

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,	.	
	.	
Plaintiff,	.	Docket No. CA CA99-02496
	.	
v.	.	
	.	
PHILIP MORRIS USA, et al.,	.	Washington, D.C.
	.	November 30, 2004
	.	
Defendants.	.	
.	

VOLUME 36
MORNING SESSION
TRANSCRIPT OF BENCH TRIAL PROCEEDINGS
BEFORE THE HONORABLE GLADYS KESSLER,
UNITED STATES DISTRICT JUDGE

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1 P R O C E E D I N G S

2 (9:30 a.m.)

3 THE COURT: Good morning, everybody. And we are going to
4 finish this witness's testimony today and finish cross this
5 morning, and maybe the government will cut back on its projected
6 redirect. All right. Counsel, please proceed.

7 MR. SHEFFLER: Thank you, Your Honor.

8 CONTINUED CROSS EXAMINATION OF JACK HENNINGFIELD, Ph.D.

9 BY MR. SHEFFLER:

10 Q. Dr. Henningfield, good morning.

11 A. Good morning.

12 Q. We looked at a couple of the ISCSH reports yesterday and
13 I want to look at the fourth ISC report today, if we could have
14 that as JD 00656. And you can see, Doctor, that the Department
15 of Health of the U.K. government adopted the report and
16 recommendation of the committee, and published the report
17 itself; is that true?

18 A. It looks like it from the cover.

19 Q. And if you look at the third page, this report was
20 published in 1988. Do you see that?

21 A. Yes.

22 Q. I'd like you to turn to page 53, if you could. That's
23 the appendix. Do you see appendix 3 addresses the machine
24 testing of tar yields from cigarettes?

25 A. Yes.

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1 Q. And it goes through the machine testing regimen that was
2 used in the U.K., the ISO Method, which was very similar to the
3 FTC Method, right?

4 A. Yes.

5 Q. And I'm directing your attention down to the paragraph
6 and the sentence that begins: "These parameters" --

7 A. My screen isn't working.

8 Q. Oh, I'm sorry.

9 A. Thank you.

10 Q. Okay now?

11 A. Yes, it wasn't turned on. I'm sorry.

12 THE COURT: I had a feeling. Sometimes it's that simple.
13 Not always, but sometimes.

14 MR. SHEFFLER: Thankfully it was this time.

15 BY MR. SHEFFLER:

16 Q. "These parameters" -- and that's the ISO parameters of 35
17 mills, et cetera -- "having criticized as not reflecting average
18 human behavior and leading to published yields universally under
19 estimating yields actually obtained by the average smoker." And
20 you were aware that there were such criticisms of the FTC and
21 the ISO Methods, right?

22 A. Yes.

23 Q. "Critics of the machine smoking procedure have frequently
24 failed to understand that values presented in tables published
25 by the DHSS" -- that's the Department of Health in the U.K. --

1 "have never intended to be actual yields obtained by any one
2 smoker. Rather, they enable brands to be ranked."

3 And you understand that that was the same purpose in the
4 FTC when they adopted their test. It wasn't to estimate what a
5 smoker would get, it was simply a way to rank brands, which ones
6 are higher, which ones are lower; is that correct?

7 A. That's what I've testified.

8 Q. Okay. So, going on down to the sentence "accepting that
9 the purpose of the DHSS published table is to rank brands, it is
10 proper to ask to what extent, if any, would the order of ranking
11 change if the standard machine smoking parameters were adjusted
12 to others reported as being more representative of human
13 behavior."

14 So what they're asking is, if we changed the parameters to
15 reflect what was being reported as changing in smoking behavior,
16 how would that effect the ranking of the cigarettes, right?

17 A. Yes.

18 Q. Would the low ones still be low; would the high ones
19 still be high, right?

20 A. Correct.

21 Q. "The ISCSH commissioned work by the laboratory of the
22 Government chemists" -- that's the U.K. government chemists,
23 correct?

24 A. Yes.

25 Q. "To investigate this question." And were you aware of

1 that?

2 A. Yes.

3 Q. Turn to page 54, then, the next page, and we can see what
4 the results of their study were. The principal study then
5 examined 24 typical cigarette brands and the effect of
6 simultaneous change to plausibly different values of the puff
7 parameters, duration, frequency, volume, the things that people
8 do when they compensate for smoking, changing brands, right?

9 A. Correct.

10 Q. So they looked at that and the effect it would have on
11 the mainstream yields of tar and nicotine and carbon monoxide.
12 The detailed findings from the extensive series of measurements
13 made will be published elsewhere, and they were published,
14 weren't they?

15 A. Yes.

16 Q. But the main conclusion was that altering smoking machine
17 parameters, within the range of human smoking patterns, does not
18 substantially alter the ranking positions of the brands as
19 currently published in the U.K.. Now you were aware of that,
20 weren't you?

21 A. Yes, I am.

22 Q. So even if we change the smoking parameters to reflect
23 how smokers smoke when they compensate, the lowest cigarettes
24 are still going to be the lowest, the highest are still going to
25 be the highest, and the ones in the middle are still going to be

1 in the middle, right?

2 A. Not from the perspective of human exposure necessarily or
3 meaningful exposure. But in terms of if you just line up the
4 dots, I concur with the report that it would not substantially
5 alter ranking, but they're just focusing on the machine values
6 and, again, not what people get.

7 Q. But they're looking at the machine values as adjusted to
8 reflect how people smoke, right?

9 A. Yes, but the different cigarettes still are not giving
10 people meaningfully different levels, except at the extreme case
11 of the Ultra Lights.

12 Q. Well, the same thing has been done in the U.S., hasn't
13 it, with the FTC Method?

14 THE COURT: I want to go back to that answer. If the
15 purpose is for the consumer to have ranking so that they can make
16 comparisons, not in terms of absolute amounts, in terms of
17 comparisons, then isn't -- then do you have any disagreement
18 that -- with the conclusion that altering the smoking machine
19 parameters doesn't really make any difference; it may make a
20 substantive difference, as I understand it, in terms of the
21 actual amounts that are reported, but from the consumer's
22 viewpoint, does it make any difference in terms of the consumer
23 being able to compare what brands she wants to buy?

24 THE WITNESS: I think a big difference, and very briefly,
25 the intent was to help consumers get lower exposures that would

1 reduce risk of disease. That goes back to the '64 Surgeon
2 General's Report. This was intended to help people make that
3 decision. It would be a little bit like low fat cheese has 100
4 grams, let's say, of X, and then there is another type that gave
5 you 98 grams, and you could say, yes, that's lower, and the next
6 lower one is 97 grams, but that's a meaningless difference, even
7 though it's accurate and reliable by a machine test and you can
8 say it does go down, it's a meaningless difference. With EPA you
9 do get overall lower gas mileage, you know, with a 20 versus a 10
10 EPA estimate car, that's pretty reliable even though the
11 estimates vary. In this case, what Benowitz Study, and then many
12 other studies showed, is that if you looked at actual intake of
13 people, there was virtually no difference at all in intake. And
14 it wasn't just that the ranking was off a little bit, it was
15 that, for example, the Marlboro Light, according to the
16 Massachusetts data can get -- give you about three times as much
17 nicotine as it was rated, and more than twice as much as the
18 Marlboro regular, so it's off by several orders of magnitude, but
19 most importantly, it is just -- if consumer says, okay, I want to
20 get lower tar and nicotine and they pick a light versus a
21 regular, they're not getting biologically meaningful lower tar
22 and nicotine.

23 THE COURT: Would it be correct to say that even though
24 the ratings still exist for comparison purposes, your concern is
25 that the ratings do not reflect the magnitude of difference

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1 between the different cigarette brands tested? Is that an
2 accurate way to put it?

3 THE WITNESS: Yes, and it's even worse. There is no
4 meaningful difference in exposure to people. It's like 1 gram of
5 cyanide kills you, a half a gram of cyanide will kill you, even
6 though I've reduced it by 50 percent, so it probably wouldn't be
7 good to say, well, I'll use the half gram of cyanide because it's
8 not as bad. And for food, if you want to put a light label on
9 Kraft Cheese or Oreos, or whatever --

10 THE COURT: Oreos, I don't think there are any light
11 Oreos.

12 THE WITNESS: No, there are, I've eaten them, they're not
13 bad.

14 But it has to be a meaningful difference, and the FDA sets
15 standards for what is a meaningful reduction, not just any
16 reduction enables you to call it "light", it has to be a
17 reduction that the consumer who says I want to have light Oreos
18 because I want to get less fat and less whatever, if they eat
19 them, they'll actually get less, something that is plausibly
20 meaningful. All this, the chemist did was confirm that the
21 machine test, if you crank up the parameters, things don't change
22 too much, but what U.K. realizes now, what U.S. realizes, the
23 World Health Organization realizes is that it is still a
24 meaningless difference. And that's why --

25 THE COURT: I understand.

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1 THE WITNESS: -- the resistance to even using the word
2 label -- I'm sorry, the label "light" cigarettes.

3 THE COURT: All right, Mr. Sheffield.

4 BY MR. SHEFFLER:

5 Q. Yes. Just following up with that, Doctor, you said that
6 what the U.K. realizes and whatever, at this time in 1988, the
7 U.K. recommended, or the ISC recommended and the Departments of
8 Health adopted the recommendation that the government and the
9 tobacco industry should consider what further action could be
10 taken to persuade more smokers to favor low-tar brands. That's
11 one of the recommendations that was made in the report at the
12 summary and recommendations section and the U.K. government is
13 still recommending that and is still in their tar modification
14 program today advocating lowering the yields of cigarettes as
15 measured by the ISO Method; isn't that true?

16 A. It's true. The U.K., European Union, I think the -- but
17 it's a much more complex story than what you're alluding to.

18 Q. You also talked about the Massachusetts Study, the
19 benchmark study. That study looked at the same issue that the
20 U.K. government was looking at in 1988 very recently, haven't
21 they?

22 A. Yes.

23 Q. And they tested the cigarettes with parameters that would
24 be more like compensatory smoking parameters, didn't they?

25 A. Yes.

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- 1 Q. They used the 50 percent blocking of the vent holes?
- 2 A. Yes.
- 3 Q. They increased the puff size from 35 mills to 45 mills,
- 4 right?
- 5 A. Yes.
- 6 Q. And they decreased it, the puff interval from a minute to
- 7 30 seconds, correct?
- 8 A. Yes.
- 9 Q. And in that study the full flavor cigarettes were still
- 10 higher than the light cigarettes; the light cigarettes were
- 11 higher than the ultra light cigarettes; and the ultra light
- 12 cigarettes were still the lowest, correct?
- 13 A. Well, no, not quite. Virtually every light, and I'm
- 14 going to say virtually because I'm not sure which exceptions
- 15 there are, was -- fell in the range of their highest band. They
- 16 set up a high medium and a low band, and virtually every light
- 17 cigarette fell within the same band range as the regular
- 18 cigarette.
- 19 Q. Well, they have -- the data they reported, the lights
- 20 group, had a lower tar yield than the full flavor group?
- 21 A. The numbers were slightly lower, but the difference was
- 22 so little that the state placed virtually all, if not every
- 23 light cigarette on the market, in the upper band, and the only
- 24 cigarettes that fell in the lower band were the -- some of the
- 25 Ultra Lights. I don't of the table in front of me.

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- 1 Q. Well, there were three bands?
- 2 A. Yes.
- 3 Q. And so they had four groups of cigarettes they had to put
4 into three bands, right?
- 5 A. Yes.
- 6 Q. Okay. If we turn to the next page, the top of the page,
7 it gives the conclusion of the ISC, which was adopted by the
8 Department of Health in the U.K.: "From this and other studies,
9 it does appear probable that in purely numerical terms the
10 yields given by the standard procedure are lower than would be
11 obtained using parameters somewhat near to certain reported
12 current human averages" and that's exactly what Her Honor was
13 asking you about.
- 14 "However, until evidence is forthcoming that a change in
15 actual numerical value by a factor two to three times, is more of
16 a deterrent of smoking than the present machine smoking
17 parameters remain perfectly satisfactory for the purpose for
18 which they are presently used." In other words to rank
19 cigarettes, correct?
- 20 A. That's what it says.
- 21 Q. And today the U.K. government still adopts that rank?
- 22 A. It has not changed it yet.
- 23 Q. Now, you talked a little bit on your direct testimony in
24 Court about the overwrap and the fact that there were tobacco
25 under the overwrap. Do you recall that?

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- 1 A. Yes.
- 2 Q. And the question of whether the FTC Method or the
3 ISO Method smoked cigarettes to an appropriate butt length has
4 been reviewed in a number of studies, hasn't it?
- 5 A. Yes.
- 6 Q. And if you look at the last paragraph, it was reviewed
7 here in this report once again, and it says that "reported
8 studies investigating the average butt length left by smokers
9 have indicated that smokers have a tendency to discard their
10 cigarette leaving a longer butt than used in a standard machine
11 procedure." Do you see that?
- 12 A. Yes.
- 13 Q. "Yields increase progressively towards the butt end of
14 the cigarette" -- and that's what you told U.S. about in your
15 direct -- "and therefore, by terminating at a longer butt
16 length, the smoker could offset some of the potential difference
17 in yields between those obtained by the present standard machine
18 procedure and some reported estimates of yields obtained by the
19 average smoker", correct?
- 20 A. Yes.
- 21 Q. That's what it concluded?
- 22 A. Yes.
- 23 Q. And it didn't change the parameters for butt length, did
24 it?
- 25 A. No, they didn't.

1 Q. I want to ask you a few questions about ventilation,
2 Doctor. In your testimony, again, in Court on direct, you
3 described the vent in the Marlboro Light and took the filter
4 apart and showed U.S. the Marlboro Light vent holes, correct?

5 A. Yes.

6 Q. And you described how those could be blocked by lips or
7 what have you, do you remember that?

8 A. Yes.

9 Q. Dr. Kozlowski, who you recognize as an expert in the area
10 of cigarette design as relates to compensation, he is, isn't he,
11 he wrote a chapter on cigarette design in the Monograph 13 that
12 you reviewed, right?

13 A. Correct.

14 Q. And in that chapter he actually talked about some of the
15 studies he has done on Marlboro Lights, didn't he?

16 A. Yes.

17 Q. And what he found when he looked at what happens when
18 cigarettes block -- excuse me, when smokers block ventilation
19 holes in Marlboro Lights with their fingers or with their lips,
20 what he found was it made no difference to the yields; isn't
21 that true?

22 A. You, wait, you mean whether they blocked with their
23 fingers or lips?

24 Q. Well, whether they blocked, regardless of how, whether
25 they blocked the vent holes, he found that the results in the

1 yields were surprisingly similar to unblocked?

2 A. It depends on the study and the study technique. He and
3 others have done studies that have shown that yield on a puff by
4 puff basis is related to blockage. He's also looked at
5 conditions under which it makes less of an impact.

6 Q. Well, let's look what he said in the Monograph 13, which
7 is U.S. Exhibit 58700. Just so we're clear, Kozlowski has been
8 reviewing the issue of vent hole blocking and cigarette
9 compensation for quite a few years, hasn't he?

10 A. Yes.

11 Q. He's the one who developed the stain technique that you
12 also told U.S. about on your direct, right?

13 A. Yes.

14 Q. And he was the one first published about this issue and
15 he's been published up until the Monograph and subsequently,
16 hasn't he?

17 A. Yes.

18 Q. And if you look at page 24 of the Monograph, you get down
19 to the third full paragraph, you see that Sweeney and Kozlowski
20 in a paper published in 1998, did a study that examined the
21 effect of blocking the filter vents of the best selling filter
22 brand, Marlboro Light, do you see that?

23 A. Yes.

24 Q. And they looked at CO boost, that's carbon monoxide
25 boost, right?

- 1 A. Yes.
- 2 Q. And Dr. Kozlowski uses carbon monoxide when he checks for
3 vent blocking because ventilation has the most effect on carbon
4 monoxide and reduction of carbon monoxide, even more than it
5 reduces tar and nicotine, right?
- 6 A. Probably.
- 7 Q. So that would be the most sensitive predictor of what
8 happens with blocking?
- 9 A. Well, in people it's not a great predictor because in
10 people carbon monoxide is not a terribly sensitive indicator of
11 moment to moment puffing.
- 12 Q. Well, at least Dr. Kozlowski used this technique in his
13 analysis of the data, correct?
- 14 A. Yes, he used it and I'm just pointing out, and I think he
15 would agree with me, that it's not the most sensitive indicator
16 by far.
- 17 Q. What he concluded was that the CO boost for the
18 unblocked, tip blocked, tape blocked 50 percent coverage and
19 finger block conditions, were remarkably similar. Isn't that
20 what he said?
- 21 A. In this study under these conditions, and he's published
22 studies under other conditions in which it makes a considerable
23 difference.
- 24 Q. Well, he goes on, he says he did it in another study.
25 This no effect finding for Marlboro Light was subsequently

1 replicated in a second study comparing the effects of finger
2 blocking and not blocking, the conditions were nearly identical
3 for both, right?

4 A. That's what he says here for that study.

5 Q. And Doctor, he goes on to review, as in this chapter,
6 other studies and other materials, and then on page 28, if we
7 go -- yes, that's it. "Table 23 outlines the conditions under
8 which different modes of compensation will be likely to occur."

9 Then he says: "Reviewing the literature" -- not just his
10 studies, but reviewing the literature, which he wished to do in
11 this Monograph chapter, right?

12 A. Yes.

13 Q. "Vent blocking appears to be a significant mode of
14 compensation for reduced yield amongst smokers of lowest tar
15 cigarettes, e.g., 1 milligram FTC tar." Do you see that?

16 A. Yes.

17 Q. 1 milligram FTC tar cigarettes have less than 5 percent
18 of the market share in the United States today; is that correct?

19 A. That's my understanding.

20 Q. He goes on to say: "But not likely among most smokers of
21 Light and Ultra Light cigarette brands." Do you see that?

22 A. Yes.

23 Q. That was his conclusion after reviewing all the vent
24 literature, right?

25 A. Yes.

- 1 Q. Now, in his study he taped the holes 50 percent, correct?
- 2 A. Yes.
- 3 Q. And that's the same parameter that was used by the
- 4 Massachusetts, Commonwealth of Massachusetts Tobacco Control
- 5 Board when they used their compensatory type regime for testing
- 6 cigarettes, right, 50 percent blockage?
- 7 A. Yes.
- 8 Q. And the reason he did that was that he has found in his
- 9 research that when people block with either their fingers or
- 10 their lips, the most that they can block effectively is about
- 11 50 percent of the filtered vents; is that correct?
- 12 A. Yes.
- 13 Q. Now, Doctor, I want to turn now to an entirely different
- 14 subject.
- 15 A. You're not going to go to his conclusion of his report?
- 16 Q. Of what report? The vent hole blocking report, blocking
- 17 cigarette vents with lips more than doubles the carbon monoxide
- 18 from the ultra low, ultra 1 milligram or less?
- 19 A. Yeah, page 34, under his main conclusions, because
- 20 otherwise you're leaving, I think, a misleading impression of
- 21 his overall conclusions.
- 22 Q. Doctor, all I was asking you about was vent hole blocking
- 23 Dr. Kozlowski found occurred in Marlboro Lights versus the
- 24 1 milligram cigarettes or less, okay?
- 25 A. But you didn't go to his main chapter conclusion which is

1 on page 34 --

2 THE COURT: But that will be up to government counsel if
3 they want to raise it on redirect.

4 THE WITNESS: Okay.

5 BY MR. SHEFFLER:

6 Q. Let me ask you about the testimony you gave with respect
7 to the Battelle research that was contracted by my client in
8 Switzerland back in the 1960s. That's the Hippo research.

9 A. Yes.

10 Q. And you referred to the Hippo research more than once in
11 your testimony, didn't you?

12 A. I don't recall how many times.

13 Q. Well, you found it to be a significant issue for -- with
14 respect to what was known and knowable about nicotine at the
15 time, right?

16 A. The fact that it was conducted, not necessarily what they
17 found.

18 Q. Well, the Hippo research was a series of experiments with
19 rats designed to investigate nicotine's effect on certain
20 hormones related to stress, right?

21 A. Yes.

22 Q. And you've reviewed the Hippo research, haven't you?

23 A. Yes.

24 Q. You know that the project was commissioned by Sir Charles
25 Ellis, the scientific advisor to BATCo, who took a personal

1 interest in the results of the study, correct?

2 A. He appeared to.

3 Q. And when Sir Charles got the final Hippo reports, he sent
4 them with a cover letter to Brown & Williamson that described
5 the reports and described his observations and reviews of them,
6 right?

7 A. Yes.

8 Q. And I want to review that with you, if I could. This is
9 Exhibit 20272.

10 And do you see, first, Doctor, that this is a report --
11 excuse me, a letter from Sir Charles, right?

12 A. Yes.

13 Q. It doesn't show up on here. Well, you have the letter in
14 front of you. It is a letter from Sir Charles, right?

15 A. Yes.

16 Q. And it is to a Mr. Cutchins at Louisville, Kentucky,
17 that's Brown & Williamson, right?

18 A. Yes.

19 Q. And if you look at the very beginning, it says: "During
20 the past three years we have sponsored research at the Battelle
21 Memorial Institute of Geneva to investigate the pharmacological
22 aspects of smoking, right?

23 A. Yes.

24 Q. And then if you go down, it says, "These reports are
25 rather long and technical" -- and they are, aren't they?

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1 A. Yes.

2 Q. "It may be convenient if I attempt to summarize the main
3 findings in my own conclusions." Right?

4 A. Yes.

5 Q. And then he goes ahead to do that. And he says on
6 page 2, "This research has been concerned to find out why people
7 smoke and what is the origin of the hold it has on them. The
8 result is to show that the action of nicotine is quite distinct
9 from that of Reserpine" -- which is a tranquilizer, right?

10 A. Yes.

11 Q. "And does not have certain undesirable effects of that
12 drug. A cigarette soothes and enables the smoker to meet calmly
13 a stressful situation because the nicotine stimulates and
14 enhances directly the body's natural reaction to stress. This
15 reaction starts in the brain and leads to the release of a
16 succession of chemical substances, hormones, which culminate in
17 an appearance in the blood of corticosteroids and glucose."
18 Now, corticosteroids are also hormones, rights?

19 A. Yes.

20 Q. "In man this reaction is more sophisticated and provides
21 for reaction to mental stress and helps mental response. The
22 present day human reaction to stress is in most people somewhat
23 halting and many would find it difficult to stand up to the pace
24 and impacts of modern environment without some external
25 assistance. The cigarette, by means of its nicotine, does this

1 by stimulating and enhancing the body's natural reaction. This
2 reaction is quite distinct from that of tranquilizers or
3 sedatives which merely deaden antagonistic reactions," right?

4 A. Yes.

5 Q. So, Dr. Ellis here was giving his views about the
6 importance of his research to show the beneficial effects of
7 nicotine, right?

8 A. And the mechanisms of action.

9 THE COURT: And the what?

10 THE WITNESS: The mechanisms of action.

11 BY MR. SHEFFLER:

12 Q. But it's clear that he thought this was a very positive
13 thing?

14 A. Yes.

15 Q. With respect to nicotine, wasn't he?

16 A. Yes.

17 Q. And he goes on to say that people -- on page 3 -- "The
18 people who oppose smoking do so on grounds that it is an
19 important contributory cause of lung cancer," and that was after
20 the 1962 RCP report which found that, correct?

21 A. Yes.

22 Q. "And that is just a habit with nothing to be said for it
23 other than it is pleasurable. Once given up, it would soon be
24 forgotten. It is my opinion that the results I have described
25 show this view to be untenable. Nicotine is a wonderfully

1 beneficent drug, which does not, like morphine, sleeping pills
2 or even dexedrine, lead to cumulative addiction, people keep to
3 their smoking habit over years. If nicotine were not known, its
4 discovery would be claimed as one of the great medical advances
5 of the day."

6 Now, Ellis truly believed that the benefits of the Hippo
7 research demonstrated that the industry had an argument that
8 they could make based upon this research that nicotine and
9 smoking provided the public with a benefit, right?

10 A. That was part of it, but it also demonstrated a mechanism
11 of action that the '64 SG didn't understand and that the
12 industry, frankly, denied publicly later which related --

13 Q. We'll get to that. What I'm trying to do right now is
14 talk about what Ellis thought about the research and what he
15 wanted to do with it.

16 A. Okay.

17 Q. And he says, in fact, that this would be something that
18 the industry could capitalize on. He talks about, "Finally, if
19 I may be allowed to express my personal opinion, the important
20 results of this research is that it gives an experimental basis
21 for believing that the industry is carrying out an essential and
22 valuable service for the public. It is my considered opinion
23 that the tobacco industry has no reason to allow itself to be
24 pushed on to the defensive. On the contrary, it is justified in
25 taking a positive position that it is providing a product of

- 1 which it is proud and from which the public benefits," right?
- 2 A. Yes.
- 3 Q. Now, Ellis wanted to make use of these reports, he wanted
- 4 to make use of these reports to show this public benefit, right?
- 5 A. I'm not sure what all he wanted to do.
- 6 Q. Well, you are aware that Ellis said in his letter that
- 7 before he could make public use of it, he had to make sure that
- 8 the reports could stand up under scientific scrutiny, right?
- 9 A. Yes.
- 10 Q. And he says, in fact, "The Board have, therefore,
- 11 authorized me to send you copies of the reports. They wish me
- 12 to ask that for the moment these reports should be kept strictly
- 13 confidential to yourself and to such of your colleagues as you
- 14 may decide should see. Then, for the reason that we have not
- 15 yet had this work critically reviewed by our own scientific
- 16 experts and it is possible that they, or your experts, may not
- 17 consider the Battelle conclusions are well founded." Do you see
- 18 that?
- 19 A. Yes.
- 20 Q. And you know, in fact, they were sent for scientific
- 21 review?
- 22 A. Yes.
- 23 Q. He goes on to say, "Since we hope that -- we hope these
- 24 may be of assistance in orienting our attitude to the smoking
- 25 and health problem, it would be most unfortunate if we were to

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1 make public use of the findings that could not be subsequently
2 sustained," right?

3 A. Yes.

4 Q. So he wanted to have before he made public use of them,
5 before he sent them to the Surgeon General's Advisory Committee,
6 he wanted to make sure they held up under scientific scrutiny so
7 they wouldn't look like they were trying to influence the
8 Surgeon General with bad science, right?

9 MR. GOLDFARB: Objection, assumes facts not in evidence.

10 THE COURT: What?

11 MR. GOLDFARB: It assumes facts not in evidence. The
12 Surgeon General has been mentioned and it's not mentioned in
13 anything that Mr. --

14 THE COURT: No, the objection's overruled.

15 BY MR. SHEFFLER:

16 Q. You may answer.

17 A. Was that a statement or a question?

18 Q. That's a question. Isn't that exactly what he was saying
19 here?

20 A. I think you're asking me to go beyond what's there.
21 What's there is what's there.

22 Q. Well, could we have JD 02032. If we could just blow that
23 up. Note for Mr. Cutchins, that's who Dr. Ellis sent the
24 reports to, right?

25 A. Yes.

- 1 Q. "On the fourth of June, Sir Charles Ellis sent to you
2 copies of reports of research which BAT had sponsored at the
3 Battelle Research Institute in Geneva showing the beneficial
4 effects of nicotine on the smoker," that's the Hippo research,
5 right?
- 6 A. Yes.
- 7 Q. "BAT decided to make this research available to TRC, and
8 it is being evaluated by TRC's outside medical experts." Do you
9 see that?
- 10 A. Yes.
- 11 Q. "Preliminary reports indicate these experts think that
12 Battelle ought to be found to be a sound piece of research. It
13 was always contemplated that if the reports stood up
14 scientifically, it might be desirable to get them submitted to
15 the Surgeon General's Advisory Committee." Do you see that?
- 16 A. Yes.
- 17 Q. So, this was signed -- the initials down there are MCC,
18 you know that's the way Mr. McCormick from the BAT South Hampton
19 laboratories signed his documents, right?
- 20 A. I've seen that. It's not something that I've spent time
21 studying how they sign their documents.
- 22 Q. Well, according to this, the intent was to submit the
23 reports to the Surgeon General's committee if they stood up to
24 scientific scrutiny, right?
- 25 A. That's what this note says.

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1 Q. And before we talk about the scientific scrutiny and what
2 it found, what I want to do is just briefly review what the
3 Battelle research did.

4 Now, as we saw from Sir Charles Ellis's summary,
5 corticosteroids were the principle thing that the researchers
6 were looking at, right?

7 A. Yes.

8 Q. And these were responsible for reduction in stress,
9 right?

10 A. That was their hypothesis.

11 Q. But this was known to happen naturally?

12 A. Yes, they wanted to see if nicotine was going to do that
13 in the model.

14 Q. It was known at the time of their research that the
15 adrenal cortex was responsible for corticoid stimulants, right?

16 A. Yes.

17 Q. So, the corticoid hormones came from the adrenal cortex,
18 right?

19 A. Yes.

20 Q. And it was known at the time that the pituitary, the
21 pituitary gland went into the adrenal cortex to make the
22 corticoid steroids by something called ACTH, right?

23 A. Yes.

24 Q. That's also a hormone, correct?

25 A. Yes.

- 1 Q. And it was also known at the time that the hypothalamus
2 must was the responsible party for activating the pituitary to
3 send the ACTH to the adrenal to make the corticoid steroids to
4 reduce the stress?
- 5 A. Yes.
- 6 Q. All this was known at the time, right?
- 7 A. Yes.
- 8 Q. Now, what the researchers at Battelle were investigating
9 was whether nicotine could also act on the hypothalamus to do
10 the same thing, right?
- 11 A. Yes.
- 12 Q. That hadn't been looked at --
- 13 A. Correct.
- 14 Q. -- at that time. This was their hypothesis, right?
- 15 A. Yes.
- 16 Q. Now, they couldn't measure corticoid steroids in the
17 blood?
- 18 A. Correct.
- 19 Q. So what they did was they measured whether or not ACTH
20 was being produced by nicotine, right?
- 21 A. Yes.
- 22 Q. And since they couldn't measure corticoid steroids and
23 they couldn't measure ACTH directly -- at that time nobody
24 could, right?
- 25 A. Not to my knowledge.

- 1 Q. They used a test, and the test was called the adrenal
2 ascorbic acid depletion test, and since I don't have enough room
3 I'm going to just abbreviate. That's the test they used, right?
- 4 A. Yes.
- 5 Q. And the idea was that ACTH would deplete ascorbic acid
6 from the adrenal gland and, therefore, if they could show from
7 this test that ascorbic acid was depleted, that must mean
8 nicotine was working to produce ACTH, right?
- 9 A. Yes.
- 10 Q. That was a major part of what they were trying to show,
11 that nicotine acted through this system to produce the corticoid
12 steroids, correct?
- 13 A. That was the core of it.
- 14 Q. Now, the problem is, as the reviewers found, that the
15 test they used wasn't actually what they thought it was; isn't
16 that true?
- 17 A. I don't remember the problems with it, but it does not
18 appear to be valid to the reviewers.
- 19 Q. Well, let's look at JD 032041. Do you see this is
20 entitled -- well, first of all, it's from the Tobacco Research
21 Counsel Laboratories in Harrogate, correct?
- 22 A. Yes.
- 23 Q. And it's -- the person who was responsible for this was
24 the biochemical pharmacologist, Dr. A.S. Milton, correct?
- 25 A. Yes.

- 1 Q. And we saw yesterday some of the publications that
2 Dr. Milton did on nicotine's effects on hormones, right?
- 3 A. Yes, I believe in the Thornton book.
- 4 Q. It wasn't in the Thornton book, remember I showed you the
5 very early stages of my cross-examination some papers by TRC,
6 Harrogate laboratories?
- 7 A. He didn't publish in the Thornton.
- 8 Q. He may have, I'm not sure. If you look at the first
9 sentence, it is stated in the final report on project Hippo 1
10 that nicotine releases ACTH, adrenocorticotrophic hormone as
11 measured by the adrenal ascorbic acid depletion test, and that's
12 what Hippo said, yes?
- 13 A. Yes.
- 14 Q. This report, he goes on to say, "Has, in fact, shown only
15 one thing, that under their experimental conditions, not
16 specified, the ascorbic acid content of rat adrenal glands was
17 depleted after nicotine administration." And he goes on to say
18 he they state a threshold value of nicotine yet they did not try
19 this dose, the lowest dose they tried was 1 milligram, but then
20 he says, "this statement" -- if you go up a little bit -- "this
21 statement needs confirmation. It is known that nicotine has an
22 antidiuretic action," that had been published, right?
- 23 A. Yes.
- 24 Q. "And it had been suggested that this is mediated through
25 the release of the antidiuretic hormone," ADH, right?

- 1 A. Yes.
- 2 Q. "Recently it has been report reported that ADH can
3 release ascorbic acid from the adrenal glands. Do you see that?
- 4 A. Yes.
- 5 Q. So it wasn't just ACTH that could reduce and deplete
6 ascorbic acid, it was another hormone that nicotine was
7 responsible for that could do the same thing, right?
- 8 A. Yes.
- 9 Q. So "the effect of nicotine on depleting the adrenal
10 ascorbic acid, the tests that the Hippo researchers were relying
11 on, would, therefore, be mediated, one, through an ACTH
12 mechanism or an ADH mechanism; two, by release of adrenaline,
13 since adrenaline is also known to reduce adrenal ascorbic acid,
14 and we know from subsequent research that, in fact, nicotine
15 does release adrenaline," doesn't it?
- 16 A. Yes.
- 17 Q. And three, a direct effect of nicotine on the adrenal
18 gland in releasing ascorbic acid which cannot be dismissed
19 without proof to the contrary. Do you see that?
- 20 A. Yes.
- 21 Q. And it concludes, "In other words, a depletion of adrenal
22 ascorbic acid cannot be taken as sign of ACTH." Do you see
23 that?
- 24 A. Yes.
- 25 Q. Yet, that's exactly what the Hippo research was based on,

1 wasn't it?

2 A. Yes -- well, that was the test that they were using.

3 Q. Okay.

4 A. What it was based on was their hypothesis summarized at

5 the end of this review.

6 Q. All right.

7 A. Which was to investigate mechanisms of action that

8 they -- of the pre assumed effects of nicotine, central effects.

9 Q. Right.

10 A. And it so happened that the test that they used was

11 flawed.

12 Q. Right. In fact, it so happens that they used the wrong

13 test because in Hippo II it is stated that the corticosterone,

14 which is the rat corticosteroid, right?

15 A. Yes.

16 Q. The corticosterone in blood cannot be measured owing to

17 the interference of free fatty acids.

18 THE COURT REPORTER: Slow down for me.

19 MR. SHEFFLER: I'm sorry.

20 BY MR. SHEFFLER:

21 Q. Owing to the interference of free fatty acids.

22 Do you see that?

23 A. Yes.

24 Q. And you saw that in Hippo II as well, didn't you?

25 A. Yes.

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1 Q. "Recent investigations suggest that this defect can be
2 overcome." So they used the Hippo researches used the wrong
3 test?

4 A. Yes.

5 Q. Because they didn't know what the right test was that was
6 out there to be used, right?

7 A. Correct.

8 Q. If you look at the next page, as a final point, project
9 Hippo I says "nicotine enhances normal reaction to stress." And
10 this, of course, is what Sir Charles was so excited about,
11 right?

12 A. Yes.

13 Q. "This statement must be replaced by the statement 'it
14 appears that the presence of nicotine in response to stress is
15 greater than in the absence of nicotine.'" Do you see that?

16 A. Yes.

17 Q. "The information available does not differentiate between
18 two entirely different possibilities, A, that the response to a
19 given stress is enhanced by nicotine, or that's the hypothesis
20 of the Hippo, or B, that nicotine produces stress, which
21 together with the given stress results in a greater response."
22 Do you see that?

23 A. Yes.

24 Q. "My own opinion is that the second statement is true, in
25 other words, nicotine itself is a stressing agent." Do you see

1 that?

2 A. Yes.

3 Q. In fact there was subsequent research that showed that
4 nicotine is a stressing agent, correct?

5 A. It can do either.

6 Q. Doctor, if this, obviously, would have a major effect on
7 how the research was regarded, would it not? If BATCo had made
8 public use of the research to expose the virtues of nicotine as
9 a stress reducer and it turned out, in fact, that nicotine was a
10 stress enhancer, that wouldn't be a very good thing for BATCo,
11 would it?

12 A. No, but here we're talking about the mechanisms of
13 actions of a pre assumed drug effect of nicotine, which is why I
14 cited it.

15 Q. But Ellis was concerned about making public use of a
16 document and research that would not substantiate what the
17 research claimed to substantiate. He was worried about that,
18 wasn't he?

19 A. I don't know what his views were. I mean, when you talk
20 about him worrying and -- they didn't give it to the committee,
21 that's a fact.

22 Q. Well, another problem that the reviewers found with the
23 Battelle research was that they used a technique to lesion the
24 hypothalamus must of the rat brain during their experiments
25 called a stereotactic technique, right?

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1 A. Yes.

2 Q. And that's a very difficult procedure, the hypothalamus
3 of a rat is very tiny, isn't it?

4 A. It's difficult and very messy.

5 Q. What they do is put an electrode in there and kind of fry
6 it, right?

7 A. Well, and -- yes.

8 Q. If we could have JE 47067. This is another appraisal and
9 review of the project Hippo, and this was done -- you're
10 familiar, this was done by Dr. Burn, who was the Oxford chairman
11 of pharmacology at the time, and Dr. Armitage that we talked
12 about, right?

13 A. Yes, I have not reviewed this for quite some time. I am
14 familiar with it, I reviewed it and I didn't disagree, as I
15 recall, with their main conclusions.

16 Q. Well, if you look at page 2, what it says is, "the
17 destruction of the nucleus by electrocoagulation using a
18 stereotactic" --

19 THE COURT: Wait a second, where are you please?

20 MR. SHEFFLER: Where it's highlighted, Your Honor, page 2
21 of the appraisal by Armitage and Burn.

22 BY MR. SHEFFLER:

23 Q. "The destruction of the nucleus of the hypothalamus by
24 electrocoagulation using a stereotactic apparatus is a highly
25 skilled procedure, and the most likely conclusion is that the

1 authors were unable to obtain a sufficiently precise
2 localization and, therefore, did not, in fact, destroy the
3 superoptic nucleus, which, of course, was part of what they were
4 trying to do for their experiment, right?

5 A. Yes.

6 THE COURT: Is that what they were doing to the hippos? I
7 just want to be clear.

8 MR. SHEFFLER: They weren't really hippos, Your Honor,
9 they were rats.

10 THE COURT: Oh.

11 MR. SHEFFLER: It was called Hippo for reasons that are
12 not explained in any of the documents that we have.

13 THE COURT: I don't think that's ever been testified to,
14 has it? Or did I miss that point? I hope not.

15 MR. SHEFFLER: Well --

16 THE COURT: All right, go ahead.

17 MR. SHEFFLER: Your Honor, it's my fault, and I'm sorry.

18 BY MR. SHEFFLER:

19 Q. This wasn't a research on -- hippos had nothing to do
20 with this research whatsoever; they were rats, correct, Doctor?

21 A. Yes, the presumption is that it referred to the
22 hypothalamus, and that was a code name.

23 Q. Well, it was a hippocampus, but it didn't really refer to
24 hippocampus at all, did it? It was a hypothalamus that the
25 research was?

1 A. Yes.

2 Q. In fact, they called it Hippo for -- do you know why?

3 A. No, that's -- I think the assumption has been because of
4 the anatomical region that they were interested in, but I've
5 never seen a document that said that. It seems kind of a
6 coincidence that they would pick "Hippo" out of all the things
7 to call it.

8 Q. In any event, what they did was on these poor little rats
9 --

10 THE COURT: You'll have to remember, and I do not think I
11 heard testimony on this, that I have not read every background
12 document that each of these experts have read, and when something
13 is as counterintuitive as a major study being constantly referred
14 to as a Hippo study, I think it is not unreasonable that I infer
15 that you were dealing with hippopotamuses.

16 MR. SHEFFLER: Your Honor, you're on absolutely correct,
17 and I apologize for not bringing that out.

18 THE COURT: That's all right.

19 BY MR. SHEFFLER:

20 Q. In any event, on these poor little rats that they did
21 this stereotactic lesioning on, they missed it, right, and
22 Dr. Liebert, who did the research, agrees with this criticism
23 and it is extraordinary that a scientist can report on a series
24 of experiments and when questioned about their validity admit
25 that they were not properly carried out.

1 Now, we've got at least two major criticisms, substantive
2 criticisms of the research. First of all, they didn't use the
3 right test, the test they used was flawed for what they were
4 trying to measure, and secondly, the methodology was wrong and
5 they admitted it was wrong, right?

6 A. Yes.

7 Q. And then, at the end of the appraisal, if we could go to
8 the last page, final comments, Armitage and Burn kind of sum up
9 their findings in their review. They say, "Of the three main
10 lines of investigation to which these reports have been devoted,
11 we have already commented that the conclusion of the Battelle
12 works is that the antidiuretic action of the nicotine is still
13 present when the super optic nucleus is destroyed is almost
14 certainly incorrect. The most interesting results in the
15 reports are" --

16 THE COURT: Not too fast, please.

17 BY MR. SHEFFLER:

18 Q. "The most interesting results in the reports are on the
19 effect of nicotine on the "stress mechanism". But these, by
20 themselves, are very incomplete and there is some controversy
21 about them." That was putting it mildly based on what we saw
22 from Dr. Milton, correct?

23 A. I think it's a reasonable statement.

24 Q. "These experiments should be repeated and supplemented in
25 the TRC laboratories at Harrogate. Concerning the results of

1 the effect of nicotine on body weight, regulation, it would be
2 unwise to conclude that smoking can be used as a means of
3 reducing weight on the evidence presented." And you agree with
4 that too, right?

5 A. Yes.

6 Q. "The information of these reports is not sufficiently
7 complete to justify any form of publication" and you've seen
8 that before too, right?

9 A. Yes.

10 Q. So Sir Charles Ellis got his review, did he not?

11 A. Yes.

12 Q. And after he got the review, he communicated to the
13 Battelle researchers his disappointment, did he not?

14 A. Yes.

15 Q. And he told them that the work -- and they admitted that
16 the work was difficult to maintain against skilled criticism,
17 correct?

18 A. Yes.

19 Q. So what we saw in the very first document on this Hippo
20 material, we saw that Sir Charles was concerned about public use
21 of documents and research that couldn't stand up to scientific
22 scrutiny. He found they couldn't stand up to scientific
23 scrutiny, correct?

24 A. Yes.

25 Q. And for that reason, the documents were not submitted to

1 the Surgeon General's Advisory Committee; isn't that right?

2 A. I don't know if that's the only reason.

3 Q. Well, let's look at JD 032033.

4 Do you see this is a cable in July of 1963 after the

5 appraisal was submitted to Sir Charles, right?

6 A. Yes.

7 Q. And what he says is, "TRC consultant scientists" -- and

8 we just saw those consultant scientists reports -- "advise it is

9 too early to submit Battelle reports to Surgeon General's

10 committee." Do you see that?

11 A. Yes.

12 Q. "But we think they will agree that continuation by

13 Battelle of this work would be useful," right?

14 A. Yes.

15 Q. "Charles Ellis, convinced of beneficial effects of

16 nicotine," and we saw he was very eager to show there were very

17 beneficial effects of nicotine, didn't he?

18 A. Yes.

19 Q. "Agrees further investigation desirable before

20 publication," right?

21 A. Yes.

22 Q. "Please inform TIRC," right?

23 A. Yes.

24 Q. So what Sir Charles was saying, or what this McCormick

25 telegram was saying, was Sir Charles was interested in the

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1 hypothesis, he wanted to the hypothesis to be tested and wanted
2 TRC at their pharmacology laboratory at Harrogate to continue
3 testing, right?

4 A. Yes.

5 Q. And the hypothesis was tested, wasn't it?

6 A. Yes.

7 Q. But at this time the hypothesis was still a hypothesis?

8 A. The mechanism of action, part of the hypothesis, they
9 concluded that the experiment was inadequate, and I concur with
10 that.

11 Q. Let's look at JD 032036, and this is a letter a day after
12 the telex from Tony, and it's Tony McCormick, isn't it?

13 A. I'll take your word for it.

14 Q. Well, it's from British American Tobacco Company?

15 A. Yes.

16 Q. And it's to Brown & Williamson, I.A. Yeaman, correct?

17 A. Yes.

18 Q. And it repeats the telex, "TRC consultant scientists
19 advise it is too early to submit Battelle reports to the Surgeon
20 General's committee."

21 But then if you look, Charles's view is, "as the situation
22 has now developed, it would be wiser for B & W not to take the
23 initiative in submitting anything to the Surgeon General's
24 committee, but rather wait and hope that the committee will ask
25 the individual manufacturers for further details of their

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1 research work and then, should this happen, it would give B & W
2 the opportunity of submitting the Battelle work and the work on
3 the Avalon filter." Do you see that.

4 A. Yes.

5 Q. "As further work on both has to be done, the work would
6 be immune from detailed criticism, but its disclosure would
7 demonstrate that B & W and its associates had adopted a forward
8 looking positive policy on research", right?

9 A. Yes.

10 Q. So, Sir Charles was still hoping, somehow, he could get
11 this research, even though it was flawed, and even though it was
12 incomplete, and even though it was controversial, he was still
13 hoping he could get it to the Surgeon General's Advisory
14 Committee in some way that would escape detailed criticism,
15 right?

16 A. That's what this implies. I don't know why they didn't
17 just offer it, but that's what this implies.

18 Q. Well, he didn't want to offer something as research that
19 wasn't going to withstand scrutiny and criticism because it was
20 incomplete and because it was controversial because the
21 methodology was flawed because it used the wrong test, right?

22 A. Well, as you just have shown with this, he hoped to
23 provide it. My interpretation is he thought it would be useful
24 to the committee but for some reason they decided the committee
25 had to come and ask them individually.

- 1 Q. What he wanted to do, according -- isn't a fair reading
2 of that that he wanted to provide it, but if the research was
3 requested, if research was requested of B & W, then he felt he
4 could provide even incomplete research and at least show the
5 Surgeon General's committee where they were looking and
6 researching and show that they had adopted a forward looking
7 positive policy of research, that's what he wanted to show,
8 right?
- 9 A. I'm not sure how much we disagree on the -- the words say
10 what they say.
- 11 Q. Okay. In any event the Surgeon General's Advisory
12 Committee did not subsequently ask for research from the
13 companies, right?
- 14 A. I don't know what all they did but apparently they didn't
15 do the right thing to get the data.
- 16 Q. Now, Sir Charles, you saw in a telex, recommended that
17 further research be done on the Hippo hypothesis, the rat study
18 hypothesis, right?
- 19 A. Yes.
- 20 Q. And that research was done, as you said, correct?
- 21 A. Yes.
- 22 Q. And so it was published in the Surgeon General's reports,
23 correct?
- 24 A. Um, I don't recall which. I don't disagree, I just don't
25 recall.

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- 1 Q. Let me show you JD 032048. Do you see the title of this?
- 2 A. Yes.
- 3 Q. Again, this was done at the Harrogate laboratories, TRC,
- 4 right?
- 5 A. Yes, and I'm sorry, I had forgotten that this was a
- 6 Belford work.
- 7 Q. This was cited in the Surgeon General's report, right?
- 8 A. Yes.
- 9 Q. "Effects of nicotine on plasma corticosterone and brain
- 10 aimings in stressed and unstressed rats." Looking at the same
- 11 hypothesis that was being suggested by the Hippo researchers,
- 12 right?
- 13 A. Yes.
- 14 Q. And if we look at JD 032047, Paul Morrison, again, cited
- 15 in the Surgeon General's report published in Nature, are you
- 16 familiar with this one?
- 17 A. Yes.
- 18 Q. "New evidence for a relationship between tobacco smoking
- 19 nicotine dependence and stress." Do you see that?
- 20 A. Yes.
- 21 Q. Looking at the same types of research, the same
- 22 hypothesis as the Hippo researchers, right?
- 23 A. Yes, this was a continuation of that.
- 24 Q. TRC published work. If you turn to page, the second page
- 25 on that, nicotine and stress mechanism, if you go down to the

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1 second full paragraph, you see where the second sentence begins:
2 "Nicotine injected intravenously or profused through the third
3 cerebral ventricle of the cat brain causes an increase in the
4 release of noradrenaline from a hypothalamus," right?

5 A. Yes.

6 Q. "These observations are of particular interest, as the
7 release of corticoid steroids from the adrenal cortex in
8 response to stress can be inhibited by infusing noradrenaline
9 directly into the third cerebral ventricle." Do you see that?

10 A. Yes.

11 Q. So what these researchers were finding with the Hippo
12 hypothesis was, in fact, the exact opposite of what occurred and
13 Milton was right, isn't that true?

14 A. Yes.

15 MR. SHEFFLER: Your Honor, I have no further questions.

16 THE COURT: All right. And therefore, we are ready to
17 hear from other defense counsel. Ready?

18 MR. BIERSTEKER: Yes, thank you, Your Honor.

19 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D.

20 BY MR. BIERSTEKER:

21 Q. Good morning, Doctor, I'm Peter Biersteker. I'm from
22 Jones, Day. I represent R.J. Reynolds. We have not met before.

23 I wanted to address one general issue that hasn't been
24 touched upon by my colleagues, and then focus on a couple of
25 issues specific to my client. The general issue I want to talk

1 about is particle size. And in your direct examination, you
2 testified that filtration can effect the particle size of smoke,
3 correct?

4 A. Yes.

5 Q. And your direct testimony indicates that that's important
6 because if a particle is too big, it can't be inhaled, right?

7 A. Correct.

8 Q. And if a particle can't be inhaled, obviously, the
9 nicotine that's in it doesn't get into the blood stream?

10 A. Well, the nicotine in the mouth would, but it would be
11 much less rapid and efficient. It would be more like a cigar.

12 Q. All right. Let's sort of cut to the chase. You don't
13 have, do you, a study that shows that altering particle size
14 makes the cigarette either more or less addictive, right?

15 A. A study with cigarettes? There are the Battelle studies
16 for Philip Morris, I believe, in the '50s looking at particle
17 size on the assumption, with the assumption that if nicotine
18 doesn't get to the blood stream it can't be addictive. I don't
19 think even the industry would contest. But I'm not sure what
20 you mean.

21 Q. Well, you don't have a study, do you, that shows that
22 altering particle size makes the cigarette either more or less
23 addictive; isn't that correct?

24 A. No, I'm not aware of a study that -- and again, do you
25 mean in the very narrow sense of altering it within a cigarette

- 1 to see if that would alter addictiveness per se?
- 2 Q. Yes.
- 3 A. I'm not aware of a study that anybody that's bothered to
- 4 do that -- well, other than the '59 Philip Morris studies on
- 5 particle size through Battelle.
- 6 Q. All right. Well, let's talk about the design
- 7 modifications that you focused upon in your direct examination
- 8 which were filtration and, I believe, filter ventilation, right?
- 9 A. Yes.
- 10 Q. The literature establishes, does it not, that filtration
- 11 doesn't really alter the particle size of smoke in a way that
- 12 would affect the number of particles that get into the lung?
- 13 A. The actual literature on particle size from cigarettes is
- 14 very small, so the premise that particle size makes a
- 15 difference, I think, is undisputed. The fact that the industry
- 16 studied it is undisputed, but studies of cigarettes altering
- 17 particles and counting in the lung, I'm not aware of any of
- 18 those that have done -- have been done.
- 19 Q. Well, you're familiar with the Wynder and Hoffman book
- 20 from 1967, right?
- 21 A. With which?
- 22 Q. The Wynder and Hoffman book in 1967?
- 23 A. Yes.
- 24 Q. Why don't we take a look at that. There is some data
- 25 reported, is there not, on a couple of issues?

- 1 A. I believe a couple of chapters, I haven't looked at that
2 for some time.
- 3 Q. It's JD 742 already admitted in evidence, Your Honor, and
4 if you turn to page 89. It's up there, great. If you look at
5 page 89, it shows in the top part, if we could isolate the top
6 part, it shows the particle size distribution of cigarette smoke
7 with a filter and without, and although there are fewer
8 particles with filter because the filter filters them, the
9 distribution is pretty much the same, is it not?
- 10 A. It's a greater spread without the filter, a little
11 messier, I think, what you would expect.
- 12 Q. Well, this is based on an article in 1960 by Keith and
13 Derrick. Do you see that?
- 14 A. Yes.
- 15 Q. Do you know whether Keith and Derrick were employed by
16 Liggett?
- 17 A. No, I don't.
- 18 Q. Interestingly, there's no difference, really, in particle
19 diameter above a .7 microns, do you see that?
- 20 A. Yes.
- 21 Q. And isn't it true that particles larger than, say, 7 or
22 10 microns in diameter, those are the ones that don't make it
23 into the lung, right?
- 24 A. Yes, I think they would have a tough time.
- 25 Q. So any difference in the distribution of these particles,

- 1 although slight, occurs among particles that all get inhaled
2 anyway, right?
- 3 A. Primarily.
- 4 Q. And these results were confirmed, were they not, in an
5 article published in 1986 by a scientist who was then employed
6 by my client?
- 7 A. I'm sorry, which client is yours?
- 8 Q. R.J. Reynolds.
- 9 A. Was that Imgebrethson, I-M-G-E-B-R-E-T-H-S-O-N?
- 10 Q. S-E-N?
- 11 A. S-E-N.
- 12 Q. Do you remember that article?
- 13 A. I've seen it, I haven't looked at it for some time.
- 14 Q. Do you know whether or not it basically confirmed these
15 results that neither filtration and, in fact, he looked at
16 filter ventilation as well altered the particle size of
17 cigarette smoke?
- 18 A. I don't recall the details of the article.
- 19 Q. Why don't we take a quick look at it, it's JD 066394. As
20 you can see, this is an article by Dr. Imgebrethsen, right?
- 21 A. Yes.
- 22 Q. And it was published in the journal -- it's hard to
23 read -- Aerosol Science and Technology, right?
- 24 A. Yes.
- 25 Q. And if we'll turn -- you can look at however much of this

1 you want, but I would invite your attention to table 1, which is
2 near the end of the article, page 432. Thank you Jamey. And,
3 therefore, Dr. Imgebrethsen reports the mean average diameter of
4 the particles in smoke, not only for a cigarette overall, but
5 for each puff of the cigarette, right?

6 A. Yes.

7 Q. And he does it for a nonfiltered cigarette, do you see
8 that?

9 A. Yes.

10 Q. Okay. And he does it for filtered cigarettes with a
11 ventilation ranging from 0 percent all the way up to 84, right?

12 A. Yes.

13 Q. And, basically, these numbers are about the same?

14 A. Yes.

15 Q. Okay. So would you agree with me that the research shows
16 that particle size is not materially affected by filtration or
17 by ventilation?

18 A. I think that that is an overly broad statement and has
19 gone beyond what Dr. Imgebrethsen himself has testified. What
20 this study shows is that in this study, under these conditions,
21 there was no difference. But, as you know, Dr. Imgebrethsen
22 studied many factors that determined particle size, including
23 the transit time, moisture, and other factors, that can be
24 altered through the filter.

25 Q. Well, in fact, Dr. Imgebrethsen's testimony, to which you

1 refer, was that he was doing fundamental research and this was
2 never used in any way to try to alter the particle size of
3 smoke; isn't that correct?

4 A. My -- my understanding from his testimony, and the
5 Premier Monograph, was that his techniques were used in the
6 development of Premier at the very least, and that he received,
7 I think, awards in RJR for his particle size work that were
8 used. Maybe I'm remembering that wrong, but we could go back to
9 the Monograph.

10 Q. Why don't we take a look at his deposition testimony that
11 you cite in your direct examination, although without reference
12 to a page it's in the -- do we have that? The state of
13 California case. This was a deposition taken in March of 1999.

14 A. Yes.

15 Q. Okay, and I just blew up the one excerpt I want to ask
16 you about. Mr. Sobol, who is counsel for the states, asked,
17 "Was your investigation into the particle size distribution of
18 mainstream cigarette smoke motivated in any way by trying to
19 understand the effects of the deposition of those particles in
20 the respiratory track?"

21 And Dr. Imgebrethsen answered, "The motivation for
22 starting the particle size work was sort of a commitment to
23 fundamental research and a belief that the more we understood
24 about our product and its properties the better off we were. I
25 do not recall as a reason for starting the particle size work any

- 1 interest in respiratory deposition." Do you see that?
- 2 A. Yes.
- 3 Q. Does is that refresh your memory that he was engaged in
- 4 fundamental research, not product work?
- 5 A. It doesn't alter my opinion whatsoever. The fact is, in
- 6 the development of Premier he was cited, they used his work and
- 7 particle size was prominently assessed in the development of
- 8 that product.
- 9 Q. How was his work used in the development of Premier,
- 10 Doctor?
- 11 A. Excuse me?
- 12 Q. How was his worked used in the development of Premier?
- 13 THE COURT: Doctor, could you try to move the mic a little
- 14 bit, because I think your voice is very low.
- 15 THE WITNESS: I don't know the specifics of how his work
- 16 was used in it. The fact is he was cited in the Monograph. They
- 17 measured particle size, they hit the target range, which I don't
- 18 think was a coincidence, and he described in his testimony and
- 19 his papers some of the many factors and tools at hand that can
- 20 alter particle size, but how they actually did it, whether it was
- 21 the glycerine concentration, whether it was the moisture content,
- 22 the physical structure, probably all of the above, I don't know
- 23 which specific techniques were employed to control particle size.
- 24 BY MR. BIERSTEKER:
- 25 Q. There wasn't any target particle size for Premier, was

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- 1 there?
- 2 A. In the --
- 3 Q. Let me ask the question this way: The Monograph
- 4 describes the particle size properties of the smoke from
- 5 Premier, correct?
- 6 A. Yes.
- 7 Q. But there wasn't any target that was aimed at in order to
- 8 achieve a particular particle size, was there?
- 9 A. I think a reasonable conclusion is that it was targeted
- 10 to provide nicotine delivery to the lung, and it was confirmed
- 11 by their blood studies that their pharmacokinetic studies that
- 12 showed that the nicotine absorption was actually quicker for
- 13 Premier than for their reference cigarette. Now, all of that
- 14 could have been a random chance accident. My opinion is that it
- 15 was not a random chance accident.
- 16 Q. Okay. And the basis for that is?
- 17 A. The basis for that is my understanding of the importance
- 18 of particle size for getting nicotine into the blood stream,
- 19 their careful studies in Premier, which is about a 600 plus page
- 20 Monograph, the several studies in which they evaluated particle
- 21 size is one of their dependent variables. Taken together, it's
- 22 just not credible for me to think that this was happenstance,
- 23 that there was no reason for the measurement, and no intent.
- 24 The facts are in the Monograph. Again, this is my opinion.
- 25 Q. Well, let's talk about Premier a little bit. In your

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1 direct examination you say that you consulted with the FDA
2 concerning a number of things, Masterpiece Tobacs, Favor and
3 Premier, correct?

4 A. Yes.

5 Q. And Masterpiece Tobacs was basically some chewing gum
6 that had some tobacco in it, right?

7 A. Yes.

8 Q. And the FDA banned that product, did it not?

9 A. On the basis that it was an adulterated food product.

10 Q. That's correct. And as to Favor, that was basically they
11 had sort of a -- this is not a scientific description, but it
12 had sort of a sponge in it on which some nicotine was
13 impregnated, right?

14 A. Yes, and it was marketed as a cigarette and the FDA
15 concluded it was a drug without adequate testing essentially.

16 Q. Okay, but basically, what somebody would do is they had a
17 sort of straw connected to this sponge and you could suck on it
18 and get some of the nicotine off of it, right?

19 A. Yes, very little. I tested it myself and it didn't do
20 much.

21 Q. And the FDA, as you said, said it was a drug and, in
22 fact, a new drug, right?

23 A. Yes.

24 Q. And as a consequence, the Favor product was also banned,
25 correct?

- 1 A. Yes, and again, strictly speaking, they don't -- what
2 they do is they say because it's a new drug and you haven't done
3 the studies and applied, you can't market until you do that.
- 4 Q. Well, and in fact, the FDA has ceased cigarettes for
5 which the manufacturer made a claim that they were safer or
6 helped reduce weight or had some other property that was related
7 to preventing disease or otherwise beneficial?
- 8 A. There were a couple of instances.
- 9 Q. Isn't it true that the FDA internally, at least the
10 staff, recommended that the FDA regulate Premier in the same way
11 that it proposed to regulate Favor as a drug, and as a new drug?
- 12 A. Some staff did. It was not resolved before the product
13 was removed from the product and this was given in by the
14 commissioner, Dr. Frank Young, in testimony in July of '88. I
15 testified alongside. I don't believe that they had come to a
16 final opinion.
- 17 Q. They had not yet taken any action, but the recommendation
18 was to regulate it, correct?
- 19 A. The recommendation from a number of staff, including
20 myself, was that true to its patent, this was a drug delivery
21 device and not a cigarette.
- 22 Q. And regulation by the FDA would have effectively banned
23 the product, would it not?
- 24 A. Regulation --
- 25 MR. GOLDFARB: Excuse me, Your Honor, this is beyond the

1 scope of this witness's direct testimony.

2 THE COURT: It's beyond the scope of the direct?

3 MR. GOLDFARB: Yes, well beyond the scope.

4 MR. BIERSTEKER: Well, Your Honor, the direct says he
5 advised the FDA on Premier.

6 THE COURT: Objection is overruled. You may finish your
7 answer.

8 THE WITNESS: The FDA by no means would have banned the
9 product. There are, I don't know how many tens of thousands of
10 products that are on the market that are regulated by the FDA.
11 Regulation would have said you've got to do what anyone else has
12 done that offers a drug delivery device, and the patent said it
13 was an article for the delivery of a variety of drugs, including
14 terbutaline and some others, and nicotine was one of the ones
15 included, so the patent said it was a device. The FDA by no
16 means, my understanding, was saying we will ban this product, but
17 rather saying we will hold it to the same standard of any other
18 new drug or device.

19 BY MR. BIERSTEKER:

20 Q. Right, and in order to do that it would have to be safe
21 and effective, right?

22 A. Well, the -- again, the standards with devices, there are
23 a lot of things that are not safe. Safety is all on how its
24 used and what its intent is. In principle it could have come on
25 the market, but the company would have had to have done studies

- 1 to meet the FDA standards.
- 2 Q. Right, and they would have to show that it was safe and
3 effective, correct?
- 4 A. According to the standards that would be negotiated with
5 FDA as any other product. And FDA's opinion was that that was
6 possible.
- 7 Q. Premier delivery carbon monoxide, along with nicotine,
8 had health risks, right?
- 9 A. Excuse me?
- 10 Q. It had health risks?
- 11 A. It had health risks like virtually any other product on
12 the market, including acetaminophen, which kills a lot of people
13 every year when used improperly. So again, I was there. The
14 intent was that this should be banned forever, and, in fact, it
15 was recognized that it was possible that this could be an
16 advance, but that if it was patented as a drug delivery device,
17 if it looked like a drug delivery device, that might be the most
18 appropriate way to regulate it.
- 19 Q. And, in fact -- I'm sorry were you finished?
- 20 A. So that was the conclusion, and a route to get to market
21 is there as thousands of companies have found.
- 22 Q. Well, in fact, wasn't it your view back in 1987 that if
23 cigarettes were regulated by the FDA they would be banned?
- 24 A. That what?
- 25 Q. That if cigarettes were regulated by the FDA they would

1 be banned?

2 A. Not necessarily. In fact, I was -- I concurred with
3 FDA's decision that a way should be found to not ban them. If
4 there was no flexibility, if you simply said, does a cigarette
5 as stand meet the test for a drug, the answer is no and you
6 would have to ban it. But I was an advocate and concurred with
7 FDA saying we need to find a way to regulate cigarettes without
8 banning them.

9 Q. All right. Well, why don't we look. You were
10 interviewed on a PBS program in 1987, right?

11 A. I don't recall the details of it, but I was interviewed
12 on a number of programs.

13 Q. It was called Body Watch?

14 A. This was the Red Duke.

15 Q. Yes. And if you turn to the second page, Doctor, that's
16 you in the transcript saying, "if cigarettes were regulated by
17 the FDA, they would be banned, because they cause cancer and
18 they're addictive," right, that was your view?

19 A. Again, that was part of my view. It's the only part that
20 they put in the program. My view, as I just stated, I discussed
21 with FDA. In this program they used the sentence that said that
22 they would be banned. As I said a minute ago, if you didn't
23 have flexibility, if you just considered it a drug, you would
24 ban it and that's why FDA, in its regulation, needed to find a
25 path to regulation without banning. They didn't include any of

1 that discussion in here.

2 Q. Now, back in 1987, '88, you personally expressed the view
3 to your colleagues in the government that Premier was likely
4 safer than conventional cigarettes, at least with regard to
5 cancer and other diseases caused by direct exposure to tobacco
6 smoke, correct?

7 A. Yes. Again, I was an advocate of the possibility that
8 this could be an important break through, but that it also
9 carried risks that needed to be addressed.

10 Q. But that was not something that you said publicly, was
11 it?

12 A. Can I -- I said it at scientific meetings, I said it to
13 colleagues. It was discussed at scientific meetings. I know I
14 took that view at scientific meetings.

15 Q. At the time that Premier was on the market?

16 A. I believe so, but I would have to go back and look at my
17 own curriculum vitae to see which meetings were going on.
18 Premier was very -- as you're aware -- very actively discussed
19 and debated within the scientific community, and my views were
20 that it was a potential advance. It carried potential risks,
21 potential serious risks that needed to be addressed.

22 Q. In fact, what you told the media in 1988,
23 Dr. Henningfield, was that Premier could be easily modified to
24 smoke crack cocaine, didn't you?

25 A. Yes, and, in fact, the studies showed that it could and

1 that was one of the serious risks that was also testified by
2 other witnesses and experts in the field.

3 Q. And you didn't tell the media that Premier, you thought,
4 was safer, did you?

5 A. I discussed, for example, in that ^ ? Red Duke program, I
6 don't remember when that was taped, I think I did a 1 or 2-hour
7 interview, and in most media interviews that I did, were
8 typically 30 minutes to an hour or more, and when the topic of
9 Premier was discussed, I can assure you I discussed the wide
10 range of the complexity of the issues. What they put on
11 television is generally incredibly brief snapshots.

12 Q. Why don't we take a look at the Wall Street Journal
13 article that you were in which you were interviewed. It's
14 JD 48009, and it's up on the screen. And it says that basically
15 what you are quoted as saying is that it was the most credibly
16 sophisticated drug delivery system you had ever seen, and that
17 it could easily be modified to smoke crack, the especially
18 addictive form of cocaine, right?

19 A. Yes, it took about 15 seconds to do it, and to back up my
20 words, I ordered about 30,000 of them to use in our cocaine
21 studies which we then found another technique, but we had quite
22 a store house of them for that express purpose.

23 Q. Doctor, the truth of the matter is, it's not really all
24 that easy to modify Premier to smoke crack cocaine, is it?

25 A. The truth of the matter is it's very easy and if you

1 would like to give me a pair of tweezers and 30 seconds, I'll
2 show you how to do it.

3 Q. Well, it takes actually -- didn't you report something
4 like it takes a minute or two to do it?

5 A. It depends on how -- I could probably do it in about 15
6 or 20 seconds in our laboratory if we did some testing I never
7 timed them, but they found it quite easy to insert the crack
8 cocaine. The independent laboratory at Johns Hopkins that used
9 it to deliver cocaine to human volunteers found it convenient to
10 use, but they found their cocaine users preferred their more
11 conventional pipes than what they considered to be a weird
12 delivery system.

13 Q. Well, what you have to do is you have to take the
14 tweezers and extract the heating element and the metal cylinder,
15 right?

16 A. That takes about 5 seconds, being generous. You -- it
17 had a little aluminum bar which you didn't need any
18 sophisticated device, a tweezers is all you needed to pop it,
19 sprinkle out the beads, pour in the ground up crack cocaine. We
20 did it in our laboratory. They did it in another laboratory at
21 Hopkins.

22 Q. And after you're done with all that, after you go to the
23 store, you buy it, you take it apart and you put it back
24 together and put the crack in and all that stuff, it turns out
25 Premier wasn't terribly efficient as delivering crack cocaine,

1 was it?

2 A. Well, first, there was -- we did not study the maximal
3 conditions. We did some rather straightforward tests that
4 showed there was wide variability that demonstrated that it
5 could deliver significant amounts of cocaine and the John
6 Hopkins laboratory, the separate study, found that there was
7 variability in the three or four subjects, five subjects, it was
8 a small group study, that they used. Some subjects got good
9 levels, others, not surprisingly, got lower levels and the
10 subjects preferred their old fashioned ways of doing it which
11 also take -- the fact that something might take a minute to
12 prepare or 30 seconds to prepare for a drug abuser is not a big
13 deal.

14 Q. Well, let me ask you this: The transfer efficiency, I
15 think you estimated for crack cocaine using a modified Premier
16 was something between 4 and 22 percent; is that right?

17 MR. GOLDFARB: Objection, Your Honor. The probative value
18 of this line of questioning is far exceeded by its irrelevance.

19 THE COURT: How much more are you going to have on this?

20 MR. BIERSTCKER: Justice a few questions.

21 THE COURT: All right.

22 THE WITNESS: I don't recall the numbers. What we
23 calculated was that there was plenty of room in the device to
24 enable people to get a physiologically active dose of cocaine,
25 and this was confirmed in independent Johns Hopkins studies with

1 cocaine volunteers. That was the bottom line.

2 BY MR. BIERSTEKER:

3 Q. But my question really boils down to this: Didn't you
4 find that using a crack pipe or a spoon was about 10 times more
5 effective in getting the cocaine to the user than using Premier?

6 A. In our study, but in the actual human study they found
7 that it was more effective. Again, our study was a simple test
8 of the principle, would it work, not any investigation of how to
9 maximize it.

10 Q. Okay. So in your study it was about one tenth as
11 effective, correct?

12 A. Not as effective as -- and I don't recall the exact
13 difference, but our studies showed that the way we did it it
14 would be more efficient to take the same amount of crack cocaine
15 and put it in a conventional pipe. However, Premier offered a
16 way to conceal it very easily and it worked. The fact -- part
17 of the problem was that crack cocaine was cheap enough, and
18 remains cheap enough, that the fact that you burn some of it up,
19 is not a significant deterrent to use. That's part of the
20 problem with crack.

21 Q. Let's move on and talk about some of the Reynolds
22 documents.

23 The earliest Reynolds document that you site in your
24 direct examination in this case is from 1969; is that correct?

25 A. I don't recall if -- I wouldn't dispute that.

1 Q. And, in fact, the earliest Reynolds document that you
2 have on your so-called list of reference materials, the
3 materials that you considered in this case, is also from 1969,
4 correct?

5 A. I, I don't recall. I greatly thinned out my reliance
6 materials and I don't recall what dates I retained.

7 Q. Now, you cite to four Reynolds documents in your direct
8 for the proposition that Reynolds knew about the addictiveness
9 of smoking and nicotine, and while you say otherwise in your
10 direct, isn't it true that all four of those documents were
11 written by Dr. Teague?

12 A. I don't recall. In the final -- in the final documents
13 that I ended up with, again, I looked at probably thousands of
14 documents over the last few years, and I think I ended up with
15 about a 1 to 200 documents in my final, so it may very well be
16 that in my direct and/or my expert statement I only included
17 his. I -- if --

18 Q. My point is different. Why don't we get the two
19 documents. It's U.S. 21433, and U.S. 20660.

20 Now, in your direct examination you say that the document
21 that's on the screen, which is U.S. Exhibit 21433 was written by
22 Mr. Vassallo and Dr. Senkus, and that's in your direct
23 examination at page 92, lines 11 to 14. Do you see that "author
24 by", it's on the screen, Doctor?

25 A. Excuse me, I have to do some remodeling up here. 92?

- 1 Q. Yes. And, in fact, if you turn to the last page of the
2 exhibit, it's actually written by Dr. Teague, correct?
- 3 A. Yes.
- 4 Q. All right. Same mistake with the next Document 20660, in
5 your direct at page 95, line 11 through 21, you basically say it
6 was "by" Mr. Vassallo and Dr. Senkus. Do you see that?
- 7 A. Yes.
- 8 Q. And if you turn to the last page of Exhibit 20660, you'll
9 see that it was actually signed by Dr. Teague, right?
- 10 A. Yes.
- 11 Q. Okay.
- 12 A. Can I add that if, in fact, the word "by" should be
13 replaced with "reference by" or whatever, then that should be
14 corrected because that was unintentional, it was simply my way
15 of categorizing the document.
- 16 Q. Now, the other two documents from Reynolds that you
17 discussed, you attribute to Dr. Teague and you are correct, and
18 so all four documents that you cite were from Dr. Teague, right?
- 19 A. Again, I have no reason to dispute that. In my final
20 document selection, I wasn't -- I frankly wasn't attending to
21 the names of the individuals.
- 22 Q. Do you know anything about Dr. Teague's training or
23 experience?
- 24 A. No.
- 25 Q. Let me try to cut this short and avoid having to go

1 through the documents, but basically, all these documents
2 recognize or assume that nicotine is important to smoking, but
3 not one of them uses the word "addiction"; is that true?
4 A. I don't recall when these documents -- many documents use
5 the word "addiction" or "drug" or other words that, in my
6 opinion, shows that they understood the addictive and drug role
7 of nicotine. Whether these ones do, I, frankly, don't recall.
8 I'd have to go back and look at them.
9 Q. If I represented to you that the documents do not use the
10 word "addiction", would you dispute it?
11 A. I trust you.
12 Q. Okay. Thank you.
13 A. In this case.
14 Q. Do you recall whether or not it is true that none of
15 these documents, none of these documents presents the results of
16 or empirical data from experiments that were done within R.J.
17 Reynolds?
18 A. I -- my recollection is that they were conclusions based
19 on their overall understanding of their business and what they
20 were selling.
21 Q. And at that time, isn't it true -- well, let me ask it
22 this way: Isn't it true that R.J. Reynolds first established
23 its biobehavioral division and hired its first scientist with a
24 degree in psycho pharmacology or pharmacology in 1981?
25 A. I don't know what year, but I -- my understanding is my

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1 belief is that they came to their conclusion before they set up
2 laboratories to investigate the specific mechanisms of action.

3 Q. Well, actually what the four documents do is they set
4 forth hypotheses and propose that Reynolds conduct studies to
5 pursue it which they ultimately did in 1991, right?

6 A. Repeat how you phrased that.

7 Q. What the four documents that you site from 1969 to, I
8 think, 1975 do is they advance hypotheses or assumptions that
9 the documents recommends Reynolds pursue with research and, in
10 fact, that research was commenced in 1981, isn't that true?

11 A. I think -- yes, I think that -- and I think that's how --
12 we'd have to look at my direct again, but I think that's how I
13 portrayed it. It was analogous to NIDA saying we need to study
14 the mechanisms of cocaine addiction because it's obviously
15 addicting. We came to the -- we knew it was addicting before we
16 started our studies.

17 Q. All right. And starting in 1981, and thereafter, when
18 Reynolds did research on nicotine, it published it extensively,
19 did it not?

20 A. They published quite a bit. I believe that the FDA cited
21 a total of around 500 industry publications. I'm not sure how
22 many were from RJR.

23 Q. Well, let me ask you about one final Reynolds document,
24 then, and that's the document that you cite in your direct from
25 1983 where the Reynolds scientists are looking at the Benowitz

1 study that appeared in that year.

2 A. Yes.

3 Q. Do you remember that? Okay. And you cite one document

4 from one of the Reynolds scientists who said that while the

5 research reported by Benowitz was consistent with what he had

6 felt at the time, do you remember that?

7 A. This is Dr. John Robinson's.

8 Q. Robinson, yes.

9 A. Yes.

10 Q. All right. And do you know whether or not what

11 Dr. Robinson felt at that time was based upon his review of the

12 literature?

13 A. I don't know what all, what he felt was based on. He had

14 been with RJR, he understood their business, and his review --

15 his memo was very short, very cursory, so I don't -- it doesn't

16 tell me what all he based his opinion on. I concur with his

17 opinion.

18 Q. All right. Did you ever read his testimony about this

19 memo?

20 A. His testimony about this memo?

21 Q. Yes, Dr. Robinson's testimony?

22 A. No.

23 Q. About this memo. All right.

24 There's another document that you didn't use in your

25 direct examination that I would like to briefly explore with you.

1 THE COURT: Actually, before we move into that, let's take
2 our morning recess at this point.

3 MR. BIERSTEKER: Fine.

4 THE COURT: And we'll take 15 minutes, everybody.

5 (Thereupon, a break was had from 11:05 a.m. until
6 11:25 a.m.)

7 THE COURT: Okay. Mr. Biersteker, please.

8 MR. BIERSTEKER: Yes. Thank you, Your Honor.

9 BY MR. BIERSTEKER:

10 Q. Dr. Henningfield, just a couple of questions. I wanted
11 to talk about another internal review of the Benowitz 1983 study
12 that you did not discuss in your direct examination that came
13 from the files of my client. It's JD 063739, please.

14 And if you look up at the top of the document, Doctor,
15 it's dated July 25th, 1983 and it's from John Reynolds. And you
16 can see from the subject line that it refers to the Benowitz
17 1983 paper, correct?

18 A. Yes.

19 Q. Do you know if Dr. Reynolds was Dr. Robinson's boss?

20 A. I'm not sure.

21 Q. I just --

22 A. There were a number of memos where they were both on it
23 and I'm not sure of their working relationship.

24 Q. That's fine. I just wanted to draw your attention to the
25 last paragraph. And there, Dr. Reynolds says: "The fact that

1 these data have first appeared in the ex-house scientific
2 literature points out the debilitating effects of the constant
3 barrage of crash projects and endless reorganizations on the
4 progress of our internal research projects. The work reported
5 by Benowitz, et al., is very much of the same nature that we
6 have been trying to accomplish over the past two years."

7 That's consistent with the biobehavioral division having
8 been established in 1981, right?

9 A. Yes.

10 Q. All right. "The work we've been trying to accomplish
11 over the past two years; namely, the investigation of the exact
12 effects of smokers' behavior on the yield and chemistry of
13 smoke. It is unfortunate that we must read of this work in the
14 ex-house literature first."

15 Do you see that, Doctor?

16 A. Yes.

17 Q. Doesn't this document make clear that Benowitz' work with
18 biomarkers of nicotine and the investigation of the effects of
19 smokers' behavior on the yield and chemistry of smoke was ahead
20 of what Reynolds was doing internally?

21 A. As they -- as it says exactly what it says, I -- it
22 doesn't change my conclusion that they had come to a conclusion
23 that regulating nicotine dose was important before they even
24 established this laboratory. The purpose of the laboratory was
25 to thoroughly investigate the mechanisms. And in this case,

1 Benowitz was ahead of them.

2 MR. BIERSTEKER: All right. I have no further questions,
3 Your Honor. Thank you.

4 THE COURT: All right.

5 And, Mr. Minton, I think you'd better identify yourself
6 for the record. I'm not sure Mr. Biersteker did, but of course
7 the record will show that he was referred to.

8 MR. MINTON: I'm Mike Minton for Lorillard Tobacco
9 Company.

10 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D.

11 BY MR. MINTON:

12 Q. Good morning, Dr. Benowitz. I think we met --

13 THE COURT: No, except this isn't Dr. Benowitz.

14 BY MR. MINTON:

15 Q. I'm sorry. Dr. Henningfield.

16 We met about four years ago in connection with the
17 Blankenship case. I don't know if you recall that.

18 A. That seems right. And I'm honored by the distinction of
19 being called Dr. Benowitz.

20 Q. Well, I apologize for doing that.

21 In your written direct, Dr. Henningfield, you cite and
22 discuss a number of documents from Lorillard's Nicotine
23 Augmentation Project. Do you recall that?

24 A. Yes.

25 Q. For brevity' sake, I would like to refer to that as NAP,

1 if I could.

2 A. Sure.

3 Q. And the NAP encompassed a series of research projects
4 over a period of time at Lorillard, correct?

5 A. Yes.

6 Q. And I believe you've cited to eight NAP documents in
7 connection with your written direct. There are actually more
8 than that, but I think you've cited to eight. Does that sound
9 about correct to you?

10 A. That sound about right. I didn't count them.

11 Q. And you actually cite the beginning document from the NAP
12 in May 1976. Do you recall that?

13 A. It sounds right.

14 MR. MINTON: Okay. And if we could bring up, Jamey,
15 Exhibit 34194, the first page.

16 BY MR. MINTON:

17 Q. And this is in fact that beginning document, isn't it,
18 Dr. Henningfield? It's the one where Lorillard maps out, if you
19 will, the research that they are contemplating or proposed to do
20 under the rubric of the NAP, correct?

21 A. Yes.

22 Q. And the document says it was written to provide a broad
23 outline of the proposed scope of the project, but there really
24 are only two things that I want to look at here.

25 If you look at the middle of that first paragraph, do you

1 see where it says that "The goal of the NAP will be difficult to
2 attain." It's on the first page. It's about midway in that
3 first paragraph.

4 A. Yes.

5 Q. And it goes on to say that "The NAP research effort is
6 going to involve novel cigarette construction and the
7 utilization of scientific technology not previously practiced
8 within Lorillard." Do you see that as well?

9 A. Yes.

10 Q. What the author is basically saying there is, you know,
11 looking ahead as we're beginning this project, this is going to
12 be difficult and it's going to require new techniques, things
13 that Lorillard hasn't attempted before, correct?

14 A. Yes.

15 Q. And you have no reason to challenge those statements, do
16 you?

17 A. No.

18 Q. Okay. And every single research area that the document
19 then goes on to mention is research that is contemplated in the
20 future, correct?

21 A. You're saying "every." I haven't gone -- I'd have to go
22 back through it. I don't have any reason to dispute that. I
23 mean, it generally was at least forward looking.

24 Q. Right. Well, you're not aware of the document referring
25 to any research that Lorillard had already done, correct?

1 A. Well, they refer to assumptions and facts, such as the
2 use of ammonia and acidity and other things. I don't know what
3 all those conclusions are based on, so I don't know that they
4 were based on earlier Lorillard work or if they were
5 assumptions. So I don't know where they drew their conclusions
6 from.

7 Q. You didn't investigate that --

8 A. No.

9 Q. -- in other words? Okay.

10 Well, by the time this memo was written in mid 1976, and
11 I don't want to go back into this in any depth, but by mid 1976,
12 there were public health entities such as NCI that were calling
13 for the development of low tar medium nicotine cigarettes,
14 correct?

15 A. Yes.

16 Q. All right. And for instance, there was a famous article
17 in Consumer Reports in May 1976 that strongly advocated that
18 this type of research should be commenced immediately. Do you
19 recall that?

20 A. I don't recall the date or the specific article; I recall
21 Consumer Reports addressing it.

22 Q. All right. And you mention Dr. Russell. He was perhaps
23 the most famous supporter of this type of research, at least
24 outside the United States. But you also mention the Royal
25 College and Jarvis. They were also at this time advocating that

- 1 that research be done, correct?
- 2 A. Yes. And they weren't isolated.
- 3 Q. And what Russell and the NCI and the Royal College and
- 4 Jarvis -- what they had found was that the way cigarettes were
- 5 being made in the 1970s, the mid 1970s, as tar was reduced,
- 6 nicotine was going down with the tar, correct?
- 7 A. It was pretty much parallel.
- 8 Q. Right. To use their terminology, the nicotine was
- 9 following the tar in lockstep, correct?
- 10 A. Yes.
- 11 Q. All right. And at that point in time, the tar-to-
- 12 nicotine ratios were in the neighborhood of 14 or 15 to 1,
- 13 right?
- 14 A. Yes.
- 15 Q. All right. And what Russell and the NCI and the others
- 16 who were calling for this type of research were saying, was that
- 17 as you drove the tar numbers down, and the nicotine followed,
- 18 what they were finding was that some smokers didn't care for the
- 19 cigarettes; they weren't getting, quote/unquote, satisfaction
- 20 from the cigarettes, correct?
- 21 A. Right.
- 22 Q. And what they were finding as well was that other smokers
- 23 who were trying these products, they were compensating when they
- 24 smoked the products in order to compensate for the reduction in
- 25 nicotine delivery, correct?

1 A. Yes. And you said "satisfaction" a moment ago. Russell
2 was very specific. He was very clear that you needed enough
3 nicotine to maintain the addiction. That was his word.

4 Q. All right. But others used different terminology. For
5 instance, the NCI in connection with their call for this work,
6 they said both; they said the physiologic properties of
7 nicotine, but the organoleptic properties of nicotine as well,
8 correct?

9 A. Yes.

10 Q. And the logic of the public health people that were
11 making these recommendations was really twofold: That it really
12 didn't make any sense to make a low tar cigarette that people
13 weren't willing to smoke, correct?

14 A. Correct.

15 Q. And second, it didn't make much sense to manufacture a
16 low tar cigarette that was smoked in a way that didn't end up
17 delivering less tar because people compensated whether they
18 smoked the cigarettes, correct?

19 A. It was, yes, clearly the goal.

20 Q. Okay.

21 A. And the goal that --

22 Q. And so what the thinking of Russell and the NCI and
23 others in the public health community was: Let's try to break
24 the ratio. Let's try to make cigarettes that had more nicotine
25 per unit of tar, correct?

1 MR. GOLDFARB: Objection, Your Honor. This is repetitive
2 and cumulative from questioning of other counsel.

3 THE COURT: No, I don't think so. Overruled.

4 Go ahead, please. You may answer.

5 THE WITNESS: Okay. Yes.

6 BY MR. MINTON:

7 Q. All right. The core idea was that if people compensate
8 when they smoke these lower tar cigarettes that were being made
9 in the mid 1970s where nicotine was following tar down, that
10 what you do is you try to boost the nicotine so smokers wouldn't
11 compensate and they'd end up getting less tar. That was the
12 theory; that was why they were recommending this, right?

13 A. That's the general concept.

14 Q. And Mr. Webb went into this. I don't want to go through
15 it in detail, but I do want to explore one additional fact.
16 When -- NCI sponsored a meeting on that very topic in May 1976,
17 correct?

18 A. I don't recall the date, but they did sponsor a meeting
19 and they had their own working group working on it.

20 Q. Right. And you referred to the Russell cigarette. There
21 was a name for that cigarette in the United States as well. It
22 was called the Gori cigarette here, right?

23 A. Yes.

24 Q. A little competition between the two on who would get the
25 credit. But Mr. Webb mentioned that one of the research areas

- 1 that NCI asked the companies to explore was the pH of smoke. Do
2 you recall that?
- 3 A. Yes.
- 4 Q. All right. That wasn't the only method that NCI had
5 encouraged the companies to explore. They looked at a variety
6 of techniques to manipulate nicotine with respect to tar,
7 correct?
- 8 A. Yes.
- 9 Q. All right. And that's because NCI believed that this was
10 a necessary approach to the feasibility of making safer
11 cigarettes, right?
- 12 A. That what was necessary? I mean are you referring to a
13 specific technique or just the idea?
- 14 Q. The idea.
- 15 A. Yes, the concept of less toxins to nicotine is what they
16 were investigating in part.
- 17 Q. And the tar -- if the tar-to-nicotine ratio at the time
18 was 14 or 15 to 1, nicotine-to-tar is the mathematical in verse
19 of that, right?
- 20 A. Yes.
- 21 Q. And so when NCI said that they wanted to try to get the
22 tar-to-nicotine ratios below 10, what they were really saying
23 was we want to try to increase the nicotine-to-tar ratio by
24 about 50 percent, right?
- 25 A. I think that's -- that's one way of putting it. Their

1 main concern was decreasing the toxins.

2 Q. Well, to put it plainly, NCI was advocating manipulating
3 nicotine, right?

4 A. I think that's not an unreasonable way to put it.

5 Q. All right.

6 A. That was part of it.

7 Q. And that's what they asked the companies to research,
8 right?

9 A. Again, that was part of it. The purpose was to reduce
10 exposure of people to toxins and one of the mechanisms to that
11 end would be to alter the ratio.

12 Q. Right. And the Surgeon General recommended the same
13 thing in the 1979 and the 1981 Surgeon General's Report, right?

14 A. Again, reducing -- the importance of reducing exposure to
15 people; that was always --

16 Q. But again, through the method of manipulating nicotine so
17 that nicotine per unit of tar went up, right?

18 A. They weren't locked into any method and there are many
19 ways to do it: Reduce target toxins, reduce all toxins, but --

20 Q. That was one method that was -- that the Surgeon General
21 proposed, correct?

22 A. Yes.

23 THE COURT: Do you remember what the year was of the NCI
24 meeting that you were questioned about a few minutes ago?

25 THE WITNESS: The mid '70s. I don't know the date.

1 THE COURT: That's all I have down.

2 MR. MINTON: Your Honor, for the record, just if you want
3 that, that's JD 041339. And it's May -- I believe it's May 5th,
4 1976.

5 THE COURT: '76?

6 MR. MINTON: Yes.

7 BY MR. MINTON:

8 Q. And so what the NCI and Russell, the Surgeon General and
9 the public health community were recommending, that is exactly
10 what Lorillard went off and embarked upon in terms of the
11 research it did in the Nicotine Augmentation Program, correct?

12 A. That was at least -- at least part of what they did was
13 consistent with that.

14 Q. All right. And in its internal documents -- in fact, in
15 the very seminal document that we had up on the screen before,
16 Lorillard said that was why it was doing that, because of the
17 recommendations of the public health community, correct?

18 A. Yes. That was the first sentence of their -- one of the
19 memos.

20 Q. And you don't have any reason to doubt that, do you?

21 A. No.

22 Q. All right. And the reason you point to Lorillard's NAP
23 documents is because you say that they show that Lorillard had
24 the design tools at its disposal to manipulate nicotine,
25 correct?

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1 A. Yes.

2 Q. And we just went through the evidence that shows why
3 Lorillard researched those tools. Now, the question is: Did
4 Lorillard actually put those tools to work in commercial
5 cigarettes?

6 You don't point to any Lorillard documents which you say
7 showed that Lorillard commercialized any of the research that it
8 did under the NAP, correct?

9 A. I don't have documents. The cigarettes are on the
10 market. The ventilation, which they recognize in this document
11 could disproportionately increase nicotine, they acknowledged --
12 I'm not sure how they found that out, but they in fact employ
13 those technologies in their cigarettes on the market.

14 Q. Well, Lorillard researched ventilation then as part of
15 the NAP, is what you're saying, correct?

16 A. Yes.

17 Q. But you also say you don't know that there is a
18 Lorillard -- well, we'll get to that later.

19 It's correct, isn't it, that your testimony is that you
20 don't know whether any of the methods Lorillard researched under
21 the NAP were incorporated into its commercial products, correct?

22 A. I'm not certain. I know that ventilation was; I believe
23 Lorillard uses ammoniation, which they discuss in this
24 document. Beyond that, I frankly don't know which specific
25 techniques were used in which specific cigarettes beyond those

1 that I mentioned.

2 Q. All right. We'll look at those two specifically.

3 Is it your practice, Dr. Henningfield, to ask the party

4 who retained you in the litigation to provide you information

5 with respect to the other side's experts that would be useful or

6 helpful to you in reaching your opinions?

7 A. Yes. And I discuss a wide range of documents. Very

8 often, as in this case, I have an awful lot of documents.

9 Q. Did you ask anyone at the Department of Justice: Has

10 anyone at Lorillard, any Lorillard scientist testified in this

11 case about the issue of whether or not any of the research

12 methods that were researched under the NAP -- whether those were

13 commercialized? Did you ask them that?

14 A. I don't recall. And that would not -- from my

15 perspective, would not have been relevant to my opinion.

16 Q. Okay. Well, do you know who Dr. Ed Robinson is?

17 A. The name.

18 Q. Okay. Do you know who Lorillard's Dr. Alex Spears was?

19 A. Yes.

20 Q. And did the DOJ allow you or ask you to review the

21 testimony of either of those folks?

22 A. They didn't ask me. I reviewed Dr. Spears' testimony or

23 quite a bit of his testimony in the past, including his

24 Congressional testimony when he became, I think, CEO.

25 Q. All right. You were an expert witness in the Scott case,

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1 correct?

2 A. Yes.

3 Q. And so was Dr. Spears. His video deposition was read or
4 played in the Scott case. Were you aware of that?

5 A. No, I don't.

6 Q. So you didn't become aware from your expert work in the
7 Scott case about Dr. Spears' testimony about whether or not any
8 of the NAP research was commercialized?

9 A. No.

10 Q. Okay. And the DOJ didn't tell you in this case that
11 Dr. Robinson testified that no commercial product was ever
12 developed as a result of the NAP?

13 A. Not in that specific case. What DOJ asked me is if I was
14 aware of which techniques that I told them about were employed
15 in commercial cigarettes. And I said that beyond things that
16 are obvious, like vent holes and things that I've discussed,
17 ammonia isn't concealed -- the mechanism. What it does is
18 disputed. But that I did not know and, frankly, that wasn't
19 relative to my opinions that I was offering in the case.

20 Q. Okay. Well, let's talk about the actual design of
21 Lorillard's commercial cigarettes. You mentioned design
22 features in your written direct examination, which you say have
23 the potential to impact nicotine delivery, correct?

24 A. Yes.

25 Q. All right. But as I understand your testimony, you don't

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1 claim to know how or which of those design features any of the
2 defendants in this case have actually incorporated into their
3 products, correct?

4 A. Well, once again, some of them you can see with the naked
5 eye. The ventilation, which they refer to in this document as
6 having up to 40 percent higher nicotine delivery, is used. But
7 there are many other specific techniques that I don't know if
8 they were ever used.

9 And more importantly, I don't know the mix of techniques,
10 because there isn't any simple technique that produces the
11 outcome in a cigarette.

12 Q. In other words, what you're saying is you couldn't
13 consider just one in the abstract; you'd have to put it into the
14 mix of an actual cigarette design to determine whether it had an
15 impact on nicotine delivery, correct?

16 A. You look at the overall -- I mean, you look at the
17 overall effect. The Benowitz study is probably a good case in
18 point because there, you're literally looking at the nicotine in
19 the blood, which is the end product.

20 Q. Okay. With respect to my client, Lorillard, you don't
21 point to any evidence that a particular design feature of an
22 actual commercial cigarette increases the delivery of nicotine
23 by some amount, correct?

24 A. I don't recall that I singled out Lorillard. Again, the
25 ventilation is pretty much across the board. Lorillard includes

1 that. And in my testimony, I generally use the term "tobacco
2 industry" and I did not single out specific companies.

3 Q. Well, ventilation had been used, for instance, before
4 1976, before the Nicotine Augmentation Program was commenced at
5 Lorillard, correct?

6 A. Yes. I believe mid, late '60s, I believe, it was first
7 used in the form of the vent holes as opposed to the porous
8 paper.

9 Q. So the presence or absence of ventilation of itself
10 doesn't tell you anything about an intent to manipulate
11 nicotine, correct?

12 A. The amount, placement, the nature of holes, whether
13 they're electrostatic, mechanical, laser -- all these things
14 alter the effect and can alter the nicotine/tar ratio. And my
15 presumption is that companies do not randomly select the
16 technique, but select it to produce their desired outcome.

17 Q. And have you studied those variables with respect to a
18 Lorillard commercial cigarette: The amount of ventilation, the
19 placement of ventilation holes, just the variables you just
20 named that could impact the delivery of nicotine?

21 A. I don't recall which documents that I've seen pertain
22 directly to Lorillard. The -- I have reviewed additional
23 Lorillard documents beyond those that I cited in my direct and
24 my expert report, but I frankly never did a table to see which
25 companies used which techniques and did which studies.

1 Q. Okay. Well, in your written direct, you certainly don't
2 point to any particular design feature of a Lorillard cigarette,
3 be it ventilation or anything else, and say, "In my opinion" --
4 as Dr. Henningfield -- "I believe that feature was put there
5 with the intent to manipulate nicotine." You don't say that, do
6 you?

7 A. No. And I wouldn't have --

8 MR. GOLDFARB: Objection --

9 THE COURT: Excuse me a minute.

10 MR. GOLDFARB: Objection, Your Honor. Asked and answered.

11 THE COURT: Well, he's given a clear yes or no.

12 I'm not sure if our court reporter got it down, so why
13 don't you repeat it, please.

14 THE WITNESS: Yes. Not that I'm aware of. I refer to the
15 "tobacco industry techniques."

16 BY MR. MINTON:

17 Q. Okay. Well, you'll agree, won't you, Dr. Henningfield,
18 that cigarette designers can have any number of reasons or
19 purposes for recommending a particular design or design feature?

20 A. Yes.

21 Q. All right. And you've never had any training in
22 cigarette design or construction or the manufacture of
23 cigarettes, correct?

24 A. Correct.

25 Q. And you quite candidly state you're not a cigarette

1 designer, right?

2 A. Correct.

3 Q. And let's talk about Lorillard's commercial cigarettes.

4 Do you recall that when I asked you a few years back what any of

5 Lorillard's brands were, you testified at that point that you

6 didn't know?

7 A. I don't -- I -- other than major brands like Marlboro,

8 Camel, I don't attend a lot to who's making them. What I do is

9 I look at a wide range of brands.

10 Q. So it's still true today, you don't know what brands

11 Lorillard makes?

12 A. Not right now, especially the way the companies have sold

13 brands and shifted around.

14 Q. Okay. You've never spoken with anyone at Lorillard about

15 their product designs or their product design goals, right?

16 A. At Lorillard, no.

17 Q. All right. Or their product development research,

18 correct?

19 A. No.

20 Q. And you don't know what Lorillard's cigarette designers

21 would say are the basic criteria that have guided their designs

22 over the years?

23 A. I know that from the documents, their documents, that

24 nicotine is a critical feature. I think there are other

25 elements that are obvious to presume: The importance of

1 reducing tar and nicotine by FTC estimates.

2 But -- so I'm not sure what you're --

3 Q. My question was if we put a Lorillard cigarette designer

4 on the stand and under oath to say what have been the design

5 criteria that have guided cigarette designs at Lorillard over

6 the years, you don't know what those are, correct?

7 A. I think a reasonable presumption is to make a good

8 tasting, big selling cigarette that delivers lower values on the

9 machines. And I'm not sure what else that person would say.

10 Q. But the point of your answer is you would have to make a

11 presumption because you don't know, correct?

12 A. Correct.

13 Q. All right. And you don't know what Lorillard's --

14 And by the way, with respect -- you cite 12 Lorillard

15 documents in your written direct, correct?

16 A. I'll take your word for it. I didn't -- I didn't make an

17 effort to count or balance across companies.

18 Q. Not one of those documents -- not one of those 12

19 documents concerns itself with the design of an actual Lorillard

20 commercial cigarette, correct?

21 A. I don't know that that's true. This very document that

22 you've shown me discusses techniques that are used in actual

23 commercial cigarettes, so --

24 Q. You just picked up and indicated the seminal Lorillard

25 NAP research document, correct?

- 1 A. Yes.
- 2 Q. And that document talked about future contemplated
3 research, correct?
- 4 A. Yes.
- 5 Q. My question had to do with a document that talked about
6 the design of an actual Lorillard commercial cigarette. You
7 don't point to one in your written direct testimony, correct?
- 8 A. No. I point to the ventilation concept as one of the
9 concepts, as I've discussed several times, and that's in here
10 and it was used by Lorillard. There are other things that I
11 don't know if they were ever used.
- 12 Q. You don't know which employees worked in cigarette design
13 at Lorillard, correct?
- 14 A. That's correct.
- 15 Q. As a matter of fact you testified in the past you
16 couldn't name a single scientist at Lorillard that worked in
17 cigarette design, correct?
- 18 A. Beyond Dr. Spears, I couldn't.
- 19 Q. All right. And for any particular Lorillard commercial
20 cigarette, you couldn't say whether or not that cigarette
21 actually uses ventilation holes, correct?
- 22 A. I could if I looked at them, but offhand, I'd have to
23 look at them -- buy some and look at them.
- 24 Q. Yeah. Well, I'm not interested in determining whether or
25 not you could extemporize opinions at this point on the stand.

1 I'm talking about the opinions that you have already formed and
2 the basis -- the factual basis for the opinions that you have,
3 Dr. Henningfield.

4 You don't know that there's a single Lorillard commercial
5 product -- you can't name it -- that actually has ventilation
6 holes, correct?

7 A. I looked at the ventilation on the Massachusetts tables.
8 I believe there were several cigarettes that had elevated
9 ventilation. I could not -- I wouldn't sit here and try to name
10 a brand.

11 Q. Okay. Certainly not under oath, correct?

12 A. That's why I wouldn't name a brand.

13 Q. All right. And is it your assumption, Dr. Henningfield,
14 that when the design of a commercial cigarette changes, that
15 there are reasons for the change, that the cigarette designer
16 had some purpose in mind?

17 A. I assume the choices the companies make are not random.

18 Q. All right. And let's take your example of ventilation
19 holes. If there are Lorillard products that have ventilation
20 holes, you can't say what the actual design documents say were
21 the reason or reasons why ventilation holes were used, correct?

22 A. That's correct.

23 Q. Ventilation holes are used to reduce tar, aren't they,
24 Dr. Henningfield?

25 A. That is one purpose.

1 Q. All right. And if there are ventilation holes on
2 Lorillard's products, do you know what factors Lorillard took
3 into account in deciding where they placed the ventilation
4 holes?

5 A. In terms of placement, the obvious factor is beyond the
6 machine and that was beyond the port. And that was something
7 that was, I think, disputed with FTC, early '70s. But in terms
8 of once it's beyond the cigarette smoking machine port, I do not
9 know what-all factors were considered.

10 Q. Do you have any factual basis to challenge that Lorillard
11 places its ventilation holes in the location that it believes
12 are least likely to be occluded or blocked by the smoker when
13 the smoker smokes the cigarette?

14 A. In terms of where they are placed, I don't. And that was
15 never the problem that I raised in my testimony.

16 Q. Okay. For any design feature, then, in any Lorillard
17 commercial cigarette at any time that may have impacted nicotine
18 delivery or smoke pH, you haven't attempted in your written
19 direct to point to the actual reasons that the Lorillard
20 designer said "Put that in the product," correct?

21 A. In a given one, I haven't. They highlight in their first
22 sentence up to 40 percent higher nicotine delivery. I believe
23 it is likely that nicotine delivery was a factor, but in any
24 given cigarette on the market, I do not know what their specific
25 considerations were.

1 Q. And again in your last answer, you went back to that
2 seminal NAP document which talked about research that was
3 contemplated in the future, correct?

4 A. And their assumptions as they started the research.

5 Q. And in terms of the design of any cigarettes that
6 Lorillard sold to the public, you don't point to any Lorillard
7 document that says that the delivery of a particular level of
8 nicotine was a purpose or an intent of the design, correct?

9 A. I believe that's correct.

10 Q. And the same's true with respect to smoke pH. You don't
11 point to any Lorillard document that says that affecting smoke
12 pH was part of the purpose or the intent of the design of that
13 commercial cigarette, correct?

14 MR. GOLDFARB: Objection, Your Honor. The witness has
15 answered the broader question with respect to any particular
16 design feature for Lorillard and at this point he's just going
17 over particular design features that will elicit the same answer
18 that Dr. Henningfield has replied on several occasions at this
19 point.

20 THE COURT: No, it's important to -- even if this is a
21 narrower question, to get it answered very specifically. So the
22 objection's overruled.

23 BY MR. MINTON:

24 Q. Do you recall the question, Doctor?

25 A. Yes. And that's correct.

1 Q. Thank you.

2 A. Or my answer is "That's correct."

3 Q. In your direct exam, you testify about your opinion about
4 the state of industry knowledge about the addictiveness of
5 nicotine and compare that to the state of knowledge in the
6 public health community. And you do that by decade, the 1950s,
7 the 1960s, the 1970s, the 1980s, the 1990s, correct?

8 A. Yes.

9 Q. And you point to two specific Lorillard documents which
10 you say demonstrate Lorillard's knowledge of the addictiveness
11 of nicotine. And it's on page 94 of your written direct.

12 If you could bring it up, please, Jamey.

13 Well, I must have the page -- actually, the
14 Lorillard-specific -- page 94 shows the general question, where
15 you're asked: What are the documents that you consider
16 significant in terms of defendants' knowledge?

17 And then the Lorillard documents that you mentioned are
18 over on page 96 and 97. And you point to two Lorillard
19 documents there, correct?

20 A. Yes.

21 Q. And I went through, and maybe I'm wrong and you can
22 double-check me on this, that in terms of your decade-by-decade
23 analysis, these are the only documents from Lorillard that you
24 mention in connection with your decade-by-decade analysis,
25 correct?

1 A. It may be. I -- again, I didn't do this according to a
2 matrix, so I'll take your word for it.

3 Q. Okay. So, those are the only documents that you point to
4 in support of your statement that Lorillard had some knowledge
5 or understanding about the addictive properties of nicotine that
6 the public health community didn't have, correct?

7 A. In this direct testimony, those are the only ones that
8 I've cited, but my opinion is not based simply on those two
9 documents.

10 Q. Well, but those are the only two that you point the Court
11 to, correct?

12 A. As an expert, my knowledge and opinion is based on far
13 more than the documents that I've cited.

14 Q. But these are the ones that, according to your own
15 testimony, that you consider to be significant, and you're the
16 one who provided them as examples, correct?

17 A. I thought these were significant. I did provide them and
18 there are lots more that I could have provided.

19 Q. All right. Well, let's look at your testimony about the
20 first of those memos. If you could -- are we on page 97? We
21 are.

22 And you've got 34210. You say in your testimony this
23 memo was authored by Drs. Minnemeyer, Schultz and Mrs. Anthony.
24 And is your point in stating that, the authorship of that
25 document, to point out that these were key employees at

1 Lorillard?

2 A. No, simply to reference the document -- I -- the document
3 numbers there, and I don't know if it's necessary to put names
4 or not, but I mainly write review chapters and not these things,
5 so I always put names.

6 Q. All right. Well, let's start with the most basic of
7 facts you're referring to, U.S. Exhibit 34210. If you could
8 bring that up, Jamey.

9 And you say it's authored by Minnemeyer, Schultz and
10 Anthony. And actually, it's submitted and authored by Dr. H.S.
11 Tong, right?

12 A. Yes -- well, submitted by Dr. Tong.

13 Q. All right. And it says that right on the face of the
14 document, doesn't it?

15 A. Yes.

16 Q. Do you know anything about Dr. Tong besides the fact that
17 he appears to have authored this document?

18 A. No, I don't.

19 Q. You don't know what his position was?

20 A. No.

21 Q. How long he may have been with Lorillard?

22 A. No.

23 Q. Whether he had any qualifications in terms of
24 pharmacology or psychopharmacology?

25 A. I don't know any specifics about him.

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- 1 Q. All right. And this memo is a literature review, isn't
2 it, Dr. Henningfield?
- 3 A. Yes.
- 4 Q. It doesn't report the results of any original research,
5 correct?
- 6 A. Correct.
- 7 Q. It doesn't have one word in it about anything Lorillard
8 had done in connection with research in-house, correct?
- 9 A. I'd have to go back and look. If you're --
- 10 Q. Look at the references on the last three pages. He cites
11 31 documents that are in the open scientific literature,
12 correct?
- 13 A. Yes.
- 14 Q. And so there is nothing in this document that is based on
15 anything other than public sources, correct?
- 16 A. I don't know that that's true.
- 17 Q. You didn't check that?
- 18 A. No, my point is he is citing public sources. I do
19 analyses as a part of my normal work in which I cite public
20 sources, come to opinions based on my total knowledge, and that
21 is considered useful to companies. This is what he's doing
22 here, and he's providing an analysis that goes beyond any one of
23 those studies.
- 24 Q. Okay. But in terms of addressing the question of whether
25 or not Lorillard knew something that the outside scientific

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1 world didn't know, this document doesn't advance the ball, does
2 it, Dr. Henningfield, because it's citing external public
3 literature.

4 A. He's coming to conclusions that are evident in the
5 document for the company, such as the importance of the
6 threshold dose of nicotine. And even later than 1976, the
7 companies were -- at least some of them were disputing that
8 concept. And this is something that was of great interest to
9 me.

10 Q. All right. You're saying he's making a particular
11 judgment, but the fact is, whatever judgment he's making, he's
12 basing it on his review of the external and open scientific
13 literature, correct?

14 A. I do not know that that is the only basis for his
15 opinion. He has, in fact, cited literature, and it -- this is
16 a -- especially for the time, in my opinion, this is a
17 sophisticated analysis.

18 Q. Well, he cites 31 references, Dr. Henningfield. In 1977,
19 the next year, NIDA put out a monograph and it was three and a
20 half inches thick on this topic, right?

21 A. Yes. When I say something is a sophisticated analysis,
22 it doesn't have to be a tome, but this is thoughtful to the
23 point; it talks about the concept of the threshold dose,
24 nicotine regulation by cigarette smokers. It gets right to the
25 heart of it.

- 1 Q. Okay. Let's go to the concept of the threshold dose.
2 That's what you note this document for in your written direct,
3 correct?
- 4 A. Yes.
- 5 Q. Now, let's put the document in its proper chronological
6 context. This is December 1976, so that's six months after
7 Lorillard has been asked by the National Cancer Institute to
8 begin doing this research that they embarked on in the NAP,
9 correct?
- 10 A. Yes.
- 11 Q. All right. And as a matter of fact, Tong's literature
12 shows it's part of the NAP. It references the NAP project
13 number, doesn't it? I think it might be at the end.
- 14 A. I'll take your word for it.
- 15 Q. All right. And in your written testimony, Dr.
16 Henningfield, you never say what Dr. Tong showed -- excuse me,
17 what Dr. Tong believed the literature showed with respect to
18 whether there was an optimum or threshold dose, correct?
- 19 A. Not that I recall. My point was simple and addressed in
20 my report.
- 21 Q. Well, Dr. Tong's read of the literature, if you go
22 through this document, is basically, We don't know if there's a
23 threshold or optimum dose of nicotine. That's the conclusion he
24 came to, right?
- 25 A. Well, I think that's oversimplifying it.

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- 1 Q. Well --
- 2 A. I don't think you misstated it; I think you over
3 simplified his analysis.
- 4 Q. Generally you'd agree, but you want to talk about some of
5 the specifics as well, correct?
- 6 A. Yes.
- 7 Q. All right.
- 8 A. He raises issues, gaps in knowledge that I think were
9 appropriate to raise at the time.
- 10 Q. Okay. Let's look at some of the issues and gaps in
11 knowledge that Dr. Tong raises here. If you could turn to the
12 Conclusion section on page 7 of the memo.
- 13 First of all, in he's basing his conclusions, he says in
14 the first line, on his review of the literature, right?
- 15 A. Yes.
- 16 Q. And then he goes on to say: "It seems that within limits
17 smokers can and do control their nicotine intake from smoke by
18 varying their smoking techniques," correct?
- 19 A. Yes.
- 20 Q. Well, there was no mystery about that being at least the
21 theory that was driving the whole effort for medium nicotine/
22 low-tar cigarettes, correct?
- 23 A. Correct.
- 24 Q. And as a matter of fact, Dr. Henningfield, there was no
25 logic for that entire effort of increasing the nicotine to tar

1 ratio, there's no logic for doing that unless you believe that
2 smokers were compensating, correct?

3 A. The logic was more basic. The logic, as expressed by
4 Dr. Russell, was that nicotine was addictive, you needed a level
5 to sustain nicotine addiction, which is why it made no sense to
6 me or the FDA that the companies would do this and then deny
7 that nicotine is addictive.

8 Q. I submit to you you got the first half of the logic, but
9 the second part which is necessary is that the existing
10 cigarettes of the day weren't satisfactory because smokers were
11 compensating, and the whole purpose then of Russell and the
12 public health communities' call for these medium nicotine
13 cigarettes was based upon their belief that smokers were
14 compensating. That's the logic of the proposal, isn't it?

15 A. Again, I think my representation is the core logic; the
16 compensation was a problem.

17 Q. And if we go to the introduction -- excuse me, let's look
18 at one other statement that Tong makes. He says: "No single
19 parameter appears to offer a reliable handle for measuring
20 optimum satisfaction dose of nicotine at the present time."
21 Correct?

22 A. Yes.

23 Q. All right. So he's basically saying we don't know,
24 right?

25 A. He's not saying that; he's saying no -- he's saying

1 exactly what he says, and I think what he said was a reasonable
2 thing to say then and is a reasonable thing to say now.

3 Q. Okay. Let's go back to the --

4 THE COURT: Isn't he saying in that sentence that the
5 scientific community doesn't know what, if any, single individual
6 parameter offers a reliable basis for measuring optimum
7 satisfaction dose of nicotine?

8 THE WITNESS: Yes, and I agree with your interpretation of
9 the sentence, and I believe his interpretation was too broad.
10 And if -- if we read back your interpretation, I can tell you
11 what words I objected to. Your interpretation, I believe, is
12 true to the sentence and I would make the same interpretation.
13 BY MR. MINTON:

14 Q. Let's go to another statement that Tong makes earlier on
15 page 2 of the memo that may illuminate the very issue that the
16 Judge has raised.

17 Page 2, line 1 -- I'm sorry, it's -- it's right under the
18 introduction, Jamey, which may be -- there it is.

19 Tong says he believes there's a lack of definitive
20 knowledge about why smokers smoke, right?

21 A. Yes.

22 Q. He then says: "It seems probable that smokers smoke
23 because of a combination of sensual, psychological, social,
24 cultural and pharmacological effects," correct?

25 A. Yes.

1 Q. And in about the middle of that paragraph he says: "The
2 precise role nicotine plays in the smoking habit is unclear,"
3 correct?

4 A. Yes.

5 Q. Now, let's put Dr. Tong's memo aside for a second. We
6 know from this memo and from the NAP memo that you have in front
7 of you that Drs. Schultz and Minnemeyer were the top people in
8 the department, correct?

9 A. Yes.

10 Q. All right. Do you know what Dr. Schultz or
11 Dr. Minnemeyer's views were on nicotine or addiction?

12 A. I do not recall offhand.

13 Q. Let's go to the other document that you point to with
14 respect to Lorillard's knowledge of the addictive properties of
15 nicotine, and that's a 1976 memo from Ireland to Minnemeyer that
16 you reference at page 96 of your direct examination.

17 A. I'm sorry, do I have this memo?

18 Thank you.

19 Q. That document says: "In the event of augmented nicotine
20 cigarettes, it is felt that an assay for free nicotine on leaf
21 and in smoke would be advantageous." Do you see that on page

22 1 --

23 A. Yes.

24 Q. -- in the middle of the paragraph in the second sentence?
25 And augmented nicotine cigarettes, again, that's something that

1 the NCI and others had been requesting that the manufacturers
2 explore, correct?

3 A. Yes.

4 Q. And this document is in July 1976. That's only a couple
5 months after the NCI meeting that we talked about in May 1976,
6 right?

7 A. Yes. As that paragraph shows, though, this goes beyond
8 that.

9 Q. Well, this memo, it actually concerns a research proposal
10 to develop an assay for free nicotine, right? That's the
11 purpose of this memo?

12 A. That's the purpose on the presumption that, as it states,
13 a small amount of free nicotine is more desirable per bowl than
14 a large amount of bound nicotine.

15 Q. Well, and that was one of the exact matters that was
16 addressed by the NCI's TWG in the May 1976 meeting, correct?

17 A. It was one of the topics discussed.

18 Q. Okay. And NIH had specifically requested the companies
19 to investigate methods to enhance delivery of nicotine through
20 the use of free nicotine, correct?

21 A. I don't know what their specific directives were. Again,
22 we've discussed this several times. The general purpose was
23 reduce the toxicity of the products.

24 Q. And one way was by exploring this method of increasing
25 the free nicotine, correct?

- 1 A. That was one of the many possible avenues to that end.
- 2 Q. And if you're going to do that, the logical first step is
- 3 to come up with an assay method for free nicotine, right?
- 4 A. That's one of the things that would be helpful.
- 5 Q. And that's what Ireland says is the purpose of this memo,
- 6 right?
- 7 A. Yes.
- 8 Q. And you don't discuss in your written direct the actual
- 9 research proposal that the memo makes, the assay method that's
- 10 proposed. Instead, you refer to three statements in the memo
- 11 talk about, one, the addictive properties of the smoke; two,
- 12 smokers adjusting their smoking habits to satisfy their desire
- 13 for nicotine; and 3, that a small amount of free nicotine is
- 14 more desirable than a large amount of bound nicotine, correct?
- 15 A. Yes.
- 16 Q. Well, two and three were matters that were put right out
- 17 on the table in the NCI TWG meeting, right?
- 18 A. They were discussed at the meeting.
- 19 Q. Okay. And just like the Tong document, the other
- 20 Lorillard document that you cite, Ireland's statements about
- 21 those three subjects, specifically refer to a review of
- 22 literature on the subject, correct?
- 23 A. Yes.
- 24 Q. And do you know what literature Ireland reviewed?
- 25 A. What all literature?

1 Q. The document says that the statements are based on a
2 review of literature on the subject. Do you know what
3 literature Ireland reviewed?

4 A. I don't know the entire body of literature. I could make
5 presumptions, but I do not know for a fact what all he
6 considered in his conclusions.

7 Q. Well, isn't it fairly clear to you, Dr. Henningfield,
8 that this document, which is a research proposal for the
9 development of an assay for free nicotine, that the purpose of
10 that memo was not to be a comprehensive review of why people
11 smoke?

12 A. It did not appear to me to be that, and I would not
13 portray it as that.

14 Q. Okay. Do you know anything about the author M.S.
15 Ireland?

16 A. No.

17 Q. Do you know what her job was at Lorillard?

18 A. No.

19 Q. Okay. You don't know if she had any training in
20 pharmacology or any of the disciplines that would be relevant to
21 the investigation of the addictive properties of nicotine?

22 A. No, I do not know any specifics about the position.

23 Q. Do you know if she would be considered a key employee in
24 terms of Lorillard's evaluation of whether nicotine was
25 addictive?

1 A. No.

2 Q. You testified that there were entire research groups
3 within defendants that were dedicated to studying the
4 pharmacological effects of nicotine. Let's start with something
5 real simple.

6 You haven't pointed to a single human or animal research
7 study or project that Lorillard conducted in-house regarding the
8 pharmacological effects of nicotine, right?

9 A. I don't believe so.

10 Q. And you haven't pointed to a single document that
11 suggests that Lorillard ever did that kind of research, correct?

12 A. I'll take your word for it. I don't -- again, I didn't
13 organize the documents in a way that allows me to -- In other
14 words, I can't under oath say this is true when I haven't
15 reviewed the documents in that manner. I have no reason to
16 dispute your representation because you've looked at it a little
17 differently than I have.

18 Q. Okay. And just so we're clear, you're not making the
19 claim under oath that Lorillard performed human or animal
20 research in-house on the pharmacologic effects of nicotine,
21 correct?

22 A. No.

23 Q. Before we get to -- and I'll be done in just a second.
24 Now, before we get to the final Lorillard document that I want
25 to discuss here, which is a 1977 memo that you point to that

- 1 concerns a proposed design for a bypass filter.
- 2 A. Yes.
- 3 Q. Before we get to that, you're aware that in 1977 or 1978
- 4 Lorillard asked the FTC if it would be possible for Lorillard to
- 5 advertise tar and nicotine values that were higher than the
- 6 values that you got using the FTC Method? You're aware of that,
- 7 aren't you?
- 8 A. I'm aware of it. I haven't looked at it for, I believe,
- 9 some time. I don't know when I looked at it.
- 10 Q. You're aware also that the FTC responded by issuing an
- 11 advisory opinion in 1978, right?
- 12 A. Yes. Basically you report what the method shows. Am I
- 13 oversimplifying --
- 14 Q. Exactly. It said -- the FTC said in the Commission's
- 15 view it would be deceptive to advertise a tar figure that's
- 16 higher than the applicable FTC tar figure, right?
- 17 A. Correct.
- 18 Q. And in your written direct on page 61, you point to --
- 19 1977 Lorillard document entitled: "Bypass Filter for Low-tar
- 20 Cigarettes," you remember that document, right?
- 21 A. Yes. Are you going to bring it up for me?
- 22 Q. Yes. It's Exhibit 34286. You can go ahead and bring it
- 23 up on the screen, if you would, Jamey.
- 24 A. Thank you.
- 25 Q. And you testified that this memo proposed a method of

1 ventilation that would dilute the smoke in the machine, meaning
2 the FTC machine, but not when the consumer smoked it, right?

3 A. Correct.

4 Q. And you also testified that you didn't know whether
5 Lorillard had ever sold a product that actually used a bypass
6 filter design, correct?

7 A. Correct.

8 Q. And Dr. Henningfield, you've been pointing to this July
9 19th, 1977 memo. At least, by my personal knowledge, you've
10 been pointing to that in your testimony in cases for at least
11 four years, right?

12 A. Honestly, you would know better than I. I wouldn't
13 dispute your representation.

14 Q. Well, when I took your deposition in the Blankenship
15 case, you referred to this memo, didn't you?

16 A. It seems likely.

17 Q. All right. And during all those four years, have you
18 made any investigation at all to see what action Lorillard may
19 have taken in response to this Ihrig memo that you point to?

20 A. I'm not sure what you mean. I have portrayed the memo as
21 I portrayed it.

22 Q. Well, you testified you don't know whether or not there
23 was a commercial product that ever used the design, correct?

24 A. From Lorillard, I have testified.

25 Q. And weren't you at all curious to see what became of the

- 1 proposal in this document?
- 2 A. I was curious. I'm curious as to what becomes of a lot
3 of the design features that are discussed. I would love to
4 know.
- 5 Q. But you never investigated it after all these four years
6 of pointing to this memo?
- 7 A. No.
- 8 Q. Okay. Do you know if Dr. Schultz was Mr. Ihrig's
9 supervisor?
- 10 A. I wouldn't know that. It seems reasonable, but I
11 wouldn't testify that I know that for a fact.
- 12 Q. You know there are literally millions of Lorillard
13 documents that are on the Internet that you can download, right?
- 14 A. Yes.
- 15 Q. You can search for them?
- 16 A. Yes.
- 17 Q. All right. And you've done that yourself, haven't you,
18 you've searched for tobacco company documents on the Internet,
19 correct?
- 20 A. I've done a fair amount of searching.
- 21 Q. All right. One way of finding out whether Dr. Schultz
22 ever responded to Dr. Ihring would be just to do an Internet
23 search, right?
- 24 A. That would -- sure.
- 25 Q. It's pretty easy to do, isn't it?

1 A. Yes.

2 Q. All right. Jamey, could you go ahead and bring up the
3 "Lorillard Docs" Web page.

4 And what I've entered there in the search request is a
5 search that says: "Person, author, colon Schultz," meaning that's
6 the person who authored it is Schultz, and "person" or p --
7 "recipient," if you put a colon after -- is there a colon after
8 "recipient" between "Ihrig." Can you go ahead and hit the search
9 button.

10 Okay. Let's look at what we find. The first document
11 that comes up right there is, in fact, a document that is written
12 by Schultz, it comes back to Ihrig, and it looks like it's
13 one week after the Ihrig to Schultz memo, right?

14 A. Yes, and I have to say you're much more sophisticated at
15 figuring how to put in that entry than I am. I could not have
16 done that that quickly.

17 Q. Okay. Well, I practiced it once, believe it or not.

18 A. I bet.

19 Q. Could you go ahead and click on that document, Jamey?

20 And that brings up a document, and, in fact, it's a July 26,
21 1977 document to Ihrig from Schultz, and it says: "Subject.

22 Bypass filter." Okay. And could you flip the screen over.

23 I'll represent that this is the same document that's been marked
24 as JD 021763.

25 Let's look at that. And the first sentence confirms it's

- 1 in reply to Ihrig's memo of July 17th that you cite, correct?
- 2 A. Yes.
- 3 Q. And at first it looks like Dr. Schultz is actually
- 4 praising Mr. Ihrig's idea. It says: "Your memo is an excellent
- 5 illustration of originality, creativity and the proper way to
- 6 research and present an original idea." But down in the second
- 7 sentence he says -- or in the second paragraph he says: "I've
- 8 got to reject your proposal," right?
- 9 A. Yes.
- 10 Q. And he explains why he's rejecting Mr. Ihrig's proposal.
- 11 He says that he believes the method would produce false results,
- 12 and neither personally or Lorillard could do that. Do you see
- 13 that?
- 14 A. Yes.
- 15 Q. He says Lorillard's goal as a company is to present the
- 16 consumer with the best products possible, fairly and honestly
- 17 advertised. Do you see that?
- 18 A. Yes.
- 19 Q. It says: "The goal of Lorillard's R & D effort is to
- 20 develop the technology upon which Lorillard products are based
- 21 and to furnish the rest of the company with the most accurate
- 22 and meaningful data possible."
- 23 Wouldn't you agree, Dr. Henningfield, that Mr. Schultz's
- 24 document is critical to put Mr. Ihrig's comments in context?
- 25 A. It's useful, but the fact is I never stated that

1 Lorillard -- that Lorillard employed this design; rather that
2 Brown & Williamson did.

3 Q. Thank you, Doctor.

4 THE COURT: This may be a good time for lunch. How
5 much -- how long will yours be?

6 MS. STRAUB: Five minutes, Your Honor.

7 THE COURT: That's what I thought you said. Let's do that
8 then.

9 MS. STRAUB: Thank you.

10 THE COURT: And will you also please identify yourself for
11 the record.

12 MS. STRAUB: Sure. Good afternoon.

13 Nancy Straub. Nancy Straub for Defendant Liggett Group,
14 Inc.

15 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D.

16 BY MS. STRAUB:

17 Q. Good afternoon, Dr. Henningfield. I'll be very, very
18 brief. There's only one reference in your direct testimony to
19 my client, Liggett, so I am going to limit my questions to that
20 one reference.

21 And that one reference to my client is on page 72 of your
22 written direct. You can pull it out, but I think you would agree
23 with me, to summarize, you've testified that the defendants,
24 including Liggett, sought to deceive smokers by altering pH
25 levels and increasing the nicotine impact of the cigarettes it

1 sold; is that correct?

2 THE WITNESS: Yes. I don't see the document.

3 THE COURT: I think it starts on page 71.

4 THE WITNESS: I'm sorry. Okay, yes, I'm sorry.

5 BY MS. STRAUB:

6 Q. So, in support of your testimony as to Liggett, you refer

7 to only one document and that's U.S. 59993, which I would like

8 to show you as well as the Court.

9 MS STRAUB: May I approach the witness, Your Honor?

10 THE COURT: Yes.

11 BY MS. STRAUB:

12 Q. Now, having relied on this document in your direct,

13 you're familiar with it, of course?

14 A. Yes.

15 Q. And U.S. 59993 is a 1971 internal Liggett document; is

16 that correct?

17 A. Yes.

18 Q. And who is the author of this document, Doctor?

19 A. It says it's prepared by Robert K. Williams.

20 Q. And do you know who Robert K. Williams is?

21 A. No.

22 Q. Do you -- you don't happen to know if he was a doctor

23 or --

24 A. No.

25 Q. Okay. I'll refer -- I believe he is a Ph.D., so I'll

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1 refer to him to be safe as Dr. Williams.

2 U.S. 59993 is a Liggett document that refers to certain
3 research done by Liggett involving calcium hydroxide in
4 cigarette design; is that correct?

5 A. Yes.

6 Q. Dr. Henningfield, as you sit here today, do you know
7 whether Liggett ever sold a cigarette that was treated with
8 calcium hydroxide?

9 A. No.

10 Q. And if we could just pull up page 2 of this document, I
11 believe the third line from the bottom beginning with
12 "Dr. Williams states: This completed our work on the project.
13 The cigarettes were turned over to physical section (sic) for
14 all further experimentation. We plan no further work on this
15 project." Do you see that?

16 A. Yes.

17 Q. And, Dr. Henningfield, do you know what, if anything,
18 happened to this experiment when it was turned over to the
19 physical scientists over at Liggett?

20 A. I believe that either this approach, or I might be
21 confusing it with another, was found to be unacceptable for
22 sensory reasons. In other words, it worked in the
23 pharmacological sense, but was not acceptable -- maybe I'm
24 confusing this technique with another.

25 Q. So, you're not sure, at least as to this document which

1 represents the use of calcium hydroxide, whether there was
2 further research done or further experimentation and ultimately
3 if it was implemented in any product that Liggett sold?

4 A. No, and that wasn't my point in citing it.

5 Q. Okay. Have you ever investigated or done research to
6 determine whether Liggett incorporated ammoniation or --

7 THE COURT REPORTER: I'm sorry, say it again.

8 MS. STRAUB: Sure.

9 BY MS. STRAUB:

10 Q. Have you ever researched or done investigation to
11 determine whether Liggett ever incorporated ammoniation or any
12 other process that increased nicotine impact in its cigarettes?

13 A. I don't know what specific techniques Liggett did.

14 Again, I didn't break down technique by company.

15 Q. Okay. Have you ever seen documents, internal Liggett
16 documents that indicate Liggett incorporated ammoniation or any
17 other process of increasing nicotine impact into the cigarettes
18 it sold?

19 A. I'm just not sure. I've seen so many documents from so
20 many companies that frankly at times I'm -- I don't always
21 recall which documents go with which company, and that's why I
22 want to be cautious and not say yes when I may be wrong.

23 Q. But in the 170 pages of your written direct, there were
24 no other Liggett-authored documents referenced; isn't that
25 correct?

1 A. I'll take your word for it. Again, I didn't put it
2 together counting which companies or --
3 Q. I understand. I just would like to show you one last
4 document and that's U.S. 86908.
5 MS. STRAUB: Can I approach the witness, Your Honor?
6 BY MS. STRAUB:
7 Q. Have you seen this document before, Doctor?
8 A. Yes.
9 Q. And U.S. 86908 is B & W's handbook on root technology,
10 correct.
11 A. Yes.
12 Q. And Dr. Henningfield, what is root technology?
13 A. Basically ammoniation technique for enhancing nicotine
14 delivery.
15 Q. And am I correct that root technology refers to various
16 means by which it's possible to increase nicotine impact
17 potentially?
18 A. That's part of the outcome. The mechanism is increasing
19 nicotine and an outcome is impact.
20 Q. Okay. And the initials RT used in this document, as well
21 as other industry documents, refers to the term "root
22 technology"; is that correct?
23 A. That's my understanding.
24 Q. Okay. If we can please turn to pages 9 and 10 of the
25 document. I flagged it for you. The pages are a little off.

Scott L. Wallace, RDR, CRR
Official Court Reporter

1 Go towards the end of page 9. It begins: "An analysis of the
2 root technology research and experimentation that had been done
3 by other companies." Are you familiar with this section of the
4 document?

5 A. Yes, generally.

6 Q. Generally? Okay. If we turn to the last sentence of
7 page 10, it states: "We have not seen any sign of RT in
8 Liggett's brands." Do you see that?

9 A. Yes.

10 Q. And, Doctor, you have no reason to disagree with that
11 statement; is that correct?

12 A. No, I wouldn't.

13 Q. Okay. I have no further questions.

14 THE COURT: All right. Thank you.

15 MR. BERNICK: Your Honor, just for the record, I have not
16 reserved -- I think I said I was going to use some time. I'm not
17 going to take time now.

18 (Counsel approached the mic.)

19 MR. BERNICK: I'm sorry, David Bernick. I said I wasn't
20 going to take time now, and I don't want that to be argued to me
21 that I don't have questions of the witness. I would love to
22 cover many things with the witness, including the last couple of
23 documents that were shown, but in the interest of moving the case
24 along, I'm prepared to forgo my cross-examination of the witness.

25 THE COURT: All right. And I don't believe there are any

1 other defense counsel who indicated they had any other cross.

2 Does the government still think it's going to be three
3 hours on redirect?

4 MR. GOLDFARB: Andrew Goldfarb again, Your Honor. By my
5 estimate, the cross-examination was about 14 hours, so based on
6 what I have, and of course we'll be looking at it at the lunch
7 hour again, I really can't imagine it being less than
8 three hours.

9 THE COURT: All right. We'll come back, everybody, at a
10 quarter of 2, please.

11 (A luncheon recess was had beginning at 12:37 p.m.)

12

13 C E R T I F I C A T E

14

15 I, Scott L. Wallace, RDR-CRR, certify that the
16 foregoing is a correct transcript from the record of proceedings
in the above-entitled matter.

17

Scott L. Wallace, RDR, CRR
Official Court Reporter

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Scott L. Wallace, RDR, CRR
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1 I N D E X

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3 Examinations Page

4

5 CONTINUED CROSS EXAMINATION OF JACK HENNINGFIELD, Ph.D. 7291
6 BY MR. SHEFFLER

7 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D. 7333
8 BY MR. BIERSTEKER

9 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D. 7359
10 BY MR. MINTON

11 CROSS-EXAMINATION OF JACK HENNINGFIELD, Ph.D. 7400
12 BY MS. STRAUB

13 E X H I B I T S

14 Description Page

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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,	:	CA No. 99-2496 (GK)
	:	November 30, 2004
Plaintiff,	:	1:52 p.m.
	:	
	:	Washington, D.C.
v.	:	
	:	
PHILIP MORRIS USA, et al.,	:	
	:	
Defendants.	:	
.	:	

VOLUME 36
AFTERNOON SESSION
TRANSCRIPT OF TRIAL RECORD
BEFORE THE HONORABLE GLADYS KESSLER
UNITED STATES DISTRICT JUDGE

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18 Proceedings reported by machine shorthand, transcript produced
19 by computer-aided transcription

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1 P R O C E E D I N G S

2 THE COURT: Sorry we are bit late today, everybody.
3 All right. We are now on redirect, please.

4 MR. GOLDFARB: Good afternoon, Your Honor. Andrew
5 Goldfarb for the United States.

6 JACK HENNINGFIELD, Government's witness, RESUMES

7 REDIRECT EXAMINATION

8 BY MR. GOLDFARB:

9 Q. Good afternoon, Dr. Henningfield.

10 A. Good afternoon.

11 Q. Dr. Henningfield, of course the cross-examination was
12 extensive and I'll try to move through the various topics that
13 were covered on cross-examination as quickly as we can, and I
14 may end up jumping around a little bit but we will get through
15 it.

16 During cross-examination, sir, defense counsel,
17 numerous defense counsel asked you many questions about
18 defendants' internal views of smoking and addiction. Do you
19 recall that?

20 A. Yes.

21 Q. And counsel on various occasions asked you to identify a
22 particular document or documents that showed that a particular
23 defendant either was still debating the notion of nicotine
24 addiction or had accepted the idea of smoking addiction.

25 Do you recall questions to that effect, sir?

1 A. Yes.

2 Q. Dr. Henningfield, does your conclusion of defendants'
3 understanding about smoking addiction and the role of nicotine
4 in that addiction turn on whether defendants made such a formal
5 internal proclamation?

6 A. No.

7 Q. Does your view of defendants' knowledge and understanding of
8 smoking and nicotine's role in smoking turn on whether
9 defendants actually used the word "addiction"?

10 A. No.

11 Q. Why not?

12 A. Well, they demonstrated that they understood that nicotine
13 was a drug working in the brain that was critically responsible
14 for the compulsive behavior of cigarette smokers. That was also
15 the conclusion the FDA came to, and it's similar to the
16 conclusion we had at NIDA for drugs, such as cocaine in the
17 1980s, when we embarked on an extensive process of research to
18 investigate the mechanisms by which cocaine causes addiction,
19 and that work is still going on today even though everybody
20 knows cocaine causes addiction. There are still many unanswered
21 questions. The same process continues today with nicotine at
22 NIDA and elsewhere.

23 Q. And in terms of the nature of the research that is reflected
24 in defendants' internal scientific documents, what does that
25 tell you about the nature of their understanding of nicotine and

1 its role in smoking?

2 MR. WEBB: Your Honor, I'm going to object to the form
3 of the question.

4 Lumping all defendants together, the defendants cannot
5 be speaking all at one time. It's got to be broken down
6 individually defendant by defendant. So I object to the form of
7 the question.

8 THE COURT: No. The objection is overruled.

9 Number one, the direct testimony itself didn't break it
10 down defendant by defendant. And Dr. Henningfield has made it
11 clear that he was looking at the industry as a whole rather
12 than -- I think he used the words "making a chart" to see what
13 defendant fit within what category. That's number one.

14 Number two, certainly the government has not focused
15 only on individual defendant by defendant. Obviously, there can
16 be redirect about the specific cross of individual defendants,
17 but the redirect doesn't in its entirety have to focus only on
18 individual defendant by defendant. As I say, the direct was
19 much broader than that.

20 Do you remember the question?

21 And I'm going to ask you again, Doctor, because you do
22 have a soft voice, and I heard that some people have trouble, if
23 you would try to talk into the mike, I think we will all do
24 better.

25 THE WITNESS: Thank you.

1 BY MR. GOLDFARB:

2 Q. The question just to -- that question, Dr. Henningfield,
3 was: From your examination of defendants' internal scientific
4 research documents, what do those documents tell you about
5 defendants' understanding and knowledge of nicotine and its role
6 in smoking behavior?

7 A. The documents, including documents that discuss the need to
8 further investigate mechanisms, the need to set up laboratories
9 and so forth demonstrate to me that they understood that
10 nicotine was critical, was their business, and then they did
11 what, frankly, makes sense if you understand that that is your
12 business, to set up laboratories to do research to further
13 investigate it.

14 And you generally have -- you don't set up laboratories
15 unless you've got a good reason to set up laboratories.

16 THE COURT: I want to go back for a minute to a
17 question that Mr. Goldfarb -- either it was his first or second
18 question this afternoon. It's a question I had really during
19 much of the extensive cross by different defendants, primarily
20 Mr. Webb, though.

21 It's clear from all the testimony that over the many
22 years we've been talking about, and I will say from the '50s
23 through now, that different terms have been used to describe the
24 effects of nicotine. And as you've testified and as other
25 witnesses have testified, sometimes the term is addictive,

1 sometimes it's habituating, sometimes it is dependence.

2 Putting aside legal implications of those words and
3 putting aside public relations implications of those words, does
4 it really make any difference either to your conclusions or from
5 a scientific viewpoint which of those terms is used to describe
6 the manner in which nicotine can be most appropriately
7 described? Or the effect, I should say, of -- the most
8 appropriate way to describe the effects of nicotine.

9 THE WITNESS: It does not. And in fact the FDA at
10 times has labeled addictive drugs as habit-forming in labeling
11 on the basis that at that time that communicated most accurately
12 the core point, that this drug could cause behavior that would
13 lead to substantial loss of control.

14 And that's the essence of it. Whether you call it
15 dependence, addiction, habit-forming, that's the core concept.
16 And whereas, the 64 Surgeon General's Report was debating, they
17 said maybe it's nicotine and all this other stuff in the upper
18 respiratory tract, and they weren't sure that it was drug effect
19 in the brain that was doing it, though they obviously suspected
20 that.

21 THE COURT: How do you define the term loss of control,
22 though?

23 THE WITNESS: Loss of control is objectively defined by
24 people saying they use in the face of harm and when NIDA and
25 others do surveys, they will ask, "Do you use more than you used

1 to," in which case nicotine like other -- or smoking like other
2 drugs, most people say, "Yes."

3 Do you use despite awareness of harm -- and this was
4 important for Dr. Pollin, or NIDA in the early '80s, that at
5 that time nine out of ten smokers in the national household
6 interview study said they wanted to quit and were still smoking.

7 So there are different ways of getting at it. And when
8 you have several ways that converge, that's when you say there
9 is substantial loss of control.

10 THE COURT: Isn't there data indicating that most
11 smokers after a certain period of time, let us say three to
12 five years, plateau out in terms of the number of cigarettes per
13 day that they smoke?

14 THE WITNESS: Yes. And we see that with other drugs,
15 too. People, for example, a physician opiate --

16 THE COURT: That means they are not increasing their
17 intake.

18 THE WITNESS: It means that they increase to a certain
19 point, and if they increase beyond that point, toxicity and/or
20 death can occur.

21 And so you see somebody that is, for example, a
22 stable-maintained-morphine-addict physician who has lots of
23 access, after months or years they level off at a level. They
24 are using more than when they started, more often and more per
25 day, but then they level off. And smokers do the same thing.

1 THE COURT: All right. Mr. Goldfarb. I interrupted.

2 BY MR. GOLDFARB:

3 Q. Just to follow up on one part of the court's question,
4 Dr. Henningfield. When -- do you recall Mr. Webb showed you
5 some statements where at least representatives of his client,
6 Philip Morris, denied that the smoking and nicotine were
7 addictive? Do you recall that testimony --

8 A. Yes.

9 Q. -- and those questions?

10 When Philip Morris and other defendants denied the
11 addictiveness of nicotine, were they simply objecting to the
12 label to be applied to smoking and to nicotine?

13 A. That was not my interpretation because they did not say we
14 are objecting to that label, but we would adopt the dependence
15 label.

16 Q. What do you understand to be the basis of their public
17 denials of smoking and nicotine addiction?

18 MR. WEBB: Your Honor, I'm going to object to his
19 understanding of somebody else's intent. He has no -- I object
20 to the form of the question.

21 THE COURT: Sustained. You will have to rephrase it.

22 BY MR. GOLDFARB:

23 Q. Dr. Henningfield, how do you interpret the public statements
24 that were made by Philip Morris and other defendants denying the
25 addictiveness of smoking and nicotine?

1 MR. WEBB: Your Honor, could I just object? I don't
2 think -- excuse me.

3 My objection goes to, he's not an expert on what people
4 intend by public statements. He's been qualified as an
5 addiction expert. He has no special expertise to speculate on
6 what other people mean when they speak.

7 So when my client uses the word smoking is not
8 addictive, he's not -- unless he's qualified as some type of
9 expert on the meaning of words, I don't know why he has any
10 expertise in this area to give that opinion.

11 THE COURT: He may or may not have expertise, but all
12 of you, meaning all counsel who have questioned this witness,
13 have at different times asked him what his understanding is of
14 certain either documents or certain phrases or certain
15 paragraphs and what he believes the motivation was behind them.

16 I'm not going to sustain that objection now when I've
17 heard so much testimony along that line. Obviously, when I
18 review testimony I can consider for myself whether his testimony
19 is credible as to any inferences he draws.

20 But there's been reams of testimony from him,
21 unobjected to, giving his interpretation, his views on the
22 intent of different parties here, so the objection is overruled.

23 Do you remember the question?

24 THE WITNESS: Yes.

25 THE COURT: Good.

1 THE WITNESS: And I will be just as objective as I can.

2 When Dr. Pollin on behalf of NIDA testified that
3 nicotine met all criteria as a dependence-producing drug, the
4 tobacco industry, through its experts, disagreed.

5 And in the '88 Surgeon General's Report the words
6 "addiction" and "dependence" were both used. The tobacco
7 industry disagreed.

8 In 1996, January 2nd joint filing by the tobacco
9 industry -- and I understand not including BATCo -- the industry
10 disagreed with "dependence", with "withdrawal", and concluded
11 that nicotine does not produce substantial pharmacological
12 effects.

13 BY MR. GOLDFARB:

14 Q. When you're talking about objective, you're talking about
15 the substance of the findings or just the label applied?

16 A. This is what -- what -- when they testified, I do not
17 believe nicotine is addictive, these were the, I guess,
18 objective manifestations of that. These were the positions the
19 companies took in written and oral documents and public
20 statements.

21 Q. And we will come back to some of those public statements in
22 a little bit.

23 Dr. Henningfield, in terms of your understanding of
24 defendants' knowledge of smoking and nicotine addiction, does
25 that understanding come solely from documents that were created

1 internally in the companies?

2 A. No. It comes in part from their behavior as manufacturers
3 marketing their products, designing their products. It comes
4 from all of that. There isn't any single line of evidence.

5 They contended through documents that they understood
6 their product, that they understood their business was nicotine.
7 I don't have any reason to doubt that, and it's -- I can't
8 imagine that companies would not know what their business is.

9 Q. In your review of defendants' internal documents did you see
10 any evidence that defendants also understood the nature of the
11 published literature?

12 A. Yes, they clearly understood that.

13 The FDA cited around 500 documents and papers that the
14 industry itself generated. And of course there is a Larson, et
15 al, compendia which I have described as two volumes. That's
16 because my version is two volumes.

17 Q. And the published literature that they were aware of, was
18 that only the published literature that they had set forth or
19 were they also aware of literature about smoking and nicotine
20 addiction that independent scientists had published?

21 A. It's clear --

22 MR. WEBB: Your Honor, I object. I don't know how he
23 can possibly testify to whether people inside these companies
24 had knowledge of certain literature. I mean, how can -- there's
25 no foundation for that at all.

1 THE COURT: Mr. Goldfarb.

2 MR. GOLDFARB: Your Honor, first of all, I'm about to
3 show a document, the Tong document that Mr. Minton showed this
4 morning, that indicated directly that --

5 THE COURT: Why don't you show that document? If you
6 want to come back to this question, you can try.

7 For now, at least, the objection is sustained to the
8 question.

9 BY MR. GOLDFARB:

10 Q. Let me do it this way.

11 Do you recall, Dr. Henningfield, do you recall earlier
12 this morning Mr. Minton asking you questions about a document
13 that were in your direct testimony that were written by
14 Lorillard employees?

15 A. Yes.

16 Q. And do you recall Mr. Minton asking in his questioning that
17 these were documents that were referring, not to internal
18 Lorillard documents -- information, but rather to a review of
19 the published literature?

20 A. Yes.

21 Q. And in your testimony did you intend to imply in your
22 identification of documents about defendants' knowledge of
23 nicotine that you were only discussing information internal to
24 the companies?

25 A. No.

1 Q. Let me just show you. The document that Mr. Minton
2 discussed this morning was in response to this question, on page
3 94 of your testimony, and at lines -- if you can see, at lines 6
4 to 8 the question is:

5 "Question: What documents, in addition to the ones you
6 have already discussed, do you consider significant in terms of
7 defendants' knowledge and understanding of the addictiveness of
8 nicotine from the 1970s?"

9 Do you see that question, sir?

10 A. Yes.

11 Q. And then the -- so the question was not limited to -- did
12 you understand -- what did you understand the question to be
13 asking?

14 A. That it was broad, that it was not limited specifically to
15 internal or the literature. I gave examples of documents that I
16 believe include both.

17 Q. And Mr. Minton then showed you the document on page 9 --
18 referred to page 97 of your testimony and showed you U.S.
19 Exhibit 34210. Do you see that at the top portion of the
20 screen?

21 A. Yes.

22 Q. And that was one -- is that one of the documents from the
23 1970s that you cited in response to that question?

24 A. Yes, and I think this is one where I misstated that it was
25 authored by one -- that were included on the document.

1 Q. Okay. And the quote that you pulled from the document
2 indicates that a review has been made of the literature on the
3 pharmacology of smoke-dose nicotine.

4 Well, I actually pulled the wrong one. But, anyway,
5 this document at least indicates that Lorillard was looking at
6 the independent published literature, sir. Is that your
7 understanding?

8 A. Yes.

9 THE COURT: What page are we on again?

10 MR. GOLDFARB: I'm sorry, Your Honor. That was page 97
11 of Dr. Henningfield's direct testimony.

12 BY MR. GOLDFARB:

13 Q. And then, Dr. Henningfield, Mr. Minton also showed you U.S.
14 Exhibit 34210, which was the 1976 Lorillard review of current
15 literature on the pharmacology of smoke-dose nicotine. It's
16 been put up on the screen.

17 A. Yes.

18 Q. Do you recall Mr. Minton asking you questions about that
19 document, sir?

20 A. Yes.

21 Q. That's the -- I just pulled the wrong document. That's the
22 document that indicates that Lorillard was looking at the
23 outside literature as well on nicotine as well?

24 A. Yes.

25 Q. Now, Mr. Webb showed you JD 040745. Do you recall being

1 asked about this document, Dr. Henningfield?

2 A. Yes.

3 Q. I think you were asked about it on two separate occasions by
4 Mr. Webb.

5 A. I believe so.

6 Q. And again, Dr. Henningfield, for the record, what is this
7 document?

8 A. This is a memo from Doctors DeNoble, Dunn, Osdene and Ryan
9 to Dr. Seligman and the subject is self-administration,
10 reinforcement, addiction.

11 Q. Now, when Mr. Webb asked you about this question -- asked
12 you about this document, you indicated that there was something
13 about this document you wanted to put into context.

14 Do you recall making that statement?

15 A. I recall the statement, and let me look at it for a second.

16 THE COURT: Why don't you move the document down so
17 that the witness can see it all?

18 Q. Is it -- I just wanted to ask you. What is the context that
19 you wanted to -- to convey concerning the statements made in
20 this document?

21 A. Well, the first thing is that -- is that it was represented
22 by Dr. DeNoble as being -- I don't remember the exact words --
23 but their major addiction expert or major addiction expert, and
24 Dr. DeNoble at that time had been at the company for less than a
25 year, I believe.

1 I have no reason -- I don't know what all his knowledge
2 was, but the document is not an unreasonable general summary.
3 But this was done before, to the best of my knowledge, they had
4 developed the rat self-administration model. And so at that
5 time there were some basic gaps in knowledge that we also faced
6 at NIDA.

7 Q. And in this document, sir, is Dr. DeNoble discussing a
8 particular type --

9 MR. GOLDFARB: Your Honor, if I could take a second.

10 Q. I know the stack is large. Can you see the document okay,
11 sir, on the screen?

12 A. Yes.

13 Q. In this paper, or in this memorandum, sir, is Dr. DeNoble
14 discussing a particular type of research?

15 A. He's discussing, as it says in the memo, self-administration
16 research, behavioral effects research. They were early into
17 their process.

18 And I think that Dr. DeNoble and the others -- and
19 again, this is a joint memo, so I don't know who contributed the
20 most to the memo -- but I think that it is a reasonable and
21 focused statement on the -- what the self-administration model
22 tells you and what it does not tell you.

23 And at NIDA when we found it critical to investigate
24 and determine the nature of nicotine reinforcement through the
25 self-administration model, we understood like others, and I

1 believe like Dr. DeNoble and his colleagues, that this is one
2 single test, one single line of evidence, an important one, but
3 again consistent with the way you do an analysis of a controlled
4 substance, you never rely on just one study, one test.

5 So it's a tentative -- he says it's a tentative
6 conclusion. I think it's a careful conservative statement for
7 the time.

8 Q. Now, turning to -- do you recall that Mr. Webb also showed
9 you the Document 040596?

10 A. I might recall if you told me more about the document.

11 Q. We will pull it up. Let me see. Do you have -- it was a
12 shorter document, so it might be hard to find in your stack.

13 A. Is this the one on the screen?

14 Q. It is the one on the screen, yes.

15 And, Chris, if you can pull out the top paragraph on
16 nicotine, that would be helpful.

17 A. Yes.

18 Q. Since we will be focusing.... Can you see that okay, sir?

19 A. Yes.

20 Q. And this is the 19 -- November 28, 1979, memorandum from
21 J.L. Charles to R.B. Seligman at Philip Morris?

22 A. Yes.

23 Q. And do you know who J.L. Charles was, or is?

24 A. No, I don't. I've seen the name, but I don't know what his
25 position was.

1 Q. And what about Dr. Seligman?

2 A. He was a senior researcher, and I'm going to say researcher
3 in the broad sense, at Philip Morris, but I don't know what his
4 specific position was.

5 Q. And the subject matter of the memo, as it indicates, is
6 various statements made by Dirk Pearson on the Merv Griffin
7 program of October 30, 1979.

8 Mr. Webb read that first paragraph under the heading
9 Nicotine, and just for the record I'll read that it states.

10 Pearson saying: "Okay, well, the trouble is low tar,
11 low nicotine cigarettes have not only low tar but low nicotine.
12 Now if you take a person's cigarettes and chemically remove half
13 the nicotine, he'll smoke nearly twice as many. If you double
14 the amount of nicotine, he'll smoke about half as many."

15 Do you recall Mr. Webb reading that portion to you?

16 A. Yes.

17 Q. And then Mr. Webb referred in the middle of that second
18 paragraph to the sentence that begins, "Nicotine is considered,"
19 and he talks about nicotine is considered a positive reinforcer.
20 "But the nicotine hypothesis has not been proven and remains
21 just a hypothesis."

22 Do you recall Mr. Webb reading that statement?

23 A. Yes.

24 Q. At this point in time, Dr. Henningfield, in November 1979,
25 had the independent public health community concluded that the

1 nicotine hypothesis was correct?

2 A. This is where it was mixed in that there were clear signs,
3 and that was considered in APA's determination of tobacco
4 dependence and withdrawal, but at the same token, if you looked
5 at the animal studies, the animal studies were mixed.

6 We also discussed the Hanson Investor study. That was
7 one of the studies that was considered but found inconclusive.
8 And it was Dr. Goldberg's work that was the first definitive
9 published work that is generally accepted as being the solid
10 work that established it with proper control procedures,
11 including for the central actions of nicotine.

12 Q. You also recall referring to a publication in your direct
13 testimony by Michael Russell in 1979. Do you recall that part
14 of your direct testimony?

15 A. Yes. And Michael Russell was one of the people that in fact
16 questioned -- raised questions about the Hanson Investor work and
17 pointed out that it was -- had not been definitively proven that
18 nicotine could serve as a centrally-acting reinforcer.

19 Again, there were signs, it appeared plausible, even
20 probable, but it had not been definitively done, and that's what
21 NIDA needed to make its definitive evaluation.

22 Q. At the time that this document was written,
23 Dr. Henningfield, what in your conclusion was Philip Morris's
24 internal view of the nicotine hypothesis?

25 A. In my opinion, Philip Morris already understood that

1 nicotine was the critical reinforcer in cigarette smoking.

2 Their interest in the self-administration laboratory,
3 in my opinion, was setting up the laboratory so that they could
4 investigate nicotine's reinforcing actions, but they already
5 believed that it was the critical pharmacological reinforcer in
6 cigarette smoking.

7 Q. And have you cited documents in your direct testimony so
8 indicating?

9 A. Yes.

10 Q. Let me show you U.S. Exhibit 22848. Thank you.

11 If you could just cull out the top, please.

12 Dr. Henningfield, U.S. Exhibit 22848, have you seen
13 this document before?

14 A. Yes.

15 Q. And what is this document?

16 A. I'll just read from the title. It's First Draft of Annual
17 Report to Phillip Morris by VP for Research and Development.
18 Considered Too Technical, Why One Smokes.

19 And I don't believe that I cited this in my direct or
20 my -- I might have cited it in my expert report. I've certainly
21 read it before.

22 Q. And it's indicated that it was drafted in the fall of 1969.
23 Do you see that? Just under the --

24 A. Yes.

25 Q. -- the handwritten note there.

1 A. Yes.

2 Q. Let me turn to page 2. Oh, just go back to the top page
3 first.

4 First of all, do you know who the vice president of
5 Research and Development was at Philip Morris in 1969?

6 A. I'm not sure. Dr. Dunn was at that point I believe one of
7 their senior researchers, but I'm not sure that he was head.

8 Q. Would you have any basis to quarrel with me if I said it was
9 Dr. Wakeham?

10 A. Excuse me?

11 Q. Would you have any basis to quarrel if I said it was
12 Dr. Wakeham?

13 A. Oh, no.

14 Q. Turning to the second page, please. If you looked at the
15 top paragraph -- if you could cull it up, please -- that
16 indicates, "We share the conviction with others that it is the
17 pharmacological effect of inhaled smoke which mediates the
18 smoking habit. Two independent groups of British researchers
19 are basing their programs on this belief."

20 And then if you can go further down the page to -- it's
21 the second to last paragraph. And here, further down the page,
22 this draft presentation for the Philip Morris board of directors
23 states, "We have, then, as our first premise, that the primary
24 motivation for smoking is to obtain the pharmacological effect
25 of nicotine."

1 Did I read that right, sir?

2 A. Yes.

3 Q. What do these statements tell you about Philip Morris's view
4 of the nicotine hypothesis in 1969?

5 A. It was their operational assumption in building, designing
6 and marketing their product. They understood that they were in
7 the nicotine business.

8 Q. And let me just go to 60,664 for a moment, please. Go to
9 page 2 of the document. I'm sorry, just cull out the first page
10 first.

11 Now, this document is titled, Smoking Psychology
12 Research, and it's Dr. H. Wakeham and it indicates it was
13 presented to the Philip Morris' board of directors November 26,
14 1969. Do you see that, sir?

15 A. Yes.

16 Q. And do you recognize this to be a document you cited in your
17 direct examination?

18 A. Yes.

19 Q. Go to page 2, please. I may have to come back to this
20 document, sir.

21 Let's call up 22967, and just cull out the title,
22 please.

23 Dr. Henningfield, you've been handed U.S. 22967. Have
24 you seen this document before?

25 A. Yes.

1 Q. What is this document?

2 A. This is a document by Dr. Dunn. It was the basis for his
3 presentation at a meeting concerning the motives and incentives
4 in cigarette smoking.

5 Q. And do you know when this document was written?

6 A. I believe in 1972. I would have to double-check.

7 Q. If we could go to the next page, and then looking at the
8 third paragraph down, and reporting on this -- reporting on the
9 attendees at that conference, Dr. Dunn writes, "Most of the
10 conferees would agree with this proposition, the primary
11 incentive to cigarette smoking is the immediate salutary effect
12 of inhaled smoke upon body function."

13 What do you interpret that statement to mean, sir?

14 MR. WEBB: Your Honor, my objection goes to this. This
15 exact quote is in his direct examination. My objection goes to
16 this is truly a repeat of the direct and that's not what the
17 purpose of redirect is supposed to be. That's my objection.

18 THE COURT: Objection is sustained.

19 MR. GOLDFARB: Your Honor, if I may, Mr. Webb suggested
20 by his questioning that there was some -- that Philip Morris as
21 of 1979 was still debating whether or not the nicotine
22 hypothesis was true and statements made by Dr. Dunn and by other
23 researchers at Philip Morris show that not -- I mean, I have a
24 right to question the witness to show the court whether or not
25 that was in fact true.

1 And naturally, there are statements that are in his
2 direct examination and documents in his direct examination that
3 we believe elucidate that point.

4 So to the extent there will be some use of the
5 documents that are in his direct examination, I think that's
6 inevitable, given the type of questioning that Dr. Henningfield
7 was --

8 THE COURT: Do you want to respond briefly?

9 MR. WEBB: I'll be brief. If it's in the direct
10 examination, it's in the record to be presented to Your Honor at
11 the right time. It's not in a redirect examination.

12 THE COURT: If you are merely using the citations to
13 matters that are in the direct testimony in such a way that what
14 you're really eliciting from the witness is what should be
15 argument, then the objection is sustained. And that's certainly
16 the case regarding this question with this particular document.

17 Unless you're eliciting testimony that is different
18 than what he gave in his direct, the objection will be
19 sustained, but if you are eliciting testimony that's different,
20 then that is proper redirect.

21 MR. GOLDFARB:: Okay. Would you -- I can tell you
22 where -- why I'm using this document. It's to respond to
23 questioning -- to a question by counsel.

24 THE COURT: But the documents are in the record and,
25 therefore, isn't it correct that the use of those documents by

1 the government is going to be by way of argument in terms of
2 what the interpretation is? It sounds that way to me.

3 I'm going to sustain this objection. Go ahead. Next
4 question.

5 BY MR. GOLDFARB::

6 Q. Let me cull out 22029, please. Dr. Henningfield, have you
7 seen this document before?

8 A. Yes.

9 Q. What is this document?

10 A. This is a document from Dr. Dunn in 1980 describing the high
11 nicotine, low TPM program.

12 Q. And in your view, was Dr. Dunn one of the most knowledgeable
13 people at Philip Morris about smoking and nicotine?

14 A. Yes.

15 Q. Now, let me cull out in the second paragraph.

16 Dr. Dunn writes to Dr. Seligman. "If even only some
17 smokers smoke for the nicotine effect, I personally believe most
18 regular smokers do, then in today's climate we would do well to
19 have low TPM" -- that's total particulate matter?

20 A. Yes.

21 Q. "And CO" -- carbon monoxide?

22 A. Yes.

23 Q. "Delivering cigarette that can supply adequate nicotine."

24 From Dr. Dunn's statement that, stating his belief that
25 most regular smokers smoke for the nicotine effect, what does

1 that say about Philip Morris' understanding of the nicotine
2 hypothesis at the writing of this memorandum?

3 A. They understood that at least some fraction of smokers were
4 smoking for the pharmacological effects of nicotine and
5 recognizing that it may not be all smokers.

6 Q. And, Dr. Henningfield, what percentage of regular smokers
7 are generally considered nicotine dependent?

8 A. The estimates vary, but in adult smokers, by virtually all
9 of the surveys it is the majority, and in some surveys it's less
10 depending on the technique. The range that the FDA used was
11 approximately 70 to 90 percent, and I think that's a reasonable
12 range for adult smokers.

13 Q. And how do the -- how does the rate of nicotine dependency
14 for smokers compare to the addiction rates for other drugs of
15 abuse?

16 A. It's much higher by any measure that has been used in
17 surveys, and by whether it is by application of the DSM criteria
18 or the proxy measures, including NIDA and national household
19 interview surveys.

20 Q. Can we go back to 040596?

21 THE COURT: Let me ask a question. Are all heroin
22 users considered addicted to heroin?

23 THE WITNESS: No, and -- hold on. I pulled out one of
24 my plugs.

25 No. And, in fact, the majority of people that have

1 used heroin never became addicted to heroin. And probably one
2 of the best comparative studies I believe I cited was the
3 Dr. Anthony, et al., comparative study where the lifetime risk
4 of being dependent to heroin, if you had used it, was roughly
5 half of what the lifetime risk of being dependent to cigarettes
6 were if you had ever smoked cigarettes.

7 And for cocaine, I'm going to say it's roughly half of
8 what tobacco was. Put another way. Depending on the survey, 70
9 to 90 percent of people that smoke meet criteria for dependance.
10 If you look at cocaine, it's closer to 20 to 25 percent today.

11 And heroin, it's -- don't have as good a numbers for
12 heroin, especially with all the pharmaceutical substitutes for
13 heroin, but it's the minority.

14 THE COURT: All right. Well, I want to follow up with
15 just one brief question.

16 Can individuals use heroin over a significant period of
17 time, i.e. in excess of one year, and still not succumb to
18 addiction?

19 THE WITNESS: Yes, and the phenomena was called
20 chipping. And that -- I think the term goes back to maybe the
21 '60s, '70s. Where you see it more commonly is with the
22 pharmaceutical products that have morphine effects, equivalent
23 to heroin; where there are a lot of people use them once per
24 week for years, use them as party drugs.

25 THE COURT: All right. Go ahead.

1 BY MR. GOLDFARB:

2 Q. Dr. Henningfield, turning back to this Charles -- to Jim
3 Charles to Dr. Seligman memo. In the middle of that paragraph
4 on nicotine the sentence beginning with, "Discussion with W.
5 Dunn."

6 Do you recall Mr. Webb reading the sentence that
7 states, "Discussion with W. Dunn indicates we have no internal
8 data which could support Pearson's statement with regard to
9 nicotine."

10 Do you recall Mr. Webb reading that?

11 A. Yes.

12 Q. And again, do you take W. Dunn to refer to William Dunn?

13 A. Yes.

14 Q. Let's look a bit more at that question. Can we cull up
15 34674, please?

16 Have you seen this document before, Dr. Henningfield?

17 A. I believe I have. I don't believe I cited it in my direct,
18 or I might have cited it in my expert report, but....

19 THE COURT: Do you need a copy of it?

20 THE WITNESS: I can see it all right on the screen.

21 THE COURT: Mr. Goldfarb, let's move along, please.

22 BY MR. GOLDFARB:

23 Q. Dr. Henningfield, this is a March 24, 1961, memorandum to
24 Mr. Hugh Cullman from Dr. Wakeham entitled, Trend of Tar and
25 Nicotine Deliveries Over the Last 5 Years. Do you see that?

1 A. Yes.

2 Q. Do you know who Mr. Cullman was?

3 A. I don't know what his position was.

4 Q. Okay. Can we go further down?

5 In the middle of the top paragraph that's showing there
6 on the page, the sentence beginning, "as we know."

7 Toward the bottom now, Chris.

8 In the middle of that paragraph Dr. Wakeham writes, "As
9 we know, all too often the smoker who switches to a hi-fi
10 cigarette." What does that refer to, hi-fi?

11 A. Oh, I believe that's a high delivery cigarette, but I'm --

12 Q. Might it be a filtration?

13 MR. WEBB: Your Honor, I object to the leading form of
14 the question.

15 THE COURT: Sustained.

16 BY MR. GOLDFARB:

17 Q. Dr. Henningfield, if you need to take a moment to look at
18 the document.

19 A. Yeah, I'd have to look at this. If you would like me to
20 take a minute or two to refresh my memory.

21 Q. Just take a guess.

22 (Pause)

23 A. Thank you.

24 Q. The sentence reads, "As we know, all too often the smoker
25 who switches to a hi-fi cigarette winds up smoking more units in

1 order to provide himself with the same delivery which he had
2 before."

3 From taking a look at the document, sir, what does that
4 sentence mean to you?

5 A. Well, it's another way of saying that he's -- that he's
6 compensating.

7 Q. And what do you interpret smoking more units to mean?

8 A. Smoking more units is -- generally units refer to
9 cigarettes, so smoking more cigarettes per day.

10 Q. And this is a 1961 document?

11 A. Yes.

12 Q. Okay. Let's look at U.S. 60664, and this is the same
13 document that was in your direct testimony. If we can go to
14 page 7 of the document.

15 A. Yes.

16 Q. In that, toward the bottom of the middle paragraph. If you
17 could cull that up, please.

18 This is describing to the board some experiments
19 undertaken in Philip Morris, and the final sentence in this
20 paragraph reads, "Those who were changed to stronger cigarettes
21 smoked less of each one and those who were changed to weaker
22 cigarettes smoked more of each one and/or more cigarettes."

23 Do you see that sentence?

24 A. Yes.

25 Q. What does that sentence indicate to you about whether Philip

1 Morris had internal evidence that smokers of lower delivery
2 cigarettes smoked more cigarettes?

3 A. This was what I would consider to be a nicotine compensation
4 study at -- for sure a smoke compensation study.

5 Q. Do you know if you cited any other documents in your direct
6 testimony that go to this effect with respect to Philip Morris?

7 A. I believe so. I'd have to go back and look again to see
8 which were the Philip Morris ones and which were others.

9 Q. Now, these last documents that I've showed you, what type of
10 compensation are these last documents focusing upon?

11 A. Here, they are looking at TPM, which is not total
12 particulate matter, is another term for tar, and here they are
13 looking at cigarettes with different TPM levels, and to the
14 extent to which I'd have to go back and look at the details of
15 this study, so I don't know the -- recall the extent to which
16 they were manipulating nicotine independently.

17 They were manipulating the total particulate matter, or
18 the tar, and that indicates smoke compensation. Very narrowly,
19 it doesn't necessarily mean nicotine compensation.

20 Q. And have you seen other internal Philip Morris' research
21 documents that attribute other compensatory smoking behaviors to
22 nicotine?

23 A. Yes. Nicotine and sensory characteristics of the smoke,
24 which is consistent with our current understanding that smoke
25 intake is influenced by both nicotine and sensory factors. It's

1 not just one or just the other.

2 Q. And do you cite in your direct testimony to some of the
3 documents that discuss other types of compensatory smoking
4 behaviors?

5 A. Yes.

6 THE COURT: I want to correct the record.

7 Did you say that they are looking at TPM which is "not
8 total particulate matter"?

9 THE WITNESS: Oh, which is total particulate matter.
10 I'm sorry.

11 THE COURT: That's what I thought. Just so our court
12 reporter makes a note that that correction has to be made a few
13 paragraphs earlier.

14 THE WITNESS: Thank you, Your Honor.

15 BY MR. GOLDFARB:

16 Q. Dr. Henningfield, you've testified just earlier in response
17 to some of my questioning that your conclusions don't rest on
18 defendants' actual use of the term addiction.

19 In fact, did some defendants from your review of
20 documents even before 1964 use the word "addictive" or
21 "addiction" to describe smoking and nicotine?

22 A. Yes.

23 Q. Can you recall any examples of such instances?

24 A. There is a 1963 document that I cited.

25 MR. BERNICK: Your Honor, I would object at this point.

1 He's getting into Brown & Williamson testimony, that singles out
2 Brown & Williamson, and I asked no questions of this witness
3 regarding Brown & Williamson and what Brown & Williamson said
4 internally, and I think it's inappropriate for redirect to now
5 pursue that subject matter.

6 If he wants to use somebody else as an example, that's
7 a different matter, but there were no questions regarding Brown
8 & Williamson.

9 THE COURT: Mr. Goldfarb. Do you have a response?

10 MR. GOLDFARB:: Oh! Yes.

11 My response is, first of all, Mr. Bernick had the
12 opportunity to cross-examine this witness. The question went to
13 whether he can cite examples or whether he did cite examples in
14 his direct testimony that defendants, before 1964, used the
15 words "addictive" and "addiction" to describe smoking and
16 nicotine.

17 And it seems to me natural and proper grounds for
18 redirect examination when defendants have asked Dr. Henningfield
19 repeatedly to cite examples or have looked at documents and
20 said, Does this use the word addiction? Does this not use the
21 word addiction? So it's further within the scope of the
22 redirect to explore that issue.

23 THE COURT: Mr. Bernick?

24 MR. BERNICK: I've learned my lesson. I object.

25 MR. WEBB: Your Honor, I would just point out I was

1 very careful. I did ask about documents before 1964, I asked
2 about Philip Morris. I avoided B&W because I didn't want to
3 tread into that territory, so I did not open the door to B&W
4 documents by my cross-examination.

5 MR. GOLDFARB: My question asked generally about
6 defendants and did not single out.

7 THE COURT: I know your question asked generally. But
8 in order to avoid any possibilities of getting specifically into
9 B&W issues and, therefore, in order to avoid allowing recross,
10 which I think I would probably feel compelled to allow, I'm
11 going to sustain the objection.

12 You may ask the question in terms of are there any
13 documents other than those relating -- not relating -- but
14 authored by B&W?

15 MR. GOLDFARB: Your Honor, I'll also say that
16 Mr. Sheffler, in showing Dr. Henningfield documents, showed
17 documents that were Brown & Williamson documents that were --
18 that concerned the HIPPO studies and this very subject.

19 And certain of the -- well, I mean if I could continue
20 to examine the witness, that is the subject matter on which some
21 of these defendants were discussing -- discussing the term
22 and --

23 MR. SHEFFLER: Your Honor, if I may. I'm not sure
24 that's correct. I think I was fairly careful to use all -- I'm
25 pretty sure I was very careful to use all BATCo documents.

1 MR. GOLDFARB: There were definitely documents on
2 letterhead. In fact, one of the documents that Mr. Sheffler
3 showed me made reference to inviting --

4 THE COURT: This is what I'm going to do, everybody,
5 because we're taking time and I know I'm being slow myself.

6 During our break you check the transcript. If any B&W
7 documents were used, then I will allow redirect and, if
8 Mr. Bernick feels compelled, I will certainly allow him to ask
9 questions about those documents. It may turn out that they are
10 not that significant.

11 Go ahead, please, but move on for now. And I'll give
12 you a -- you know, the full 15-minute recess to check out
13 Mr. Sheffler's cross.

14 BY MR. GOLDFARB:

15 Q. Can we cull out 53152, please?

16 Dr. Henningfield, have you seen this document before?

17 A. Yes, I have.

18 Q. This is a label, a document labeled a confidential document,
19 and it is identified as a tentative hypothesis on nicotine
20 addiction for the British American Tobacco Company, Limited by
21 C. Haselbach and O. Libert. Do you see that?

22 A. Yes.

23 Q. Now, sir, this document obviously -- and it's entitled --
24 the term refers to nicotine addiction; correct?

25 A. Yes.

1 Q. If you could turn to the last page, Chris, and highlight the
2 date.

3 A. 1963.

4 Q. May 30, 1963, is that what you said?

5 A. Yes.

6 Q. And just in the last paragraph. This document states, "In
7 conclusion, a tentative hypothesis for the explanation of
8 nicotine addiction would be that of an unconscious desire to
9 restore the normal physiological equilibrium of the
10 corticotropin releasing system body in which the normal
11 functioning of the system has been weakened by chronic intake of
12 nicotine."

13 Now, do you see that? Did I read that correctly?

14 A. Yes.

15 Q. What does BATCo's tentative hypothesis and the uses of the
16 word "addiction" tell you about their understanding in view of
17 nicotine prior to 1964?

18 MR. SHEFFLER: I object to the characterization as
19 BATCo's hypothesis.

20 THE COURT: Well, the objection is overruled. The
21 document will speak for itself as to whose hypothesis it is.

22 A. Okay. It's consistent with my view that the authors of this
23 document understood that nicotine was addicting. In other
24 words, that that was a given. And the question was, what are
25 the mechanisms of what we now call mechanisms of action?

1 Their proposed mechanism of action was the
2 corticotropin releasing system. In fact, we now know that they
3 were wrong, that was not the primary mechanism of action.

4 That doesn't matter to me. What matters to me is that
5 they took it as a given that there was nicotine addiction, and
6 the question is how do you explain it, which again we are still
7 doing to this very day. There are studies published almost
8 every week that cast further light on how nicotine addicts.

9 Q. And Dr. Henningfield, after 1964, did certain defendants in
10 some instances use the terms addiction and dependence to
11 describe smoking and nicotine?

12 A. Yes.

13 Q. And have you cited some of those in your direct testimony?

14 A. Yes.

15 Q. In fact, Mr. Minton showed you one this morning. Do you
16 recall that?

17 A. Yes.

18 Q. I'll just note it quickly for the court. If we could cull
19 out -- I think it's 56775. And then this is the document from
20 Ireland to Minnemeyer that Mr. Minton showed you?

21 A. Yes.

22 Q. Lorillard document from 1976?

23 A. Yes.

24 Q. Okay. The first few sentences of this memorandum state,
25 "Cigarettes sales are made for one reason. The customer is

1 satisfied with the product either from the taste or the
2 physiological satisfaction derived from the smoke. The
3 consensus of opinion derived from a review of the literature on
4 the subject indicates the most probable reason for the addictive
5 properties of the smoke is the nicotine."

6 MR. WEBB: Your Honor, I'm going to object. Again I'm
7 looking at the screen. This is a direct quote out of the direct
8 examination, so all this is doing is doing the same thing.

9 THE COURT: Let me hear the next question to see if it
10 is. Had you asked your question?

11 MR. GOLDFARB: My first question was going to be if I
12 read it correctly.

13 THE COURT: All right. Let's get to your next
14 question.

15 BY MR. GOLDFARB:

16 Q. Dr. Henningfield, does -- does this document indicate that
17 even after 1964, before the 1980 Surgeon General's Report,
18 Lorillard was referring to smoking and nicotine as addictive?

19 MR. WEBB: Your Honor, I object.

20 THE COURT: Sustained.

21 BY MR. GOLDFARB:

22 Q. Dr. Henningfield, do you cite other documents in your direct
23 examination that refer to, in which after 1964 defendants refer
24 to smoking and nicotine as addictive or as a dependency?

25 A. Yes.

1 Q. Dr. Henningfield, the other day do you remember -- moving to
2 a slightly different top, or slightly different topic -- do you
3 remember Mr. Webb citing to several public health community
4 publications that used the word "dependence" interchangeably
5 with or instead of the word "addiction" to describe smoking,
6 tobacco use or nicotine?

7 A. Yes.

8 Q. And do you recall defense counsel suggesting that you
9 personally, along with the other editors of the 1988 Surgeon
10 General's Report, decided to use addiction at a time when it was
11 not being used to describe drugs?

12 A. Yes.

13 Q. Dr. Henningfield, were you the first researcher to indicate
14 that drug addiction and drug dependence were used synonymously?

15 A. No.

16 Q. Do researchers in the field use the terms "drug addiction"
17 and "drug dependence" synonymously when describing other drugs
18 like crack or heroin?

19 A. Yes.

20 Q. Now, Mr. Webb showed you the 1979 Surgeon General's Report.
21 Do you recall that? It's one of the bigger ones.

22 A. Yes.

23 Q. You might be able to pull it up from the wall of paper
24 fairly quickly. For the record, thank you, this is JE 064071.

25 And let me focus your attention, Dr. Henningfield, to

1 page I-32, which is where Mr. Webb focused your attention.

2 A. I'm sorry. Which page?

3 Q. I-32 or 132. Do you have it, sir?

4 A. Yes.

5 Q. It indicates in the top paragraph, "It is no exaggeration to
6 say that smoking is the prototypical substance abuse dependency
7 and that improved knowledge of this process holds great promise
8 for prevention of risk."

9 Do you see that?

10 A. Yes.

11 Q. And by -- what does the Surgeon General mean when he says,
12 "smoking is the prototypical substance abuse dependency"?

13 A. That -- a prototypic means a model following along -- in my
14 opinion, following the lines of morphine, sedatives, stimulants.
15 In other words, it's often used interchangeably with classic.
16 You might say a classic drug of dependence or you might say a
17 prototypic drug of dependence, but the implication is you mean
18 that it shares all of the key features.

19 Q. So, in 1979 was the Surgeon General saying that smoking is
20 not addictive?

21 A. He was not saying that smoking was not addictive, and they
22 were indicating that it appeared to be addictive, but as I
23 believe I explained, or tried to, the purpose of this report was
24 not to address that question. So that was not a major
25 conclusion of the report.

1 Q. And, in fact, if we go to page I-33 of the 1979 Surgeon
2 General's Report at the beginning where -- looking at the
3 paragraph numbered number 9 -- it states, "Inferences about the
4 evolution of smoking suggest that by the end of the ninth grade
5 very few adolescents are addictive smokers. The critical level
6 of the onset of addictive smoking appears to be in high school."

7 Do you see that?

8 A. Yes.

9 Q. So in 1979 the Surgeon General was using the term addiction
10 and addictive to describe smoking?

11 A. Yes.

12 Q. In your view, Dr. Henningfield, was the Surgeon General in
13 these -- on these two pages using the terms addiction and
14 dependency synonymously?

15 A. That's my opinion.

16 Q. Did the Surgeon General's conclusion -- or the Surgeon
17 General's statements in this 1979 report predate NIDA's
18 conclusions?

19 A. Well, NIDA monographs were taking a generally similar view
20 that nicotine, or smoking, may be addictive or dependence
21 producing, but this predated the official NIDA position
22 testified before Congress.

23 And, in fact, this is -- the conclusions here and in
24 the NIDA monographs of the late '0s are the reasons that NIDA
25 hired myself, Goldberg and London, to try to lay the question to

1 rest by filling in the gaps.

2 Q. And I just want to look back at I-32 for a second.

3 Under paragraph 1, it states -- and this is something
4 that Mr. Webb read to you as well -- "Nicotine, the most
5 powerful pharmacological agent in cigarette smoke, has been
6 proposed as the primary incentive in smoking and may be
7 instrumental in the establishment of the smoking habit."

8 Do you see that?

9 A. Yes.

10 Q. Is that consistent with your understanding of where the
11 independent public health community was on the question of
12 nicotine's role in smoking at the time of the 1979 Surgeon
13 General's Report?

14 A. Yes. In fact, it's similar to conclusions I drew in some of
15 my own conferences in writings around the same time.

16 Q. And how does in your view, sir, how does that compare to the
17 defendant's understanding of the role of nicotine in
18 establishing addictive, addictive smoking or the smoking habit,
19 as it was called here, in 1979?

20 A. My view is that -- is that the tobacco companies already
21 understood that nicotine was the key reason, pharmacological
22 reason, that people smoked; that it was addictive. And that the
23 question for them was more to better understand the mechanisms
24 and the complex mechanisms which proved nicotine and other
25 factors.

1 Q. And Dr. Henningfield, let me just show you U.S.
2 Exhibit 90068. Have you seen this document before,
3 Dr. Henningfield?

4 A. Yes.

5 Q. What is it?

6 A. This is the proceedings from a conference held in New York,
7 I believe in -- I have to check -- '85. And it is on the
8 various kinds of treatments that -- and the pharmacological
9 basis for treatment, the rationale, the ways to use it, at that
10 time which was primarily nicotine, gum. I believe clonidine
11 might have been discussed. I'd have to go back and look at it.

12 Q. And just for the record, the document is entitled The
13 Pharmacological Treatment of Tobacco Dependence Proceedings of
14 the World Congress and it's dated November 4th, and 5, 1985?

15 A. Yes.

16 Q. Turning to page Roman 1 of the document.

17 I think it's 224, Chris. I'm sorry, Chris, just go
18 back one page.

19 This indicates that it was -- the series was either
20 held -- was it held by or sponsored by The Institute For the
21 Study of Smoking Behavior and Policy?

22 A. Yes, in conjunction with the National Institute on Drug
23 Abuse. But the Harvard Institute spearheaded it and ran it.

24 Q. Thank you. Now go to the next page. In the second
25 paragraph it indicates that, "Early in the life the Institute,

1 we determined that there was an emerging consensus that tobacco
2 smoking is an addiction and, as such, the policy implications
3 were worthy of careful attention."

4 Do you see that?

5 A. Yes.

6 Q. And so this is another body prior to the 1988 Surgeon
7 General's Report that is using the term addiction to describe
8 tobacco smoking?

9 A. Yes. And I was at NIDA at that time. This followed in part
10 from NIDA's report to Congress in 1984, which was its more
11 formal and longer statement of the NIDA director's earlier
12 testimony before Congress.

13 Q. And I just want to show you one other paper quickly here.
14 It's internal 12 of the document. This is a paper that was
15 presented at the conference titled: Overview, Smoking Behavior
16 and Tobacco Dependence. Do you see that?

17 A. Yes.

18 Q. And it's by Ellen Gritz?

19 A. Yes.

20 Q. Do you know who Dr. Gritz is?

21 A. Yes. She is one of the pioneering researchers in the
22 tobacco and behavior area, did some of the important
23 compensation and other studies with Dr. Jarvic and his team.

24 Q. In the middle of that first paragraph, Dr. Gritz writes,
25 "However, defining cigarette smoking as a form of substance

1 dependence, or addiction, does not occur solely in the context
2 of science and medicine."

3 Do you see that?

4 A. Yes.

5 Q. Was Dr. Gritz in this paper using the terms addiction and
6 substance, or substance dependence or addiction interchangeably?

7 A. Yes.

8 Q. You can put that document aside. Thank you.

9 MR. GOLDFARB: Your Honor, I'm going to move to a new
10 topic. If you want to take -- I can move on or we can --

11 THE COURT: All right. We can take our break now.

12 Let me say this. I know we are supposed to break at
13 4:30 or everybody always wants to. If we could finish the
14 witness today, I'd be willing to sit a little later. I don't
15 know whether there's any possibility or not, but you can think
16 about that.

17 You have one thing to do, though, during the recess.
18 You're going to check the transcript about something. We will
19 take 15 minutes, everybody.

20 (Recess began at 3:07 p.m.)

21 (Recess ended at 3:23 p.m.)

22 THE COURT: Mr. Goldfarb.

23 MR. GOLDFARB: Your Honor, can you hear me okay? I see
24 I'm on yellow now, which I didn't notice before.

25 THE COURT: What does that mean?

1 MR. GOLDFARB: I don't know. It makes me nervous.

2 THE COURT: It means your battery --

3 MR. GOLDFARB: My battery is getting low.

4 THE COURT: Everybody's batteries are running low, I
5 think.

6 MR. GOLDFARB: I'll switch to this for a little bit.

7 Your Honor, with respect to Brown & Williamson, of
8 course Liggett counsel introduced the Brown & Williamson
9 document, the ammonia handbook at the very end of the
10 cross-examination --

11 THE COURT: Everybody, is the real time coming through?

12 MR. BERNICK: No, not -- now it is.

13 THE COURT: Everybody on defense side getting it?
14 Government side? All right, seems to be working.

15 Go ahead.

16 MR. GOLDFARB: Okay. As I indicated, Liggett counsel
17 at the very end used the root technology handbook which is
18 clearly a Brown & Williamson document.

19 THE COURT: Did you mean Mr. Webb?

20 MR. GOLDFARB: Excuse me?

21 THE COURT: Did you mean Mr. Webb? I'm sorry, maybe I
22 misunderstood you, Mr. Goldfarb.

23 I don't think so. Oh, I did. Go ahead.

24 I was about to correct you if you had said what I
25 thought you had said because I'm sure everybody who is lead

1 counsel --

2 MR. GOLDFARB: But again --

3 THE COURT: All right, you may ask the question. If
4 that means Mr. Bernick has questions about just those particular
5 documents, he may follow up with those questions.

6 MR. GOLDFARB: Okay. Your Honor, I also wanted -- it's
7 not just the root technology document.

8 One of the documents introduced by Mr. Sheffler is a
9 Brown & Williamson incoming cable that was sent to Addison
10 Yeaman, Brown & Williamson's counsel, in 1963 concerning the
11 HIPPO matter.

12 And as the transcript indicates, and Mr. Sheffler's
13 cross-examination showed, a lot of these documents --

14 THE COURT: Well, I understand. I said you could go
15 ahead.

16 The point I want to make clear is that any recross, if
17 necessary, will be limited to Brown & Williamson documents. So
18 go ahead.

19 MR. GOLDFARB: Again, Your Honor, just our position for
20 the record is that counsel for Brown & Williamson had the
21 opportunity to cross. The defendants divided up their time
22 however they wanted to.

23 THE COURT: But he hasn't waived it. Mr. Bernick made
24 his decision on the basis of the cross that was done by his
25 co-counsel. He didn't need to follow up on that. Fine.

1 You're doing redirect. He has to make a second
2 judgment as to whether he needs to follow up or not.

3 BY MR. GOLDFARB:

4 Q. Okay. Going back to -- going back to some of the HIPPO
5 documents that were shown to you and discussed with Mr. Sheffler
6 this morning. Do you recall that, Dr. Henningfield?

7 A. Yes, I do.

8 Q. For your conclusion, sir, what's the importance of the HIPPO
9 documents?

10 A. The importance of the HIPPO documents was the reason that
11 the studies were performed, which was to investigate the
12 mechanisms by which nicotine causes addiction, sustains
13 behavior, not to determine if nicotine causes behavior.

14 And that's why from my perspective it didn't really
15 matter if they were right or wrong on their hypothesis, whether
16 their tests were right or wrong, they had already made the
17 assumption nicotine is critical, nicotine's drug effects are
18 critical, and the Battelle research for them called HIPPO was
19 intended to explore the mechanisms.

20 Q. Do you think it would have been important -- from your own
21 understanding of the 1964 Surgeon General's committee process
22 and information, would it have been relevant to the committee to
23 know that Brown & Williamson had reached that state of
24 understanding?

25 A. Yes.

1 MR. BERNICK: At this point I'm going to object to lack
2 of foundation. This witness's knowledge of what the state of
3 knowledge of the SGAC was at that time, whether this would have
4 made a difference, there's a foundation problem, and it's rank
5 speculation.

6 THE COURT: I'll allow the answer. You may give an
7 answer.

8 A. In my opinion, as evidenced in this 1964 report, the
9 advisory committee was still uncertain of the specific role of
10 nicotine, whether it was a drug role in the CNS or, as I
11 mentioned, if it was this composite mixture of nicotine and
12 everything else in the respiratory tract, and they offered a
13 variety of hypotheses, including a Freudian hypothesis, for why
14 people smoked.

15 In my opinion, it would have been -- the committee
16 would have taken it seriously and considered it important if the
17 companies that were assumed to know the most about why people
18 smoked at that time came forward and said, "Look. People smoke
19 for nicotine and it's not the sensory effects of nicotine," or
20 "that's not the only thing."

21 Would that have made a difference and changed their
22 opinion? I don't know. We will never know. It's just one of
23 the lines of kinds of evidence that an expert committee I
24 believe would consider.

25 MR. BERNICK: Your Honor, at that point, given that

1 last statement -- I don't mean to interrupt, but for the record
2 I would move to strike the last answer because it confirms that
3 although he says it's his opinion, it's not the kind of opinion
4 that meets the standard for being admissible because it's not
5 possessed to a reasonable degree of scientific certainty. He
6 just doesn't know.

7 THE COURT: Well, the court will certainly consider
8 that objection. I'm not going to strike the testimony.

9 BY MR. GOLDFARB:

10 Q. Dr. Henningfield, this is a document -- well, I'm back on
11 green.

12 This is a document that was shown to you by
13 Mr. Sheffler and it was at the end of a series of memos
14 concerning the HIPPO research and whether to submit it to the
15 Surgeon General's Report. Do you recall --

16 A. Yes.

17 Q. -- seeing this document earlier?

18 A. Yes.

19 Q. And Dr. Henningfield, did Brown & Williamson or BATCo submit
20 the research to the Surgeon General's committee?

21 A. I have no knowledge that they ever submitted this.

22 Q. Now, at the end of this memo -- and again, just for the
23 record, I'll note it's the July 4, 1963, memo, confidential memo
24 to Addison Yeaman from BATCo -- there's a PS that indicates,
25 "Since dictating this, I have received your Telex message and we

1 look forward to reading your comprehensive note."

2 Do you see that?

3 A. Yes.

4 Q. Let me have 22034, please.

5 Now, have you seen this document before,
6 Dr. Henningfield?

7 A. Yes.

8 Q. This is the July 17, 1963 memorandum, and I'll show you the
9 author in a moment. It's entitled: Implications of Battelle
10 HIPPO I and II and the Griffith Filter. Do you see that?

11 A. Yes.

12 Q. And it's labeled Strictly Private and Confidential?

13 A. Yes.

14 THE COURT: Do you need the actual memorandum?

15 THE WITNESS: It would be great because I think this is
16 several pages long, if it's the one I'm recalling.

17 A. Thank you.

18 Q. Dr. Henningfield, if you turn to the last page.

19 MR. GOLDFARB: And Your Honor, I'll...

20 Q. We may have to blow it up a little bit more. Rorschach.

21 Can you read the initials that are there?

22 MR. GOLDFARB: Your Honor, I can hand up a copy if you
23 would like to study it to see that, check the witness's answer.

24 Q. Dr. Henningfield, can you see whose initials are written
25 there?

1 A. My copy it looks like an A Y, so on this Rorschach I better
2 not tell you what it looks like.

3 Q. And so this is written about two weeks after that -- the
4 note from BATCo indicated that BATCo was looking forward to
5 getting Mr. Yeaman's comprehensive note?

6 A. Yes.

7 Q. Now if you turn to the third page, sir. And just up a
8 little bit from the bottom.

9 Mr. Yeaman writes, "Moreover, nicotine is addictive.
10 We are then in the business of selling nicotine, an addictive
11 drug, effective in the release of stress mechanisms."

12 Do you see that?

13 A. Yes.

14 Q. So, Dr. Henningfield, that's another example of a defendant
15 in this case using the term addictive to describe nicotine
16 before the 1964 Surgeon General's Report?

17 A. Yes. And more important to me, quite frankly, than the word
18 addictive is that they knew what their business was, that they
19 were selling nicotine.

20 Q. Okay, you can set that aside, Doctor.

21 Turning to the issue of defendants' public statements
22 about smoking and nicotine addiction, Dr. Henningfield. To your
23 knowledge, when is the first time defendants said anything
24 publicly about smoking and nicotine as addictive or dependence
25 producing behavior?

1 A. As companies to the public?

2 Q. Yes.

3 A. Well, repeatedly in the 1980s they said it was not addictive
4 and told the FDA it was not addictive, the Congress it was not
5 addictive in various hearings up to January 2, 1996.

6 And then around '96 is when Liggett said that nicotine
7 was addictive, began to label its cigarette packages, and Philip
8 Morris, I believe, in 1997.

9 Q. Okay. So during the years after 1964 when the Surgeon
10 General said that smoking was a drug-driven habituation, to your
11 knowledge, were defendants saying anything publicly about the
12 issue?

13 A. They were making public statements and it was that nicotine
14 was not addictive or that smoking was not addictive in various
15 forms.

16 Q. Mr. Webb asked you a question that -- and I'll paraphrase.
17 I think that it's your conclusion that when the Surgeon General
18 said that smoking was not addictive prior to the 1980 Surgeon
19 General's Report, that was a truthful statement for the Surgeon
20 General to make, but yet when the defendants denied nicotine
21 addiction prior to the 1980 report, that that was in your view a
22 false statement.

23 Do you recall that testimony?

24 A. Yes.

25 Q. Can you explain that, please?

1 A. They already knew that smoking was addictive, that nicotine
2 was addictive. They operated under that premise. They
3 conducted research on that premise to explore the mechanisms by
4 which nicotine causes addiction, not if nicotine causes
5 addiction.

6 Q. And when defendants did start making public statements about
7 the issue, did defendants argue that nicotine should be
8 described as dependence-producing rather than addictive?

9 A. No.

10 Q. When they started making public statements in, to your
11 recollection, you testified in the early 1980s?

12 A. Yes.

13 Q. The defendants also denied the scientific evidence
14 supporting the conclusions of NIDA and other bodies?

15 A. Yes. And they took issue with NIDA's research with the APA
16 designation of tobacco dependence and withdrawal, even took
17 issue with tobacco withdrawal syndrome in the 1996 filing to the
18 FDA.

19 Q. Did defendants publicly challenge that smoking and nicotine
20 addiction have any commonality with other addictive drugs?

21 A. Yes.

22 Q. Let me show you U.S. 65625. Have you seen this document,
23 sir?

24 A. It looks very familiar. I'm not positive that I've seen --
25 it looks familiar, but maybe it's because I've seen similar

1 documents.

2 Q. And this document appears to be a press release from the
3 Tobacco Institute dated March 12, 1982. Do you see that?

4 A. Yes.

5 Q. It's indicated technically for use at 10 AM on Friday, March
6 12, 1982.

7 And looking down at the second paragraph there, this
8 document states that "testifying before a congressional
9 subcommittee today, Dr. Theodor H. Blau, Tampa, Florida,
10 psychologist was critical of a provision in a pending bill which
11 would label cigarettes addictive and said the experiments with
12 primates may be promising."

13 Do you know who Ted Blau or Dr. Theodore H. Blau is?

14 A. Yes. He was at one point president of the American
15 Psychological Association. He was a witness for the tobacco
16 industry in at least a couple of trials. And he testified
17 before Congress in the early 1980s where he compared smoking to
18 hamburgers, I think potato chips and other things in terms of
19 its addictiveness.

20 Q. We may get there in a minute.

21 In the next paragraph Dr. Blau says, "Carefully
22 controlled animal studies must be done before a scientific
23 description of the smoking habit can be expected, Blau said.
24 Without reliable animal models of self-administration of tobacco
25 smoke, he said, the concept of tobacco addiction will probably

1 remain a hypothetical concept only partly understood."

2 Do you see that?

3 A. Yes.

4 Q. Now, at this time in March of 1982 did any of the defendant
5 tobacco companies have a reliable animal model of nicotine
6 self-administration?

7 A. That was about the time that Philip Morris had its model in
8 rats and that was nicotine self-administration, intravenous
9 nicotine self-administration.

10 Q. And you testified about that in your direct testimony and
11 the importance of that model?

12 A. Yes.

13 Q. Was it publicly known that Philip Morris had developed a
14 reliable animal model of nicotine self-administration?

15 A. I don't believe so. And the reason I'm hesitating is
16 because I don't recall the date that Dr. DeNoble sent me his
17 manuscript. I believe that was around 1983, but I'm not certain
18 of the date. And that -- I guess it's how you interpret it,
19 whether or not that would have been a generally public
20 disclosure.

21 Q. Did Dr. DeNoble send the manuscript to you personally?

22 A. Yes.

23 Q. Was that paper ever published in the scientific literature?

24 A. It was not. It was accepted for publication by the Journal
25 of Psychopharmacology, and it was also accepted for presentation

1 at the American Psychological Association meeting, I believe in
2 1983.

3 And at that meeting I remember Dr. DeNoble standing
4 next to an empty poster, because he was not allowed to present
5 it, and the study was withdrawn on order of Philip Morris from
6 publication.

7 A reference to it was made in the literature by
8 inadvertent oversight and that was my oversight. Dr. DeNoble
9 called me and said, "Don't cite it. I pulled it out of the
10 publications. I did not cite it in the report to Congress."

11 Q. And that is in your direct testimony as well?

12 A. Yes, but I did. ...

13 Q. Now, looking toward the bottom of this page, it -- the
14 Tobacco Institute quotes Dr. Blau's testimony saying, quote,
15 "Cigarette smokers are very attached to their smoking behavior,
16 he told the House Subcommittee on Health and the Environment.
17 However, I have noted equally strong attachments to tennis,
18 jogging, candy, rock music, Coca-Cola, members of the opposite
19 sex, and hamburgers in my adolescent and adult patients."

20 When the Tobacco Institute issued this press release,
21 was this a scientifically true statement, Dr. Henningfield?

22 A. No.

23 Q. Why not?

24 A. Well, the American Psychiatric Association had already
25 concluded that tobacco dependence and withdrawal existed as

1 clinical entities and could be diagnosed.

2 By that point there was a substantial body of evidence
3 and by that, on the strength of the dependence, and by that
4 point the nicotine -- the gap in the nicotine issue was being
5 resolved by NIDA.

6 Dr. Goldberg's -- I forget if his first study was
7 probably presented around 1981. I'm not sure when his science
8 publication was right now, whether that was '82 or '81.

9 Q. And do any of the attachments identified in this TI press
10 release, are any of them based on drugs?

11 A. No, they are not based on drugs, and I -- me and others, it
12 trivialized the phenomena of dependence and withdrawal.

13 Q. Now, let me also put up JD 081141.

14 Now, Dr. Henningfield, do you see that this is a record
15 of a congressional hearing on Subcommittee in the Health and the
16 Environment from the House of Representatives, and the date --
17 if you just cull that out, Chris -- on -- in March of 1983, I
18 believe. It's March 1982. If you could go to page 390 of the
19 hearing.

20 Are these some of the hearings -- are these some of the
21 hearings where Dr. Pollin testified?

22 A. Yes, I believe he testified in this hearing and then the
23 1983 follow-up hearing. My direct or opening testimony was
24 based on his 1983, which was similar to the '82 testimony, I
25 believe.

1 Q. And at the top half of that page, this is page 390, there is
2 a question of Mr. Horrigan. Do you know who Mr. Horrigan was?

3 I don't mean to play a guessing game. I should --

4 A. I reviewed his work today, and I don't want to say the wrong
5 entity.

6 Q. I'll show you the testimony and we will go back and I'll get
7 it for the record.

8 So Congressman Waxman is asking Mr. Horrigan, and he
9 states, up top there, "The National Cancer Institute and the
10 National Institute on Drug Abuse tell us that cigarette smoking
11 is addictive and that it is a leading source of lung and heart
12 disease."

13 And Mr. Horrigan in his response further, at the last
14 paragraph of his response below on page 390, states, "One other
15 point raised in your question with regard to cigarettes with
16 regard to addiction. There is absolutely no proof that
17 cigarettes are addictive and that was referred to in an earlier
18 Surgeon General's Report."

19 Dr. Henningfield, was that a true statement in March of
20 1982?

21 A. No.

22 Q. Why not?

23 A. Well, first, by this point the NIDA, the main institute, had
24 concluded that nicotine was addictive.

25 The American Psychiatric Association using their more

1 precise terminology concluded that it was dependence producing.

2 The tobacco industry knew many years earlier, and to
3 just say that there is absolutely no proof is just I think a
4 remarkable statement to have made. I don't know if he was under
5 oath or not, but it's remarkable as I read it again.

6 Q. And Mr. Horrigan's reference to the 19 -- to the earlier
7 Surgeon General's Report, is there any Surgeon General's Report
8 that suggested there was absolutely no proof that cigarettes are
9 addictive?

10 A. Not even the '64 report came with that conclusion.

11 The '64 report made it clear that it was a gray area
12 and that in their final determination they believed that it was
13 most appropriately characterized as habituating, not addicting.
14 But even that report didn't say there's absolutely no proof.

15 Q. Now, if you can just go to the beginning of the hearing just
16 so we can clarify for the record who Mr. Horrigan was and why he
17 was there.

18 There in the middle of the page it indicates that
19 Edward A. Horrigan who was chairman and chief executive officer
20 of R.J. Reynolds Tobacco Company. Do you see that?

21 A. Yes, thank you. And again I couldn't remember which company
22 and I --

23 Q. I should have done it at the outset.

24 Dr. Henningfield, let me now show you U.S.
25 Exhibit 21239, please. Now, Dr. Henningfield, have you seen

1 this document before?

2 A. Yes.

3 Q. Okay. And this is another press release from the Tobacco
4 Institute dated May 16, 1988?

5 A. Yes.

6 Q. Do you see that?

7 And what was happening at that time, May 16, 1988?

8 A. That was either the date or shortly thereafter that we
9 released the 1988 Surgeon General's Report.

10 Q. Okay. And the title of the press release is Claims that
11 Cigarettes are Addictive Contradicts Common Sense.

12 Do you see that?

13 A. Yes.

14 Q. And turning to the second paragraph. The press release
15 states, "Smoking is truly a personal choice which can be stopped
16 if and when a person decides to do so. The Surgeon General's
17 own Public Health Service figures indicate that about 40 million
18 Americans are former smokers and that 95 percent of them quit
19 smoking without any hope." "Help." Excuse me. "These figures,
20 and common sense, contradict any claim that smoking is an
21 addiction."

22 Dr. Henningfield, does the -- do the figures about the
23 number of Americans who have quit smoking say anything about
24 whether or not smoking is an addiction?

25 A. No. And, in fact, around 90 percent of Vietnam veterans who

1 are dependent on opioid drugs, like morphine and heroin, quit
2 within a couple of years after coming back mainly on their own,
3 outside of treatment.

4 The fact that there were a lot of them is because there
5 are so many million smokers over that time period, and the fact
6 that most people quit without treatment, frankly, there was not
7 good effective treatment generally available at that time. So
8 it's like saying that the flu doesn't exist because most people
9 recover without treatment.

10 Q. And I know that in response to the court's questions earlier
11 you covered some of this, and I don't want to belabor the point,
12 but I do want to note that further down the next two larger
13 paragraphs state, "This report trivializes the serious drug
14 problems faced by society. The claim that cigarette smoking is
15 an addiction similar to cocaine or heroin use, or alcohol abuse,
16 is unfortunate and unwarranted. The message to the American
17 public is that using illegal drugs, such as crack or heroin, has
18 the same risk of addiction as smoking."

19 Do you see that?

20 A. Yes.

21 Q. And what were the scientific findings of the 1988 report on
22 that question?

23 A. I think, going back to this release and period, Dr. Koop
24 himself said it best. He said, "I don't mean to trivialize
25 heroin and cocaine addiction, but many more people die from

1 cigarette smoking, and the addiction rates are much higher in
2 cigarette smoking." I'm paraphrasing from his press conference.

3 The Surgeon General's Report itself concluded that by
4 the same criteria as depend -- by the same criteria as for other
5 addictive drugs, smoking met those criteria, nicotine met those
6 criteria, and that the pharmacological and behavioral processes
7 were the same processes.

8 Q. And again I'll just note that the next paragraph reads that,
9 "The claim that cigarette smoking causes physical dependence is
10 simply an unproven attempt to find some way to differentiate
11 smoking from other behaviors. In fact, any feelings persons
12 might have upon giving up smoking are those that would be
13 expected when one is frustrated by giving up any desired
14 activity. It should be noted, however, that a physical
15 dependence to caffeine has also long been claimed, as well as
16 the resulting physical withdrawal symptoms."

17 Now, is the comparison that the Tobacco Institute is
18 making in 1988 between caffeine and nicotine on the issue of
19 physical dependence a supported scientific statement?

20 A. No. And first, then and now, APA does not list caffeine
21 withdrawal, although it might in the future, but it did not at
22 that time, it did list nicotine withdrawal.

23 And nicotine withdrawal had been demonstrated,
24 including by the findings that you could give people nicotine,
25 turn off the nicotine, turn the nicotine back on and you could

1 turn the withdrawal symptoms on and off.

2 And that was the same classic methodology that the
3 addiction research center had pioneered who demonstrate physical
4 dependence and withdrawal to morphine and other drugs. The same
5 study approach was used, the same kinds of findings, although as
6 I have described, the magnitude of the symptoms is not as strong
7 or overt as they are for opiates or arbitrary-like sedatives.

8 Q. On cross-examination -- I want to move forward a little bit
9 in time to defendants' public statements around the 1994 period
10 of time. Mr. Webb showed you a letter that Kathy Ellis, the
11 Director of Research, wrote to Congressman Waxman on May 9,
12 1994, and that's JD 046721. Do you recall that?

13 A. Yes.

14 Q. Have you been -- can you locate your copy there?

15 A. Yes. Or I can see this one on the board and I'm quite
16 familiar with this.

17 Q. Dr. Henningfield, do you see that -- just move up a
18 little -- that of course, as is obvious, the document was
19 submitted on Philip Morris' letterhead?

20 A. Yes.

21 Q. In your view, sir, was this letter submitted in an
22 individual or representative capacity?

23 A. A representative.

24 Q. Now, Mr. Webb read from the passage where Dr. Ellis referred
25 to the so-called strict pharmacological definition of addiction.

1 Do you recall that?

2 A. Yes.

3 Q. And Mr. Webb read that, in particular -- I'll read the whole
4 sentence.

5 "In particular, you referred to the following statement
6 found in the unofficial transcript that I have reviewed. The
7 strict pharmacological definition of addiction involves three
8 different criteria. They are intoxication, physical dependence
9 and tolerance. And to my knowledge, there is no evidence that
10 nicotine or cigarette smoking plays in any of these
11 definitions."

12 Do you see that?

13 A. Yes.

14 Q. First of all, was the definition given by Kathy Ellis a
15 scientifically accurate definition in 1994?

16 A. It is not that used by NIDA, APA, or the Goodman and Gilman
17 pharmacological basis of therapeutics or testified by Dr. Louis
18 Harris on behalf of the College of Problems of Drug Dependence
19 in the American College of Neuropsychopharmacology.

20 It's just that -- it's not a definition that was used
21 by any major entity that evaluates drugs for addiction potential
22 or abuse liability.

23 Q. And in one of your responses to a question from Mr. Webb on
24 cross-examination you referred to Goodman and Gilmans?

25 A. Yes.

1 Q. Can you explain for the court what Goodman and Gilman is?

2 A. Goodman and Gilman is kind of the Bible of pharmacology.
3 It's updated every five, six, seven years in the last 15,
4 20 years. And I'm not sure at what year they first included
5 nicotine; maybe in 1980, thereabouts. That would have been
6 maybe the third edition. But it's considered an authoritative
7 text by pharmacologists.

8 Q. And in 1994 did Goodman and Gilman agree with this
9 definition of addiction given by Philip Morris's Director of
10 Research?

11 A. No, neither the definition nor the statement about no
12 evidence.

13 Q. And, Dr. Henningfield, are you aware of any researcher,
14 outside the tobacco industry, who in 1994 would have considered
15 this a valid definition of addiction?

16 A. Not for evaluating a drug for dependence potential for
17 regulatory purposes or official categorization, like by WHO or
18 DEA or NIDA; in part, because there are drugs that produce such
19 effects like antihistamines that can produce effects, including
20 tolerance and intoxication, and in some cases what appears to be
21 a low grade physical dependence that are not considered
22 addicting and other drugs as well.

23 Q. Now on the next page, in the middle of that paragraph, the
24 director of Philip Morris' research writes, "That in my view,
25 however, the information with which I am familiar does not

1 support the conclusion that the nicotine in cigarettes causes
2 smokers to experience intoxication, pharmacological tolerance,
3 and physical dependence in a manner that would impair the
4 smoker's ability to exercise a free choice to continue or to
5 quit smoking."

6 Do you see that?

7 A. Yes.

8 Q. Now, do you know what Dr. Ellis's scientific training or
9 background was?

10 A. I know she's a pharmacologist. I don't know where she was
11 trained or details of her training.

12 Q. You don't know whether she's had a Ph.D. in pharmacology?

13 A. That is my recollection.

14 Q. For this next question I want you to assume that Dr. Ellis
15 joined Philip Morris 14 years before she wrote this letter and
16 she had central positions in Philip Morris' Research and
17 Development Department, including the Director of Applied
18 Research, the Director of Research and the Vice President of
19 Product Development and that part of her responsibilities was
20 reviewing the published literature on -- related to nicotine and
21 nicotine pharmacology.

22 Now, with that assumption, Dr. Henningfield, is that a
23 scientifically credible statement for someone with that
24 background to make in 1994?

25 A. It just is not. At that time as reviewed by -- in the

1 Surgeon General's Report, studies had shown that about half of
2 people that had had a major cardiovascular event, heart attack,
3 had gone back to smoking even knowing that it could kill them;
4 that the withdrawal for some people made it difficult, if not
5 impossible, for them to go back to their work.

6 Some people would try to quit, easily; other people
7 would try to quit with great difficulty. Other people, days
8 weeks or months later, would go back saying that they just
9 couldn't function. And some of those could do it, with the
10 nicotine replacement, could function.

11 That's all pharmacological evidence, or fits into the
12 pharmacological evidence for withdrawal and dependence. There
13 is much more, of course. But this was published. It was
14 reviewed in the Surgeon General's Report, presented by NIDA and
15 agreed upon by every major organization that reviewed it as I
16 testified.

17 Q. And let me just show you quickly U.S. Exhibit 36873. I'll
18 give you a minute to look at it, Dr. Henningfield.

19 Have you seen this document before?

20 A. Yes, I haven't looked at it for a while.

21 Q. Okay. And this is a 1983, March 1983, memo from Jim Charles
22 to Tom Osdene and it's titled: Why People Smoke. Do you see
23 that?

24 A. Yes.

25 Q. I just want to cull out one sentence in the middle of the

1 second paragraph where Dr. Charles tells Dr. Osdene, "Tolerance
2 to nicotine is a well established fact." Do you see that?

3 A. Yes.

4 Q. And then he goes on to say, "Recent experiments in Vic's
5 project" -- and if you look up above in the first line you can
6 still see it above there, it's referring to Dr. DeNoble, Vic
7 DeNoble?

8 A. Yes.

9 Q. "Have shown that there's a behaviorial component to
10 tolerance, a learned phenomenon, but this work has not been
11 published."

12 A. Yes.

13 Q. Do you see that?

14 A. Yes.

15 Q. And that's approximately 11 years before Dr. Ellis wrote to
16 Congressman Waxman and said there's no evidence of
17 pharmacological tolerance in nicotine. Do you see that?

18 A. Yes.

19 Q. Now, Mr. Webb also pointed out Philip Morris CEO's statement
20 to Congress on the issue of nicotine addiction at the Waxman
21 hearings in April of 1994.

22 Do you recall being asked those questions?

23 A. Yes.

24 Q. And Mr. Webb pointed you to Mr. Campbell's written
25 submission. Do you recall that?

1 A. Yes.

2 Q. And for the record, this is U.S. Exhibit 57204. And this is
3 the -- I'm sorry....

4 You can see on the screen this is the first page for
5 those. Have you found your copy? Have you even attempted to
6 look?

7 A. Let's see --

8 Q. Here you go.

9 A. Thank you.

10 Q. Now if I could call your attention to page -- first of all,
11 who is -- who is William Campbell?

12 A. William Campbell is president and CEO of Philip Morris.

13 Q. As of 1994?

14 A. Yes.

15 Q. If you turn to page 12 -- no.

16 Just to orient you, on page 9 at the bottom of that
17 page is the beginning of Mr. Campbell's prepared statement. Do
18 you see that?

19 A. Yes.

20 Q. Okay. And he goes on and he presents his prepared
21 statement, and then he says -- on page 13 -- he's talking about
22 the role of -- the role of nicotine cigarettes. Do you see
23 that?

24 A. Yes.

25 Q. And he states that, "Nicotine contributes to the taste of

1 cigarettes and the pleasures of smoking. The presence of
2 nicotine, however, does not make cigarettes a drug or smoking
3 addiction. Coffee, Mr. Chairman, contains caffeine and few
4 people seem to enjoy coffee that does not. Does that make
5 coffee a drug? Are coffee drinkers drug addicts? I think not.
6 People can and do quit smoking. According to the 1988 Surgeon
7 General's Report, there are more than 40 million former smokers
8 in the United States, and 90 percent of those who quit, did so
9 on their own without any outside help. Smoking is not
10 intoxicating. No one gets drunk from cigarettes and no one has
11 said that smokers do not function normally. Smoking does not
12 impair judgment. In short, no one is likely to be arrested for
13 driving under the influence of cigarettes."

14 Do you see that, sir?

15 A. Yes.

16 Q. So what criteria was Philip Morris presenting -- what
17 criteria for addiction was Philip Morris presenting to
18 Congressman Waxman in 1994?

19 MR. WEBB: Objection, speculation. I don't --
20 objection, speculation.

21 THE COURT: Overruled. If the witness can answer.

22 A. Okay. Well, the prominence of intoxication is a major
23 factor that's evident in his testimony, and I think I'll stop
24 there. There are other things that are implied, but that was
25 prominent. And that just wasn't recognized by, again we've gone

1 over this, the major organizations.

2 Q. And when had the criterion of intoxication been abandoned by
3 the scientific community?

4 A. Well, by the WHO Expert Committee on Drug Dependence in '64.
5 APA did not consider it in 1980 in its DSM.

6 WHO ICD-9 considered it important enough to separate
7 cigarettes from other dependence-producing drugs in 1978, but
8 when it revised its volume in 1992, ICD 10 dropped it. The DEA
9 and the Controlled Substance Act, that it does not consider it
10 as a critical factor.

11 Q. Now, Mr. Webb also asked you questions about Philip Morris's
12 current statements on their website about addiction.

13 Do you recall being asked those questions?

14 A. Yes.

15 Q. I'll just put it on the Elmo. Can you see that clearly?

16 And in response to a few of Mr. Webb's questions about
17 Philip Morris' statement here, you said that some of Philip
18 Morris's statements in terms of smoking addiction were steps in
19 the right direction and you used the phrase that it was a step
20 in the right direction. I think "as far as it goes" was the
21 term you used. Do you recall that?

22 A. Yes.

23 Q. What did you mean by that?

24 A. Well, if you're being honest, the fact is more than
25 90 percent of people that try to quit fail; that as we sit here

1 today chronic smokers, most people would like to quit but have
2 not been able to. Only a few percent per year actually become
3 long-term nonsmokers.

4 And the bottom line is that that means that the risk of
5 premature mortality is about 50 percent in cigarette smokers as
6 a whole.

7 So to me, this greatly underestimates -- understates
8 the difficulty and, frankly, even the desire to quit.

9 Q. Does Philip Morris include any text about nicotine on this
10 page about addiction?

11 A. Not on this. To find out about nicotine, I think you have
12 to go through links to the Surgeon General's Reports or
13 elsewhere, but it's not stated here.

14 Q. Mr. Webb then showed you portions of Philip Morris's website
15 that are on the pages titled, Quitting Smoking, and referring to
16 QuitAssist. Do you see that?

17 A. Yes.

18 Q. I'll give you my copy for a moment, Dr. Henningfield, just
19 to make sure there's --

20 A. Thank you.

21 Q. -- nothing important on it.

22 Do you recall being asked questions about this website
23 page?

24 A. Yes.

25 Q. On that page, in that -- on those Web pages that Mr. Webb

1 showed you, Dr. Henningfield, what does Philip Morris tell
2 people who find its website about nicotine and its role in
3 smoking?

4 A. The last time I looked carefully it said little or nothing
5 about nicotine itself, and I found that to be a major deficit.
6 I'd have to go back through -- I'm not sure when this was
7 printed out -- to see if a they've change and they now tell
8 people that nicotine is an addictive drug. In other words, if
9 they tell people directly.

10 Q. I'm just asking you now about the pages that Mr. Webb showed
11 you.

12 A. I didn't see it.

13 Q. Do you see the word "nicotine" mentioned anywhere in those
14 pages?

15 A. No.

16 Q. Dr. Henningfield, why do you consider it -- well, strike the
17 question.

18 What is -- how is an addiction researcher and someone
19 who has worked on drug addiction, drug dependence issues, what's
20 your view of website pages that are devoted to smoking addiction
21 and cessation that failed to mention nicotine?

22 MR. WEBB: Your Honor, I'm going to object. This is
23 exactly set forth in his direct examination in about two pages.
24 I think 108 or 109. This is a direct repeat of his direct
25 examination of his view of nicotine and its importance.

1 THE COURT: Sustained.

2 MR. GOLDFARB: Your Honor --

3 THE COURT: I've ruled, Mr. Goldfarb. Please go ahead.

4 BY MR. GOLDFARB:

5 Q. Do you recall -- I'll take this back from you, sir.

6 Do you recall Mr. Webb asked you several questions
7 about whether you considered it to be responsible for Philip
8 Morris to make the statements that it does in its statement --
9 on its pages about addiction and about quitting smoking?

10 A. Yes.

11 Q. Dr. Henningfield, do you consider it responsible not to tell
12 smokers the primary reason it's so difficult to quit smoking?

13 A. I think that's part of what I had in mind when I said it was
14 difficult for me to apply the word "responsible" in the total
15 context of what they were doing, but I concur that this is at
16 least small steps in the right direction. It leaves a long way
17 to go.

18 Q. When you say there's a long way to go, what do you mean by
19 that?

20 A. Well, the most obvious is telling people right on the
21 cigarette packages, listing the risks and perhaps even giving
22 people guidance there.

23 But to imply that you've done the right thing by
24 putting it on a website and linking people to Surgeon General's
25 Reports is very far removed from any kind of labeling and

1 warning work that I've seen or been directly involved in.

2 Q. Now, I just want to ask you a couple of more questions on a
3 slightly different area, which is in response to questioning
4 from Mr. Webb you discussed some focus groups that you observed
5 when you were at NIDA in the early 1980s. Do you recall that?

6 A. Yes.

7 Q. Can you just explain to the court who sponsored the focus
8 groups and what their purpose was, please?

9 A. Sure. It was the Office on Smoking and Health of CDC, and
10 that office was taking the lead on developing the pamphlet
11 called Why People Smoke Cigarettes.

12 That pamphlet was intended to be scientifically sound
13 and supported, but to communicate to people in general. And
14 that meant that they had a real problem because they were
15 dealing with people like me that used a lot of technical
16 language, and I contributed to drafting initial versions, along
17 with other NIDA colleagues because it had to be true to
18 Dr. Pollin's testimony and the position of NIDA.

19 CDC, I think in the late '70s, early '80s, was being
20 much more aggressive in trying to make sure that when it
21 communicated something to the public, the public would
22 understand the communication, and so they would routinely,
23 increasingly routinely use focus groups to test words, to see if
24 people understood sentences, and they did that with material
25 that was in the pamphlet.

1 And the bottom line on the addiction wording issue was
2 very simple. And I was there on one of the days and watched
3 people presented with the words "habit, dependence and
4 addiction."

5 And people reliably in every group that I saw,
6 understood that dependence meant something; that it was
7 something between habit and addiction. And I remember being
8 quite frustrated thinking: You people don't get it. Dependence
9 means the same thing as addiction. WHO never meant it to mean
10 something less. And so then to communicate the pamphlet used
11 both terms. It was for the simple matter of trying to
12 communicate on it unambiguously.

13 Q. Are you aware of whether other groups in communicating to
14 the public have -- has also come to that same conclusion?

15 A. Well, NIDA itself does, so when NIDA talks about cocaine in
16 its television spots or the Office of National Drug Control
17 Policy, they don't say, "Beware of cocaine. It produces
18 tolerance and dependence." They say, "Cocaine is a highly
19 addictive drug." The same thing with other addictive drugs.

20 NIDA follows this practice. The Office of National
21 Drug Policy does. The World Health Organization does. And they
22 did it before the 1988 Surgeon General's Report.

23 Q. And after?

24 A. And after.

25 MR. GOLDFARB: Your Honor, if you just give me a

1 second.

2 THE COURT: I'm sorry?

3 MR. GOLDFARB: If you just give me a moment, I'm
4 looking to see where and how I may be able to streamline this a
5 little.

6 BY MR. GOLDFARB:

7 Q. Let me move to the period after the 1988 report. Do you
8 recall Mr. Webb was asking you some questions about whether or
9 not, even after the '88 report, there was an ongoing scientific
10 debate about the actual criteria for addiction?

11 A. Yes.

12 Q. And do you recall he showed you an article by -- I don't
13 know if he's a Doctor, but Joseph DiFranza and others?

14 A. Yes.

15 Q. Can we please cull it up, which is 001234. Can you make it
16 out on your screen?

17 A. Yes.

18 Q. Dr. Henningfield, did you have a chance yesterday to look
19 over this quickly during the questioning?

20 A. Not to the degree that I would have preferred to refresh my
21 memory, but enough to recall what the study was.

22 Q. What is the study, Dr. Henningfield?

23 A. Well, Dr. DiFranza and his colleagues had been working on
24 how to advance the diagnosis and assessment of nicotine
25 dependence in young people. And I've been also engaged in a

1 similar process.

2 And I think the bottom line of this is that their
3 conclusion is that young people can develop dependence more
4 rapidly than was previously thought, and that concurs with the
5 work that I've been doing with the tobacco etiology research
6 network.

7 Q. And Mr. Webb in questioning you about the -- whether there's
8 actually ongoing controversy about the use of -- or the measures
9 of addiction and dependence quoted a statement on the right side
10 of the screen up here, the paragraph that states, "A recent
11 exhaustive review of measures of nicotine dependence concluded,
12 quote, the field lacks a widely accepted, theoretically derived,
13 and psychometrically sound research tool for evaluating nicotine
14 dependence."

15 Do you see that?

16 A. Yes.

17 Q. And in the context of this article, what is Mister,
18 Dr. DiFranza and his colleagues talking about?

19 A. Well, they are talking about advancing the field, building
20 on what is known to develop instruments that would be validated
21 in young people, and that's -- and so they are talking about the
22 background, but they are also talking about their data from the
23 Dandy study.

24 Q. And again, I just want to show you. Do you see the footnote
25 at the end of the quotation, footnote 8? Do you see that?

1 A. Yes.

2 Q. If we look at the citations, we see that footnote 8 refers
3 to a Colby, Tiffany and Shiftman article that's titled:
4 Measuring Nicotine Dependence Among Youth, A Review of Available
5 Approaches and Instruments.

6 A. Yes. And that was done as part of the tobacco etiology
7 research network that I described, that similar to Dr. DiFranza
8 includes that in youth we need better instruments, we need
9 validated instruments to better assess dependence and to better
10 assess the onset of dependence.

11 And both groups are finding that young people become
12 addicted at levels of tobacco use that are lower than we
13 presumed a few years ago.

14 Q. And in light of this article and the statements in this
15 article in the context of the other documents that Mr. Webb
16 showed to you, in your view is there an ongoing vigorous
17 scientific debate about the major criteria by which you define
18 addiction or dependence?

19 A. The major criteria have been the same in my opinion for
20 decades, and they -- and it's actually very simple.

21 It's the difficulty to stop in the face of harm or
22 sometimes expressed as the relative loss of control. Control is
23 never absolute. But that's the hallmark, and Dr. Pollin stated
24 that in his testimony when he went before Congress in the early
25 1980s.

1 This also is adopted in the 1988 Surgeon General's
2 Report.

3 MR. GOLDFARB: Your Honor, you know, frankly, I can
4 keep going. I do not think -- I think that I could
5 substantially streamline this and finish up fairly quickly
6 tomorrow, but I do not think that -- that I will finish in
7 15 minutes. I just don't.

8 THE COURT: Let me ask Mr. Bernick this.

9 Do you think, Mr. Bernick, that you're going to need
10 any questioning tomorrow? Assuming for the moment, of course,
11 that there's nothing -- there are no further questions relating
12 to your client.

13 MR. BERNICK: Well, I'll think about it Your Honor. I
14 mean, candidly, I would very, very much like to question this
15 witness, particularly in the areas to pursue, as they have now
16 been pursued, a couple of different times direct, redirect, and
17 the testimony is significant testimony.

18 Before I said I wasn't going to do an examination in
19 the interest of time, although I had questions.

20 THE COURT: Let me be clear, Mr. Bernick. That's not
21 the option being offered to you.

22 You had a chance to do -- to cross on direct. That
23 option is gone. I made it very clear that you would be entitled
24 to do recross, if you will, on the particular Brown & Williamson
25 documents that the government questioned about and you're more

1 than free to do that, but it's not going to be broad.

2 MR. BERNICK: I wasn't suggesting that, Your Honor.

3 And what I was saying, really, was I've been trying to help move
4 this process along. That's why I gave up my option before.

5 It's very difficult to do now, in light of the emphasis
6 the government has put on this -- and this is the first witness
7 who has really offered any testimony concerning my client prior
8 to 1963. So it's really the government's case before 1963 as
9 concerns my client.

10 I think I will need some time. I'll try to keep it
11 very short, but it's not because, you know, I want to keep this
12 witness on the stand, although I real --

13 THE COURT: How many documents did you ask him about
14 relating to Brown & Williamson? Was it three or am I wrong
15 about that? I wasn't counting carefully, I must admit.

16 MR. GOLDFARB: I wasn't counting, either. But, Your
17 Honor, the whole series, it's in Dr. Henningfield's direct
18 testimony. He had a whole -- and Mr. Sheffler issued a --
19 offered a whole series of documents going back and forth between
20 Brown & Williamson and BATCo.

21 I think that I specifically identified, I'd say three.
22 Certainly I think there are more in Dr. Henningfield's testimony
23 that refer to Brown & Williamson.

24 THE COURT: No, but only in your redirect.

25 MR. BERNICK: He hasn't used very many. He's talked

1 about the Addison Yeaman memo in 1963. That would be the thrust
2 of my examination, is to focus on that memo, where it came from,
3 what its significance was.

4 Now there was an earlier reference today that counsel
5 might use the root technology handbook because counsel for
6 Liggett stood up as part of her examination, Brown & Williamson
7 document, she used it solely for the purpose of bringing out
8 that her client didn't use root technology. And at that point,
9 say, "Well, that doesn't really open the door for my client even
10 though it's our document, so I'm not going to ask any
11 questions."

12 If the government now tomorrow morning pursues
13 questions relating to Brown & Williamson or relating to that
14 document beyond the fact that Liggett didn't pursue that
15 technology, I may have some questions in that area.

16 I have no intent to revisit any of the judgments that I
17 made before. My sole intent is to focus on the significant
18 testimony the witness has offered with respect on redirect to
19 the Addison Yeaman memo and, if it comes up, on root technology.

20 THE COURT: Well, that would be within the scope of
21 what I outlined earlier.

22 Very well. The Doctor may step down. Let me go over
23 just a couple of things with everybody.

24 We will begin at 9:30 tomorrow, of course. I don't
25 want the word to go outside this courtroom, but there will be a

1 surprise lunch for somebody on my staff tomorrow who is very
2 important, and that means that we're going to take -- I know
3 nobody is going to like this -- but we're going to take a 2-hour
4 lunch tomorrow. That's all. Sometimes other things just
5 overtake this courtroom.

6 And we will break at probably 12:30, 12:25 at the
7 latest -- well, 12:30 at the latest, and have a -- let me find
8 out about one plea that I know Ms. Hightower is working on.

9 THE DEPUTY CLERK: I still don't have an answer yet.

10 THE COURT: I'm not sure what time we will break
11 tomorrow afternoon. But we ought to have a full day in any
12 event until 4:30. Am I right? Wasn't that the option we left
13 them, either 4:45 tomorrow?

14 THE DEPUTY CLERK: 4:45 or Thursday.

15 THE COURT: Okay. We will go until at least 4:30
16 tomorrow afternoon.

17 As soon as we finish with this witness, though, I want
18 to address some preliminary matters relating to Dr. Dolan and
19 the pending motion about -- relating to Dr. Wyant. I want to
20 get those done.

21 And, finally, we won't -- well, we're not going to do
22 this this afternoon, but I'll assume for the moment that counsel
23 will follow the procedure we have been following, and that is
24 when tomorrow's testimony is concluded you all will consult with
25 each other about exhibits and then get back to me a day or two

1 thereafter and we will spend time resolving over -- resolving
2 any issues that remain disputed. That's just to sort of lay out
3 what we need to do, everybody.

4 MR. GOLDFARB: And Your Honor, just as a reminder. We
5 will also be proffering again at the close of Dr. Henningfield
6 testimony the scope of his expertise.

7 THE COURT: Oh, that's right. That issue was left
8 open. Mr. Webb left that issue open, I think.

9 All right. Thank you for reminding me.

10 MR. BERNICK: Your Honor, could I ask with respect,
11 Dr. Dolan, what particular issue did you intend to take up?

12 THE COURT: I didn't bring all of those papers in with
13 me, but here's my recollection, and I read those papers Friday.

14 Defendants raised a Norr-Pennington issue. Gosh, there
15 were two other big issues that you all raised, but, everybody, I
16 don't have the papers right in front of me now.

17 MR. BERNICK: I just want to make sure it wasn't
18 something we hadn't kind of -- I wanted to know what Your
19 Honor's particular concern was so we could address this. It
20 wasn't simply the issues that are raised in our motion, we could
21 certainly be prepared --

22 THE COURT: There are only matters raised in the
23 written papers, your objections and the government's response.
24 I can assure you that's as far as we've gone.

25 Okay, everybody, 9:30 tomorrow, please.

1 (Proceedings concluded at 4:33 p.m.)

2 INDEX

3 WITNESS: PAGE:

4 JACK HENNINGFIELD
5 REDIRECT EXAMINATION 7412

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11 CERTIFICATE
I, EDWARD N. HAWKINS, Official Court Reporter, certify
that the foregoing pages are a correct transcript from the
record of proceedings in the above-entitled matter.

12

13 Edward N. Hawkins, RMR

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