myself can describe had finished. Debris was still falling from the air, and some of it had fallen. This, in my opinion, gave me a pretty firm conviction that all of that which happened by way of explosion was over and completed within four seconds.

You feel that could perhaps assist the Tribunal as to the velocity of what was going on?-- In assistance or attempts to estimate some velocity, I did make observations fruitlessly because of the lack of accurate evidence of the path of the alligator from its described position 110 feet inside the portal to its place of rest in the bin. The total weight of rope, skip, and draw gear concerned with this projection would have been 6,000 pounds in close approximation. Evidence disclosed that before leaving the inside tunnel area, six 5/8th inch diameter bolts securing the tailgate lifting car were sheared, and it certainly further appeared that the tailgate itself, or the half-inch thickness six by six or four by four angle had been ripped for two feet of its lower length. The vertical height of projection was estimated to be somewhere in the vicinity of 90 feet. I did have some ideas that this information could be the basis for a calculation of pressure or velocity, but of course the time element is not available; therefore, that calculation could not be of much assistance in any accuracy of gauging the velocity or ferocity of this particular explosion.

Just finally: that tunnel that you are speaking of from which this alligator was blown, or bin was blown - that is the only one that did not collapse in the explosion; is that correct?-- That is correct.

In other words, all the others fell in to some extent, and that one was intact?-- This particular tunnel was not over-dependent on floor-to-roof support. It was a fairly clean and substantial graded haulage way, and maintained itself in the capacity of gunbarrel during this explosion, and did not collapse.

MR. TOWNSLEY: Nothing further, thank you.

THE WARDEN: Mr. Ramage?

MR. RAMAGE: I think that most of the questions that I did mention have been answered by the witness; but, as intimated by Mr. Palmer this morning, he did have a couple of questions which I would like to ask.

CROSS-EXAMINATION:

BY MR. RAMAGE: Firstly, it concerns Mr. Jensen. Mr. Jensen had been, I understand, the assistant superintendent of the mines rescue?-- Yes.

And he had been a brigade member for approximately a period of 25 years?-- Yes.

And he was a most conscientious and thorough man in his duties as a brigade officer or as assistant superintendent?-- Undoubtedly.

It was mentioned in evidence that Mr. Jensen told you that he had six or seven drums for the foam-making machine, and you said that that would not be enough?-- Correct.

And that he said, "Shall I send for more?"?-- Yes.

And you said, "Yes.", and then you said that was the last time that mention was made of Mr. Jensen until after the explosion. Was Mr. Jensen a member of a party participating, or did he come back to the mine at any stage in the operations?-- Mr. Jensen didn't leave the mine, to my knowledge. Mr. Jensen I saw and spoke to from time to time. I saw him board the rake for the first trip below in No. 5. In the hurry and bustle and confusion of coming out, I don't recall speaking to him on our exit from 5.

But I did again later see Mr. Jensen in various positions and did have brief speech with him at the tunnel mouth of No.7 man and supply immediately prior to our boys going down that entry.

MR. RAMAGE: I think evidence has been directed at when the area was last inspected, and the evidence was given this morning. That was one of the other questions. Another question was that Mr. Hardie mentioned the fire in 1955 when it was sealed away. He did not mention whether the fire was, or whether it could have progressed to become this fire.

WITNESS: This would be a complete impossibility. The fire concerned with in 1955 was a collapse of the tops of the Bluff through to a fire in the bottoms of the Bluff which were in the old No.1 working. These workings had no connection over to that particular area in which we are concerned with regard to this.

MR. RAMAGE: No further questions.

THE WARDEN: Do you wish to ask any questions, Mr. Abbott?

MR. ABBOTT: Yes.

CROSS-EXAMINATION:

BY MR. ABBOTT: I would like to know, in view of the fact that No.7 remained open throughout the explosion, what precautions could in future be taken to prevent the likes of collapses as you detailed in 7 and 5, if you feel situations such as exist in the main tunnel of 7 could be further carried out in further tunnels?-- Possibly, No.1, the violence experienced from that particular entry possibly was not as great as that from, say, the No.7 man and supply and 5 entries; No.2, it was not obstructed to the same extent by floor to roof supports, etc., that would cause that turbulence and increase that velocity as it perhaps would have done in No.5 conveyor belt tunnel particularly, No.5 man and supply with its varying cross-sections and heights, and again No.7 man and supply which was pretty regularly timbered and closely timbered throughout its length.

Do you feel that if it had been concreted to a much greater depth that the collapse would not have taken place - rather than the timber?-- Certainly providing that distance of concrete or reinforced concrete was of sufficient length to lock itself into that strong strata which could resist the force of that explosion; but also, let us remember, under the added violence out of conveyor drift, we have pictorial evidence that a very sound and strong reinforced concrete portal was blown apart and disrupted - not blown to pieces, but badly ruptured by the force.

THE WARDEN: Mrs. Marshall, do you wish to ask any questions?

CROSS-EXAMINATION:

BY MRS. MARSHALL: Will you describe for me the duties of a deputy coming on shift?-- A deputy coming on shift entails himself with the preparation of his safety lamps preparatory to going below to do that inspection which he is required to do under the Coal Mines Act in Rule 6 which requires him within two hours of the commencement of any shift to do a complete inspection of all the places in which men work and

pass to ascertain the safety of the roof and sides and the presence or otherwise of gas in and around the area, or otherwise the general safety under which men enter the mine and work.

Mr. Harold Reinhardt was a conscientious worker and a conscientious man in regard to the men who worked under him, and he would have surely said that this mine was not fit to work in?-- Surely he would have. Mr. Harold Reinhardt came on duty, I recall, and when he came he was reported to me to be a deputy who was never late for work, but was always very early for his shift, and he was - at such time that he did apparently board that first rake at No.5 man and supply, and left the surface. That is at 9.25 he went below with us. I didn't see Harold again during that inspection because I was down at the fire. We all came out of the mine, and my last recollection of speaking to Harold was when I was standing at the head of No.7 with my foot on the rake talking to Wally Murphy and Jimmy McNamara, and Harold walked around and he said, "Good day, Reg", and I said, "Good day, Harold. How are you going?", and he came around and joined the rake. That is my last recollection of Harold.

At 11.30 you considered that mine to be beyond control?--
11.30?

That was in your testimony yesterday?-- No. I considered at that time that our chances of containing the fire underground in No.5 were gone, but we still had a clear atmosphere operating in No.7 mine which was under a separate strip of ventilation and not feeding from 5 to 7, but feeding from 7 to 5 - that this was our last chance in clear air of underground work to contain or mitigate the effects of that fire.

You mentioned that you decided to go on that last rake into the tunnel of death on the pretext of having just one more look at the plans of the workings with Lawrie?-- That is right.

Are you sure - and your evidence shows you were there at 11.30 on Sunday night - that it was not because it was so dicey that you decided to get out?-- That is a very nasty thing that you say. An inspector of mines is a person who is supposed at least to have some responsibility and knowledge of mines, their plans and so on, and in supervision of such matters management and an inspector of mines would have more important duties to do if there was -----

Than putting up rubbish and all that sort of thing?-- Yes; look at the plans to see what must happen next rather than to have choices in it. You are obscured under level in a dark underground passageway. If there is something further to be done that requires that the plans should be looked at, then the inspector of mines should put his head with management to find out what it is further that we should look at that we didn't know before.

Why did these men go down without any safety equipment?--
Without safety equipment?

Yes; four of them?-- No; six of them.

Six of them? I wasn't aware of the other two?-- There were six men. Safety equipment of the type which is used by mines rescue boys is subject to specialised training for the wearing of it and the use of it. It is not given to the untrained man to be able to slip on and use. He could get himself into trouble without that training; but in the same manner as you may see perhaps in the use of underwater breathing apparatus, a breath of oxygen can be given by one

man to another in the event of emergency. Therefore one suit or some ancillary equipment could bring a man out over a period of ten minutes, twelve minutes, through a rather noxious atmosphere and have him completely surviving to the fresh air and safety. That was the reason.

Thank you?-----

THE WARDEN: Mrs. Reinhardt, do you wish to ask any questions?

CROSS-EXAMINATION:

BY MRS. REINHARDT: My first question, Mr. Hardie: are mine fans always left on of a weekend?-- No. There are many mines in which gas has not been found, or gas in the general body of the air has not been found, that are subject purely to the provisions of the ordinary Mines Act which don't require them to run their mine ventilation 24 hours a day or seven days a week. In some special circumstances where gas has been found in the mine or in the general body of the air, then it is the inspector's prerogative to instruct that manager that he will in fact run that fan for that continuous week. In this particular occasion - and I am quite sure you are concerned with Box Flat - we have never found gas in the general body of the air which dictates that I should have instructed Box Flat that they must do this, but they did, with the multiplying of the shifts per day and the length of the week, then elect themselves to run their fan 24 hours a day, which still gives management this prerogative of closing that fan down without notification of the inspector. This prerogative is not given to that person who is instructed that he will in fact run his fan 24 hours a day, 7 days a week.

With regard to any other machinery, pumps, etc., in the mine, are they allowed to be run over the weekend when the mine is closed?-- They are started by mine deputies.

I am asking you are they allowed to be run over the weekend when the mine is closed?-- We normally do require that supervision be given to them.

Did you receive any call or any instruction of any sort within the last month before this accident that you were to be called out to Box Flat over serious trouble?-- No, I did not.

My husband came home and told me over the breakfast table that you were to come out to Box Flat that day?-- I received no complaint that would have persuaded me to go to Box Flat during that period.

He came home and told me over the breakfast table, "There is serious trouble at Box Flat. Reg Hardie is to come out today." Then he said to me, "Don't be surprised, mum, but the lid could be put on Box Flat." Those are his exact words?-- Did he state-----

THE WARDEN: You are not asking the questions, Mr. Hardie. That is not a question, so leave it at that.

BY MRS. REINHARDT: I am only asking did you get any notification that you were to go there, because he told me you were to go there?-- I never got any notification to go there.

THE WARDEN: He has said he did not get any notification. You cannot make further statements because you are not giving evidence, Mrs. Reinhardt.

Now, the members of the Board of Inquiry have some questions to ask.

BY MR. BALKS: You stated earlier that when you received the message of the fire you went to your office?-- Yes.

Will you inform me what tubes you got?-- C.O. was a deduction. I had C.O.2 but I had insufficient supply of C.O.

Did you have occasion to use these?-- We did not get the occasion to use them in as much as we were in completely fresh air there and in the 5. We did have draeger equipment. But the time we were on the area near the site of the fire was too short, and furthermore we could not have got a test without getting to the return, the fouling of which chased us from that in the first instance. So therefore no draeger test was taken on that occasion.

Were other types of tubes available?-- Yes.

The other question I would like to ask is the time it took for the rescue squad to arrive at the colliery and be ready for action?-- Yes, I can give you that. The first call was received by Kenneth Spegghen at 8.20. I spoke to Spegghen at 8.25. He told me that he had received a call and that Mr. Jensen was on his way to the station. I left my office next door to the station prior to Merv getting there. Merv arrived at the mine within five minutes of my arrival which means that Merv Jensen was at the mine by approximately, if not before, 20 minutes to 9; followed at a quarter to 9 by a team of rescue men led by Len Rogers, with Noel Busch, Allan Berlin in his own transport, Ronnie Hodgson and Johnny Hall, all highly experienced men.

BY THE WARDEN: The question was how long it took to get there?-- 20 past 9 the first call; about a quarter to 9 on site.

BY MR. BALKS: 15 minutes to get the equipment to the colliery ready to be used, and within 20 minutes the team men were there available to use it?-- Yes, that is correct.

My final question is this: with regard to the hoses that were used on the fire, when it was determined to discontinue using those hoses were they left running or were they turned off?-- It is not my knowledge as to whether they were actually finally turned off, but they were taken back to the intake site of the fire, as Mr. Jones and Mr. Rasmussen came back to us. Whether they were ultimately turned off as well, I do not know, but they were taken in by of the fire, as they came out.

BY MR. ROWLANDS: My question is somewhat remote from the immediate area here. Do you know whether any electric fans were used for auxiliary ventilation at the working faces?-- At that particular period of time I could not tell you, but auxiliary fans normally nowadays in Box Flat are not, and I repeat not, used to any extent.

BY MR. MONGER: The only question I would like to ask is one that I think you might clarify a few points for me, and that is this: When you had these various excursions to the plans with the officials of the mine, what was your basic reason for examining the plans?-- The surveyor was not available on the Sunday night at that time, and production of strip plans for the rescue men was not readily available. Plan study had to be carried out on the plans on the main table.

Rescue men, in the main, with the exception perhaps of Allen Berlin, on site were not familiar with the big mine which was Box Flat and the rather complicated ventilating system that is involved there. So perusal of the plan did necessarily take the team and members approximately a fair part of half to three-quarters of an hour to get some comprehension of the system operating within that mine before leading a team into that condition.

To ensure the question of safe men?-- Yes. To further that, further study was again made with one of the chief students, being ex-mine surveyor and qualified manager Len Rogers, one of our team captains. He was a thorough man and would never have been satisfied until he had a full grip, and it was not until the last hour's study prior to the last trip that Len said, "I have really got a grip on it now. I know what is required."

BY MR. MURPHY: You said here in evidence on a couple of occasions that the fire you observed underground at one particular stage, anyhow, was a clean fire. Could you describe what a clean fire is to me?-- It was a fire devoid of murky fume in and around the fire area. Coal smoke or dense fume was unobservable from my position of observation in and around this fire. In short, all fume was swiftly going away to return, and clean burning flame only was apparent across the face of that heap.

Would it be true to say that dust accumulations in the return area would be greater nearer the coal face than further back from the coal face towards the ventilating shaft?-- This is all dependent on time and motion, and it is not one which you can readily give an answer of "Yes" or "No" to, inasmuch as an untreated and uncleaned airway two miles back from the working face could have been accumulating that dust over many, many years from a working face which perhaps had only been operating in a section for three weeks. In other words, it did not have the time to accumulate that quantity of dust which had been accumulated, perhaps, in a distant return airway some mile or three-quarters of a mile away.

It would be possible for more dust to be deposited further away from the coal face than what there was at the coal face?-- Yes, some little distance from the coal face, commencing return side from that.

One more question: would it be true that the ventilating fan would take moisture into the mine or take moisture out of the mine?-- Take moisture out of the mine, because it is an exhaust system of ventilation.

BY THE WARDEN: Did you advert to the possibility of an explosion in the mine, or did you not?-- Would you repeat that question?

Did you advert to the possibility of an explosion in the mine, or did you not?-- Not an imminent explosion.

I am not talking about imminent. The question is: did you advert to the possibility of an explosion in the mine?-- Not to that time.

Would it be a fair comment; that had you adverted to the possibility of an explosion, you would have been confronted with two alternatives: (a) evacuation or (b) an attempt to extinguish the fire?-- Yes.

I think that earlier in your evidence, or in cross-examination, you did say something to the effect that any experienced person would realise that there was a risk of explosion in such a case, did you not?-- Yes, you have a source of ignition.

That being the case, would it also be a fair comment to say that in view of the state of your knowledge at the time - that is prior to the explosion - did you consider it safe to attempt to extinguish the fire rather than evacuate the mine?-- Yes, I considered it safe on a quick action, subject to careful examination of maintained ventilator conditions as they should be within that mine area. Any change-----

The conditions as known to you gave you no cause to think that that explosion was imminent?-- Exactly.

MR. GIVEN: There are just a couple of matters that may save us some time in the long run.

THE WARDEN: As long as everyone does not want to have a go. I am thinking of the shorthand writers more than anyone else.

RE-EXAMINATION:

BY MR. GIVEN: Exhibit 9 is the report of the analyses by Mr. Couper. No. 4 refers to, "Box Flat mixed slag sampled by the Q'ld. Coal Board.", and then it gives a reference number?-- Yes.

Can you help us as to how the Coal Board came to take that sample?-- No, I can't help you at all.

You cannot help us at all?-- That is the normal routine, to sample from the finished products of the mine that they do make.

Finally, the cover, apparently, of an oxygen breathing unit was submitted to the University of Queensland for examination and report?-- Yes.

You had some hand in that, I take it?-- I know of it.

Did you take any part in that? For example, what I want to know is do you know where the broken piece was picked up?-- Yes.

Whereabouts?-- On the southern side of the rails leaving No. 7 man and supply and approximately, from memory - my memory wasn't particularly good when this was picked up - say, 25, 28 yards, something in that vicinity, and fairly close to the rail area, but Mr. Charles McPherson has since - he was with me at the time - he has since taken accurate measurements of this distance.

That is near enough - something like that?-- Yes.

And the substance of Mr. Brixius's report was that it had been subjected to an explosive-like force?-- Yes.

BY THE WARDEN: There was one other question I intended to ask but omitted before. Had you been in possession of the knowledge which was provided subsequently by Exhibit 9?-- Which is that?

That is the tests carried out by Mr. Couper; what would your attitude have been to re-entering the mine or calling miners out who happened to be in there? This is not part of my question: I think you will find that - I understood them to say that the dust danger was rather bad?-- This particular one is in respect of the collective tests after -

postexplosion.

BY MR. MURPHY: Something about the limestone content,
over towards the back?-----

MR. TOWNSLEY: Could I have Your Worship's question
read back? I did not quite catch the relevance of it
to the exhibit.

(Shorthand notes of relative passage read.)

MR. TOWNSLEY: I think that is in another exhibit.

THE WARDEN: That is subject to correction. I was only explaining that to Mr. Hardie for his benefit. It is in Exhibit 9. Whatever is in there is correct, not whatever I say.

MR. TOWNSLEY: I am trying to pick up where it said the dust danger was rather bad.

THE WARDEN: There was evidence given to that effect, but I did not even see Exhibit 9.

MR. TOWNSLEY: I cannot pick it up in this one.

MR. DERRINGTON: It might be in the other one. There are two reports. You are referring to the reports of the analyst of the samples taken before?

THE WARDEN: Comments made either at the Bar table or in evidence. I thought it was in evidence.

MR. DERRINGTON: It was in cross-examination.

WITNESS: This particular report only touches very briefly on one or two samples of coal which have been taken possibly from a road, but they do still indicate that the content of limestone dust was not, I think it says, to the standards required.

MR. GIVEN: I do not think that is in that report.

MR. DERRINGTON: I think you will find in the other report that the inert matter was nil.

WITNESS: It says in the middle of the small paragraph in the middle of page 2: "The amount of calcium carbonate which is present in samples 1, 2, and 3 would be insufficient to prevent a coaldust explosion."

BY THE WARDEN: That is the crux of my question. Were you in possession of knowledge of that nature, what would your action be, not necessarily in this case, but in any other future case?-- Some action to have the percentages of incombustible dust in the roads brought up to that required, 75 per cent. or less.

In the presence of a fire, I mean, where you have similar circumstances prevailing, would you suggest that the miners be removed from the mine, or would you suggest going in and trying to put out the fires, if these conditions prevailed to your knowledge?-- I think on test we would have stopped, as a department, working out of the mine until such samples were brought to scratch.

You said previously you had not stopped it because there had not been a test. What I am trying to get at is that if these conditions apply in a mine and fire happens to break out, do you think that the men should be withdrawn from the mine, or do you think attempts should be made to extinguish the fire by sending men into the fire?-- I think the stage had been reached where the men should be withdrawn.

THE WARDEN: We will adjourn at this stage till 10 a.m. tomorrow.

The Inquiry adjourned at 4.40 p.m. till 10 a.m. the following day.