

# Written Direct Testimony of Jeffrey E. Harris, M.D., Ph.D.

## Table of Contents

<b>I.</b>	<b><i>QUALIFICATIONS TO TESTIFY AS AN EXPERT</i></b> .....	<b>1</b>
<b>A.</b>	<b><i>Introduction and Educational Credentials</i></b> .....	<b>1</b>
<b>B.</b>	<b><i>Work on Surgeon General’s Reports</i></b> .....	<b>2</b>
<b>C.</b>	<b><i>Consulting for Public Health Authorities on Smoking and Health</i></b> .....	<b>4</b>
<b>D.</b>	<b><i>Publications Related to Smoking and Health</i></b> .....	<b>9</b>
<b>E.</b>	<b><i>Testimony before Congress and Other Governmental Bodies Related to Smoking and Health</i></b> .....	<b>14</b>
<b>F.</b>	<b><i>Sponsored Research Related to Smoking and Health</i></b> .....	<b>18</b>
<b>G.</b>	<b><i>Public Service Related to Smoking and Health</i></b> .....	<b>19</b>
<b>H.</b>	<b><i>Expert Reports and Testimony in Smoking and Health Cases</i></b> .....	<b>19</b>
<b>I.</b>	<b><i>Teaching Background</i></b> .....	<b>19</b>
<b>J.</b>	<b><i>Additional Public Service and Consulting Work</i></b> .....	<b>20</b>
<b>K.</b>	<b><i>Additional Publications</i></b> .....	<b>21</b>
<b>L.</b>	<b><i>Medical Experience</i></b> .....	<b>21</b>
<b>II.</b>	<b><i>ECONOMIC CONCLUSIONS: OVERVIEW AND SUMMARY OF ECONOMIC CONCEPTS</i></b> .....	<b>22</b>
<b>A.</b>	<b><i>Overview of Conclusions</i></b> .....	<b>22</b>
<b>B.</b>	<b><i>Materials Reviewed</i></b> .....	<b>23</b>
<b>C.</b>	<b><i>The Role of Economic Analysis</i></b> .....	<b>26</b>
<b>D.</b>	<b><i>The Cigarette Industry is an Oligopoly</i></b> .....	<b>28</b>

<i>E.</i>	<i>Oligopoly and Strategy</i> .....	33
<i>G.</i>	<i>The “Inferior Widget” Case</i> .....	39
<i>H.</i>	<i>Firms’ Private Profits &amp; The Consuming Public’s Harm</i> .....	40
<i>I.</i>	<i>Basic Conditions Facilitating or Impeding Collusion among Oligopolists</i> ...	41
<i>J.</i>	<i>Oligopolistic Cooperation: Explicit Collusion versus Tacit Collusion</i> .....	51
<i>K.</i>	<i>Evidence that Collusion has Ended</i> .....	58
<b>III.</b>	<b><i>ECONOMIC CONCLUSIONS: ANALYSIS OF THE CONDUCT OF DEFENDANT CIGARETTE MANUFACTURERS WITH RESPECT TO SMOKING AND HEALTH ISSUES</i></b> .....	<b>59</b>
<i>A.</i>	<i>The “Health Scare” of the Early 1950's and the Response of Manufacturers</i>	59
<i>B.</i>	<i>The Emerging Scientific Consensus that Smoking Caused Lung Cancer and Other Diseases</i> .....	83
<i>C.</i>	<i>Joint Denial by Defendant Manufacturers</i> .....	90
<i>D.</i>	<i>The “King Sano” Exchange, June 1957</i> .....	92
<i>E.</i>	<i>The 1958 Report on the Visit to U.S. and Canada</i> .....	99
<i>F.</i>	<i>The 1962 Research Conference in Southampton, England</i> .....	106
<i>H.</i>	<i>Tobacco Institute Executive Committee, January 12, 1964</i> .....	119
<i>I.</i>	<i>Wakeham Memo on the Surgeon General’s Report, February 1964</i> .....	122
<i>J.</i>	<i>Report on Policy Aspects of the Smoking and Health Situation in U.S.A., October 1964</i> .....	125
<i>K.</i>	<i>Operations Department Presentation to the Philip Morris Board of Directors, October 1964</i> .....	135
<i>L.</i>	<i>CTR’s Open Question Strategy, Yeaman Memo, January 1968</i> .....	148
<i>M.</i>	<i>“The Need for Biological Research by Philip Morris Research and Development,” November 1968</i> .....	152

<i>N.</i>	<i>Meeting with Dr. Wakeham, September 1970</i> .....	161
<i>O.</i>	<i>An Apology from United States Tobacco, March 1977</i> .....	165
<i>P.</i>	<i>Operation Berkshire and the Formation of ICOSI, June 1977</i> .....	166
<i>Q.</i>	<i>Project XA Presentation to Liggett Board of Directors, January 1979</i> .....	173
<i>R.</i>	<i>The Holland Barclay Incident between Philip Morris and BAT, Fall 1983</i> .....	187
<i>S.</i>	<i>Meeting with BAT/B&amp;W and Philip Morris, January 1989</i> .....	199
<i>T.</i>	<i>Premier - Concept and Product Reactions, November 1988</i> .....	202
<i>U.</i>	<i>CEOs of Defendant Cigarette Manufacturers Testify Before the Waxman Subcommittee, April 1994</i> .....	211
<i>V.</i>	<i>Recent Developments</i> .....	223

1 ***I. QUALIFICATIONS TO TESTIFY AS AN EXPERT***

2 ***A. Introduction and Educational Credentials***

3 **Q. Dr. Harris, please introduce yourself to the Court.**

4 A. My name is Jeffrey E. Harris.

5 **Q. Have you been retained by the United States to testify as an expert witness in this**  
6 **case?**

7 A. Yes.

8 **Q. What compensation did you receive from the United States for your work in this**  
9 **case?**

10 A. I am compensated at a rate of \$400 per hour.

11 **Q. Have you provided the Court with a copy of your curriculum vitae?**

12 A. Yes, at U.S. Exhibit 78,533.

13 **Q. You are both an economist and a physician, is that correct?**

14 A. Yes, that is correct.

15 **Q. What is your understanding of the expertise for which you are being offered in this**  
16 **case?**

17 A. I understand that I am being offered as an expert who has been asked to perform an  
18 economic analysis of Defendant cigarette manufacturers' conduct with respect to smoking  
19 and health. More specifically, I understand that I have been asked to determine, from the  
20 economist's standpoint, whether the conduct of Defendant cigarette manufacturers is best  
21 described as competition or collusion.

22 **Q. We'll return to these issues shortly. Please tell the Court about your educational**  
23 **qualifications.**

1 A. I received a bachelor's degree, summa cum laude, from Harvard University in 1969. In  
2 1974, I earned my M.D. degree from the University of Pennsylvania. The following year, I  
3 also received a Ph.D. in Economics from the University of Pennsylvania. During 1974-  
4 1977, I was an intern, resident and fellow in medicine at the Massachusetts General  
5 Hospital.

6 **Q. Do you actively practice medicine and perform work as an economist?**

7 A. Yes, since 1977, I have been a primary-care physician at Massachusetts General Hospital,  
8 where I currently see adult patients in my office two days each week. I am also a tenured  
9 Professor of Economics at the Massachusetts Institute of Technology ("MIT") where I have  
10 been a faculty member for over 25 years. During that time, I have also been on the faculty  
11 of the Harvard Medical School-MIT Division of Health Sciences and Technology.

12 ***B. Work on Surgeon General's Reports***

13 **Q. Before you testify about your general background as an economist and physician, let's**  
14 **focus the Court's attention on your specific experience relating to smoking and health**  
15 **issues. As early as 1979, you were asked by the Office of the Surgeon General to draft**  
16 **or edit portions of the Surgeon General's Reports on smoking and health, is that**  
17 **correct?**

18 A. Yes, I was invited to do so.

19 **Q. Please describe your work in connection with the 1979 Surgeon General's Report.**

20 A. In 1979, I contributed a chapter to the fifteenth anniversary Surgeon General's Report, in  
21 which I explained trends in cigarette consumption, smoking rates, changes in the type of  
22 cigarettes smoked, and the responses of consumers to information about the risks of  
23 smoking. In particular, I described changes in per capita cigarette consumption after new

1 scientific reports on the health risks of smoking received widespread public attention in the  
2 early 1950s, after the Surgeon General's Report of 1964, and during the prime-time  
3 televised airing of anti-smoking campaigns in the late 1960s. The chapter was entitled  
4 "Cigarette Smoking in the United States, 1950-1978."

5 **Q. What has been your contribution to various Surgeon General's Reports since the 1979**  
6 **Report?**

7 A. I have also been a consulting scientific editor, invited contributor, or senior reviewer to  
8 Surgeon General's Reports on smoking and health in 1980-1983, 1986, 1988, 1989, and  
9 1996. For the 1980 Surgeon General's Report, in particular, I wrote a review of trends in  
10 smoking in the United States throughout the twentieth century, entitled "Patterns of  
11 Cigarette Smoking." For the 1989 Surgeon General's Report, I was commissioned to write  
12 a chapter entitled "Trends in Smoking-Attributable Mortality." This chapter provided a  
13 detailed analysis of the concept of "attributable risk," that is, the number of cases of a  
14 disease that can be attributed to a specific environmental factor such as cigarette smoking.  
15 The chapter has become the standard reference for the calculation of the number of deaths  
16 attributable to smoking annually in this country.

17 **Q. In editing, reviewing, and contributing to the Surgeon General Reports, what types of**  
18 **materials did you normally consult?**

19 A. I consulted a wide range of sources, including articles in the peer-reviewed scientific  
20 literature, government reports, survey data, vital statistics, newspapers and other  
21 periodicals, and Defendant cigarette manufacturers' internal documents.

1 **Q. How, if at all, did your work as a consulting scientific editor, contributor and senior**  
2 **reviewer to the Surgeon General Reports contribute to your knowledge,**  
3 **understanding, and expertise of smoking and health issues and the tobacco industry?**

4 A. I acquired specific expertise in both the economics of the cigarette industry and health  
5 effects of tobacco use above and beyond the general knowledge that an economist or  
6 physician would be expected to acquire through general training. For example, I worked  
7 with raw data on government surveys of smoking practices. I studied detailed trends in  
8 cigarette consumption, smoking rates, and product mix, including the relationship between  
9 these trends and publicity about the adverse effects of smoking. I studied in detail the  
10 epidemiologic and laboratory evidence concerning diseases associated with smoking. I  
11 reviewed the literature on the composition and chemistry of tobacco and tobacco smoke.

12 **C. Consulting for Public Health Authorities on Smoking and Health**

13 **Q. Have public health or governmental bodies asked you to serve as a consultant on**  
14 **matters involving smoking and health as well as the economics of the tobacco**  
15 **industry?**

16 A. Yes.

17 **Q. Please name those public health and governmental bodies that have retained you to**  
18 **work on smoking and health and other issues related to the tobacco industry.**

19 A. The following agencies have asked me to serve as a consultant on smoking and health or  
20 other issues related to the tobacco industry: (1) the Office of Smoking and Health under the  
21 then United States Department of Health, Education, and Welfare; (2) the National Cancer  
22 Institute (“NCI”) of the United States National Institute of Health (“NIH”); (3) the United  
23 States Environmental Protection Agency; (4) the United States Department of Energy; (5)

1 the United States Consumer Product Safety Commission; (6) the U.S. Federal Trade  
2 Commission; (7) the United States Department of Veteran's Affairs; (8) the Massachusetts'  
3 Department of Public Health; and (9) most recently the Australian Competition and  
4 Consumer Safety Commission.

5 **Q. Please describe the work that you were asked to perform for the Office of Smoking  
6 and Health under the then Department of Health, Education, and Welfare.**

7 A. In the late 1970s, after completing my formal economics and medical training, I developed  
8 a research interest in the economics of the tobacco industry and the health consequences of  
9 smoking. In 1978, I became a consultant to the Office on Smoking and Health ("OSH"). In  
10 that capacity, the OSH asked me to compile, organize and analyze a vast library of raw  
11 survey data and government statistics on trends in cigarette smoking. Such data described  
12 adult and teenage smoking rates and practices, consumer perceptions of the health  
13 consequences of cigarette smoking, trends in cigarette composition and cigarette brand  
14 market shares, the costs of cigarette manufacture, the effect of price on cigarette  
15 consumption, and many other aspects of the cigarette industry. My work included the  
16 previously mentioned commissioned chapter entitled "Cigarette Smoking in the United  
17 States: 1950-1978" in the fifteenth anniversary Surgeon General's Report.

18 **Q. Please describe the work you performed for the National Cancer Institute ("NCI") of  
19 the United States National Institutes of Health.**

20 A. In 1979, as a result of my growing expertise in the design and interpretation of surveys of  
21 cigarette smoking and other health-related practices, the NCI asked me to advise it on the  
22 design and interpretation of additional surveys of smoking to be sponsored by NCI. These  
23 surveys included supplements to the National Health Interview Survey as well as a



1 proposed longitudinal survey on smoking practices. The NCI later asked my advice in  
2 1994.

3 **Q. We'll return shortly to your second consultation for the NCI. Please describe the**  
4 **work that you performed for the United States Environmental Protection Agency**  
5 **("EPA") and United States Department of Energy ("DOE").**

6 A. As a result of my growing research interests and expertise in risk assessment and the  
7 epidemiology of lung cancer, I was invited by the National Academy of Sciences in 1980 to  
8 participate in the Academy's Diesel Impacts Study Committee to assess the possible health  
9 risks of widespread adoption of diesel technology in passenger cars. As part of my work  
10 for the Diesel Impacts Committee, I developed and published a methodology to assess the  
11 comparative lung cancer risks of various inhaled chemical combustion mixtures, including  
12 diesel engine exhaust and cigarette smoke. The methodology specifically addressed the  
13 relevance of non-human toxicological studies, in both living animals and in the test tube, to  
14 human health effects. In 1981, both the EPA and DOE, which were interested in the risk  
15 assessment of combustion products and air pollution, asked my advice on statistical risk  
16 assessment methods and on their research programs to assess health risks. Based upon my  
17 work for the National Academy of Sciences and these government agencies, I later  
18 published two peer-reviewed articles, in Risk Analysis and the Journal of the American  
19 Statistical Association, on statistical methods for applying the results of non-human  
20 toxicological studies to human health effects.

21 **Q. Please describe the work you performed for the United States Consumer Product**  
22 **Safety Commission ("CPSC").**

1 A. During 1992-1993, I was retained to advise the Consumer Product Safety Commission,  
2 which had been charged to report to Congress on the feasibility and safety of fire-resistant  
3 cigarettes. Given my expertise in risk assessment and toxicological testing, I proposed a  
4 research program for testing alternative cigarette designs. My work was reflected in a  
5 commissioned chapter that I wrote for the CPSC report.

6 **Q. Please describe the work you performed for the Federal Trade Commission (“FTC”).**

7 A. In 1994, the FTC was specifically concerned about the reported rise in youth smoking in the  
8 United States and its possible relation to cigarette advertising. In light of my expertise on  
9 surveys of smoking rates and the economics of marketing and advertising, the FTC staff  
10 asked my assistance in evaluating the technical submissions of cigarette manufacturers in  
11 connection with proposed rule making. At the staff’s request, I also met with an FTC  
12 Commissioner to describe the evidence on the rise in youth smoking and its relation to  
13 marketing and advertising.

14 **Q. Please describe your second consultation assignment for the NCI.**

15 A. In 1994, the President’s Cancer Panel, in conjunction with the NCI, was charged to evaluate  
16 the current system of machine cigarette testing for tar, nicotine, and carbon monoxide  
17 (“CO”). In view of my work on the risks of different cigarette designs, I made an invited  
18 presentation concerning the adequacy of tar, nicotine and CO as indicators of health risk  
19 and proposed an alternative testing and reporting methods.

20 **Q. Please describe the work you performed for the Department of Veterans Affairs.**

21 A. During 1997-1998, the Department of Veterans Affairs (“VA”) was charged with  
22 evaluating and implementing a ruling by its General Counsel that diseases incurred as a  
23 result of smoking during military service constituted service-related disabilities. In view of

1 my expertise on the epidemiology and health costs of smoking-related diseases, the VA  
2 asked my advice in assessing the total costs of disability payments that might result from  
3 the implementation of such a ruling.

4 **Q. Please describe the work you performed for the Massachusetts Department of Public**  
5 **Health (“MDPH”).**

6 A. In 1993, the MDPH began to implement a tobacco control campaign that was financed by  
7 the proceeds of an increase in the state excise tax on cigarettes. The campaign included  
8 anti-smoking messages in the major media, including radio and television. Given my  
9 expertise in measurement of smoking rates and the effects of anti-smoking information on  
10 cigarette use, the MDPH contracted me, from 1994 onward, to evaluate the effect of its anti-  
11 smoking campaign. My consulting work led to formal publications on the effect of the  
12 MDPH campaign, including a peer-reviewed report in 2000 in the British Medical Journal  
13 entitled “Impact of the Massachusetts Tobacco Control Programme: Population Based  
14 Trend Analysis.”

15 **Q. Please describe the recent work you performed for the Australian Competition and**  
16 **Consumer Safety Commission.**

17 A. In January 2004, I published a peer-reviewed article in the British Medical Journal, entitled  
18 “Cigarette Tar Yields in Relation to Mortality from Lung Cancer in the Cancer Prevention  
19 Study II Prospective Cohort, 1982–8”, in which I found that smokers of low-tar and very  
20 low-tar cigarettes in the United States had risks of lung cancer comparable to those who  
21 smoked conventional medium-tar filter cigarettes. The Australian Competition and  
22 Consumer Safety Commission solicited my advice concerning the scientific evidence on the  
23 health effects of low-tar cigarettes, as well as the applicability of my findings to the

1 Australian smoking population.

2 ***D. Publications Related to Smoking and Health***

3 **Q. Have you published on matters related to smoking and health issues or the tobacco**  
4 **industry?**

5 A. Yes, I have published articles and book chapters concerning my research on both the health  
6 consequences and economics of cigarette smoking. In addition to peer-reviewed chapters  
7 in Surgeon General's Reports, my work has also appeared in peer-reviewed scientific  
8 journals. My work has covered a number of different topics, such as the effects of price on  
9 cigarette smoking, the economic structure of the cigarette industry, the profits of cigarette  
10 manufacturers, trends in smoking rates throughout the twentieth century, and the impact of  
11 anti-smoking campaigns. My work has also covered the toxicology of cigarette smoke and  
12 the epidemiology of cigarette-related diseases.

13 **Q: Let's break down your publications by topic. Please describe your publications**  
14 **related to the effects of price on cigarette smoking.**

15 A. In 1980, for example, I published a peer-reviewed article in the American Economic  
16 Review, in which I analyzed the effects of a tax levied specifically on high-tar and nicotine  
17 cigarettes. In 1998, I published a peer-reviewed article in Health Economics entitled "The  
18 Continuum of Addiction: Cigarette Smoking in Relation to Price among Americans Aged  
19 15-29," in which I studied how teenage and adult smokers differ in their responses to  
20 cigarette price increases. In the latter article, I found that teenagers were much more  
21 sensitive to changes in cigarette prices than young adults in their twenties, who had already  
22 smoked for a number of years. One explanation for these findings was that, as young  
23 smokers become more addicted to cigarettes, an increase in price has a smaller deterrent

1 effect on smoking.

2 **Q. Please describe your publications related to the economic structure of the cigarette**  
3 **industry.**

4 A. In 1987, for example, I contributed a chapter entitled “The 1983 Increase in the Federal  
5 Excise Tax on Cigarettes” in a volume entitled Tax Policy and the Economy, edited by  
6 Lawrence Summers. In that article, I described how American cigarette manufacturers  
7 raised the wholesale price of cigarettes by 16 cents per pack in response to an 8-cent  
8 increase in the federal excise tax. This response, I explained, was consistent with the  
9 oligopolistic structure of the cigarette industry.

10 **Q. How did you conclude that manufacturers’ raising wholesale price was consistent**  
11 **with the oligopolistic structure of the cigarette industry?**

12 A. As I wrote on page 99 of the chapter, “Today, the American cigarette market remains a six-  
13 firm oligopoly. In 1982, the top four manufacturers had a combined market share of 87  
14 percent...” I then explained how the pending federal excise tax increase, enacted in 1982  
15 and scheduled to take effect in 1983, could serve as a “focal point” to permit manufacturers  
16 to coordinate their pricing behavior without explicitly communicating with each other. On  
17 page 101 of the same chapter, I further noted, “So long as prices were not already at fully  
18 collusive levels, member firms could push prices well beyond the magnitude of the tax  
19 increase. The tax increase would act as a cover for the price increases.”

20 **Q. You mentioned the profits of cigarette manufacturers. Please describe your**  
21 **publications in connection with this topic.**

22 A. In 1996, I wrote a peer-reviewed article in Tobacco Control, entitled “U.S. Cigarette  
23 Manufacturers’ Ability to Pay Damages: Overview and a Rough Calculation,” in which I

1 conceptualized and calculated the cigarette industry's ability to pay damages and settlement  
2 payments.

3 **Q. How did you conceptualize and calculate the industry's ability to pay damages and**  
4 **settlement payments?**

5 A. Cigarette manufacturers' ability to pay damages and settlement costs, I explained, depends  
6 not on their current profit margins, but on their ability to pass such costs onto consumers by  
7 raising prices. Moreover, manufacturers could raise the price of cigarettes considerably to  
8 generate additional revenues to cover damages and settlement costs. I used the same  
9 underlying logic in later testimony before Congressional committees concerning the impact  
10 of proposed legislation and other industry-wide settlements on the price of cigarettes and  
11 the profitability of cigarette manufacturers.

12 **Q. Have you been asked in this case to calculate Defendants' ability to pay**  
13 **disgorgement?**

14 A. No.

15 **Q. Let's defer consideration of your Congressional testimony temporarily. Please**  
16 **describe your published work on trends in smoking rates throughout the twentieth**  
17 **century.**

18 A. In 1983, I wrote a peer-reviewed article in the Journal of the National Cancer Institute  
19 entitled "Cigarette Smoking among Successive Birth Cohorts of Men and Women in the  
20 United States during 1900-80," in which I used survey data to reconstruct the lifetime  
21 patterns of different generations of cigarette smokers throughout the twentieth century. In  
22 the article, I described a methodology for reconstructing smoking rates in the past, which I  
23 employed in my invited chapter in the 1980 Surgeon General's Report. It has now become

1 the standard method for reconstructing smoking rates of successive birth cohorts, and has  
2 been used by many researchers.

3 **Q. Please describe your publications on the impact of anti-smoking campaigns.**

4 A. My first publication on the effect of the MDPH tobacco control campaign was a 1996  
5 article in the Morbidity and Mortality Weekly Report (“MMWR”). As already mentioned, I  
6 later contributed to an article on the MDPH campaign that was published in the British  
7 Medical Journal in 2000. In these articles, I analyzed survey data on the percentage of the  
8 population that currently smoked cigarettes in Massachusetts as compared to other states. I  
9 also analyzed data on tax-paid cigarette sales in Massachusetts as compared to other states.  
10 In the MMWR article, I specifically considered whether the January 1993 statewide excise  
11 tax increase was responsible for the observed decline in smoking in Massachusetts. Using  
12 data on prices derived from bar code scanning of food stores, I showed that the inflation-  
13 adjusted retail price of cigarettes had already fallen back to its pre-January 1993 levels by  
14 September of that year. The cause of the price reversal, as I explained, was the industry-  
15 wide price war that began in April 1993. The starting date of that price war is widely  
16 known as “Marlboro Friday.”

17 **Q. Please describe your publications concerning the toxicology of cigarette smoke and**  
18 **the epidemiology of cigarette-related diseases.**

19 A. In 2001, for example, in the peer-reviewed journal Public Health Reports, I published an  
20 article entitled “Smoke Yields of Tobacco-Specific Nitrosamines in Relation to FTC Tar  
21 Level and Cigarette Manufacturer: Analysis of the Massachusetts Benchmark Study.” In  
22 that article, I found that a brand’s machine-measured tar yield was a relatively weak  
23 predictor of its delivery of specific carcinogenic substances called tobacco-specific

1 nitrosamines (TSNAs). In January 2004, I published the aforementioned study of lung  
2 cancer risks in relation to cigarette tar yields in the peer-reviewed British Medical Journal.  
3 Most recently, I had an article accepted for publication in the October 2004 issue of the  
4 peer-reviewed Nicotine and Tobacco Research, entitled “Incomplete Compensation Does  
5 Not Imply Reduced Harm: Yields of 40 Smoke Toxicants per Milligram Nicotine in  
6 Regular Filter versus Low Tar Cigarettes in the 1999 Massachusetts Benchmark Study.” In  
7 that article, I explained how a smoker who gets less nicotine from a particular cigarette can  
8 still receive a higher dosage of other toxic substances.

9 **Q. Did these studies require you to have a background knowledge in cigarette design?**

10 A. Yes. To interpret the results in my study of TSNAs, I had to have background knowledge  
11 of the biochemistry of nitrosamine formation in cigarette smoking, the role of tobacco  
12 curing processes and tobacco leaf blending. To interpret the results of my study of lung  
13 cancer according to cigarette tar yields and my study of incomplete compensation, I had to  
14 have background knowledge of the design features generally used to reduce machine-  
15 measured tar yields, including filter ventilation holes, reconstituted tobacco sheet, tobacco  
16 filler, and more porous cigarette papers. These aspects of cigarette design are specifically  
17 discussed in my articles.

18 **Q. Do you continue to engage actively in research and writing in the economics and**  
19 **health consequences of smoking?**

20 A. Yes. For example, in April 2004, I issued a working paper through the National Bureau of  
21 Economic Research entitled “Asymmetric Social Interaction in Economics: Cigarette  
22 Smoking among Young People in the United States, 1992 – 1999,” in which I developed  
23 economic models to study peer influences on cigarette smoking among teenagers and young



1 adults. I refer the Court to my Curriculum Vitae (“CV”) for a complete list of publications  
2 at United States Trial Exhibit 78,533.

3 ***E. Testimony before Congress and Other Governmental Bodies Related to Smoking***  
4 ***and Health***

5 **Q. Have you been invited to testify before Congress or any other Governmental bodies**  
6 **on matters related to smoking and health issues or the tobacco industry?**

7 A. I have given invited testimony concerning the health consequences of smoking, the  
8 economics of proposed tobacco industry settlements, and the impact of proposed legislation  
9 before Congress and other governmental bodies. These include: (1) the United States House  
10 Ways and Means Committee; (2) United States Senate Judiciary Committee; (3) United  
11 States Senate Agriculture Committee; (4) United States Senate Democratic Task Force on  
12 Tobacco; (5) United States House Judiciary Committee; (6) Massachusetts Department of  
13 Public Health; and (7) the Massachusetts Public Health Council. A full list of all public  
14 testimony I have given is contained in my attached curriculum vitae at United States Trial  
15 Exhibit 78,533.

16 **Q. Please describe briefly your invited testimony before the United States House Ways**  
17 **and Means Committee.**

18 A. Previously, in April 1989, I had served as invited faculty to the Committee’s Annual Issues  
19 Seminar on deficit reduction. In November 1993, I again gave invited testimony in  
20 connection with the Administration’s proposed 75-cent increase in the federal excise tax on  
21 cigarettes, which was intended in part to finance pending legislation on health insurance  
22 reform. In my testimony, entitled “The Health Care Costs of Cigarette Smoking,” I  
23 estimated that the health consequences of smoking accounted for 8 percent of all health  
24 care spending in the United States, an expenditure that translated at the time into \$3.71 per

1 pack of cigarettes sold. I urged the Committee to reject the Defendant tobacco  
2 manufacturers' so-called "death benefit" from smoking.

3 **Q. What do you mean by the "death benefit" from smoking?**

4 A. When an elderly smoker dies prematurely as a result of his smoking, he can no longer  
5 collect social security checks or private pension payments. Some economists have argued  
6 that the resulting reduction in public spending or private outlays ought to be considered a  
7 benefit. In my testimony before the Ways and Means Committee, I urged Committee  
8 members not to apply a double standard when it comes to public policy toward smoking.  
9 Thus, I testified, "When Congress considers the merits of increasing Federal funding for  
10 breast cancer prevention, diagnosis and treatment, it does not remind itself that most  
11 women who die from breast cancer have already passed their sixty-fifth birthdays. It does  
12 not consider whether an improvement in breast-cancer survival would impose a burden on  
13 Social Security or private pensions. Congress considers the funding of breast cancer  
14 research primarily a matter of health. The same standard should apply to the taxation of  
15 cigarettes."

16 **Q. Please describe briefly your invited testimony before the United States Senate  
17 Judiciary Committee.**

18 A. On June 20, 1997, Defendant tobacco manufacturers offered a "Draft Proposed Resolution"  
19 aimed at settling numerous lawsuits against them that were filed by State Attorneys  
20 General. Concurrently, Congressional lawmakers were considering other legislative  
21 proposals to effectuate a global settlement with the tobacco industry. In July 1997, the  
22 Senate Judiciary Committee held hearings entitled "Proposed Global Settlement: Who  
23 Benefits?" In those hearings, I gave testimony concerning Defendant tobacco

1 manufacturers' Proposed Resolution. I testified that the proposed industry payments might  
2 cover the future smoking-related costs of the Medicaid program. However, they did not  
3 appear to cover the past costs incurred by Medicaid as a consequence of smoking-related  
4 illness. Nor did the proposed industry-wide payments appear to cover the smoking-related  
5 health-care costs incurred by private parties or by other federal programs including  
6 Medicare and the Veterans Administration.

7 **Q. Please describe briefly your invited testimony before the United States Senate**  
8 **Agriculture Committee.**

9 A. In September 1997, the Senate Agriculture Committee also held hearings on the "Tobacco  
10 Settlement and the Future of the Tobacco Industry." In my testimony, I discussed the  
11 "volume adjustment" provision of the proposed tobacco settlement, in which tobacco-  
12 industry payments would go down if domestic tobacco sales declined. Incorporating this  
13 provision into a model of future cigarette sales, I estimated that the actual present value of  
14 the first 25 years of industry payments was an estimated \$194.5 billion, as opposed to the  
15 widely quoted cumulative face value of \$272 billion. While the aggregate payments over  
16 25 years appeared substantial, I further testified that they were dwarfed by the future  
17 estimated costs that smoking-related disease would impose on state Medicaid programs.

18 **Q. Please describe briefly your invited testimony before the United States Senate**  
19 **Democratic Task Force on Tobacco.**

20 A. In testimony before the Senate Democratic Task Force on Tobacco in October 1997, I  
21 analyzed the effects of various policy proposals on rising teenage smoking rates. During  
22 1992-1996, the proportion of eighth- to twelfth-graders who smoked cigarettes every day  
23 had risen from 13 to 18 percent. Under the Proposed Resolution offered by Defendant

1 tobacco manufacturers, I estimated that the youth smoking rate would fall to about 14  
2 percent after 10 years. Under an alternative \$1.50 federal excise tax increase, the youth  
3 smoking rate would fall to 12 percent. If the tax increase were adjusted periodically for  
4 inflation, the youth smoking rate would fall to 10 percent. In May 1998, in further invited  
5 testimony before the same Senate Task Force, I analyzed the impact of proposed federal  
6 legislation on the price of cigarettes.

7 **Q. Please describe briefly your invited testimony before the United States House**  
8 **Judiciary Committee.**

9 A. In December 1997, the House Judiciary Committee held hearings on “Attorneys Fees and  
10 the Global Settlement.” In my testimony, I presented an economic analysis of the  
11 compensation provisions of all publicly available contracts between State Attorneys  
12 General and outside counsel. I found that the compensation provisions, which varied  
13 widely, reflected the extent of risk assumed by private counsel. I concluded that legislative  
14 proposals to compensate private counsel at a uniform hourly rate might not adequately  
15 compensate attorneys for taking risks. I proposed a compensation system based on sliding  
16 scale contingency fees that depended on the date that the state contracted with counsel.

17 **Q. Please describe briefly your invited testimony before the Massachusetts Department**  
18 **of Public Health (“MDPH”).**

19 A. Massachusetts has a long history of legislative and executive branch proposals to require  
20 tobacco manufacturers to disclose the ingredients in their products. Previously, in August  
21 1985, I had given invited testimony on the merits of proposed tobacco disclosure legislation  
22 before the Joint Committee on Health Care of the Massachusetts Senate and House of  
23 Representatives. Again, in 1996, the MDPH proposed new disclosure regulations. In

1 January 1997, I gave invited testimony before the MDPH that the Food and Drug  
2 Administration's (FDA's) "Generally Regarded as Safe" (GRAS) standard cannot  
3 automatically be applied to cigarette additives. Moreover, the toxicity testing of the  
4 chemical components of cigarette smoke follows procedures that are widely accepted in the  
5 scientific community and private industry, including the cigarette industry. The same  
6 procedures could be used by the Department of Public Health to assess the safety of  
7 additives disclosed by cigarette manufacturers under the proposed regulation.

8 **Q. Please describe briefly your invited testimony before the Massachusetts Public Health**  
9 **Council.**

10 A. In October 1999, in testimony before the Massachusetts Public Health Council, I  
11 summarized the most recent evidence on the effectiveness of the state tobacco control  
12 campaign run by the MDPH. Since the start of the campaign, tax-paid cigarette sales per  
13 adult had declined by 30 percent. Moreover, the proportion of adults who smoked  
14 declined, while the prevalence of smoking in other states without tax-financed, anti-  
15 smoking campaigns had remained nearly unchanged. Smoking rates among pregnant  
16 women also declined in comparison to the national average. In addition, based on the  
17 attributable risk methods that I had described in the 1989 Surgeon General's Report, I  
18 estimated that the tobacco control campaign had reduced total public and private health  
19 care spending in Massachusetts by at least \$85 million annually.

20 ***F. Sponsored Research Related to Smoking and Health***

21 **Q. Have you performed sponsored research on matters related to smoking and health**  
22 **issues or the tobacco industry?**

1 A. I have received competitive grants to perform research on both the health consequences and  
2 economics of cigarette smoking. These include a Research Career Development Award  
3 from the United States Public Health Service, as well as grants from the Health Services  
4 Fund, American Cancer Society, and the United States National Institute on Drug Abuse.

5 ***G. Public Service Related to Smoking and Health***

6 **Q. Have you engaged in other public service in connection with smoking and health?**

7 A. Most recently, I was appointed to the Institute of Medicine's Committee on Reducing  
8 Tobacco Use. Other public service is described in my CV at United States Trial Exhibit  
9 78,533.

10 ***H. Expert Reports and Testimony in Smoking and Health Cases***

11 **Q. Have you offered opinions, in the form of expert reports or testimony, in previous  
12 smoking and health cases in which one or more Defendants were a party?**

13 A. I have offered my opinions by way of expert reports and affidavits, deposition and trial  
14 testimony in a number of different cases brought by State Attorneys General and by private  
15 health insurers, insurance funds, trusts and other private parties against one or more of the  
16 Defendants in the present action.

17 **Q. Are these cases identified on your curriculum vitae that was provided to Defendants?**

18 A. Yes. These can be found in my curriculum vitae at U.S. Exhibit 78,533.

19 ***I. Teaching Background***

20 **Q. What courses do you teach at MIT?**

21 A. During my 25 years teaching at MIT, I have taught courses to undergraduate and graduate  
22 students in health economics, micro-economics, industrial organization, antitrust  
23 economics, mathematical economics, statistics, law and economics, and toxicology and

1 public policy.

2 **Q. What courses have you taught at Harvard Medical School?**

3 A. My courses in health economics and toxicology and public policy have also been offered to  
4 Harvard Medical School students through the MIT-Harvard Medical School Division of  
5 Health Sciences and Technology.

6 **J. Additional Public Service and Consulting Work**

7 **Q. Outside of smoking and health-related work, have you performed other public service  
8 or consulting not previously mentioned?**

9 A. I have served on a number of invited panels of the National Academy of Sciences,  
10 including: the Diesel Impacts Study Committee (National Research Council); the  
11 Committee to Study the Prevention of Low Birth Weight (Institute of Medicine); the  
12 Committee on National Strategies toward AIDS (Institute of Medicine); and the Committee  
13 on Risk Characterization. In non-smoking and health related work, I was an invited  
14 member of the National Hospice Advisory Committee, an invited consultant to the National  
15 Women Infants and Children (WIC) Program Evaluation, an appointed member of the  
16 Scientific Advisory Committee to the American Foundation for AIDS Research, and an  
17 appointed member of the NIH's National Advisory Research Resources Council. I have  
18 also offered opinions and testimony as an expert witness in non-smoking and health related  
19 cases, including: an antitrust hospital merger case before the Federal Trade Commission, a  
20 products liability case involving market share liability for damages due to diethylstilbestrol  
21 (DES), a patent case involving the "commercial success" criterion for originality, and most  
22 recently deposition testimony concerning damages in a class action against computer chip  
23 manufacturers and sellers.

1           ***K.     Additional Publications***

2           **Q.     Have you published books or articles in fields other than smoking and health and the**  
3           **economics of the tobacco industry?**

4           A.     My 1977 peer-reviewed article entitled “The Internal Organization of Hospitals: Some  
5                   Economic Implications,” based upon my PhD thesis, has become a standard reference in the  
6                   field of health economics. I have published on many other topics in the economics of  
7                   health care and medicine, including: the effect of prenatal care on infant mortality, the use  
8                   of social experiments to guide health policy, trends in the short-term survival from AIDS,  
9                   the incubation period for HIV infection, statistical issues in the analysis of AIDS reporting,  
10                  the economics of competition among physicians, social and economic causes of cancer, and  
11                  the value of screening for human papilloma virus (HPV) in the prevention of cervical  
12                  cancer. These writings have appeared in professional conference volumes and in such  
13                  refereed journals as the Bell Journal of Economics, Journal of the American Statistical  
14                  Association, and the Journal of the American Medical Association. In 1993, I published a  
15                  book entitled Deadly Choices: Coping with Health Risks in Everyday Life (Basic Books).

16           ***L.     Medical Experience***

17           **Q.     Please describe your experience as a medical doctor.**

18           A.     As I testified above, I have served as a primary care physician on the medical staff of the  
19                   Massachusetts General Hospital (“MGH”) continuously since 1977, and now see adult  
20                   patients in my office two days each week.

21           **Q.     How is your work as a physician relevant to the conclusions that you have reached in**  
22           **this case?**



1 A. I estimate that since 1974, when I began my internship at the hospital, I have had more than  
2 10,000 individual encounters with patients, a great many of whom smoked cigarettes and  
3 had smoking-related diseases. As a result, my own medical expertise figures in my  
4 understanding of the health consequences of smoking. In addition, my biomedical training  
5 has helped me to understand the toxicology of cigarette smoke and in basic chemical and  
6 physical principles involved in cigarette design. In addition, I have drawn upon my clinical  
7 experience as a physician to assess patient knowledge of the health consequences of  
8 smoking.

9 ***II. ECONOMIC CONCLUSIONS: OVERVIEW AND SUMMARY OF ECONOMIC***  
10 ***CONCEPTS***

---

11 ***A. Overview of Conclusions***

12 **Q. Dr. Harris, have you conducted an economic analysis of Defendants' conduct with**  
13 **respect to smoking and health since the early 1950's?**

14 A. Yes.

15 **Q. What question did you specifically address?**

16 A. I specifically addressed the following question: From the economist's standpoint, is the  
17 conduct of Defendant cigarette manufacturers with respect to smoking and health best  
18 explained as competition or collusion?

19 **Q. Have you reach any conclusion with respect to that question?**

20 A. Yes. I have concluded that Defendants' conduct with respect to smoking and health is most  
21 consistent with collusion.

22 **Q. Could you provide a brief summary of your conclusion?**

23 A. From the point of view of an economist, the cigarette industry in the United States has been  
24 and continues to be an oligopoly, in which a few firms comprise a large fraction of market

1 sales. Within this oligopoly context, Defendants have engaged during the past five decades  
2 in a sustained cooperative arrangement in which they have jointly denied that smoking  
3 caused disease, jointly refrained from making comparative health claims about each others'  
4 products, and jointly withheld potential risk-reducing alternatives from the marketplace.  
5 The economist's model of competitive rivalry, where each business firm acts  
6 independently, in its individual interest, and at arm's length from its competitors, does not  
7 adequately explain Defendant manufacturers' behavior. To the contrary, the economist's  
8 model of collusion, in which each firm takes actions that redound to its benefit only when  
9 its rivals cooperate in a group plan, best explains the Defendants' conduct. While  
10 economists understand that such cooperative behavior can in principle occur in an  
11 oligopoly solely through unspoken, tacit understandings among firms, the evidence in the  
12 present case, as shown by Defendants' own documents, repeatedly shows that Defendant  
13 manufacturers have colluded via direct communication and explicit agreement among  
14 themselves.

15 **Q. Dr. Harris when you refer throughout your testimony to “cigarette manufacturers” or**  
16 **“manufacturers,” are you referring to the Defendants?**

17 A. Unless otherwise stated, yes.

18 *B. Materials Reviewed*

19 **Q. Dr. Harris, what types of materials did you review in performing your economic**  
20 **analysis of Defendant cigarette manufacturers' conduct with respect to smoking and**  
21 **health issues?**

1 A. I reviewed published articles, publicly available statistics, government reports, internal  
2 documents of cigarette manufacturers, and the deposition and trial testimony of current and  
3 past employees and agents of the Defendant manufacturers.

4 **Q. Were the internal documents that you reviewed already publicly available?**

5 A. A great many were already publicly available, but many others were produced by  
6 Defendants specifically in connection with this litigation.

7 **Q. Were the trial and deposition transcripts that you reviewed already publicly  
8 available?**

9 A. Again, while many transcripts were based on testimony in other venues, I also reviewed the  
10 transcripts of many depositions that were taken in this case.

11 **Q. Are the materials that you reviewed the types of sources that economists consider  
12 when performing an analysis of the competitiveness of an industry?**

13 A. Yes.

14 **Q. Have you reviewed and relied upon such materials in other research projects?**

15 A. Yes. As I testified, I relied upon such materials in connection with my contributions to  
16 various Surgeon General's reports, in my public service consulting, in my invited  
17 Congressional testimony, and in my own published research.

18 **Q. Dr. Harris, did you review the deposition testimony of experts and fact witnesses in  
19 this case?**

20 A. Yes.

21 **Q. Dr. Harris, does your testimony before this Court directly refer to every internal  
22 company document that you have ever reviewed?**

23 A. No. That would be impractical.

1 **Q. Why would it be impractical?**

2 A. Over the course of my professional career, I have reviewed many tens of thousands of pages  
3 of internal documents originating from Defendant cigarette manufacturers. I reviewed  
4 thousands more in connection with my work in this litigation.

5 **Q. How did you decide which documents specifically to bring to the Court's attention?**

6 A. I have identified those documents that most specifically address the main question: From  
7 the economist's standpoint, is the conduct of cigarette manufacturers with respect to  
8 smoking and health best explained by independent competitive actions, conscious  
9 parallelism, or explicit collusion.

10 **Q. Did you review internal company documents in any particular order?**

11 A. With respect to documents that were produced in this case, I read them in the order that  
12 they were produced and transmitted by counsel to me over the last three and a half years.  
13 More generally, I have read documents that were produced in other proceedings in  
14 approximately the order in which they came to light.

15 **Q. Do you plan to present such documents in the order they were produced?**

16 A. No. I plan to present the most relevant documents in roughly chronological order.

17 **Q. Why do you intend to present the relevant material in chronological order?**

18 A. The field of smoking and health has been one of considerable and continual change over  
19 the past 50 years. To understand and explain why specific actions might be more consistent  
20 with competitive action, conscious parallelism or collusion, it is important to place those  
21 actions in the relevant contemporaneous scientific context.

22 **Q. Can you give an example of what you mean by the "relevant contemporaneous  
23 scientific context?"**

1 A. For example, at various times, Defendant manufacturers denied that cigarette smoking was  
2 addictive. In fact, the chief executive officers of Defendants each testified in front of a  
3 committee of the United States Congress in 1994 that they did not believe smoking was  
4 addictive. The economist's interpretation of such actions could in principle be different in  
5 1964, when the Surgeon General's Advisory Committee described cigarette smoking as  
6 "habitual," and in 1994, six years after the Surgeon General had formally concluded that  
7 cigarette smoking is an "addiction."

8 **C. The Role of Economic Analysis**

9 **Q. Generally, what expertise, if any, have you relied upon in reaching the conclusions**  
10 **that you summarized above?**

11 A. In rendering these conclusions, I have relied upon my nearly 30-year background of  
12 teaching and research in economics, including my detailed study of the economics of the  
13 tobacco industry. My conclusions are further informed by my extensive study, as a  
14 physician and researcher, of the health consequences of smoking.

15 **Q. Has the United States asked you to render legal conclusions in this case with respect to**  
16 **Defendants' conduct?**

17 A. No. The United States has asked me to conduct an economic analysis of Defendants'  
18 conduct, not a legal analysis.

19 **Q. What light, if any, can economic analysis shed in a case such as this?**

20 A. The economist's framework helps to explain the incentives of individual firms in an  
21 industry, particularly an oligopoly such as the cigarette industry. The framework helps to  
22 explain why specific actions may or may not be in each firm's self-interest or in the joint  
23 interest of a group of firms. Explaining whether specific actions are in a firm's self-interest

1 or in the group interest is important in understanding the economic distinction between  
2 competition and collusion. In a case such as this one, where there is a long and complex  
3 factual record, the economist's framework helps to organize the record so as to make sense  
4 of past history, inform us as to present conditions, and assist us in making educated  
5 forecasts about the future. The purpose of economic analysis is to apply standard analytical  
6 tools to find out which hypothesis about firm conduct is most consistent with the evidence.

7 **Q. Have you performed an economic antitrust analysis in this case?**

8 A. No. It is true that economic analysis may be used when violations of the antitrust laws,  
9 such as price fixing or group boycotts, have been alleged. However, the economic  
10 framework that I have employed is sufficiently general so as to apply to any issue involving  
11 the behavior of firms in an oligopoly such as the cigarette industry.

12 **Q. When you refer to "independent competitive actions," "collusion," or "conscious  
13 parallelism," are you seeking to introduce legal concepts?**

14 A. No. I am using the terms as economic concepts.

15 **Q. In your overview of conclusions concerning Defendants' conduct with respect to  
16 smoking and health, you made reference to a "cooperative arrangement." As an  
17 economist, what do you mean by a cooperative arrangement?**

18 A. A cooperative arrangement reflects the joint actions of a group of business firms with  
19 common interests. It arises when the firms in the group take actions which would further  
20 their own interests only if all members of the group cooperated, but which would be  
21 contrary to their individual interests if the members acted independently.

22 **Q. You have used the terms "collusion" and "cooperative arrangement." As an  
23 economist, are you using these terms interchangeably?**

1 A. No. Economists regard “collusion” as a type of cooperative arrangement that jointly  
2 benefits the participating firms but in some way harms the consuming public.

3 **Q. You referred to the term “oligopoly.” What is an oligopoly?**

4 A. An oligopoly is an industry with only a few sellers. In some oligopolies, there may be a  
5 “fringe” of many smaller firms, but even in those cases, only a few firms comprise very  
6 large fraction of total market sales.

7 **Q. You have repeatedly made use of word “firm.” When economists use the term “firm,”**  
8 **what are they referring to?**

9 A. We are referring to any business entity, including manufacturing firms such as tobacco  
10 companies. In my testimony, I’ll use the terms “firm,” “business firm,” and “seller”  
11 interchangeably.

12 **Q. Is there is a standard set of tools that economists use to analyze industries that are**  
13 **oligopolistic?**

14 A. Yes.

15 **Q. Are these tools universally accepted within the field of economics?**

16 A. Yes. The basic vocabulary and concepts are articulated in virtually every economics  
17 textbook that discusses oligopoly.

18 **D. The Cigarette Industry is an Oligopoly**

19 **Q. Have you concluded whether the United States cigarette industry an oligopoly?**

20 A. Yes. I have concluded that the industry has been and remains an oligopoly. The Defendant  
21 manufacturers have been and remain the primary participants in that oligopoly.

22 **Q. Please explain how you have reached this conclusion.**

1 A. We need to examine the long-term historical record on the numbers of cigarettes sold by  
2 various companies in this country. For this purpose, the Maxwell Reports, which provide  
3 data on cigarette shipments by company by year, are widely cited and relied upon by  
4 economists, government officials, and cigarette manufacturers. The Maxwell reports  
5 represent the only consistently defined data base for computing market shares that spans the  
6 past 50 years.

7 **Q. What do the Maxwell Reports reveal about cigarette sales by company by year?**

8 A. In each year from 1950-1994, six firms together had more than 98 percent of all domestic  
9 shipments of cigarettes in the United States. There six firms were: Philip Morris, Brown &  
10 Williamson, R. J. Reynolds, Lorillard, American Tobacco, and Liggett & Myers. While the  
11 relative sales positions of these six firms gradually changed over that time period, their  
12 collective dominance of the domestic cigarette market did not. Since 1994, there have been  
13 some significant changes of ownership in the cigarette industry, and a number of smaller  
14 companies that sell discount cigarettes have entered the market. Nonetheless, the cigarette  
15 industry in the United States today remains a concentrated oligopoly dominated by a few  
16 sellers.

17 **Q. Are U.S. Exhibits 52,062, 52,063, 65,037, 65,038, 65,123, 65,124, and 77,383 copies of**  
18 **such Maxwell Reports?**

19 A. Yes.

20 **Q. You used the term “concentrated oligopoly.” What do you mean by concentrated?**

21 A. When a market is concentrated, it means that only a few firms account for a large fraction  
22 of product sales. The term “concentration” focuses not so much on the total number of  
23 sellers, but on the share of the market of the top few firms.



1 **Q. Could you describe in more detail the other developments in the United States**  
2 **cigarette industry since 1994, to which you referred in your earlier answer?**

3 A. In 1995, the Brown & Williamson Tobacco Company and its parent company BAT  
4 Industries P.L.C. acquired the American Tobacco Company, leaving only five major sellers  
5 in the market at the time. Beginning in 1996, a number of relatively small firms entered the  
6 market offering discount brands. By 2003, one of these sellers of discounted cigarettes,  
7 namely Commonwealth Brands, had sold approximately 3 percent of all cigarettes shipped  
8 domestically, while all such discount sellers had a combined market share of nearly 8  
9 percent in that year. Most recently, in July 2004, R.J. Reynolds merged with the domestic  
10 operations of Brown & Williamson to form a new company, Reynolds American.

11 **Q. Are there specific tools that economists use to determine the extent to which an**  
12 **industry is oligopolistic?**

13 A. One method that economists frequently use to gauge the degree of concentration - and thus  
14 to assess the extent to which an industry is oligopolistic - is to measure the combined  
15 market share of the top four largest firms, ranked by sales. This measure is called the  
16 "four-firm concentration ratio."

17 Q. Have you in fact calculated the four-firm concentration ratio for the United States cigarette  
18 market at various times?

19 A. Yes. In 1953, the top four manufacturers of cigarettes in this country - ranked in order of  
20 total cigarettes shipped - were American Tobacco, R.J. Reynolds, Liggett & Myers, and  
21 Philip Morris. Together, in 1953, these four firms had a combined market share of 85.5  
22 percent of all domestic cigarette shipments. In 1973, the top four manufacturers were R.J.  
23 Reynolds, Philip Morris, Brown & Williamson, and American Tobacco. Together, in 1973,

1 these four firms had a combined market share of 86.1 percent of domestic cigarette  
2 shipments. In 1993, the top four manufacturers were Philip Morris, R.J. Reynolds, Brown  
3 & Williamson, and Lorillard. Together, in 1993, these four firms had a combined market  
4 share of 92.2 percent of domestic cigarette shipments. In 2003, the top four manufacturers  
5 were again Philip Morris, R.J. Reynolds, Brown & Williamson (having acquired with  
6 American Tobacco), and Lorillard. Together, in 2003, these four firms had a combined  
7 market share of 89.5 percent of domestic cigarette shipments.

8 **Q. Have you drawn any conclusions about trends in the four-firm concentration ratio**  
9 **over time?**

10 A. Yes. Despite recent changes in the industry, including the entry of a number of smaller  
11 companies that sell discount cigarettes, the combined market share of the top four sellers -  
12 that is, the “four-firm concentration ratio” - was somewhat higher in 2003 than it was fifty  
13 years earlier.

14 **Q. Dr. Harris, did you consider any alternative sources of data for computing the four-**  
15 **firm concentration ratio?**

16 A. Yes. In my calculation, I considered the inclusion of imported cigarettes, which have  
17 increased in recent years. I also looked at recent data on retail market shares based upon  
18 bar-code scanning data. The use of these alternative data sources did not alter my  
19 conclusion that the cigarette industry remains highly concentrated.

20 **Q. Is the four-firm concentration ratio the only measure of the degree to which an**  
21 **industry is oligopolistic?**

22 A. No. The four-firm concentration ratio is commonly used, but there are other measures that  
23 involve more complicated calculations, such as the Herfindahl-Hirschman index (or

1 “HHI”), which the Antitrust Division of the United States Department of Justice and the  
2 Federal Trade Commission employ to evaluate certain proposed mergers. Mathematically,  
3 the HHI can range from zero to 10,000. The Justice Department and the FTC regard  
4 industries with an HHI in the range of 1,000 to 1,800 to be “moderately concentrated,”  
5 while industries with an HHI over 1,800 to be “highly concentrated.”

6 **Q. Have you ever relied upon the HHI in your own professional work?**

7 A. In my economics classes over the years, I have taught the HHI as a standard measure of  
8 market concentration.

9 **Q. Have you calculated the HHI for the cigarette industry?**

10 A. Yes. My calculations of the HHI in the United States cigarette market, based on Maxwell  
11 data for domestic shipments, are as follows: 2,235 in 1953; 2,218 in 1963; 2,108 in 1973;  
12 2,487 in 1983; 3,154 in 1993; and approximately 3,067 in 2003.

13 **Q. What do you conclude from such HHI calculations?**

14 A. Based on the HHI calculations, the United States cigarette market has been and is a highly  
15 concentrated oligopoly. With the mid-2004 merger of R.J. Reynolds and Brown &  
16 Williamson into a single seller of cigarettes - Reynolds American - the cigarette market in  
17 the United States will likely be even more concentrated.

18 **Q. Dr. Harris, you mentioned the entry since 1996 of a number of relatively small firms  
19 that sell discount cigarettes. Would an economist expect the future shares of these  
20 small firms to continue to grow?**

21 A. That is hardly a forgone conclusion. The recent entry of discount sellers, and in all  
22 likelihood the recent increase in imported cigarettes, has been driven by the marked rise in  
23 the price of premium-brand cigarettes that are sold by the major cigarette manufacturers. If

1 the major cigarette manufacturers cut prices on premium brands, the share of the discount-  
2 selling fringe could decline. In fact, after “Marlboro Friday” - the start of the industry price  
3 war in April 1993 - when the major cigarette manufacturers sharply cut the price of  
4 premium brands, the combined market share of discount brands declined from its peak  
5 level of about 37 percent to less than 30 percent. By the most recent data for 2003, the  
6 combined discount share remains at about 30 percent .

7 **Q. Dr. Harris, are there other economic factors that might affect the ability of these**  
8 **smaller fringe firms to grow?**

9 A. Yes. As I hope to discuss later, these smaller fringe firms are faced with significant barriers  
10 to expansion in respect to limited retail distribution channels, limited advertising budgets,  
11 and limited budgets to research and develop alternative, potentially harm-reducing brands.

12 ***E. Oligopoly and Strategy***

13 **Q. Besides oligopoly, what other market configurations do economists generally**  
14 **consider?**

15 A. At one extreme, economists describe monopoly markets, which are characterized by a  
16 single seller. At the other extreme, economists describe markets with “perfect  
17 competition.” In perfect competition, there are a large number of sellers who, by definition,  
18 act independently and at arm’s length of each other. Oligopoly markets constitute the range  
19 of intermediate cases between monopoly and perfect competition.

20 **Q. Is the distinction between oligopoly, monopoly and perfect competition generally**  
21 **accepted among economists?**

22 A. Yes. The terms “oligopoly,” “monopoly,” and “perfect competition” are universal in basic  
23 economic textbooks.

1 **Q. Dr. Harris, is there any overriding principle that economists consider when they study**  
2 **oligopoly markets?**

3 A. Economists recognize that in oligopoly, firms need to consider strategy; that is, they need to  
4 explicitly take into account each others' conduct.

5 **Q. And is the principle that firms in an oligopoly need to consider strategy generally**  
6 **accepted among economists?**

7 A. Yes, it is standard fare in economics textbooks.

8 **Q. According to economic principles, do firms likewise act strategically in markets with**  
9 **perfect competition?**

10 A. No. In the case of perfect competition, each firm simply acts in its own self-interest,  
11 without taking into account the conduct of any individual competitor. In perfect  
12 competition, no single firm is large enough to influence market supply, market price or any  
13 other significant aspect of the overall market.

14 **Q. According to economic principles, in an oligopoly, can each firm likewise simply act in**  
15 **its own self-interest?**

16 A. Yes, it is often the case that the firms that make up an oligopoly will act independently and  
17 in their own self-interest. In this case, economists say that the oligopolists act  
18 competitively.

19 **Q. When oligopolists act competitively, does that mean that they are engaged in perfect**  
20 **competition?**

21 A. No. In perfect competition, as economists define it, there are so many firms that no single  
22 firm can significantly influence market conditions. As a result of these basic structural  
23 conditions, the individual firms have no choice but to operate independently and non-

1 cooperatively. By contrast, when oligopolists act competitively, they are making a strategic  
2 choice not to cooperate with their rivals.

3 **Q. If oligopolists act competitively, are they no longer acting strategically?**

4 A. Even when firms in an oligopoly act competitively, their actions are still strategic. They are  
5 aware that their own policies may influence rivals' responses and vice versa. Nonetheless,  
6 they still choose to act independently and at arm's length from one another.

7 **Q. In oligopolies, do firms always act independently and at arm's length?**

8 A. No. The key idea underlying the economic analysis of oligopolies is that firms have to  
9 make strategic choices between independent action and cooperative action.

10 ***F. The "Cournot" Case***

11 **Q. How do economists explain the idea that firms in an oligopoly have to make a  
12 strategic choice between independent action and cooperative action?**

13 A. One way to illustrate the strategic choice is the "Cournot" case, a simplified example of an  
14 oligopoly that is described in virtually every economic textbook that addresses oligopoly  
15 and strategy. The case is named after the French economist Antoine Augustin Cournot,  
16 who first described it mathematically in 1838.

17 **Q. What is the Cournot case?**

18 A. The description of the Cournot case begins with the assumption that there is a small, fixed  
19 number of firms in an industry, each selling the same type of product, which I'll call  
20 widgets. Here, I'll assume that there are four firms in the widget industry, each selling  
21 exactly the same type of widget.

22 **Q. Will your analysis change if you assumed that there were three firms instead of four?**

1 A. No. In fact, in order to keep the analysis as simple as possible, basic textbooks usually start  
2 with the case of two firms.

3 **Q. How, if at all, do firms act strategically in the Cournot case?**

4 A. Each of the business firms in this oligopoly has a common interest in earning the largest  
5 possible profit. To that end, all four firms would prefer, if they could, to cooperate to  
6 restrict the supply of widgets, thus creating a widget shortage. Such a widget shortage  
7 would drive up the price of widgets and yield each of them higher profits.

8 **Q. If all four firms profited by cooperating to restrict the supply of widgets, where do  
9 strategic considerations come into play?**

10 A. In this scenario, if the firms cooperated to create a widget shortage and drive up the price,  
11 each of them would have an independent incentive to “cheat” and sell as many of its own  
12 high-priced widgets as it could, while the other firms continued to cooperate to restrict  
13 widget supply.

14 **Q. Why, then, won’t they all cheat?**

15 A. That is the essence of the problem. Each of the widget sellers is aware that any one of them  
16 could undermine the cooperative arrangement and sell more widgets, thus cashing in on the  
17 widget shortage. When any one of the widget sellers does so, economists say that such a  
18 firm is acting independently and in its self interest. Unless the four widget firms have some  
19 means of ensuring that they will all adhere to the cooperative arrangement, none of them  
20 will have an incentive to cooperate. Each firm will be compelled to sell more widgets.

21 **Q. If all firms cooperate to create a widget shortage, how do economists describe the  
22 outcome?**

1 A. Economists say that the firms are acting cooperatively. The key point underlying  
2 cooperation is that each firm chooses a specific course of action only if the others act  
3 together according to a cooperative plan. That course of action would be contrary to the  
4 firm's individual interest if the others did not cooperate.

5 **Q. If the firms fail to cooperate and each sells more widgets, how do economists describe**  
6 **the outcome?**

7 A. In that case, economists say that the firms are acting independently. Each of the firms may  
8 know that a cooperative arrangement to create a widget shortage would redound to their  
9 joint benefit. They recognize, however, that unless such cooperation is guaranteed, it  
10 would not be in any one firm's interest to go it alone and sell fewer widgets. Thus, the  
11 decision by each firm to act independently is still a strategic one.

12 **Q. Suppose that three of the firms acted to restrict the widget supply, while one cheated**  
13 **and sold more widgets. How do economists describe that outcome?**

14 A. Economists describe that outcome as "unstable." Unless the cheating firm was somehow  
15 limited in its production capacity, it would take advantage of the high price and sell lots of  
16 widgets. This act of cheating would then expand widget supply and drive the market price  
17 of widgets down. If the remaining firms persisted in their attempts to sell only a limited  
18 quantity of widgets, their own profits would suffer. That is, when one of the firms cheats or  
19 "defects" from the collusive arrangement, such a defection hurts all the remaining firms.  
20 Moreover, the act of cheating by one firm reduces gains that the remaining firms can expect  
21 to achieve through collusion.

22 **Q. Have you basically described two basic outcomes: collusion and independent action?**



1 A. That is correct. The following demonstrative chart, entitled “‘Cournot’ Widget Example,”  
2 summarizes each of the two outcomes that would be expected.

3 **DEMONSTRATIVE #1: “COURNOT” WIDGET EXAMPLE**

<b>Conduct</b>	<b>Benefit</b>
All four firms cooperate to restrict widget supply.	The resulting shortage increases the price of widgets and thus the profits of the firms.
All four firms act independently.	The supply of widgets is greater, the price of widgets lower, and the joint profits of the firms are lower.

8 **Q. Your demonstrative chart shows two possible outcomes. Are there no other possible**  
9 **outcomes?**

10 A. Economists acknowledge that different outcomes might be observed under different facts.  
11 For example, if one of the four firms in a collusive arrangement decided to cheat, but that  
12 firm was significantly limited in its ability to expand widget production, then such cheating  
13 might not undo the collusive arrangement forged by the other three. Still, the textbook  
14 version of the Cournot oligopoly starkly illustrates the point that when any one firm’s  
15 cheating can undermine the others’ cooperative plan, we would expect to observe  
16 unanimity of action. That is, either all four cooperate to restrict widget supply, or all four  
17 act independently and sell more widgets.

1           **G.     The “Inferior Widget” Case**

2           **Q.     Dr. Harris, you have described the Cournot case of strategic decision-making in**  
3           **oligopoly. Are there any other illustrative examples that bear on the analysis which**  
4           **you want to bring to the attention of the Court, and which bear on the analysis you**  
5           **performed in this case?**

6           A.     I have a second example in mind, which entails a different dimension of business strategy  
7           than the Cournot case.

8           **Q.     What do you mean by a “different dimension of business strategy?”**

9           A.     Firms may have dimensions of business strategy besides the quantity sold, such as the price  
10           charged, the level and type of marketing and promotion, the size or model of the product,  
11           and the extent of investment in product innovation, to name but a few examples.

12          **Q.     In your second example, what specific dimension of business strategy have you**  
13          **considered?**

14          A.     In my second example, each of the four firms has to decide whether to offer an inferior  
15          quality widget or a superior quality widget. I’ll therefore call this the “inferior” widget  
16          example.

17          **Q.     How does this “inferior” widget example illustrate the contrast between independent**  
18          **action and cooperative action?**

19          A.     Please refer to the following demonstrative chart, entitled “‘Inferior’ Widget Example.” If  
20          all four firms cooperate to sell the same inferior widget, which costs little to produce, they  
21          will each earn a high profit margin. Each firm, however, also has the alternative option of  
22          selling a superior quality widget, which would require a considerable investment. If the

1 four firms cannot cooperate, they will all end up investing in superior widgets, thus  
2 attaining lower profits.

3 **DEMONSTRATIVE #2: “INFERIOR” WIDGET EXAMPLE**

4 <b>Conduct</b>	<b>Benefit</b>
5 All four firms cooperate to sell inferior 6 widgets.	Because inferior widgets are less costly to produce, all firms earn high profits.
7 All four firms act independently, selling 8 superior widgets.	Because the development of superior widgets is quite costly, firms earn lower profits.

9 **Q. Why does independent action lead all four firms to sell superior widgets?**

10 A. If all four firms cooperate to sell inferior widgets, then any one of the firms has an incentive  
11 to “cheat,” that is, to spend the extra money to develop a superior widget so as to overtake  
12 its rivals, who continue to sell the inferior version. If the firms cannot together deter  
13 cheating, then they will end up acting independently, each selling superior widgets.

14 ***H. Firms’ Private Profits & The Consuming Public’s Harm***

15 **Q. I will ask you more about how economists analyze the incentive to “cheat” later on.  
16 For now, I notice that both of your economic examples refer to “profits.” Are you  
17 referring to financial profits?**

18 A. Yes. From the economist’s standpoint, each firm gauges the outcome in terms of financial  
19 profits. Economists recognize, however, that firms may also consider less tangible benefits,  
20 such as reputation, goodwill, or avoidance of government regulation. Ultimately, such  
21 benefits translate into profits.

1 **Q. In the first “Cournot” example that you have provided, in which the firms cooperate**  
2 **to limit the supply of widgets, what impact, if any, does such cooperation have on the**  
3 **consuming public?**

4 A. The consuming public loses because fewer widgets are available at a higher price.

5 **Q. In the second inferior-widget example that you have provided, in which the firms**  
6 **cooperate by agreeing not to introduce a superior widget, does the consuming public**  
7 **gain or lose?**

8 A. The consuming public loses because it is deprived of the opportunity to buy superior  
9 widgets.

10 **Q. Is there a reason that you selected examples in which the consuming public is**  
11 **harmed?**

12 A. Yes. As I have explained, economists reserve the term “collusion” for cooperative  
13 arrangements that jointly benefit the participating firms, but harm the consuming public.  
14 Since I have been asked to focus on the distinction between competition and collusion as it  
15 applies to the cigarette industry, my examples have been designed specifically to illustrate  
16 collusive arrangements.

17 ***I. Basic Conditions Facilitating or Impeding Collusion among Oligopolists***

18 **Q. In both of your widget oligopoly examples, you have described two contrasting**  
19 **outcomes: cooperation and independent action. In the economic context, which of**  
20 **these two outcomes would an economist expect to prevail?**

21 A. It depends upon specific conditions in an industry. Some conditions facilitate collusion,  
22 while others impede collusion and thus foster independent action.

23 **Q. What conditions facilitate collusion?**

1 A. Collusion is facilitated when there is a relatively small number of oligopolists. By contrast,  
2 it is more difficult to maintain collusive cooperation when there are more parties to an  
3 agreement.

4 **Q. Does this mean that we can assess the likelihood of collusion simply by counting up**  
5 **the total number of firms?**

6 A. No. To see why, let's say that four widget sellers together had 90 percent of the market,  
7 while twenty other sellers together had 10 percent of the market. In that case, the four  
8 major sellers might still collude, while the fringe of twenty additional sellers, each of whom  
9 has virtually no market power, might just passively follow the strategy formulated by the  
10 four oligopolists. In that case, economists say that the market is still "highly concentrated"  
11 because four firms comprise 90 percent of sales.

12 **Q. Are there other conditions that economists understand to favor the development of**  
13 **collusion?**

14 A. Yes. Economists recognize that high barriers to entry into the market foster the  
15 development of collusion.

16 **Q. What are "barriers to entry?"**

17 A. When it is difficult or costly for an entrepreneur to enter a market to start a new firm,  
18 economists use the term "barriers to entry." For instance, there may be a large fixed cost to  
19 set up a widget production facility, to establish a distribution network, or to advertise  
20 widgets to create consumer awareness. In such cases, the four "incumbent" widget sellers  
21 would find it easier to collude to create a widget shortage. What is more, the incumbent  
22 firms can raise the barriers to entry by threatening to take predatory action against the  
23 potential entrant. For instance, the incumbents could threaten to bring lawsuits against a

1 potential new widget manufacturer, file complaints with regulatory agencies, or launch a  
2 public relations attack on the quality of the new entrant's product.

3 **Q. Are there other factors that economists understand to foster the development of**  
4 **collusion?**

5 A. Yes. Collusion is more likely when the product has no close substitutes. By contrast, if  
6 there exists a close substitute for widgets, then a collusive arrangement designed to create a  
7 widget shortage may not succeed in driving up the price of widgets. Instead, it will simply  
8 induce customers to use the alternative.

9 **Q. What do you mean by a close substitute?**

10 A. A close substitute is a product that will satisfy similar consumer needs, even though the  
11 product may not be exactly the same as the original product.

12 **Q. What other factors do economists understand to facilitate or impede collusion?**

13 A. Collusion is further enhanced when the participating firms have common interests.

14 **Q. You mentioned “common interests” earlier. Have you assumed that the business**  
15 **firms each have a common interest in making profits?**

16 A. In the two simple examples I gave earlier, all four oligopolistic widget sellers want to make  
17 money. Moreover, in the first Cournot example, all four oligopolists want to create a  
18 widget shortage. In the second, all four want to avoid making a costly investment in  
19 superior quality widgets. These are indeed common interests. But in other cases with  
20 different facts, the interests of the oligopolists might diverge.

21 **Q. How could the firms' interests diverge?**

22 A. Consider the first Cournot example, where the widget sellers seek to create a shortage.  
23 Let's say that the market for widgets has distinct geographic divisions, so that a widget

1 shortage in the Northeast does not necessarily raise the price of widgets in the Southwest.

2 Under such conditions, the firm selling widgets in the Northwest no longer clearly has a  
3 common interest with another firm selling widget in the Southwest. That is, when one firm  
4 tries to restrict widget supply in the Northeast, it may not be in the interest of another that  
5 wants to restrict widget supply in the Southwest. In that case, collusion may not serve a  
6 common interest.

7 **Q. How about the second inferior-widget case?**

8 A. In the second example, where the oligopolists seek to keep superior but costly widgets off  
9 the market, let's say that one of the widget sellers has an exclusive technology to produce  
10 superior widgets without a costly investment. Under such conditions, the interests of that  
11 widget seller diverge from those of the others. Again, in that case, will not serve a common  
12 interest.

13 **Q. What other conditions facilitate collusion?**

14 A. Risk can be a factor, too.

15 **Q. Please explain how risk can be a factor.**

16 A. My second inferior-widget example illustrates the point. If one firm succeeded in  
17 introducing a superior product before the others, it might take over the market and cause all  
18 the others considerable financial harm. Economists sometimes call this outcome a "winner  
19 take all" game. Each of the firms in a collusive arrangement might view such a winner-  
20 take-all game as a very risky proposition if each is uncertain beforehand who will end up  
21 the winner. The avoidance of such a risk would be another factor reinforcing the collusive  
22 arrangement.

23 **Q. What other conditions, if any, facilitate collusion?**

1 A. Collusion is facilitated when the participants can easily detect cheating.

2 **Q. How does easy detection of cheating facilitate collusion?**

3 A. An oligopolistic firm that is participating in a collusive arrangement has a greater incentive  
4 to cheat if it does not expect to get caught.

5 **Q. Can you apply this principle to the first Cournot example, where the firms seek to  
6 create a widget shortage?**

7 A. If each firm sells its widgets through large, publicly listed contracts with the same widget  
8 distributors, it will be difficult for a cheater to go unnoticed. On the other hand, if widget  
9 sellers make private spot-market deals directly with customers, it will be easier to sell more  
10 widgets without detection.

11 **Q. But in either case, whether the cheating is or is not easily detected, won't there be an  
12 increase in total quantity of widgets?**

13 A. An increase in the total quantity sold may not by itself reveal which firm cheated. If the  
14 colluding firms cannot readily determine who cheated, they will have more difficulty  
15 punishing the cheater. A firm that cheats may enjoy higher profits until it is eventually  
16 caught. So, the longer it takes to detect the cheater, the more profits he makes in the short  
17 run.

18 **Q. Does the idea that easy detection facilitates collusion apply to your second inferior-  
19 widget example?**

20 A. Yes. Again consider the second example where the firms seek to collude to keep superior  
21 widgets off the market. If each of the firms has sufficient "intelligence" about the others'  
22 research and development activities, it will be difficult for any one of them to develop a  
23 superior widget in secret. If, on the other hand, a widget firm can secretly develop a



1 superior widget technology, it will have an incentive to “cheat” by introducing the  
2 improved widget before the others catch up and offer it, too.

3 **Q. What other conditions, if any, facilitate collusion?**

4 A. Collusion is facilitated when cheaters can be punished or sanctioned.

5 **Q. How can cheaters be punished or sanctioned?**

6 A. One form of punishment is what economics textbooks often refer to as “tit for tat.”

7 **Q. Can you describe “tit for tat” in terms of your two economic examples?**

8 A. In the first Cournot case, if a cheater sells more widgets, then the other oligopolists can sell  
9 more widgets, too. In this example, if the others follow suit in a timely manner and in  
10 unison, the market price of widgets will plummet and every member of the oligopoly will  
11 be hurt by a loss in profit. Put differently, rival firms are saying to the potential cheater, “If  
12 you cheat, we’ll cheat, too, and everyone in the industry will get hurt.”

13 **Q. How about “tit for tat” in the second example?**

14 A. The same principle applies. In the inferior-widget case, if a cheater puts up the funds to  
15 introduce a superior widget on the market, then the other oligopolists will do likewise, and  
16 every member of the oligopoly will end up making a big investment without anything to  
17 show in terms of a gain in sales. That is, they will all be hurt. Rival firms are again saying  
18 to the potential cheater, “If you cheat, we’ll cheat, too, and everyone will get hurt.”

19 **Q. Does your explanation require that each of the oligopolists has the ability to introduce  
20 the superior widget rapidly?**

21 A. Yes. The “tit for tat” strategy deters cheating more effectively when each firm can respond  
22 in a timely manner. In the second example, each firm will be able to respond with minimal  
23 delay only if it has already made a “defensive” investment in superior-widget technology.

1 In essence, each firm already has a superior widget on the shelves in its warehouses, ready  
2 to introduce in the event of cheating. What is more, cheating is more effectively deterred  
3 when each oligopolist knows that its rivals have already made the necessary “defensive”  
4 investment.

5 **Q. Why do you call it a “defensive” investment?**

6 A. Economists explain that “cheating” is offensive, while “tit for tat” is defensive.

7 **Q. Does this analogy apply to the first Cournot example, too?**

8 A. Yes. In the first Cournot example, each oligopolist withholds widgets from the market, but  
9 maintains an inventory of unsold widgets in its warehouses just in case it needs to respond  
10 in a timely manner to another firm’s cheating.

11 **Q. Do each of the oligopoly firms need to be aware that its rivals have such inventories?**

12 A. The “tit for tat” sanction is generally more effective in deterring cheating if the potential  
13 cheater doesn’t have to guess whether his rivals can cheat in return.

14 **Q. Are there any other means of sanctioning cheating other than “tit for tat?”**

15 A. Yes. Any response that inflicts economic injury on the cheater can serve as a deterrent,  
16 even if it is not simply to cheat in kind.

17 **Q. What would be an example of a sanction that is not simply cheating in kind?**

18 A. Let’s combine our two economic examples. Suppose that four firms are cooperating on  
19 both dimensions of business strategy. That is, they are restricting the supply of widgets to  
20 jointly create a widget shortage and, what is more, withholding superior widgets from the  
21 market. Now consider a firm that cheats by selling more of the inferior widgets to a  
22 particular customer. The others can sanction the cheater by introducing superior widgets.  
23 In this case, the sanction is not simply "tit for tat," but as before, the rival oligopolists are

1 prepared to undo the collusive arrangement, thus hurting every participant. This is not the  
2 only possibility. Depending on the facts, other forms of economic harassment are possible.

3 **Q. Are sanctions against cheating, such as tit for tat, temporary or permanent?**

4 A. Economists recognize that the threat of a permanent tit-for-tat response generally serves as  
5 a greater deterrent to cheating than the threat of a temporary response. When the response  
6 is permanent and there is no turning back, the potential cheater has more to lose from  
7 cheating in the long run. However, in reality, such tit-for-tat responses are often temporary.

8 **Q. How can a tit-for-tat response be temporary?**

9 A. Let's again consider the first case where the oligopolists initially cooperate to restrict  
10 widget supply to drive up widget prices. When one firm cheats and the others respond tit  
11 for tat, the supply of widgets expands and the price of widgets plummets. The resulting  
12 loss of profits can sometimes serve as a powerful lesson to the participants, who have  
13 learned that their oligopolistic rivals are not bluffing, but are prepared to endure lost profits  
14 to teach the cheater a lesson. In that case, the oligopolists may again return to their  
15 collusive arrangement. Ultimately, cheating may not unravel the collusive arrangement,  
16 and the price of widgets can again rise.

17 **Q. In collusive arrangements, do economists expect to observe cheating?**

18 A. Not necessarily. In some collusive arrangements, cheating may never be observed at all.

19 **Q. When cheating occurs at all, is that evidence of independent, non-collusive action?**

20 A. No. When economists observe cheating, they want to know whether the cheating was  
21 subsequently extinguished by effective detection followed by imposition of sanctions.

22 **Q. When cheating occurs repeatedly, is that evidence of independent, non-collusive**  
23 **conduct?**

1 A. Not necessarily. Again, what matters is whether the cheating is detected, punished and  
2 reversed. In some sustained collusive arrangements, there may be a lot of cheating, but  
3 each transgression is relatively short-lived and does not disrupt the long-term collusive  
4 relationship. In fact, for economists, one indicator of a long-term effective collusive  
5 arrangement can be the observation that temporary cheating is repeatedly extinguished by  
6 effective detection followed by imposition of sanctions.

7 **Q. If participating oligopolists in a collusive arrangement understood that cheating will**  
8 **ultimately be detected and punished, then why would they continue to attempt to**  
9 **cheat?**

10 A. The participating firms try to engage in actions that yield them an advantage but to do not  
11 appear to disrupt the collusive arrangement. That is, they try to “go right up to the line” of  
12 cheating without crossing it.

13 **Q. Dr. Harris, can sanctions against cheating simply take the form of threats, as opposed**  
14 **to specific retaliatory acts?**

15 A. Yes. If a cheater is caught, one or more of the other participating firms in the collusive  
16 arrangement may threaten retaliatory action, and the threat, if it is credible, could itself  
17 induce the cheater to renege and return to the joint collusive strategy.

18 **Q. Does each participant in a collusive arrangement have the same incentive to cheat?**

19 A. No. The firm that earns the highest profit from the collusive arrangement will have the  
20 least incentive to cheat. Conversely, in the Cournot example, the firm with the smallest  
21 share of widgets in the collusive arrangement will have the largest incentive to cheat.

22 **Q. Does each participant in a collusive arrangement have the same incentive to punish**  
23 **cheating?**

1 A. For similar reasons, no. The firm that earns the highest profit from the collusive  
2 arrangement will have the greatest incentive to punish a cheater.

3 **Q. Does this mean that, in a collusive arrangement, we might observe some but not all**  
4 **firms punishing cheaters?**

5 A. Yes. In fact, when we observe only one firm taking retaliatory action against a cheater, we  
6 should not infer that the retaliator is acting unilaterally and solely in its self interest. In a  
7 collusive arrangement, one firm can do the “dirty work” of sanctioning on behalf of the  
8 others.

9 **Q. Can you give a specific example of retaliating by doing the “dirty work?”**

10 A. Yes. In the inferior-widget example, consider a potential cheater who is contemplating the  
11 introduction of a superior widget. One of oligopolists may be prepared to attack the  
12 cheater’s new product in public as unreliable, or file suit for patent infringement, or  
13 complain to a regulatory agency. What’s important in this example is that the firm taking  
14 retaliatory measures is acting in the interests of the entire group.

15 **Q. Dr. Harris, when one firm sanctions another for cheating, is it necessary that the**  
16 **sanctions be imposed directly in response to a specific act of cheating?**

17 A. No. One firm could take predatory action against a potential cheater at any time to set an  
18 example of what might happen if cheating actually occurred. Setting such an example can  
19 enhance the credibility of threats to punish cheating.

20 **Q. Dr. Harris, you have discussed a number of economic conditions that may facilitate or**  
21 **impede collusion among oligopolists. Are these conditions generally acknowledged**  
22 **among economists?**

1 A. Yes. Economics textbooks, and books articles on oligopoly strategy regularly use such  
2 terms as “cheating,” “detection,” “retaliation,” “tit for tat,” and “credible threat.”

3 ***J. Oligopolistic Cooperation: Explicit Collusion versus Tacit Collusion***

4 **Q. When economists conclude that oligopolistic firms have entered into a collusive**  
5 **arrangement, it is always necessary that they directly communicate and that they have**  
6 **an explicit agreement?**

7 A. No. As economists view it, there are two ways such collusion can arise. In the first type of  
8 collusion, the firms directly communicate and reach an explicit agreement. This case is  
9 generally described by the unmodified word “collusion.” For clarity, I will sometimes refer  
10 to this type of collusion as “explicit collusion.” In the second type, the firms naturally  
11 cooperate without explicit communication or any formal agreement. This type of collusion  
12 was traditionally termed “conscious parallelism” or “tacit collusion.” However, for clarity  
13 some economics textbooks now describe it as the case of the “repeated game.” I will use  
14 the terms “conscious parallelism,” “tacit collusion,” and “repeated game” interchangeably  
15 to describe this second type of collusion.

16 **Q. Can you cast the first type of collusion - or “explicit collusion” - in terms of the widget**  
17 **examples that we have been discussing?**

18 A. Yes. When there is explicit collusion, the widget sellers in the first Cournot example  
19 would directly communicate with each other to formulate explicit agreements whereby they  
20 would all limit widget sales. Alternatively, in the second inferior-widget example,  
21 colluding widget sellers would directly communicate with each other to formulate explicit  
22 agreements to refrain from investing in superior quality widgets.

1 **Q. Can you cast the second type of cooperation - what you called “conscious**  
2 **parallelism,” “tacit collusion” or the case of the “repeated game” - in terms of the two**  
3 **widget examples?**

4 A. Let’s suppose that the same four firms sell the same widgets repeatedly, year in and year  
5 out, in a stable business environment. I emphasize here that the key issue is a “stable  
6 business environment.” When that happens, economists consider the possibility that the  
7 firms can come to recognize their mutual interest even in the absence of direct  
8 communication and an explicit agreement. In effect, they would be playing the Cournot  
9 game - or the inferior widget game - over and over. That’s why such tacit collusion is  
10 sometimes referred to as the case of the “repeated game.”

11 **Q. Can you elaborate on how the participants in the “repeated games” case recognize**  
12 **their common interests without direct communication or explicit agreement?**

13 A. When the game is played only once, there may be little downside to “cheating” on a  
14 cooperative arrangement. But when the game is played repeatedly, each firm can see how  
15 the immediate, short-run benefit of cheating can be outweighed by the long-run cost of a  
16 breakdown in cooperation, especially if the breakdown is permanent.

17 **Q. Do economists conclude that “conscious parallelism” or “tacit collusion” is always**  
18 **involved when oligopolistic firms play against each other repeatedly?**

19 A. Not necessarily. It is not enough simply for the same firms to have been selling the same  
20 product in an industry for a long time. Other factors need to be considered.

21 **Q. What other factors can facilitate or impede tacit collusion, even when the same firms**  
22 **have been selling the same product in the same industry for a long time?**

1 A. When the market or business environment is unstable, tacit collusion is much more  
2 difficult.

3 **Q. What do you mean by an unstable business environment?**

4 A. Let me give some examples. An outside inventor may discover a new technology for  
5 improved widgets. Alternatively, information could emerge from outside sources about the  
6 inferiority of currently sold widgets. Or there may be new government regulations affecting  
7 the sale of widgets. Or an unanticipated shortage of skilled widget workers might arise. Or  
8 perhaps widget workers organized to demand higher wages.

9 **Q. Why does an unstable business environment make tacit collusion more difficult?**

10 A. The essence of tacit collusion is that each participating oligopolist can reasonably second-  
11 guess its rivals' strategic responses. A changing business environment makes it difficult for  
12 each firm to simply infer what the others would do.

13 **Q. According to economists, what other factors can facilitate or impede tacit collusion,  
14 even when the same firms have been selling the same product in the same industry for  
15 a long time?**

16 A. When there are multiple dimensions of business strategy, tacit collusion may be more  
17 difficult. In such cases, an explicit agreement may be necessary to carve out the scope of  
18 the cooperative agreement.

19 **Q. What do you mean by "carve out the scope of the cooperative agreement?"**

20 A. It may be easier to reach and enforce agreements with respect to some dimensions of  
21 business strategy than others. Again, consider the case where widget sellers have two  
22 dimensions of business strategy - the number of widgets sold, and the quality of widgets,  
23 too. Let's say that it was easy to detect a cheater who introduced a superior quality widget,



1 but difficult to detect a cheater who sold more widgets to customers under the table. With  
2 two dimensions of business strategy, tacit collusion becomes more difficult than with just  
3 one strategy. However, in this example, an explicit agreement through direct  
4 communication can clarify that the participating oligopolists are to collude only to keep  
5 superior widgets off the market, while the number sold by each participant remains outside  
6 the scope of the agreement.

7 **Q. In the last example, the widget sellers collude to keep superior widgets off the market,**  
8 **while the number of widgets sold remains outside the scope of the collusive**  
9 **agreement. Would an economist consider such an outcome to be unusual?**

10 A. No, not if the firms can explicitly communicate so as to determine the scope of their  
11 agreement. In real-world oligopolies, firms usually have a great many dimensions of  
12 business strategy. As a rule, if they collude, the agreement will not apply to every  
13 dimension.

14 **Q. Does that mean that both collusion and competition can prevail at the same time?**

15 A. Yes, it does. Stick with the foregoing example, where widget sellers have an explicit  
16 agreement that none will invest in a superior widget, but the agreement does not foreclose  
17 them from competing on the number of widgets sold. Let's say that three of the four firms  
18 had to renegotiate their labor contracts and pay higher wages, while the fourth continued to  
19 have lower labor costs. The fourth firm would then have a advantage in competition over  
20 the number of widgets sold, and its share of the market for inferior widgets would rise.

21 **Q. Are changes in market share compatible or incompatible with collusion?**

1 A. As the previous example demonstrates, changes in market share may be compatible with  
2 collusion. In that example, the fourth firm's share of the inferior widget market rises, but  
3 still, in accordance with the collusive arrangement, no firm introduces superior widgets.

4 **Q. According to economists, what other factors can facilitate or impede tacit collusion?**

5 A. Tacit collusion or conscious parallelism is more feasible when a single, clearly defined tit-  
6 for-tat strategy is the obvious response to cheating.

7 **Q. Please explain.**

8 A. Consider widget sellers in the Cournot example, who have been tacitly colluding to restrict  
9 widget supply. Suppose that one firm cheats by selling more widgets. If all of the other  
10 firms react in unison in a timely manner by selling more widgets, their united tit-for-tat  
11 response sends an unambiguous message to the cheating firm that its attempt to sell more  
12 widgets has backfired and hurt everyone. The cheater then pulls back and sells fewer  
13 widgets. Now consider the case where widget sellers have two dimensions of business  
14 strategy - the number of widgets sold, and the quality of widgets, too - and that widget  
15 sellers have been tacitly colluding to restrict widget supply. Now suppose that one firm  
16 cheats by selling more widgets. If some firms react by selling more widgets as well, but  
17 others try to punish the cheater by introducing superior widgets, the cheater may not get an  
18 unambiguous message, and might respond by introducing superior widgets, too. Tacit  
19 collusion breaks down because the message sent by rivals is not clear and simple. In such  
20 cases, explicit communication provides a much richer array of potential retaliatory  
21 responses to keep the collusive arrangement intact. Responding widget sellers can directly  
22 communicate to the cheater: They can explicitly say to each other: If you sell more widgets,  
23 we'll destroy the arrangement by selling superior widgets and everyone will be hurt.

1 **Q. How does risk, to which you referred previously, affect the likelihood of success of**  
2 **tacit collusion?**

3 A. This brings us back to the “winner-take-all game,” to which I previously referred. If the  
4 first firm to successfully introduce a superior product could put the others out of business,  
5 but it is uncertain which firm will be first in doing so, then the stakes will be too high to  
6 compete on widget quality. Alternatively, if vying for shelf space in retail stores that sold  
7 widgets resulted in relatively small year-to-year changes in widget market share, then the  
8 stakes will not be too high to compete along the quantity dimension. In this case, an  
9 economist would expect to find explicit collusion along the lines of product quality, while  
10 rivalry for retail shelf space, which does not pose a risk of extinction, would likely fall  
11 outside the scope of an explicit collusive agreement.

12 **Q. What other factors do economists understand to facilitate or impede tacit collusion?**

13 A. There are some forms of collusive conduct that would be difficult or infeasible to do tacitly.  
14 Instead, they require an explicit joint enterprise.

15 **Q. Please elaborate on the forms of collusive conduct that economists understand to be**  
16 **difficult or infeasible to do tacitly.**

17 A. Some forms of collusive conduct naturally lend themselves to direct communication and  
18 explicit agreement. Consider the inferior-widget example. Let’s say that, in order to  
19 prevent any one oligopolist from bringing a superior widget to market, the sellers jointly  
20 formulate and publish an industry-wide code of minimum product standards, whose facial  
21 purpose might be to ensure product quality, but whose ulterior purpose is to stifle  
22 innovation. Such a code is by its very nature a formal agreement entailing explicit  
23 communications among firms.

1 **Q. Are there any other instances where tacit collusion would be difficult or infeasible?**

2 A. Some cases entail what economists call “joint production.” Let’s say that, in order to stave  
3 off the introduction of a superior widget, the oligopolists engage in a large-scale joint  
4 research venture whose facial purpose is to improve widget design. If the venture entails  
5 startup costs too large for one firm to finance alone, then the venture might arise only when  
6 the oligopolists enter into an explicit joint sponsorship contract.

7 **Q. Dr. Harris, in any industry where firms operate year in and year out, do economists**  
8 **need to observe explicit communication repeatedly to infer that collusion prevails?**

9 A. No. Let’s say that, in the beginning, widget sellers reached an explicit agreement to keep  
10 superior widgets off the market by publishing an industry-wide code of minimum product  
11 standards. Five years later, let’s say, they explicitly engage in a joint research venture  
12 whose facial purpose is to improve widget design. Ten years out, they issue what appear to  
13 be independent statements that an superior widget remains infeasible. Given the long-  
14 standing pattern of explicit acts to keep superior widgets off the market, an economist  
15 would have considerable difficulty describing their apparently independent statements as  
16 conscious parallelism or tacit collusion. But for the original collusive arrangement ten  
17 years earlier, the oligopolists would be unable to tacitly coordinate their public  
18 pronouncements.

19 **Q. Dr. Harris, you have testified that in a collusive arrangement, you would expect to see**  
20 **evidence of explicit communication. When an economist looks for explicit**  
21 **communication, does such communication need to have any specific content?**

22 A. Economists understand that firms may communicate directly with each other, but in coded  
23 language or with veiled threats. The CEO of one widget seller could say to the other, “I see

1           you're going to sell more widgets. I think that's a bad idea. If somebody sold too many  
2           widgets, the price might fall and we'd all suffer."

3       **Q.    Dr. Harris, you have discussed a number of economic conditions that may facilitate or**  
4       **impede tacit collusion among oligopolists. Are these conditions generally**  
5       **acknowledged among economists?**

6       A.    Yes. In my economics classes, I have taught about the conditions that facilitate or impede  
7       collusion, and about the distinction between collusion and conscious parallelism. My own  
8       classes, as well as economics textbooks and scholarly articles, employ such terms as  
9       "winner-take-all" game, "joint production," and "setup costs."

10      ***K.    Evidence that Collusion has Ended***

11      **Q.    Dr. Harris, let us suppose that firms in an oligopoly have engaged in collusion over an**  
12      **extended period in the past. What evidence does an economist rely upon to determine**  
13      **whether the prior collusive arrangement has now been permanently replaced by**  
14      **competition?**

15      A.    To make such a determination, the economist needs to look at the long-term performance of  
16      the entire industry, and not just the short-term conduct of individual firms.

17      **Q.    Please explain.**

18      A.    Consider the Cournot case, where firms have colluded over an extended period to create a  
19      widget shortage. Let's say that, in the short term, one firm is observed to be selling more  
20      widgets. By itself, this short-term evidence is insufficient to distinguish between  
21      temporary, reversible cheating and a sustained return to a competitive market. To verify  
22      that the collusive arrangement has permanently ended, the economist would need to  
23      observe a long-term, sustained increase in the industry's widget output of widgets, and a

1 corresponding sustained decline in market price. I could offer a similar analysis in the  
2 “inferior” widget case.

3 **Q. Please do.**

4 A. Consider the inferior widget case, where firms have colluded over an extended period to  
5 keep superior widgets off the market. Let’s say that, over the short-term, we observed one  
6 firm investing in a superior widget technology or selling a new type of widget. Again, this  
7 short-term evidence is insufficient to distinguish between temporary, reversible cheating  
8 and a sustained return to independent competitive activity. To verify that the collusive  
9 arrangement has permanently broken down, the economist would need to observe is a long-  
10 term, sustained and genuine improvement in the quality of widgets offered by the industry  
11 as a whole.

12 **Q. Is there anything else an economist considers in a determination as to whether**  
13 **collusion has ended?**

14 A. Yes. The economist examines whether there has been any fundamental change in the  
15 underlying conditions in the industry that have facilitated collusion in the first place. For  
16 example, if a small number of firms with strong common interests continue to sell the vast  
17 majority of widgets, and if there remain high barriers to entry into the industry, then the  
18 likelihood of continuing collusion is greater.

19 ***III. ECONOMIC CONCLUSIONS: ANALYSIS OF THE CONDUCT OF DEFENDANT***  
20 ***CIGARETTE MANUFACTURERS WITH RESPECT TO SMOKING AND HEALTH***  
21 ***ISSUES***

---

22 ***A. The “Health Scare” of the Early 1950’s and the Response of Manufacturers***

23 **Q. Dr. Harris, to set the stage for your economic analysis and the conclusions that you**  
24 **drew from Defendants’ conduct, is it useful to review the history of the state of**

1           **knowledge of the scientific community and the American public on the relation**  
2           **between smoking and health?**

3       A.     Yes, it is.

4       **Q.     Why is that?**

5       A.     As I have testified, the field of smoking and health has been one of considerable and  
6           continual change over the past 50 years. To understand and explain why specific actions  
7           might be more consistent with competitive action, conscious parallelism or collusion, it is  
8           important to place those actions in the relevant contemporaneous scientific context, that is,  
9           to describe the “business environment.”

10      **Q.     Dr. Harris, please take a look at United States Trial Exhibit 46,459. Can you identify**  
11      **this document?**

12      A.     Yes. This is an article entitled “Cancer by the Carton,” written by Ray Norr, which was  
13           published in the December 1952 issue of The Reader's Digest.

14      **Q.     What is the significance of this article?**

15      A.     This particular article represents one prominent example of press coverage of smoking and  
16           health in the early 1950's. The modern era of scientific studies on the health consequences  
17           of smoking began after the second World War, when scientists outside the tobacco  
18           companies in Europe and the United States began to investigate in detail the possible  
19           relationship between cigarette smoking and various diseases, most notably lung cancer. In  
20           1950, four scientific reports on the high rate of cigarette smoking among patients with lung  
21           cancer were published in peer-reviewed medical journals. Soon thereafter, the scientific  
22           reports were picked up in the popular press.

23      **Q.     Are there any particular passages that you wish to draw to the Court's attention?**

1 A. On the second page of this article, the author notes,  
2 A study of 684 cases, made by Ernest A. Wynder and Evarts A.  
3 Graham of the American Cancer Society and published in the AMA  
4 Journal, May 27, 1950, stated this conclusion: “Excessive and  
5 prolonged use of tobacco, especially cigarettes, seems to be an  
6 important factor in the induction of bronchiogenic carcinoma.”  
7 More recently Wynder, now associated with Memorial Cancer  
8 Center in New York, expanded the statement: “The more a person  
9 smokes the greater is the risk of developing cancer of the lung,  
10 whereas the risk was small in a nonsmoker or a light smoker.

11 **Q. You stated that four scientific studies on the high rate of smoking among lung cancer**  
12 **patients were published in medical journals in 1950. Was the article by Wynder and**  
13 **Graham among them?**

14 A. Yes. These were called “retrospective” studies because they first identified lung cancer  
15 patients, as well as other patients without cancer, and then looked back in time to see which  
16 patients smoked, how long they smoked over lifetimes, and how many cigarettes they  
17 smoked per day.

18 **Q. Were these 1950 scientific studies the only studies published on smoking and lung**  
19 **cancer?**

20 A. No, not at all. Soon thereafter, a number of additional retrospective studies were published  
21 in peer-reviewed scientific journals during 1952-1954. For example, Richard Doll and  
22 A.B. Hill in England reported their study of the smoking habits of 1,300 lung cancer  
23 patients and an equal number of matched control subjects in the December 1952 issue of  
24 the British Medical Journal, at U.S. Exhibit 63,603. .

25 **Q. What did Doll and Hill conclude in their 1952 study?**

26 A. On page 1285 of the Journal, the authors concluded, “...it is concluded that the association  
27 between smoking and carcinoma of the lung is real.” In reaching this conclusion, the



1 authors specifically considered other characteristics of the patients, such as their age, sex,  
2 place of interview, social class, and residence near a gas works, and the type of heating they  
3 used in living rooms.

4 **Q. You have thus far described retrospective scientific studies of smoking in relation to**  
5 **cancer during the period from 1950-1952. Were there other scientific studies on**  
6 **smoking in relation to cancer during the early 1950's?**

7 A. Yes. In particular, one highly influential scientific study was a laboratory study performed  
8 on mice, published by Drs. Wynder and Graham in the December 1953 issue of Cancer  
9 Research. The article was often cited as the Sloan-Kettering study because Dr. Wynder was  
10 affiliated with the Sloan-Kettering Institute of the Memorial Center for Cancer and Allied  
11 Diseases.

12 **Q. I draw your attention to United States Trial Exhibit 63,594. Is this a copy of the**  
13 **study to which you are referring?**

14 A. Yes.

15 **Q. What was the importance of this study in 1953?**

16 A. This study was highly influential at the time it was published. The retrospective studies on  
17 cancer patients, which I mentioned previously, did not by themselves offer any direct  
18 evidence as to how cigarette smoking might cause lung cancer. It was known that certain  
19 chemicals, such as chemicals derived from coal tars, caused cancers in laboratory animals,  
20 and some investigators had been able to produce cancers in rabbits and rats from various  
21 types of tobacco byproducts. But large-scale long-term studies of the effects of tobacco tars  
22 from smoked cigarettes on inbred strains of laboratory animals had not yet appeared. In  
23 this article, the tar derived from smoked cigarettes, when painted on the backs of inbred

1 mice, caused skin cancers in nearly half of the tested animals. What is more, some of the  
2 cancers could be removed from the afflicted mice and transplanted into others. The article  
3 thus established that tobacco was an animal carcinogen. In fact, it opened the door to a new  
4 field of study.

5 **Q. What field of study?**

6 A. Cigarette tar was understood at the time to be a mixture of many different chemicals, which  
7 were formed as the tobacco was heated and burned. Now scientists had a tool to determine  
8 which portions of this mixture might be responsible for causing cancer. What is more,  
9 scientists could begin to study whether certain modifications of cigarettes could reduce  
10 their propensity to cause cancer in laboratory animals.

11 **Q. You testified that this article was highly influential. Was the public made aware of  
12 this study?**

13 A. Yes. I draw your attention to United States Trial Exhibit 34,313, which is a copy of an  
14 article entitled “Cigarette Smoking and Lung Cancer: A Statement by CU's Medical  
15 Advisors,” which appeared in the February 1954 issue of Consumer Reports, not long after  
16 the Sloan-Kettering study was published.

17 **Q. How does this exhibit, if it does at all, help us understand the influence of the Sloan-  
18 Kettering study outside the scientific community?**

19 A. One of the images of a newspaper clipping on the first page of this article refers to  
20 “Tobacco Stocks Hit by Cancer Reports.” In fact, the publication of the Sloan-Kettering  
21 study, along with the attendant press coverage, was one important factor in the decline of  
22 stock prices of tobacco companies in late 1953.

1 **Q. I call your attention to the first two sentences of this Consumer Reports article, which**  
2 **is United States Exhibit 34,313. Please read it to the Court.**

3 A. The sentences are: “The readers of 448 papers throughout the United States were greeted, in  
4 their daily papers of January 4th, with a large advertisement headed, ‘A Frank Statement to  
5 Cigarette Smokers.’ As almost everybody knows by now, this was the tobacco companies’  
6 reply to the rumors and the reports which have been hitting at their sales in recent months -  
7 rumors and reports that cigarettes are responsible for the shocking increase in the incidence  
8 of cancer of the lungs over the past 20 years.”

9 **Q. The article refers to “hitting at their sales in recent months.” What significance, if**  
10 **any, does this reference have?**

11 A. In fact, overall cigarette sales did decline by about 2 percent in the United States in 1953,  
12 which was the first time sales declined since the Great Depression.

13 **Q. The Consumer Reports article also refers to “A Frank Statement to Cigarette**  
14 **Smokers,” which appeared in newspapers throughout the United States on January 4,**  
15 **1954. Does this “Frank Statement” have any connection to the other events at the**  
16 **time, as you have described them?**

17 A. Yes. The “Frank Statement,” as it has come to be called, was the formal public response of  
18 the tobacco industry in the United States to the publication of the Sloan-Kettering report  
19 and other scientific reports, the continuing drop in cigarette consumption, and the decline in  
20 prices of cigarette company stocks on the stock market.

21 **Q. I note a reference on the second page of the Consumer Reports article, which is**  
22 **United States Exhibit 34,313, to a “large-scale study” in progress “under the auspices**  
23 **of the American Cancer Society.” Does that reference have any significance?**

1 A. Yes, it is referring to prospective studies that were, in fact, in progress at that time.

2 **Q. I'll come back to prospective studies shortly. Let me now call your attention to United**  
3 **States Exhibit 20,277. What significance, if any, does this document have?**

4 A. This is a copy of the "Frank Statement."

5 **Q. I draw your attention to the entities named at the bottom of the statement. What**  
6 **significance, if any, do these names have?**

7 A. The "Frank Statement" was the joint work of five of the major sellers of cigarettes, along  
8 with tobacco growers and distributors, who together formed an organization called the  
9 "Tobacco Industry Research Committee" ("TIRC").

10 **Q. When you say "five of the major sellers of cigarettes," to whom are you referring?**

11 A. The same companies that I testified about previously: the American Tobacco Company,  
12 Brown & Williamson Tobacco Corporation, P. Lorillard Company, Philip Morris & Co.  
13 Ltd, and R.J. Reynolds Tobacco Company. Of the six major sellers throughout the past  
14 half-century, only Liggett & Myers was not a sponsor of the Frank Statement of January,  
15 1954.

16 **Q. I draw your attention to the first sentence of the text of the Frank Statement, which**  
17 **states, "Recent reports on experiments with mice have given wide publicity to a theory**  
18 **that cigarette smoking is in some way linked with lung cancer in human beings."**  
19 **What significance, if any, does that statement have?**

20 A. The sentence refers to the Sloan-Kettering study, which I have already described. That this  
21 public statement leads off with an acknowledgment of the Sloan-Kettering study attests to  
22 the study's role in precipitating a response from the tobacco industry, including the

1 Defendant manufacturers. It also confirms that Defendants were, with the exception of  
2 Liggett & Myers, jointly responding to the study.

3 **Q. Do you want to direct the Court's attention to any other passages in the Frank**  
4 **Statement?**

5 A. I draw your attention to point number 3 in the left-hand column: "There is no proof that  
6 cigarette smoking is one of the causes." I also draw your attention to point number 4: "That  
7 statistics purporting to link cigarette smoking with the disease could apply with equal force  
8 to any one of many other aspects of modern life. Indeed the validity of the statistics  
9 themselves is questioned by numerous scientists."

10 **Q. Why are these statements significant for your conclusions?**

11 A. The participants acknowledged that there was evidence that pointed to cigarette smoking as  
12 a possible cause of lung cancer, but asserted that there was "no proof" that cigarette  
13 smoking was the cause of lung cancer. Moreover, they described much of the evidence  
14 concerning cigarette smoking and lung cancer as "statistics."

15 **Q. When you speak of the evidence that pointed to cigarette smoking, what studies are**  
16 **you referring to?**

17 A. I am referring to the retrospective studies that I discussed above. In the Frank Statement,  
18 five of the six major sellers of cigarettes took the public position that such evidence was  
19 "statistics" that may be of questionable validity.

20 **Q. Do you want to draw the Court's attention to any other portions of the Frank**  
21 **Statement?**

22 A. Yes. Specifically, I draw attention to the signers' pledge, in point number 1 in the right-  
23 hand column, to offer "joint financial aid" to research on "all phases of tobacco use and

1 health.” I further draw attention to point number 3 on the right, which refers to a scientist  
2 of “unimpeachable integrity” to take charge of the research activities of the Tobacco  
3 Industry Research Committee.

4 **Q. Do you know how the Tobacco Industry Research Committee was formed?**

5 A. Yes. While the Frank Statement was issued in January 1954, the “TIRC,” as it was called,  
6 was formed as a consequence of meetings among the heads of the sponsoring entities on  
7 December 14, 15 and 28, 1953, in New York City under the leadership of Paul M. Hahn,  
8 President of the American Tobacco Company, who ultimately became the TIRC’s first  
9 chairman. Upon its formation, the TIRC also engaged the assistance of the public relations  
10 firm Hill & Knowlton.

11 **Q. As an economist who has studied the tobacco industry, does the Frank Statement**  
12 **represent the cooperative response of the firms selling cigarettes, or independent**  
13 **action?**

14 A. It represents a cooperative response. In January 1954, five of the six major sellers of  
15 cigarettes together responded to the mounting scientific evidence, the decline in tobacco  
16 sales, and the drop in cigarette stocks. They offered “joint financial aid” through a formal  
17 joint enterprise called the Tobacco Industry Research Committee. As part of their response,  
18 they jointly asserted that there was “no proof” that cigarette smoking caused lung cancer,  
19 and that much of the accumulated evidence to date constituted statistics of possibly  
20 questionable validity.

21 **Q. Dr. Harris, were the Sloan-Kettering study and the other scientific studies the only**  
22 **factors in the decline of cigarette smoking that began in 1953?**

1 A. Not necessarily. The major cigarette manufacturers may themselves have contributed to the  
2 decline through their own advertising.

3 **Q. On what do you base such a conclusion?**

4 A. I draw attention to United States Trial Exhibit 46,458, which is a copy of an article entitled  
5 “The Facts Behind the Cigarette Controversy,” which appeared in the July 1954 issue of  
6 The Reader’s Digest. The first paragraph of this article states:

7 Late in 1953 tobacco advertisers were noisily hawking cigarettes that  
8 were milder, safer, freer from harsh ingredients than competing  
9 brands. New brands with filter tips made the din more deafening by  
10 boasting about harmful tars and nicotine they removed. Then the  
11 ballyhoo backfired with a bang.

12 **Q. What is meant by “noisily hawking cigarettes”?**

13 A. Prior to the formation of the TIRC in December 1953, the advertisements of cigarette  
14 manufacturers frequently contained claims that their own brands were milder, were less  
15 irritating, contained fewer toxic substances, offered some form of protection, or were  
16 otherwise safer than other companies’ competing brands. While this pattern of advertising  
17 had been prevalent for a number of years, it intensified in the early 1950’s, at least through  
18 early 1954.

19 **Q. Can you offer some examples?**

20 A. In March 1952, for example, the Lorillard Tobacco Company introduced its Kent brand of  
21 cigarettes with the new “Micronite filter” that was “developed by researchers in atomic  
22 energy plants.” U.S. Exhibit 88,703 (1953); U.S. Exhibit 88,704 (1953); U.S. Exhibit  
23 88,700 (1954); U.S. Exhibit 88,728 (1954); U.S. Exhibit 2,749 (1955); U.S. Exhibit 2,751  
24 (1955); U.S. Exhibit 2,777 (1956); U.S. Exhibit 87,460 (1972); U.S. Exhibit 3,837 (1972);

1 U.S. Exhibit 10,229 (1972); U.S. Exhibit 3,816 (1972); U.S. Exhibit 3,797 (1972). The  
2 advertising copy stressed that the new brand removed seven times more tar and nicotine  
3 than any other. U.S. Exhibit 88,698 (1954); U.S. Exhibit 2,749 (1955); U.S. Exhibit 2,751  
4 (1955); U.S. Exhibit 2,746 (1955); U.S. Exhibit 2,780 (1956); U.S. Exhibit 10,104 (1962);  
5 U.S. Exhibit 10,110 (1963); U.S. Exhibit 10,111 (1963); U.S. Exhibit 10,113 (1963); U.S.  
6 Exhibit 10,114 (1963). Another Kent advertisement in the same year stated, “No other  
7 cigarette approaches such a degree of health protection and taste satisfaction.” (U.S.  
8 Exhibit 74,413) (1952); U.S. Exhibit 87,186 (1953); U.S. Exhibit 87,189 (1953); 87,187  
9 (1953); U.S. Exhibit 87,483 (1953); U.S. Exhibit 87,482 (1953); U.S. Exhibit 87,481  
10 (1953); U.S. Exhibit 88,705 (1953); U.S. Exhibit 87,188 (1953); U.S. Exhibit 87,484  
11 (1953); U.S. Exhibit 87,185 (1953); U.S. Exhibit 2,747 (1955); U.S. Exhibit 2,746 (1955);  
12 U.S. Exhibit 2,747 (1955); U.S. Exhibit 2,749 (1955); U.S. Exhibit 2,777 (1956); U.S.  
13 Exhibit 2,780 (1956); U.S. Exhibit 2,775 (1956); U.S. Exhibit 2,944 (1962); U.S. Exhibit  
14 10,115 (1963); U.S. Exhibit 3,003 (1963); U.S. Exhibit 3,147 (1966); U.S. Exhibit 3,152  
15 (1966); U.S. Exhibit 3,785 (1972); U.S. Exhibit 3,797 (1972); U.S. Exhibit 10,257 (1973);  
16 U.S. Exhibit 3,932 (1973); U.S. Exhibit 3,949 (1973); U.S. Exhibit 7,275 (1982); U.S.  
17 Exhibit 7,379 (1983); U.S. Exhibit 7,504 (1983); U.S. Exhibit 7,702 (1984); U.S. Exhibit  
18 7,746 (1984).

19 In the same year, Liggett & Myers widely publicized the results of tests run by Arthur D.  
20 Little, Inc. purporting to show that “smoking Chesterfields would have no adverse effects  
21 on the throat, sinuses or affected organs.” The Chesterfield advertisements ran, among  
22 other places, on the popular Arthur Godfrey radio and television shows. (U.S. Exhibit  
23 21,387); U.S. Exhibit 88,718 (1953); U.S. Exhibit 88,723 (1953); U.S. Exhibit 88,715



1 (1953); U.S. Exhibit 88,729 (1954). Another Liggett advertisement stated: “Fredric March  
2 Says - This Is It. L & M Filters Are Just What the Doctor Ordered.” U.S. Exhibit 88,732  
3 (1954); U.S. Exhibit 88,733 (1954); (U.S. Exhibit 21,387). A 1953 advertisement stated:  
4 “...like millions today, you are turning to filter cigarettes for pleasure plus protection...it's  
5 important that you know the Parliament Story.” (U.S. Exhibit 21,387); U.S. Exhibit 2,731  
6 (1954); U.S. Exhibit 2,756 (1956). Another 1953 Kent advertisement ran: “The American  
7 Medical Association voluntarily conducted in their own laboratory a series of independent  
8 tests of filters and filter cigarettes. As reported in the Journal of the American Medical  
9 Association, these tests proved that of all the filter cigarettes tested, one type was the most  
10 effective for removing tars and nicotine. This type filter is used by Kent...and only Kent!”  
11 “KENT. For the greatest protection of any filter cigarette with exclusive MICRONITE  
12 filter.” U.S. Exhibit 88,731 (1954); (U.S. Exhibit 67,414); (U.S. Exhibit 57,188).  
13 Other 1953 advertising copy included: “New King-Size Viceroy gives Double-Barreled  
14 Health Protection...is safer for throat, safer for lungs than any other king-size cigarette.”  
15 “FILTERED CIGARETTE SMOKE IS BETTER FOR YOUR HEALTH. The nicotine and  
16 tars trapped by this Viceroy filter cannot reach your mouth, throat, or lungs.” “Alpha  
17 Cellulose. Exclusive to L&M Filters, and entirely pure and harmless to health.” U.S.  
18 Exhibit 87,465 (1953); U.S. Exhibit 87,466 (1953); U.S. Exhibit 87,467 (1953); U.S.  
19 Exhibit 87,468 (1953); U.S. Exhibit 87,469 (1953); U.S. Exhibit 87,470 (1953); U.S.  
20 Exhibit 21,387; (U.S. Exhibit 21,465); (U.S. Exhibit 53,895).

21 **Q. How, if at all, does this relate to your testimony that the major cigarette**  
22 **manufacturers may themselves have contributed to the decline in cigarette**  
23 **consumption that began in 1953?**

1 A. By reminding consumers about the health risks of smoking, the advertisements may very  
2 well have induced smokers to quit or cut down on the number of cigarettes smoked.

3 **Q. From the standpoint of an economist, what is the basis for your conclusion that**  
4 **advertisements, which reminded consumers about health risks may, have reduced**  
5 **smoking rates?**

6 A. An extensive body of literature by economic researchers supports the conclusion that  
7 American consumers have consistently reduced their use of cigarettes in response to  
8 publicity about the adverse health effects of smoking.

9 **Q. Is this an unexpected or surprising conclusion for an economist?**

10 A. Quite the contrary, information affects consumers' product choices in virtually every  
11 market that economists have studied.

12 **Q. Can you summarize briefly some of the economic evidence that supports your**  
13 **conclusion?**

14 A. Consumption of cigarettes in the United States, as measured by official statistics from the  
15 Department of Agriculture, has consistently declined in periods of increased publicity about  
16 the health hazards of smoking. Cigarette consumption declined right after the 1964  
17 Surgeon General's Report. It also declined during 1968-1970, which public service anti-  
18 smoking messages appeared on prime time television.

19 **Q. We'll return later to the role of information in the choices made by cigarette**  
20 **consumers. From the economist's standpoint, did the advertising about milder, less**  
21 **irritating and less toxic brands in the early 1950's, at least up to 1954, represent**  
22 **independent or collusive action on the part of cigarette manufacturers?**

23 A. It represented independent, competitive conduct.

1     **Q.     Please explain.**

2     A.     The situation closely parallels the oligopoly examples that I discussed previously. If the  
3           oligopolists in the cigarette market could refrain together from making competing claims  
4           about the safety of their products, then they would jointly benefit. That is because their  
5           advertising would no longer send a negative message to consumers about smoking and  
6           health. However, if cigarette manufacturers acted cooperatively to restrain such health-  
7           related claims, then any one manufacturer would have an incentive to undercut its rivals by  
8           promoting its brand as healthier. If manufacturers cannot cooperate, however, then they  
9           would each act independently, making competitive claims about their own brands and  
10          pooh-poohing the others' brands as deleterious. The latter case is what prevailed in the  
11          cigarette market until the end of 1953.

12    **Q.     If the situation closely parallels the oligopoly examples that you discussed previously,**  
13           **could you construct a similar demonstrative that showed the two polar opposite**  
14           **outcomes?**

15    A.     Yes. I call your attention to the demonstrative entitled, "Oligopoly Strategy with Respect to  
16          Cigarette Manufacturers' Product Health Claims."

1 **DEMONSTRATIVE #3: OLIGOPOLY STRATEGY WITH RESPECT TO**  
2 **CIGARETTE MANUFACTURERS' PRODUCT HEALTH CLAIMS**

<b>Conduct</b>	<b>Benefit</b>
3 Cigarette manufacturers cooperate to refrain 4 from attacking each others' products as less 5 healthy. 6	Because consumers do not hear fewer negative messages about the health effects of smoking, consumption rises and all firms earn higher profits.
7 Cigarette manufacturers operate 8 independently, claiming their brands are safer 9 and bad-mouthing their competitors brands as 10 more hazardous.	Because consumers hear more negative messages about the health effects of smoking, consumption declines and firms earn lower profits.

11 **Q. Dr. Harris, is there any evidence that cigarette manufacturers themselves actually**  
12 **perceived their choices in the way that you, as an economist, have framed them in the**  
13 **foregoing demonstrative?**

14 A. Yes.

15 **Q. What is the basis for your conclusion?**

16 A. That requires us to examine other documents and memoranda that were not publicly  
17 available at the time of the formation of the TIRC in December 1953 and the Frank  
18 Statement in January 1954.

1 **Q. I draw your attention to United States Exhibit 85,819 entitled “Background Material**  
2 **on the Cigarette Industry Client,” dated December 15, 1953. What is the significance**  
3 **of this document, if any, for your analysis?**

4 A. This document reflects a memorandum by Hill and Knowlton employee, Bert C. Goss, in  
5 connection with the aforementioned series of meetings in December 1953 in New York  
6 City, which were originally called by Paul M. Hahn, President of the American Tobacco  
7 Company. The first page of the document specifically refers to a meeting on the morning  
8 of December 15, 1953.

9 **Q. Dr. Harris, is it your understanding that Hill & Knowlton in December 1953**  
10 **interviewed the research directors of some of the major cigarette companies?**

11 A. Yes. This fact is referred to in the document before us, which is United States Exhibit  
12 85,819. The fact is also referred to in another document, United States Exhibit 21,408,  
13 entitled “Forwarding Memorandum: To Members of the Planning Committee,” which I  
14 bring to the Court’s attention.

15 **Q. Before you proceed, Dr. Harris, could you tell us which cigarette manufacturer had**  
16 **the largest market share in 1953?**

17 A. American Tobacco Company had the largest share, with about one-third of nationwide  
18 cigarette shipments.

19 **Q. Do you attach any significance to this fact?**

20 A. As I noted earlier in connection with my oligopoly examples, the firm with the largest  
21 market share will have the greatest interest in reaching a collusive solution. The fact that  
22 the President of American Tobacco Company took the lead in bringing together the other  
23 company presidents is therefore, from the economist’s standpoint, no surprise.

1 **Q. What portion of United States Exhibit 85,819 would you like to bring to the attention**  
2 **of the Court?**

3 A. Referring to the December 15, 1953 meeting, the memo states, on the first page:

4 The following information was given us by the presidents of the  
5 leading tobacco companies at the Hotel Plaza this morning.

6 I. Participants

7 . . .  
8 The group was called together by Mr. Paul Hahan, President of the  
9 American Tobacco Company. The chief executive officers of all the  
10 leading companies - R.J. Reynolds, Philip Morris, Benson & Hedges,  
11 U.S. Tobacco Company, Brown & Williamson - have agreed to go  
12 along with a public relations program on the health issue.

13  
14 This memorandum documents that the presidents of four of the six  
15 leading tobacco companies had participated in a meeting and  
16 communicated with each other through the auspices of Hill &  
17 Knowlton. While Lorillard, another one of the leading  
18 manufacturers, signed the Frank Statement and thereby joined the  
19 Tobacco Industry Research Committee, it appears from the  
20 memorandum that Lorillard did not attend the December 15 meeting.

21 **Q. Did any major seller of cigarettes specifically decline to participate?**

22 A. Yes. The document states, on the first page, that "Liggett & Myers is not participating in  
23 the organization because that company feels that the proper procedure is to ignore the  
24 whole controversy."

25 **Q. Do you wish to draw the Court's attention to any other portions of this document at**  
26 **this time?**

27 A. I draw your attention to page 3 of the memo, from which I quote:

28 Do the companies consider that their own advertising and  
29 competitive practices have been a principal factor in creating a health  
30 problem?

31 The companies voluntarily admitted this to be the case even before  
32 the question was asked. They have informally talked over the

1 problem and will try to do something about it. They do, however,  
2 point out that this is the one important public relations activity that  
3 might very clearly fall within the purview of the anti-trust act.  
4 Accordingly, it is doubtful that we will be able to make any formal  
5 recommendation with regard to advertising or selling practices and  
6 claims.

7 **Q. What, if anything, is significant about the text that you just quoted?**

8 A. The material that I just quoted supports the conclusion that the four cigarette manufacturers  
9 attending the meeting in New York in December 1953 agreed with the proposition that their  
10 own competitive cigarette advertising had contributed to the recent decline in cigarette  
11 sales.

12 **Q. Dr. Harris, you drew our attention to United States Exhibit 21,408, entitled**  
13 **“Forwarding Memorandum: To Members of the Planning Committee.” Do you want**  
14 **to draw any specific portions of this document to the Court’s attention?**

15 A. I quote from page 4 of the document, under the heading “Problem 1:”

16 Grant Clark remarked on the telephone: “Look at the statements on  
17 the Viceroy package. Look at the Kent advertising. They’ve been  
18 engaging in that sort of competition for years. You fellows at H and  
19 K are in the middle, and so maybe can do something. Meanwhile,  
20 I’m not allowed to send you those ads that were written for Camel.  
21 Darr may still want to run them, after your own campaign gets  
22 started.

23 **Q. Dr. Harris, which company did Grant Clark represent?**

24 A. I infer that Grant Clark worked for R.J. Reynolds Tobacco Company because Camel was an  
25 R.J. Reynolds brand of cigarettes and because E.A. Darr signed the Frank Statement as  
26 President of that company.

1 **Q. Dr. Harris, from the standpoint of economic analysis of cigarette manufacturers’**  
2 **conduct, how do you interpret the phrase “They’ve been engaging in that sort of**  
3 **competition for years?”**

4 A. The quotation is consistent with my conclusion that the advertising about less irritating and  
5 less toxic cigarette brands in the early 1950's, at least up to 1954, represented independent  
6 competitive conduct.

7 **Q. Dr. Harris, as an economist, do you have an interpretation of the quoted statement**  
8 **that “You fellows at H and K are in the middle, and so maybe you can do**  
9 **something?”**

10 A. The speaker is inquiring whether Hill & Knowlton can assist the participating companies in  
11 acting cooperatively with respect to cigarette advertising, that is, adhering to the second  
12 pattern of conduct shown in the above demonstrative, entitled “Oligopoly Strategy with  
13 Respect to Cigarette Manufacturers’ Product Health Claims.”

14 **Q. Do you have any other basis within the document for reaching such a conclusion?**

15 A. I quote from pages 8-9 of the document, under the heading “Some Things to Do.”

16           Develop some understanding with companies that, on this problem,  
17           none is going to seek a competitive advantage by inferring to its  
18           public that its product is less risky than others. (No claims that  
19           special filters or toasting, or expert selection of tobacco, or extra  
20           length in the butt, or anything else, makes a given brand less likely to  
21           cause you-know-what. No “Play-Safe-with-Luckies” idea - or with  
22           Camels or with anything else.)

23 **Q. What significance, if any, does such a quotation have for your analysis?**

24 A. The memorandum explicitly recommends that no single firm “seek a competitive  
25 advantage” by implying to its customers that its product is “less risky than the others ... less



1 likely to cause you-know-what.” It thus recommends that the firms adhere to the  
2 cooperative arrangement delineated in the first row of the foregoing demonstrative.

3 **Q. Dr. Harris, you have testified that five of the six major cigarette manufacturers, in**  
4 **their publicly issued Frank Statement of January 4, 1953, together stated that there**  
5 **was “no proof” that cigarette smoking caused disease and, moreover, they pledged**  
6 **jointly to fund research on tobacco and health. Was there any mention in the Frank**  
7 **Statement about an understanding among the companies that none would seek a**  
8 **competitive advantage over the others by implying that its own product was less risky**  
9 **than those of its competitors?**

10 A. No. There is no mention of such an agreement or understanding.

11 **Q. Dr. Harris, do you know for a fact that the firms participating in the December 1953**  
12 **meetings in the “Hotel Plaza” in New York adhered to such an agreement or**  
13 **understanding?**

14 A. They did.

15 **Q. How do you know that?**

16 A. I draw your attention to U. S. Exhibit 63,503, which is a copy of an article entitled “Admen  
17 Soft-Pedal Health,” published in Business Week, June 9, 1954. I quote from the article:

18 The Federal Trade Commission couldn’t do it. The tobacco growers  
19 couldn’t do it. Warnings from marketing experts went unheeded.  
20 But economics did the trick. Faced with dropping sales, cigarette  
21 manufacturers have pulled an abrupt about face in advertising  
22 tactics . . . .

23 A couple of years ago, most of them were pulling out all the stops to  
24 terrorize their customers into buying their particular brands. Today,  
25 no word of fear, no talk of throat scratch— just comfortable,  
26 reassuring phrases about how good a cigarette tastes.  
27 . . .

1 Brand by Brand - Yet the recent shift in advertising is so nearly  
2 unanimous that it amounts to a confession of tactical error.

3  
4 The article goes on to enumerate the changes in advertising of  
5 various brands with the exception of those of Liggett and Meyers.  
6 Thus, this article indicates that, some time before June 1954,  
7 cigarette manufacturers “pulled an abrupt about face in advertising  
8 tactics.” The reporting in the article is consistent with the  
9 proposition that manufacturers adhered to the recommendation set  
10 forth in the Hill & Knowlton memorandum on “Some Things to Do.”  
11

12 **Q. Dr. Harris, with respect to cigarette advertising, based upon the evidence that you’ve**  
13 **reviewed thus far, would an economist characterize the conduct of cigarette**  
14 **manufacturers in December 1953 and the first half of 1954 as more consistent with**  
15 **independent competitive conduct or cooperative conduct?**

16 A. Cigarette manufacturers engaged in cooperative conduct. In fact, soon after the series of  
17 meetings in New York in December 1953, they switched abruptly from independent to  
18 cooperative conduct.

19 **Q. Would you characterize the latter cooperative conduct as collusive?**

20 A. To the extent that their avoidance of health-related competition dampened the flow of  
21 information about the health risks of smoking, manufacturers’ cooperative arrangement was  
22 deleterious to their consuming public. Accordingly, speaking as an economist, I would  
23 regard such cooperation as collusive.

24 **Q. Do you have any basis to conclude that such a collusive arrangement was a**  
25 **manifestation of tacit collusion or conscious parallelism?**

26 A. No. Manufacturers met in New York. Thereafter, they “pulled an abrupt about face in  
27 advertising tactics.” Strictly speaking, the memorandum that was written by a Hill &  
28 Knowlton facilitator referred to “Things to Do” rather than “things already agreed upon.”

1 There was no formal contract that was signed by each company president. Still, the  
2 evidence supports direct communication and explicit agreement, that is, collusion. The  
3 evidence does not support tacit collusion.

4 **Q. Would an economist have to see a formal written agreement in this case?**

5 A. No. The companies were aware that formal agreements to restrict competition could  
6 violate antitrust laws. As stated in the Hill & Knowlton memorandum of December 15,  
7 1953, which is United States Exhibit 85,819, from which I quote:

8 II. Organization

9 Because of the anti-trust background, the companies do not favor the  
10 incorporation of a formal association. Instead, they prefer strongly  
11 the organization of an informal committee which will be specifically  
12 charged with the public relations function and readily identified as  
13 such.

14 **Q. I draw your attention specifically to page 2 of the latter exhibit. In connection with**  
15 **the results of such interviews, the writer from Hill & Knowlton states,**

16 **Said another, “Boy! Wouldn’t it be wonderful if our company**  
17 **was first to produce a cancer free cigarette. What we could do to**  
18 **competition!”**

19 **From the economist’s standpoint, if one company was first to produce a cancer-free**  
20 **cigarette that outdid the competition, would that action represent independent**  
21 **competitive behavior, or cooperative behavior?**

22 A. Independent, competitive behavior.

23 **Q. Dr. Harris, you testified earlier as an economist that the likelihood of collusive**  
24 **cooperation among oligopolists is enhanced when the participating firms have**  
25 **common interests. In your view as an economist and medical scientist, do the Hill &**

1 **Knowlton memoranda that we have been discussing shed light on the question of**  
2 **common interests among cigarette manufacturers?**

3 A. Yes. The evidence pointing to cigarettes as a possible cause of lung cancer threatened the  
4 sales of each of the major cigarette manufacturers. The scientific evidence was applicable  
5 to the cigarettes sold by all cigarette manufacturers. None of the manufacturers had a  
6 “cancer-free cigarette.” The memos reflect the perception of a common threat. As stated  
7 on page 3 of the Forwarding Memorandum, the heads of the cigarette-manufacturing  
8 corporations “linked arms and walked together to consult with us.” On page 4, new  
9 scientific findings about the adverse health effects of cigarettes are described as a potential  
10 “bomb shell on the whole industry.”

11 **Q. Have economists considered any alternative explanations for the abrupt**  
12 **discontinuation of health-related competition by June of 1954?**

13 A. Yes. Economists have considered the hypothesis that cigarette manufacturers did not reach  
14 an explicit agreement, but were instead complying with Federal Trade Commission  
15 guidelines concerning false and deceptive advertising.

16 **Q. What were the Federal Trade Commission guidelines?**

17 A. For a number of years, extending back at least to 1949, the Federal Trade Commission had  
18 been monitoring the advertising practices of cigarette manufacturers, at various times  
19 issuing cease and desist orders against individual companies for making claims about tar,  
20 nicotine, throat irritation, relaxing nervous strain and other health-related matters. In  
21 September 1954, the Commission issued draft Guidelines about its intentions to bring  
22 complaints against firms that made unsubstantiated health claims.

23 **Q. What support is there for your analysis?**

1 A. The 1950 Annual Report of the Federal Trade Commission (“FTC”), on page 53,  
2 documents the issuance of cease and desist orders in 1949 against Lorillard for claims that  
3 Old Gold contained less nicotine and that Beech-Nut cigarettes provided a defense against  
4 irritation. The FTC issued orders against R.J. Reynolds for claims that Camel cigarettes  
5 contained less nicotine and would never harm or irritate the throat. The citations in Chapter  
6 1 of National Cancer Institute Smoking and Health Monograph 7 include: RJ Reynolds v  
7 FTC 192 F.2d 535 7<sup>th</sup> Cir. (1951), American Tobacco v FTC, 47 FTC 1393 (1951);and P.  
8 Lorillard, 46 FTC 735 (1950). Clearly, these orders had no effect on the subsequent flurry  
9 of product claims. The fact that the FTC issued draft guidelines in September 1954 is  
10 memorialized in the September 25, 1954 issue of Business Week, “FTC Tries for an  
11 Industry Code on Cigarette Advertising.”

12 **Q. What have economists concluded concerning the hypothesis that the abrupt**  
13 **discontinuation of health-related competition simply represented compliance with the**  
14 **FTC guidelines?**

15 A. The multiplicity of complaints and cease-and-desist orders by the Commission beginning in  
16 1949 did not appear to deter companies from continuing to make health-related claims.  
17 Moreover, by the time the Commission announced its intention to issue a set of Cigarette  
18 Advertising Guides in mid-September 1954, the advertising had already ceased. In fact,  
19 following a year of conferences with the tobacco industry, the Commission did not formally  
20 announce its Advertising Guides until September 22, 1955.

21 **Q. What support is there in the economic literature for such an analysis?**

22 A. The point that collusion was the cause of the cessation of advertising, and not the FTC  
23 Guidelines, was made in an article by John L. Solow, “Exorcising the Ghost of Cigarette

1 Advertising Past: Collusion, Regulation and Fear Advertising,” in the peer-reviewed  
2 Journal of Macromarketing, volume 21, pages 135-145, 2001. The abstract of this article  
3 states: “Using a combination of documentary evidence and an analysis of cigarette  
4 advertising content, the author shows here that it was collusion on the part of the tobacco  
5 industry and not the actions of the FTC that brought the fear advertising of the early 1950s  
6 to an abrupt end.”

7 ***B. The Emerging Scientific Consensus that Smoking Caused Lung Cancer and***  
8 ***Other Diseases***

---

9 **Q. Dr. Harris, is a discussion of the evolution of scientific knowledge on smoking and**  
10 **health from the 1950's through the 1964 Surgeon General's Report relevant to your**  
11 **analysis?**

12 A. Yes, it is. The emerging scientific consensus that smoking caused lung cancer and other  
13 diseases, particularly the issuance of the 1964 Surgeon General's Report, constituted a  
14 significant change in the business environment faced by manufacturers. To understand  
15 changes in manufacturers' conduct, we as economists need to understand changes in the  
16 business environment.

17 **Q. You testified that cigarette manufacturers did more than simply change advertising**  
18 **policies as a result of the December 1953 meetings. How else did Defendants respond?**

19 A. In addition, they jointly issued statements that it had not been proven whether smoking  
20 caused disease, and they pledged jointly to fund research into all aspects of tobacco use and  
21 health.

1 **Q. For now, let's focus on the first part of your response. Did cigarette manufacturers**  
2 **continue to assert jointly that it had not been proven whether cigarette smoking**  
3 **caused disease?**

4 A. Yes. And, what is more, they continued to challenge much of the evidence as dubious  
5 statistics. This joint denial of the health consequences of smoking continued even as the  
6 evidence mounted to the point where the connection between smoking and disease became  
7 irrefutable.

8 **Q. How did the scientific evidence mount?**

9 A. Even later in 1954, researchers had begun to report the results of large prospective studies.

10 **Q. You mentioned that term before in connection with the article in the February 1954**  
11 **issue of Consumer Reports. What are "prospective studies?"**

12 A. In prospective studies, researchers first enroll large numbers of apparently healthy  
13 individuals, querying them about their cigarette smoking practices. The researchers then  
14 looked forward in time, tracking the enrolled individuals to determine who died and, if so,  
15 what was the cause of death listed on the death certificate.

16 **Q. Can you give some examples of such prospective scientific studies?**

17 A. In the June 1954 issue of the British Medical Journal, Doll and Hill published the results of  
18 their follow-up study of smoking in relation to lung cancer deaths among 24,000 British  
19 male physicians.

20 **Q. I call your attention to United States Trial Exhibit 63,612. Is this the article to which**  
21 **you are referring?**

22 A. Yes, it is.

23 **Q. What is relevant to point out to the Court?**

1 A. As noted on the first page of the study, which is page 4877 in the journal’s pagination, a  
2 number of retrospective studies had already been published. A prospective study, by  
3 contrast, “should determine the frequency with which the disease appeared, in the future,  
4 among groups of persons whose smoking habits were already known.”

5 **Q. By “the disease,” what are the authors referring to?**

6 A. Lung cancer and other diseases.

7 **Q. Please elaborate.**

8 A. A prospective study has the advantage that researchers can monitor the future occurrence of  
9 any disease, not just lung cancer.

10 **Q. At the time, was a prospective study inferior or superior to a retrospective study in  
11 any other respect?**

12 A. A prospective study was considered superior in one important respect.

13 **Q. In what respect was a prospective study considered superior?**

14 A. Doll and Hill, as well as other scientists, were well aware that in a retrospective study, both  
15 the patients and the researchers answered questions about their smoking practices after they  
16 already knew their medical condition. Such prior knowledge could, in principle, influence  
17 the patient’s answers. In a prospective study, neither the researcher nor the human subject  
18 as yet knows who will or will not get sick.

19 **Q. Did Doll and Hill find a relation between smoking and disease?**

20 A. Yes. They found a relation between smoking and several diseases, not just lung cancer.

21 **Q. Did the findings of this prospective study contradict or support the earlier  
22 retrospective studies?**



1 A. The findings reinforced and extended the results of the earlier retrospective studies. Again,  
2 as in their earlier retrospective study, Doll and Hill concluded on page 1454 that the  
3 “association between smoking and the disease is real . . . .”

4 **Q. Was the Doll and Hill study published in June 1954 the only prospective study?**

5 A. No, in August 1954, researchers from the American Cancer Society in the United States  
6 published an independent prospective study of 187,000 men aged 50 to 69 years. The  
7 study, which was published in the Journal of the American Medical Association, found  
8 likewise that male smokers had higher death rates from coronary heart disease as well as  
9 cancer.

10 **Q. I draw your attention to United States Trial Exhibit 50,634. Is this the study to which**  
11 **you are referring?**

12 A. Yes, it is.

13 **Q. Was this the study the Consumer Reports article of February, 1954 described as being**  
14 **“in progress?”**

15 A. Yes.

16 **Q. What would you like to identify for the Court from the study in the Journal of the**  
17 **American Medical Association?**

18 A. The authors concluded on page 1326 of this article that “Death rates from diseases of the  
19 coronary arteries and from cancer are much higher among men with a history of regular  
20 cigarette smoking than among men who had never smoked.” They added on page 1328,  
21 “For reasons discussed, we are of the opinion that the associations found between regular  
22 cigarette smoking and death rates from lung cancer reflect cause and effect relationships.”  
23 This study, performed by different researchers on a different population in a different

1 country, reached conclusions in line with those of Doll and Hill, which were published two  
2 months earlier.

3 **Q. Did the Defendant manufacturers respond to these new scientific studies which**  
4 **appeared within months after the Frank Statement?**

5 A. Yes. Defendants continued to deny jointly and publicly that any connection between  
6 smoking and disease had been proven. They continued to assert together that such  
7 prospective studies were dubious statistics.

8 **Q. Dr. Harris, were there any further developments in smoking and health research after**  
9 **1954 that bear upon your analysis?**

10 A. Yes. The field of research in smoking and health continued to expand. By 1955,  
11 researchers more clearly understood that the current rapid rise of lung cancer among men  
12 reflected the rapid growth in cigarette smoking in the era after World War I. Analyses of  
13 vital statistics showed that lung cancer in men was increasing sharply in those countries  
14 where the rise in cigarette smoking had been most marked in the past. Researchers found  
15 the much smaller increase in lung cancer in women to be consistent with the more recent  
16 rise in popularity of cigarette smoking among women during the Great Depression and  
17 World War II. In 1955, researchers reported that cigarette smoke contained specific  
18 chemical carcinogens, such as benzo(a)pyrene, which belongs to the class of chemical  
19 carcinogens called polycyclic aromatic hydrocarbons or "PAH's." In 1956, researchers  
20 found that cigarette smoke blocks the action of the hair-like cilia lining the respiratory tract.  
21 In 1956, researchers found that precancerous changes in the lining cells of the lungs of  
22 cigarette smokers. By 1957, researchers had elaborated the study of the carcinogenic effects  
23 of various chemical components of cigarette tars on mouse skin, and had found that

1 cigarette tars could induce cancers in other laboratory animals, such as rabbit ears. By  
2 1958, ten animal carcinogens had been identified in cigarette smoke.

3 **Q. Were there additional retrospective and prospective studies of cigarette smoking and**  
4 **lung cancer or other diseases in humans?**

5 A. During 1956-1963, eleven additional retrospective studies and six additional prospective  
6 studies confirmed the relationship between cigarette smoking and lung cancer in men and  
7 women. Researchers also found cancers of other organs in the respiratory tract, such as the  
8 larynx or “voice box,” to be significantly more common in men who smoked cigarettes.

9 **Q. Did any medical societies, scientific advisory committees or professional journals take**  
10 **a position on the relationship between smoking and lung cancer?**

11 A. Yes. By 1952, an editorial in the British Medical Journal concluded that cigarette smoking  
12 had been “incriminated” as responsible for a large proportion of the cases of the disease. In  
13 1953, an editorial in the New England Journal of Medicine found the results reported by  
14 Drs. Doll and Hill to be “proof within the everyday meaning of the word.” In 1957, the  
15 British Medical Research Council issued a statement that the most reasonable interpretation  
16 of the evidence was “one of direct cause and effect.” In the United States in 1957, the  
17 Study Group on Smoking and Health, composed of the American Cancer Society,  
18 American Heart Association, National Cancer Institute, and National Heart Institute,  
19 concluded that, beyond reasonable doubt, cigarette smoking was the causative factor in the  
20 rapid rise of lung cancer. In 1957, the Surgeon General of the Public Health Service also  
21 issued a statement about smoking and lung cancer.

22 **Q. Was this statement what later came to be known as the first Surgeon General’s**  
23 **Report?**

1 A. No. What we call the first Surgeon General's Report was the work of an Advisory  
2 Committee of scientists that was later appointed in July 1962 by then-Surgeon General Dr.  
3 Luther Terry shortly after the Royal College of Physicians in Britain issued its own report  
4 on smoking and health in March 1962. The Advisory Committee that was appointed by  
5 U.S. Surgeon General Terry issued its well-known report in January 1964.

6 **Q. What statement did the Surgeon General issue about smoking and lung cancer in**  
7 **1957?**

8 A. In 1957, Dr. Leroy Burney, who was Surgeon General at the time, issued a formal  
9 statement: "In light of these studies, it is clear that there is an increasing and consistent  
10 body of evidence that excessive cigarette smoking is one of the causative factors in lung  
11 cancer."

12 **Q. Were there any other statements or reports about smoking and lung cancer?**

13 A. Dr. Burney, again acting in the capacity of Surgeon General, issued another statement in  
14 1959: "1. The weight of the evidence at present implicates smoking as a principal etiologic  
15 factor in the increased incidence of lung cancer. 2. Cigarette smoking is particularly  
16 associated with an increased chance of developing lung cancer." In 1962, the Royal  
17 College of Physicians of London issued a report that concluded: "Cigarette smoking is a  
18 cause of lung cancer and bronchitis, and probably contributes to the development of  
19 coronary heart disease and various other less common diseases."

20 **Q. How are these statements and reports relevant to your economic analysis of**  
21 **manufacturers' conduct?**

22 A. Manufacturers' continuing joint denials that smoking causes disease need to be viewed in  
23 light of the mounting public scientific evidence to the contrary.

1           ***C.     Joint Denial by Defendant Manufacturers***

2           **Q.     Dr. Harris, during the time period from 1955 through 1963, what was the public**  
3           **position taken by the major manufacturers of cigarettes concerning the health risks of**  
4           **smoking?**

5           A.     Defendants continued to assert in public, individually and through joint statements issued  
6           by their trade organization, The Tobacco Institute, that there was no proof that smoking  
7           caused any disease. They continued to state, individually and jointly, that there was a  
8           continuing controversy over the health effects of smoking, and that there was meaningful  
9           disagreement among scientists as to whether cigarette smoking caused any disease. They  
10          continued to assert that the evidence in humans consisted of “statistical” associations that  
11          were of dubious quality and little probative value. They continued to emphasize,  
12          individually and jointly, that the underlying biological mechanisms of lung cancer and other  
13          cancers were not understood, and that attention should be devoted to other factors that  
14          might cause lung cancer. In short, they continued to deny, individually and jointly, that  
15          smoking caused or aggravated any disease process in humans.

16          **Q.     Dr. Harris, can you offer any specific examples of such assertions by Defendants,**  
17          **either individually or jointly?**

18          A.     I have prepared a demonstrative chart that offers some examples, entitled “Examples of  
19          Individual and Joint Denials by Defendant Manufacturers that Cigarette Smoking Caused  
20          any Disease.”

**DEMONSTRATIVE #4: EXAMPLES OF INDIVIDUAL AND JOINT DENIALS  
BY DEFENDANT MANUFACTURERS THAT CIGARETTE SMOKING CAUSED ANY  
DISEASE**

<b>Date</b>	<b>U.S. Exhibit No.</b>	<b>Author</b>	<b>Statement</b>
January 4, 1954	20,277	Tobacco Industry Research Committee	“There is no proof that cigarette smoking is one of the causes.”
March 30, 1954	21,766	George Weissman, Vice President, Philip Morris Inc.	“If we had any thought or knowledge that in any way we were selling a product harmful to consumers, we would stop business tomorrow.”
June 25, 1964	20,690	Bowman Gray, Chairman of the Board, R.J. Reynolds	“Many distinguished scientists are of the opinion that it has not been established that smoking causes disease.”
1969	25,526	Tobacco Institute, “The cigarette controversy: eight questions and answers”	“Do statistics prove that cigarette smoking is a cause of lung cancer, heart disease, emphysema, bronchitis, and other diseases? It is a cardinal principle that statistics alone cannot prove the cause of disease.” “Has any new evidence that actually convicts cigarettes been reported in recent years? No.” “Does smoking cause disease? The question is still an open one.”
December 1, 1970	21,305	Tobacco Institute, newspaper insert: “The question about smoking and health is still a question.”	“So far, in spite of this massive effort, there are eminent scientists who question whether any causal relationship has been proved between cigarette smoking and human disease - including lung cancer, coronary heart disease, or emphysema.”
January 3, 1971	63,571	Joseph F. Cullman III, Chairman of the Board, Philip Morris	“...if any ingredient in cigarette smoke is identified as being injurious to human health, we are confident that we can eliminate that ingredient.”

Date	U.S. Exhibit No.	Author	Statement
1 2 January 10, 1979	62,816	Tobacco Institute, "Smoking and Health 1964-1979: The Continuing Controversy" (Released before 1979 Surgeon General's Report)	"Despite claims to the contrary, no one - in government or industry - can explain the reported associations of smoking with lung cancer, heart disease, emphysema, low infant birth weight, and yes, even cancer of the pancreas."
3 4 May 16, 1988	21,239	Tobacco Institute Press Release	"Claims that cigarettes are addictive contradict common sense. ... The claim that cigarette smoking causes physical dependence is simply an unproven attempt to find some way to differentiate smoking from other behaviors."
5 6 April 14, 1994	38,632	William Campbell, Testimony before Waxman Subcommittee, U.S. House of Representatives	"Cigarette smoking is not addictive. .. Nicotine contributes to the taste of cigarettes and the pleasure of smoking. The presence of nicotine, however, does not make cigarettes a drug or smoking an addiction."

7            ***D.     The "King Sano" Exchange, June 1957***

8            **Q.     Dr. Harris, does the "King Sano" Exchange that I am about to show you have any**  
9            **relevance to your analysis of Defendants' conduct with respect to smoking and**  
10           **health?**

11          A.     Yes, it does.

12          **Q.     Can you brief explain how it is relevant?**

13          A.     The "King Sano" exchange documents an example of cheating from the collusive  
14           arrangement, and the response when such cheating was detected.

1 **Q. I draw your attention to United States Exhibit 36,819, which is a letter under the**  
2 **letterhead of the United States Tobacco Company, dated June 10, 1957. It begins**  
3 **“Dear Doctor,” and it is signed by J.W. Peterson. Do you know what the United**  
4 **States Tobacco Company was?**

5 A. It sold cigarettes and other forms of tobacco, such as pipe tobacco and cigars. The United  
6 States Tobacco Company was one of the original subscribers to the Frank Statement in  
7 January 1954.

8 **Q. Was United States Tobacco one of the major sellers of cigarettes in 1957?**

9 A. No. The companies with the largest market shares were American Tobacco and R.J.  
10 Reynolds. The other major sellers were Liggett & Myers, Brown & Williamson, Lorillard,  
11 and Philip Morris.

12 **Q. Do you know who J.W. Peterson was?**

13 A. He was the President of United States Tobacco Company. His name appears as a signer of  
14 the Frank Statement.

15 **Q. What happened to United States Tobacco?**

16 A. Ultimately, United States Tobacco concentrated its offerings in the area of smokeless  
17 tobacco products rather than cigarettes.

18 **Q. What do you understand to be the substance of this “Dear Doctor” letter?**

19 A. In 1957, the United States Tobacco Company sold King Sano filter-tip cigarettes.

20 Peterson’s letter, which was circulated to doctors, drew attention to a report by “Stillwell  
21 and Gladding, Inc., Independent Analytical Chemists” of the nicotine and tar contents of  
22 King Sano in comparison to other leading brands. The Stillwell and Gladding report is  
23 United States Exhibit 36,820. Concerning competitors’ products, the Peterson letter states,



1 “many cigarette brands, in an effort to provide a stronger flavored smoke, have reduced the  
2 effectiveness of the filter.” Noting the reduced yields of his own brand, Peterson suggested,  
3 “Therefore, you may wish to bring King Sano to the attention of those patients who enjoy  
4 smoking but who should reduce their intake of nicotine and tar.”

5 **Q. You refer to tests for “nicotine and tar.” Was the firm of Stillwell and Gladding the  
6 only entity that performed such tests.**

7 A. No. Other private testing firms periodically reported the results of their tests for tar and  
8 nicotine. Periodically, for example, the results were published in Reader’s Digest.

9 **Q. What about government tar and nicotine ratings?**

10 A. The Federal Trade Commission did not begin to publish tar and nicotine ratings until 1967.

11 **Q. What significance, if any, does United States Exhibit 36,819 have?**

12 A. I previously concluded that, starting in late 1953 or early 1954, major cigarette  
13 manufacturers formed a collusive arrangement to avoid making negative health claims  
14 about each other’s products. In that light, Peterson’s “Dear Doctor” letter must be  
15 interpreted as cheating from the collusive arrangement.

16 **Q. Why did United States Tobacco cheat?**

17 A. United States Tobacco was not one of the major sellers of cigarettes at the time. As I  
18 testified earlier, although a smaller fringe firm may simply go along with a collusive  
19 arrangement established by oligopolists, such a firm would have less to lose if violation of  
20 the agreement should lead ultimately to its dissolution. In particular, United States  
21 Tobacco had more to gain and less to lose from cheating than the major cigarette  
22 manufacturers.

1 **Q. Dr. Harris, I want to show you United States Exhibit 36,818. It is a letter dated July**  
2 **8, 1957, from Joseph F. Cullman III, to Timothy V. Hartnett, who is identified in the**  
3 **document as the Chairman of the Tobacco Industry Research Committee. Do you**  
4 **know who Joseph F. Cullman III was?**

5 A. From 1955-1965, which covers the date of this letter, Joseph F. Cullman III was President  
6 of Philip Morris Incorporated. As I have testified, Philip Morris was one of the major  
7 cigarette manufacturers that originally formed the TIRC and signed the Frank Statement in  
8 January 1954.

9 **Q. Do you have any other information on the background of Timothy V. Hartnett?**

10 A. Timothy V. Hartnett signed the Frank Statement in January 1954 as President of the Brown  
11 & Williamson Tobacco Company.

12 **Q. Dr. Harris, are there any specific portions of this letter that you want to draw to the**  
13 **Court's attention?**

14 A. I quote from the letter:

15 I am enclosing for your information a letter which the United States  
16 Tobacco Company is circulating to doctors, the letter is self-  
17 explanatory in its contents, and I am sure you will concur that it is  
18 not consistent with what we have been trying to accomplish in the  
19 industry in the past four years.

20 **Q. Dr. Harris, in connection with your economic analysis, how do you interpret the**  
21 **phrase "what we have been trying to accomplish in the industry in the past four**  
22 **years."**

23 A. From the economist's standpoint, the most consistent interpretation is that Cullman is  
24 referring to the industry's collusive agreement not to avoid making negative health claims

1 about each other's products, which began in late 1953 or early 1954. Cullman's reference  
2 to "the past four years," which would thus correspond to the period from approximately  
3 1953 to 1957, is consistent with such an interpretation.

4 **Q. Are there any other portions of this letter that you want to bring to the Court's**  
5 **attention?**

6 A. I quote further from the letter:

7 Perhaps you can diplomatically persuade Whitney Peterson that this  
8 kind of a letter should not be circulated further or repeated.

9 . . .

10 It is one thing for the Reader's Digest to make accusations about the  
11 industry, but it is entirely another matter, and perhaps a much more  
12 serious one, for a respected company in the industry to make  
13 damaging statements about competitive brands.

14 **Q. From the standpoint of an economist, how do you interpret the phrase "damaging**  
15 **statements about competitive brands," which appears at the end of the quotation?**

16 A. One of the member firms of the collusive arrangement, in this case Philip Morris, has  
17 detected cheating by another firm. The "damaging statements about competitive brands" is,  
18 from the economist's standpoint, overt cheating.

19 **Q. Why do you use the adjective "overt?"**

20 A. Peterson's letter was a public statement made through publicly available letters circulated  
21 to doctors. An economist would clearly regard Peterson's letter as a form of cheating that  
22 was not very difficult to detect. In fact, Cullman responded within a few weeks of the date  
23 of the Peterson letter.

24 **Q. As an economist, how do you interpret Cullman's reference to Reader's Digest?**

25 A. A publication such as Reader's Digest, which neither sold tobacco directly nor advertised  
26 tobacco products, was not a member of the collusive arrangement. A member of the

1 collusive arrangement, such as Philip Morris, would hardly expect Reader's Digest to abide  
2 by an agreement to which it was not a party.

3 **Q. Would a company that participated in the collusive agreement expect the Study**  
4 **Group on Smoking and Health, which was composed of the American Cancer Society,**  
5 **American Heart Association, National Cancer Institute, and National Heart Institute,**  
6 **to abide by the agreement?**

7 A. No. They were not participants in the collusive arrangement. They did not sell cigarettes;  
8 neither did they clearly have anything to gain from withholding damaging statements  
9 concerning the health effects of cigarette smoking.

10 **Q. Dr. Harris, from the economist's standpoint, how do you interpret the fact that the**  
11 **President of Philip Morris addressed the President of the Tobacco Industry Research**  
12 **Committee?**

13 A. As I have already testified, in an explicit collusive agreement, in contrast to tacit collusion  
14 or conscious parallelism, the participating firms need to have channels of communication.  
15 In this case, Mr. Cullman relied upon the TIRC to communicate to United States Tobacco  
16 that the "Dear Doctor" letter was unacceptable cheating.

17 **Q. Dr. Harris, what was your understanding of Defendants' publicly avowed purpose of**  
18 **the TIRC?**

19 A. As noted in the Frank Statement, the purpose of the TIRC was to perform research to  
20 investigate all aspects of tobacco and health.

21 **Q. From an economist's standpoint, does United States Exhibit 36,818 suggest a different**  
22 **role for the TIRC?**

1 A. This document suggests that the President of the TIRC was one channel of communication  
2 through which the collusive arrangement not to make disparaging statements about each  
3 other's brands could be enforced.

4 **Q. Dr. Harris, does this document explain whether the United States Tobacco Company**  
5 **or any other company would subsequently adhere to the industry's collusive**  
6 **agreement not to avoid making negative health claims about each other's cigarette**  
7 **products?**

8 A. No. The document itself is silent on that question. As it turned out, the repeated  
9 publication of numerical tar and nicotine ratings by independent entities significantly  
10 changed the business environment facing cigarette manufacturers. In fact, in July and  
11 August 1957, Reader's Digest published two articles with numbers on tar and nicotine.

12 **Q. What happened after the publication of the two Reader's Digest articles in 1957?**

13 A. The Reader's Digest articles set off what was ultimately called the "tar derby" of 1957-  
14 1960. Cigarette manufacturers competed on "the numbers," that is, numerical tar and  
15 nicotine ratings.

16 **Q. Did this competition on "the numbers" signal the end of the collusive arrangement?**

17 A. No. While manufacturers competed on "the numbers," they still sought jointly to avoid any  
18 explicit claims about the health significance of such ratings or any claims that competitors'  
19 brands were unhealthy. They learned that their cooperative arrangement, if it was to  
20 survive, had to adapt to changed business conditions.

21 **Q. Dr. Harris, does your conclusion have any bearing on your prior testimony that, in**  
22 **collusion, firms may find it necessary to carve out the scope of an explicit agreement?**

1 A. Yes. This is an example in which Defendant manufacturers continued to collude not to  
2 make damaging health claims about each other while, at the same time, they could still  
3 compete on tar numbers. With competition “on the numbers” carved out of the collusive  
4 agreement, collusion and competition could prevail at the same time.

5 **Q. You testified about a “tar derby” from 1957 to 1960. Did Defendant manufacturers**  
6 **cease competing “on the numbers” in 1960?**

7 A. No. While the “tar derby” ended in 1960 when the Federal Trade Commission temporarily  
8 prohibited tar and nicotine claims, competition on “the numbers” ultimately became the  
9 rule rather than the exception in the cigarette industry.

10 **Q. We shall return to the issue of competition on “the numbers.” Dr. Harris, you have**  
11 **testified that the “Dear Doctor” letter issued by United States Tobacco concerning**  
12 **King Sano cigarettes was an example of “cheating.” Was it the only instance?**

13 A. No, it was not.

14 **E. The 1958 Report on the Visit to U.S. and Canada**

15 **Q. We’ll return to other instances of cheating. Dr. Harris, I call your attention to United**  
16 **States Exhibit 21,135. This exhibit is entitled “Report on Visit to U.S.A. and Canada,**  
17 **17th April - 12th May 1958,” authored by H.R. Bentley, D.G.T. Felton, and W.W.**  
18 **Reid and dated June 11, 1958. What significance, if any, does this document have in**  
19 **connection with your economic analysis?**

20 A. As I have already testified, Defendant manufacturers continued to assert publicly that there  
21 was no proof that cigarette smoking caused any disease. This report by representatives of  
22 British American Tobacco (“BAT”) indicates that the public positions of manufacturers did  
23 not accord with the private views of their own scientists.

1 **Q. On what do you base such a conclusion?**

2 A. As shown on the page identified as Bates Number 105408491, the visitors from BAT  
3 interviewed scientists from American Tobacco Company, Liggett & Myers, Philip Morris,  
4 and the TIRC, as well as individuals not affiliated with the cigarette industry.

5 **Q. Who was interviewed from the Tobacco Industry Research Committee, in particular?**

6 A. As the same page shows, the interviewees included Dr. Clarence Cook Little, as well as the  
7 “Scientific Advisory Board of T.I.R.C.”

8 **Q. Who was C.C. Little?**

9 A. He was the first scientific director of the Tobacco Industry Research Committee.

10 **Q. Did the Frank Statement of January 1954 refer to these individuals from the TIRC?**

11 A. No, not by name. The Frank Statement said, “In charge of the research activities of the  
12 Committee will be a scientist of unimpeachable integrity and national repute. In addition  
13 there will be an Advisory Board of scientists disinterested in the cigarette industry.”

14 **Q. What conclusions, if any, did the British visitors reach concerning the views of such  
15 scientists on the possible contribution of cigarette smoking to disease?**

16 A. I quote from the summary section entitled “CAUSATION” OF LUNG CANCER on page 2  
17 of the document (Bates Number 105408492):

18 With one exception (H.S.N. Greene) the individuals whom we met  
19 believed that smoking causes lung cancer if by “causation” we mean  
20 any chain of events which leads finally to lung cancer and which  
21 involves smoking as an indispensable link. In the U.S.A. only  
22 Berkson, apparently, is now prepared to doubt the statistical evidence  
23 and his reasoning is nowhere thought to be sound.

24 The document further notes that “Greene of Yale” based his insistence that cigarette  
25 smoking did not cause lung cancer on his own failure to produce tumors in his own

1 laboratory experiments. The British visitors comment, however, that the Greene's  
2 conclusion "is certainly not justified." While members of the Scientific Advisory Board (or  
3 "S.A.B.") and other scientists at the National Cancer Institute took the view that the  
4 mechanism by which cigarette smoking caused lung cancer was likely to be "indirect," the  
5 British scientists noted on the following page that "we found general acceptance of the  
6 view that the most likely means of causation is that tobacco smoke contains carcinogenic  
7 substances present in sufficient quantity to provide lung cancer when acting for a long time  
8 in a sensitive individual."

9 **Q. Dr. Harris, as a physician and researcher who has studied smoking and health, do the**  
10 **views of the British observers accord with what you understand to be the state of the**  
11 **scientific evidence on smoking and lung cancer in the spring of 1958?**

12 A. Yes.

13 **Q. Dr. Harris, I draw your attention to the following statement by the British observers**  
14 **on page 2: "There is no support for the view that in the same individual the tendency**  
15 **to smoke and to be susceptible to lung cancer are each independently an outward**  
16 **expression of some third unknown factor." In your economic analysis of Defendant**  
17 **manufacturers' conduct, does this assertion have any significance?**

18 A. Yes. An objection to the evidence that was frequently voiced by manufacturers was the  
19 possibility that some "third unknown factor" - often called a "constitutional factor" - was  
20 responsible both for susceptibility to lung cancer and a tendency to smoke. Scientists  
21 within and without the cigarette industry found no support for this proposed rival  
22 explanation as to why smokers had more lung cancer.



1 **Q. Dr. Harris, as an economist, do you have any explanation for the apparent**  
2 **contradiction between the public denials of causation by cigarette manufacturers and**  
3 **the private acceptance of causation by company scientists that you have testified**  
4 **about earlier?**

5 A. The contradiction points to a collusive arrangement among manufacturers to deny that  
6 cigarette smoking causes disease.

7 **Q. Could you elaborate further?**

8 A. Again, the situation closely parallels the oligopoly examples that I discussed before. As a  
9 matter of economic strategy, each cigarette manufacturer, as an oligopolist, can choose to  
10 deny publicly that smoking causes disease, asserting that the case remains “not proven.” If  
11 manufacturers together repeatedly raise doubts about the scientific evidence, then such  
12 doubts can counteract the messages from public health groups, thus bolstering overall  
13 cigarette consumption and enhancing all firms’ profits. However, any single company’s  
14 denial of causation would likely lose credibility if the other oligopolistic cigarette  
15 manufacturers admitted that smoking causes disease. Thus, the strategic decision to deny  
16 that smoking causes disease benefits any individual oligopolist only if the others act  
17 cooperatively to deny causation as well.

18 **Q. You testified that if cigarette manufacturers repeatedly raised doubts about the**  
19 **evidence, then such doubts could counteract public health messages. Is there**  
20 **scientific support in the economics profession for such a conclusion?**

21 A. Yes. The economics research literature clearly shows that cigarette demand moves in both  
22 directions in response to anti-smoking and pro-smoking information. It is, in fact, like a  
23 tug of war between anti-smoking and pro-smoking messages. As economists have

1 observed, smoking rates declined in 1953 and 1954 in response to the “health scare” about  
2 smoking and lung cancer. During 1955 to 1963, even though the scientific evidence  
3 pointing to cigarette smoking as a cause of disease continued to mount, cigarette  
4 consumption rebounded and rose further, as smokers switched in large numbers to filter  
5 cigarettes. Similarly, economic studies, including my own contribution to the Surgeon  
6 General’s Reports, have found that cigarette consumption declined in the late 1960's when  
7 public service anti-smoking messages aired on prime time television. After 1971, when  
8 these prime time messages were taken off the air but Defendant manufacturers increased  
9 print and billboard advertising for cigarettes, consumption again rebounded in the early  
10 1970's. While companies’ cigarette advertising budgets continued to grow in the 1970's,  
11 cigarette consumption again turned downward in the late 1970's, a phenomenon attributed  
12 in the economics literature to increasing restrictions on smoking in public places as  
13 scientists voiced increasing concerns about the adverse effects of environmental tobacco  
14 smoke.

15 **Q. Dr. Harris, if joint denial of causation is a form of collusion, then how would you**  
16 **describe the corresponding form of independent competition?**

17 A. If cigarette manufacturers acted independently, they would each have an incentive outdo the  
18 competition by attempting to market a less hazardous cigarette. As one interviewee stated  
19 in the Hill & Knowlton Forwarding Memorandum: “Boy! Wouldn’t it be wonderful if our  
20 company was first to produce a cancer free cigarette. What we could do to the  
21 competition!” Such independent competitive conduct, however, requires that the  
22 innovating company acknowledge that previously marketed cigarettes were hazardous.

23 **Q. Would such independent competitive activity have benefitted the consuming public?**

1 A. Yes. With companies acknowledging that previously marketed cigarettes cause disease, the  
2 public benefits from accurate information from the manufacturer. If the cigarettes are in  
3 fact less hazardous, those who continue to smoke benefit through reduced disease risks.

4 **Q. Dr. Harris, I draw your attention to the following quotation on page 5 of the**  
5 **document:**

6 **Liggett & Myers stayed out of the T.I.R.C. originally because**  
7 **they doubted the sincerity of T.I.R.C. motives and believed that**  
8 **the organization was too unwieldy to work efficiently. They**  
9 **remain convinced that their misgivings were justified. In their**  
10 **opinion T.I.R.C. has done little if anything constructive, the**  
11 **constantly re-iterated “not proven” statements in the face of**  
12 **mounting contrary evidence has thoroughly discredited T.I.R.C.,**  
13 **and the S.A.B. of T.I.R.C. is supporting almost without exception**  
14 **projects which are not related directly to smoking and lung**  
15 **cancer.**

16 **What is the “S.A.B. of T.I.R.C.?”**

17 A. The Scientific Advisory Board of the Tobacco Industry Research Committee.

18 **Q. Dr. Harris, in the view of Liggett & Myers, according to the observers, the TIRC’s**  
19 **continuing to reiterate “not proven” ran in the face of mounting contrary evidence. Is**  
20 **it your understanding, as a physician and researcher, that there was mounting**  
21 **contrary evidence?**

22 A. Yes, as I summarized previously there was considerable mounting scientific evidence.

23 **Q. What significance, if any, do you attach to the reference that the Scientific Advisory**  
24 **Board of the TIRC was primarily supporting projects not directly related to smoking**  
25 **and lung cancer?**

1 A. The TIRC, rather than serving as a joint research venture of major cigarette manufacturers  
2 to advance the interests of the consuming public, served as a vehicle for their collusive  
3 conduct.

4 **Q. How do you reach such a conclusion?**

5 A. Research that focused on issues not directly related to smoking and health could create the  
6 appearance of devoting substantial resources to the problem without the risk of funding  
7 further “contrary evidence.”

8 **Q. Dr. Harris, is this your own interpretation of the incentives of the TIRC?**

9 A. No, it is not my own interpretation. To the contrary, there is evidence in the record that this  
10 was the acknowledged strategy of the TIRC and successor organizations jointly funded by  
11 Defendant manufacturers.

12 **Q. We’ll come back to that issue later. Dr. Harris, you testified that manufacturers’ joint**  
13 **denial would bolster cigarette consumption and thus raise industry-wide profits. As**  
14 **an economic analyst, have you reached any conclusions as to other possible industry-**  
15 **wide benefits from joint denial of causation?**

16 A. Yes. Starting in the early 1950's, individual smokers began to bring lawsuits against  
17 companies. Uniform denial that smoking caused disease would help to insulate all  
18 Defendant manufacturers from adverse judgments in such smokers’ lawsuits. However, if  
19 one company made an admission that smoking caused disease, such an admission could  
20 hurt the others’ chances of a successful defense in court.

21 **Q. Dr. Harris, are you purporting to reach any conclusions about legal liability as a**  
22 **lawyer?**

23 A. No, I am not a lawyer.

1 **Q. Are you drawing any conclusions about the likelihood of prevailing in litigation as a**  
2 **legal expert?**

3 A. No, I am not a legal expert. However, there is evidence that Defendant cigarette  
4 manufacturers themselves believed, at least for a considerable period of the time, that  
5 admissions of disease causation would indeed hurt their chances of prevailing in lawsuits.

6 ***F. The 1962 Research Conference in Southampton, England***

7 **Q. We will return to such evidence shortly. Dr. Harris, in Expert Report #1 filed in this**  
8 **case November 15, 2001, did you provide another example of cheating from**  
9 **Defendants' collusive arrangement?**

10 A. Yes. I provided an example in which Lorillard in the early 1960's announced that a  
11 chemical added to its cigarette filters reduced phenols in inhaled smoke.

12 **Q. Dr. Harris, I have here United States Exhibit 20,252, which is the transcript of a**  
13 **session from a Research Conference held in Southampton, England. The session,**  
14 **which was held during the morning of June 29, 1962, was entitled "The Importance of**  
15 **Phenols to the Health Question and Their Possible Elimination from Cigarette**  
16 **Smoke," and was chaired by Sir Charles Ellis of the Research & Development**  
17 **Establishment of British-American Tobacco Co. Ltd. Dr. Harris, what is the**  
18 **significance, if any, of this document for your economic analysis of the conduct of**  
19 **cigarette manufacturers with respect to smoking and health?**

20 A. While this document represents a research meeting of the Research and Development  
21 people at BAT in England, it describes another instance of cheating from Defendants'  
22 collusive arrangement in the United States.

23 **Q. Please explain.**

1 A. Phenols are a class of chemicals found in cigarette smoke. By 1959, scientists had some  
2 data that phenols might be involved in inhibiting the hairlike cilia that lined the respiratory  
3 tract. They also had data that phenols might be tumor promoters in animal models of  
4 cancer. In April, 1962, Dr. Wynder gave a presentation at a scientific meeting in Atlantic  
5 City. In that presentation, Dr. Wynder offered data that provided a scientific basis for a  
6 claim that the incorporation of a specific chemical additive in cigarette filters could reduce  
7 phenols. On May 23, 1962, as explained by researcher H.D. Anderson on page 5 of this  
8 document (Bates number 107468734), Lorillard announced that “Kent had a new filter  
9 with a 90% efficiency for phenol and two days later was the Lorillard press release...” I am  
10 quoting Anderson’s description here, but the language is quite close to that of Lorillard’s  
11 actual press release.

12 **Q. What was Anderson’s title or position at BAT?**

13 A. Anderson was a scientist. He was neither the chief executive nor the chief counsel.  
14 Nonetheless, I am relying on Anderson’s presentation for two main reasons. First, as a  
15 scientist, he describes how difficult it was for BAT and its subsidiary Brown & Williamson  
16 to anticipate Lorillard’s announcement. Second, while it is unlikely that Anderson himself  
17 made policy decisions at BAT or Brown & Williamson, his presentation appears to  
18 accurately reflect company policy. In particular, he reads directly from a letter written by  
19 Brown & Williamson’s chief counsel, Addison Yeaman.

20 **Q. When Anderson refers to “a new filter with a 90% efficiency,” is he referring to the**  
21 **brand of Kent with the “Micronite filter,” to which you mentioned earlier?**

22 A. Yes. The brand with the “Micronite filter” trademark was originally introduced in 1952.

1 **Q. Were the other cigarette manufacturers aware in advance that Lorillard was going to**  
2 **make such an announcement?**

3 A. No. In fact, Mr. Anderson asks the meeting participants rhetorically, “Could we have seen  
4 what was going to happen? Obviously the answer is ‘Yes, it was all there.’ If we chose to  
5 read the right things and put the right bits together we could have predicted all that  
6 Lorillard said...”

7 **Q. Was BAT at least investigating the possibility that Wynder’s talk might be used as a**  
8 **basis for a product claim?**

9 A. Yes, Anderson describes on page 5 of this document how Brown & Williamson, its  
10 subsidiary in the United States, tried to track down suspected connections between Wynder,  
11 Lorillard, and specific chemical companies, including Celanese and Tennessee Eastman.

12 **Q. Did BAT regard Lorillard’s actions in the United States as cheating?**

13 A. At least the way Mr. Anderson describes it. I draw your attention to the following  
14 statement by Anderson on page 5 (Bates 107468735):

15 (Just a little digression here - B.A.T., as you know, has decided that  
16 all its biological research should be done on industry basis. If, in  
17 fact, this had been the case in this circumstance then Lorillard could  
18 not have come out with such pronouncements. This is a good reason  
19 for doing medical and biological research industrywide and it points  
20 out the danger which must be expected when any single firm goes it  
21 alone.)

22 Anderson is articulating the “danger” that arises from independent competitive conduct,  
23 that is, “when any single firm goes it alone.” From the economist’s standpoint, he is  
24 denouncing cheating as harmful to the industry. Anderson’s statement expresses a  
25 preference for the cooperative alternative, in which “biological research should be done on  
26 an industry basis.”

1 **Q. What specifically is the “danger” to which Anderson refers?**

2 A. I draw the Court’s attention to Anderson’s remarks on page 8 (Bates 107468737):

3 How important is phenol? There are two sides to this - the  
4 scientific side and the political attitude. Let’s be quite certain about  
5 this: the political implications have at the moment by far the greater  
6 importance and they have been summed up very adequately in a  
7 letter from Addison Yeaman, the lawyer at B. & W. Now that Lorillards  
8 have come right out into the open and made it publicly known that  
9 the connection between phenol and cilia activity, and because cilia  
10 activity goes back a long way and has been implicated in the cancer  
11 problem, the argument would run like this - I quote from Yeaman’s  
12 letter:

- 13 “1. The uninhibited movement of the cilia tends to eject  
14 from the lung (or impede entering into the lung)  
15 particulate matter.  
16 2. It is known that phenol inhibits the action of the cilia.  
17 3. It is known that phenol occurs in the inhaled smoke.  
18 4. It is now known that phenol content of smoke can, by  
19 use of certain additives in the filter, be very  
20 substantially reduced.

21 Query: In this state of knowledge is it negligence on the part  
22 of the cigarette manufacturer either  
23 (a) to fail to remove phenols, or,  
24 (b) to fail to warn consumers of the product of  
25 its potential danger?”

26 The quoted letter from Addison Yeaman, General Counsel at Brown & Williamson,  
27 articulates the “danger.” In particular, when one manufacturer independently introduces a  
28 cigarette modification that potentially reduces the harm from smoking, it could reflect  
29 negatively on the currently sold cigarettes of all manufacturers.

30 **Q. Did BAT intend to respond to Lorillard’s cheat by tit for tat?**

31 A. Not so far as Mr. Anderson was concerned. On page 15 (Bates 107468744), Anderson  
32 says, “We are committed not to carry out any biological testing ourselves and as I have said  
33 this is a valuable safeguard against unilateral action.”



1 **Q. As part of your economic analysis, can you interpret what Mr. Anderson meant by**  
2 **unilateral action?**

3 A. Independent competitive action contrary to the common interests of the collusive  
4 arrangement.

5 **Q. Did Lorillard simply issue a press release in May 1962 and take no further action?**

6 A. No. After the May 1962 press release, Lorillard persisted in advertising the health  
7 advantages of the phenol-reducing process in its new Micronite filter. In the fall of 1962,  
8 the company placed paid scientific advertisements in a number of medical publications, and  
9 played a film entitled “A Microphotography Demonstration of How Kent’s New  
10 Micronite Filter Reduces the Effect of Phenol in Cigarette Smoke in Cilia-Induced Mucus  
11 Flow (Excised frog esophagus)” at five medical conventions. In 1963, Lorillard issued a  
12 new advertisement in the journal Science Fortnightly. In correspondence between counsel  
13 defending smokers’ law suits, the latter advertisement raised concerns for exactly the  
14 reasons articulated in Yeaman’s memo.

15 **Q. Was Lorillard’s cheating on the agreement not to compete on health claims ultimately**  
16 **punished?**

17 A. Yes, but not by in-kind, tit-for-tat responses. Lorillard ultimately was forced to retract its  
18 advertisements by the threat of more draconian measures.

19 **Q. Please explain.**

20 A. That requires a reference to the Cigarette Advertising Code, which was established by  
21 voluntary agreement among Defendant manufacturers in April 1964.

22 **Q. How, if at all, was the Cigarette Advertising Code involved in the imposition of**  
23 **sanctions against Lorillard?**

1 A. Ultimately, in the fall of 1964, the Administrator of the Cigarette Advertising Code ruled  
2 provisionally that the registered trademark “Micronite” was an impermissible health claim  
3 under the newly established Code. The ruling, if carried through, could have created  
4 significant problems for Lorillard, as it had trademarks on “Micronite” not only in the  
5 United States, but in many other countries.

6 **Q. Was Lorillard ultimately compelled by the Administrator to remove the word**  
7 **“Micronite” from all its advertising in the United States?**

8 A. No. In a December 3, 1964 meeting of a committee of chief lawyers from each of the six  
9 major cigarette manufacturers - what came to be called the Policy Committee and even later  
10 the Committee of Counsel - Lorillard worked out a compromise with the other five  
11 manufacturers while the Administrator was on the speaker phone. In the compromise,  
12 Lorillard would be able to keep the word “Micronite” on the Kent package.

13 **Q. What is the basis for your testimony concerning the December 3, 1964 meeting at**  
14 **which Lorillard worked out a compromise?**

15 A. I turn your attention to United States Exhibit 58,887, which represents a memorandum to  
16 the file concerning the December 3, 1964 meeting. On the first page, the memorandum  
17 lists the names of the general counsel of the Defendant manufacturers, and describes the  
18 fact that Governor Meyner, the Administrator of the Code, was calling “the five  
19 companies” other than Lorillard. The memorandum then describes Lorillard’s compromise  
20 proposal.

21 **Q. Dr. Harris, as an economist applying the tools of oligopoly analysis, how would you**  
22 **interpret the “phenol” episode we have just discussed?**

1 A. The facts here - cheating, detection, sanctioning, and preservation of the cooperative  
2 arrangement - fit the economist's dynamic model of a collusive arrangement. In this case,  
3 Lorillard had an added incentive to cheat on the collusive arrangement because such  
4 cheating was difficult to detect in advance. Lorillard's cheating - through promotion of its  
5 Kent brand at the expense of other manufacturers' brands - required the company to  
6 explicitly publicize the potential role of phenols in the development of smoking-related  
7 diseases. As Yeaman's memo makes clear, Lorillard's publicizing of phenols could have  
8 placed all manufacturers at increased risk of liability in law suits. Eventually, the  
9 remaining manufacturers responded, through the vehicle of their voluntary Cigarette  
10 Advertising Code, by threatening to bar Lorillard's use of the trademark "Micronite."  
11 Faced with such a draconian measure, Lorillard had to accede to a compromise that  
12 ultimately preserved the collusive arrangement.

13 **Q. If Lorillard began to cheat in the spring of 1962 but wasn't ultimately punished until**  
14 **the fall of 1964, why didn't the collusive arrangement break down during the two-**  
15 **year interval?**

16 A. Like the Dear Doctor letter issued by United States Tobacco in 1957, the Lorillard press  
17 release of May 1962 was an attempt to secure a short-term advantage by using a third-party  
18 scientific report for product endorsement. As it turned out, the use of such third-party  
19 endorsements became a favored avenue for subsequent attempts at cheating. In particular,  
20 by relying on third parties' scientific findings, manufacturers could distance themselves  
21 from any admissions that smoking caused disease. Such short-term transgressions as the  
22 Dear Doctor letter and Lorillard's publicizing how Kent Micronite reduced phenols did not  
23 destabilized the collusive arrangement.

1 **Q. Dr. Harris, could the sequence of events that you described have been the result of**  
2 **conscious parallelism or tacit collusion?**

3 A. No. As I have testified, by late 1953 or early 1954, the major cigarette manufacturers  
4 including Lorillard had reached an explicit collusive arrangement to avoid making negative  
5 health claims about each other's cigarette brands. The May 1962 "phenol" press release  
6 was thus a violation of an explicit collusive arrangement that was already in place. The  
7 participating firms ultimately sanctioned the cheater through an explicit cooperative  
8 venture, the Cigarette Advertising Code. Such a sophisticated joint sanction, as opposed to  
9 simple in-kind tit-for-tat responses, would be difficult if not impossible to put into place in  
10 a world of conscious parallelism in the absence of an explicit collusive agreement.

11 **Q. Dr. Harris, did the consuming public benefit when Lorillard ceased touting the**  
12 **potential benefits of its filter additive in reducing phenols in cigarette smoke?**

13 A. No, when Lorillard discontinued such advertisements, including those in medical  
14 publications, the consuming public was deprived of information about the disease-causing  
15 role of a specific toxic substance in cigarette smoke and a possible means to reduce such a  
16 toxin.

17 ***G. The Davis Polk Meeting, August 21, 1963***

18 **Q. Dr. Harris, you mentioned the 1964 Surgeon General's Report as the work of an**  
19 **Advisory Committee of scientists that had been appointed in 1962 by then-Surgeon**  
20 **General Dr. Luther Terry. Was the fact that Dr. Terry had appointed an Advisory**  
21 **Committee on the public record prior to 1964?**

22 A. Yes. In fact, Liggett & Myers made a submission of data to the Advisory Committee during  
23 its deliberations.

1 **Q. I bring to your attention United States Exhibit 36,273, which is entitled**  
2 **“Memorandum for File September 3, 1963: Liggett & Myers Tobacco Co., Surgeon**  
3 **General’s Committee.” It begins, “On Wednesday, August 21, 1963, I attended a**  
4 **protracted conference of lawyers concerned with defense of cancer litigation in the**  
5 **tobacco industry.” The document appears to be authored by “F.P.H.” Do you know**  
6 **who the author is?**

7 A. I understand that this memorandum was taken from the files of Frederick P. Haas, who was  
8 General Counsel to Liggett & Myers.

9 **Q. Does the date of the meeting, August 21, 1963, have any significance in the history of**  
10 **smoking and health?**

11 A. The meeting occurred about four and half months before the issuance of the 1964 Report of  
12 the Surgeon General’s Advisory Committee, which was released on January 11, 1964.

13 **Q. To your knowledge, was the exact date of release of the Surgeon General’s 1964**  
14 **Report scheduled and published in advance?**

15 A. No. In fact, rumors about the date of completion of the Report, as this document states,  
16 ranged from November 1963 to March 1964.

17 **Q. Dr. Harris, what is your understanding as to the identities of the participants in the**  
18 **August 21, 1963 meeting referred to in this memorandum?**

19 A. As the document itself states, the participants constituted the “Ad Hoc Legal Committee on  
20 Tobacco Institute problems.” The members of this Ad Hoc Legal Committee who were in  
21 attendance included legal counsel representing R. J. Reynolds, Philip Morris, Lorillard, and  
22 Liggett & Myers, as well counsel representing the Tobacco Institute.

23 **Q. To your knowledge, were the lawyers in attendance employees of the respective firms?**

1 A. Not in all cases. For example, Frederick P. Haas was General Counsel of Liggett & Myers  
2 and Addison Yeaman was General Counsel for Brown & Williamson. By contrast, Edwin  
3 Jacob was outside counsel for R.J. Reynolds, Janet Brown was outside counsel for  
4 American Tobacco, and David Hardy was outside counsel for Philip Morris.

5 **Q. I would like to turn your attention to the following quotation from page 4 of this**  
6 **document, which reads as follows:**

7 **It was unanimously agreed that those in attendance would**  
8 **recommend to their respective principals that if there was to be a**  
9 **statement after the Surgeon General's report was made public, it**  
10 **should be an industry statement rather than separate statements**  
11 **by one or more companies. This would obviate the possibility**  
12 **that a statement by one company might be inconsistent with that**  
13 **made by another.**

14 **Dr. Harris, as an economist analyzing the conduct of the tobacco industry, is the**  
15 **quoted statement more consistent with independent competitive behavior or**  
16 **collusion?**

17 A. The statement is inconsistent with independent competitive behavior and consistent with  
18 collusive behavior. Under collusion, an economist would expect firms to agree to prevent  
19 each other from making individual, inconsistent statements that might harm their common  
20 interests. Under competition, by contrast, an economist would expect to observe firms  
21 unable to constrain each other's statements in such a fashion.

22 **Q. I draw your attention to another statement on page 5 of this document, where I quote:**

23 **There was a brief discussion as to whether the companies should**  
24 **voluntarily consider inserting a warning on package labeling.**  
25 **The consensus of opinion was that the industry could best shelter**  
26 **itself in litigation after such a warning were imposed on them by**  
27 **legislation or otherwise, and that a voluntary warning might**  
28 **encourage litigation (because it could be alleged that this was a**

1                   **recognition of risk), and that it might in any event encourage**  
2                   **anti-smoking legislation.**

3                   **Dr. Harris, as an economist, do you find this assertion more consistent with**  
4                   **independent competitive behavior, or with collusion?**

5           A.     I find this statement consistent with collusion and inconsistent with competition. The  
6           situation is analogous to my earlier testimony concerning manufacturers' joint denial of  
7           causation. In this meeting, lawyers representing the Defendant cigarette manufacturers  
8           agreed, at least for the time being, not to issue voluntary warnings that might be construed  
9           as admissions of causation. It was believed that if any one participant issued a voluntary  
10          warning, the implied admission could hurt the chances of all the manufacturers in lawsuits.  
11          Thus, the firms agreed to act cooperatively in their common interest, which was to avoid  
12          exposure in the courtroom. By contrast, under independent competitive behavior, tobacco  
13          companies would seek to develop reduced-risk products, issuing warnings that the earlier  
14          generation of products - including those sold by competitors - are more dangerous.

15          **Q.     Dr. Harris, does the foregoing passage bear upon your conclusion that avoidance of**  
16          **legal liability represented a common interest of Defendant cigarette manufacturers?**

17          A.     Yes. The most serious such risk to the tobacco companies was the possibility that an  
18          admission of causation by any manufacturer might trigger an avalanche of suits.

19          **Q.     Is the risk of an “avalanche of suits” simply your own observation as an economist?**

20          A.     No, there is other evidence that Defendant manufacturers and their lawyers were keenly  
21          aware of this risk, and that it was a major determinant of joint policy.

22          **Q.     We'll return to that issue shortly. I turn your attention to the middle of page 5 of this**  
23          **document, beginning with the sentence “Discussion then turned to a draft (Version 3)**

1           **of a possible ad to be run by the Tobacco Institute entitled Unanswered Questions in**  
2           **the Anti-Smoking Attacks...” What do you understand to be the topic of the**  
3           **discussion?**

4           A.     The participants were considering running an advertisement under the auspices of the  
5           Tobacco Institute that would challenge the scientific conclusions of the Surgeon General’s  
6           Advisory Committee.

7           **Q.     Please turn to the last paragraph on page 6. Would you read the paragraph for the**  
8           **Court?**

9           A.     The author of this memorandum, Frederick P. Haas, General Counsel of Liggett, wrote:

10                   The undersigned made the suggestion that there should be some  
11                   reference in the box entitled What the Industry Is Doing indicating  
12                   that individual tobacco companies have spent large sums  
13                   investigating the issue in their own laboratories above and beyond  
14                   the expenditures by T.I.R.C. Apparently there is some resistance to  
15                   this by reason of the fact that some of the companies have not  
16                   conducted such research.

17           **Q.     What does the “box” refer to?**

18           A.     The “box” refers to a proposed inset in the draft advertisement. Mr. Haas suggested that  
19           the inset refer to the companies’ individual investments in research, above and beyond their  
20           joint contribution to the TIRC.

21           **Q.     Dr. Harris, you mentioned that Liggett had performed its own research on smoking**  
22           **and health and had made a submission of data to the Surgeon General’s Advisory**  
23           **Committee during that Committee’s deliberations. Would that be an example of a**  
24           **company’s individual investment in research?**

25           A.     Yes, it would.

26           **Q.     What did Liggett do?**



1 A. Soon after the 1953 Sloan-Kettering report on the carcinogenicity of cigarette tars, Liggett  
2 entered into a research contract with Arthur D. Little, Inc., which soon replicated the results  
3 of the Sloan-Kettering study and verified that cigarette smoke contained carcinogenic  
4 compounds such as benzo(a)pyrene. Subsequently, Liggett had offered to submit some of  
5 the Arthur D. Little research findings to the Surgeon General's Advisory Committee, which  
6 was still deliberating in the fall of 1963.

7 **Q. In the view of Mr. Haas, did the other cigarette manufacturers make significant**  
8 **individual investments into research on smoking and health?**

9 A. No.

10 **Q. As an economist, would you regard the other cigarette manufacturers' failure to make**  
11 **such individual investments consistent with independent arm's length competition?**

12 A. No. An economist would have expected competitive manufacturers to have made their  
13 own individual investments in research, including during the time period up to the 1964  
14 Surgeon General's Report.

15 **Q. Please restate for the Court, in light of your conclusions, what the Defendant**  
16 **companies had promised to the American public about research in the Frank**  
17 **Statement of January 4, 1954.**

18 A. They stated, in part, "1. We are pledging aid and assistance to the research effort into all  
19 phases of tobacco use and health. This joint financial aid will of course be in addition to  
20 what is already being contributed by individual companies."

21 **Q. Did the tobacco companies ever issue a public statement retracting all or part of the**  
22 **Frank Statement?**

23 A. No, not to my knowledge.

1 **H. Tobacco Institute Executive Committee, January 12, 1964**

2 **Q. Dr. Harris, I call your attention to United States Exhibit 22,682, which is a**  
3 **memorandum signed by F.P.H. addressed to Mr. Toms, dated January 13, 1964. The**  
4 **memorandum begins, “A meeting of the Tobacco Institute Executive Committee was**  
5 **held on Sunday, January 12, 1964...” Do you have the same understanding**  
6 **concerning the initials of the author, “F.P.H.?”**

7 A. I understand that this memorandum was likewise taken from the files of Frederick P. Haas,  
8 General Counsel to Liggett & Myers.

9 **Q. Does the date of the meeting, January 12, 1964, have any significance in the history of**  
10 **smoking and health?**

11 A. It is the day after issuance of the 1964 Report of the Surgeon General’s Advisory  
12 Committee, which was released on January 11.

13 **Q. Do the participants in fact discuss the 1964 Surgeon General’s Report?**

14 A. Yes, they do.

15 **Q. The first page of this memorandum mentions Bowman Gray. Do you know who**  
16 **Bowman Gray is?**

17 A. Bowman Gray Jr. had become had become President of R.J. Reynolds Tobacco Company  
18 in 1957 and Chairman of the Board in 1959.

19 **Q. Dr. Harris, is there any particular quotation from this memorandum that you wish to**  
20 **bring to the attention of the Court?**

21 A. Yes. I quote from the first page:

22 Mr. Gray stated that his initial analysis of the Report of the Advisory  
23 Committee to the Surgeon General on Smoking and Health indicated  
24 that it cuts off a number of the answers which the industry has used

1 to advantage on the question. It is considered to be of prime  
2 importance that the industry maintain a united front and that if one or  
3 more companies were to conduct themselves as a matter of self-  
4 interest, particularly in advertising, obvious vulnerability would be  
5 the result.

6 **Q. Dr. Harris, as an economist, what significance, if any, does this passage have to your**  
7 **analysis of the conduct of cigarette manufacturers in respect to smoking and health?**

8 A. The statements concerning the prime importance of maintaining a “united front” are  
9 consistent with collusive conduct and inconsistent with independent competitive conduct.

10 **Q. Please explain how economic principles led you to this conclusion.**

11 A. Again, Mr. Gray urges “united” action, as opposed to one or more companies acting  
12 individually out of “self-interest.” We have once again encountered the basic tension  
13 between independent action and cooperative action. The participants in the meeting of the  
14 executive committee of the industry’s trade organization are urged to take actions that they  
15 would find beneficial only if all of the firms acted together in the group’s interest. Taking  
16 the evidence as a whole, I interpret the phrase “obvious vulnerability” to mean that the  
17 tobacco companies believed that an admission by any one firm, as part of an attempt to  
18 attain a competitive advantage over the others, would make the entire industry vulnerable.

19 **Q. Based on your economic analysis, is there any reason to conclude that this “united**  
20 **front” was the result of conscious parallelism or tacit collusion?**

21 A. No. The Executive Committee meeting in 1964 represented direct communication and  
22 explicit agreement among the firms in the industry. Those who directly communicated  
23 with each other in this meeting included the President of Philip Morris (Joseph F. Cullman  
24 III), the President and CEO of R.J. Reynolds (Gray), the General Counsel of Liggett (Haas),  
25 the President of the Tobacco Institute (George Allen), the President and CEO of Lorillard

1 (Morgan J. Cramer), the Chairman of American Tobacco Company (Robert B. Walker),  
2 and the President of Brown & Williamson (Edwin P. Finch). What is more, the issuance of  
3 the 1964 Surgeon General's Report is an example of the type of instability in the business  
4 environment that would make it quite difficult for participating oligopolists to infer how to  
5 adapt their specific strategies so as to maintain their joint interest.

6 **Q. Is there any evidence that the participants abided by the Bowman Gray proposal to**  
7 **act as a "united front?"**

8 A. Yes, the memorandum, on page 2, discusses the specific intentions of the participants,  
9 including Cullman of Philip Morris, Cramer of Lorillard, Allen of the Tobacco Institute,  
10 and Finch of Brown & Williamson, to make no further independent statements. Walker,  
11 Chairman of American Tobacco, forewarned the participants about "a statement he had to  
12 make with regard to his new brand on Thursday, January 23, 1964."

13 **Q. When the chairman of one major cigarette seller forewarns the chief executives of**  
14 **other major cigarette sellers in a joint meeting that he plans to make a statement**  
15 **about his new brand, does that action suggest independent competitive rivalry?**

16 A. No. From the economist's standpoint, it is inconsistent with competitive rivalry.

17 **Q. Dr. Harris, you referred previously to evidence that cigarette manufacturers were**  
18 **concerned about the risks of individual smokers prevailing in lawsuits, and that**  
19 **admissions of causation would indeed hurt their chances of successfully defending**  
20 **such lawsuits. Is there any support for your prior observation in this document?**

21 A. Yes. On page 5, the writer, Mr. Haas, notes that the Surgeon General's Report is "a ready  
22 source of material for plaintiff's counsel." On page 7, he memorializes his concerns about

1 the difficult that “the industry” may have in obtaining expert witnesses as a result of the  
2 issuance of the Report.

3 ***I. Wakeham Memo on the Surgeon General’s Report, February 1964***

4 **Q. Dr. Harris, I draw your attention to United States Exhibit 22,986, a report from the**  
5 **Philip Morris Research Center, entitled “Smoking and Health: Significance of the**  
6 **Report of the Surgeon General’s Committee to Philip Morris Incorporated,” dated**  
7 **February 18, 1964. On the last page, the report is signed by H. Wakeham. Dr.**  
8 **Harris, who was H. Wakeham?**

9 A. From 1961-1965, a time period that covers the date of this report, it is my understanding  
10 that Helmut R. Wakeham was a scientist and Vice President for Research and Development  
11 at Philip Morris Incorporated.

12 **Q. To whom was this Report addressed?**

13 A. From the face page, we know that Hugh Cullman was on the distribution list.

14 **Q. Who was Hugh Cullman?**

15 A. From 1960-1964, Hugh Cullman was Assistant Chief of Operations at Philip Morris  
16 Incorporated. During 1964, Mr. Cullman became Executive Vice President of Philip  
17 Morris International and was elected to the Board of Directors of Philip Morris Companies.

18 **Q. Dr. Harris, is there anything in this document that you wish to bring to the attention**  
19 **of the Court as relevant to your analysis?**

20 A. Yes. I first call your attention to the text on page 1, with the heading “Introduction and  
21 Summary”:

22 The onus of proof has been moved by the report from its usual  
23 position with the industry’s accusers to the tobacco industry itself.  
24 Meeting this challenge affords Philip Morris a splendid opportunity

1 to gain a competitive edge through effective technical activity.  
2 Positive programs to cure ills cited in this report, whether real or  
3 alleged, are recommended, as little basis for disputing the findings at  
4 this time has appeared.

5 Wakeham then goes on to recommend a number of steps, including “liaison with a medical  
6 school,” increased laboratory study of “chemical carcinogenesis of smoke,” and the  
7 “development by year end of a superior filter cigarette with acceptable taste...”

8 **Q. Dr. Wakeham wrote that “little basis for disputing the findings” of the Surgeon  
9 General’s Report of January 1964 had thus far emerged. Was that the public position  
10 of Philip Morris?**

11 A. No. The major cigarette manufacturers, through the Tobacco Institute and Tobacco  
12 Industry Research Committee, had issued joint statements disputing the conclusion of the  
13 1964 Surgeon General’s Report that cigarette smoking caused lung cancer. In the above  
14 demonstrative on “Individual and Joint Denials by Defendant Manufacturers that Cigarette  
15 Smoking Caused Any Disease,” I have quoted Joseph F. Cullman III, Chairman and CEO  
16 of Philip Morris in 1971, as stating in that year, “...if any ingredient in cigarette smoke is  
17 identified as being injurious to human health, we are confident that we can eliminate that  
18 ingredient.”

19 **Q. Dr. Harris, Dr. Wakeham refers to Philip Morris’ “opportunity to gain a competitive  
20 edge” through the specific research and development programs that you mentioned.  
21 At the end of the same page, I see that the “superior filter cigarette” which Dr.  
22 Wakeham proposed for development was to be “advertised vigorously.” How would  
23 you, as an economist, characterize the plan that Dr. Wakeham has recommended?**

1 A. Dr. Wakeham’s assertion needs to be viewed in the context of the following portion of the  
2 same document, which I quote from the bottom of page 2 and continuing on page 3:

3 Competitive pressures suggest a break up of the common front  
4 approach of the industry through TI and TIRC. While R.J. Reynolds  
5 continues to advocate a joint front, sit tight, status quo approach (it  
6 has the most to lose from any change in status quo), others like  
7 American and Liggett and Myers, sanguine for improved competitive  
8 positions, show signs of bolting and have capitalized with their new  
9 products on early reactions to the report. The greater the longer term  
10 market impact of the report, the more intense will there be health  
11 competition, which is to say technical competition, among major  
12 tobacco companies.

13 **Q. How does this portion of the document help you, as an economist, characterize the**  
14 **plan that Dr. Wakeham has recommended?**

15 A. Dr. Wakeham uses the phrase “common front approach of the industry through TI and  
16 TIRC” to describe the collusive arrangement that prevailed at least up to the issuance of the  
17 Surgeon General’s Report. He states that R.J. Reynolds advocated continuation of the  
18 collusive arrangement through “a joint front, sit tight, status quo approach.” In addition,  
19 Dr. Wakeham anticipates the possibility that the collusive arrangement might dissolve. In  
20 particular, he suggests that two firms, American Tobacco and Liggett & Myers, may  
21 already be in the process of abandoning the collusive arrangement. In fact, he broaches the  
22 possibility that Philip Morris, too, might introduce and vigorously advertise its own  
23 “superior filter cigarette.”

24 **Q. Dr. Wakeham states that R.J. Reynolds “has the most to lose from any change in**  
25 **status quo...” Do you, as an economist, attach any significance to that statement?**

26 A. As I testified previously, R.J. Reynolds had the largest market share in 1964. An economist  
27 would thus agree with Dr. Wakeham’s assessment that R.J. Reynolds would have the most

1 to gain from continuation of the collusive arrangement and the most to lose from its  
2 dissolution.

3 **Q. In economic terms, is Dr. Wakeham recommending that Philip Morris cheat from the**  
4 **collusive arrangement?**

5 A. It would be more accurate to say that Dr. Wakeham expects other firms in the oligopoly to  
6 cheat and, if so, he recommends that Philip Morris cheat first.

7 **Q. Dr. Harris, on page 8, Dr. Wakeham states, “The industry should abandon its past**  
8 **reticence with respect to medical research.” As an economist, how do you interpret**  
9 **this assertion?**

10 A. Up to that time, cigarette manufacturers had an agreement not to engage in biological  
11 research testing within their premises. The agreement was described in some internal  
12 company documents as the “gentleman’s agreement.”

13 ***J. Report on Policy Aspects of the Smoking and Health Situation in U.S.A., October***  
14 ***1964***

---

15 **Q. We’ll return to the “gentleman’s agreement” shortly. Dr. Harris, I direct your**  
16 **attention to United States Exhibit 20,152, a document entitled “Report on Policy**  
17 **Aspects of the Smoking and Health Situation in U.S.A.,” dated October 1964, and**  
18 **signed by P.J.R. and G.E.T. The “Introduction,” beginning on page 1, states, “We**  
19 **were in U.S.A. from 10th September to 15th October 1964...” Do you know, Dr.**  
20 **Harris, what this “Report” represents?**

21 A. Like the “1958 Report on Visit to U.S.A. and Canada,” this Report represents the  
22 observations of British observers of the smoking and health situation in the United States,



1 based upon interviews with numerous individuals inside and outside cigarette  
2 manufacturing firms.

3 **Q. Dr. Harris, in your economic analysis of the conduct of cigarette manufacturers, did**  
4 **you find any passages from this Report that were worthy of attention?**

5 A. Yes, I did. I call your attention first to page 3, Section II, "Legal Matters":

6 In the U.S., by far the most important factor conditioning action by  
7 the manufacturers is the law suit situation and the danger of costly  
8 damages being awarded against the manufacturers in a flood of  
9 cases.

10 This assertion accords with my earlier statement that manufacturers themselves were  
11 concerned about the risk of an "avalanche" of lawsuits.

12 **Q. Dr. Harris, did you find any other passages that were worthy of attention?**

13 A. Yes, I quote from the same paragraph on page 3:

14 The leadership in the U.S. smoking and health situation therefore lies  
15 with the powerful Policy Committee of senior lawyers advising the  
16 industry, ... the Policy Committee of lawyers exercises close over all  
17 aspects of the problems.

18 and also from the beginning of the last paragraph on page 6:

19 In consequence of the importance of the lawsuits, the main power in  
20 the smoking and health situation undoubtedly rests with the lawyers,  
21 and more particularly with the Policy Committee of lawyers.

22 **Q. Dr. Harris, who belonged to the Policy Committee?**

23 A. The answer to your question is delineated on page 7. The Policy Committee consisted of  
24 six attorneys, one representing each of the six major cigarette manufacturers. It included  
25 Henry Ramm of R.J. Reynolds, Cy Hetsko of American Tobacco, Addison Yeaman of  
26 Brown & Williamson, Paul Smith of Philip Morris, Fred Haas of Liggett, and John Russell  
27 of Lorillard.

1 **Q. Were the lawyers in the Policy Committee employees of their respective companies?**

2 A. Yes. All of the members were either senior counsel or general counsel, and thus  
3 employees, of their respective companies.

4 **Q. Dr. Harris, did you find any other passages that were relevant to your economic  
5 analysis?**

6 A. I continue to quote from page 7:

7 This Committee is extremely powerful; it determines the high policy  
8 of the industry on all smoking and health matters - research and  
9 public relations matters, for example, as well as legal matters - and it  
10 reports directly to the Presidents. The Committee is particularly  
11 concerned with possible Congressional legislation and it drew up the  
12 Cigarette Advertising Code.

13 **Q. Dr. Harris, what is the significance, if any, of the quoted sentences?**

14 A. At the time this Report was written, about nine months after the issuance of the 1964  
15 Surgeon General's Report, there existed a specific channel of communication among the  
16 Presidents of the six major cigarette sellers. That is, the Presidents communicated to their  
17 respective in-house chief lawyers, who then communicated with each other. The Report  
18 repeatedly emphasizes that the Policy Committee was not a passive, do-nothing entity.

19 **Q. Dr. Harris, you mentioned the Cigarette Advertising Code earlier in connection with  
20 the "phenol" episode. What was the Cigarette Advertising Code?**

21 A. The publicly stated purpose of the Advertising Code, which was announced by cigarette  
22 manufacturers on April 27, 1964, and to which the major cigarette manufacturers  
23 voluntarily subscribed, was to "establish uniform standards for cigarette advertising."  
24 According to the Code, all cigarette advertisements were first to be submitted to an  
25 Administrator for clearance. The Code, which is United States Exhibit 21,228, provided

1 that, with certain exceptions, “No cigarette advertising which makes a representation with  
2 respect to health shall be used...”

3 **Q. What were the exceptions?**

4 A. Either the health representation was significant and backed up by sound science, or the  
5 representation was accompanied by an adequate disclaimer, or the representation was  
6 immaterial. These exceptions are given in Article IV, Section 2 on pages 5-6 of the Code.

7 **Q. Dr. Harris, from the point of view of an economist analyzing the conduct of the  
8 cigarette industry, was the industry’s adoption of the Advertising Code an instance of  
9 a cooperative arrangement or independent behavior?**

10 A. A cooperative arrangement. It was drafted by the Policy Committee, principally by Henry  
11 Ramm, of R.J. Reynolds.

12 **Q. Which cigarette manufacturer had the largest market share in 1964, Dr. Harris?**

13 A. That information is given in United States Exhibit 20,152, “Report on Policy Aspects of the  
14 Smoking and Health Situation in U.S.A.,” which we are now considering. The table on  
15 page 27 shows that R.J. Reynolds had the largest market share.

16 **Q. How is that related to your earlier testimony?**

17 A. In my general discussion of oligopoly incentives earlier, and in my specific discussion of  
18 the events surrounding the December 1953 meetings of manufacturers in New York, I  
19 testified that the firm with the largest market share had the most to lose from independent,  
20 competitive action and the most to gain from maintaining a collusive arrangement.

21 **Q. Is your testimony that R.J. Reynolds had the largest market share in 1964 consistent  
22 with that proposition?**

23 A. Yes.

1 **Q. Why?**

2 A. In this case, Mr. Ramm, general counsel for the cigarette company with the largest market  
3 share, drafted the Advertising Code.

4 **Q. Dr. Harris, from the economic standpoint, please explain how the foregoing**  
5 **provisions of the 1964 Cigarette Advertising Code differ, if at all, from the objective**  
6 **stated in the 1953 Hill & Knowlton “Forwarding Memorandum,” which was to**  
7 **“Develop some understanding with companies that, on this problem, none is going to**  
8 **seek a competitive advantage by inferring to its public that its product is less risky**  
9 **than others.”**

10 A. The provisions of the 1964 Code, particularly the exceptions, suggest that its facial purpose  
11 was to ensure accuracy in cigarette advertising. There is evidence, however, that Code was  
12 in fact exploited for precisely the purpose articulated in the 1953 memorandum. In fact, on  
13 December 3, 1964, the Administrator of the Code called the lawyers representing the five  
14 companies other than Lorillard during a meeting of the Policy Committee. During that call,  
15 with the Administrator on the speaker phone, the Policy Committee worked out a  
16 compromise that permitted Lorillard to retain the term “Micronite Process” rather than  
17 “Micronite filter” on its package, but delete “Micronite” from its advertising. I refer you  
18 back to United States Exhibit 58,887.

19 **Q. Dr. Harris, from the economic standpoint, please explain how the foregoing**  
20 **provisions of the 1964 Cigarette Advertising Code differ, if at all, from the objective**  
21 **stated in the 1957 note from Joseph F. Cullman III of Philip Morris to the Chairman**  
22 **of the Tobacco Industry Research Committee, which was that no firm “make**  
23 **damaging statements about competitive brands.”**

1 A. Despite its facial purposes, the Cigarette Advertising Code was exploited to prevent  
2 manufacturers from making self-interested, competitive health claims that would work to  
3 the detriment of the industry as a whole. The Code was exploited to accomplish, as Mr.  
4 Cullman put it, what “we have been trying to accomplish in the industry in the past four  
5 years.”

6 **Q. Dr. Harris, United States Exhibit 20,152, on page 7, refers to an “Ad Hoc Group” set  
7 up to assist the Policy Committee. What is the Ad Hoc Group?**

8 A. Although the two membership lists are not identical, it appears to be the same entity as the  
9 “Ad Hoc Legal Committee on Tobacco Institute problems” that met on August 21, 1963, as  
10 described in United States Exhibit 36,273.

11 **Q. Are the members of the “Ad Hoc Group” in October 1964 all lawyers?**

12 A. Yes.

13 **Q. Are the members all employees of various companies?**

14 A. No, some are outside counsel.

15 **Q. According to page 7 of the October 1964 document, what was the “Ad Hoc Group”  
16 concerned with?**

17 A. Among the listed areas of concern, I specifically draw your attention to two items. The first  
18 is: “(3) Clearing papers (e.g., Dr. Little’s annual report).”

19 **Q. Who is Dr. Little?**

20 A. As I have already testified, he was the first scientific director of the Tobacco Industry  
21 Research Committee.

22 **Q. Could you recall for the Court how the Frank Statement described the scientific  
23 director who was to be chosen for the newly formed TIRC?**

1 A The Frank Statement said, “In charge of the research activities of the Committee will be a  
2 scientist of unimpeachable integrity and national repute.”

3 **Q. Dr. Harris, you testified that you wanted to draw attention to a second area of**  
4 **concern of the “Ad Hoc Committee.” What was it?**

5 A. I quote from page 7: “(5) Making certain that no assurances of any kind relating to the  
6 safety of smoking are given by any manufacturers (e.g., in advertisements).”

7 **Q. You have testified that there existed a committee of lawyers, established in turn by the**  
8 **general counsel of the major cigarette manufacturers, who was responsible for**  
9 **making certain that no manufacturer make assurances of safety in its advertisements.**  
10 **Dr. Harris, is this more consistent with collusion or arm’s length competition?**

11 A. Collusion. Like the Cigarette Advertising Code, this specific area of concern of the Ad  
12 Hoc Group was to prevent manufacturers from making self-interested, competitive health  
13 claims that would be detrimental to the industry as a whole.

14 **Q. Dr. Harris, do you want to draw attention to any other passages in this document?**

15 A. I call your attention to a passage on page 8, under “Implied Admissions:”

16 Implied admissions that cigarettes may be harmful, when made by  
17 any manufacturer, are immediately criticized by their competitors as  
18 capable of being damaging in law suits.

19 **Q. How is this assertion relevant to your conclusions?**

20 A. This assertion supports my earlier conclusion that Defendants believed that if one company  
21 made an admission that smoking caused disease, such an admission could hurt the others’  
22 chances of a successful defense in court.

23 **Q. Dr. Harris, do you want to draw attention to any other passages in this document?**

1 A. I further call your attention to the following passage in the last paragraph of page 8:

2 Mr. Hetsko replied that publication of tar and nicotine figures was “a  
3 bridge they had to cross.” A.T. Co. had done it because publication  
4 of tar and nicotine figures by Readers’ Digest, etc., had created a  
5 public demand for cigarettes low in those.

6 **Q. How is this passage relevant to your conclusions?**

7 A. The assertion accords with my earlier statement that the Defendants’ cooperative  
8 arrangement had to adapt to the repeated publication of numerical tar and nicotine ratings.  
9 It was, as Mr. Hetsko put, it, a “bridge they had to cross.” As I noted, Defendant  
10 participants continued to compete on “the numbers,” but still sought jointly to avoid any  
11 explicit claims about the health significance of such ratings or any claims that competitors’  
12 brands were unhealthy.

13 **Q. Dr. Harris, in your general discussion of the economics of competition versus**  
14 **collusion, you referred to the “scope” of a cooperative agreement. In what way, if at**  
15 **all, does your prior conclusion bear on issues of scope?**

16 A. Independent publications such as Reader’s Digest fueled consumer demand for tar and  
17 nicotine ratings. Defendant cigarette manufacturers responded to this change in the  
18 business environment by carving out competition on tar and nicotine ratings from their  
19 collusive agreement. However, other product health claims that might adversely affect the  
20 industry as a whole were still, by agreement, to be avoided. As I testified earlier, these  
21 adaptations are much easier to accomplish through explicit rather than tacit cooperation.

22 **Q. Dr. Harris, do you want to draw attention to any other passages in this document?**

1 A. Yes, I call your attention to the “dilemma posed by the law suits” with respect to decisions  
2 about smoking and health research, as discussed on page 15 of the document. The  
3 document notes that manufacturers have to choose between:

- 4 (a) Doing no smoking and health research and being represented  
5 in law suits as negligent (although “to meet public concern”,  
6 they finance CTR and AMA research)  
7 (b) Doing smoking and health research and being forced to admit  
8 in law suits that their experiments have caused cancer in  
9 animals and yet that they have made no changes in tobacco  
10 smoke to eliminate the tumours.

11 The manufacturers have chosen (a), except for L & M’s  
12 research through A.D. Little Co., but competition has forced them to  
13 adopt some short term forms of health research.

14 All the manufacturers are doing chemical research. Most of  
15 it is for commercial and quality purposes. Nevertheless, some of it is  
16 for smoking and health purposes - e.g. to enable them to alter quickly  
17 the constituents of smoke if this should be required.  
18  
19

20 And on the following page, I call your attention to:

21 The basic point is, however, that the biological research, except  
22 possibly for some work by A.D. Little Co. for L & M, is short-term  
23 and not cancer research, primarily for the legal reasons mentioned  
24 above.

25 **Q. What is CTR?**

26 A. Council for Tobacco Research, the successor organization to the Tobacco Industry  
27 Research Committee. Like TIRC, the CTR sponsored scientific research.

28 **Q. What type of research did CTR generally support?**

29 A. As the writer of Exhibit 20,152 notes on page 18, “As we know, CTR supports only  
30 fundamental research of little relevance to present day problems.”

31 **Q. What is AMA?**



1 A. The American Medical Association. Starting in 1963 or 1964, cigarette manufacturers  
2 sponsored research at the AMA through a Program on Tobacco and Health at the American  
3 Medical Association Education and Research Foundation or “AMA-ERF.”

4 **Q. What is A.D. Little?**

5 A. Arthur D. Little Company had been performing biological testing for Liggett & Myers since  
6 1954.

7 **Q. Dr. Harris, from the standpoint of an economist, how would you describe the**  
8 **“dilemma posed by the law suits,” as articulated by the British observers in this**  
9 **Report?**

10 A. There was a growing scientific need for biological tests, including long-term tests in living  
11 animals, to assess whether various modifications of cigarette design might reduce the harm  
12 from smoking. For example, the mouse skin painting model for cancer had been elaborated  
13 considerably since it was published by the Sloan-Kettering group in 1953. Without such  
14 long-term animal models, it would be difficult for a manufacturer to make significant  
15 headway in developing a less hazardous cigarette. The strategic problem faced by the  
16 cigarette manufacturers, however, was that they had already agreed jointly to deny that  
17 cigarette smoking caused any disease. If Defendant manufacturers relied upon such long-  
18 term biological tests to compare the smoke from cigarettes as currently marketed to  
19 proposed alternatives, they would undoubtedly obtain results supporting the view that their  
20 current products caused cancer. Thus, the collusive agreement to deny that smoking caused  
21 disease gave manufacturers a strong incentive to avoid in-house biological research that  
22 might yield evidence about the adverse health effects of their existing brands.

1 **K. Operations Department Presentation to the Philip Morris Board of Directors,**  
2 **October 1964**

---

3 **Q. Dr. Harris, I call your attention to the statement by the British observers, on page 15**  
4 **of Exhibit 20,152, that “competition has forced them to adopt some short term forms**  
5 **of health research.” Do you have any understanding of what the writer is referring**  
6 **to?**

7 A. Yes. The author is referring to the fact that some companies were in fact performing some  
8 forms of in-house biological research.

9 **Q. Upon what do you base this conclusion?**

10 A. United States Exhibit 20,092, entitled “Operations Department Presentation to Philip  
11 Morris Board of Directors, October 28, 1964, Research and Development.”

12 **Q. Dr. Harris, do you know who made this presentation to the Board of Directors?**

13 A. The author is not identified within the document. Philip Morris’ online document archive  
14 indicates that this copy of the document was taken from the files of Helmut R. Wakeham,  
15 who was Vice President for Research & Development of Philip Morris Incorporated at the  
16 time.

17 **Q. Is there any portion of this document that you wish to bring to the Court’s attention**  
18 **that would assist you in explaining to the Court the basis for your understanding that**  
19 **some companies were in fact performing some forms of in-house biological research?**

20 A. Yes. I would like to bring three portions of this document to the Court’s attention. First, I  
21 quote from the bottom of the first page, continuing onto page 2:

22 Two years ago, in anticipation of a health crisis to be precipitated by  
23 the Smoking and Health Report of the Surgeon General’s  
24 Committee, we undertook to develop a physiologically superior  
25 product. For this we pioneered with the aid of two competent

1 outside biological laboratories in the establishment of two new test  
2 methods involving the effects of cigarette smoke on (1) in vivo  
3 mucus flow and (2) respiratory dynamics. Our strategy here was that  
4 if we could define new acceptable criteria by which physiological  
5 performance of a cigarette would be judged, and then develop a  
6 product or products meeting these criteria, we stood an excellent  
7 chance of having our product be best in the market and receive  
8 valuable outside endorsement.

9 With these tests as criteria we did put together a charcoal filter  
10 product with performance superior to anything in the market place.  
11 That product was known as Saratoga. Physiologically it was an  
12 outstanding cigarette. Unfortunately then after much discussion we  
13 decided not to tell the physiological story which might have appealed  
14 to a health conscious segment of the market. The product as test  
15 marketed didn't have good "taste" and consequently was  
16 unacceptable to the public ignorant of its physiological superiority.

17 **Q. Dr. Harris, when the writer says that "Two years ago, in anticipation of a health crisis**  
18 **to be precipitated by the Smoking and Health Report of the Surgeon General's**  
19 **Committee...,” what is he referring to?**

20 A. The chronology is summarized in Chapter 1 of the 1964 Surgeon General's Report, which  
21 is United States Exhibit 64,057. In June 1961, the presidents of the American Cancer  
22 Society, the American Heart Association and other organizations wrote to President John F.  
23 Kennedy, urging him to form a commission to address the tobacco problem. In January  
24 1962, Surgeon General Luther Terry, shortly after meeting with the organizations, proposed  
25 the formation of an advisory committee. In March 1962, the Royal College of Physicians  
26 in Britain issued its report on smoking and health. In June 1962, Terry formally announced  
27 the formation of the Advisory Committee.

28 **Q. Does this paragraph from the presentation to the Philip Morris Board of Directors**  
29 **explain the British observers' comment, on page 15 of United States Exhibit 20,152,**  
30 **that "competition has forced them to adopt short term forms of health research?"**

1 A. Let me first focus on the phrase “short term forms of health research.” The presentation  
2 before the Philip Morris Board describes two tests: (1) in vivo mucus flow and (2)  
3 respiratory dynamics. These were indeed short-term biological tests performed on  
4 laboratory animals. That is, they were not long-term exposure studies to determine  
5 whether, over a period of several months, the exposed animals developed cancers. Such  
6 long-term studies were part of what the British observers called “cancer research” in their  
7 October 1964 report. Two years earlier, in May 1962, Lorillard had taken advantage of the  
8 results of a related but different short-term biological test by Dr. Wynder in order to bolster  
9 a claim that its newly modified Kent Micronite filter could reduce phenols in cigarette  
10 smoke. The presentation before the Philip Morris Board of Directors indicates that, around  
11 the same time, Philip Morris sought to develop its own short-term tests in order to support  
12 its own product claims. Just as Lorillard capitalized on the reputation of Wynder, who was  
13 not an internal company scientist, so Philip Morris sought to “receive valuable outside  
14 endorsement” for its own short-term biological tests.

15 **Q. In their October 1964 report, the British observers stated that “competition has**  
16 **forced” the companies in the United States to undertake such short-term testing. As**  
17 **an economist, how do you interpret the British observers’ statement?**

18 A. While the British observers’ statement, taken by itself, might be interpreted to mean that, at  
19 least during 1962-1964, the Defendant cigarette companies engaged in independent, arm’s  
20 length competition, the evidence in its entirety does not support that interpretation.

21 **Q. Please explain.**

22 A. The Operations Department presentation indicates that Philip Morris had developed and  
23 introduced a charcoal-filtered cigarette named Saratoga. This new brand, which the

1 presenter described to the Board as “superior” and “outstanding,” appeared to perform  
2 better than other marketed brands in the short-term tests that Philip Morris conducted.

3 **Q. Dr. Harris, was the observation that the presenter made about “physiological**  
4 **superiority” in accord with scientific knowledge at the time?**

5 A. Yes. The use of charcoal in cigarette filters was not a novel idea in 1962. As early as 1951,  
6 the Encyclopedia of Chemical Technology described dual-section cigarette filter tips with  
7 activated charcoal dusted onto the section of the cellulose acetate that stayed away from the  
8 smoker’s mouth. Scientists from American Tobacco Company had published an article in  
9 Tobacco Science, at United States Exhibit 22,986, on the effect of charcoal filters on the  
10 yield of certain toxic gases in cigarette smoke in 1959.

11 **Q. Please continue.**

12 A. Philip Morris did indeed introduce its Saratoga brand, but it did not articulate the brand’s  
13 potential for harm reduction to the consuming public. As the presenter put it, “we decided  
14 not to tell the physiological story which might have appealed to the health conscious  
15 segment of the market.” Under conditions of competition, as I have explained, Philip  
16 Morris would have had an incentive to disclose the potential harm-reducing advantages of  
17 its brand so as to outdo its competitors, including but not limited to Lorillard.

18 **Q. From the economist’s standpoint, what best explains Philip Morris’ decision to**  
19 **withhold such information on the potential harm-reducing advantages of its brand?**

20 A. Philip Morris acted in accordance with the collusive arrangement established in late 1953  
21 and early 1954. To have engaged in such health-related claims would have enhanced the  
22 risk of genuine arm’s-length competition, with rival firms each publicly describing the  
23 latest research on the adverse effects of smoking, and how their own products represented

1 state-of-the-art efforts to reduce those risks. What is more, to accurately describe the  
2 potential harm-reducing advantages of Saratoga on respiratory function would have  
3 required an admission of the adverse effects of currently sold cigarettes on human  
4 respiratory function. It might have put Philip Morris and other manufacturers at greater risk  
5 of losing smokers' lawsuits. In short, Philip Morris decided not to cheat.

6 **Q. The presenter told the Philip Morris Board that “The product as test marketed didn’t**  
7 **have good ‘taste’ and consequently was unacceptable to the public ignorant of its**  
8 **physiological superiority.” Was there any basis for the conclusion that the consuming**  
9 **public would have adopted the brand if had been informed of its “physiologic**  
10 **superiority?”**

11 A. Yes. There is substantial evidence - based on observations by economists as well as  
12 manufacturers' internal documents and depositions of cigarette industry representatives - to  
13 support the conclusion that consumers will readily adopt cigarettes that they believe may  
14 reduce the harm from smoking.

15 **Q. Could you review some of the observations made by economists on this point?**

16 A. In response to the “health scare” of the early 1950's, which we have discussed, the market  
17 share of filter cigarettes rose rapidly in the United States, from 3 percent of the market in  
18 1953 to 49 percent of total cigarette output in 1959. After the Federal Trade Commission  
19 began reporting tar and nicotine ratings in 1967, the market share of low-tar cigarettes - that  
20 is, cigarettes with a tar rating of 15mg or less - rose rapidly, from 2 percent in 1967 to 56  
21 percent in 1981. The information on shares of filter cigarettes comes from the U.S.  
22 Department of Agriculture's regularly published Tobacco Situation and Outlook Report.

1           The data on percentage shares of low-tar cigarettes come from FTC Reports to Congress,  
2           which have been issued annually.

3       **Q.    Could you review some of the observations made in manufacturers' internal**  
4       **documents or industry depositions concerning the proposition that consumers will**  
5       **readily adopt cigarettes that they believe may reduce the harm from smoking?**

6       A.    I have prepared a demonstrative with observations taken from internal documents, as well  
7       as the deposition of an expert witness, during the period 1963-2001. Demonstrative #5 is  
8       entitled, "According to Defendants' Internal Documents and Deposition Testimony,  
9       Consumers Respond to Health Messages When Choosing Between Alternative Brands."

10       The very first citation is a 1963 internal report on "Saratoga Candidates."

1 **DEMONSTRATIVE #5: ACCORDING TO DEFENDANTS' INTERNAL DOCUMENTS**  
 2 **AND DEPOSITION TESTIMONY, CONSUMERS RESPOND TO HEALTH MESSAGES**  
 3 **WHEN CHOOSING BETWEEN ALTERNATIVE BRANDS**

4

Date	U.S. Exhibit No.	Author, Title and Company	Statement
Sept. 9, 1963	35,230	W.L. Dunn & M.A. Kraft, "A Three-Phase Field Study of Saratoga Candidates IBM, M-5 and M-12," Philip Morris	<p>"Promotional messages about cigarettes were clearly and immediately reflected in 'sales' figures in this simulated market study. ... The health message and the pleasure message were equally effective as reflected in sales figures and stated preferences . . . . The results suggest that among filter smokers who respond to promotional messages, the motivation to select a healthful cigarette is as great as the motivation to select a flavorful cigarette. (1000334626)</p> <p>"The Marlboro was given the traditional taste or pleasure message, while the IBM was presented as a healthful, medically desirable cigarette. The M-5 and M-12 were described as being similar to some filter cigarettes now on the market. (4628)</p> <p>"It is apparent that both Marlboro (taste story) and IBM (health story) showed an increase in per cent total sales immediately, while M-5 and M-12 showed an immediate decrease. (4629)</p> <p>"It is our opinion that the results can be interpreted to mean that, among filter smokers, there are as many who will respond to a promotional story with a health theme as there are those who will respond to a story with a pleasure theme. The anxiety is present among these smokers and might well serve as a guide for the design and promotion of a new cigarette." (4636-4637)</p>

5

6



1  
2

3  
4

5  
6

<b>Date</b>	<b>U.S. Exhibit No.</b>	<b>Author, Title and Company</b>	<b>Statement</b>
May 25, 1966	55,403	A.W. Spears, "A Review of Animal Studies Conducted at Bio-Research Consultants Inc and the Sloan-Kettering Memorial Institute," to J.E. Bennett, President, Lorillard	"It is thought that the development of a cigarette, the smoke condensate from which gives little or no tumorigenic response, would be regarded as a highly significant development in the scientific community. Undoubtedly, such a cigarette would place the corporation in a highly enviable position, and in the writer's opinion a two or threefold increase in sales could result within a short period. It is unrealistic to envision a cigarette sales monopoly, in that such a product would be effectively duplicated by competitors in a short time. On the other hand, if we fail to pursue this research and/or a competitor marketed a cigarette whose smoke condensate gave little tumorigenic response, the writer is of the opinion that a significant sales loss could result."
June, 1966	21,487	Myron E. Johnston Jr., "Market Potential of a Health Cigarette," Report to Helmut Wakeham and Robert B. Seligman, Philip Morris	"If we could develop a medically and governmentally endorsed 'healthy' cigarette that tasted exactly like a Marlboro, delivered the nicotine of a Marlboro, and was called Marlboro, it would probably become the best selling brand."
Nov. 3, 1977	21,419	Benito Vila, Letter to Richard E. Smith, Vice President of Marketing & Development, Lorillard	"... I don't know of any smoker who at some point hasn't wished he didn't smoke. If we could offer an acceptable alternative for providing nicotine, I am 100% sure we would have a gigantic brand."

1

2  
3

Date	U.S. Exhibit No.	Author, Title and Company	Statement
1978	22,087	R.J. Reynolds, Long-Range Strategic Plan, External Forecast, 1979 - 1983	<p>“‘Tar’ level in cigarettes could become an even more critical consumer determinant in the next five years should scientists, ‘public interest’ or regulatory groups endorse a ‘safe’ cigarette concept.</p> <p>...  “– If this concept received national consumer media exposure, such as <u>Reader’s Digest</u>, the dynamics of demand in the marketplace could change drastically. Kent, True and Lark achieved success in this manner.”</p>
March 14, 1993	21,740	R.A. Lloyd, Jr., Brand Manager, Memo to Mike McKee, New Brands and Strategic Research Department, R.J. Reynolds	<p>“It is quite likely that smoking devices similar to those described in these patents or other new products perceived as ‘safer’ will be introduced to the marketplace within the next few years by major tobacco companies. The company which can introduce such products, which also supply a degree of user satisfaction which approaches that of current cigarette products, will become the dominate company in the industry almost over night. It is reasonable to assume that the company who introduces such a product might capture as much as 25 share points in the first year if supply could keep pace with demand.”</p>

Date	U.S. Exhibit No.	Author, Title and Company	Statement
<p>1 2 Feb. 25, 1994</p>	<p>59,922</p>	<p>Prism Status Review, R.J. Reynolds</p>	<p>“No one disputes that smoking represents an increased health risk. The Surgeon General and others have reported that there are a number of cancer causing compounds in cigarette smoke that are responsible.  “PRISM is a new cigarette that reduces many of these compounds by over 50%. The secret to PRISM is a patented two stage filter that selectively traps many of these compounds, without sacrificing taste or satisfaction.  “We’re not saying PRISM will lower the risks associated with smoking, no one can prove that. But we do know you can now get a smooth, flavorful cigarette with less claimed cancer causing compounds than the leading lights brand.” (510325041)  ...  “ This proposition exceeded the retention norm, and achieved the highest acceptance of the PRISM projects. The concept addresses a major consumer want and is very appealing. Importantly, this product appears to have no significant taste trade-offs compared to conventional products and may in fact provide a smoothness benefit.” (510325042)</p>
<p>3 4 October 11, 2001</p>		<p>Deposition of Sharon Boyse (Blackie)</p>	<p>“So what we wanted to do was tell more of the story about – and we had had it suggested from consumers that they were interested hearing this – you know, what did you do to reduce TSNAs. (p. 110)  “ We had heard from consumers that if we told them we had reduced these various constituents, they wanted to know how. They wanted to what about the product was it. Was it the tobacco? Was it the filter? What was it? And we took that very seriously. You now, if consumers want that kind of information, we thought that was important. (p. 113)  “ And that’s what we had found that consumers wanted to know. Now that’s information that they’re not getting anywhere else.” (pp. 115-116)</p>

1  
2

Date	U.S. Exhibit No.	Author, Title and Company	Statement
Dec., 2001	73,425	Walker Information Study, Reduced Toxin Cigarette Perception Study: Key Results	<p>“Should tobacco companies work on developing safer cigarettes?”</p> <ul style="list-style-type: none"><li>• While over half of respondents think a safer cigarette can be made (58%), a clear message is communicated by Indianapolis residents that tobacco companies <i>should</i> be developing safer cigarettes (74%). ...</li></ul> <p>“If a cigarette existed that had less toxins than many of today’s leading brands, would you then favor or oppose this product being put on the market as quickly as possible?”</p> <ul style="list-style-type: none"><li>• Nearly three-quarters of Indianapolis residents think a cigarette with lower toxins should be introduced on the market as quickly as possible (74%). ...</li></ul> <p>“Which of these viewpoints comes closest to your own?”</p> <ul style="list-style-type: none"><li>• Some people say that - <i>because it is possible that such a cigarette may reduce the risk to smokers</i> - smokers should be informed <b>now</b> that there is a new cigarette available that contains less toxins.</li><li>• Other people say that - <i>even though it is possible that such a cigarette may reduce the risk to smokers</i> - smokers should <b>not</b> be informed that there is a new cigarette available that contains less toxins <b>because</b> there is no definitive way to prove that such a cigarette may reduce the risk to smokers.</li><li>• A clear majority of respondents are of the opinion that smokers should be informed <b>now</b> that a cigarette containing less toxins is currently available (77%).</li></ul>

1 **Q. When the investigators at Philip Morris were studying the “Saratoga Candidates” in**  
2 **that 1963 report, were they addressing the same brand mentioned in the presentation**  
3 **to the Philip Morris Board?**

4 A. They were testing the consumer responses to alternative messages that would be conveyed  
5 in connection with the Saratoga brand. They found that “The health message and the  
6 pleasure message were equally effective as reflected in sales figures and stated  
7 performances. ... The results suggest that among filter smokers who respond to  
8 promotional messages, the motivation to select a healthful cigarette is as great as the  
9 motivation to select a flavorful cigarette.” As the demonstrative table shows, the 1963  
10 Saratoga study by Philip Morris was hardly the only case where analysts in market research  
11 and scientists within cigarette companies agreed that consumers were highly responsive to  
12 health messages and would readily adopt potentially harm-reducing brands.

13 **Q. Dr. Harris, according to Defendants documents, will consumers readily adopt**  
14 **potentially harm-reducing products when they do not know about the potential for**  
15 **harm reduction?**

16 A. No. That is exactly the point noted in the presentation to the Philip Morris Board. When  
17 firms do not communicate the information that a particular brand may reduce harm,  
18 consumers cannot make the tradeoff between harm reduction and other product attributes,  
19 such as taste. As the case of Saratoga illustrates, when consumers knew only about “taste”  
20 but not the “physiologic story,” they could not make such a tradeoff.

21 **Q. You testified that you wanted to draw two other portions from this document to the**  
22 **attention of the Court.**

23 A I quote from page 3 of the document:

1 3. Third, these research efforts would in all likelihood lead sooner or  
2 later to cigarettes generally regarded as “less harmful” than others.  
3 Philip Morris to maintain its competitive position would have to  
4 have on its shelf for introduction products substantially better  
5 physiologically than P.M. Multifilter or anything else currently on  
6 the market.

7 And I quote from page 6 of the document:

8 In all this activity our aim is to “Be Prepared.” We cannot know  
9 how the advertising code will be interpreted or administered, or how  
10 the products we are developing can be merchandized in the market  
11 place. We do know that all the major cigarette companies have now  
12 allied themselves with biological research laboratories and are  
13 actively working in these areas.

14 . . .

15 In short, the Research and Development Department is working to  
16 establish a strong technological base with both defensive and  
17 offensive capabilities in the smoking and health situation. Our  
18 philosophy is not to start a war, but if war comes, we aim to fight  
19 well and to win.

20 **Q. Dr. Harris, does the presenter’s use the phrase “competitive position” on page 3**  
21 **inform you, as an economist, about the nature of competition in the cigarette industry**  
22 **at the time?**

23 A. No, not by itself. For the economist, what is more informative in this passage is the phrase  
24 “would have to have on its shelf for introduction.”

25 **Q. Why is that?**

26 A. The presenter states that Philip Morris would need to have an inventory of harm-reducing  
27 brands available for introduction, not that the firm should actually introduce such brands.

28 **Q. What is revealing to an economist about a firm maintaining an inventory of modified**  
29 **products on its shelves, rather than directly introducing such products?**

30 A. Recall our discussion of the “tit for tat” strategy as a means of deterring cheating in a  
31 collusive arrangement. In the widget example, as I testified, the “tit for tat” strategy

1 deterred cheating more effectively when each firm had already made a “defensive”  
2 investment in superior-widget technology. That is, each firm already had a superior widget  
3 on the shelves in its warehouses, ready to introduce in the event of cheating. The  
4 presentation before the Philip Morris Board illustrates this concept. Philip Morris had  
5 decided not to cheat, but to acquire an inventory of potentially harm-reducing products  
6 available in the event that other firms cheated. In short, its philosophy was not to initiate a  
7 competitive “war,” but if such a competitive war should break out, then the firm would be  
8 prepared “to fight well and to win.”

9 **Q. Dr. Harris, the quotation on page 6 states, “We do know that all the major cigarette**  
10 **companies have now allied themselves with biological research laboratories and are**  
11 **actively working in these areas.” Does this assertion contradict the memorandum**  
12 **written by Fred Haas, Counsel for Liggett, concerning the meeting of lawyers at Davis**  
13 **Polk on August 21, 1963, where Haas suggested “some of the companies have not**  
14 **conducted such research?”**

15 A. Just as Brown & Williamson was not privy to Lorillard’s plans to capitalize on Dr.  
16 Wynder’s research on phenol, Mr. Haas was not necessarily privy to the other companies’  
17 contracts with outside biological laboratories. Still, in the period immediately before and  
18 after the 1964 Surgeon General’s Report, each of the cigarette companies had to  
19 accommodate to a new scientific environment. In the new environment, there would be  
20 increased public demand for harm-reducing products and, accordingly, an increased need to  
21 have an inventory of potentially harm-reducing products available.

22 ***L. CTR’s Open Question Strategy, Yeaman Memo, January 1968***

23 **Q. Dr. Harris, I am showing you United States Exhibit 61,222, a letter dated January 19,**  
24 **1968 from the Legal Department of the Brown & Williamson Tobacco Corporation**

1           **under the letterhead of Addison Yeaman, Vice President - General Council. Have you**  
2           **seen the names of either the writer of this letter or any of the addressees on documents**  
3           **that we have already discussed?**

4           A.    Yes. United States Exhibit 20,152, written in October 1964, identified a Policy Committee  
5           consisting of senior legal counsel from each of the six major cigarette manufacturers.  
6           Addison Yeaman, the writer of this letter as well as four of the addressees - specifically,  
7           Fred Haas of Liggett, Cy Hetsko of American Tobacco, Henry Ramm of R.J. Reynolds, and  
8           Paul Smith of Philip Morris - were listed as members of the Policy Committee in the  
9           October 1964 report. Only one of the members of the Policy Committee as listed in October  
10          1964, that is, John Russell of Lorillard, is not an addressee.

11          **Q.    Can you identify the other addressees who were not on the October 1964 listing of the**  
12          **Policy Committee?**

13          A.    It is my understanding that P.R. Grant was Vice President and General Counsel of  
14          Lorillard, and that A.S. Forsyth of the firm of Forsyth, Decker & Murray, represented  
15          United States Tobacco Company. In addition, Dr. Little was the original scientific director  
16          of the Tobacco Industry Research Committee (or "TIRC") which, as I have already  
17          testified, became the Council for Tobacco Research (or "CTR").

18          **Q.    What does this letter describe?**

19          A.    The letter describes a luncheon meeting with Janet Brown and Mr. Hetsko of American  
20          Tobacco.

21          **Q.    Who is Janet Brown?**

22          A.    She is listed in the October 1964 Report, United States Exhibit 20,152, as outside counsel  
23          for American Tobacco and a member of the Ad Hoc Group set up by the Policy Committee.



1 **Q. Did the luncheon meeting address issues that are pertinent to your economic analysis**  
2 **of the conduct of cigarette manufacturers with respect to smoking and health?**

3 A. Yes, it did.

4 **Q. Please explain.**

5 A. Observers within the tobacco industry had criticized the mix of research studies funded by  
6 the Council for Tobacco Research. For example, the writer of the October 1964 report  
7 (United States Exhibit 20,152) stated, “As we know, CTR supports only fundamental  
8 research of little interest to present day problems.” In the exhibit before us, Mr. Yeaman  
9 takes note of “Brown & Williamson’s concern (which I understand to be shared generally,  
10 in varying degrees) for some re-assessment and possibly re-alignment or re-orientation of  
11 CTR.” Yeaman goes on to say that “I got the impression that Lorillard, like Brown &  
12 Williamson certainly and others of us possibly, has considerable concern as to whether we  
13 are spending our dollars in the most useful way...”

14 **Q. Dr. Harris, what did the 1954 Frank Statement say, if anything, about the mix of**  
15 **research studies that cigarette manufacturers intended to sponsor?**

16 A. In the Frank Statement, the signing cigarette manufacturers wrote, “We are pledging aid  
17 and assistance to the research effort into all phases of tobacco use and health.”

18 **Q. As a physician and researcher who has studied smoking and health, what do you**  
19 **interpret Mr. Yeaman to have meant by “present day problems?”**

20 A. In January 1964, the Surgeon General’s Advisory Committee had already concluded that  
21 cigarette smoking was a cause of lung cancer in men and one of the most important causes  
22 of chronic bronchitis, and pointed to a role of cigarette smoking in coronary heart disease.  
23 As the October 1964 report of British observers noted, there was a scientific need for  
24 biological tests, including long-term tests in living animals, to assess whether various

1 modifications of cigarette design might reduce the harm from smoking. Such research was  
2 part of a larger agenda to develop useful animal models of smoking-related diseases.

3 **Q. You have testified that the luncheon meeting addressed issues that are pertinent to**  
4 **your economic analysis of the conduct of cigarette manufacturers with respect to**  
5 **smoking and health. Please continue with your explanation.**

6 A. Let me quote from the letter.

7 The question of orientation provoked from Janet Brown a well  
8 reasoned argument in defense of the long established policy of CTR,  
9 carried out through SAB, to “research the disease” as opposed to  
10 researching questions more directly related to tobacco. With  
11 apologies to Janet if I misstate her position, the argument seems to be  
12 that by operating primarily in the field of research of the disease we  
13 do at least two useful things:

14 First, we maintain the position that existing evidence of a  
15 relationship between the use of tobacco and health is inadequate to  
16 justify research more closely related to tobacco, and

17 Secondly, that the study of the disease keeps constantly alive the  
18 argument that, until basic knowledge of the disease itself is further  
19 advanced, it is scientifically inappropriate to devote the major effort  
20 to tobacco.

21 **Q. What is SAB?**

22 A. The Scientific Advisory Board of the Council for Tobacco Research.

23 **Q. Dr. Harris, as an economist, how do you interpret what Mr. Yeaman describes as “the**  
24 **long established policy of CTR?”**

25 A. As I have testified previously, Defendant cigarette manufacturers had agreed jointly to deny  
26 that smoking caused any disease. As part of this joint strategy of denial, they repeatedly  
27 stated that the relationship between smoking and disease was “still a question,” an “open  
28 question,” and a “controversy.” Industry spokesmen repeatedly asserted that “no one  
29 knows” for certain whether smoking really causes any disease, that “more research” was

1 needed to find out what really caused cancer and other diseases. The “long established  
2 policy of CTR” was to “constantly keep alive” this stance.

3 **Q. Dr. Harris, you testified that in their January 1954 Frank Statement, cigarette**  
4 **manufacturers publicly denied that smoking caused any disease and, what is more,**  
5 **publicly promised to fund research in all aspects of smoking and health. As you**  
6 **further testified, the latter promise led to the formation of the TIRC and later the**  
7 **CTR. On the basis of the document we just reviewed, how would you as an economist**  
8 **interpret the “long established policy of CTR” through 1968?**

9 A. The CTR - through its long-established policy of researching the disease rather than directly  
10 researching questions of smoking and health - helped to carry out manufacturers’ collusive  
11 strategy of jointly denying that smoking caused any disease. Rather than serving as a  
12 cooperative arrangement that served the interests of the consuming public, the CTR was an  
13 instrument of collusion.

14 *M. “The Need for Biological Research by Philip Morris Research and*  
15 *Development,” November 1968*

16 **Q. Dr. Harris, I direct your attention to two separate documents. The first is United**  
17 **States Exhibit 20,139, a memorandum from Dr. Wakeham to Mr. C.H. Goldsmith**  
18 **entitled “Need for Biological Testing and Research by Philip Morris Research and**  
19 **Development,” dated November 15, 1968. The second is United States Exhibit 76,155,**  
20 **an undated presentation entitled “The Need for Biological Research by Philip Morris**  
21 **Research and Development.” As a preliminary matter, I first want to ask you the**  
22 **following question: Based on your study of smoking and health and review of an**  
23 **extensive number of internal company documents, can you assist the Court in**

1 **identifying the author and date of the second document, that is, United States Exhibit**  
2 **76,155?**

3 A. In the first document, which I'll call the Goldsmith memo, Dr. Helmut Wakeham advocates  
4 a biological testing program for his company. The second document has substantially the  
5 same title, uses nearly identical language in some places, and advocates a position very  
6 similar to the first one. For example, on page 1 of the Goldsmith memo, Wakeham states,  
7 "Consumer health is a focal point of interest and concern to the general public and to the  
8 government." On page 1 of the second document, the author states, "Health is a focal point  
9 of interest and concern to the general public and to the government." Accordingly, the  
10 second document is in all likelihood another version of the same basic presentation by  
11 Wakeham, written in or around November 1968. It is noteworthy that both documents take  
12 a position consistent with the Operations Department presentation to the Philip Morris  
13 Board of Directors in October 1964, United States Exhibit 20,092, which we have already  
14 discussed.

15 **Q. Dr. Harris, is there anything of significance in the Goldsmith memo, United States**  
16 **Exhibit 20,139, that you would like to bring to the attention of the Court?**

17 A. Wakeham emphasizes that there has been continued growing interest in biological testing  
18 of cigarettes, and that "competitive brand biological testing by the government" (page 2) is  
19 not beyond the realm of possibility. On page 2, he asserts,

20 It is not unreasonable to assume that with the introduction of  
21 biological testing and publishing of data by the government, all  
22 tobacco companies will find it necessary defensively to embark on  
23 their own testing programs either in-house or at available consulting  
24 biological laboratories.

25 **Q. Dr. Harris, what is meant here by "biological testing and publishing data by the**  
26 **government?"**

1 A. In 1967, the United States Federal Trade Commission began to publish the individual tar  
2 and nicotine ratings of each marketed brand of cigarettes. These tar and nicotine ratings  
3 were based upon chemical analyses of smoke condensate, that is, the material collected on  
4 laboratory filter paper after each brand of cigarettes was smoked by a machine. In  
5 principle, the concept of comparative rating of different brands could be extended from  
6 chemical to biological testing of the smoke condensates. Just as one laboratory could  
7 determine whether Brand A had a higher or low tar than Brand B, another laboratory could  
8 determine whether Brand A produced more or less tumors in the mouse skin-painting test  
9 than Brand B.

10 **Q. Do you attach any significance to Dr. Wakeham's use of the word "defensively" in**  
11 **that sentence?**

12 A. The October 1964 presentation to the Philip Morris Board of Directors noted, "Our  
13 philosophy is not to start a war, but if war comes, we aim to fight well and to win." Here,  
14 consistent with the earlier presentation, the writer emphasizes the need for Philip Morris -  
15 in fact, all tobacco companies - to gear up to react defensively in the event that comparative  
16 biological testing of brands became standard practice. As Dr. Wakeham notes, "...since  
17 biological testing requires extended time not only to develop competence but to conduct the  
18 actual test, we may be too late to counteract competition or other outside forces."

19 **Q. How do you, as an economist, interpret the phrase "to counteract competition or other**  
20 **outside forces?"**

21 A. A firm that actively exploited comparative biological tests to make comparative product  
22 claims - for example, to promote that its own brand produced less tumors in the mouse  
23 skin-painting test - would be engaged in cheating from the collusive arrangement. Since it  
24 takes time to gear up to perform biological tests, each of the participants in the collusive

1 arrangement had to be prepared well in advance to respond to such cheating. What is more,  
2 they had to be prepared in advance to respond in the event that laboratories unaffiliated  
3 with cigarette manufacturers published such information.

4 **Q. Was the mouse skin-painting test the only form of “biological testing” about which**  
5 **Wakeham was concerned?**

6 A. No. I draw your attention to the reference, in the last line on page 2 and extending to page  
7 3, of “The recent demonstration by Reynolds of their ability to develop on short notice a  
8 highly sophisticated smoke inhalation machine...” Here, Wakeham refers to the inhalation  
9 machine developed by Murray Senkus at R.J. Reynolds, which could be used in principle to  
10 perform comparative tests of the inhaled whole smoke of different brands, rather than  
11 smoke condensates.

12 **Q. Dr. Harris, I draw your attention to the sentence on page 4 of the Goldsmith memo,**  
13 **“We must know how our products perform in conventional tests regardless of**  
14 **whether or not we believe the tests to be significant.” Based on your professional**  
15 **studies of smoking and health, what interpretation do you attach to the term**  
16 **“significant?”**

17 A. Dr. Wakeham implicitly raises the issue that the results of some non-human biological tests  
18 may have limited relevance to human health effects. It is clear here that he uses the term  
19 “significant” to mean relevant.

20 **Q. Is this is an area in which you have published peer-reviewed articles in professional**  
21 **journals?**

22 A. Yes, it is.

1 **Q. Aside from considerations of economic strategy, might a cigarette manufacturer be**  
2 **reluctant to actively promote the results of biological tests that could have limited**  
3 **relevance to human health?**

4 A. It is not possible to answer your question entirely without reference to considerations of  
5 economic strategy. A firm that seeks to cheat from a collusive arrangement will want to  
6 exploit whatever substantive advantage it may have in order to outdo its rivals. A product  
7 claim that is accurate and substantiated will likely yield the cheater a greater profit than a  
8 claim that is exaggerated or frivolous. While scientists did caution - and continue to  
9 caution - that the comparative results of specific animal tests do not translate directly into  
10 comparative human health risks, a firm whose product performed superiorly in an animal  
11 test could still exploit the results to make an accurate and substantiated product claim.

12 **Q. I draw your attention to the following sentence on page 2 of the Goldsmith memo:**

13 **We have reason to believe that while this proposal to carry out**  
14 **biological research and testing may seem a radical departure**  
15 **from previous policy and practice, we are in fact only advocating**  
16 **that which our competitors are also doing.**

17 **In your economic analysis, did you attach any significance to this sentence?**

18 A. To answer your question, let me quote from the corresponding portion on page 4 of the  
19 second document, that is, United States Exhibit 76,155:

20 We have reason to believe that in spite of the gentleman's agreement  
21 from the tobacco industry in previous years that at least some of the  
22 major companies have been increasing biological studies within their  
23 own facilities

24 The “previous policy and practice” in the Goldsmith memo is referred to as the  
25 “gentleman's agreement” here. That is, cigarette manufacturers had an agreement not to  
26 engage in biological research testing within their premises.

1 **Q. You mentioned the “gentleman’s agreement” in response to an earlier question about**  
 2 **the cigarette industry’s “past reticence with respect to medical research,” as described**  
 3 **in the October 1964 Operations Department presentation to the Board of Philip**  
 4 **Morris. Is this a term that you have seen in other internal company documents?**

5 A. Yes, I draw your attention to a demonstrative that I have constructed. The documents cited  
 6 in the demonstrative chart, written over the period from 1968 to 1983, consistently point to  
 7 the presence of an agreement among Defendant manufacturers not to perform in-house  
 8 biological research. Moreover, two of the documents (United States Exhibits 29,467 and  
 9 21,737), both authored by senior research scientist Frank G. Colby of R.J. Reynolds, also  
 10 note an agreement to share any discovery that “might have a positive impact on the  
 11 smoking and health controversy” or would permit “the fabrication of an essentially ‘safe’  
 12 cigarette.”

13 **DEMONSTRATIVE #6: THE “GENTLEMAN’S AGREEMENT” NOT TO PERFORM IN-**  
 14 **HOUSE BIOLOGICAL RESEARCH**

Date	U.S. Exhibit No.	Author, Title and Company	Statement
Nov, 1968	76,155	Wakeham, “Need for Biological Research by Philip Morris Research and Development,” Philip Morris	“We have reason to believe that in spite of gentleman's agreement from the tobacco industry in previous years that at least some of the major companies have been increasing biological studies within their own facilities.”
Sep 10, 1970	26,378	D.G. Felton, “Meeting with Dr. Helmut Wakeham...,” BAT document	“One result of the greater influence which Wakeham has with Mr. J. Cullman has been the agreement, albeit reluctant, to permit Philip Morris to do “in-house” biological work. When this was first mooted, Wakeham was told that there was a tacit agreement between the heads of the US Companies that this would not be done.”



Date	U.S. Exhibit No.	Author, Title and Company	Statement
<p>1 2</p> <p>Nov 3, 1980</p>	<p>27,519</p>	<p>L.C.F. Blackman, “Visit to Philip Morris R&amp;D Centre, Richmond, Virginia, 30 October, 1980,” BAT document</p>	<p>“<u>Smoking and Health</u>: Officially this activity does not exist; but in practice there is a major research effort. We were given some information on the understanding that we do not divulge it further.”</p> <p>...</p> <p>“We were told that there are 20 PhD’s and 8 assistants concerned mainly with checking the biological activity of all new materials and products that are being considered for commercial use. Although the main aim would appear to be defensive, there seems little doubt that Philip Morris are seeking to identify materials of the lowest biological activity. All smoking and health work with animals is put out to contract.”</p>
<p>3 4</p> <p>Oct 26, 1981</p>	<p>29,467</p>	<p>Frank G. Colby, Memo Re: Research Proposal by A.B. Cohen et al., Temple University., Philadelphia, PA - “Selective Removal of Oxidants from the Tobacco Mainstream Smoke Aerosol.”</p>	<p>“3. There is a clear-cut agreement among all U.S. cigarette manufacturers that any scientific discovery made within the companies, or otherwise sponsored by a single company, which might have a positive impact on the smoking and health controversy, would have to be freely shared, without any costs to the other manufacturers. There would, therefore, be no incentive for RJR to sponsor the Cohen project. This applies to any other product development oriented research by a medical institution to be sponsored by a U.S. tobacco company.</p> <p>“4. At this time RJR does not fund directly in the U.S., any directly smoking and health related research. All such requests are answered by referring the applicants to CTR. “(I hear by the ‘grapevine’ that some thought is given as to whether or not R.J. Reynolds Tobacco Company-U.S.A. should sponsor such research, in addition to our support for CTR.)”</p>

Date	U.S. Exhibit No.	Author, Title and Company	Statement
1 2 March, 1983	21,737	A. Rodgman & F.G. Colby, “Biological/Consumer Preference Research Conducted by Philip Morris”	<p>“Throughout the domestic industry, two ‘gentlemen’s’ agreements were operative in the early days:</p> <p>“any company discovering an innovation permitting the fabrication of an essentially ‘safe’ cigarette would share the discovery with others in the industry.</p> <p>“no domestic company would use intact animals in-house in biomedical research.</p> <p>“We know the latter agreement has been broken by at least two domestic companies and suspect that the former agreement would not be honored today.” (Bates No. 501543504)</p>

3 **Q. Is the “gentleman’s agreement” evidence of tacit collusion or conscious parallelism?**

4 A. No. Although some of the authors use the terms “tacit agreement” and “gentleman’s  
5 agreement,” we need to interpret the agreement in the context of other actions by Defendant  
6 manufacturers. I have thus far concluded that the Defendant manufacturers forged explicit  
7 collusive arrangements to deny that smoking caused disease, to foster the perception that  
8 the relation between smoking and disease was an “open question,” and to refrain jointly  
9 from making comparative health claims about each others’ products. What the authors  
10 have called the “gentleman’s agreement” was clearly consistent with and pursuant to the  
11 other collusive arrangements. While there is ample documentary evidence of the existence  
12 of such collusive arrangements, I have not found - nor would one expect to find - any  
13 formal written contracts memorializing such collusive agreements. Likewise, there was no  
14 formal written contract memorializing manufacturers’ agreement to refrain from in-house  
15 biological research. However, I have identified another document indicating that the

1 gentleman's agreement not to perform in-house biological research was explicitly enforced  
2 through communication between the president and CEO of two Defendant manufacturers.

3 **Q. Let's defer consideration of that document momentarily. Dr. Harris, is there evidence**  
4 **that the "gentleman's agreement" eventually became inoperative?**

5 A. Yes, at least in its original form. However, the original agreement only gradually became  
6 inoperative, and was supplanted by other arrangements.

7 **Q. What is the basis for your conclusion that the "gentleman's agreement," at least in its**  
8 **original form, only gradually became inoperative.**

9 A. Two of the documents in my demonstrative imply that the agreement was "operative in the  
10 early days" (United States Exhibit 21,737) or "in previous years" (United States Exhibit  
11 76,155). Similarly, the Goldsmith memo (United States Exhibit 20,139) refers to "previous  
12 policy and practice." Still other documents indicate that the gentleman's agreement may  
13 have survived to the early 1980s. However, the October 1981 memo from Colby states that  
14 there "is a clear-cut agreement among all U.S. cigarette manufacturers," with my emphasis  
15 on the present tense. The report by Blackman from BAT of his visit to the Philip Morris  
16 Research and Development Center in October 1980 reveals that, with respect to work on  
17 smoking and health, "Officially this activity does not exist..." Moreover, "All smoking and  
18 health work with animals is put out to contract." In addition, as already noted, I have found  
19 another document, not listed on the demonstrative, which indicates that the gentleman's  
20 agreement was enforced in the spring of 1970. Nonetheless, there did come a time when  
21 the gentleman's agreement, as originally formulated, had to be modified or replaced by  
22 other arrangements.

23 **Q. Why did it have to be modified or replaced by other arrangements?**

1 A. The changing scientific landscape in the years following the 1964 Surgeon General's  
2 Report, along with the growing interest in biological testing of cigarette smoke, made an  
3 airtight agreement to refrain from all in-house biological work impossible to enforce. Even  
4 if none of the manufacturers individually sought to violate the "gentleman's agreement,"  
5 the possibility that any one firm could cheat - and the possibility that third parties would  
6 engage in such testing - forced at least some of them to take defensive steps.

7 **Q. Dr. Harris, before we turn to any other documents, can you tell us what, if anything,**  
8 **took the place of the original "gentleman's agreement?"**

9 A. Manufacturers continued to maintain an explicit collusive arrangement to deny that  
10 smoking caused any disease, and to avoid making adverse health claims about each others'  
11 products. Even though some of them developed the capability to perform biological  
12 testing, their enduring collusive arrangements continued to create strong incentives not to  
13 introduce potential harm-reducing products into the market. Unless a manufacturer could  
14 somehow elicit third-party endorsements, successful marketing of such a harm-reducing  
15 product would still require explicit communication of the new product's health benefits.  
16 As the documents we have already discussed make clear, such explicit communication  
17 would indict existing cigarettes and considerably enhance the risks that smokers would  
18 prevail in lawsuits.

19 *N. Meeting with Dr. Wakeham, September 1970*

20 **Q. We'll return to these ideas later. Dr. Harris, do you wish to call the Court's attention**  
21 **to another document concerning the enforcement of the gentleman's agreement?**

22 A. Yes. I bring to your attention United States Exhibit 26,378, a report entitled "Meeting with  
23 Dr. Helmut Wakeham, Vice-President and Director of Research, Philip Morris Inc., 10th

1 September, 1970,” which was authored by “DGF.” The document was originally produced  
2 by BAT Co. Ltd.

3 **Q. Dr. Harris, what is significant to point out in this report?**

4 A. The writer, D.G. Felton, a scientist at British-American Tobacco, describes his meeting  
5 with Dr. Wakeham from Philip Morris in London while Dr. Wakeham was visiting Europe  
6 in connection with a scientific congress in Hamburg. I first draw your attention specifically  
7 to the text beginning page 2 of the report (Bates 110315969), under the heading “Philip  
8 Morris Affairs.”

9 One result of the greater influence which Wakeham has with Mr. J.  
10 Cullman has been the agreement, albeit reluctant, to permit Philip  
11 Morris to do “in-house” biological work.

12 **Q. Have we encountered Mr. Felton earlier in your testimony?**

13 A. Yes. Mr. Felton was one of the co-authors of the 1958 report by British observers of their  
14 visit to the United States and Canada, which is United States Exhibit 21,135.

15 **Q. Dr. Harris, please remind us of the identity of Mr. J. Cullman.**

16 A. From 1966-1977, including the time that this report was written, Joseph F. Cullman III was  
17 Chief Executive Officer of Philip Morris Incorporated.

18 **Q. Dr. Harris, do you find this description by the British scientist D.G. Felton to be**  
19 **consistent or inconsistent with documents written by Dr. Wakeham that we have**  
20 **already reviewed?**

21 A. It is consistent. In his 1968 report on the “Need for Biological Testing and Research...,”  
22 Dr. Wakeham made clear his position that Philip Morris should be performing in-house  
23 biological work. The position taken by the presenter to the Board of Directors in February  
24 1964 was also consistent with such a position.

25 **Q. Are there other passages from this document that bear on your analysis?**

1 A. Yes. Page 2 of the document states:

2 When this was first mooted, Wakeham was told that there was a tacit  
3 agreement between the heads of the US Companies that this would  
4 not be done.

5 **Q. Have you drawn any conclusion as to the significance of “a tacit agreement between**  
6 **the heads of the US Companies...?”**

7 A. This reference by D.G. Felton is entirely consistent with references to the “gentleman’s  
8 agreement” that we have discussed earlier.

9 **Q. Dr. Harris, the writer uses the term “tacit agreement.” Would you interpret this to**  
10 **mean that Defendant cigarette manufacturers engaged in what you have called “tacit**  
11 **collusion” or “conscious parallelism?”**

12 A. No. As I testified previously, it is important to avoid the temptation to automatically attach  
13 a technical economic interpretation to every similar word or phrase found in an internal  
14 document. In this case, the document itself reveals that the agreement not to perform in-  
15 house biological research was hardly tacit or unspoken.

16 **Q. What evidence does this document reveal to support the conclusion that the**  
17 **agreement not to perform in-house biological research was hardly tacit or unspoken?**

18 A. As the document itself reveals, the Chief Executive Officer of Philip Morris and the  
19 President of R.J. Reynolds directly communicated about the agreement not to perform in-  
20 house biological research. I continue to quote from page 2 of the document, continuing on  
21 the following page.

22 Wakeham had countered by saying he knew that Reynolds, Lorillard  
23 and American were all undertaking some and that Liggett and Myers  
24 had never been party to the agreement. Cullman had been  
25 incredulous and had phoned Galloway, the President of R.J.  
26 Reynolds who had denied Reynolds were doing any bioassay. When  
27 Cullman had told Wakeham this, Wakeham's response had been to  
28 quote the work on the Senkus smoking machine and to claim that he

1 had floor plans showing outline area allocations. This too had been  
2 relayed to Galloway by Cullman, incredible though it may seem, and  
3 Galloway had visited the Reynolds Research Dept. to find it was  
4 substantially true. There had been a sudden reorganization at  
5 Reynolds, resulting in the closure of the biological section, the  
6 severance of product development (which remained with the tobacco  
7 division) from the research department (which became a corporate  
8 activity) and ultimately the resignation of Dr. Eldon Nielson, who  
9 had been in charge of biology.

10 **Q. Dr. Harris, what is the significance of the quoted passage for your economic analysis?**

11 A. From the economist's standpoint, the quote passage describes a case where one oligopolist,  
12 namely R.J. Reynolds, has cheated on the gentleman's agreement not to perform in-house  
13 biological research through the establishment of a "biological section."

14 **Q. If I may interrupt, do you know what types of research were performed in the**  
15 **"biological section" that was ultimately closed?**

16 A. During the late 1960's, there was a growing interest in developing machines to expose live  
17 animals to cigarette smoke for research purposes. Once such machine was the Senkus  
18 smoking machine, developed by R.J. Reynolds scientist Murray Senkus, which Wakeham  
19 mentioned in his November 1968 memo to Goldsmith. Thus, from the reference to "the  
20 work on the Senkus smoking machine," one can reasonably conclude that whole-animal  
21 inhalation experiments were at least planned, if not actually performed in the "biological  
22 section" at R.J. Reynolds. Other internal documents from R.J. Reynolds confirm that the  
23 company indeed had an active program of in-house biological studies, with facilities to  
24 house live laboratory animals and expose them experimentally to cigarette smoke, which  
25 began in the late 1960's and indeed ended abruptly in the spring of 1970. In my review of  
26 the company's internal documents, I have found no clear evidence that R.J. Reynolds  
27 closed the animal testing facilities because they were too costly or unproductive. I did  
28 confirm that Nielson resigned from his post on July 28, 1970.

1 **Q. Please continue with your conclusions concerning the significance of the quoted**  
2 **passage.**

3 A. In the quoted passage, a second oligopolist, namely Philip Morris, discovers through its  
4 own intelligence that the first firm has indeed cheated on their agreement. The CEO of the  
5 latter firm then calls the President of the former to put him on notice that the cheating has  
6 been detected. The first oligopolist, who had cheated, responds by abruptly suspending the  
7 cheating activity.

8 **Q. Dr. Harris, are the events recorded in this document consistent with independent**  
9 **arm's length competition, tacit cooperation, or collusion?**

10 A. The events are consistent with collusion. The evidence is clear that R.J. Reynolds abruptly  
11 closed its in-house biological testing program on whole animals in the period from April-  
12 June 1970. There is no clear evidence that Reynolds, in its decision to suspend animal  
13 testing, acted independently and solely in its self-interest. To the contrary, active arm's  
14 length competition in the area of potential harm-reducing technologies would have  
15 necessitated continued in-house animal testing. According to the document before us, the  
16 closure of the in-house biological program followed a direct communication between the  
17 CEO and president of the two companies. This does not accord with the economics of  
18 conscious parallelism.

19 **O. An Apology from United States Tobacco, March 1977**

20 **Q. Dr. Harris, I call your attention to United States Exhibit 52,701, which is a copy of a**  
21 **letter by Ernest Pepples, dated March 25, 1977, which begins with a reference to "U S**  
22 **Tobacco's General Counsel, Jim Chapin." Can you describe the context of this letter**  
23 **for the Court?**



1 A. In the March 16, 1977, New York Post, an employee of United States Tobacco was quoted  
2 as saying about smokeless tobacco: “[F]rom what we understand, it presents the least  
3 possible danger of all. It’s when you light tobacco that you start doing damage.” In this  
4 letter, Brown & Williamson’s General Counsel Ernest Pepples reports that United States  
5 Tobacco’s General Counsel, Jim Chapin, subsequently sent him an apology. I quote from  
6 Pepples’ description of the apology:

7           Chapin says the statements quoted were unauthorized and do not  
8           represent his company’s views. He has asked me to extend US  
9           Tobacco’s apology to each of the cigarette companies and advised  
10          me that the individual quoted in the article is not longer employed at  
11          US Tobacco. Chapin says US Tobacco has instituted smoking and  
12          health seminars throughout the company.

13 **Q. Dr. Harris, from the economist’s standpoint, are the events of March 1977 described**  
14 **in this letter consistent with collusion or competition?**

15 A. The events are consistent with collusion. As described in documented dated before 1977,  
16 the explicit communication was effectuated through lawyers representing the respective  
17 firms. In this case, an employee of one firm took an unauthorized action that violated the  
18 terms of the cooperative arrangement. The lawyer representing the firm promptly disclosed  
19 the action to avoid the false impression that it was intentional cheating.

20 ***P. Operation Berkshire and the Formation of ICOSI, June 1977***

21 **Q. Dr. Harris, I have a series of exhibits that I want to show you together. Have you**  
22 **have prepared a demonstrative based upon these exhibits?**

23 A. Yes, I have. It is Demonstrative #7, entitled “The 1977 Shockerwick Meeting.”

**DEMONSTRATIVE #7: THE 1977 SHOCKERWICK MEETING**

U. S. Exhibit	Description	Quotation
78,987	Hugh Cullman, Memorandum to the Files, December 3, 1976	<p>TG informed me that he had been exploring with a number of major tobacco companies; specifically B.A.T., R.J. Reynolds, Reemtsma, Rothmans International and now with Philip Morris International, whether we might be prepared to meet discretely to develop a defensive smoking and health strategy for major markets such as the U.K., Germany, Canada, U.S. and possibly others. ... The meeting would be as discreet as possible with, hopefully, no publicity emanating therefrom, with a public affairs statement ready should news of such a meeting leak out.</p> <p>“The initial objective of this group was to develop a smoking and health strategy which would include a voluntary agreement, that no concessions beyond a certain point would be voluntarily made by the members and if further concessions were required by respective governments, that these not be agreed to and that governments be forced to legislate. TG seemed to be most concerned that companies and countries would be picked off one by one and that the Domino theory would impact on all of us.”</p>
22,980	Garrett letter to Hugh Cullman, December 3, 1976	<p>“During my recent visit to the USA and Canada I visited a number of tobacco companies and was most encouraged to find a consensus emerging that some of the major companies expressed a wish to meet together to try to form a defensive smoking and health strategy, to avoid our countries and/or companies being picked off one by one, with a resultant domino effect.”</p>
20,409	Garrett letter to Holtzman, March 24, 1977, “Operation Berkshire.”	<p>“We have also prepared for your comment a draft statement which could be used in the unlikely event of our meeting becoming known to the Press. There is general agreement that we should make every effort to maintain tight security over our meeting, but we need to be prepared for the possibility of a leak.”</p>
21,904	Lockhart to Garrett, April 28, 1977	<p>“I now have pleasure in enclosing a copy of the Position Paper which we feel might be discussed during our time together attending Operation Berkshire. You may consider it prudent to distribute this paper to the various participants in advance and if you do may I ask you to stress the need for confidentiality and security as neither Philip Morris nor ourselves would wish the paper to fall into the wrong hands.”</p>

U. S. Exhibit	Description	Quotation
1 37,116	Brief Notes on Operation Berkshire - Shockerwick House, June 2 and 3, 1977	<p>“The film, predictably, follows the Imperial policy line, which appears to be that the company accepts that some adverse health effects are caused by smoking. Acting ‘responsibly,’ they have sought to co-operate with the authorities, while seeking a commercial advantage via NSM. Mr. Garrett’s presentation thus unblushingly pushed NSM, and by implication rather than direct admission, made concessions in the areas of Lung Cancer, Pregnancy, and to a lesser extent, Coronary Heart Disease.”</p> <p>...</p> <p><u>“At no time were subjects other than S &amp; H introduced for discussion, formally or informally.”</u></p> <p>...</p> <p>“Recommendations:</p> <p>“1. That PM regards the Berkshire Operation as a turning point in international co-operation on a matter of vital concern to the industry.”</p> <p>...</p> <p>“4. That the agreed position paper becomes the vehicle to activate Industry Associations throughout the world.”</p>

2 **Q. First, I call your attention to United States Exhibit 78,987, a Memorandum to the Files**  
3 **by Hugh Cullman of Philip Morris International, dated December 3, 1976. Dr.**  
4 **Harris, please remind us who Hugh Cullman was.**

5 A. It is my understanding that, at the time, Hugh Cullman had been Chairman of the Board and  
6 CEO at Philip Morris since 1967.

7 **Q. Second, I call your attention to United States Exhibit 22,980, a letter from R.A.**  
8 **Garrett of Imperial Tobacco Limited to Mr. Cullman, also dated December 3, 1976.**  
9 **Dr. Harris, who is R.A. Garrett?**

10 A. Tony Garrett was Chairman of Imperial Tobacco Limited.

11 **Q. Third, I call your attention to United States Exhibit 20,409, a letter from R.A. Garrett**  
12 **to Alex Holtzman, Associate General Counsel at Philip Morris, dated March 24, 1977,**

1           **concerning “Operation Berkshire.” Fourth, I have United States Exhibit 21,904, a**  
2           **letter from C.H. Stewart Lockhart to R.A. Garrett, dated April 28, 1977, concerning**  
3           **“Operation Berkshire.” Dr. Harris, from your study of the tobacco industry, can you**  
4           **identify Mr. Lockhart?**

5           A.     Mr. Lockhart was a lawyer with the Solicitor’s Office at BAT.

6           **Q.     Fourth, I draw your attention to United States Exhibit 37,116, a document entitled**  
7           **“Brief Notes on Operation Berkshire - Shockerwick House, June 2 and 3, 1977.” Dr.**  
8           **Harris, as an economist, what significance, if any, do you attach to these documents?**

9           A.     I call your attention to Mr. Cullman’s notes of his telephone call with Mr. Garrett (Exhibit  
10           78,987) and Mr. Garrett’s follow-up letter in connection with that call (Exhibit 22,980),  
11           both of which describe a proposed meeting of international tobacco companies.

12          **Q.     Dr. Harris, was the world cigarette market an oligopoly at the time these documents**  
13          **were written?**

14          A.     Although the situation was more complicated than in a single country such as the United  
15                States, the most accurate answer would be yes, it was and, in fact, still is.

16          **Q.     Please explain.**

17          A.     In some countries, the cigarette market was and still is dominated by a legal state  
18                monopoly. In many other countries, however, more than one firm has sold cigarettes. Most  
19                of these markets are oligopolies, with only a few sellers. A few large multinational  
20                companies have had and continue to have significant market shares in many such countries.

21          **Q.     Can you name such multinational companies with significant market shares in many**  
22          **countries?**

23          A.     British American Tobacco, R.J. Reynolds, and Philip Morris (now Altria) have subsidiaries  
24                that sell cigarettes in many countries.

1 **Q. Dr. Harris, were these among the companies that Mr. Garrett proposed for possible**  
2 **attendance at a meeting?**

3 A. Yes.

4 **Q. What was the objective of the proposed meeting?**

5 A. It was to develop an agreement among the participating firms that they make no voluntary  
6 concessions “beyond a certain point” in connection with smoking and health.

7 **Q. Why did Mr. Garrett see a need for such an agreement?**

8 A. In both his phone call to Cullman, and in his follow-up letter, Mr. Garrett described a  
9 “Domino effect.”

10 **Q. From the standpoint of an economist, how would you interpret Mr. Garrett’s use of**  
11 **the term “Domino effect?”**

12 A. I have already testified that joint denial of the adverse health effects of smoking by  
13 oligopolistic cigarette makers constitutes a form of cooperative conduct. The essence of  
14 such cooperation, as I have already indicated, is that each oligopolist benefits from denying  
15 that smoking causes disease so long as the others do, too. In connection with our  
16 discussion of the visit of British observers in the fall of 1964, I discussed how  
17 manufacturers in the United States, in particular, perceived that an admission of causation  
18 by any one manufacturer would the harm entire industry’s chances of defending against  
19 smokers’ lawsuits. Mr. Garrett’s analysis provides yet another motivation for international  
20 cooperation concerning admissions about smoking and health, in line with a “Domino  
21 effect.”

22 **Q. Please elaborate.**

23 A. With anti-smoking legislation threatened in many countries, many manufacturers were  
24 under pressure in those countries to make voluntary admissions that smoking caused

1 disease. However, if the firms in any one country made voluntary admissions that smoking  
2 caused disease, those admissions might establish sufficient precedent to pressure still other  
3 companies to capitulate. It might also embolden governments to take regulatory action in  
4 other countries. Garrett's idea was that the major sellers of cigarettes in the major markets  
5 would meet and agree to establish a boundary to their voluntary admissions, over which  
6 they would not willfully cross.

7 **Q. Dr. Harris, would such an agreement constitute evidence of collusion or competition?**

8 A. Collusion.

9 **Q. Why?**

10 A. Cigarette companies in some countries were finding it in their individual self-interest to  
11 make limited voluntary admissions about causation. An agreement to hold the line on such  
12 admissions - in order to avoid a "Domino effect" - would be in each company's interest  
13 only so long as all the companies did so.

14 **Q. Dr. Harris, was the proposed meeting a public event?**

15 A. No, it was not. In fact, as the documents indicate, there were plans for a "public affairs  
16 statement" in the event of a leak to the press. The draft "Position Paper" was regarded as  
17 confidential.

18 **Q. Dr. Harris, I direct your attention to the final exhibit in this group, United States  
19 37,116. What is the significance of this document, if any, for your economic analysis?**

20 A. First of all, the meeting actually took place in June 1977. Second, the summary, which  
21 appears to have been prepared by a writer from the point of view of Philip Morris, refers to  
22 a film shown by Imperial Tobacco company.

23 **Q. From the standpoint of economic analysis, what significance does this film have, if  
24 any?**

1 A. Imperial Tobacco was advocating or “pushing” a tobacco substitute called “new smoking  
2 material” or “NSM.” In connection with its objectives to “push” NSM, Imperial was  
3 advocating implicit admissions concerning specific adverse health effects of smoking,  
4 particularly lung cancer and complications of pregnancy. Imperial’s incentives fit precisely  
5 within the economist’s model.

6 **Q. How do Imperial’s objectives fit within the economist’s model?**

7 A. Imperial has an incentive to sell its new proprietary product, NSM. To sell this product,  
8 and thus to gain an advantage over rivals, Imperial believed that it had to make some  
9 admissions that smoking caused disease.

10 **Q. Why would Imperial believe that it had to make such admissions?**

11 A. It would be difficult to market NSM as “safer” unless you explain to consumers what it is  
12 “safer” than.

13 **Q. Why, then, did Mr. Garrett of Imperial call a meeting in the first place?**

14 A. If Imperial Tobacco independently and unilaterally made admissions that cigarette smoking  
15 might cause lung cancer, complications of pregnancy or other diseases, it would destabilize  
16 the collusive arrangement, whose goal was stave off further admissions. Therefore,  
17 Imperial’s best choice would be to get every participant to agree to a limited admission that  
18 would preserve the collusive arrangement but still give Imperial an advantage in selling its  
19 NSM.

20 **Q. Your demonstrative quotes a sentence in this document: “At no time were subjects  
21 other than S & H introduced for discussion, formally or informally.” This sentence is  
22 underlined in the original. What significance do you attach to the underscored  
23 statement?**

1 A. As I explained earlier in my discussion of explicit collusive arrangements, it is sometimes  
2 important in oligopolies to specifically carve out the scope of their collusive agreement,  
3 leaving some dimensions of business strategy open for independent competition. As an  
4 economist, I interpret the writer's comment to mean that only the dimension of smoking  
5 and health ("S & H") was on the table. No possibility of cooperation on any other  
6 dimension of business strategy was under consideration.

7 **Q. Lastly, with respect to this series of documents, I see that you have highlighted a**  
8 **sentence in which "PM regards the Berkshire Operation as a turning point in**  
9 **international co-operation..." Why did you choose to call this sentence to the Court's**  
10 **attention?**

11 A. The Shockerwick meeting appears to have marked the birth of an international cooperative  
12 organization called the International Committee on Smoking Issues, or "ICOSI." While  
13 ICOSI ultimately addressed many different issues, including the social acceptability of  
14 smoking and the possible benefits of cigarettes to smokers, the organization served as a  
15 vehicle for cooperation between the multinational firms and national manufacturers'  
16 associations ("NMA's) worldwide.

17 ***Q. Project XA Presentation to Liggett Board of Directors, January 1979***

18 **Q. Dr. Harris, I draw your attention to United States Exhibit 21,541, a document that**  
19 **begins with the words "Opening: In order to better explain the significant importance**  
20 **of our XA project, we have asked Mr. J.D. Mold, our Assistant Director of Research,**  
21 **to record his scientific review of this project." The marginalia at the top give a date of**  
22 **January 25, 1979. Dr. Harris, does this document have any relevance to your**  
23 **conclusions in this case?**



1 A. Yes, it does. The document is a draft of a presentation to the Liggett & Myers Board of  
2 Directors in January, 1979, concerning Project XA. Reading from page 2 of this document:

3 The XA project is meant to take advantage of the many years of  
4 research and money invested on the part of the Liggett & Myers  
5 Tobacco Company in attempting to develop a product that can be  
6 successfully and legally marketed, which offers consumers a  
7 distinctive product difference and alternative to the brands they may  
8 now be smoking.

9 **Q. What was Project XA?**

10 A. Through its Project XA, Liggett developed a prototype cigarette, based on the metal catalyst  
11 palladium, that was designed to reduce the carcinogenic polyaromatic hydrocarbons (or  
12 “PAHs”) in cigarette smoke.

13 **Q. Can you provide more background, at least in summary form?**

14 A. By 1972, researchers at Liggett and Myers had determined that the smoke from XA  
15 cigarettes, whose tobacco leaves were sprayed with a solution containing a salt of  
16 palladium as well as magnesium nitrate, contained lower concentrations of PAHs. By  
17 1976, Liggett researchers, in collaboration with Arthur D. Little Inc., had verified that the  
18 smoke condensate from XA cigarettes was also from 78 to 100 percent less carcinogenic in  
19 the standard mouse skin-painting model. In fact, they prepared a formal manuscript of  
20 these findings to be presented at an international scientific meeting in 1978. Although  
21 Liggett and Myers researchers were concerned that the added magnesium nitrate could also  
22 produce more carcinogenic nitrosamines in the cigarette smoke, they were prepared to  
23 overcome this problem by means of a carbon-based filter. Patents were obtained, and  
24 specific product prototypes in both 85mm and 100mm lengths, with and without menthol  
25 flavor, had been developed. The project was to be presented to the Board of Directors in

1 January 1979, at which proponents were proposing to launch a major marketing initiative  
2 intended to capture a 1.6-percent market share within 12 months of introduction.

3 **Q. Does United States Exhibit 21,541 reflect the planned presentation?**

4 A. Yes, it does. However, by the spring of 1979, the XA project had begun to falter, and  
5 Liggett was seeking to dispose of its palladium inventory. While presentations were made  
6 to European tobacco manufacturers in 1980, and while some internal documents suggest  
7 continued activity on the project as late as 1984, no product was marketed, at least for  
8 another 17 years.

9 **Q. Are there any other documents that support the summary you have provided?**

10 A. Relevant documents to support my account concerning Project XA include United States  
11 Exhibits 21,208, 21,195, 34,032, 34,033, 34,031, 59,285, 21,555, and 34,045.

12 **Q. What do you mean by “at least for another 17 years?”**

13 A. In 2001, Vector Tobacco Ltd, the successor to Liggett, began to market a new brand Omni,  
14 based upon the palladium catalyst derived from the XA prototype, along with a carbon  
15 filter.

16 **Q. Dr. Harris, did it take Liggett and its successor 17 years of continuous research to  
17 finally turn the XA prototype into a marketed brand?**

18 A. No. The XA prototype was, for all intents and purposes, abandoned in about 1984. Dr.  
19 Mold, who participated in the January 1979 presentation, left the company. Then, in the  
20 late 1980's, another Liggett researcher John Bunch learned about the XA technology and  
21 ultimately sought the assistance of Prof. Robert Bereman at North Carolina State  
22 University. In a 1998 review of the original patents, Professor Bereman confirmed that  
23 Liggett indeed had found a way to reduce PAHs in cigarette smoke.

24 **Q. On what do you base this account?**

1 A. I have reviewed thousands of pages of Project XA-related documents produced in this case,  
2 as well as the depositions of Mr. Bunch and Professor Bereman.

3 **Q. Why was the original XA prototype abandoned?**

4 A. Having reviewed thousands of pages of XA-related documents that were produced in this  
5 case, I have concluded that, in all likelihood, Liggett was intimidated by at least one other  
6 cigarette manufacturer into abandoning the project and not even attempting to market the  
7 cigarette. Other economic and scientific explanations for Liggett's decision - such as the  
8 costs of production including palladium, or technical difficulties in the process by which  
9 the palladium-laden casing solution was sprayed on the tobacco leaves, or questions about  
10 the scientific underpinnings of Liggett's PAH-reducing technology - are conceivable but are  
11 not clearly supported by the facts.

12 **Q. What is the basis for your conclusion that, in all likelihood, Liggett was intimidated**  
13 **by other cigarette manufacturers into abandoning the project and not even**  
14 **attempting to market the cigarette?**

15 A. I turn your attention to both the deposition and the trial testimony of Lawrence Meyer, who  
16 served as Liggett's antitrust counsel under the company's General Counsel Joseph Greer.  
17 Let me quote first from Mr. Meyer's deposition testimony on September 8, 1998 in State of  
18 Washington v. American Tobacco Company, et al. I quote first from the transcript at page  
19 100:15-101:20:

20 ... and Joe would report, you know, that Ernie Pepples specifically  
21 had told him that this was the dumbest project he had ever seen and  
22 that it was going to ruin the industry and - and - and certainly ruin  
23 Liggett.

24 Ernie Pepples was the general counsel for Brown & Williamson. ...  
25 And it was repeatedly said to me what Ernie was saying about this  
26 project, which, you know, Ernie Pepples describes, you know, as  
27 ridiculous, ruinness, crazy. And I say that with some authority  
28 because Ernie Pepples said the same thing to me.

1 Q. When did Mr. Pepples say something of that effect to you?

2 A. ...It was obviously in the course of some time we were in together  
3 in a Committee of Counsel context where you would see each other  
4 for breakfast or lunch or drink or dinner.

5 **Q. Dr. Harris, who is “Joe?”**

6 A. He is Joseph Greer, General Counsel at Liggett, who was senior to Mr. Meyer.

7 **Q. Who is Ernie Pepples?**

8 A. I testified about Mr. Pepples previously. Mr. Ernest Pepples, Brown & Williamson’s  
9 General Counsel, wrote the March 1977 letter to United States Tobacco’s General Counsel  
10 Jim Chapin concerning the employee whom the New York Post had quoted as saying that  
11 “It’s when you light tobacco you start doing damage.”

12 **Q. What is the “Committee of Counsel?”**

13 A. The Committee of Counsel was a committee of the Tobacco Institute composed of general  
14 counsel representing the major cigarette manufacturers, and sometimes attorneys from  
15 outside counsel representing cigarette manufacturers. My review of numerous internal  
16 documents indicates that the Committee of Council grew out of the Policy Committee and  
17 the Ad Hoc Committee, which were described in the October 1964 report of a British  
18 observer, United States Exhibit 20,152. The Committee of Council appears likewise to be  
19 a descendant of the committee of chief lawyers from each of the six major cigarette  
20 manufacturers who worked out a compromise with Lorillard over the phenol matter in  
21 December 3, 1964. From various internal documents memorializing the minutes of the  
22 Committee of Counsel during the late 1970’s, I have verified that Mssrs. Greer and Pepples  
23 were routinely present.

24 **Q. Dr. Harris, are there other portions of Mr. Meyer’s deposition testimony of**  
25 **September 8, 1998 that you wish to draw to the Court’s attention?**

1 A. I quote from pages 106:20-109:6 of the same deposition:

2 Q. Did anyone representing another tobacco company or another  
3 defendant in this case express to you any threat of retaliation if  
4 Liggett did not abandon the XA?

5 THE WITNESS: In that regard - I wouldn't characterize Alex  
6 Holtzman's comments in that regard, but I would certainly  
7 characterize Ernie Pepples' comments on more than one occasion  
8 exactly in that regard.

9 Q. Did Mr. Pepples threaten any specific acts of retaliation to you?

10 A. Well, I mean ... the comments, you know, were, you know,  
11 ruinness for the industry and - and certainly ruinness Liggett. ... You  
12 know, Liggett will not escape. ... I mean, there was no question that  
13 the implication of what Ernie was saying was there would be no  
14 more Liggett.

15 Q. Okay. Did you explore that with him and asked him what he  
16 meant?

17 A. No. No, we didn't have to. It was pretty clear.

18 Q. You knew what he meant?

19 A. Yeah, I knew that - that Brown & Williamson was threatening  
20 Liggett's very existence if they marketed or tried to market the  
21 cigarette.  
22  
23

24 Q. Did Mr. Greer describe to you any threats that he had received  
25 from any other members of the industry?  
26

27 A. I think I've answered that. And my memory is very clear on that.  
28 In fact, I saw it in Joe's notes. You know, Joe kept a very confidential  
29 group of notes that were part of ~he group of documents he sent me.  
30 I mean, I know that they were there because I -- I looked generally at  
31 what was there. And -- and Joe in those notes, if they still exist, will  
32 note, you know, Heard from Pepples, you know, quote, Bury us, you  
33 know. I mean, you know -- and as I try to explain, you know, don't --  
34 this wasn't -- you know, this wasn't mobsters talking. You know, this  
35 wasn't, you know, We're going to kill you. This was guys who were  
36 colleagues and worked together, you know, talking about, you know,  
37 a subject of -- of -- of what -- you know, of Ernie thought he could  
38 say to his friend Joe. I've ever heard back to me. Joe, this is the  
39 dumbest thing And this is what Joe reported.

1 . . .  
2 Q. Do you recall specifically that the words “bury us” were used?

3  
4 A. Absolutely.

5 **Q. Dr. Harris, who is Alex Holtzman?**

6 A. Alexander Holtzman was Associate General Counsel for Philip Morris from 1971 through  
7 April 1979; and Vice President and General Counsel from May 1979 through 1989. I  
8 identified Mr. Holtzman previously in connection with United States Exhibit 20,409, as  
9 recipient of a letter from R.A. Garrett of British-American Tobacco, dated March 24, 1977,  
10 concerning Operation Berkshire.

11 **Q. In the foregoing excerpt from Mr. Meyers deposition, are there any statements that**  
12 **are particularly important for your analysis?**

13 A. Yes. I have quoted statements from Mr. Meyer’s deposition that Ernest Pepples, the  
14 general counsel of Brown & Williamson, discussed the XA project with Joseph Greer the  
15 general counsel of Liggett, and that Mr. Pepples used such phrases as “Liggett will not  
16 escape,” “there would be no more Liggett,” and “bury us.” Moreover, according to Mr.  
17 Meyer, “Brown & Williamson was threatening Liggett’s very existence if they marketed or  
18 tried to market the cigarette.”

19 **Q. Are these statements consistent with independent, arm’s length competition, with**  
20 **conscious parallelism, or with collusion?**

21 A. They are consistent with collusion. Liggett’s introduction of the XA cigarette, along with  
22 statements explicitly calling attention to carcinogenic PAH’s and endorsing mouse skin-  
23 painting as relevant to human cancer, would have been cheating. In response, another firm,  
24 Brown & Williamson, threatened to “bury” Liggett, the potential cheater, that is, to take

1 predatory action should Liggett proceed to cheat. This credible threat was explicitly  
2 communicated between high-level representatives of Liggett and Brown & Williamson, in  
3 this case through Greer's and Pepples' common membership on the Committee of Counsel  
4 of the Tobacco Institute, Brown & Williamson.

5 **Q. Dr. Harris, you testified that you had also reviewed the trial testimony of Mr. Meyer.**  
6 **Are there any portions of his trial testimony that you wish to bring to the Court's**  
7 **attention?**

8 A. Yes. I draw your attention to Mr. Meyer's trial testimony in State of Washington v.  
9 American Tobacco Company, et al. on November 10, 1998 in the same case. I first quote  
10 from page 5505:13-5506:25 of the transcript:

11 Q Did Mr. Greer ever express to you any knowledge he  
12 might have of agreements between the American tobacco  
13 manufacturers regarding smoking and health?

14 ...

15 THE WITNESS: Yes.

16 ...

17 Q What agreements did he tell you existed in the American  
18 tobacco industry regarding smoking and health?

19 A Well, one of the discussions we had on more than one  
20 occasion was the fact that this project, the XA project, was a secret  
21 project. I mean, it was something that was not coordinated through  
22 what I guess is the Committee for Tobacco Research. It was  
23 something that Liggett was doing on its own. It was something that  
24 was being done exclusively by Liggett, the benefits, if there ever  
25 were any benefits, were going to be Liggett's.

26 There were no licenses outstanding. Nobody was supposed  
27 to know -- nobody in the industry was supposed to know about what  
28 was going on. And that was a problem for Joe, because there was at  
29 least a working agreement that they were going to be doing their  
30 research projects through a coordinated group like the Council for  
31 Tobacco Research.

32 I mean, these were agreements. Your question suggests  
33 conspiracy or arrangements. These were agreements. I think they  
34 were public agreements. I think the CTR and the industry announced  
35 these agreements, that research was being coordinated. But this  
36 project, the XA project, was not a coordinated project. It was not  
37 being done through, you know, this Council for Tobacco Research,  
38 or whatever it was called at the time.

1 **Q. How, if at all, does the foregoing excerpt of Mr. Meyer’s testimony contribute your**  
2 **conclusions concerning the conduct of Defendant manufacturers with respect to**  
3 **smoking and health?**

4 A. From the economist’s standpoint, the XA project was independent action in Liggett’s self-  
5 interest, that is, “if there ever were any benefits, were going to be Liggett’s.” The XA  
6 project was not intended to be common knowledge of the other manufacturers. The project  
7 was not “coordinated” through the CTR. In short, it constituted cheating.

8 **Q. In the quoted testimony, attorney Meyer draws distinctions between “a working**  
9 **agreement” and a “conspiracy.” How, if at all, is that relevant to your economic**  
10 **conclusions?**

11 A. From the economist’s standpoint, I don’t see the relevance of Mr. Meyer’s attempt to draw  
12 a legal distinction between “agreement,” “arrangement,” and “conspiracy.” What matters is  
13 that the conduct described in his testimony is consistent with the presence of collusion as  
14 the economist describes it. What he prefers to describe as a “working agreement” is  
15 consistent with what other documents called “the gentleman’s agreement.”

16 **Q. Are there other portions of Mr. Meyer’s trial testimony that you wish to bring to the**  
17 **Court’s attention in connection with your economic analysis?**

18 A. Let me quote further from pages 5511:4-5512:2

19 Q What did Mr. Greer tell you Mr. Pepples had said to him  
20 about the XA?

21 THE WITNESS: He was concerned that the XA project would be  
22 viewed as an admission against interest, not only on Liggett's behalf  
23 but on the industry's behalf.

24 Q Mr. Pepples's concern?

25 A Yes.

26 Q Did he describe anything else that Mr. Pepples told him about  
27 the XA?

28 A Yes.

29 Q What else did he say?

30 A Well, Mr. Pepples was pretty emphatic. Remember, he and  
31 Joe Greer -- if I had to pick his best friend on the Committee of  
32 Counsel it would have been Ernie Pepples. And he was just



1 concerned that this project was idiotic, and that it would be ruinous  
2 for the industry and it would be ruinous for Liggett, the project being  
3 the XA project.

4 **Q. Dr. Harris, how do you interpret the phrase “admission against interest” in the**  
5 **foregoing quoted testimony?**

6 A. Liggett’s introduction of the XA cigarette, along with statements explicitly calling attention  
7 to carcinogenic PAH’s and endorsing mouse skin-painting as relevant to human cancer,  
8 would have constituted an admission that currently marketed cigarettes indeed caused  
9 cancer. It would raise the problems for defense of lawsuits that had been repeatedly  
10 articulated over the years by attorneys for Defendant manufacturers. For example, in  
11 United States Exhibit 20,252, a scientist from BAT read a letter from Brown &  
12 Williamson’s general Addison Yeaman concerning the potential impacts of Lorillard’s  
13 claims in 1962-1964 about phenols in cigarette smoke. A similar letter could have been  
14 written in the late 1970’s, with the term “polyaromatic hydrocarbons” substituted for  
15 “phenols.”

16 **Q. Dr. Harris, you have quoted portions of Mr. Meyer’s testimony that the introduction**  
17 **of XA would be “ruinous” for Liggett. Is there any additional evidence that supports**  
18 **such a conclusion?**

19 A. Yes. Let me quote further from pages 5513:1-5514:3:

20 Q Did Mr. Greer ever express to you a belief one way or  
21 another about what would happen to Liggett if it marketed the XA?

22 A Yes.

23 Q What did he say about that?

24 A On more than one occasion Mr. Greer was convinced that  
25 they would not be able to participate in industry joint defense  
26 activities with regard to the civil litigation on smoking and health.

27 Q Had he been told that?

28 A Yes.

29 Q By whom?

1 A Well, by Mr. Pepples and others. But – again, the only name  
2 that I can attribute to this, and I do it reluctantly, is Mr. Pepples.  
3 Because that was the name that Joe used. I know that he heard from  
4 others, but I would be speculating and I don't want to speculate.

5 Q Did Mr. Greer hold the opinion as to what importance the  
6 ability to participate in the joint defense might have to Liggett, if  
7 any?

8 A Yes.

9 Q What was his opinion regarding that?

10 A Well, you know, I mean -- it was essential that Liggett be  
11 able to participate in these joint defense of smoking and health  
12 issues. It was absolutely essential. And that's what I reflected in my  
13 deposition in terms of the memo that I wrote.

14 **Q. How does the quoted passage support your conclusions concerning the consequences**  
15 **for Liggett if it marketed the XA cigarette?**

16 A. The quoted passage indicates that one of the consequences to Liggett would be exclusion  
17 from joint legal defense activities. Since Liggett's introduction of the XA cigarette could  
18 constitute an admission that currently marketed cigarettes indeed caused cancer, it would  
19 implicate the cigarettes of all cigarette manufacturers in the oligopoly. In that case, the  
20 other manufacturers' would have an incentive to divorce themselves from any such  
21 admissions, which would make a joint legal defense difficult.

22 **Q. Dr. Harris, do you claim any expertise in the rights of individuals or corporations to**  
23 **have joint legal defense?**

24 A. No.

25 **Q. How is the discussion of joint legal defense activities relevant to your economic**  
26 **analysis?**

1 A. From the economist's standpoint, however, reducing the risk of a cascade of successful  
2 smokers' lawsuits was a common interest among cigarette manufacturers. Joint legal  
3 defense represented an important means that cigarette manufacturers could act together to  
4 reduce such a risk. Exclusion of a cigarette manufacturer from such a collective enterprise  
5 could be a serious economic blow.

6 **Q. Are there any other portions of Mr. Meyer's trial testimony that are relevant to your**  
7 **economic analysis?**

8 A. Yes. Let me quote from pages 5515:21-5516:22:

9 Q Did Mr. Greer say anything further about what Mr. Pepples  
10 had said to him?

11 A Beyond my earlier answer, yes.

12 Q What else did he say?

13 A Well, again, these conversations all sort of fall together over  
14 time. But he clearly said, as I said earlier, that it would be ruinous  
15 for the industry and ruinous for Liggett.

16 And he also said -- and that was the reason why Joe was  
17 concerned, that Liggett would have a hard time and certainly would  
18 not be able to participate in the industry joint defense. There was  
19 some discussion whether Liggett would even be permitted to  
20 participate in the Tobacco Institute if it went forward in such a crazy  
21 fashion. Remember, I also said - these weren't -- let's not use the  
22 word threatening, these were statements made by Mr. Pepples, he felt  
23 strongly about them. They weren't threats as such. They were  
24 threatening statements in a sense that, gee, these kind of things can  
25 happen.

1                   But I don't want you to think that someone was taking a  
2 contract out on Joe or something. They weren't. This was just sort  
3 of a guy who tended to be excited from time to time, really  
4 concerned that this thing was idiotic, and this started when the first  
5 press reports surfaced about the fact that Liggett had received this  
6 patent on the XA process.

7 **Q. How is the foregoing passage relevant to your analysis?**

8 A. While Meyer testifies that there was no “threats as such,” from the economist’s standpoint,  
9 the possibility of Liggett’s exclusion from joint legal defense activities and from the  
10 Tobacco Institute could not be dismissed as mere posturing because the costs of exclusion  
11 were perceived to be too high.

12 **Q. Dr. Harris, do you draw any conclusions from the foregoing testimony concerning the**  
13 **fate of the collusive arrangement among Defendant manufacturers in the face of**  
14 **Liggett’s development of the XA cigarette?**

15 A. The facts support the conclusion that, as a result of credible threats, Liggett withdrew its  
16 XA project, and the collusive arrangement among cigarette manufacturers once again  
17 stayed intact.

18 **Q. Dr. Harris, suppose it was the case that Liggett actually withdrew from the joint legal**  
19 **defense a number of years later. Does that fact change your economic analysis?**

20 A. No. What matters is how Mr. Greer, acting as Liggett’s General Counsel, gauged the costs  
21 of exclusion from a joint legal defense at the time the threat was made.

22 **Q. Dr. Harris, I want to draw your attention to some other portions of Mr. Meyer’s trial**  
23 **testimony. On page 5528, Mr. Meyer related that some of his discussions with Mr.**  
24 **Greer concerning the statements of Ernest Pepples occurred in 1983, at which other**

1           **events were going on. In particular, there was “The introduction by Brown &**  
2           **Williamson -- the threatened introduction by Brown & Williamson of generic**  
3           **cigarettes in competition with Liggett's generic line.” Dr. Harris, do you know what**  
4           **Mr. Meyer was referring to?**

5           A.     Yes.

6           **Q.     Are there specific portions of Mr. Meyer’s testimony that will help you to explain**  
7           **your answer?**

8           A.     Yes. Mr. Meyer testified that he, as antitrust counsel, was in the process of filing a legal  
9           complaint against Brown & Williamson. I quote from page 5542:1-14:

10           Q     In very brief fashion, perhaps you could tell the jury why  
11           Liggett was suing Brown & Williamson?

12           A     Well, we were suing Brown & Williamson because we felt  
13           that Brown & Williamson was engaged in ruinous price competition,  
14           unfair, ruinous price competition with respect to generic cigarettes  
15           that had been introduced successfully by Liggett at that time, and that  
16           they were passing off their own generics as Liggett's cigarettes.

17                     So it was not only the price competition, but it was the fact  
18           that they were passing their cigarette off as essentially the same as  
19           Liggett's. And that was creating massive problems for us in the  
20           marketing -- continued marketing of the Liggett brands.

21           **Q.     When Mr. Meyer refers to “suing Brown & Williamson,” what is he referring to?**

22           A.     In July 1983, Brown & Williamson entered the market for so-called “black and white”  
23           generic cigarettes, which had been the exclusive domain of Liggett. Brown & Williamson  
24           offered much deeper rebates and volume discounts to wholesalers than did Liggett. Liggett  
25           sued Brown & Williamson for “predatory pricing,” claiming Brown & Williamson’s net  
26           price was well below its average costs. Ultimately, the United States Supreme Court ruled

1 against Liggett, concluding that, whatever the relation between Brown & Williamson's net  
2 price and its average costs, Liggett had not shown injury to competition.

3 **Q. How would you, as an economist, interpret Brown & Williamson's entry into the**  
4 **generic "black and white" cigarette market, cutting price below that of Liggett?**

5 A. It is evidence of some degree of price competition among cigarette manufacturers.

6 **Q. Why do you qualify your answer with "some degree?"**

7 A. As you recall, I wrote a chapter in Tax Policy and the Economy, in which I described how  
8 manufacturers raised their wholesale cigarette prices by 16 cents per pack in response to the  
9 8-cent increase in the 1983 federal excise tax. This response, I explained, was consistent  
10 with the oligopolistic structure of the cigarette industry. Thus, it would be inappropriate to  
11 describe price practices in the cigarette industry as perfectly competitive. Nonetheless,  
12 Brown & Williamson's entry into the generic black-and-white cigarette market in 1983  
13 would be properly described as competitive. The same applies to the industry-wide "price  
14 war" that began in April 1993, which I described in my article in the Morbidity and  
15 Mortality Weekly Report in 1996.

16 **Q. How does your conclusion that there was some degree of price competition bear, if at**  
17 **all, on your analysis of the conduct of Defendant manufacturers with respect to**  
18 **smoking and health?**

19 A. As I have testified previously, not all dimensions of business strategy need be within the  
20 scope of a collusive arrangement. In this case, price was not.

21 ***R. The Holland Barclay Incident between Philip Morris and BAT, Fall 1983***

22 **Q. Dr. Harris, do you have any additional demonstratives to present to the Court?**

23 A. Yes, I have prepared Demonstrative #8, entitled, "The 1983 Barclay-Holland Incident  
24 between Philip Morris and BAT."

**DEMONSTRATIVE #8: THE 1983 BARCLAY-HOLLAND INCIDENT BETWEEN  
PHILIP MORRIS AND BAT**

U. S. Exhibit	Description	Quotation
36,958, 78,984	Letter and Telex dated September 9, 1983: "Attn: Mr. Weissman: Following is the text of letter sent to you today by Mr. Sheehy, Chairman of B.A.T. Industries"	"I find it incomprehensible that Philip Morris would weigh so heavily the short-term commercial advantage from deprecating a competitor's brand while weighing so lightly the long-term adverse impact from an ongoing anti-smoking programme. I believe this is the first time a tobacco manufacturer has purchased space to promulgate the anti-smoking position. In doing so, Philip Morris not only makes a mockery of Industry co-operation on smoking and health issues, but also appears to inaugurate a free-for-all..."
78,985	"Letter to All No. 1s of Operating Companies," by E.A.A. Bruell of British-American Tobacco Company Ltd, dated September 20, 1983.	<p>"This advertisement is the first occasion of which we are aware when a competitor has: 1. Raised the health issue to gain a competitive advantage."</p> <p>"As Chairman of INFOTAB regrettably have to inform you that in view of Philip Morris advertisement in the Dutch papers of 2nd September, BAT has decided to withdraw from all co-operation with INFOTAB for the time being."</p> <p>"Needless to say, BAT's policy remains unchanged, namely that in no circumstances will we use health issues or statements by anti-smoking organisations for competitive purposes."</p>
20,236	Appendix to E.A.A. Bruell letter of September 20, 1983: English translation of a full-page advertisement in newspapers in Holland on September 2, 1983.	<p>"A message about which smokers must not think too lightly..."</p> <p>"People think that there exists no health danger anymore now, but research in America has proved that smokers, who slightly compress the Barclay filter between their lips, will take in six times as much nicotine and tar as stated on the packing."</p>

1

U. S. Exhibit	Description	Quotation
46,577	Transcript of telephone conversation between H. Cullman and E.A.A.B, October 26, 1983.	<p>H.C. Essential Industry hang together. Holland activity was not PM company policy. They must try to prevent this happening in the future. Happy to say this to the INFOTAB Board and anything else EB would like stated.</p> <p>E.B. Concerned that this should never happen again and therefore PM's message should go out to all parts of the world.  If (a) the statement is made by PM and (b) it is sent out by INFOTAB or PM, we would be much closer to a solution. ...</p> <p>H.C. ... For clarity repeated - "PM to instruct its No 1's they must not use anti-smoking activities, statements or programmes for competitive gain. What happens if people broke the rule?</p> <p>E.B. Would expect PM to take drastic action with offender. ... Could H.C. advise his overseas companies to inform BAT overseas companies about this message so they can feed back to EB. Essential to ensure that in future no member of the Industry does anything similar.</p>



U. S. Exhibit	Description	Quotation
1 26,272	“Letter to All No. 1s of Operating Companies,” by E.A.A. Bruell of British-American Tobacco Company Ltd, dated November 1, 1983.	<p>“...the problem in connection with the Philip Morris advertisement in Holland on 2nd September 1983, had been resolved.”</p> <p>“At that meeting Hugh Cullman of Philip Morris indicated his regret over what the Philip Morris company in Holland had done on the 2nd September, and he made the following statement: ‘ it is the policy of Philip Morris Inc that statements of anti-smoking organisations will not be endorsed in its advertising. This policy has been communicated to our management worldwide’ .”</p> <p>“In view of this statement and its communication throughout the Philip Morris Group, BAT have decided to resume full co-operation with INFOTAB and the NMAs. I would however, like to reiterate BAT’s policy, namely that in no circumstances will we use health issues or statements by anti-smoking organisations for competitive purposes.”</p>

2

3 **Q. Dr. Harris, I have a series of exhibits that I would like you to discuss together, and**  
4 **which I am introducing to you in chronological order. First, I have United States**  
5 **Exhibits 78,984 and 36,958, which are a letter and telex dated September 9, 1983, with**  
6 **the opening lines: “Attn: Mr. Weissman: Following is the text of letter sent to you**  
7 **today by Mr. Sheehy, Chairman of B.A.T. Industries:-” Before I continue, could you**  
8 **identify Mr. Weissman?**

9 **A.** It is my understanding that George Weissman was Chairman and CEO of Philip Morris Inc.  
10 from 1979-1984.

11 **Q. Second, I have United States Exhibit 78,985, which is a “Letter to All No. 1s of**  
12 **Operating Companies,” by E.A.A. Bruell of British-American Tobacco Company Ltd,**  
13 **dated September 20, 1983. Third, I have United States Exhibit 20,236, which is an**  
14 **appendix to the aforementioned letter, and which represents an English translation of**

1 **a full-page advertisement that was inserted in the morning papers on September 2,**  
2 **1983 in Holland. Who is E.A.A. Bruell?**

3 A. It is my understanding that Eric Alfred Albert Bruell was a member of the BAT Industries  
4 Board of Directors, while Mr. Sheehy, whom you identified previously, was Chairman of  
5 the Board.

6 **Q. Fourth, I have United States Exhibit 46,577, which memorializes a telephone**  
7 **conversation between H. Cullman and E.A.A.B. on October 26, 1983. Is E.A.A.B the**  
8 **same person as Mr. Bruell?**

9 A. Yes.

10 **Q. Again, Dr. Harris, for clarity, could you identify Mr. Cullman?**

11 A. It is my understanding that the H. Cullman is the Hugh Cullman that I identified in  
12 connection with Operation Berkshire. He was Chairman of the Board and CEO at Philip  
13 Morris from 1967-1978, Group Executive Vice President at Philip Morris from 1979-1983,  
14 and a member of the Board of Directors in 1962 and from 1965-1985.

15 **Q. Fifth, I have United States Exhibit 26,272, which is another “Letter to All No. 1s of**  
16 **Operating Companies,” by Mr. Bruell, dated November 1, 1983. Now, Dr. Harris,**  
17 **can you describe the context in which the series of documents appeared?**

18 A. On September 2, 1983, Philip Morris Holland B.V. published a full-page advertisement in  
19 the national newspapers De Telegraaf and Algemeen Degblad in the Netherlands with the  
20 heading, “A message about which smokers must not think too lightly.” The text of the  
21 advertisement included an attack on BAT’s “healthy” brand Barclay: “People think that  
22 there exists no health danger anymore now, but research in America has proved that  
23 smokers, who slightly compress the Barclay filter between their lips, will take in six times  
24 as much nicotine and tar as stated on the packing.” Attached to the advertisement was an  
25 excerpt of an editorial by a local anti-smoking organization that specifically cautioned that  
26 so-called smoker’s cough was a form of chronic bronchitis.

1 **Q. Dr. Harris, was Barclay advertised as a low tar cigarette?**

2 A. Yes. Brown & Williamson, the United States subsidiary of BAT, advertised the Barclay  
3 brand in this country in the early 1980's as "99 percent tar free," asserting that it had a 1  
4 milligram tar rating.

5 **Q. Was there any dispute about Barclay's tar rating?**

6 A. Yes. Other cigarette manufacturers disputed the assertion about Barclay's tar rating of  
7 1mg, claiming that the filter tip design of Barclay circumvented the standard test method by  
8 which smoking machines measured tar and nicotine. In fact, in the United States, Philip  
9 Morris and R.J. Reynolds complained about Barclay to the Federal Trade Commission.  
10 Similar legal disputes about Barclay's advertising claims broke out in other countries, such  
11 as Switzerland. These documents refer to the situation in Holland.

12 **Q. Did BAT have subsidiaries that sold cigarettes in a number of countries, including  
13 Holland and the United States?**

14 A. Yes.

15 **Q. Did Philip Morris have subsidiaries that sold cigarettes in a number of countries,  
16 including Holland and the United States?**

17 A. Yes.

18 **Q. When Philip Morris took out the advertisement in Holland newspapers, how did BAT  
19 respond?**

20 A. BAT insisted not only that Philip Morris cease the practice, but also issue a formal  
21 retraction of the advertisement. In Bruell's telex of September 9, he threatens legal action  
22 if Philip Morris does not print such a retraction. I draw your attention to the following  
23 quotation:

24 I find it incomprehensible that Philip Morris would weigh so heavily  
25 the short-term commercial advantage from deprecating a  
26 competitor's brand while weighing so lightly the long-term adverse  
27 impact from an ongoing anti-smoking programme. I believe this is

1 the first time a tobacco manufacturer has purchased space to  
2 promulgate the anti-smoking position. In doing so, Philip Morris not  
3 only makes a mockery of industry co-operation on smoking and  
4 health issues, but also appears to inaugurate a free-for-all . . . .

5 **Q. Dr. Harris, how would you apply the economics of oligopoly strategy to analyze**  
6 **Bruell's telex?**

7 A. Bruell is articulating the strategic choice faced by cigarette manufacturers as oligopolists,  
8 not only in the United States but in many other markets worldwide. In this case, Philip  
9 Morris has been identified by BAT as cheating from the cooperative agreement not to use  
10 anti-smoking health messages for the purpose of "deprecating a competitor's brand." In  
11 turn, BAT threatens retaliation.

12 **Q. Is this an example of "tit for tat," which you discussed before?**

13 A. No. In the case of pure "tit for tat," that is, an entirely in-kind response, BAT would use  
14 anti-smoking health messages to disparage Philip Morris' brands. Here, BAT is threatening  
15 to undo the collusive arrangement, to create a "free-for-all" through legal action.

16 **Q. Does BAT, as an oligopolist, threaten a permanent breakdown in the collusive**  
17 **arrangement?**

18 A. Not necessarily. Still, as I discussed earlier, long-term breakdowns in collusion provide  
19 superior incentives against cheating because the long-term costs of the breakdown more  
20 likely exceed the short-term profits to be gained. In fact, Bruell actually articulates the  
21 tradeoff between "the short-term commercial advantage" of Philip Morris' attack and "the  
22 long-term adverse impact" if both firms ended up, through arm's length competition,  
23 effectively contributing to the "anti-smoking" program.

24 **Q. Did BAT threaten or carry out any sanctions besides legal action?**

25 A. Yes. Not only did BAT institute legal action, but it withdrew "for the time being" from  
26 INFOTAB, an international organization within which BAT, PM, and other companies  
27 cooperated on issues of "smoking and health," as the document puts it.

1 **Q. Dr. Harris, do you know the origins of INFOTAB?**

2 A. Formed during 1978-1979, INFOTAB was the successor organization to ICOSI, which in  
3 turn arose out of the Operation Berkshire meeting in Shockerwick House in 1977.

4 **Q. What is the significance of BAT's threat to withdraw temporarily from INFOTAB?**

5 A. Again, as in my earlier discussion. BAT as an oligopolist threatened to undo the collusive  
6 arrangement in other ways other than simple tit for tat. In this case, BAT did not commit to  
7 a permanent withdrawal from INFOTAB, but left open the option of rejoining the  
8 cooperative arrangement if Philip Morris retracted. Nonetheless, the letter makes clear that  
9 BAT is prepared to endure the economic and public relations losses attendant to withdrawal  
10 from INFOTAB to teach the cheater a lesson. I call your attention to Bruell's assertion that,

11           Needless to say, BAT's policy remains unchanged, namely that in no  
12           circumstances will we use health issues or statements by anti-  
13           smoking organisations for competitive purposes.

14 Thus, in this case, BAT did not intend to counter Philip Morris' cheating an in-kind tit-for-  
15 tat response.

16 **Q. Dr. Harris, did Philip Morris ultimately agree to cooperate?**

17 A. Yes. I draw your attention to the transcript of the conversation between Bruell and Hugh  
18 Cullman on October 26, 1983, from which I quote:

19           H.C. Essential Industry hang together.  
20           Holland activity was not PM company policy.  
21           They must try to prevent this happening in the future.  
22           Happy to say this to the INFOTAB Board and anything else  
23           EB would like stated.

24  
25           E.B. Concerned that this should never happen again and therefore  
26           PM's message should go out to all parts of the world.  
27           If (a) the statement is made by PM and (b) it is sent out by  
28           INFOTAB or PM, we would be much closer to a solution.

1 . . .

2 H.C. . . . For clarity repeated - “PM to instruct its No 1’s they must  
3 not use anti-smoking activities, statements or programmes for  
4 competitive gain.

5 What happens if people broke the rule?

6 E.B. Would expect PM to take drastic action with offender.

7 . . .

8 Could H.C. advise his overseas companies to inform BAT  
9 overseas companies about this message so they can feed back  
10 to EB.

11 Essential to ensure that in future no member of the Industry  
12 does anything similar.

13 **Q. Dr. Harris, what is the significance of this conversation from the standpoint of**  
14 **economic analysis of cigarette manufacturers’ conduct on smoking and health?**

15 A. Philip Morris agreed, on a worldwide basis, not to “use anti-smoking activities, statements  
16 or programmes for competitive gain.” Philip Morris thus agreed to cooperate in the  
17 collusive arrangement. Moreover, Philip Morris agreed to take “drastic action” to ensure  
18 that the heads of its operating companies in different countries did not violate the collusive  
19 arrangement. What is more, Philip Morris and BAT agreed that the cheating that did take  
20 place should not happen again. Hugh Cullman of Philip Morris stated, “Essential Industry  
21 hang together.” Bruell of BAT concluded, “Essential to ensure that in future no member of  
22 the Industry does anything similar.”

23 **Q. Dr. Harris, from the economic standpoint, does this conversation share any features**  
24 **in common with the incident described in the letter from Ernest Pepples of Brown &**  
25 **Williamson in March 1977 concerning the statements of a former employee of United**  
26 **States Tobacco?**

1 A. Yes, it does. The existence of a collusive agreement does not guarantee that individual  
2 agents of the participating firms will never violate the agreement. In the March 1957  
3 example, an employee of United States Tobacco made a public statement contrary to the  
4 agreement. Here, in September 1983, individuals in Philip Morris' operating division in  
5 Holland took out advertisements that were contrary to the agreement. In each case, explicit  
6 communication between high-level operatives in each firm prevented a breakdown of  
7 collusion.

8 **Q. Do these events illustrate the strength or the weakness of the collusive arrangement?**

9 A. They show its enduring strength, not only in the face of the changing science of smoking  
10 and health, not only in the face of unauthorized transgressions by lower-down employees,  
11 but also across international boundaries.

12 **Q. Dr. Harris, could such a collusive arrangement have been maintained through tacit  
13 understandings or conscious parallelism?**

14 A. From the economist's standpoint, it would have been quite difficult.

15 **Q. Dr. Harris, I draw your attention to United States Exhibit 26,272, the last in this  
16 series. What significance does this document have, if any?**

17 A. Philip Morris ultimately agreed to abide by the collusive arrangement with BAT. The  
18 agreement was apparently sealed in a meeting of INFOTAB on October 29, 1983, where  
19 Bruell and Hugh Cullman met face to face. In response, BAT agreed to rejoin INFOTAB  
20 and other national manufacturers associations (NMAs), that is, to withdraw all sanctions.

21 **Q. Dr. Harris, did Philip Morris' agreement to retract its advertisements in Holland and  
22 BAT's agreement to rejoin INFOTAB end the dispute over Barclay?**

23 A. No. Philip Morris' lawsuit over Barclay in Switzerland continued. The crux of the lawsuit  
24 in Switzerland and some other countries, as I have noted, was Philip Morris' allegation that  
25 the filter tip design of Barclay circumvented the standard test method by which smoking  
26 machines measured tar and nicotine. One proposed means to resolve the dispute was to

1 change the standard test method, which in Europe was called the “ISO” (or “International  
2 Standards Organization”) method.

3 **Q. Was the ISO method the same as the FTC method?**

4 A. Yes.

5 **Q. Why wasn’t the proposal to change the ISO method acceptable to all sides?**

6 A. By the early 1980's, the public scientific literature was displaying an increasingly clear  
7 consensus that consumers did not smoke low-tar filter cigarettes in the same way that they  
8 smoked conventional medium-tar filter cigarettes or high-tar non-filter cigarettes. In  
9 particular, smokers of low-tar cigarettes were found to “compensate” by inhaling more  
10 deeply, taking larger and longer puffs, and blocking the small air vents inserted on the side  
11 of the filter tip. This public scientific literature began to raise questions about the relevance  
12 of the standard test method, which relied on smoke samples obtained from smoking  
13 machines. The problem with any proposed change in the standard test method (be it “FTC”  
14 or “ISO”) was that it might place the entire issue of compensation on the table.

15 **Q. Dr. Harris, have you contributed to the literature on the relevance of the standard test  
16 method?**

17 A. Yes, in 1994, I made an invited presentation before the President’s Cancer Panel  
18 concerning the adequacy of tar, nicotine and CO as indicators of health risk and proposed  
19 an alternative testing and reporting methods. In a 2001 article in a peer-reviewed journal, I  
20 found that a brand’s standard machine-measured tar yield was a relatively weak predictor of  
21 its delivery of tobacco-specific nitrosamines. Most recently, in January 2004, in a peer-  
22 reviewed article in the British Medical Journal, I found that smokers of low-tar and very  
23 low-tar cigarettes in the United States had risks of lung cancer comparable to those who  
24 smoked conventional medium-tar filter cigarettes. Still, these contributions were made a  
25 number of years after the BAT-Philip Morris dispute over Barclay erupted.

26 **Q. Dr. Harris, what do mean when you say a proposed change in the standard ISO  
27 method might put the entire issue of compensation on the table?**



1 A. In a series of documents written later during the 1980's, BAT threatened that if Philip  
2 Morris persisted in its attacks on Barclay, then BAT would bring the entire issue of the  
3 inaccuracy of machine-measured tar and nicotine ratings to the attention of consumers and  
4 regulators.

5 **Q. Dr. Harris, how do you know that BAT threatened to bring the entire issue to the**  
6 **attention of consumers and regulators?**

7 A. I turn your attention to United States Exhibit 85,062, which is summary of an August 24,  
8 1987 meeting attended by Mr. Bruell from BAT, Mssrs. Sandefur and Pepples from Brown  
9 & Williamson, and others. I quote:

10 We should say that unless attacks on Barclay cease or the Industry is  
11 prepared to support a modification of the ISO standard to show the  
12 average figure for all ventilated products, including Barclay, then we  
13 will take whatever action is appropriate to make known to consumers  
14 the fact that machine figures do not provide an accurate guide to  
15 human uptake from all ventilated products. . . . If the Industry  
16 permits the attack upon Barclay to continue or is not prepared to  
17 accept a revision of the ISO standard for all ventilated products, then  
18 we would propose to put these threats into operation and to publicise  
19 to consumers, consumer organisations and national regulators the  
20 true scientific position concerning the measurement of tar and  
21 nicotine deliveries of all ventilated products.

22 **Q. What was the significance of BAT's threats for the cigarette industry as a whole?**

23 A. While manufacturers used various methods to reduce the machine-measured tar and  
24 nicotine ratings of their brands, the main technology was the insertion of small ventilation  
25 holes in the filter to permit air dilution of the puffed smoke. Compensation for low-tar  
26 cigarettes was, in fact, a problem generic to this ventilation technology, and not just any one  
27 company's cigarettes. Alerting consumers and government to the questionableness of the  
28 machine-measured ratings on all ventilated cigarettes would destabilize the well-established  
29 agreement that firms could still compete on "the numbers." What is more, broaching the

1 issue of compensation would necessarily highlight the fact that smokers used cigarettes to  
2 get a necessary dose of nicotine.

3 **Q. We'll come back to the issue of nicotine. How did Philip Morris respond to BAT's**  
4 **threats?**

5 A. Representatives of Philip Morris met with representatives of BAT and Brown &  
6 Williamson in Neuchatel, Switzerland in an attempt to resolve the matter.

7 **S. Meeting with BAT/B&W and Philip Morris, January 1989**

8 **Q. In accordance with your chronological approach, I have another exhibit from**  
9 **November 1988 to draw to your attention. But, if I may, I would like to continue the**  
10 **current line of inquiry. Accordingly, I direct your attention to United States Exhibit**  
11 **26,783, a memorandum from J.B. Boder in Neuchatel, Switzerland, dated January 23,**  
12 **1989, entitled "Meeting with BAT/B&W and PM." Dr. Harris, what is your**  
13 **understanding as to the identity of J.B. Boder?**

14 A. Jean-Bernard Boder was Director of Research and Development Services, Philip Morris  
15 Europe.

16 **Q. This memorandum was addressed to S.C. Darrah. Can you tell us who S.C. Darrah**  
17 **was?**

18 A. From 1984 through 1989, Stephen C. Darrah was Vice President, Operations EECR, Philip  
19 Morris International, EEC Region. I believe that "EECR" and "EEC Region" refer to the  
20 European Economic Community, which was one of Philip Morris International's  
21 designated areas of operation.

22 **Q. This memorandum was copied to M.C. Bourlas. Can you tell us who M.C. Bourlas**  
23 **was?**

1 A. From September 1987 through February 1992, Manuel C. Bourlas was Director, Research  
2 and Development, Philip Morris Incorporated.

3 **Q. Mr. Boder's letterhead contains the address "F.T.R. Research and Development."  
4 Can you identify this organization for the Court?**

5 A. Fabriques de Tabac Reunies, located in Neuchatel, Switzerland, was one of Philip Morris'  
6 research and development facilities in Europe.

7 **Q. The document describes a meeting between Mr. Boder and representatives from  
8 British American Tobacco and Brown & Williamson. Among those present was L.  
9 Reynolds ("M.L.R."), representing Brown & Williamson. Can you identify Mr.  
10 Reynolds?**

11 A. Yes. Martin Lance Reynolds, who was at one time designated by Defendants as an expert  
12 witness in this case, was Director of Research and Brown & Williamson from 1986 through  
13 1991.

14 **Q. Dr. Harris, I draw your attention to the following section of the document.**

15 TERMS

16 BAT understand that our promise not to start any retrospective  
17 litigation if we reach an agreement is an important step forward.

18 However, they thought the Swiss case was included in the package.

19 **Q. Dr. Harris, what do you understand to be the "Swiss case?"**

20 A. I believe that this represents the continuing legal complaints lodged by Philip Morris  
21 against BAT in Switzerland.

22 **Q. Dr. Harris, I draw your attention to the following portion on page 2 of this document.**

23 vi) **BAT offered to stop promoting the 1mg tar claim as soon  
24 as an agreement is reached, in spite of the fact that it will**

1                   **take some months/years for all national regulations to be**  
2                   **modified. ...**

3                   **vii) BAT had planned to help SASO to make a human**  
4                   **smoking behavior study in Saudi Arabia to show the**  
5                   **difference in tar delivery between human and machine**  
6                   **smoking for low tar products. These kinds of tests are**  
7                   **extremely dangerous for the entire industry and BAT**  
8                   **accept to cancel it.**

9                   **The emphasis is in the original document. Dr. Harris, what is SASO?**

10                  A.       SASO is “Saudi Arabian Standards Organization,” the analogue of ISO in Saudia Arabia.

11                  **Q.       Dr. Harris, what conclusions, if any, do you draw from quoted section of this**  
12                  **document?**

13                  A.       For many years, Defendant cigarette manufacturers had an explicit agreement, going back  
14                  to late 1953, not to make adverse health claims about each others’ products. As I testified  
15                  earlier, the business environment was significantly altered with the widespread publication  
16                  of tar and nicotine ratings in the late 1950's by such independent entities as Reader’s Digest  
17                  and Consumer Reports. To preserve their cooperative arrangement in the face of a new  
18                  business environment, manufacturers began to compete on “the numbers,” but still sought  
19                  jointly to avoid any explicit claims about the health significance of such ratings or any  
20                  claims that competitors’ brands were unhealthy. When BAT and Brown & Williamson  
21                  introduced Barclay as a 1mg cigarette, such an act, while apparently competing “on the  
22                  numbers,” nonetheless raised issues that threatened to destabilize the collusive  
23                  arrangement. As we know from the Holland incident, Philip Morris first retaliated by  
24                  making direct health-related attacks on Barclay, and BAT responded by withdrawing from  
25                  INFOTAB. With Philip Morris continuing to press its case in Switzerland, BAT threatened

1 to publicize the unreliability of “the numbers” themselves, thus threatening the common  
2 interests of all the firms in the entire industry. The threat was apparently sufficient to  
3 induce Philip Morris ultimately to withdraw its complaints, and manufacturers continued to  
4 compete “on the numbers” while the collusive arrangement was maintained. The episode  
5 attests to the enduring strength of the collusive arrangement in the face of serious  
6 destabilizing threats by participating firms.

7 ***T. Premier - Concept and Product Reactions, November 1988***

8 **Q. Dr. Harris, I now direct your attention to United States Exhibit 20,363, a Philip**  
9 **Morris memorandum Page Callahan in the Consumer Research Group concerning**  
10 **“Premier - Concept and Product Reactions,” dated November 7, 1988. What**  
11 **significance, if any, does this document have for your economic analysis of Defendant**  
12 **manufacturers’ conduct with respect to smoking and health?**

13 A. An accurate response requires me to offer some background, by way of summary,  
14 concerning Premier, an alternative cigarette product that heated rather than burned tobacco.  
15 This specific product was test-marketed by R.J. Reynolds in September 1987, but later  
16 withdrawn in 1988.

17 **Q. Please proceed with your brief background summary.**

18 A. The concept of a cigarette that heated rather than burned tobacco was articulated in internal  
19 company documents as early as 1960. A prototype non-burning cigarette, code-named  
20 “Ariel,” was developed by British American Tobacco during 1962-1964 and disclosed  
21 publicly in two patents issued in 1966 and 1967, with Charles Ellis and colleagues as the  
22 inventors. Yet the concept of a non-combustion cigarette was thereafter abandoned until  
23 R.J. Reynolds introduced its Premier for test marketing in September 1987.

1 **Q. You testified that Premier was withdrawn in 1988. Can you help enlighten the Court**  
2 **as to the reasons for Premier’s withdrawal?**

3 A. Some observers have argued that a skeptical reception by the Food and Drug  
4 Administration (“FDA”), the Surgeon General, and the public health community led to the  
5 downfall of Premier. Others have suggested that the product was introduced prematurely  
6 before technical issues concerning flavor were resolved. While a number of factors may  
7 have been responsible, my analysis points to one key determinant of the success or failure  
8 of this type of product.

9 **Q. To what key factor are you referring?**

10 A. According to internal industry documents and deposition testimony, Premier was doomed  
11 to failure because its manufacturer’s messages were “ineffective in communicating a  
12 relative advantage over the smoker’s current brand.” That is, consumers did not get the  
13 message that Premier “offered them any personal ‘health benefits’.” Instead, R.J. Reynolds  
14 touted Premier mostly as a cigarette with little or no side-stream emissions, and as a  
15 “cleaner smoke.” Yet an independent evaluation of R.J. Reynold’s advertising by Philip  
16 Morris showed that consumers actually wanted personal health benefits in the form of a less  
17 risky alternative to cigarette smoking.

18 **Q. What analysis by Philip Morris are you referring to?**

19 A. I call your attention to a memorandum marked as United States Exhibit 20,363.

20 **Q. Is there anything specific in this memorandum that you want to bring to the Court’s**  
21 **attention as part of your economic analysis?**

22 A. Yes. The document refers to an evaluation of consumers’ responses to Premier’s concept  
23 in Tucson, Arizona, one of the test markets. The evaluation pointed first and foremost to

1 deficiencies in R.J. Reynolds' advertising of Premier, not its taste or odor. Let me quote  
2 from the document on page 1:

3 RJR's advertising of Premier is ineffective in communicating a  
4 relative advantage over the smoker's current brand.

5 **Q. Do any specific portions of this document confirm the conclusion that R.J. Reynolds'**  
6 **advertising of Premier was ineffective in communicating a relative advantage over the**  
7 **smoker's current brand?**

8 A. Yes. In Philip Morris' study, respondents were first shown information on Premier, and  
9 then asked to give their reactions. Later, some were given an opportunity to try it out. The  
10 respondents in "Phase II" of the study were given a "concept card" concerning Premier and  
11 asked to read an article on Premier in the July 18, 1988 issue of Fortune Magazine. The  
12 Philip Morris study concluded, however, on page 3:

13 Although there were favorable reactions to concept card EE and the  
14 Fortune article, the smokers in Phase II did not think that this  
15 "smokeless" cigarette offered them any personal "health benefits."  
16 This seemed to be a disappointment to these smokers.

17 The emphasis is in the original report.

18 **Q. Do you want to point out any other portions of this Philip Morris study that are**  
19 **relevant to your conclusion that consumers did not get the message that Premier**  
20 **offered them any personal health benefits?**

21 A. Yes. The respondents in "Phase III" were then shown copy from an R.J. Reynolds  
22 advertising pamphlet entitled "Introducing Premier. The Cleaner Smoke," as follows (page  
23 4):

1 This new cigarette heats rather than burns tobacco, changing the  
2 composition of the cigarette smoke. There is virtually no smoke  
3 coming off the burning end of the cigarette, and the exhaled vapor  
4 (unlike conventional smoke) dissipates very quickly after exhaling.  
5 The heating process substantially reduces many of the controversial  
6 compounds of tobacco-burning cigarettes. The product does not  
7 burn down, and lasts as long as a king size cigarette.

8 The report emphasizes, however, on page 4, that:

9 Note that there is no specific statement regarding “health benefits.”  
10 In other words, tar, nicotine, carbon monoxide and the Surgeon  
11 General’s warning are not referenced.

12 Overall, respondents’ reactions were mixed, with some believing that Premier had a health-  
13 related benefit, others believing that it did not, and still others asking for more information.

14 Overall, the Philip Morris study was critical of the ambiguity in R.J. Reynolds’ “cleaner-  
15 smoke” message concerning the potential harm-reducing benefits of Premier. As  
16 articulated in the concluding section on page 13:

17 Consumers feel that if information on a new product is withheld or  
18 written in a confusing manner, the company is trying to hide the  
19 truth. This point was illustrated by their comments about “cleaner”  
20 smoke as stated in the advertising and their positive reactions to  
21 being shown a schematic.

22 **Q. Dr. Harris, I’d like to draw your attention to a document that you had referred to in**  
23 **your Demonstrative #5 is entitled, “According to Defendants’ Internal Documents and**  
24 **Deposition Testimony, Consumers Respond to Health Messages When Choosing**  
25 **Between Alternative Brands.” I turn your attention specifically to the entry entitled**  
26 **“Prism Status Review,” which is United States Exhibit 59,922. It is dated February**  
27 **25, 1994. Can you identify this document for the Court?**



1 A. This is a study by R.J. Reynolds of consumer reactions to test advertising copy concerning a  
2 potential harm-reducing cigarette which, at the time, was named “Prism.”

3 **Q. Are there specific portions of this document that you want to identify to the Court in**  
4 **connection with your economic analysis?**

5 A. Yes. Let me quote from the test advertising copy on Bates page 510325041:

6 Introducing PRISM, the new cigarette with 50% less claimed cancer  
7 causing compounds than the leading Lights brand.

8 No one disputes that smoking represents an increased health risk.

9 The Surgeon General and others have reported that there are a  
10 number of cancer causing compounds in cigarette smoke that are  
11 responsible.

12 PRISM is a new cigarette that reduces many of these compounds by  
13 over 50%. The secret to PRISM is a patented two stage filter that  
14 selectively traps many of these compounds, without sacrificing taste  
15 or satisfaction.

16 We’re not saying PRISM will lower the risks associated with  
17 smoking, no one can prove that. But we do know you can now get a  
18 smooth, flavorful cigarette with less claimed cancer causing  
19 compounds than the leading lights brand.

20 **Q. Dr. Harris, what did R.J. Reynolds’ Prism Status Review conclude about consumer**  
21 **reactions to this or similar advertising copy?**

22 A. Let me quote from the document on Bates page 510325042:

23 CONCEPT/PRODUCT TEST CONCLUSIONS:

24 • This Proposition Exceeded The Retention Norm, And Achieved  
25 The Highest Acceptance Of The PRISM Projects.

- The Concept Addresses A Major Consumer Want and is Very Appealing.
- Importantly, This Product Appears To Have No Significant Taste Trade-Offs Compared To Conventional Products And May In Fact Provide A Smoothness Benefit.

**Q. What can you say as an economist about the differences in consumers' reactions reported by the Philip Morris study of Premier and the R.J. Reynolds study of Prism?**

A. The documents support the conclusion that consumers respond to health information when making choices among alternative brands. In this particular instance, company marketing researchers found that euphemisms about “cleaner smoke” and “controversial compounds” aroused suspicion and doubt, while explicit assertions about “increased health risk” and “cancer causing compounds” received favorable reactions.

**Q. Does such a difference in reactions have any significance in your study of the conduct of Defendant manufacturers with respect to smoking and health?**

A. Yes. As I have testified, cigarette manufacturers had a collusive agreement not to make any admissions about cigarettes as a cause of disease or to make any claim of health superiority in comparison to existing brands. So as not to violate the collusive arrangement, R.J. Reynolds instead sought out third-party endorsements and used euphemisms about “a cleaner smoke” and “controversial compounds.”

**Q. Dr. Harris, have you found any testimony of company executives that supports your conclusions?**

A. I refer you to the October 18, 2001 deposition testimony of Gerald Long, the Chief Executive Officer of R.J. Reynolds during its test-marketing of Premier. In the portion of the transcript from pages 84-90, Mr. Long discussed the factors that, in his view, influenced

1 the likelihood of Premier's commercial success in its test-marketing. Among these factors,  
2 Mr. Long noted a lack of "taste" and "draw," as well as "ridicule" by the Surgeon General  
3 and other organizations. He also offered the following testimony.

4 We never developed the draw, and we absolutely never developed  
5 the taste, so consequently - and I would also mention the product was  
6 never positioned as a safer cigarette. We knew we couldn't do that  
7 because if you developed it as a - marketed it as a safer cigarette,  
8 what would that say? We said to ourselves, if you were - we were  
9 Procter and Gamble or General Foods or somebody like that and we  
10 came out with it, we could have said, yes, it's a safer cigarette.  
11 Because then that implies that the people making - ourselves and our  
12 competitors were making unsafe cigarettes, we knew we couldn't do  
13 that, so we felt that our hands were tied. So how do you turn around  
14 and come out with that particular product, position it into the minds  
15 of the consumers? (pages 84-85)

16 But go back to one of the guidelines that we had right from the  
17 beginning, that Premier could not be and would not be marketed as a  
18 safer cigarette because of the implications on the tremendous  
19 business that we had at hand already. So what we were trying to do  
20 when - while it was under my management, believing here that we  
21 probably went through four, five, six different advertising campaign  
22 approaches, tested them secretly with the consumer trying to relate  
23 what we were trying to do, and to my knowledge and memory, all of  
24 those approaches didn't - they failed because we couldn't say what  
25 we wanted to say. (pages 86-87)

26  
27 The obvious thing would have been by that implication and if we had  
28 come out and stated here you have Premier, the safer cigarette or the

1           safest cigarette or anything indicating to that, the implication would  
2           have come back on our own products and our competitive products  
3           in the industry which we were aware of that that would have stated  
4           that they were not safe products, and since our position was that we  
5           were marketing, the industry and - ourselves and the industry were  
6           selling and marketing safe cigarettes, then we couldn't say in one of  
7           our brands that we were coming out with something that was safe,  
8           while all the rest was not safe. (pages 88-89)

9           The negative implications, I think, are quite obvious, that if we came  
10          out very strongly with a product, presuming that the product could  
11          deliver and it was the product that was in our opinion and the  
12          research showed it to be some kind of a - some kind of a product that  
13          was considered to be safer than any of the conventional cigarettes on  
14          the marketplace, it would have had a substantially negative effect on  
15          the rest of the tobacco industry, and we felt we weren't ready to take  
16          on that obligation. Besides this, we did not have confidence in the  
17          product. It wasn't there.

18          Q. What kind of negative effects?

19          A. What kind of negative effects? It would have turned around and  
20          said to people, well, the tobacco companies are publicly admitting  
21          we do not market safe cigarettes. (page 90)

22          **Q. When R.J. Reynolds introduced Premier, was it cheating from the collusive**  
23          **arrangement?**

24          A. The best way to characterize R.J. Reynolds introduction of Premier is that it went up to the  
25          line of cheating, but did not cross it.

26          **Q. Please explain.**

27          A. R.J. Reynolds did not make explicit statements that cigarette smoking causes cancer, and  
28          that many of the cancer-causing chemicals in cigarette smoke result from burning the

1 tobacco leaf during conventional smoking. R.J. Reynolds did not make explicit statements  
2 Premium was a solution to the problem of the formation of cancer-causing chemicals  
3 during smoking. R.J Reynolds did not explicitly acknowledge that nicotine was the drug  
4 responsible for cigarette addiction, that Premier still delivered nicotine to satisfy the  
5 addicted smoker's need. For the reasons that Mr. Long explained, to have made such  
6 statements would have been to cross the line.

7 **Q. Dr. Harris, let me return to Prism. Was "Prism" simply a hypothetical concept?**

8 A. No. The Prism concept was embodied in a cigarette subsequently called "EW." EW was  
9 test-marketed in April 1995 as "Winston Select" in Oklahoma.

10 **Q. The test advertising copy in the "Prism Status Review" referred to a "new cigarette  
11 with 50% less claimed cancer causing compounds than the leading Lights brand."  
12 What technologies, if any, did R.J. Reynolds employ in an attempt to produce such a  
13 cigarette?**

14 A. I have reviewed the deposition of Dr. David Townsend, an expert witness in this case and  
15 the head of the company's Research and Development Department. According to my  
16 reading of Dr. Townsend's testimony, EW and "Prism" were based on two main  
17 technologies: the use of a "carbon scrubber" filter and the incorporation of "low nitrogen"  
18 tobacco.

19 **Q. Dr. Harris, are there any other internal documents that support your conclusions that  
20 the Prism concept was embodied in a cigarette prototype called EW, and that EW was  
21 test-marketed as Winston Select in April 1995?**

22 A. I refer you to United States Exhibit 51,519, entitled "Project EW," dated February 17, 1995,  
23 which refers to a plan to launch EW as Winston Select positioned as a cigarette to reduce

1 harmful compounds. I further refer you to United States Exhibit 51,625, and in particular  
2 to the page with Bates number 512296049, which states “Current Status: ...WINSTON  
3 Select Flavor Filter, 6 styles in test market in Oklahoma, April, 1995. Potential national  
4 introduction 1996.”

5 **Q. Did R.J. Reynolds use the test advertising copy in the Prism Status Report in**  
6 **connection with its test-marketing of “Winston Select” in Oklahoma?**

7 A, No, it did not. To my knowledge, the “Winston Select” was marketed in Oklahoma as  
8 having “smoother taste” and “burns slower.” I draw your attention to Dr. Townsend’s  
9 testimony on pages 255-260 of his deposition, which I regard as consistent with my  
10 conclusion.

11 **Q. Was the “Winston Select” a failure in the Oklahoma test market?**

12 A. Not to my knowledge. The EW version of Winston Select in Oklahoma held about the  
13 same market share as the non-EW version of Winston Select in other test markets. I draw  
14 your attention to Dr. Townsend’s testimony on page 257 of his deposition, which I regard  
15 as consistent with my conclusion.

16 **Q. Is R.J. Reynolds currently marketing EW in any form?**

17 A. Not to my knowledge. The “Winston Select” version was removed from test-marketing in  
18 Oklahoma after six months.

19 ***U. CEOs of Defendant Cigarette Manufacturers Testify Before the Waxman***  
20 ***Subcommittee, April 1994***

---

21 **Q. Dr. Harris, I turn your attention to United States Exhibit 22,901, entitled “Regulation**  
22 **of Tobacco Products (Part I), Hearings Before the Subcommittee on Health and the**  
23 **Environment of the Committee on Energy and Commerce, House of Representatives,”**

1           **dated March 25 and April 14, 1994. Dr. Harris, can you assist the Court in further**  
2           **identifying this event?**

3           A.     On April 14, 1994, the chief executive officers of the major cigarette manufacturers gave  
4           invited testimony before the Subcommittee on Health and the Environment of the  
5           Committee on Energy and Commerce of the United States House of Representatives.  
6           Because the Chairman of that Subcommittee was Representative Henry Waxman from  
7           California, the hearings are sometimes called the “Waxman Subcommittee Hearings.”

8           **Q.     Do you know the names of all of the chief executive officers of the major cigarette**  
9           **manufacturers who testified that day?**

10          A.     Yes. Let me refer you specifically to pages 533-534, which correspond to Bates numbers  
11          516017599-7600.. This record shows that the following CEOs of cigarette manufacturers  
12          testified: William Campbell, President & CEO, Philip Morris USA; James W. Johnston,  
13          Chairman and CEO, R.J. Reynolds; Andrew H. Tisch, Chairman and CEO, Lorillard;  
14          Thomas E. Sandefur, Chairman and CEO, Brown & Williamson; Donald S. Johnston,  
15          President and CEO, American Tobacco; and Edward A. Horrigan, Chairman and CEO,  
16          Liggett. In addition, Joseph Taddeo, President, U.S. Tobacco Company, a seller of  
17          smokeless and pipe tobacco, also testified at the Subcommittee hearing.

18          **Q.     Dr. Harris, please turn to page 542, which corresponds to Bates number 516017608.**  
19          **Does this represent the start of the testimony of Mr. Campbell?**

20          A.     Yes, I draw your attention specifically to page 544, or Bates number 516017608. At the  
21          bottom of the page, I quote:

22                     Fact four - point four. Cigarette smoking is not addictive.

23          And on the following page, page 545, Mr. Campbell testified:

1 Cigarettes contain nicotine because it occurs naturally in tobacco.  
2 Nicotine contributes to the taste of cigarettes and the pleasure of  
3 smoking. The presence of nicotine, however, does not make  
4 cigarettes a drug or smoking an addiction.

5 **Q. Dr. Harris, did the CEOs of the other Defendant manufacturers give testimony**  
6 **concerning the issue of addiction at the Waxman Subcommittee hearings?**

7 A. Yes, they did. Congressman Wyden of Oregon individually posed the following question  
8 to each of the Chief Executive Officers, including Mr. Campbell: “Do you believe nicotine  
9 is not addictive?” The CEOs of Philip Morris, Brown & Williamson, Lorillard, American  
10 Tobacco, Liggett, and R.J. Reynolds separately testified that nicotine is not addictive, as did  
11 the CEO of U.S. Tobacco Company. Mr. Johnston of R.J. Reynolds noted also that,  
12 “Congressman, cigarettes and nicotine clearly do not meet the classic definitions of  
13 addiction. There is no intoxication.”

14 **Q. Dr. Harris, at the time that the CEOs testified, do you know whether any scientific**  
15 **body or organization had made a determination as to whether cigarette smoking and**  
16 **nicotine delivered by cigarettes are addictive?**

17 A. Yes. The Surgeon General’s Report of 1988 stated that “Cigarettes and other forms of  
18 tobacco are addicting.” It also stated that “Nicotine is the drug in tobacco that causes  
19 addiction.”

20 **Q. Was the 1988 Surgeon General’s Report the only such determination?**

21 A. No. Other well-regarded scientific bodies had reached similar conclusions. For example,  
22 the American Psychological Association, in the 1980 edition of its Diagnostic and  
23 Statistical Manual of Mental Disorders, had already included tobacco dependence as a



1 substance abuse disorder, and had already included tobacco withdrawal as an organic  
2 mental disorder. Its 1987 revised edition had changed “tobacco withdrawal” to “nicotine  
3 withdrawal.”

4 **Q. Were the CEOs of any of the Defendant manufacturers asked any other questions**  
5 **concerning issues of causation of disease?**

6 A. Yes. On page 620, corresponding to Bates number 516017686, Congressman Waxman  
7 asked Mr. James Johnston, the CEO of R.J. Reynolds, whether he agreed that smoking  
8 causes heart disease, to which he responded, “It may.” When asked whether smoking  
9 causes emphysema, Mr. Johnston again responded, “It may,” and he gave the same answer  
10 when asked whether smoking causes bladder cancer, stroke and low birth rate. When asked  
11 whether smoking causes lung cancer, Mr. Johnston first responded, “It may,” and then “I do  
12 not know.” When asked to explain, he testified, “Because all of that is (continuing)  
13 statistically generated data. It is epidemiological as opposed to empirical. There have been  
14 no laboratory studies which have been able to confirm any statistic.”

15 **Q. Was Mr. Johnston from R.J. Reynolds the only CEO questioned about smoking as a**  
16 **cause of disease?**

17 A. No. When asked, Mr. Tisch from Lorillard stood by deposition testimony he had given the  
18 previous year, in which he answered “I don’t believe so,” to a question as to whether  
19 smoking caused cancer. When asked what he had done to find out whether smoking caused  
20 cancer, Mr. Tisch responded on page 621, “We have looked at the data and the data that we  
21 have been able to see has all been statistical data that has not convinced me that smoking  
22 causes death.”

1 **Q. Were Mr. Johnston from R.J. Reynolds and Mr. Tisch from Lorillard the only CEOs**  
2 **queried about smoking as a cause of disease?**

3 A. No. In addition, Mr. Campbell from Philip Morris was reminded of his prior deposition  
4 testimony that it had not been proven that cigarette smoking causes cancer. When asked  
5 what additional evidence he was waiting for, Mr. Campbell responded, on page 621, “We  
6 don't know what causes cancer in general right now, so I think that we may find out what  
7 causes cancer and we may find out some relationship, which has yet to be proven.”

8 **Q. Dr. Harris, you have already testified to your conclusions concerning Defendant**  
9 **manufacturers’ collusive arrangement to deny that smoking causes disease. Have you**  
10 **drawn any conclusions from the foregoing Congressional testimony as to whether**  
11 **such a collusive arrangement prevailed in April 1994?**

12 A. I have found no documentary evidence that Defendants explicitly communicated among  
13 themselves in advance of the 1994 testimony specifically to plan their joint denial at the  
14 Subcommittee hearing. Still, the testimony of the CEOs of Defendant cigarette  
15 manufacturers before the Waxman subcommittee remains consistent with the continuance  
16 of a collusive arrangement to jointly deny that smoking caused disease, which began four  
17 decades earlier.

18 **Q. Dr. Harris, in the foregoing Congressional testimony, the CEOs of Defendant**  
19 **manufacturers specifically denied that nicotine was addictive. Have you drawn any**  
20 **economic conclusions concerning such denials?**

21 A. Yes. In the past, Defendant manufacturers’ joint denial that nicotine was addictive was part  
22 of their collusive arrangement, just as their joint denial that smoking caused disease. While  
23 I have found no evidence in internal documents of explicit communication specifically to

1 plan their joint denial at the Waxman hearings, nevertheless the testimony of the executives  
2 of Defendant cigarette manufacturers in 1994 remains consistent with that collusive  
3 arrangement.

4 **Q. Dr. Harris, you have testified about your conclusions as to why cigarette**  
5 **manufacturers had a common interest in denying that smoking causes disease. From**  
6 **the economist's standpoint, did Defendant manufacturers in April 1994 have common**  
7 **interests in denying that cigarette smoking and nicotine were addictive?**

8 A. They had a long-standing common interest in denying that cigarette smoking and nicotine  
9 were addictive. And, yes, that common interest continued through April 1994.

10 **Q. What were their common interests?**

11 A. While manufacturers may have had many reasons, my study of their internal documents  
12 reveals three primary reasons.

13 **Q. Please state those reasons for the Court.**

14 A. First, an admission that cigarette smoking was addictive would stigmatize smoking and  
15 reduce its social acceptability. Pharmacologists and other addiction specialists understood  
16 that cigarette addiction entailed the repeated self-administration of a drug - namely, nicotine  
17 - that affected the brain. These scientists knew that involuntary abstinence from cigarettes  
18 produced a reproducible withdrawal syndrome that was characterized by craving, mood  
19 disorder, and other symptoms. The scientists knew that this withdrawal syndrome could be  
20 extinguished by administration of nicotine alone. But, as their public statements and  
21 internal documents revealed, cigarette manufacturers were concerned that the general  
22 public would not understand the accurate scientific definition and instead associate  
23 smoking with heroin, cocaine, alcohol, and other drugs of abuse. Even when manufacturers

1 subsequently made qualified admissions that cigarette smoking is indeed addictive, they  
2 have been careful to dissociate cigarettes from the latter substances.

3 **Q. Dr. Harris, I call your attention to United States Exhibit 87,151, which states, in**  
4 **relevant part, “Cigarette smoking is not addictive and cannot be equated to hard drug**  
5 **use. Many millions of smokers have been able to quit smoking.” I quote further: “The**  
6 **smoker decides if, when and how much he wishes to smoke and is not motivated as is**  
7 **the hard drug user to get a ‘fix’ by whatever means possible, including criminal acts.**  
8 **Most smokers are able to quit without assistance.” How does this document support**  
9 **your first reason stated above?**

10 A. This April 1990 INFOTAB document states an objection to cigarette smoking being  
11 equated with “hard drug use.” It also objects to the inference that cigarette smokers may  
12 smoke to get a “fix.” The document supports my conclusion that cigarette manufacturers  
13 were concerned that the general public associate smoking with heroin, cocaine, alcohol, and  
14 other drugs of abuse.

15 **Q. Please continue with your second and third reasons.**

16 A. Second, an admission that cigarette smoking was addictive could raise the risk that smokers  
17 could prevail against Defendant manufacturers in lawsuits. While I am not an expert in  
18 products liability, my review of internal documents reveals a concern of Defendants that the  
19 fact of addiction could be used by smoker-plaintiffs to fend off arguments about  
20 contributory negligence. Third, manufacturers feared that acknowledgment of the  
21 addictiveness of nicotine as a drug could lead to government regulation, especially  
22 regulation by the Food and Drug Administration. The latter concern goes back to at least  
23 1980, and may extend to the late 1960's.

1 **Q. Are you aware of internal documents that support your second and third reasons?**

2 A. I call your attention to United States Exhibit 20,167, a 1969 memo by William Dunn of  
3 Philip Morris. In that memo, on the first page, Dunn wrote, "I would be more cautious in  
4 using the pharmic-medical model -- do we really want to tout cigarette smoke as a drug? It  
5 is, of course, but there are dangerous F.D.A. implications to having such conceptualizations  
6 go beyond these walls."

7 I further call your attention to United States Exhibit 34,422, a memorandum from Dunn to  
8 Dr. R.B. Seligman, dated March 21, 1980, entitled "The Nicotine Receptor Program." At  
9 the time that this memo was written, the writer Dunn was Principal Professional, Research  
10 and Development, Philip Morris Incorporated. Moreover, the addressee Robert B.  
11 Seligman was Vice President, Research and Development, Philip Morris Incorporated.

12 **Q. Was this document in the public domain at the time that Mr. Campbell testified**  
13 **before the Waxman subcommittee?**

14 A. This document did not enter into the public domain until after Mr. Campbell, President and  
15 C.E.O. of Philip Morris, testified before the Waxman subcommittee. Pursuant to a Court  
16 Order in the State of Oklahoma v. R.J. Reynolds et al., CJ-96-2499-L (Dist. Ct., Cleveland  
17 Co.), Philip Morris withdrew its claim of privilege in connection with this document. To  
18 the best of my knowledge, this document was first entered into evidence during trial in  
19 State of Minnesota and Blue Cross and Blue Shield of Minnesota v Philip Morris et al. in  
20 1998.

21 **Q. Dr. Harris, is there any portion of this 1980 Dunn memorandum that you wish to**  
22 **bring to the attention of the Court?**

23 A. First, I quote from page 1:

1 The psychopharmacology of nicotine is a highly vexatious topic. It  
2 is where the action is for those doing fundamental research on  
3 smoking, and from where most likely will come significant scientific  
4 developments profoundly influencing the industry. Yet it is where  
5 our attorneys least want us to be, for two reasons. It is important to  
6 have these two reasons expressed and distinguished from one  
7 another. The first reason is the oldest and most implicit in the legal  
8 strategy employed over the years in defending corporations within  
9 the industry from the claims of heirs and estates of deceased  
10 smokers: “We within the industry are ignorant of any relationships  
11 between smoking and disease. Within our laboratories no work is  
12 being conducted on biological systems.” That posture has moderated  
13 considerably as our attorneys have come to acknowledge that the  
14 original carte blanche avoidance of all biological research is not  
15 required in order to plead ignorance about any pathological  
16 relationship between smoke and smoker.

17 **Q. What is the relevance of this document?**

18 A. The writer acknowledges the long-standing legal strategy to deny causation and to avoid in-  
19 house biological research on smoking and health, or at least to avoid disclosing its  
20 existence. But he draws a distinction between generic biological research on smoking and  
21 health and specific biological research on nicotine. Thus, visiting BAT scientist Blackman,  
22 in his visit to the Philip Morris Research and Development Center in October of 1980, was  
23 informed that biological work on smoking and health officially “does not exist.” By

1 contrast, some of Philip Morris' research work on nicotine had been disclosed publicly.

2 The writer then proceeds to discuss the second concern of the attorneys.

3 **Q. What was the second concern?**

4 A. I quote from the last paragraph on page 1, where the author refers to the possibility of FDA  
5 or other agency regulation:

6 Any action on our part, such as research on the psychopharmacology  
7 of nicotine, which implicitly or explicitly treats nicotine as a drug  
8 could well be viewed as a tacit acknowledgement that nicotine is a  
9 drug. Such acknowledgement, contend our attorneys, would be  
10 untimely. Therefore, although permitted to continue the  
11 development of a three-pronged program to study the drug nicotine,  
12 we must not be visible about it.

13 Continuing on page 2:

14 Our attorneys, however, will likely continue to insist upon a  
15 clandestine effort in order to keep nicotine the drug in low profile.  
16 [footnote removed]

17 So long as we must be officially heedless of the drug properties of  
18 nicotine, and cannot openly communicate with our counterparts in  
19 other laboratories, and cannot aggressively institute a large-scale  
20 neurosciences program on site, then we must have a window to the  
21 outside world. Abood's laboratory is that window.

22 The memorandum articulates the concern that any acknowledgment that nicotine is a  
23 psychoactive drug may instigate government regulation. Accordingly, while research on  
24 nicotine did not have the same status as general in-house biological research on smoking  
25 and health, legal counsel nonetheless insisted that much of the work remain "clandestine,"  
26 and that Philip Morris scientists be "officially heedless of the drug properties of nicotine."

1 **Q. Let us return to the 1994 Waxman Subcommittee hearings. Dr. Harris, you testified**  
2 **that you found no documentary evidence that Defendants explicitly communicated**  
3 **among themselves in advance of their testimony specifically to plan their joint denials.**  
4 **How, then, can you conclude that their 1994 testimony remained consistent with the**  
5 **continuance of a collusive arrangement to jointly deny that smoking caused disease,**  
6 **which began four decades earlier?**

7 A. I have four reasons. First, Defendants had been colluding for decades. Second, they had a  
8 common interest in continuing the collusion. Third, competition would have led  
9 Defendants to tout their own cigarette products, thereby giving them an incentive to admit  
10 disease causation and addiction. Fourth, it is unreasonable to conclude that all Defendants  
11 would have each independently reached the same outmoded definition of addiction in the  
12 face of well-regarded contrary scientific evidence.

13 **Q. Please elaborate on your first reason.**

14 A. Defendant manufacturers' joint denials that smoking causes disease and that nicotine is  
15 addictive represented a consistent, continuing practice. The evidence to which I have  
16 testified shows that Defendant manufacturers explicitly colluded for many years prior to  
17 1994 to deny causation and addiction. They jointly established a trade association - the  
18 Tobacco Institute - which repeatedly denied that smoking caused disease on their behalf.  
19 They jointly established the TIRC and later the CTR in order to maintain that the relation  
20 between smoking and disease was an "open question." Given their longstanding explicit  
21 collusive arrangement, direct communication in advance of their joint denial before  
22 Congress in 1994 was unnecessary. Their joint denial in 1994, even if it did not entail



1 direct communication beforehand, represented actions that were in furtherance of the  
2 original collusive arrangement.

3 **Q. Please elaborate on your second reason.**

4 A. Defendants' joint and uniform denial that nicotine was addictive reflected their common  
5 interests, the same common interests that had prevailed for many years - that is, to avoid  
6 stigmatizing smoking as akin to illicit drug use, to avoid an avalanche of adverse legal  
7 judgments, and to stave off FDA regulation.

8 **Q. Please elaborate on your third reason.**

9 A. In the absence of a collusive arrangement, denying that nicotine was addictive and that  
10 smoking caused any disease would not necessarily be in each firm's own independent  
11 interest. In a competitive environment, self-interested promotion of alternative products  
12 would give each Defendant an incentive to admit causation and addiction. To give an  
13 example, both R.J. Reynolds and Philip Morris were in the process in 1994 of developing  
14 alternative products that heated rather than burned tobacco. As I have already testified,  
15 both basic economics and Defendants' own documents and deposition testimony confirm  
16 that consumers cannot trade off inconvenience or product novelty for harm reduction unless  
17 they are informed about the potential health benefits. In this case, the message would be  
18 that heating rather than burning tobacco can reduce certain cancer-causing chemicals but  
19 that a heated cigarette can still deliver the nicotine that the smoker needs.

20 **Q. In the thousands of internal company documents that you have reviewed, have you  
21 seen any clear evidence that Defendants' collusive arrangement has ended?**

22 A. No.

1 **Q. In the public statements of Defendants, have you seen any clear admission that their**  
2 **collusive arrangement has ended?**

3 A. To my knowledge, Defendants have never admitted that they colluded, either in press  
4 releases, annual reports, testimony in open court, or any other public forum.

5 ***V. Recent Developments***

6 **Q. Dr. Harris, have you continued to examine the public statements of Defendants up to**  
7 **the present?**

8 A. Yes.

9 **Q. Does this include examination of Defendants' corporate web sites?**

10 A. Yes.

11 **Q. When did you last examine Defendants' corporate web sites?**

12 A. On the morning of September 30, 2004.

13 **Q. Did you identify any specific statements on Defendants' corporate web sites**  
14 **concerning cigarette smoking as a cause of disease in smokers?**

15 A. Yes, I did.

16 **Q. What did you find?**

17 A. The Philip Morris web site stated:

18 Philip Morris USA (PM USA) agrees with the overwhelming  
19 medical and scientific consensus that cigarette smoking causes lung  
20 cancer, heart disease, emphysema and other serious diseases in  
21 smokers. Smokers are far more likely to develop serious diseases,  
22 like lung cancer, than non-smokers. There is no safe cigarette.

1 (http://www.philipmorrisusa.com/health\_issues/cigarette\_smoking\_and\_disease.asp.)

2 The R.J. Reynolds web site stated:

3 R.J. Reynolds Tobacco Company (RJRT) manufactures products that  
4 have significant and inherent health risks for a number of serious  
5 diseases, and may contribute to causing these diseases in some  
6 individuals. (http://www.rjrt.com/TI/TIHealth\_Issues.asp.)

7 The Brown & Williamson web site stated:

8 Smoking cigarettes is a cause of lung cancer, emphysema, heart  
9 disease and other diseases.

10 (http://www.bw.com/Index\_sub2.cfm?ID=12.)

11 The Lorillard web site stated:

12 All cigarettes are dangerous and smoking can cause serious diseases,  
13 including lung cancer. (http://www.lorillard.com/index.php?id=32.)

14 The Liggett web site stated:

15 In addition, Liggett Group was the first tobacco company to publicly  
16 acknowledge that smoking causes lung cancer and other diseases,...”  
17 (http://www.liggettgroup.com/pages/company\_info/youth\_smoking.j  
18 sp.)

19 **Q. Dr. Harris, based upon your review of Defendants’ corporate web sites on September**  
20 **30, 2004, were you able to verify the quotations in Demonstrative JDEM-040002,**  
21 **which was offered in Defendants’ opening statement?**

22 A. Yes.

23 **Q. As a contributor to various Surgeon General’s Reports, do you view these web-site**  
24 **statements as materially different from each other?**

25 A. No. They are all essentially admissions of disease causation.

1 **Q. With the exception of Liggett, when did Defendants first make admissions of**  
2 **causation?**

3 A. With the exception of Liggett, to the best of my knowledge, they all made admissions  
4 between April 1999 and June 2000.

5 **Q. What is the basis for your observation that, with the exception of Liggett, they all**  
6 **made admissions between April 1999 and June 2000.**

7 A. In addition to corporate web sites, I also looked at the sworn testimony of their CEOs in  
8 various lawsuits brought against one or more Defendants. I can answer specifically  
9 company by company.

10 **Q. Please do.**

11 A. Michael Szymanczyk, CEO of Philip Morris, testifying in an Engle deposition prior to the  
12 class-wide punitive damages trial in Engle v. R.J. Reynolds on May 10, 2000, responded to  
13 a query about causation as follows: “I think that would depend on your definition of  
14 scientifically proven.” Deposition of Michael Szymanczyk, Engle v. R.J. Reynolds, May  
15 10, 2000, 42:20-21. When Mr. Szymanczyk testified again at trial in Engle on June 13,  
16 2000, he responded “Yes” when asked whether Philip Morris agrees that cigarette smoking  
17 causes lung cancer and other serious diseases. Trial Testimony of Michael Szymanczyk,  
18 Engle v. R.J. Reynolds, June 13, 2000, 10:23 - 11:13.

19 **Q. Could you take Lorillard next?**

20 A. Martin L. Orlowsky, CEO of Lorillard, testified in the liability phase at trial in Engle on  
21 January 20, 1999 that “I believe it has not been scientifically proven” that smoking caused  
22 disease. Trial Testimony of Martin Orlowsky, Engle v. R.J. Reynolds, January 20, 1999,  
23 20244:6-15. Upon returning to the stand at trial in the class-wide punitive damages phase

1 of Engle on June 28, 2000, Mr. Orlowsky testified that “Lorillard does, in fact, agree with  
2 the Surgeon General and other public health authorities that cigarette smoking causes lung  
3 cancer and other diseases.” Trial Testimony of Martin Orlowsky, Engle v. R.J. Reynolds,  
4 June 28, 2000, 55:14-21.

5 **Q. Could you take Brown & Williamson next?**

6 A. When Nicholas G. Brookes, CEO of Brown & Williamson, testified at his deposition in  
7 Iron Workers v. Philip Morris, on February 9, 1999, he took the position that smoking was  
8 a “risk factor for a number of diseases in human beings.” Deposition of Nicholas Brookes,  
9 Iron Workers v. Philip Morris, February 9, 1999, 38:21-39:2. In early April 1999, the  
10 Brown & Williamson corporate web site stated for the first time that “The evidence is  
11 sufficient to determine that smoking causes disease.” In his trial testimony in Steele v.  
12 Brown & Williamson on May 11, 1999, Brookes testified “That based upon the statistics, I  
13 think we can say that smoking causes these diseases, certainly, yes.” Trial Testimony of  
14 Nicholas Brookes, Steele v. Brown & Williamson, May 11, 1999, 32:17-33:11. He  
15 testified at trial in the class-wide punitive damages phase of Engle: “That smoking is a  
16 cause of lung cancer and other diseases.” Trial Testimony of Nicholas Brookes, Engle v.  
17 R.J. Reynolds, June 15, 2000, 62:6-11.

18 **Q. Lastly, could you take R.J. Reynolds?**

19 A. In his deposition testimony in Iron Workers Local Union No. 17 Insurance Fund on January  
20 29, 1999, Andrew J. Schindler, CEO of R.J. Reynolds, when asked if he believed that  
21 smoking causes cancer, testified that “I don't know if it causes. I believe that it may.”  
22 Deposition of Andrew Schindler, Iron Workers v. Philip Morris, January 29, 1999, 37:14-  
23 21. When Mr. Schindler testified at trial on June 19, 2000 in the class-wide punitive

1 damages phase of Engle, he was asked, “Does the Reynolds of today challenge the Surgeon  
2 General's position that smoking causes serious disease?” to which he responded, “No.”

3 Trial Testimony of Michael Szymanczyk, Engle v. R.J. Reynolds, June 19, 2000, 59:8-11.

4 **Q. Dr. Harris, as a contributor to Surgeon General’s Reports and the peer-reviewed**  
5 **literature on smoking and health for many years, can you identify any major**  
6 **influential scientific report that presented new evidence that smoking causes disease**  
7 **that was published during April 1999 - June 2000?**

8 A. No. It would be accurate to say that, by 1999-2000, the scientific community had long ago  
9 concluded that smoking caused disease, and that the evidence concerning the health risks of  
10 smoking continued to accumulate.

11 **Q. Dr. Harris, what economic incentives did the Defendants have to change their**  
12 **positions on causation during the time period of the changes, that is, during April**  
13 **1999-June 2000?**

14 A. One economic incentive was to improve their public relations positions. However, we also  
15 need to consider Defendants’ economic incentives in the context of their well-documented  
16 past joint strategy to minimize litigation risks. Given the time frame, Defendants clearly  
17 had an incentive to change their positions on causation to avert the looming possibility of a  
18 multibillion-dollar punitive damage award at the Engle class-action trial.

19 **Q. Dr. Harris, does the incentive to avert a multibillion-dollar punitive damage award in**  
20 **the Engle class-action trial represent a change in the incentives of Defendant**  
21 **manufacturers?**

22 A. No. The extensive documentary record shows that for decades, Defendant manufacturers  
23 engaged in a collusive arrangement that was motivated in great part by a common interest

1 to stave off adverse judgments in lawsuits. Attempting to avert a multibillion-dollar  
2 punitive damage award represents a continuation of this common interest.

3 **Q. Dr. Harris, are you aware that R.J. Reynolds has introduced a product called Eclipse?**

4 A. Yes. Like Premier, Eclipse is based on heating rather than burning tobacco.

5 **Q. Briefly, what do you know about the introduction of Eclipse?**

6 A. Eclipse began test-marketing in 1996. In April 2000, R.J. Reynolds launched a new test  
7 market for Eclipse, stating that Eclipse may present smokers with reduced risks for some  
8 smoking-related diseases. In March 2003, R.J. Reynolds began a phased expansion to  
9 distribute Eclipse to certain retail chains nationwide.

10 **Q. Are you aware of any other potentially harm-reducing products that R.J. Reynolds**  
11 **has test-marketed or nationally marketed in the last ten years?**

12 A. Yes. As I testified earlier, R.J. Reynolds began to test-market its “EW” tobacco-burning  
13 cigarette as Winston Select in Oklahoma in April 1995, but withdrew it after six months.  
14 Otherwise, I am not aware of any other potentially harm-reducing product that the newly  
15 formed Reynolds American may introduce, at least in the near future.

16 **Q. Dr. Harris, are you aware that Philip Morris has test-marketed a product called**  
17 **Accord?**

18 A. Yes. Like Premier and Eclipse, Accord is not a traditional cigarette. Accord was  
19 introduced in test-market in Richmond, Virginia in August 1998.

20 **Q. Dr. Harris, could you describe Accord briefly for the Court?**

21 A. Like Premium and Eclipse, Accord relies on the principle that heating - rather than burning  
22 - the tobacco in the cigarette rod may reduce the yields of many toxic substances found in

1 conventional cigarette smoke. In the case of Accord, the smoker inserts the end of the  
2 cigarette into an electrical heating element, which is activated when the smoker takes a puff  
3 from the mouthpiece.

4 **Q. Is there any evidence that Accord in fact reduces the yields of many toxic substances**  
5 **found in conventional cigarette smoke?**

6 A. According to my review of publicly available internal documents as well as deposition  
7 testimony in this case, Philip Morris researchers have concluded that in Accord, carbon  
8 monoxide, PAH's, tobacco-specific nitrosamines, and other specific toxic substances in  
9 conventional cigarette smoke are markedly reduced.

10 **Q. To your knowledge, has Philip Morris, in its test-marketing of Accord, thus far**  
11 **developed any informational materials concerning the new product's potential harm-**  
12 **reducing benefits?**

13 A. Yes. In my review of the deposition testimony of Thomas Dudreck, Executive Vice  
14 President of the Leo Burnett advertising agency, which was taken on June 21, 2002 and  
15 August 26, 2003, I found that Leo Burnett had developed a set of "communication pieces."

16 **Q. I call your attention specifically to United States Exhibit 21,855. Are these the**  
17 **"communication pieces" to which Mr. Dudreck referred?**

18 A. Yes.

19 **Q. What do they state?**

20 A. The first page begins with the caption "Accord reduces certain smoke compounds." The  
21 text states, "The public health community and various regulatory groups have recognized  
22 about 52 of these smoke compounds thus far as being harmful to smokers." Other pages



1 are entitled “How does Accord reduce certain smoke compounds?”; “How are these  
2 reductions measured?”; “Summary of smoke compound reductions by Accord”; and “There  
3 is no ‘safe’ cigarette - including Accord.” The latter page states, “Accord smokers are still  
4 inhaling smoke compounds that are known to be harmful.” It also contains a statement that  
5 “Philip Morris U.S.A. agrees with the overwhelming medical and scientific consensus that  
6 cigarette smoking causes lung cancer, heart disease, emphysema and other serious diseases  
7 in smokers.”

8 **Q. To your knowledge, has Philip Morris communicated this exhibit or any other**  
9 **information concerning Accord’s potential harm-reducing benefits to the public in its**  
10 **test marketing?**

11 A. No. Mr. Dudreck testified on page 34 of his June 21, 2002 deposition that the foregoing  
12 “communication pieces” were not sent out to the public, but were used only in focus  
13 groups.

14 **Q. What has been the content of Accord advertising in test-marketing in Richmond?**

15 A. As of the time of Mr. Dudreck’s August 26, 2003 deposition, Philip Morris had thus far  
16 test-marketed Accord with the following types of messages: “No ashes to mess with.”  
17 “It’s ready when you are.” “Less smoke around the house.” “The time is right for Accord.”  
18 There have been no “health communications,” he testified.

19 **Q. What is the basis for your conclusion?**

20 A. I draw your attention to United States Trial Exhibit 25,908, which contains the foregoing  
21 quotations. It is my understanding some of them were used in advertising. With respect to  
22 Mr. Dudreck’s statement that there have been no “health communications,” I refer you  
23 specifically to pages 465-468 of his deposition testimony on August 26, 2003.

1 **Q. Are you aware of any other potentially harm-reducing products that Philip Morris is**  
2 **currently test-marketing or marketing nationally?**

3 A. No.

4 **Q. Dr. Harris, are you aware that Brown & Williamson has test-marketed a product**  
5 **called Advance?**

6 A. Yes. Brown & Williamson began to test-market a potentially risk-reducing conventional  
7 cigarette under the brand name Advance in Indianapolis in 2001. In June 2004, the  
8 company announced that Advance will also be test-marketed in Phoenix. The primary  
9 technological features of Advance are the use of tobacco that is cured in such a way as to  
10 reduce the amount of nitrosamines in the smoke, as well as a carbon-based filter.

11 **Q. Are you aware of any other potentially harm-reducing products that Brown &**  
12 **Williamson is currently test-marketing or nationally marketing?**

13 A. No.

14 **Q. Dr. Harris, are you aware that Vector Tobacco nationally introduced a product called**  
15 **Omni?**

16 A. Yes. In 2001, the company did introduce a conventional cigarette under the brand name  
17 Omni, which was based on essentially the same technology as the "XA" cigarette that had  
18 been abandoned by Liggett in the early 1980's. I understand that the company stopped  
19 national advertising of the brand in April or May, 2002. So far as I can determine from my  
20 search of Vector's web site, Omni is no longer sold today.

21 **Q. Are you aware of any other potentially harm-reducing products that Vector is**  
22 **currently test-marketing or marketing nationally?**

1 A. Vector has recently introduced a series of brands called Quest, in “low nicotine,” “extra low  
2 nicotine,” and “nicotine free” form. Quest is currently available through certain retail  
3 stores in eight states.

4 **Q. Are you aware of any potentially harm-reducing products that Lorillard is currently**  
5 **test-marketing or marketing nationally?**

6 A. No.

7 **Q. Based upon your analysis of Defendants’ marketing or test-marketing of Omni,**  
8 **Advance, Accord, Advance, Quest, Eclipse and EW/Winston Select, have you reached**  
9 **any conclusions about the long-term performance of the entire industry with respect**  
10 **to potentially harm-reducing products?**

11 A. Yes.

12 **Q. What conclusion have you reached?**

13 A. With respect to potentially harm-reducing products, the record to date on the entire  
14 industry’s long-term performance is insufficient to conclude that Defendants’ long-standing  
15 collusive arrangement has been permanently replaced by competition.

16 **Q. What is the basis for your conclusion.**

17 A. Within the last ten years, Philip Morris, the manufacturer with the largest market share  
18 today, has not thus far nationally marketed any potentially reduced-risk product. Neither  
19 has Brown & Williamson nor Lorillard. Within the last ten years, R.J. Reynolds has  
20 introduced Eclipse in certain retail chain outlets, but no other nationally marketed  
21 potentially reduced-risk product. Within the last ten years, Liggett’s successor Vector

1 introduced Omni nationwide, but that brand appears to be no longer on the market.

2 Otherwise, Vector has no potential reduced-risk product available nationwide.

3 **Q. Dr. Harris, would you remind the Court of your earlier testimony concerning the**  
4 **entry of firms into the United States cigarette market since 1996?**

5 A. Yes. I testified earlier that a number of relatively small firms that sell discount cigarettes  
6 had entered the market since 1996.

7 **Q. Do these new entrants offer new types of cigarettes that may to reduce the risk of**  
8 **smoking?**

9 A. No. The new entrants sell conventional types of cigarettes that have been on the market for  
10 years.

11 **Q. Dr. Harris, is the entry of number of relatively small firms that sell discount cigarettes**  
12 **sufficient evidence that Defendants' long-standing prior collusive arrangement has**  
13 **ended and been permanently replaced by competition?**

14 A. The recent entry of a number of relatively small firms that sell conventional discount  
15 cigarettes is insufficient evidence for an economist to conclude that Defendants' long-  
16 standing collusive arrangement has been permanently replaced by competition.

17 **Q. Please explain.**

18 A. As I testified earlier, the cigarette industry in the United States is still a highly concentrated  
19 oligopoly, notwithstanding the recent entry of many small discount sellers. In the near  
20 term, two of the Defendants - Philip Morris and Reynolds American - will in all likelihood  
21 still account for at least two-thirds of the cigarettes sold in this country. What is more, the

1 continued long-term presence of the “fringe” of many firms that sell discount sellers is not  
2 guaranteed.

3 **Q. Why is the continued long-term presence of many firms selling discount sellers not**  
4 **guaranteed?**

5 A. Discount sellers entered the market when the price of premium-brand cigarettes rose  
6 substantially in the late 1990's. An economist cannot be certain that the price of premium-  
7 brand cigarettes will remain so high.

8 **Q. Dr. Harris, does the FDA regulate cigarettes at this time?**

9 A. No, it does not.

10 **Q. To your knowledge, have any of the Defendants have taken a position as to whether**  
11 **the FDA should regulate cigarettes?**

12 A. Yes. I’m aware that Philip Morris has, on the whole, been recently in favor of such  
13 regulatory legislation, while the other manufacturers have been, on the whole, less  
14 enthusiastic or opposed to such legislation.

15 **Q. Does the fact that Defendant manufacturers have at present taken different or even**  
16 **opposing positions on pending legislation constitute sufficient evidence that**  
17 **Defendants’ long-standing prior collusive arrangement has ended and been**  
18 **permanently replaced by competition?**

19 A. No.

20 **Q. Why not?**

21 A. The current difference of opinion on pending legislation is insufficient evidence for an  
22 economist to conclude that there is a long-term and permanent divergence of interests.

1 **Q. Please explain.**

2 A. Legislation, in the form of S. 2461 as introduced by Senators DeWine and Kennedy, is still  
3 pending. No law has thus far been enacted. There is a substantial economic literature that  
4 the largest firms in an oligopolistic industry can ultimately benefit from government  
5 regulation, and the case of FDA regulation of the cigarette industry is no exception. If FDA  
6 regulation ultimately benefitted the largest firms in the cigarette industry, the Defendants  
7 may all end up favoring it.

8 **Q. How could FDA regulation ultimately benefit the largest firms in the cigarette**  
9 **industry?**

10 A. The economic literature contains many examples where regulation of product standards -  
11 which is a feature of the currently proposed FDA regulation - creates or enhances barriers  
12 to entry into an industry. Applying the conclusions of this literature to the cigarette  
13 industry, an economist would naturally express the concern that FDA product standards  
14 could make it very costly for the “fringe” of small firms selling conventional discount  
15 cigarettes to remain in business.

16 **Q. When you say that it could be costly for small firms that sell conventional cigarettes to**  
17 **stay in business, are you expressing any conclusions concerning the incentives of the**  
18 **Defendant manufacturers?**

19 A. Yes. The Defendant manufacturers, who are much larger firms, all have a common interest  
20 in seeing the combined market share of the fringe of smaller firms decline in the future.

21 **Q. Have you reached any overall conclusions about a possible divergence of interests**  
22 **among the Defendants?**

1 A. The evidence shows that Defendants still have a common interest in staving off adverse  
2 judgments in lawsuits. With the possible exception of Vector, they are still profitable  
3 companies with a common interest in maintaining high profit margins on their conventional  
4 brands. They have a common interest in seeing that combined market share of small  
5 discount sellers of cigarettes does not continue to rise.

6 **Q. Does the continued commonality of interests to which you referred suggest any**  
7 **fundamental change in the underlying conditions in the industry that have facilitated**  
8 **collusion in the first place?**

9 A. No.

10 **Q. Thank you, Dr. Harris.**