

24 and chlorine come out which can screw up looking at
25 a filter.

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1 And once you are done preparing the filter
2 that way then you let the filter dry, you mount it
3 on a disc with this colloidal paste which glues it
4 down. Then they use some sort of a coating
5 material. In our lab we typically use platinum
6 coater to coat it so that electrons don't build up
7 and it degrades the image, so it's basically a
8 conducting material that allows electrons to run
9 off.

10 And then you put it in the scanning
11 electron microscope. We typically count -- with a
12 screen magnification of 1300X -- count a hundred
13 fields, separate fields, or 200 fibers, whichever
14 comes first. These days it's mostly a hundred
15 fields before you get to, long before you get to 200
16 fibers. Although, we still see a case. I saw one
17 the other day that had 200 fibers in seven fields.

18 Q What kind of case was that? I'm sorry?
19 What kind of exposure was that?

20 A It turned out it was fibrous talc. This
21 guy had talc in his lungs that looked just like
22 noncommercial amphibole fibers, and it was an
23 amazing case. Anyway --

24 Q Sorry, carry on. I apologize.

25 A And then we calculate the asbestos content

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1 of the tissue. We count the fibers, both coated and
2 uncoated types, measure the fiber types, and then do
3 calculations to report the number of fibers per
4 filter, on the whole filter, and then relate that to
5 the amount of tissue that went into it so you can
6 calculate how many are present per gram of tissue.

7 For paraffin you have to use a correction
8 factor because the tissue has, once it's been
9 paraffin embedded and then removed from paraffin,
10 you have less tissue than you started with because
11 paraffin removed the lipids, all the fats, from the
12 tissue, so it takes about 30 percent of lung tissue
13 out of it when you paraffinize it, so we use a
14 correction factor of .7 for that.

15 Q Okay. Is that what you are doing when you
16 are not here? Do you do these things, or does
17 someone else do this stuff?

18 A The preparation technique is done by
19 laboratory members under my supervision. I do the
20 actual counting part on the filter.

21 Q Is it important to make sure that the
22 counting is done by the same person every time?

23 A Well, it helps. If you don't do that what
24 you need to do is have a training process, I think
25 Dr. Abraham has done this, you have to have a

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1 training process where you and the person who is
2 doing the counting look at and do the same cases
3 independently for a period of time to make sure that
4 the other person is doing things the same way you
5 would. And at that point in time then you can allow
6 the other person to do it. I did that in my
7 laboratory with five different trainees that I've
8 had that have gone through.

9 Q Okay. So that is to say, then, that
10 sometimes in the samples that are being analyzed in
11 your lab you are not actually the one doing the
12 counting, right, that you've got trainees, at least
13 -- do you have one or all five right now who are
14 doing this?

15 A No, I just had one for a year in the past
16 starting in, I think it was in 1997 with Tom Sporn.
17 Dr. Tom Sporn was the first one.

18 Q Nowadays is there anybody else in your lab
19 who does the counting besides you?

20 A No.

21 Q But there was a period of time where some
22 of the counts that come out of your laboratory that
23 go into your work were done by Dr. Sporn and not by
24 you. True?

25 A Yes, in part. I think that in all of the

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1 cases with my trainees that I at least sat down at
2 the beginning with them to see what was on the
3 filter and what they were counting and finding so I
4 had an idea so when I saw their final number I would
5 know whether it made sense or that it didn't based
6 on what we had looked at initially together.

7 Q When you say all your trainees, maybe I
8 misunderstood, I thought that we had established
9 that in terms of what is reported in your published
10 work that you or Dr. Sporn were the only people that
11 counted the fibers?

12 A No. I had five people in my lab.
13 Dr. Sporn was the first. Dr. Oury was the second.
14 Dr. Anu Sharma, who is at the Pittsburgh V.A. was
15 the third. Dr. Kelly Butner at Vermont was the
16 fourth. And Dr. Annabelle Mahar was the fifth. Of
17 those, the only one who is actively doing counting
18 that I know of is Dr. Tim Oury.

19 Q Still doing counting in your lab you mean
20 or actively anywhere?

21 A Not in my lab but in their lab.

22 Q Okay. It doesn't sound very glamorous so
23 I'm not surprised that they are not doing it.

24 A It's tedious.

25 Q So that it's fair to say that that

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1 process, although you've taken some steps to try to

2 eliminate it, there's some subjectivity to the
3 counting?

4 A Yes.

5 Q And that's because -- well, what are the
6 sources of the subjectivity in the counting?

7 A The most subjective is how to define a
8 fiber. And the fiber definition that is used, we
9 use the NIOSH definition which has to have at least
10 a 3 to 1 aspect ratio with roughly parallel sides.
11 And there are some structures you'll run across
12 where it's really debatable. Are these roughly
13 parallel sides or not? How far can you deviate from
14 parallel and still be roughly parallel?

15 Fortunately, almost all of the structures
16 that are debatable in that regard are not asbestos,
17 they are the nonasbestos middle fibers. The
18 asbestos ones, they pretty much follow right down
19 the line of that criteria of 3 to 1 at least and
20 parallel sides.

21 Q You mentioned talc, for instance, a minute
22 ago and there was a case where you thought there was
23 asbestos but it turned out to be talc. So talc is
24 one of those minerals where you have an issue with
25 counting where you might counting talc and thinking

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1 it's asbestos? Is that -- or is talc like that
2 asbestos?

3 A No and no. It's not an issue that you
4 think you are counting asbestos, but we try to count
5 all the fibers that meet the regulatory definition
6 of a fiber. And what I'm saying is the ones that
7 are borderline or where they meet the definition are
8 usually nonasbestos anyway. So we really don't
9 care. If you get a case that one day you might call
10 it a fiber, the next day not, it doesn't make any
11 difference because it's not asbestos anyway.

12 And the second part of that, was the talc
13 in that case asbestos? Not by definition. It
14 doesn't fit under the mineralogic definition of
15 asbestos, but its morphology would be such that you
16 would expect it to behave very much like asbestos.

17 Q And the miner -- I was going to mineralogy
18 because I was corrected by Arthur Langer once that
19 it's not mineralogy. I'll say mineralogy, because
20 you do. The mineralogy of talc, is there some talc
21 that's asbestos and some talc that's not? I don't
22 understand that.

23 A No, but we use -- we say the word mineral,
24 so mineral, so mineralogy is okay.

25 Q I'm on your team on that one. I just --

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1 A You'll have to fight with Dr. Langer on
2 that issue.

3 There is fibrous forms of talc. There's

4 platy forms of talc and there's granular forms of
5 talc. The fibrous forms in some instances can have
6 aspect ratio and other morphologic features that
7 overlap substantially with asbestos, particularly
8 the noncommercial amphiboles.

9 Q Did the talc that you saw in that count
10 where you saw so many that you, I think it was eight
11 fields, did that cause the mesothelioma that you
12 were looking at?

13 A It wasn't a mesothelioma case.

14 Q Oh, okay. Lung cancer?

15 A Lung cancer.

16 Q Did it cause the lung cancer?

17 A I think so.

18 Q So it didn't matter whether it was
19 asbestos or not, the fibers that were there caused
20 the cancer?

21 A I think so in that case, yes.

22 Q Now, in terms of your numbers of controls
23 that you have identified -- 25?

24 A Twenty.

25 Q Twenty. In the 20 controls that you

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1 identified did you run blanks with those?

2 A We did run blanks, we didn't necessarily
3 run blanks with every case.

4 Q Which ones did you run blanks with, if you
5 know?

6 A I don't recall, I don't know.

7 Q Is that reported in the paper?

8 A I don't think so. I think what is
9 reported in the paper is that we did run blanks.

10 Q It is? Okay.

11 A I think so.

12 Q It would be important to run blanks with
13 your controls so that you know that what's in your
14 controls is not the subject -- is not the source of
15 contamination. True?

16 A Yes. And particularly if you are finding
17 differences from one control case to the next. For
18 example, if you run a blank and you find no fibers
19 and you do your control and you find X number of
20 tremolite fibers, and you run your next control
21 without a blank but you are finding X number of
22 tremolite fibers, very similar to the one, unless
23 you are getting something you weren't expecting,
24 then I don't think it's necessarily that you would
25 require blanks every time.

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1 Other labs might do it differently. I
2 think Dodson's lab typically runs a blank with every
3 specimen. At least that's the information I get
4 from his report.

5 Q Okay. In terms of that, you'd be better