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1 NO. 2002-28497
2 -----X
3 GEORGIA CAROLE DAVIS, individually : IN
THE DISTRICT
4 and as representative of the Estate :
COURT OF
5 of VICTOR DAVIS, Deceased, and JOHN :
6 ROBINSON and BARBARA ROBINSON, :
7 Plaintiffs, :
HARRIS COUNTY,
8 :
TEXAS
9 VS. :
10 :
11 GARLOCK INC., et al., :
113TH JUDICIAL
12 Defendants :
DISTRICT
13 :
14 -----X
15
16 --- This is the Deposition of DR. ERIC J.
CHATFIELD, taken
17 before me, Lisa Baker, a Chartered Shorthand
Reporter, at
18 Novotel Hotel, 3670 Hurontario Street, L5B 1P3,
19 Mississauga, Ontario, Canada, on Monday, the
15th day of
20 September, 2003.

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1 APPEARANCES:
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0003

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1 ---Upon Commencing at 11:00 a.m.
2 DR. ERIC J. CHATFIELD; Affirmed.
3 EXAMINATION BY MR. MUNDY:
4 Q. Good morning, Dr.
Chatfield. My name
5 is Jeff Mundy, I am the attorney for the
plaintiffs in
6 this case, you understand that?
7 A. Yes, I do.
8 Q. Okay. If you would please
state your
9 full name?
10 A. My name is Eric John
Chatfield.
11 Q. And what is your business
address?
12 A. 2071 Dickson Road,
Mississauga,
13 Ontario, L5B 1Y8 and the company name is
Chatfield
14 Technical Consulting Limited.
15 Q. And do you go by Dr.
Chatfield or
16 Mr. Chatfield?
17 A. Doctor.
18 Q. Okay. Dr. Chatfield, if you
would,
19 tell us just in very general terms what type of
expert you
20 are? What areas do you believe you have
expertise in?
21 A. Physics, some areas of
chemistry.
22 Microscopy, both scanning optical and electron
microscopy
23 and asbestos.
24 Q. And with respect to
asbestos, what
25 aspects do you believe you are an expert on?
What subject
0005
1 matters?
2 A. Mineralogy, air sampling and
that kind
3 of, that kind of area.
4 Q. Do you believe yourself to
be an expert
5 in issues related to medicine?
6 A. No.
7 Q. Okay. How about
epidemiology?
8 A. No.

9 Q. How about industrial hygiene
issues?

10 A. Uh, no.

11 Q. Do you feel like it is
within your area
12 of expertise to render opinions on causation of
a
13 particular person's mesophilioma?

14 A. No.

15 Q. And, Dr. Chatfield, let me
say I don't
16 think this will be terribly long today but the
A.W.

17 Chesterton Company has informed us that they
intend to
18 call you live as a witness. Have they informed
you of
19 such a thing?

20 A. Live as a witness, sorry? I
didn't get
21 the second word.

22 Q. Have you been informed that
you will be
23 called as a witness to testify in a trial in
Houston,
24 Texas in approximately three to four weeks?

25 A. Uh, I have not yet been
informed.

0006

1 Q. Okay. And are you available
to testify
2 as a witness at trial in say approximately the
second to
3 third week of October?

4 A. I believe so.

5 Q. What is your understanding
about why
6 you are here today?

7 A. My understanding is to
attend a
8 deposition and for you to ask me questions
regarding
9 presumably an affidavit that I have issued and
any other
10 technical matters relating to asbestos
measurement.

11 Q. Okay. But no one had
discussed
12 potentially appearing at trial as a witness?

13 A. Not as yet, no.

14 Q. All right. And what is your
15 understanding of which companies you are

appearing on

16 behalf of in this matter?

17 A. My understanding is A.W.
Chesterton

18 represented by Mr. Kurowski.

19 Q. Have you been provided a
subpoena duces

20 tecum? A depostion -- the subpoena duces

tecum, it lists

21 several matters of documents that you have been
requested

22 to produce?

23 A. Yes, I am being shown it
this moment.

24 Q. Okay. Have you brought any
documents

25 with you which would be responsive?

0007

1 A. I have brought a copy of an
affidavit

2 which I issued, I don't recall the date...
Issued on the

3 -- sworn on the 23rd of August 2003. And there
is a CV

4 attached to that which is current at the 20th
of August,

5 2002.

6 I have two papers which I have
authored.

7 One of which is entitled, The Correlated
Measurements of

8 Airborne Asbestos Containing Particles and
Surface Dust,

9 published in 2000 in ASTM Special Technical
Publication

10 1342.

11 And a second paper from that
same published

12 book, International Organization For
Standardization

13 Methods For Determination of Asbestos in Air.

14 I, I also have here a Powerpoint

15 presentation with a number of slides on it,
photographs

16 and also video, sections of videos from Dr.
Longo's

17 videos.

18 And also a video entitled
Ultrasonication

19 of 7M Chrysotile by Fred Boelter and Eric
Chatfield,

20 produced on October 19, 2001.

21 Q. All right. And are those
copies that
22 you are going to leave with the court reporter
so that she
23 can forward them to us?
24 MR. KUROWSKI: Yes, Jeff. Those
are
25 extras, I will get them to you in any fashion
you desire
0008
1 after we finish.
2 MR. MUNDY: Okay. I would ask
you to go
3 ahead and Fed Ex them to my office, if you
would.
4 MR. KUROWSKI: That would be
fine.
5 MR. MUNDY: Super.
6 BY MR. MUNDY:
7 Q. Do you have any other
studies upon
8 which you are relying to form your opinions
which you have
9 not brought with you today?
10 A. Not that I can think of at
this time.
11 Q. Have you ever performed --
actually I
12 know the answer. If I can break that down for
you.
13 You have performed materials
type testing
14 on any different asbestos sample and asbestos
containing
15 materials through the years, correct?
16 A. Only the test which I refer
to in the
17 published paper and in the ASTM book.
18 Q. Okay. Well I don't have
that in front
19 of me, so I am going to have to ask you.
20 What materials have you tested
through the
21 years for anything to do with asbestos?
22 MR. KUROWSKI: Object to the
form. It is
23 kind of broad but go ahead.
24 BY MR. MUNDY:
25 Q. Dr. Chatfield, you have
tested
0009
1 materials through the years to determine

whether they have

2 asbestos in them, correct?

3 A. Over a large number of years

I have

4 done bulk sample analysis and routine analysis
for

5 building owners and others, yes.

6 Q. And you've also been sent
samples by

7 lawyers and companies in connection with
litigation to do

8 testing also, correct?

9 A. In a number of cases, yes.

10 Q. Okay. Let me ask you if you
have ever

11 tested a product for any of the following
companies. Have

12 you ever tested any Garlock products?

13 A. No.

14 Q. Have you ever tested any
A.W.

15 Chesterton products?

16 A. No.

17 Q. Have you ever tested any
Mundet Corp.

18 Company products?

19 A. What was the company?

20 Q. M-U-N-D-E-T. They made pipe
covers,

21 blocks and cement.

22 A. Not that it was ever
identified to me,

23 no.

24 Q. Okay. But you may have
tested pipe

25 covers, block and cement through the years and
just not

0010

1 known what brand it was?

2 A. Yes.

3 Q. All right.

4 A. When you say test, it would
have been

5 an analysis of the product itself as opposed to
doing

6 anything with it?

7 Q. Correct, right. Have you
ever tested

8 any Victor gaskets?

9 A. No.

10 Q. How about guardline glove?

Asbestos

11 gloves, have you ever tested those?
12 A. No.
13 Q. All right. You have tested
some raw
14 asbestos fiber samples through the years,
correct?
15 A. Some what?
16 Q. Raw asbestos.
17 A. Yes, I have done that with
Fred
18 Boelter.
19 Q. All right. Do you know the
sources of
20 the raw fiber that you have tested?
21 A. Well there was only one, it
was
22 referred to as 7M Chrysotile. I don't know
personally
23 where it came from.
24 Q. Do you know if you would
have tested
25 Calidria asbestos before?
0011
1 A. I have worked with Calidria
asbestos,
2 yes.
3 Q. And when you -- how many
times have you
4 tested Calidria asbestos?
5 A. Well, I have been using
Calidria
6 asbestos as a water standard, standard for
asbestos in
7 water since the mid '70s.
8 Q. And is -- do you take your
specimens
9 from a single sample that you received or have
you
10 received multiple samples through the years of
Calidria
11 asbestos?
12 A. First sample of Calidria
asbestos I
13 ever received was in the mid '70s. It was
provided to me
14 by a man by the name of Kuldip Chopra who used
to work at
15 Union Carbide in Niagara Falls and it was
provided in
16 connection with activities on an ASTM working
group for me
17 to prepare standards to be issued to the

members of that
18 working group.

19 Since then, I have received
samples of
20 Calidria, I think three or four different
grades, over the
21 years.

22 Q. When was the most recent
sample that
23 you received?

24 A. I believe it was last year.

25 Q. And who sent that to you?

0012

1 A. It came directly from the
King City
2 mine at my request.

3 Q. All right. Had you ever
found any

4 amphibole form fiber in any Calidria sample?

5 A. I personally have, have not
tested it.

6 Q. You have not tested to make
that
7 determination?

8 A. No.

9 Q. Okay. Would it be accurate
to say then

10 that you do not have an opinion of your own
personal

11 knowledge about whether Calidria fiber does or
does not

12 contain amphibole form asbestos?

13 A. I have not tested for
amphibole

14 asbestos in Calidria Chrysotile. So on that
basis, I

15 don't know.

16 Q. All right. Do you have an
opinion

17 about whether Calidria at any point in time has
ever

18 contained amphibole form asbestos?

19 A. Again, I don't know.

20 Q. Okay. Have you ever tested
any of the

21 asbestos from any of the other asbestos mines,
say in

22 Canada or Arizona?

23 A. I am in the process of doing
some

24 measurements, but they are not complete.

25 Q. And what would be the source

of that

0013

1 fiber?

2 A. UICC.

3 Q. Okay. Do you have an
opinion about

4 whether or not Chrysotile sources, from
wherever they may

5 originate, contain any amphibole form fiber?

6 A. I am sorry, I didn't
understand your

7 question.

8 Q. Okay. Is it -- I am asking
-- some

9 experts testify that they believe certain mines
do have

10 amphibole form asbestos and others do not. Is
that an

11 area within your expertise or no?

12 A. When I finish my work it
will be.

13 Q. As we sit here today, do you
have an

14 opinion on that?

15 A. Well we have -- the only
thing I can

16 say is we have detected tremolite in UICCB
chrysotile but

17 that is as far as we have got.

18 Q. Okay. And do you have any
19 quantification of the amount of tremolite in
the UICCB?

20 A. Not at this time.

21 Q. Do you know which mine the
UICCB sample

22 came from?

23 A. Well I don't recall the
actual year of

24 production, but the UICC Canadian, UICCB
chrysotile was

25 formulated from asbestos from a number of
Canadian mines

0014

1 and the amount into the mixture was in
proportion to the

2 production in that year.

3 Q. Okay. Tell me what studies
you have

4 performed either with or at the request of Fred
Boelter?

5 A. Well there is a study which
was the

6 disintegration of 7M chrysotile in water under
ultrasonic

7 treatment, which I did mention.

8 Q. Have you done any other
studies or work

9 either with or for Mr. Boelter.

10 A. I did receive a series of
bulk samples

11 to analyze. I can't remember the date now, but
it was

12 sometime this year.

13 Q. Would it have been in the
spring

14 sometime?

15 A. Probably.

16 Q. All right. And what was,
what task

17 were you asked to perform with respect to those
bulk

18 samples?

19 A. Routine bulk analysis to
determine the,
20 the type of asbestos and the amount of asbestos
in each of
21 the samples.

22 Q. And do you recall your
findings, in
23 general terms?

24 A. Well, in general terms, I
recall there

25 being amosite and crocidolite present, but I
can't recall

0015

1 the results in detail.

2 Q. Would it be fair to say that
there were

3 approximately ten different samples?

4 A. Again, I really can't
remember. It was

5 a number.

6 Q. Okay. And do you have a
memory that

7 most of the samples contained crocidolite?

8 A. No. I could say some of
them did, but

9 I wouldn't want to make that -- that would be
speculation

10 if I said anything else.

11 Q. All right. Do you have a
copy of your

12 findings from that work with you?

13 A. Not with me, no.

14 Q. All right. I am going to
ask you if
15 you would please provide a copy of that to Mr.
Kurowski so
16 he can forward that to us, okay?
17 MR. KUROWSKI: Well will take it
under
18 consideration, but I don't think, frankly, it
is going to
19 be a problem.
20 MR. MUNDY: Okay, that would be
great.
21 And, John. Let me say, Segal McCambridge has
forwarded
22 Fred Boelter's studies that came from that.
23 MR. KUROWSKI: I am generally
aware of it,
24 Jeff. And, as I said, I need to look at what
we are
25 talking about, but that is fine.
0016
1 MR. MUNDY: Okay.
2 BY MR. MUNDY:
3 Q. You have named two different
studies or
4 tasks that you have performed either with or
for
5 Mr. Boelter, are there any others, Dr.
Chatfield?
6 A. I don't believe so.
7 Q. Okay. Have you ever met Mr.
Boelter?
8 A. Yes.
9 Q. How many times?
10 A. Probably no more than four,
I would
11 think.
12 Q. And what were the
circumstances of
13 those meetings?
14 A. Well the very first time I
met
15 Mr. Boelter was, and I apologize I cannot
remember the
16 date here, but there was an instance of
contamination by
17 asbestos of a shopping mall in Denver, Colorado
and it was
18 a situation where a renovation project had
started and it
19 was later found that the material actually
contained

20 asbestos when they didn't think it did
initially.

21 And the question arose as to
what to do
22 about all the clothing that byn that time that
had

23 accumulated some dust in this shopping mall.

24 Q. The ones that were in
inventory you are
25 talking about?

0017

1 A. The ones that were hanging
up on the
2 racks in the stores.

3 Q. Okay.

4 A. So I was actually approached
by EPA at

5 that point to go to Chicago to meet with Mr.
Boelter and

6 TM analyst, who had done some work on the
clothing, to

7 give some advice on the methodology to EPA as
to whether

8 or not these measurements were, were reviable
in the sense

9 of appropriate measurement methods.

10 And I flew to Chicago and met
with

11 Mr. Boelter then and with the analyst who we
had been

12 using to do the work.

13 Q. And what did you conclude?
Was there a

14 methodology found or no?

15 A. Well in that case the
methodology

16 itself was sound enough, but the problem was it
was not

17 capable of producing the level of sensitivity
which was

18 needed.

19 Q. All right. And when is the
next time

20 you worked either with or had a meeting with
Mr. Boelter?

21 A. I am trying to think of what
came

22 first. I think possibly the next meeting was a
lunch

23 meeting which during a visit on a conference in
Chicago

24 Mr. Boelter asked if I could meet with him. We

had a
25 meeting over lunch.

0018

1 Q. What was the subject matter
of the
2 meeting?

3 A. To be honest, I don't
recall. I think
4 it was basically discussing analytical matters.

5 Q. And your next meeting with
Mr. Boelter?

6 A. I believe the next one would
have been

7 at the Johnson conference in Vermont. I don't
recall, I

8 think actually the next one might have been the
meeting in

9 Chicago to prepare the video that I have
referred to and

10 then the Johnson conference may have come after
that.

11 Q. What is the Johnson
conference?

12 A. The Johnson conference is a
conference

13 at which people can -- it is organized by ASTM,
and on

14 that occasion the topic was asbestos analytical
methods

15 and specifically relating, this particular
year, to the

16 World Trade Centre measurements, how to analyze
talc

17 samples and also how to analyze vermiculite.
And I

18 believe those were the three topics in that
particular

19 year. Mr. Boelter was at that conference.

20 Q. And any other meetings?

21 A. Only the one to prepare the
video which

22 I referred to.

23 Q. Okay. And I have not seen
the video.

24 If you would tell me what the video shows?

25 A. Well it shows what happens
to fragments

0019

1 of 7M chrysotile when it is placed in water and
then

2 subjected to ultrasonic treatment.

3 Q. And what happens?

4 A. It disintegrates.
5 Q. Okay. And is that in some
way
6 significant? What is the significance of that?
7 A. Well it illustrates the
effect of
8 ultrasonic treatment on aggregated chrysotile
and is
9 relevant in terms of using an indirect TM
specimen
10 preparation.
11 Q. So the bottom line is that
would go
12 towards the way in which a study was performed
but not
13 necessarily of any significance with respect to
its effect
14 in the human body?
15 A. I am not sure I understand
that
16 question.
17 Q. Does that have any
significance beyond
18 the manner in which you prepare an asbestos
sample?
19 A. It has significance in that
non
20 respirable fragments or aggregates of asbestos
that might
21 be on a filter will disintegrate and give rise
to large
22 numbers of fibers in an indirect specimen
preparation.
23 So we have a situation where a
fragment of
24 material which is too big to be respirable is
then in an
25 indirect preparation converted into fibers
which are of
0020
1 respirable dimensions.
2 Q. What, in your opinion, is
the size of a
3 fiber that is respirable?
4 A. The usual definition is
anything less
5 than three micrometers in diameter.
6 Q. And what about length?
7 A. Length it doesn't make -- it
is almost
8 independent of length.
9 Q. All right. Do you have an

opinion

10 about which length of asbestos fibers are the
most

11 significant in their biologic potential to
cause cancer?

12 A. No, that is not my area of
expertise.

13 Q. Do you have any opinions
about the

14 various fiber types and their relative potency
in the

15 production of cancer?

16 A. Only in the sense that I
have read what

17 other people have said about it. I don't have
any basis

18 for an opinion of my own?

19 Q. All right. And what is it
that you

20 have read?

21 A. Well over the years the
standards for

22 asbestos in some countries, including Canada,
have rated

23 the asbestos varieties with different airborne
standards

24 and chrysotile being the least -- the highest
airborne

25 standard, the amosite being the second highest
and

0021

1 crocidolite being the lowest?

2 Q. Meaning that on a spectrum,
chrysotile

3 being one end of the spectrum, amosite would be
a more

4 potent carcinogen, crocidolite would be a more
potent

5 carcinogen yet again?

6 A. I don't know that it is
necessary

7 carcinogen, but that is the way the
occupational standard

8 used to be here in Ontario.

9 Q. Do you believe that asbestos
is a human

10 carcinogen?

11 A. That is not my area of
expertise?

12 Q. I am asking do you have an
opinion on

13 it?

14 A. Well, I have seen the
biological
15 studies and the answer is yes.
16 Q. Okay. Do you believe that
each fiber
17 type is capable of causing cancer in human
beings?
18 A. I have seen information
regarding
19 amosite and crocidolite and I believe that the
chrysotile
20 question is not resolved. But that is, again,
my reading
21 of other people's work.
22 Q. All right. Do you have your
own
23 personal opinion on that subject?
24 MR. KUROWSKI: Object to form,
repetitious.
25 BY THE DEPONENT:
0022
1 A. Well, frankly, with
chrysotile -- I
2 have an opinion with crocidolite and amosite,
but I really
3 don't know about chrysotile.
4 Q. All right. Have you ever
tested any
5 gaskets for fiber type analysis, even though
you didn't
6 know the brand name? Have you analyzed just a
generic
7 gasket for fiber type?
8 A. I have to say I really don't
know. The
9 samples that I would normally receive would be
something
10 in a plastic bag and it wouldn't be identified
as to what
11 the functional purpose of the material was.
12 So it is entirely possible that
something
13 has gone through my lab and was a gasket, but I
wouldn't
14 necessarily know that.
15 Q. You couldn't identify just
some flat
16 sheetlike material and figure out that was a
gasket?
17 A. No. A flat sheetlike
material wouldn't
18 necessarily be a gasket.

19 So, as I say, something which
came in a
20 plastic bag to me for analysis, I wouldn't
necessarily
21 know.
22 Q. Okay. So just let me
restate it in a
23 clear manner.
24 You cannot affirmatively say to
your
25 knowledge that you have ever tested an asbestos
containing
0023
1 gasket. Is that an accurate statement?
2 A. That is fair, I just don't
know.
3 Q. Okay. Have you, to your
knowledge,
4 ever tested asbestos textile materials?
5 A. As a routine bulk analysis
sample, yes.
6 Q. Okay. Do you recall if an
analyzing
7 the asbestos textile material you found any
amphibole form
8 asbestos fiber?
9 A. Well certainly we would not
have
10 reported -- I am quite sure that we never
reported
11 amphibole in a textile material, but I do have
to say that
12 the testing procedures that we would normally
use for a
13 routine sample analysis to confirm to a client
that it
14 contained asbestos or didn't contain asbestos
would
15 generally not be sensitive enough to even find
it if it
16 was there.
17 Q. Okay. So maybe it was
there, maybe it
18 wasn't there. It is just you did not do the
type of
19 testing necessary to make that determination?
20 A. That is correct.
21 Q. All right. When you were
doing just
22 non-litigation type consultation, you have done
bulk
23 sampling. Do you normally do fiber type

analysis?

24 A. In bulk analysis?

25 Q. Yes, sir.

0024

1 A. Umm, yes. Yes, we do.

2 Q. And is there sometimes when
you do it

3 versus sometimes when you don't?

4 A. No, we always do.

5 Q. Always do?

6 A. We always report the fiber
type.

7 Q. All right. Is that
something that you

8 have only begun in later years?

9 A. No, we have always done
that.

10 Q. Since the 1970s?

11 A. Yes.

12 Q. Then I guess I need to back
up because

13 I am a little unclear as to why you would say
on the

14 textile that you had not done that type of
testing?

15 A. Umm, I did say that I had
analyzed

16 textiles.

17 Q. Okay. Well the same for
asbestos fiber
18 types?

19 A. Yes. And we would have
reported it as
20 it was.

21 Q. Okay. I must have
misunderstood

22 because I thought you were saying you didn't do
the type

23 of tests that was necessary to make that
determination?

24 A. No, what I said was that I
didn't do

25 testing sufficiently sensitive to find
tremolite if it was

0025

1 there.

2 Q. Okay. You've tested
materials which

3 you could identify as being a thermal
insulation product,

4 correct?

5 A. Yes.

6 Q. Okay. And of the thermal
insulation
7 product samples did you do fiber type analysis
on any of
8 those?
9 A. Yes.
10 Q. And did you find amphibole
form fibers
11 in any of those thermal insulation products?
12 A. Yes.
13 Q. Did you find it in all of
the thermal
14 insulation products?
15 A. No.
16 Q. Okay. Can you quantify for
me, if you
17 will, what percentage or number of the thermal
insulation
18 products you found amphibole form asbestos?
19 A. You mean how many times?
20 Q. Well, let's say if you
tested ten
21 different types of pipe coverings through the
years, did
22 you find amphibole form in nine out of the
ten? Ten out
23 of the ten?
24 A. I can't quantify that.
There are
25 specific varieties of -- we are taking pipe or
block
0026
1 insulation?
2 Q. Yes, sir.
3 A. Well there are specific
varieties some
4 of which contain chrysotile, only some of which
contain
5 amosite and chrysotile, some contain amosite on
its own.
6 Q. All right.
7 A. And some even contain all
three.
8 Q. All right. Well let's break
it down.
9 You are familiar with the 85
percent
10 magnesia variety?
11 A. I am familiar with it, yes.
12 Q. All right. Did you find any
amphibole
13 form fiber in the 85 percent magnesia?

14 A. Umm, I am not sure I can
answer that.
15 I think the answer is yes.
16 Q. All right. Would it have
been all
17 amphibole or a blend?
18 A. The most common one that we
see would
19 be a mixture of amosite with chrysotile.
20 Q. Can you give us the
approximate
21 percentages of each?
22 A. Well almost by definition it
would add
23 up to 15 percent total.
24 Q. Right.
25 A. Usually it is lower
chrysotile than
0027
1 amosite.
2 Q. Okay. Say 12 percent
amosite, three
3 percent chrysotile. Is that a fairly typical
blend?
4 A. It could be. We never
report numbers
5 that precisely because the only way you can get
precise
6 numbers is to do a precise graphometric
analysis. And
7 generally the question being asked is does it
contain
8 asbestos and if so how much and what kind?
9 Our results are always reported
in ranges,
10 so an analysis like that will be reported as
amosite ten
11 to 20 and chrysotile one to five.
12 Q. Okay. Why don't we just --
this will
13 probably help me speed up on a few of the other
questions.
14 Explain to me your reporting.
What method
15 you are using when you give those ranges?
16 A. Well, it is a visual
estimate based on,
17 partially based on experience. In the very
early days
18 people would report such a material as
containing a good
19 deal more asbestos than it really does.

20 An analyst can be convinced that
the
21 results that we now report are correct by doing
a simple
22 acid dissolution. It would have been, certain
labs would
23 report it to 70 to 80 percent in the past. So
one way of
24 convincing oneself that your visual estimates
are
25 over-estimates is to, as I say, take a sample,
do the

0028

1 visual estimate and then take another sample of
the
2 material, dissolve it in acid and weigh what is
left and
3 you will find that the total is more or less 15
percent
4 for the residue.

5 Q. All right. What type of
acid are you
6 doing that disillusion?

7 A. Hydrochloric.

8 Q. What concentration?

9 A. Around ten percent.

10 Q. Does that have any impact on
chrysotile
11 fiber?

12 A. Umm, yes.

13 Q. It will dissolve chrysotile
fiber at
14 that strength?

15 A. At that strength and cold.
It will

16 occasion as small change in or reduction in the
refractive
17 entities of the chrysotile but virtually no
weight change.

18 Q. How would you -- what
precautions would

19 you have to take when you have done that to
make sure you

20 are accurately assessing the chrysotile
component?

21 A. Well you wouldn't take any
precautions

22 other than limiting the exposure to about 15
minutes and

23 keeping the concentration of the acid down to
ten percent.

24 Q. Anything beyond that time

range or that

25 strength would tend to lower the amount of
chrysotile

0029

1 remaining in the sample?

2 A. Well it will effect it more
and more.

3 If you increase the time and if you also, if
you were to

4 boil it, then over a period of about an hour
there will be

5 no chrysotile left.

6 Q. Now in this most recent set
of samples

7 that Mr. Boelter sent you in the spring, were
you

8 instructed to specifically look for crocidolite
in those

9 samples?

10 A. I was -- I did receive an
instruction

11 that there was possibly crocidolite present and
they would

12 like me to confirm it.

13 Q. Okay. And you did find
crocidolite in

14 some number of the samples?

15 A. Yes.

16 Q. Do you remember what other
instructions

17 or information was given with respect to those
samples

18 that were sent to you?

19 A. I believe, you know I am
thinking back

20 now. I think the only other instruction I
received was to

21 use whatever methods I felt necessary to do the
analysis.

22 Q. Okay. I think there was
crocidolite in

23 it?

24 A. Well basically no. To use
any method

25 that I felt was necessary to produce a reliable
analysis.

0030

1 Q. All right. The primary
focus of the

2 analysis was to determine whether or not
crocidolite was

3 present?

4 A. I don't know. I was --
5 Q. As it was your instructions,
that was
6 the primary instruction or focus?
7 MR. KUROWSKI: Object to form,
repetitious.
8 Go ahead?
9 BY THE DEPONENT:
10 A. No. I was simply told that
there was a
11 suspicion that there was crocidolite present
and they
12 would like me to do the analysis by the most
reliable
13 methods I had to produce analysis.
14 But not -- I was not told
specifically to
15 concentrate on any particular variety.
16 Q. All right. And when you are
doing an
17 analysis do you have a choice in using your own
discretion
18 about methods you used to perform your testing?
19 A. Umm, if I am not given the
discretion
20 then I will not do the analysis.
21 Q. Right. Okay. So now when
you are
22 operating your own discretion, what are the
various
23 manners or methods in which you can analyse a
sample?
24 A. Well, polarize light
microscopy is the
25 standard method. If that gives sufficient
information
0031
1 that is the end of it.
2 There are certain specific types
of samples
3 which I will want to go further than that.
4 Q. Okay. What would make you
decide,
5 okay, I have enough information, no need to do
anything
6 further? Or I need to go to the next step?
7 A. Well if I have got a
confident
8 identification of the species present and
sufficient of
9 the asbestos species present such that it not
likely to

10 make any difference to a decision, if I am
going to be
11 reporting to a building owner, for example,
that something
12 has 20 percent chrysotile in it, such a
building owner is
13 not going to want me to spend a lot of money
telling him
14 that it is 15.5 percent rather than just making
my best
15 estimate of 20.

16 Q. Okay. Just getting into a
general

17 range would be adequate for most purposes?

18 A. For most purposes. The
usual

19 requirement is to be able to demonstrate it is
either

20 significantly less than one percent, not
detected. And

21 usually people don't care if it is demonstrably
well above

22 one percent.

23 Q. Okay. Whether it is five,
15, 20, the

24 real threshold issue is whether it is less than
one or

25 not?

0032

1 A. That is correct.

2 Q. All right. So what would be
the

3 circumstance in which you would have performed
the

4 polarized light microscopy and say this didn't
really give

5 me all the answers I needed, I am going to go
to the next

6 step?

7 A. Well, one area would be
floor tiles

8 where I wouldn't even do the polarized light
microscopy, I

9 would immediately go to transmission -- well
chemistry

10 plus transmission, electron microscopy.

11 There are other types of samples
where it's

12 difficult to make the identification that
asbestos is

13 present. You may have a suspicion, but you are
not able

14 to prove it by optical microscopy in which case
you would
15 go to transmission of electron microscopy to
make the
16 identification of the asbestos.

17 Q. All right. And so what
would the TEM
18 be able to do for you that is different than
analyzing
19 that sample?

20 A. Well if the fiber is too
small or they
21 are coated, where it is not possible to get a
confident
22 identification by optical microscopy by PLM, I
would then
23 move to TEM to identify a suspect asbestos or I
might use
24 TEM to confirm that there is no asbestos in it.

25 Q. All right. And is there
ever a
0033

1 circumstance in which that doesn't answer the
questions in

2 your mind and you will take other steps?

3 A. Uh, yes.

4 Q. And what would you do next?

5 A. Well in those kinds of
samples --

6 sorry. I may have misunderstood you there.

7 But the other circumstance which
would

8 cause me to take other steps is things like
plaster

9 samples where you might have concentrations
very close to

10 one percent and a decision has to be made one
way or the

11 other. So you're looking for accurate work in
the

12 vicinity of one percent and that requires a
procedure

13 which is the subject of another paper I put
into the ASTM

14 STP 1342 which was a means of analyzing low
concentrations

15 of asbestos in plasters.

16 Q. All right. And just in
short, what is

17 the methodology used in that circumstance?

18 A. Of plasters?

19 Q. Yes, sir.

20 A. It's rather
straightforward. It is to
21 take a weighed amount of material. Generally a
few grams
22 because the asbestos is not very homogeneously
distributed
23 in such materials.
24 To ash the sample at 485
centigrade to burn
25 off any organic fibers such as cellulose or
hair and
0034
1 confusing materials such as spider webs, which
have the
2 same optical characteristics as chrysotile.
3 Q. Spider webs do?
4 A. Yes.
5 Q. Hmm, okay.
6 A. So that removes all of those
confusing
7 materials and then we dissolve again in
hydrochloric acid,
8 ten percent, and stir it well during 15
minutes. And we
9 then sediment the suspension because the sand
falls down
10 to the bottom a lot faster than chrysotile
does, so you
11 can do a separation of most of the sand.
12 That leaves you with --
something with a
13 brown coat plaster will leave you something
about four
14 percent residue, which contains pretty well all
of the
15 chrysotile.
16 And then we use a size sensitive
point
17 counting method to quantify the amount of
chrysotile and
18 it is always chrysotile in this kind of sample.
19 Q. Um-hmm.
20 A. Quantify it by a point
counting
21 procedure.
22 Q. Would you be able to detect
the
23 presence of an amphibole form asbestos fiber in
this
24 scenario?
25 A. Uh, yes.
0035

1 Q. Okay. Are there any other
2 methodologies you use?
3 A. By methodologies there are
special
4 methodologies for vermiculite.
5 Q. Something where you know it
is
6 vermiculite going into it or once you are into
the
7 analysis then you start detecting the presence
of
8 vermiculite?
9 A. No, you know the vermiculite
is there
10 before you start.
11 Q. Okay. And what would you do
in that
12 circumstance?
13 A. In that circumstance, again
I would,
14 perhaps depending on the cleanliness of the
material, I
15 would put it through a muffle furnace and burn
off any
16 organic materials. I would then float the
vermiculite on
17 water and remove the floating fraction and just
look at
18 the material that is sedimented.
19 I might go, depending on the
nature of the
20 sample, I might use a heavy liquid separation
method which
21 is a technique where you, you put in the water
sediment
22 material after you have tried it, you put it
into a heavy
23 liquid which has a density such that amphibole
particles
24 sink and other materials float.
25 There are other things as well
as the
0036
1 amphibole that sink, but it allows you to get a
further
2 separation so that the amphiboles become more
concentrated
3 in the sample that you are going to be looking
at with a
4 microscope.
5 Q. Let me ask you this once we
are talking

6 about vermiculite. Do you believe that
vermiculite can be
7 an asbestos form fiber?
8 A. Not vermiculite itself, no.
9 Q. Okay. It can contain
asbestos form
10 fibers so some other thing like tremolite or
containment?
11 A. It can be associated with a
12 contaminant, yes.
13 Q. Has Mr. Boelter ever sent to
you the
14 collected samples from air studies for
analysis?
15 A. No. That is the only
analysis I have
16 done for Mr. Boelter.
17 Q. Okay. Have you ever
performed analysis
18 of collected air samples for asbestos?
19 A. Yes.
20 Q. And have you ever done that
at the
21 request of parties engaged in litigation or
would they be
22 non litigation?
23 A. I have done them for both.
I do
24 analysis of air samples, I don't generally go
out and
25 collect air samples myself.
0037
1 Q. Correct. The collected
sample is sent
2 to you for analysis?
3 A. Yes.
4 Q. Okay. When a sample is sent
to you,
5 all you know is here is the sample and you can
tell a
6 person the fiber type, and the fiber quantity,
all the
7 rest of the calculations would be dependent on
information
8 they collected on their end; the amount of time
the sample
9 was running, things of that nature, correct?
10 A. Umm, I can answer that by
saying a
11 routine sample would come in to me with the air
volume and
12 we would issue a report saying what the air

concentration

13 was of different types of asbestos or what the
detection

14 limit is that we are working to. It would be a
full

15 report giving all details of the analysis of
those

16 filters.

17 In other situations I have been
present at

18 air sampling, particularly in litigation
environments in

19 the US, and I have brought the samples home
with me and

20 done the analysis and issued the report in
which I may

21 have gone further in calculating average
concentration for

22 the building.

23 Q. Have you ever been present
when gasket

24 materials were tested?

25 A. No.

0038

1 Q. Have you ever been -- let me
ask you

2 this. For litigation related matters what types
of

3 products were tested when you were present?

4 A. I don't think I have ever

been present

5 in a situation where products were being tested
for

6 litigation purposes with me present.

7 The only example I think I have
of that is

8 the video which we prepared with Mr. Boelter.

9 Q. What does that video show?

10 A. It shows the disintegration
of 7M

11 chrysotile in water with ultrasonic treatment.

12 Q. All right. And that one
was, to your

13 understanding when you were doing it, being
conducted in

14 conjunction with litigation related activities?

15 A. Yes, that was my
understanding.

16 Q. Were any attorneys present
during that

17 testing?

18 A. No.

19 Q. Do you know who commissioned
that work?

20 A. Umm, I didn't know at the
time. I

21 believe it was Mr. Ray Harris, but I didn't
know that at

22 the time the tests were being done.

23 Q. On behalf of Garlock
companies?

24 A. Again I don't think I knew
that at the

25 time the tests were being done.

0039

1 Q. But as we are sitting here
today, you

2 do know that to be for Garlock Companies?

3 A. I believe that was for
Garlock.

4 Q. Now in a non-litigation
setting, have

5 you ever been present to see a specific product
tested?

6 A. Not that I can recall.

7 Q. All right. You certainly
have been out

8 into a just a normal work site or job site and
watched air

9 samples being taken in that scenario, correct?

10 A. Umm, not as a job site. I
mean I don't

11 know what kind of job site you are referring
to.

12 Q. Okay. Well tell me. Tell
me the

13 circumstances in which you have been out in
which air

14 sampling was performed to detect the presence
of asbestos?

15 A. I have been present at air
sampling on

16 a remediation site in Scarborough, Ontario,
which is just

17 the other side of the city, which was a
disposal area for

18 the Johns Manville asbestos cement pipeline
which was

19 being renovated as a development for housing
development.

20 I was present for some of the air sampling
there.

21 I did have a contract before I
left Ontario

22 Research Foundation in 1986, sometime before
that I had
23 received the contract from Johns Manville at
the time who
24 were under a court order from EPA to conduct
air sampling
25 at the Waukegan plant site in Northern -- I
think it is

0040

1 either -- Waukegan is either Illinois,
Wisconsin. I don't

2 know which.

3 MR. KUROWSKI: Illinois.

4 BY THE DEPONENT:

5 A. It is Illinois, okay.

6 And we collected air samples
there and

7 submitted a report to Johns Manville in
fulfillment of

8 that court order.

9 I have, in the very early days
of schools

10 building abatement in Ontario, been out to one
school and

11 took air samples to just reassure the people in
the

12 building that there was no asbestos in the air.

13 But I don't recall any others
specifically

14 other than litigation related visits in the US
where a

15 company called Intec, and that was one company,
another

16 company I was involved with was Hunter, would
take air

17 samples and they would take the samples of
locations that

18 I specified.

19 Q. Okay.

20 A. And I would do the analysis.

21 Q. All right. Now let me ask,
when I

22 started off you said you don't consider
yourself an expert

23 in the area of industrial hygiene. What would
you be

24 doing on site in the performance of these air
samples?

25 What is it you are doing that is different than
what a

0041

1 hygienist would do?

2 A. Well hygienist normally
would be
3 interested in personal samples. Everything I
did was area
4 samples and measurements really, in the
accordance with
5 the Ahera(ph) method, which I was part of the
committee
6 that wrote the method. And that would be a
question of
7 determining whether or not there was any
asbestos in the
8 air of a building in terms of responding to
litigation or
9 defending the defendant in that case.
10 What we are looking at basically
is indoor
11 samples and outdoor samples. I personally
would always
12 take -- like to get samples in the return air
system if I
13 could in order to get the best average for the
building
14 that it was possible to get.

15 Q. All right. So you, you
would -- I am
16 trying to put it in simple terms here.
17 You would make the decision
about where
18 those general area samples should be taken
from?

19 A. Yes.

20 Q. Would it be fair to say that
you can
21 have dust concentrations that vary widely, even
within one
22 area of a room, can be high in one area and
very low in
23 another in the same area of a room?

24 A. It can be. But the
measurements we
25 were making were all so low I wouldn't want to
make that

0042

1 kind of determination.
2 Q. Okay. I guess what I am
trying not to
3 get you to say is high or low in a particular
area but
4 there can be a wide variance on the dust
concentration
5 even in a single room?

6 MR. KUROWSKI: Object to the
form.
7 BY MR. MUNDY:
8 Q. Is that correct, Dr.
Chatfield?
9 A. Well it would depend on the
size of a
10 room to a large extent. I don't want to get
into
11 ventilation questions because that is not my
area. But it
12 would be possible to generate a high
concentration in one
13 corner of a room and it would be sometime,
perhaps, before
14 it spread elsewhere, but it depends on the
individual
15 circumstances.
16 Q. Okay. Just, and I think
these are self
17 evident but I just want to double check.
18 You may have a circumstance in
which a
19 product has a high concentration of asbestos
but if no one
20 is disturbing it, it may not emit fiber? That
would be
21 one potential scenario, correct?
22 A. Yes.
23 Q. And then you could have the
other where
24 a product may have a low concentration of
asbestos, and we
25 will say five percent as an example, but it is
highly
0043
1 disturbed and therefore may release a
significant quantity
2 of asbestos fiber, correct?
3 A. That could happen, yes.
4 Q. Okay. And you may have a
product which
5 by definition is friable but if not disturbed
may not emit
6 fiber, correct?
7 A. That is correct.
8 Q. And then, conversely, you
may have a
9 product which is generally considered to be
encapsulated
10 but it could be severely disturbed or upbraided
and it

11 would potentially release fiber, correct?
12 MR. STRELLITZ: Object to form.
13 BY THE DEPONENT:
14 A. Well, again, it would depend
on exactly
15 what you were doing to the product.
16 Q. But there are certain
circumstances in
17 which that could occur, correct?
18 A. Yes.
19 Q. Okay. The mere presence of
asbestos
20 containing materials in a room does not
necessarily equate
21 to a person breathing asbestos fiber from that
material,
22 correct?
23 A. That is correct.
24 Q. Do you have knowledge, from
any source,
25 about what asbestos containing products Victor
Davis or
0044
1 John Robinson were exposed to?
2 A. I don't even know the names,
so the
3 answer is no.
4 Q. All right. Have you seen
anything that
5 would have to deal with either of these
gentlemen's,
6 specifically, depositions, interrogatories or
things of
7 that nature?
8 A. What were the two names
again?
9 Q. Victor Davis and John
Robinson.
10 A. No, I don't believe so.
11 Q. All right. Have you ever
seen any
12 information with respect to what products were
on US naval
13 vessels, asbestos containing products on US
naval vessels?
14 A. I have seen no information
at all.
15 Q. What information have you
seen with
16 respect to asbestos containing gaskets?
17 MR. KUROWSKI: Object to the
form.

18 BY THE DEPONENT:
19 A. I don't believe I have seen
any
20 specific information at all.
21 Q. All right. And the same,
have you ever
22 seen any information with respect to asbestos
containing
23 packing materials?
24 A. No, I have not seen any
information.
25 Q. All right. Dr. Chatfield,
if you could
0045
1 just -- I don't have your CV, I have not seen
it in
2 advance, so I want to get just a little bit of
a sense of
3 your background then I think I will be done.
4 Can you tell me just in real
general terms
5 where you grew up, where you went to school and
your
6 professional background?
7 A. Well I grew up in England.
Which
8 probably is obvious. I went to Cambridge
University to
9 take their Natural Sciences Tripos degree,
which required
10 me to study physics, chemistry, mathematics and
mineralogy
11 and crystallography.
12 Q. And did you receive the
degree?
13 A. Yes.
14 Q. What degree and what year?
15 A. Well that was the --
Cambridge does it
16 differently. It was a Bachelor of Arts and
that was, that
17 would have been probably 1958.
18 Q. All right.
19 A. Now that changes after a
couple of
20 years, that changes to Master of Arts, you
don't actually
21 do anything more for it.
22 Q. All right?
23 A. It just changes.
24 Q. Okay.
25 A. And then I then left.

0046

1 Q. Do you consider yourself to
have a

2 Masters of Arts at this point?

3 A. Well that is what it says.

4 Q. Okay.

5 A. Then I left Cambridge and
went to work

6 at an Atomic Energy Authority establishment at
Aldermaston

7 in England, and I worked there for nine years.

8 Q. What were you doing there?

9 A. I was doing work on nuclear
safety,

10 specifically the storage safety of nuclear
weapons and the

11 simulations of what might happen if we had a
meltdown of a

12 plutonium fuel reactor.

13 Q. All right?

14 A. Largely doing particular
work. I was

15 concerned with generation of particular to
dispersion of

16 that particular.

17 We did field studies in
Australia. I was

18 in Australia for three times doing that kind of
work. The

19 third time I was actually doing the
radiological survey to

20 return the test range to the Australians.

21 And my lab work in those days
was connected

22 with generation of particular from vaporizing
plutonium

23 metal with metal such as sodium. I published
several

24 papers and by the time I emigrated to Canada to
go to the

25 Ontario Research Foundation, I was able to
submit those

0047

1 papers to Cambridge under a program for an
external Phd.

2 They had initiated a program
where you

3 could submit published papers as your thesis
and then you

4 had to go to Cambridge and defend the thesis in
much the

5 same way as you normally do if you did it

in-house so to

6 speak.

7 Q. All right.

8 A. So I received that degree, I think it

9 was 1971, I think.

10 Q. Phd is 1971?

11 A. I think it is. It is on my CV the

12 exact date. It is 1970 or '71.

13 Q. I apologize since we are not in the

14 same room physically I can't see that, that is why I am

15 just asking you a little bit about this general background?

16 A. Sure.

17 So in 1968 I came to Canada to the Ontario

18 Research Foundation to run their optical -- or their

19 electron microscope lab but it had optical facilities as

20 well.

21 Q. What type of facility is that?

22 A. Electron optics. Electron --

23 Q. Is that a governmental entity or a

24 research facility?

0048

1 A. No. Well it was always described as a

2 private non-profit research establishment which rather

3 like Batel(ph) in the United States.

4 Q. All right.

5 A. We got a government grant to help us

6 with research activities, but we were expected to get

7 contracts and service work from industry.

8 The establishment was primarily formed by

9 the Canadian Manufactures Association to provide research

10 facilities for those small companies in the province that

11 couldn't afford their own facilities.

12 So companies would come to us for problem

13 resolving in their activities and that would
range from,
14 oh, finding what the black spot was in a piece
of plate
15 glass and that kind of thing.

16 And pretty soon asbestos became
active, and

17 I analyzed some air samples from a school
playground in

18 west of the city here near the Johns Manville
plant and

19 then --

20 Q. When was it you first became
involved

21 doing that asbestos analysis?

22 A. Probably around 1972.

23 Q. All right. And who was it
that was

24 asking you to do that analysis?

25 A. That would have been the
Ministry of

0049

1 the Environment in Ontario.

2 Q. All right.

3 A. And then the topic of
asbestos in water

4 became an issue and we did some measurements in
Ontario in

5 about, I can't remember around 17 or 18
different

6 communities.

7 And then the EPA were interested
in this

8 and we began to talk to EPA. They sent us some
samples to

9 analyze from Thunder Bay, and we competed and
got a

10 contract to analyze samples on behalf of EPA
from Lake

11 Superior, with respect to the dumping of mine
tailings by

12 the reserve mining company in Duluth. So that
was running

13 for about three years.

14 And then we realized the
analytical methods

15 for asbestos in water were not that good and we
received

16 contracts to study the methods that were being
used and

17 that resulted in another contract where we
ended up

18 writing the US EPA analytical method for
determination of
19 asbestos in water. And that method still
stands today.

20 Q. Okay. And other than the
two papers

21 you mentioned at the beginning, have you had
any other

22 peer reviewed type publications dealing with
asbestos?

23 A. Umm, quite a lot. I think
there is

24 about 60 of them.

25 Q. Okay. Those are all on your
CV?

0050

1 A. Yes.

2 Q. Okay. And when did you set
up your

3 current business, Chatfield Analysis?

4 A. Chatfield Technical
Consulting Limited.

5 I think it was 1986, just when I left ORF.

6 Q. What made you decide to
leave and start

7 this private consulting business?

8 A. Well I had been thinking
about it for

9 some time but the organization, like many
organizations,

10 got a little unpleasant to work for and I was
looking for

11 other venues where I could work and be happy
with what I

12 am doing.

13 Q. Yeah, be your own boss?

14 A. Yes.

15 Q. Okay. Dr. Chatfield, I
believe that is

16 all I have for you. Thank you so much for your
time this

17 morning?

18 MR. KUROWSKI: Thank you, Mr.
Mundy.

19 No one else, I assume?

20 --- WHEREUPON MATTER ADJOURNED AT 12:30 P.M.

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0051

1 CERTIFICATE OF REPORTER
2
3 CANADA)
4
5 PROVINCE OF ONTARIO)
6
7 I, LISA BAKER, the officer before whom the
foregoing
8 deposition was taken, do hereby certify that
the witness
9 whose testimony appears in the foregoing
deposition was
10 duly sworn by Sharon Giraud, General Manager of
Atchison &
11 Denman Court Reporting Services Ltd.; that the
testimony
12 of the said witness was taken by me to the best
of my
13 ability and thereafter reduced to typewriting
under my
14 direction; that I am neither counsel for,
related to, nor
15 employed by any of the parties to the action in
which this
16 deposition was taken, and further that I am not
a relative
17 or employee of any attorney or counsel employed
by the
18 parties thereto, nor financially or otherwise
interested
19 in the outcome of the action.
20
21

22 LISA BAKER
23 Computer-Aided Transcription
24
25

0052

1 CORRECTIONS
2
3 PAGE LINE CORRECTION
4

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23 WITNESS SIGNATURE

24

25 (PRINT NAME)