

1 SUPERIOR COURT OF THE STATE OF CALIFORNIA
2 FOR THE COUNTY OF LOS ANGELES
3 DEPARTMENT 308 HON. CHARLES MC COY, JUDGE
4 RICHARD BOEKEN,)
5 PLAINTIFF,)
6)
7) CASE NO. BC226593
8 VS.)
9 PHILIP MRRIS,) VOLUME 31
10 INCORPORATED, A)
11 CORPORATION; INTERNATIONAL)
12 HOUSE OF PANCAKES)
INCORPORATED, A)
CORPORATION.)
DEFENDANTS.)
_____)

13 REPORTER'S DAILY TRANSCRIPT OF PROCEEDINGS
14 THURSDAY, MAY 10TH, 2001

15 APPEARANCES:

16 (FOR PLAINTIFF)

LAW OFFICES OF
MICHAEL J. PIUZE
11755 WILSHIRE BLVD.
SUITE 1170
LOS ANGELES, CA 90025
ARNOLD & PORTER
BY: MAURICE A. LEITER
JOHN CARLTON
777 S. FIGUEROA ST.
44TH FLOOR
LOS ANGELES, CA 90017

17

18

19 (FOR DEFENDANTS)

20

21

22

LISA C. RIDLEY,
23 LINDA STALEY,
OFFICIAL REPORTERS
24 600 S. COMMONWEALTH AVE.
ROOM 308
25 LOS ANGELES, CA 90005
26 VOLUME 31 OF
PAGES 5178 THROUGH 5292

27

28

1 LOS ANGELES, CALIFORNIA; THURSDAY, MAY 10TH, 2001

2 9:10 A.M

3 DEPARTMENT 308 HON. CHARLES MC COY, JUDGE

4

5 (THE FOLLOWING PROCEEDINGS

6 WERE HELD IN OPEN COURT IN

7 THE PRESENCE OF THE JURY.)

8

9 THE COURT: THE JURY PANEL IS WITH US.

10 COUNSEL ARE PRESENT AS WELL.

11 GOOD MORNING, GOOD COUNSEL.

12 IF THE DEFENSE WOULD CALL ITS NEXT

13 WITNESS.

14 MR. CARLTON: PHILIP MORRIS CALLS DOCTOR

15 KENNETH LUDMERER.

16 THE COURT: VERY WELL.

17

18

19 KENNETH LUDMERER, M.D.,

20 CALLED AS A WITNESS BY THE DEFENSE, WAS SWORN

21 AND TESTIFIED AS FOLLOWS:

22 THE CLERK: YOU DO SOLEMNLY STATE THE
23 TESTIMONY YOU MAY GIVE IN THE CAUSE NOW PENDING
24 BEFORE THIS COURT, SHALL BE THE TRUTH, THE WHOLE
25 TRUTH AND NOTHING BUT THE TRUTH, SO HELP YOU GOD.

26 THE WITNESS: YES, I DO.

27 THE CLERK: PLEASE HAVE A SEAT, SIR.

28 SIR, FOR OUR RECORD, IF YOU COULD

1 STATE YOUR FIRST AND LAST NAME AND SPELL YOUR LAST
2 NAME.

3 THE WITNESS: MY FIRST NAME IS KENNETH,
4 K-E-N-N-E-T-H, LAST NAME IS LUDMERER, L-U-D AS IN
5 DAVID, "M" AS IN MARY, E-R-E-R.

6 THE CLERK: THANK YOU.

7

8 DIRECT EXAMINATION

9

10 BY MR. CARLTON:

11 Q. GOOD MORNING, DOCTOR.

12 A. GOOD MORNING.

13 Q. GOOD MORNING EVERYONE.

14 DOCTOR, CAN YOU AT LEAST TELL THE
15 JURY WHERE YOU LIVE AND WHAT YOU DO FOR A LIVING?

16 A. I LIVE IN SAINT LOUIS, MISSOURI, I
17 AM A PHYSICIAN, AN INTERNIST TO BE SPECIFIC, AND
18 ALSO A HISTORIAN.

19 Q. PARDON ME?

20 A. A HISTORIAN OF MEDICINE.

21 Q. ALL RIGHT.

22 WHERE ARE YOU ORIGINALLY FROM?

23 A. ORIGINALLY FROM LONG BEACH,
24 CALIFORNIA, RIGHT HERE IN SOUTHERN CALIFORNIA.

25 Q. DID YOU GO TO SCHOOL HERE?

26 A. YES, I DID. I WENT TO LONG BEACH
27 POLY HIGH SCHOOL, HOME OF THE JACK RABBITS.

28 Q. CAN YOU TELL THE JURY A LITTLE BIT

1 ABOUT YOUR EDUCATION AFTER HIGH SCHOOL. WHERE DID
2 YOU GO TO COLLEGE?

3 A. I ATTENDED HARVARD UNIVERSITY FOR
4 COLLEGE.

5 Q. ALL RIGHT. WHAT WAS YOUR MAJOR?

6 A. I HAD A DOUBLE MAJOR. IT WAS
7 CALLED HISTORY AND SCIENCE. THAT IS HOW IT READS
8 IN MY DIPLOMA. THERE WAS A DOUBLE MAJOR BOTH IN
9 THE HISTORY OF SCIENCE AND IN THE BIOLOGICAL
10 SCIENCES.

11 Q. AND AFTER YOU GRADUATED FROM
12 HARVARD, WHICH WAS WHAT YEAR?

13 A. I GRADUATED FROM COLLEGE IN 1968.

14 Q. OKAY. DID YOU CONTINUE YOUR
15 STUDIES?

16 A. YES, I DID.

17 Q. WHERE?

18 A. I THEN WENT TO MEDICAL SCHOOL AT
19 THE JOHNS HOPKINS MEDICAL SCHOOL IN BALTIMORE,
20 MARYLAND.

21 Q. HOW LONG DID YOU STAY THERE?

22 A. I WAS IN BALTIMORE A TOTAL OF FIVE
23 YEARS.

24 Q. NOW, MEDICAL DEGREE DOESN'T TAKE
25 FIVE YEARS, DOES IT?

26 A. THAT IS CORRECT. TYPICALLY, IT'S
27 FOUR YEARS.

28 Q. OKAY. WHY DID YOU SAY FIVE?

1 A. DURING MY MEDICAL SCHOOL, I TOOK A
2 LEAVE OF ABSENCE FROM BEING A MEDICAL STUDENT, PER
3 SE, AND WAS A GRADUATE STUDENT IN THE HISTORY OF
4 MEDICINES.

5 JOHNS HOPKINS IS ONE OF THE MEDICAL
6 SCHOOLS IN OUR COUNTRY THAT HAS A HISTORY OF
7 MEDICINE PROGRAM, HISTORY OF MEDICINE DEPARTMENT IN
8 THE MEDICAL SCHOOL. SO I TOOK A LEAVE OF ABSENCE
9 BETWEEN MY SECOND AND THIRD YEAR OF MEDICAL SCHOOL,
10 WAS A GRADUATE STUDENT IN THE HISTORY OF MEDICINE,
11 ACTUALLY WROTE MY FIRST BOOK AT THAT TIME WHICH IS
12 NOW MY COLLEGE SENIOR THESIS. I RECEIVED A
13 GRADUATE DEGREE IN HISTORY AND THEN WENT BACK TO
14 BEING A MEDICAL STUDENT.

15 Q. SO IN ESSENCE, YOU WERE PURSUING
16 TWO LINES OF STUDY AT THE SAME TIME, A MEDICAL
17 DEGREE AND A HISTORY DEGREE?

18 A. THAT IS CORRECT.

19 Q. SO YOU WERE INTERESTED IN THE
20 HISTORY OF SCIENCE ALL THE WAY BACK AS AN UNDER
21 GRADUATE?

22 A. THAT IS CORRECT. MY INTEREST IN
23 THE HISTORY OF MEDICINE AND HISTORY OF SCIENCE
24 REALLY BEGAN AS A COLLEGE UNDER GRADUATE.

25 Q. NOW, YOU MENTIONED THAT THE WORK
26 YOU DID, WHILE ON LEAVE FROM THE MEDICAL SCHOOL,
27 RESULTED IN A BOOK?

28 A. THAT IS CORRECT.

1 Q. WHAT BOOK WAS THAT?

2 A. THE BOOK WAS ENTITLED "GENETICS IN
3 AMERICAN SOCIETY." IT WAS A HISTORY OF THE
4 AMERICAN GENETICS MOVEMENT. IT WAS PUBLISHED BY
5 THE JOHNS HOPKINS UNIVERSITY PRESS. THAT WAS
6 PUBLISHED IN THE FALL OF 1972. I REMEMBER THAT
7 VERY CLEARLY, BECAUSE I WAS BACK IN MEDICAL SCHOOL
8 AND I WAS DOING MY PEDIATRICS FELLOWSHIP WHEN IT
9 WAS PUBLISHED.

10 Q. WHEN DID YOU GET OUT OF MEDICAL
11 SCHOOL?

12 A. I GRADUATED MEDICAL SCHOOL IN 1973.

13 Q. WHAT DID YOU DO AFTER THAT?

14 A. AFTER MEDICAL SCHOOL, I WENT TO
15 SAINT LEWIS, MISSOURI, FOR A THREE-YEAR PROGRAM AN
16 INTERNSHIP AND RESIDENCE IN INTERNAL MEDICINE IN
17 THE DEPARTMENT OF MEDICINE AT THE WASHINGTON
18 UNIVERSITY SCHOOL OF MEDICINE.

19 AND BARNES HOSPITAL, WHICH IS A
20 TEACHING HOSPITAL, B-A-R-N-E-S, THEY HAVE A
21 TEACHING HOSPITAL WITH WASHINGTON UNIVERSITY
22 MEDICAL SCHOOL.

23 Q. SO THIS WAS A THREE-YEAR INTERNSHIP
24 AND RESIDENCY?

25 A. THAT IS CORRECT.

26 Q. DID YOU CONTINUE TO PURSUE YOUR
27 INTEREST IN THE HISTORY OF MEDICINE?

28 A. YES, I DID, AFTER RESIDENCY.

1 Q. HOW DID YOU DO THAT?

2 A. THE DEPARTMENT OF MEDICINE PROVIDED
3 ME WITH WHAT WE CALL A FELLOWSHIP OPPORTUNITY. I
4 WENT BACK TO HARVARD FOR TWO ADDITIONAL YEARS OF
5 STUDY IN THE HISTORY OF MEDICINE IN THEIR FACULTY
6 OF ARTS AND SCIENCES.

7 Q. SO YOU, YOU WERE GIVEN A LEAVE TO
8 DO THIS?

9 A. IT WASN'T A LEAVE. IT WAS A
10 FELLOWSHIP. I WAS A RESEARCH ASSOCIATE AT HARVARD.
11 BUT I WAS ALSO A FELLOW OF THE WASHINGTON
12 UNIVERSITY OF THE DEPARTMENT OF MEDICINE. SO I
13 RECEIVED A STIPEND, HAD RESEARCH EXPENSES, LIVING
14 EXPENSES, FROM THE WASHINGTON UNIVERSITY MEDICAL
15 SCHOOL. IT WAS UNUSUAL THAT I WENT AWAY FOR MY
16 FELLOWSHIP, BUT I WAS BEING FUNDED BY THE
17 DEPARTMENT OF MEDICINE AT WASHINGTON UNIVERSITY,
18 EVEN THOUGH I WAS AT HARVARD FOR TWO YEARS.

19 Q. WHAT WAS IT YOU STUDIED ON YOUR
20 FELLOWSHIP?

21 A. I DID MORE WORK IN THE HISTORY OF
22 MEDICINE, AUDITED CLASSES. I HAD A LOT OF
23 CONVERSATIONS WITH PEOPLE, BEGAN RESEARCH AND
24 ACTUALLY WAS AT THAT TIME THAT I CAME ACROSS A
25 SUBJECT THAT WAS ULTIMATELY TO PROVE THAT SUBJECT
26 OF TWO ADDITIONAL BOOKS THAT I HAVE WRITTEN.

27 Q. WHEN YOU WERE FINISHED WITH YOUR
28 FELLOWSHIP, DID YOU RETURN TO SAINT LOUIS?

1 A. YES, I DID.

2 Q. WHAT DID YOU DO WHEN YOU GOT THERE?

3 A. I RETURNED TO SAINT LOUIS. I HAD
4 THE PRIVILEGE OF SERVING AS CHIEF RESIDENT IN
5 INTERNAL MEDICINE FOR BARNES HOSPITAL AND FOR THE
6 WASHINGTON UNIVERSITY SCHOOL OF MEDICINE. I WAS
7 THE RIGHT HAND OF THE CHAIRMAN OF INTERNAL MEDICINE
8 AND WAS ESSENTIALLY RESPONSIBLE FOR RUNNING THE
9 CLINICAL SERVICE FOR A 12-MONTH PERIOD, WATCHING
10 OUT FOR PATIENT CARE, OVERSEEING THE TEACHING
11 PROGRAMS IN INTERNAL MEDICINE AND SO FORTH. THAT
12 WAS -- WE CALL IT A CHIEF RESIDENCY. IT WAS A
13 GREAT PRIVILEGE FOR ME TO BE A CHIEF RESIDENT AND
14 THAT WAS A 12-MONTH APPOINTMENT.

15 Q. HAVE YOU REMAINED AT WASHINGTON
16 UNIVERSITY SINCE YOU HAVE RETURNED?

17 A. YES, I HAVE.

18 Q. IN WHAT CAPACITY?

19 A. WELL, AFTER COMPLETING MY CHIEF
20 RESIDENCY, WHICH WAS JUNE 30TH OF 1979, I WAS
21 APPOINTED TO THE FACULTY OF THE WASHINGTON
22 UNIVERSITY AND I RECEIVED A DOUBLE APPOINTMENT. I
23 WAS APPOINTED ASSISTANT PROFESSOR OF MEDICINE, AND
24 WHEN I SAY MEDICINE, I MEAN INTERNAL MEDICINE. WE
25 CALL IT MEDICINE IN OUR MEDICAL SCHOOL. I WAS
26 APPOINTED ASSISTANT PROFESSOR OF MEDICINE IN THE
27 MEDICAL SCHOOL. AND I WAS ALSO APPOINTED ASSISTANT
28 PROFESSOR OF HISTORY IN OUR FACULTY OF ARTS AND

1 SCIENCES.

2 Q. HAVE YOU SINCE THAT TIME BECOME A
3 FULL PROFESSOR?

4 A. YES, I HAVE. THIS ORIGINAL
5 APPOINTMENT WAS IN 1979 AND I WAS PROMOTED TO
6 ASSOCIATE PROFESSOR IN 1985, BOTH IN INTERNAL
7 MEDICINE AND IN HISTORY AND A FULL PROFESSOR IN
8 BOTH 1992.

9 Q. OKAY. WHY DON'T YOU TELL US WHAT
10 IT IS YOU TEACH AS A PROFESSOR OF INTERNAL
11 MEDICINE?

12 A. AS AN INTERNIST, I ATTEND IN OUR
13 MEDICAL SERVICE FOUR MONTHS A YEAR AND WORK UP
14 PATIENTS WITH OUR RESIDENTS AND INTERNS AND
15 STUDENTS, GIVE LECTURES IN CLINICAL TOPICS,
16 BASICALLY, TAKING CARE OF PATIENTS AND TEACHING
17 ABOUT INTERNAL MEDICINE IN THE PROCESS OF TAKING
18 CARE OF PATIENTS WITH OUR STUDENTS.

19 Q. THEN YOU ALSO DEVOTE TIME AS A
20 PROFESSOR OF HISTORY?

21 A. THAT'S CORRECT. I ALSO TEACH THE
22 HISTORY OF MEDICINE AT WASHINGTON UNIVERSITY. I
23 TEACH COURSES IN THE ARTS AND SCIENCE FACULTY,
24 SEMINAR COURSES EACH SPRING. I HAVE STUDENTS DO
25 READING ELECTIVES AND INDEPENDENT PROJECTS WITH ME,
26 THESES, DISSERTATIONS, THAT SORT OF THING. I ALSO
27 DO SOME HISTORY OF MEDICINE TEACHING IN THE MEDICAL
28 SCHOOL TO FIRST YEAR MEDICAL STUDENTS. I GIVE

1 SEVERAL LECTURES AND TAKE A GROUP OF STUDENTS,
2 ABOUT 15, ON A SEMINAR EACH YEAR.

3 Q. ARE YOU BOARD CERTIFIED IN ANY
4 MEDICAL FIELD?

5 A. YES, I AM INTERNAL MEDICINE.

6 Q. AND YOU HAVE ALREADY TOLD US ABOUT
7 ONE BOOK THAT YOU HAVE PUBLISHED "GENETICS IN HUMAN
8 SOCIETY?"

9 A. "GENETICS IN AMERICAN SOCIETY. "

10 Q. I AM SORRY.

11 HAVE YOU PUBLISHED OTHER WORKS IN
12 THE FIELD OF MEDICAL HISTORY?

13 A. YES, I HAVE.

14 Q. ABOUT HOW MANY?

15 A. I HAVE PUBLISHED THREE BOOKS AND
16 MAYBE 30 ARTICLES.

17 Q. AND TELL US ABOUT THE BOOKS, IF YOU
18 WOULD.

19 A. WELL, THE FIRST BOOK, AS I
20 MENTIONED, WAS THE BOOK ON THE HISTORY OF THE
21 GENETICS MOVEMENT, GENETICS IN THE AMERICAN
22 SOCIETY. IT WAS, I AM PLEASED TO SAY, A
23 WELL-RECEIVED BOOK, SATURDAY REVIEW PUT IT ON ITS
24 LIST OF OUTSTANDING SCIENCE BOOKS FOR THAT YEAR.

25 MY SECOND BOOK WAS CALLED "LEARNING
26 TO HEAL. " AND THAT WAS A STUDY OF THE CREATION OF
27 OUR SYSTEM OF MEDICAL EDUCATION IN THE UNITED
28 STATES, OUR MEDICAL SCHOOLS, HOW THEY WERE CREATED,

1 OUR TEACHING HOSPITALS, HOW THEY WERE INVENTED AND
2 OUR SYSTEM OF TRAINING PHYSICIANS. AND THAT BOOK
3 EXAMINED THE PERIOD FROM THE MID-19TH CENTURY TO
4 THE 1920' S.

5 Q. WHEN DID THAT BOOK COME OUT?

6 A. THAT BOOK WAS PUBLISHED IN OCTOBER
7 OF 1985.

8 Q. WAS IT NOMINATED FOR ANY AWARDS?

9 A. YES, IT WAS.

10 Q. WHICH ONES?

11 A. WELL, IT WAS NOMINATED, AMONG OTHER
12 THINGS, FOR A PULITZER PRIZE IN HISTORY AND A
13 BANCROFT PRIZE FOR THE BEST BOOK IN AMERICAN
14 HISTORY.

15 Q. AND THE PULITZER PRIZE, CAN YOU
16 TELL US A LITTLE BIT THAT.

17 A. PULITZER PRIZE AS VERY IMPORTANT
18 BOOK GIVEN TO NOTABLE BOOKS THAT ARE NOTABLE BOTH
19 FOR THEIR SCHOLARLY MERIT BUT ALSO TO THE FACT THAT
20 THEY HAVE THOUGHT ABOUT SOCIETY.

21 Q. SO THAT'S YOUR SECOND BOOK, 1985,
22 RIGHT?

23 A. UH-HUH, THAT IS CORRECT.

24 Q. AND I THINK YOU ALSO MENTIONED YOU
25 WROTE A THIRD BOOK?

26 A. THAT IS CORRECT.

27 Q. WHEN WAS THAT PUBLISHED?

28 A. MY LATEST BOOK WAS PUBLISHED IN

1 NOVEMBER OF 1999. IT'S CALLED "TIME TO HEAL." THE
2 SUBTITLE IS "AMERICAN MEDICAL EDUCATION FROM THE
3 TURN OF THE CENTURY TO THE ERA OF MANAGED CARE."

4 THIS BOOK LOOKS AT WHAT HAPPENED TO
5 OUR SYSTEM IN MEDICAL EDUCATION FROM THE TIME IT
6 WAS CREATED THROUGH THE 20TH CENTURY AND INTO THE
7 MARKET DRIVEN MANAGED CARE ERA OF THE PRESENT.

8 Q. WAS THAT BOOK NOMINATED FOR ANY
9 AWARDS?

10 A. IT WAS ALSO NOMINATED FOR A
11 PULITZER IN NON-FICTION AND FOR BANCROFT PRIZE.

12 Q. NOW, BESIDES THE THREE BOOKS THAT
13 YOU HAVE WRITTEN, YOU TOLD US --

14 A. ACTUALLY, WON A COUPLE OF AWARDS,
15 TOO.

16 Q. OH, WHICH ONES?

17 A. FOR THE BOOK I RECEIVED AN
18 INAUGURAL DANIEL TOSTISON AWARD WHICH IS GIVEN BY
19 HARVARD MEDICAL SCHOOL AND THE ASSOCIATION OF
20 AMERICAN MEDICAL COLLEGES. THE ASSOCIATION OF
21 AMERICAN MEDICAL COLLEGES IS THE NATION'S
22 ORGANIZATION OF MEDICAL SCHOOLS AND TEACHING
23 HOSPITALS.

24 THIS PRIZE IS FOR LEADERSHIP IN
25 MEDICAL EDUCATION. AND JUST A WEEK AGO I RECEIVED
26 AN INAUGURAL TOSTISON AWARD FOR HAVING WRITTEN
27 "TIME TO HEAL." AND FOR WRITING "TIME TO HEAL," I
28 ALSO RECEIVED THE DISTINGUISHED ALUMNUS AWARD OF

1 THE JOHNS HOPKINS UNIVERSITY.

2 Q. YOU ARE A MEMBER OF THE ASSOCIATION
3 OF AMERICAN PHYSICIANS; IS THAT CORRECT?

4 A. THAT IS CORRECT.

5 Q. CAN YOU TELL US ABOUT THAT, WHAT IS
6 THAT?

7 A. ASSOCIATION OF AMERICAN PHYSICIANS
8 IS AN ORGANIZATION OF MEDICAL INVESTIGATORS IN THE
9 UNITED STATES. TYPICALLY THE PEOPLE ARE ELECTED TO
10 THE ORGANIZATION FOR THEIR CONTRIBUTIONS TO MEDICAL
11 SCIENCE. THE GREAT MAJORITY OF INDIVIDUALS COME
12 FROM CLINICAL DEPARTMENTS OF MEDICAL SCHOOLS AND
13 TEACHING HOSPITALS AND RESEARCH ORGANIZATIONS.

14 AND SO BY THAT, I MEAN THEY COME
15 FROM DEPARTMENTS OF INTERNAL MEDICINE OR PEDIATRICS
16 OR SURGERY AS OPPOSED TO THE BASIC SCIENCE
17 DEPARTMENT, BIOMEDICS, CHEMISTRY AND SO FORTH.

18 IT WAS UNUSUAL FOR ME TO HAVE BEEN
19 ELECTED BECAUSE I WAS ELECTED FOR MY WORK IN THE
20 HISTORY OF MEDICINE. OTHER MEMBERS OF THIS
21 ORGANIZATION ARE TYPICALLY DOING LABORATORY
22 RESEARCH OF SOME SORT OR OTHER. IT'S AN
23 ORGANIZATION THAT YOU DON'T JOIN, YOU ARE ELECTED
24 TO.

25 LESS THAN ONE PERCENT OF THE
26 FACULTY OF AMERICAN MEDICAL SCHOOLS AND RESEARCH
27 INSTITUTES ARE MEMBERS OF THIS ORGANIZATION SO IT
28 IS A VERY SELECTIVE ORGANIZATION AND I CONSIDER IT

1 A GREAT HONOR TO HAVE -- TO BE A MEMBER.

2 Q. ARE YOU A MEMBER OF ANY OTHER
3 PROFESSIONAL ORGANIZATIONS?

4 A. YES, I AM

5 Q. ON THE MEDICAL SIDE OF YOUR WORK
6 AND ALSO ON THE HISTORICAL SIDE?

7 A. BOTH.

8 Q. CAN YOU TELL US WHICH ONES?

9 A. WELL, GOING CHRONOLOGICALLY AS A
10 HISTORIAN, I THINK, CHRONOLOGICALLY, I AM A MEMBER
11 OF THE PHI BETA KAPPA, THE HONORARY SOCIETY OF THE
12 COLLEGE, AND FOR WHAT WE CALL AN A. O. A. , ALPHA
13 OMEGA ALPHA. THAT'S THE HONORARY SOCIETY FOR THE
14 MEDICAL SCHOOL.

15 A. O. A. IS TO MEDICAL SCHOOL WHAT
16 PHI BETA KAPPA IS TO COLLEGE. I AM A MEMBER OF
17 BOTH OF THOSE ORGANIZATIONS.

18 AND IN TERMS OF ADDITIONAL
19 PROFESSIONAL ORGANIZATIONS, ON THE MEDICAL SIDE, I
20 AM A MEMBER OF THE -- AM A MEMBER AND AN ELECTED
21 FELLOW OF THE AMERICAN COLLEGE OF PHYSICIANS, THE
22 ASSOCIATION OF AMERICAN PHYSICIANS, THE AMERICAN
23 ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

24 ON THE HISTORICAL SIDE, I AM A
25 MEMBER OF THE HISTORY OF SCIENCES SOCIETY, THE
26 HISTORY OF EDUCATION SOCIETY, THERE'S AN
27 ORGANIZATION CALLED THE ORGANIZATION OF AMERICAN
28 HISTORIANS. I AM A MEMBER OF THAT. I AM ALSO A

1 MEMBER AND PRESENTLY VICE-PRESIDENT OF THE AMERICAN
2 ASSOCIATION FOR THE HISTORY OF MEDICINE.

3 Q. ARE YOU ON THE EDITORIAL BOARD OF
4 ANY JOURNALS?

5 A. YES, I AM

6 Q. WHICH ONES?

7 A. AT PRESENT OR IN RECENT PAST, SEVEN
8 OR EIGHT JOURNALS THAT I RECALL BOTH HISTORICAL AND
9 MEDICAL.

10 ON THE MEDICAL SIDE, I HAVE BEEN OR
11 AM ON THE JOURNAL CALLED ACADEMIC MEDICINE, ANNALS
12 OF INTERNAL MEDICINE, AMERICAN JOURNAL OF MEDICINE.

13 ON THE HISTORICAL SIDE OR THE
14 HUMANITIES SIDE, I HAVE BEEN OR AM ON THE EDITORIAL
15 BOARD OF THE JOURNAL OF HISTORY OF MEDICINE, THE
16 JOURNAL CALLED THE BULLETIN OF THE HISTORY OF
17 MEDICINE. THERE'S ANOTHER PUBLICATION CALLED THE
18 HISTORY OF EDUCATION QUARTERLY. I HAVE SERVED ON
19 THAT RECENTLY. AND THERE'S ALSO A PUBLICATION
20 CALLED THE PHAROS, WHICH IS THE OFFICIAL JOURNAL OF
21 ALPHA MEGA ALPHA. IT'S A JOURNAL OF THE MEDICAL
22 HUMANITIES. AND I AM ON THAT EDITORIAL BOARD AS
23 WELL.

24 Q. AND DO YOU SERVE AS A PEER REVIEWER
25 ON ANY OF THESE JOURNALS AS WELL?

26 A. YES, I DO.

27 ONE OF THE THINGS YOU DO WHEN YOU
28 ARE ON EDITORIAL BOARDS IS YOU REFEREE MANUSCRIPTS

1 AND GIVE EDITORS ADVICE.

2 ACTUALLY, I PEER REVIEW FOR OTHER
3 JOURNALS AS WELL, BUT I DON'T SERVE ON THE
4 EDITORIAL BOARDS, BUT CERTAINLY AS AN EDITORIAL
5 BOARD MEMBER. THAT'S ONE OF THE THINGS THAT YOU
6 VERY WELL COULD END UP DOING.

7 Q. HAVE YOU DONE ANY PUBLIC SPEAKING
8 IN THE AREA OF THE HISTORY OF MEDICINE?

9 A. I HAVE HAD AN ENORMOUS AMOUNT OF
10 THAT. I HAVE HAD -- I WOULD SAY, APPROXIMATELY 90
11 NAMED LECTURERS OR VISITING PROFESSORSHIPS TO
12 UNIVERSITY, MEDICAL SCHOOLS, TEACHING HOSPITALS,
13 AND PROFESSIONAL ORGANIZATIONS IN THE LAST DOZEN
14 YEARS.

15 Q. WELL, LET ME ASK YOU THIS: HAVE
16 YOU EVER TESTIFIED BEFORE IN A TOBACCO-RELATED
17 CASE?

18 A. I HAVE BEEN IN TOBACCO-RELATED
19 CASES THREE OR FOUR TIMES PRIOR TO THIS ONE.

20 Q. ALL RIGHT.

21 A. FOUR TIMES, I BELIEVE.

22 Q. AND YOU HAVE BEEN ASKED TO RENDER
23 AN OPINION HERE IN THIS CASE?

24 A. THAT IS CORRECT.

25 Q. AND I DON'T GUESS THE JURY WON'T BE
26 SURPRISED TO HEAR THAT IT RELATES TO THE HISTORY OF
27 MEDICINE.

28 CAN YOU TELL US WHAT OPINIONS HAVE

1 YOU BEEN ASKED TO RENDER?

2 A. I HAVE BEEN ASKED TO GIVE MY
3 OPINIONS REGARDING THE STATE OF OUR SCIENTIFIC
4 KNOWLEDGE OF THE CAUSES OF LUNG CANCER AND, IN
5 PARTICULAR, THE RELATIONSHIP TO CIGARETTE SMOKING,
6 WHAT WAS UNDERSTOOD IN THE SCIENTIFIC COMMUNITY
7 FROM 1930 TO JANUARY OF 1964 WHICH WAS WHEN THE
8 FIRST U. S. SURGEON GENERAL' S REPORT WAS PUBLISHED.

9 Q. JUST SO THE JURY CAN GET AN IDEA
10 WHERE WE ARE GOING WITH THIS, CAN YOU SUMMARIZE FOR
11 US BRIEFLY WHAT YOUR OPINION IS.

12 A. TWO TURNING POINTS. AT SOME TIME
13 THE MEDICAL AND SCIENTIFIC COMMUNITY HAD TO DEVELOP
14 A SERIOUS CONCERN THAT CIGARETTE SMOKING MIGHT BE A
15 CAUSE OF LUNG CANCER.

16 THAT WAS 1950.

17 AND AT SOME POINT THERE HAD TO BE A
18 CONSENSUS IN THE MEDICAL AND SCIENTIFIC COMMUNITY
19 THAT CIGARETTE SMOKING DID CAUSE LUNG CANCER. AND
20 THAT WAS IN THE AFTERMATH OF THE FIRST U. S. SURGEON
21 GENERAL' S REPORT OF JANUARY 1964.

22 THAT DATE, JANUARY ' 64, IN MY
23 JUDGMENT, IS AN ENORMOUS TURNING POINT IN TERMS OF
24 OUR UNDERSTANDING OF THE CAUSES OF LUNG CANCER IN
25 THE SCIENTIFIC COMMUNITY.

26 Q. ALL RIGHT, DR. LUDMERER, CAN YOU
27 TELL US A LITTLE BIT ABOUT HOW YOU GOT INVOLVED IN
28 THIS PROJECT?

1 A. I WAS APPROACHED IN AUGUST OF 1988
2 BY A MAN NAMED MURRAY GARNETT, WHO HAPPENS TO BE AN
3 ATTORNEY FOR THE WASHINGTON D. C. OFFICE OF YOUR
4 FIRM OF ARNOLD & PORTER.

5 AND HE CONTACTED ME ABOUT THE
6 POSSIBILITY OF DOING A HISTORICAL PROJECT ON THE
7 STATE OF SCIENTIFIC KNOWLEDGE, WHAT WAS UNDERSTOOD
8 IN THE MEDICAL AND SCIENTIFIC COMMUNITY ABOUT LUNG
9 CANCER AND IT'S CAUSE, 1930 TO 1964.

10 HE RELATED TO ME THAT HE WAS
11 INTERESTED IN AN INDIVIDUAL OF IMPECCABLE
12 CREDENTIALS, BOTH IN MEDICINE AND IN HISTORY.

13 HE TOLD ME THAT HE LEARNED OF ME BY
14 MAKING AN INQUIRY WITH OFFICERS OF THE AMERICAN
15 ASSOCIATION FOR THE HISTORY OF MEDICINE AND THAT'S
16 HOW HE GOT MY NAME. AND HE CONTACTED ME ABOUT
17 DOING THIS PROJECT AND WE DISCUSSED IT.

18 IT SOUNDED LIKE AN INTERESTING
19 PROJECT.

20 I HAD THE OPPORTUNITY TO WORK, I
21 HAD JUST FINISHED MY SECOND BOOK, I HADN'T YET
22 BEGUN WORK ON WHAT BECAME MY THIRD BOOK, SO I HAD
23 AN OPPORTUNITY TO ENGAGE IN PROJECTS OF THIS SORT.
24 HAD HE APPROACHED ME A YEAR OR TWO EARLIER OR A
25 YEAR OR TWO LATER, I WOULD NOT HAVE HAD THE TIME TO
26 UNDERTAKE IT.

27 I TALKED WITH HIM ABOUT THE WAY THE
28 PROJECT SHOULD BE APPROACHED.

1 I SAID I WOULD CONSIDER DOING THIS
2 IF I HAD COMPLETE FREEDOM TO APPROACH THIS WITH THE
3 SAME RIGOR AND OBJECTIVITY AND DETACHMENT AND
4 THOROUGHNESS THAT I DO ALL MY SCHOLARLY WORK. HE
5 SAID HE WOULDN'T WANT IT ANY OTHER WAY AND WE
6 AGREED TO DO IT.

7 Q. WELL, LET ME ASK YOU THIS: AS A
8 MEDICAL DOCTOR, WERE YOU RELUCTANT TO DO WORK FOR
9 THE TOBACCO INDUSTRY?

10 A. WELL, I DON'T KNOW, MR. CARLTON, IF
11 RELUCTANT IS QUITE THE RIGHT WORD. CERTAINLY IT
12 TOOK ME BY SURPRISE BEING CONTACTED BY A FIRM
13 REPRESENTING THE TOBACCO INDUSTRY AND I WAS A
14 LITTLE, OH, UNCOMFORTABLE, A LITTLE TAKEN ABACK BY
15 THAT.

16 BUT I REFLECTED ON IT. IT WAS AN
17 INTERESTING PROJECT. AS I SAID, I HAD THE TIME TO
18 DO IT, I WOULDN'T HAVE HAD THE TIME TO DO IT A YEAR
19 EARLIER OR A YEAR LATER.

20 IT WAS CLEAR THAT I HAD COMPLETE
21 FREEDOM TO DO IT AND I TOLD HIM THAT I DON'T KNOW
22 WHAT I AM GOING TO FIND, I WILL TELL YOU WHAT I AM
23 GOING TO FIND, BUT I AM NOT GOING TO GUARANTEE MY
24 ANSWERS IN ADVANCE, THAT I HAVE COMPLETE FREEDOM TO
25 DO IT. I KNEW FROM JUST MY GENERAL KNOWLEDGE AS A
26 MEDICAL HISTORIAN THAT THE COMMON WISDOM OF MEDICAL
27 HISTORY IS THAT THE SURGEON GENERAL'S REPORT OF
28 1964 WAS THE TURNING POINT IN MY SCIENTIFIC

1 UNDERSTANDING.

2 ON THE OTHER HAND, SOMETIMES THE
3 COMMON WISDOM IS WRONG, YOU GO AND START LOOKING AT
4 ORIGINAL SOURCES AND YOU FIND SURPRISES. AND IT
5 WAS INTERESTING TO ME, MAYBE THERE'S A SURPRISE
6 HERE.

7 SO FOR ALL OF THOSE REASONS, I FELT
8 COMFORTABLE PURSUING IT.

9 Q. YOU WERE PAID FOR THIS WORK?

10 A. THAT IS CORRECT.

11 Q. WHAT WAS IT, CAN YOU DESCRIBE, WHAT
12 WAS IT YOU DID IN PREPARING THIS PROJECT?

13 A. THE PROJECT HAD TWO PARTS.

14 AS A RESPONSIBLE HISTORIAN, THE
15 FIRST PART OF THE PROJECT WAS STUDYING WHAT WE CALL
16 SECONDARY SOURCES IN THE HISTORY OF MEDICINE AS
17 THEY PERTAINED TO THIS SPECIFIC PROJECT.

18 SO I READ OTHER HISTORICAL ACCOUNTS
19 BY OTHER WRITERS ON THIS, LOOKED ALONG THE SMOKING
20 CONTROVERSY.

21 I READ ABOUT IMPORTANT RELATED
22 TOPICS ON THE HISTORY OF CANCER, THE HISTORY OF
23 PUBLIC HEALTH, THE HISTORY OF THE NATIONAL
24 INSTITUTES OF HEALTH TO DEVELOP A CONTEXT. I READ
25 ABOUT THE HISTORY OF SCIENTIFIC REVOLUTION
26 PARADIGM P-A-R-A-D-I-G-M HOW ONE NEW
27 REVOLUTIONARY IDEA REPLACES ANOTHER IN SCIENCE, HOW
28 A REVOLUTIONARY IDEA CAN REPLACE A COMMONLY

1 ACCEPTED IDEA OF ALL THE BATTLES AND STRUGGLES THAT
2 ARE INVOLVED WITH THAT TYPE OF PROCESS AND THEN THE
3 HISTORY OF SCIENCE.

4 SO I DID SOME VERY THOROUGH READING
5 IN THE SECONDARY SOURCES.

6 MOST OF MY PROJECT WAS THEN --

7 Q. CAN YOU JUST STOP FOR A MINUTE AND
8 EXPLAIN FOR US WHAT ARE SECONDARY SOURCES, WHY DO
9 YOU CALL THEM THAT?

10 A. WE CALL THEM SECONDARY BECAUSE THEY
11 ARE WRITTEN BY OTHERS.

12 FOR EXAMPLE, A HISTORY OF
13 PRESIDENT -- A BIOGRAPHY OF PRESIDENT EISENHOWER
14 WOULD BE CONSIDERED A SECONDARY SOURCE. IF YOU
15 READ ONE OF THE SPEECHES OR LETTERS, THAT WOULD BE
16 A PRIMARY SOURCE.

17 IT'S A STUDY OF AN EVENT OR AN
18 INDIVIDUAL WRITTEN BY SOMEONE ELSE.

19 Q. OKAY.

20 SO YOU TOLD US THAT YOU REVIEWED A
21 LOT OF SECONDARY SOURCES?

22 A. THAT IS CORRECT.

23 Q. AND I THINK YOU ARE MOVING ON TO
24 THE NEXT STAGE OF YOUR RESEARCH. WHAT DID THAT
25 INVOLVE?

26 A. RIGHT. I DID A SECONDARY SOURCE
27 FIRST BECAUSE I WANTED TO HAVE A FRAME OF REFERENCE
28 IN THE CONTEXT TO UNDERSTANDING THE SCIENTIFIC

1 DISCUSSION.

2 MOST OF THE WORK THAT I DID WAS IN,
3 I CALL PRIMARY SOURCE, AND FOR THIS PARTICULAR
4 PROJECT, THE PRIMARY SOURCE WAS THE MARKETPLACE OF
5 MEDICAL IDEAS.

6 THAT MEAN THE PUBLISHED MEDICAL AND
7 SCIENTIFIC LITERATURE. SO I GENERATED A
8 BIBLIOGRAPHY FROM A PUBLICATION CALLED INDEX
9 MEDICUS.

10 INDEX MEDICUS IS A BIBLIOGRAPHICAL
11 GUIDE TO THE MEDICAL LITERATURE MUCH AS READERS
12 GUIDE IS A BIBLIOGRAPHIC GUIDE TO POPULAR
13 MAGAZINES.

14 I LOOKED UNDER FOUR TOPICS. I
15 LOOKED UNDER LUNG CANCER, I LOOKED UNDER
16 BRONCHOGENIC CANCER. SURPRISINGLY, THOSE WERE TWO
17 DIFFERENT ENTITIES IN THE INDEX MEDICUS. SO I
18 LOOKED AT BOTH.

19 I ALSO LOOKED AT CIGARETTE SMOKING.
20 I LOOKED AT TOBACCO AND I WROTE DOWN ON SHEETS OF
21 PAPER EVERY ARTICLE LISTED UNDER THOSE FOUR
22 SUBJECTS PUBLISHED IN THE WORLD FROM 1930 TO
23 JANUARY OF 1964 AND GENERATED A BIBLIOGRAPHY OF
24 MAYBE 1,200 ARTICLES AND THEN I READ THEM

25 Q. THIS 1,200 -- THESE 1,200 ARTICLES,
26 WERE THOSE ALL OF THE ARTICLES RELATING TO SMOKING
27 AND LUNG CANCER THAT YOU WERE ABLE TO FIND FOR THE
28 PERIOD 1930 TO 1964?

1 A. CORRECT. THIS WAS, THIS WAS 100
2 PERCENT. THIS WAS COMPREHENSIVE. THIS WAS EVERY
3 ARTICLE LISTED IN THE INDEX MEDICUS WHICH IS A
4 GUIDE TO THE WORLD'S SCIENTIFIC -- TO THE WORLD'S
5 MEDICAL LITERATURE, YES.

6 Q. SO YOU ARE CONFIDENT YOU HAVE READ
7 EVERY SCIENTIFIC ARTICLE ON THAT SUBJECT DURING
8 THAT 34-YEAR SPAN?

9 A. I AM CONFIDENT THAT I HAVE READ
10 EVERYTHING THAT THE INDEX MEDICUS LISTED. YOU
11 KNOW, IF IT DIDN'T LIST SOMETHING, YOU KNOW, I
12 COULD HAVE MISSED IT. I AM DEPENDENT UPON THAT.
13 IT'S POSSIBLE THAT SOMETHING WAS MISCLASSIFIED AND
14 SHOULD HAVE BEEN BRONCHOGENIC CANCER AND IT WAS
15 CLASSIFIED UNDER SOMETHING ELSE. BUT THE INDEX
16 MEDICUS IS PRETTY GOOD AND I LITERALLY RECORDED
17 EVERY ARTICLE THAT IT CONTAINED AND I LITERALLY
18 READ EVERY SINGLE ARTICLE.

19 SO THAT'S A PRETTY THOROUGH JOB OF
20 BEING COMPREHENSIVE. I DON'T THINK A PERSON CAN DO
21 MORE THAN THAT.

22 Q. WHEN WAS IT YOU DID THIS RESEARCH?

23 A. I DID THIS RESEARCH OVER A TWO-
24 YEAR PERIOD. IT INVOLVED CALENDAR YEARS OF 1988
25 AND 1989.

26 Q. WERE ANY LIMITATIONS PLACED ON THE
27 RESEARCH YOU CAN DO?

28 A. ABSOLUTELY NOT.

1 Q. ANY RESTRICTIONS PLACED ON THE WAY
2 THAT YOU WOULD DO IT?

3 A. ABSOLUTELY NONE.

4 Q. LET ME ASK YOU, BASED ON ALL OF
5 THIS RESEARCH THAT YOU HAVE DONE, IN YOUR OPINION,
6 BASED ON THE RESEARCH, ON YOUR TRAINING, ON YOUR
7 EXPERIENCE, DO YOU HAVE AN OPINION AS TO THE
8 GENERALLY ACCEPTED STATE OF SCIENCE FROM 1930 TO
9 1964, REGARDING SMOKING AND LUNG CANCER?

10 A. YES, I DO.

11 Q. WHAT IS THAT OPINION?

12 A. I THINK THAT IT IS HELPFUL TO
13 DIVIDE THIS PERIOD AT 1950.

14 IF YOU LOOK BEFORE 1950, THE CAUSE
15 OF LUNG CANCER WAS UNKNOWN, AND THIS IS A RELATED
16 AND VERY IMPORTANT POINT THAT WAS ALSO CONSIDERED
17 UNKNOWNABLE, THAT THE TOOLS AND METHODS THAT WE HAD
18 IN MEDICAL SCIENCE AT THAT TIME WERE CONSIDERED
19 INSUFFICIENT FOR LEARNING MUCH ABOUT THE CAUSES
20 MUCH CANCER.

21 THIS WAS TRUE NOT JUST FOR LUNG
22 CANCER BUT ALL CANCER. CANCER RESEARCH WAS
23 CONSIDERED A DEAD END FIELD AT THAT TIME. IF YOU
24 WANTED TO HAVE A DEAD END CAREER IN SCIENCE, TRY TO
25 GO INTO CANCER RESEARCH.

26 Q. WAS THAT BECAUSE THE KNOWLEDGE
27 ABOUT THE CAUSES OF CANCER WAS BASICALLY JUST, IT
28 WAS JUST A MYSTERY?

1 A. WELL, CANCER WAS EXCEEDINGLY
2 COMPLEX AND THE SCIENCES THAT WE ENJOY TODAY AND
3 HAVE BENEFITED FROM TODAY THAT HAVE TAUGHT US MUCH
4 ABOUT CANCER HAD NOT YET BEEN DEVELOPED OR
5 INVENTED.

6 THIS IS BEFORE MOLECULAR BIOLOGY.
7 THIS IS BEFORE CELL BIOLOGY. THIS IS BEFORE THE
8 EPIDEMIOLOGY OF CHRONIC DISEASES. THIS IS BEFORE
9 THE GENOM PROJECT. THIS IS BEFORE THE STRUCTURE OF
10 DNA HAD EVEN BEEN IDENTIFIED. THIS IS WHEN
11 BIOCHEMISTRY WAS STILL IN ITS RELATIVE INFANCY.

12 SO PATHOLOGY, EXPERIMENTAL
13 PATHOLOGY WAS IN INFANCY.

14 SO THE TOOLS TO STUDY IT WERE JUST
15 NOT SUFFICIENTLY DEVELOPED AND THE CAUSE OF CANCER,
16 THE CAUSE OF LUNG CANCER WAS CONSIDERED UNKNOWN AND
17 UNKNOWABLE. AND AS I SAY, THIS WAS IN THE CONTEXT
18 OF ALL OF CANCER WHICH TENDED TO BE CONSIDERED
19 UNKNOWN AND UNKNOWABLE AT THAT TIME.

20 Q. AND YOU SAID THAT WAS FOR THE
21 PERIOD BEFORE 1950?

22 A. THAT IS CORRECT.

23 Q. WHAT'S YOUR OPINION AS TO THIS
24 SUBJECT AFTER 1950 AND UP TO 1964?

25 A. WELL, 1950 IS A WATERSHED YEAR
26 BECAUSE SEVERAL RETROSPECTIVE STUDIES WERE
27 PUBLISHED THAT YEAR SHOWING A STATISTICAL
28 ASSOCIATION BETWEEN CIGARETTE SMOKING AND LUNG

1 CANCER.

2 THIS WAS THE BEGINNING OF A HUGE
3 SCIENTIFIC INVESTIGATION INTO THE STUDY OF LUNG
4 CANCER FROM THE STANDPOINT OF ITS CAUSES, BOTH
5 EPIDEMIOLOGICALLY AS WELL AS EXPERIMENTALLY.

6 AN ENORMOUS AMOUNT OF INFORMATION
7 WAS ACCUMULATED. NEW TECHNIQUES WERE DEVELOPED.
8 IT WAS A VERY CONTROVERSIAL SUBJECT.

9 YOU FIND PEOPLE WHO THOUGHT THAT
10 CIGARETTE SMOKING MIGHT BE THE CAUSE BUT YOU FIND
11 MANY RESPONSIBLE SCIENTISTS WHO WERE VERY
12 SKEPTICAL. AND THIS PERIOD OF DEBATE AND DISCOVERY
13 AND CONTROVERSY LASTED THROUGH THE FIRST SURGEON
14 GENERAL'S REPORT OF JANUARY 1964 AND WAS IN THAT
15 IMPORTANT REPORT THAT ALL THE INFORMATION WAS
16 ACCUMULATED, PRESENTED, ANALYZED IN SUCH A WAY THAT
17 A CONSENSUS DEVELOPED INTO SCIENTIFIC COMMUNITY IN
18 ITS AFTERMATH.

19 SO OUR PRESENT UNDERSTANDING OF THE
20 SCIENTIFIC COMMUNITY, IN TERMS OF A CONSENSUS,
21 DATES TO JANUARY 1964.

22 IF YOU ARE LOOKING AT 1950 TO 1964,
23 PEOPLE INVESTIGATING THIS, SOME PEOPLE ALREADY ON
24 BOARD AND THINK THAT MAYBE CIGARETTE SMOKING IS THE
25 CAUSE, IF YOU ARE LOOKING AT A CONSENSUS WHEN IT
26 WAS, AS I SAID, WHEN A CONSENSUS DEVELOPED, THAT
27 WAS JANUARY 1964.

28 AND THOSE ARE MY FINDINGS.

1 Q. ALL RIGHT. LET'S NOW TURN BACK TO
2 YOUR RESEARCH. AND I'D LIKE TO ASK, YOU DID, YOU
3 LOOKED AT A LOT OF THINGS. YOU LOOKED AT SECONDARY
4 SOURCES, YOU LOOKED AT PRIMARY SOURCES.

5 WERE THERE STANDARDS, CRITERIA
6 THAT -- AND I THINK YOU ARE MAYBE A LITTLE TOO
7 CLOSE TO THE MICROPHONE THERE.

8 A. THANKS FOR TELLING ME THAT.
9 SORRY IF I HURT YOUR EARS.

10 Q. WERE THERE STANDARDS OR CRITERIA
11 THAT YOU, AS A HISTORIAN, APPLIED IN EVALUATING THE
12 HISTORICAL DATA THAT YOU DEVELOPED IN YOUR
13 RESEARCH?

14 A. YES, THERE WERE.
15 WHEN YOU STUDY HISTORY AS A
16 PROFESSIONAL HISTORIAN, YOU NOT ONLY LEARN FACTS
17 BUT YOU ARE LEARNING THE METHODS OF DOING HISTORY
18 AND THE PRINCIPLES OF DOING HISTORY.

19 WE USE THE TECHNICAL TERM
20 HISTORIOGRAPHY FOR THE METHOD AND PROCEDURES AND
21 THERE IS STANDARD PRINCIPLES OF DOING GOOD HISTORY
22 THAT I HAVE FOLLOWED FOR THIS PROJECT.

23 Q. AND HAVE YOU PREPARED OR HAD
24 PREPARED A DEMONSTRATIVE TO HELP EXPLAIN WHAT THOSE
25 STANDARDS ARE?

26 A. YES, I HAVE.

27 BY THE WAY, IF I MAY ASK, IS THIS
28 BETTER, IN TERMS OF MY DISTANCE FROM THE

1 HAVE JET AIRPLANES YET, THAT STEAMSHIP PASSAGE IS
2 STILL A MAJOR WAY OF GOING TO EUROPE, THAT WE DON' T
3 HAVE CELL PHONES, WE DON' T HAVE FAXES, WE DON' T
4 HAVE XEROX MACHINES, WE DON' T HAVE E-MAIL OR THE
5 INTERNET.

6 IT WAS A MDRE FORMAL SOCIETY AT
7 THAT TIME. MEN WOULD TYPICALLY WEAR HATS GOING
8 DOWNTOWN. WOMEN WOULD WEAR WHITE GLOVES GOING
9 DOWNTOWN. YOU WOULD GO TO A BASEBALL GAME, YOU
10 WOULD OFTEN BE IN A COAT AND TIE. IT WAS A
11 DIFFERENT SOCIETY, DIFFERENT CULTURE.

12 AND HISTORIANS UNDERSTAND THAT.
13 YOU HAVE TO IMMERSE YOURSELF AND SEE THE PASS FROM
14 ITS OWN PERSPECTIVE, NOT FROM THE PERSPECTIVE OF
15 TODAY.

16 Q. AND IT LOOKS LIKE YOUR SECOND
17 STANDARD THERE, AVOIDANCE OF HINDSIGHT IS SORT OF
18 RELATED TO THAT ONE?

19 A. THAT' S A RELATED CONCEPT AND THAT
20 MEANS THAT HISTORIANS MUST AVOID THE TRAP OF BEING
21 MONDAY MORNING QUARTERBACKS.

22 PEOPLE, IN TIME, KNOW WHAT HAPPENED
23 UP UNTIL THAT TIME. THEY DON' T KNOW WHAT HAPPENED
24 AFTER.

25 WE, TODAY, WE KNOW THE, QUOTE,
26 UNQUOTE, ANSWERS, BUT PEOPLE AT THE TIME DIDN' T.
27 IT IS VERY EASY TO SAY, FOR EXAMPLE, THAT, YOU
28 KNOW, YOU SHOULD HAVE SOLD YOUR STOCKS BEFORE THE

1 GREAT STOCK MARKET CRASH OF 1929 AND THE MORE
2 RECENT ONE OF 1987 AND EVERYTHING WAS SO CRYSTAL
3 CLEAR.

4 ON THE OTHER HAND, IT WASN'T SO
5 CRYSTAL CLEAR TO PEOPLE WHO WERE THERE AT THE TIME.

6 AND LOTS OF SMART PEOPLE LOST
7 MONEY, LOTS OF SMART INVESTORS. HISTORIANS KNOW
8 THAT IT IS VERY IMPORTANT TO AVOID HINDSIGHT.
9 HINDSIGHT IS ONE OF THE CRITICAL AREAS IN HISTORY.

10 Q. AND IS THIS SOMETHING THAT REQUIRES
11 YOU TO REALLY CULTIVATE SOME SELF-AWARENESS,
12 SELF-CRITICISM IN ORDER TO AVOID THIS?

13 A. RIGHT, SELF-AWARENESS AND
14 SELF-CRITICISM I THINK, ARE GOOD TERMS.

15 AND THESE ARE QUALITIES THAT YOU
16 DEVELOP IN THE GRADUATE STUDY OF THE HISTORY, AS
17 YOU -- NOT JUST TAKING COURSES, BUT WHEN YOU ARE
18 DOING SEMINARS AND YOU ARE DISCUSSING IDEAS OR YOU
19 ARE PRESENTING YOUR PAPERS OR GIVING PRESENTATIONS
20 OR WRITING A DRAFT TO SOMETHING AND HAVING IT
21 CRITICALLY REVIEWED BY ANOTHER, THESE TYPES OF
22 SKILLS ARE DEVELOPED AND FOSTERED IN THIS PART OF
23 THE HISTORICAL JOURNEY.

24 Q. AND IN THE PROCESS OF THIS
25 DISCUSSION AND DEBATE IN PEER REVIEW, IS YOUR
26 ABILITY TO AVOID HINDSIGHT CONSTANTLY UNDER
27 CHALLENGE?

28 A. IT IS. AND IT'S ALSO SOMETHING

1 THAT DEVELOPS WITH TIME. IT'S A LOT EASIER FOR AN
2 EXPERIENCED HISTORIAN TO AVOID HINDSIGHT THAN FIRST
3 YEAR GRADUATE STUDENTS.

4 BUT IT'S LIKE MANY SKILLS IN LIFE,
5 YOU CONTINUE TO WORK AT IT, YOU TRY NOT TO BE
6 CONTENT WITH WHERE YOU ARE AT THE TIME.

7 Q. WELL, LET'S TURN TO THE THIRD
8 STANDARD THEN.

9 A. IF I MAY, AN EXAMPLE JUST OCCURRED
10 TO ME IN TERMS OF HINDSIGHT AND CONTEXT, IF I
11 COULD, IF THAT WOULD BE HELPFUL.

12 ANESTHESIA WAS DISCOVERED IN 1844.
13 IT TOOK 30 YEARS FOR THE MEDICAL COMMUNITY, FOR
14 SURGEONS TO USE ANESTHESIA ON A REGULAR BASIS.

15 IF YOU LOOK AT THIS AS AN ORDINARY
16 CITIZEN, IT'S SHOCKING. ANESTHESIA IS AVAILABLE,
17 SURGEONS AREN'T USING IT. ARE THEY CRUEL? WHAT
18 SORT OF TERRIBLE HUMAN BEINGS ARE THESE?

19 ON THE OTHER HAND, IF YOU ARE A
20 HISTORIAN, YOU START STUDYING THE CONTEXT OF THE
21 PERIOD, YOU TRY TO UNDERSTAND WHY THAT HAPPENED.

22 AND WHAT YOU FIND OUT IS THAT
23 THOUGH ANESTHESIA WAS DEVELOPED IN 1844, MAYBE I
24 SHOULD SAY IT WAS DISCOVERED IN 1844, IT WAS
25 THOUGHT TO BE DANGEROUS.

26 PEOPLE DID NOT THINK THAT THE USE
27 OF ANESTHESIA WAS SAFE.

28 SURGEONS WERE VERY FEARFUL THAT IF

1 YOU USED ANESTHESIA ON A PATIENT FOR THE SAKE OF
2 RELIEVING PAIN DURING SURGERY, YOU ARE GOING TO
3 FOUL UP THE BODY AND INVITE WORSE DISEASES LATER
4 ON. IT WAS NOT CONSIDERED SAFE.

5 IT TOOK 30 YEARS FOR THE SCIENTIFIC
6 COMMUNITY TO RECOGNIZE THAT ANESTHESIA, WHEN USED
7 PROPERLY, WAS SAFE. SO YOU COULD USE IT.

8 SO THE HISTORIAN WOULD NOT VIEW
9 SURGEONS OF THE 1840'S OR '50'S OR '60'S WHO DIDN'T
10 USE ANESTHESIA, WHO WOULD SEE THEM AS PARTICIPATING
11 IN THE BEST MEDICAL PRACTICES OF THE TIME.

12 IT'S UNFORTUNATE WE DIDN'T KNOW
13 THAT ANESTHESIA WAS SAFE YET, BUT THAT'S MUCH
14 DIFFERENT FROM SAYING, GEE, THOSE TERRIBLE PEOPLE,
15 THEY DIDN'T USE IT. THEY WERE FOLLOWING THE BEST
16 MEDICAL PRACTICES AT THE TIME.

17 Q. ALL RIGHT. COMPREHENSIVENESS, THE
18 THIRD STANDARD, WHAT DO YOU MEAN BY THAT?

19 A. HISTORIANS HAVE TO BE THOROUGH AND
20 NATURALLY, I WAS ALLUDING TO THAT WHEN I DESCRIBED
21 HOW I HAD LOOKED AT THE INDEX MEDICUS AND GENERATED
22 A BIBLIOGRAPHY OF THE ENTIRE WORLD'S LITERATURE ON
23 THIS SUBJECT IN THE 1930'S TO 1964 PERIOD.

24 WHAT ONE MUST NOT DO IS TO PICK AND
25 CHOOSE INFORMATION SELECTIVELY. OTHERWISE YOU GET
26 THE WRONG ANSWERS.

27 YOU ARE ONLY GOING TO GET A
28 BALANCED, ACCURATE VIEW OF THE PAST IF YOU LOOK AT

1 ALL THE SOURCES IN A RESPONSIBLE AND COMPREHENSIVE
2 MANNER.

3 YOU KNOW, IF WE TRY TO WRITE THE
4 HISTORY OF WORLD WAR II USING NEWSPAPERS FROM
5 DECEMBER 8TH, 1941, THE DAY AFTER PEARL HARBOR, WE
6 WOULD THINK THAT THE UNITED STATES LOST WORLD WAR
7 II. SO YOU HAVE TO LOOK AT ALL THE SOURCES.

8 IF YOU ARE LOOKING AT THE
9 DEVELOPMENT OF THE SCIENTIFIC IDEA, YOU HAVE TO
10 LOOK NOT ONLY AT THOSE WHO AGREED WITH IT BUT THOSE
11 WHO MAY DISAGREE WITH IT AND WHY THEY DISAGREED.

12 Q. ALL RIGHT. YOUR FOURTH STANDARD,
13 ACCURACY, I THINK, IS PRETTY SELF EXPLANATORY?

14 A. WELL, YOU ALSO NEED TO BE ACCURATE
15 IN YOUR USE OF SOURCES. ANOTHER WAY MIGHT BE JUST
16 TO SAY YOU HAVE TO BE HONEST.

17 IF YOU ARE LOOKING AT PAPER OR A
18 LETTER OR A DOCUMENT OR AN ARTICLE AND QUOTE FROM
19 IT, THE HISTORIAN HAS THE ETHICAL OBLIGATION TO BE
20 ACCURATE, NOT TO TAKE SOMETHING OUT OF CONTEXT, YOU
21 HAVE TO REPRESENT THE SOURCE ACCURATELY AND PUT IT
22 IN THE PROPER CONTEXT. NOT TACK IT OUT OF CONTEXT.

23 Q. ALL RIGHT. AND THEN YOU HAVE GOT A
24 FIFTH STANDARD HERE, LET ME ASK YOU, THE FIRST
25 FOUR, THOSE ARE PRETTY GENERALLY APPLICABLE TO ANY
26 HISTORICAL SUBJECT OR ANY HISTORICAL RESEARCH
27 AREN'T THEY?

28 A. THAT IS CORRECT, THOSE ARE GENERAL

1 PRINCIPALS OF DOING HISTORY WHICH ARE JUST AS
2 APPLICABLE TO EUROPEAN HISTORY OR ANCIENT HISTORY
3 OR SOUTH AMERICAN HISTORY, INTELLECTUAL HISTORY AS
4 THEY MIGHT BE TO MEDICINE AND SCIENCE.

5 Q. LOOKING AT THIS LAST ONE, THE
6 EVOLUTION OF KNOWLEDGE, THAT IS SOMETHING THAT'S
7 REALLY MORE SPECIFIC TO YOUR SUBJECT AREA OR
8 SCIENCE HISTORY IN GENERAL?

9 A. YES, THAT IS UNIQUE, MAYBE I SHOULD
10 SAY MORE SPECIFIC TO THE HISTORY OF MEDICINE THAN
11 THE HISTORY OF SCIENCE.

12 HISTORIANS OF MEDICINE LEARN AS
13 PART OF THEIR TRAINING THAT SCIENCE IS MESSY, YOU
14 HAVE TO UNDERSTAND HOW SCIENCE WORKS. IT'S NOT A
15 STRAIGHT LINE TO PROGRESS, FROM ONE IDEA TO
16 ANOTHER.

17 SCIENCE IS VERY MESSY AND THERE ARE
18 ALL SORTS OF DEADENDS AND FALSE LEADS IN SCIENCE.

19 AND FOR EVERY STEP FORWARD, THERE
20 IS STEPS BACKWARD, STEPS LATERAL, DEAD ENDS.

21 THE FACT THAT A PAPER IS PUBLISHED
22 DOESN'T MEAN THAT IT IS RIGHT. THE FACT THAT A
23 PAPER IS PUBLISHED DOESN'T MEAN THAT ANYONE READS
24 IT AT THE TIME. THE FACT THAT A PAPER IS PUBLISHED
25 DOESN'T MEAN THAT PEOPLE BELIEVE IT IF THEY DO READ
26 IT.

27 WE HAVE LOTS OF EXAMPLES IN THE
28 HISTORY OF SCIENCE WHERE CONSENSUS IS WRONG, THE

1 CONSENSUS IS NOT NECESSARILY RIGHT.

2 SO WE FIND EXAMPLES WHERE THE
3 CONSENSUS MAY HOLD IDEAS THAT ARE SUBSEQUENTLY
4 PROVED WRONG.

5 FOR EXAMPLE, ANESTHESIA BEING
6 DANGEROUS.

7 AND CONSENSUS CAN ALSO REFUSE TO
8 ACCEPT NEW IDEAS THAT ULTIMATELY ARE PROVED TO BE
9 CORRECT.

10 AS I SAID, IT TOOK 30 YEARS FOR
11 MEDICAL SCIENCE TO ACCEPT THE IDEA THAT ANESTHESIA
12 IS SAFE.

13 IT TOOK 20 YEARS FOR MEDICAL
14 SCIENCE TO ACCEPT THE IDEA OF GERM FREE -- OF
15 WASHING YOUR HANDS FOR GERM FREE SURGERY DURING
16 SURGERY. JOSEPH LISTER.

17 MORE RECENTLY, IN THE 1980'S IT WAS
18 DISCOVERED THAT ULCER IS OFTEN CAUSED BY A
19 BACTERIA. THE SO-CALLED HELIO BACTERIUM

20 IN FACT, THAT IDEA WAS VIGOROUSLY
21 RESISTED BY MEDICAL SCIENTISTS. PEOPLE THOUGHT
22 THAT GARY MARSHAL FROM EITHER AUSTRALIA OR NEW
23 ZEELAND WAS A QUACK, HOW COULD AN ULCER BE CAUSED
24 BY AN INFECTIOUS ORGANISM

25 HE ULTIMATELY PROVED IT TO BE TRUE.

26 SO THIS TYPE OF THING HAPPENS
27 REGULARLY IN SCIENCE. IT'S VERY, VERY MESSY.
28 IDEAS DON'T JUST REPLACE ONE ANOTHER AUTOMATICALLY,

1 BUT IT TAKES TIME.

2 SCIENTISTS FIGHT THINGS OUT WITH
3 EACH OTHER. THE CONSENSUS CAN HOLD ON TO GOOD
4 IDEAS, IT CAN -- TO BAD IDEAS. IT CAN IMPOSE GOOD
5 IDEAS.

6 AND THIS SENSE OF HOW IDEAS EVOLVE
7 AND THE MESSINESS OF SCIENCE IS SOMETHING THAT IS
8 VERY IMPORTANT TO THE HISTORY OF MEDICINE AND THE
9 HISTORIANS OF MEDICINE STUDY AND LEARN IT IN THE
10 PROCESS OF THEIR EDUCATION.

11 Q. SO WOULD IT BE FAIR TO SAY THAT THE
12 MARCH OF SCIENCE ISN'T INEVITABLE?

13 A. ABSOLUTELY. I WOULD AGREE WITH
14 THAT VERY MUCH.

15 Q. AND THAT A HISTORIAN, SUCH AS
16 YOURSELF, LOOKING BACK IN TIME EVALUATING WHAT THE
17 STATE OF MEDICAL KNOWLEDGE WAS, HAS TO BE AWARE OF
18 WHAT ALL OF THE SIDES OF A PARTICULAR ISSUE WERE?

19 A. I VERY MUCH AGREE WITH THAT, YES.
20 THAT'S VERY TRUE.

21 Q. AND IN YOUR EXPERIENCE, IS IT
22 COMMON TO FIND AREAS OF MEDICAL KNOWLEDGE WHERE
23 THERE IS NO DEBATE AT ALL, NO DISAGREEMENT,
24 WHATSOEVER?

25 A. WELL, THERE ARE CERTAIN TIMES IN
26 THE HISTORY OF MEDICINE WHEN YOU DO HAVE A
27 CONSENSUS OF LARGE IDEAS. SOMETIMES THERE ARE
28 OTHER TIMES WHEN YOU DON'T HAVE A CONSENSUS. YOU

1 FIND BOTH.

2 SOMETIMES THE STATE OF KNOWLEDGE IS
3 THAT YOU DON'T KNOW. SOMETIMES A CONSENSUS HOLDS
4 TRUE WITH TIMES. SOMETIMES A CONSENSUS OF THE
5 MOMENT IS LATER DISPROVED AND SHOWN TO BE WRONG.

6 ALL OF THESE POSSIBILITIES HAVE
7 OCCURRED, DO OCCUR AND HAVE OCCURRED.

8 Q. SO LET'S TURN BACK TO YOUR RESEARCH
9 AND I'D LIKE TO FOCUS, IF WE COULD, RIGHT NOW, ON
10 THE PERIOD FROM 1950 TO 1953.

11 IS THAT ALL RIGHT?

12 A. YES.

13 Q. AT OF 1950, WAS THERE A CONSENSUS
14 IN THE SCIENTIFIC COMMUNITY REGARDING THE CAUSE OR
15 CAUSES OF LUNG CANCER?

16 A. WELL, THROUGH 1950, AS I MENTIONED
17 BEFORE, THE CAUSE OF LUNG CANCER WAS CONSIDERED
18 UNKNOWN AND PERHAPS UNKNOWABLE THROUGH 1950.

19 Q. SO IF THERE WAS A CONSENSUS?

20 A. FOR WHAT WE DID KNOW, IT WAS
21 UNKNOWN.

22 Q. AND THEN YOU MENTIONED A LITTLE
23 WHILE EARLIER THAT 1950 WAS REALLY SORT OF A
24 WATERSHED YEAR?

25 A. RIGHT.

26 Q. WHY WAS THAT?

27 A. SEVERAL IMPORTANT RETROSPECTIVE
28 LOOKING BACK TYPE OF EPIDEMIOLOGY STUDIES WERE

1 PUBLISHED THAT, FOR THE FIRST TIME, SHOWED A
2 STATISTICAL ASSOCIATION DONE BETWEEN CIGARETTE
3 SMOKING AND THE DEVELOPMENT OF LUNG CANCER.

4 THE FIRST OF THESE AND ONE OF THE
5 MOST NOTABLE, I AM PROUD TO SAY CAME FROM MY OWN
6 INSTITUTION, WASHINGTON UNIVERSITY, THE WYNDER
7 GRAHAM PAPER PUBLISHED IN THE JOURNAL OF AMERICAN
8 MEDICAL ASSOCIATION. DR. GRAHAM WAS THE CHAIRMAN
9 OF SURGERY AND DR. WYNDER WAS A THIRD YEAR MEDICAL
10 STUDENT.

11 THIS WAS THE FIRST STUDY, AND THEN
12 SEVERAL AREAS HAVE APPEARED THAT YEAR WITH SIMILAR
13 FINDINGS.

14 Q. OKAY. NOW, YOU MENTIONED THESE
15 WERE RETROSPECTIVE STUDIES?

16 A. CORRECT.

17 Q. WE HAVE HEARD A BIT ABOUT THOSE.
18 LOOKING BACK STUDIES I THINK YOU
19 CALLED THEM?

20 A. THAT IS CORRECT. THEY STARTED WITH
21 PAIRS WHO HAD LUNG CANCER, ALREADY, AND THEN THEY
22 TRIED TO MATCH THEM WITH PEOPLE WHO SEEMED TO BE
23 SIMILAR BUT DID NOT HAVE LUNG CANCER AND TRIED TO
24 FIND DIFFERENCES BETWEEN THE TWO GROUPS.

25 Q. SO THEY WOULD START WITH A GROUP OF
26 PEOPLE WHO HAD LUNG CANCER AND ASK THEM QUESTIONS?

27 A. CORRECT.

28 Q. ABOUT THEIR MEDICAL HISTORY, THEIR

1 SMOKING HABITS, THINGS LIKE THAT?

2 A. YES, AND MUCH MORE. THESE WERE
3 VERY SOPHISTICATED STUDIES COMPARED WITH ANY
4 PREVIOUS ATTEMPTS TO DO RETROSPECTIVE STUDIES ON
5 LUNG CANCER.

6 THEY HAD INSISTED ON TISSUE
7 DIAGNOSIS.

8 IF YOU SAY A PATIENT HAS LUNG
9 CANCER BUT YOU ARE USING A DEATH CERTIFICATE, YOU
10 REALLY DON'T KNOW IF THE PATIENT HAD LUNG CANCER OR
11 WAS THAT T. B. OR PNEUMONIA OR LUNG ABSCESS OR
12 SOMETHING ELSE.

13 SO THESE STUDIES WERE DONE IN A
14 MUCH MORE RIGOROUS AND SOPHISTICATED FASHION THAN
15 ANYTHING THAT HAD EVER BEEN DONE BEFORE, AND
16 INSISTED IN HAVING TISSUE DOCUMENTATION SO THAT
17 WHEN THEY SAID A PATIENT HAD LUNG CANCER, THEY
18 COULD PROVE IT.

19 THEY TOOK VERY DETAILED QUESTIONS,
20 NOT ONLY ABOUT SMOKING HISTORY, BUT THE TYPE OF
21 SMOKING, CIGARETTES, CIGARS, PIPES, HOW MUCH DO YOU
22 SMOKE, DO YOU INHALE, WHEN DID YOU START SMOKING,
23 HAVE YOU STOPPED SMOKING, WHAT ARE YOUR SMOKING
24 HABITS.

25 THEY LOOK AT OTHER FACTORS. THEY
26 LOOK AT SOCIOECONOMIC DISTRIBUTION, ENVIRONMENTAL
27 EXPOSURE, INCOME LEVEL, HOW WELL THE WOUND WAS
28 HEALED.

1 THEY LOOKED AT A NUMBER OF
2 VARIABLES AND, CUMULATIVE, THESE STUDIES
3 REPRESENTED A GREAT ADVANCE IN SOPHISTICATION BY
4 WHICH RETROSPECTIVE STUDIES HAD BEEN DONE FOR ANY
5 DISEASE.

6 Q. SO ARE YOU SAYING THAT THESE WERE
7 THE FIRST EPIDEMIOLOGY STUDIES BUT UP TO THAT TIME,
8 AT LEAST, THEY WERE THE BEST?

9 A. THAT WAS CORRECT. IT WAS
10 INACCURATE TO SAY THAT THERE HAD BEEN NO
11 RETROSPECTIVE LOOKS AT STUDIES OF LUNG CANCER
12 BEFORE 1950.

13 BUT THE PROBLEM WITH THE STUDIES
14 BEFORE 1950 WAS THAT, IN GENERAL, THEY LACK
15 CONTROLS. THIS WAS THE BIG MOMENT. THERE WERE A
16 FEW STUDIES IN THE 1930'S AND 1940'S. THE SURGEON
17 MIGHT SAY I HAVE 80 PATIENTS WITH LUNG CANCER, 80
18 PERCENT OF THEM SMOKE, MAYBE SMOKING CAUSES LUNG
19 CANCER.

20 BUT THE STUDIES BEFORE 1950 DID NOT
21 HAVE CONTROLS, AND WITHOUT CONTROLS, YOU CAN DRAW
22 NO CONCLUSIONS. SO THEY TENDED TO BE DISCARDED BY
23 THE SCIENTIFIC COMMUNITY.

24 THERE ARE ONLY TWO STUDIES THAT
25 HAVE CONTROLS BEFORE 1950. BOTH OF THOSE WERE DONE
26 BY GERMAN SCIENTISTS DURING WORLD WAR II AND NO ONE
27 OUTSIDE GERMANY KNEW ABOUT THEM AND IF YOU KNEW
28 ABOUT THEM, YOU SAID THAT'S CRAZY, THAT'S PART OF

1 HITLER.

2 SO THE STUDIES OF 1950 REPRESENTED
3 A HUGE METHODOLOGICAL ADVANCE AND MUCH MORE
4 SOPHISTICATED SCIENTIFICALLY THAN ANYTHING THAT HAD
5 EVER BEEN DONE BEFORE AND THIS CREATED A NEW LOOK
6 AT CIGARETTE SMOKING IN TERMS OF ITS POSSIBLE
7 RELATIONSHIP TO LUNG CANCER.

8 Q. DID THESE STUDIES CONCLUDE THAT
9 SMOKING CAUSES LUNG CANCER?

10 A. NO. THAT'S AN IMPORTANT POINT.
11 THE RETROSPECTIVE STUDIES SHOWED A
12 STATISTICAL ASSOCIATION BUT NO ONE, INCLUDING THE
13 AUTHORS OF THE STUDIES, CONSIDERED THEM THE SAME AS
14 CAUSE AND EFFECT.

15 Q. LOOKING AT 1950, STAYING IN THAT
16 YEAR, HOW IMPORTANT, AT THAT TIME, WAS EPIDEMIOLOGY
17 IN THE STUDY OF DISEASES LIKE CANCER?

18 A. UNIMPORTANT AT THAT TIME.
19 EPIDEMIOLOGY HAD A DISTINGUISHED HISTORY BUT PRIOR
20 TO 1950, IT WAS USED PRIMARILY WITH ACUTE DISEASES,
21 IN EFFECT, DISEASES, THINGS OF THAT SORT.

22 THE EPIDEMIOLOGY OF CURRENT DISEASE
23 WAS IN ITS INFANCY. AND EPIDEMIOLOGY FOR CHRONIC
24 DISEASES WAS, IN TERMS OF THE FRAMEWORK OF THE
25 TIME, WAS CONSIDERED, WAS NOT CONSIDERED VALID.

26 WHAT WAS CONSIDERED VALID IN THE
27 FRAMEWORK OF THE TIME WAS THE EXPERIMENTAL METHOD,
28 PROVING SOMETHING IN THE LABORATORY THROUGH AN

1 EXPERIMENT BECAUSE YOU CAN CONTROL EVERY VARIABLE
2 IN AN EXPERIMENT.

3 Q. AND, WELL, CAN YOU BRIEFLY EXPLAIN
4 AND I DON'T KNOW IF YOU CAN, WHY WASN'T
5 EPIDEMIOLOGY, WHY HAD IT BEEN USED IN THE STUDY OF
6 ACUTE DISEASES BUT NOT IN THE STUDY OF CHRONIC
7 DISEASES, AT THAT TIME?

8 A. ACUTE DISEASES ARE EASIER TO STUDY.
9 AND TAKE A COMPLICATED STORY AND
10 MAKE IT SIMPLE, IF YOU ARE TALKING ACUTE DISEASES,
11 YOU ARE TALKING ABOUT SOMETHING THAT OCCURS RIGHT
12 AWAY, WITH A MINIMAL LAG TIME.

13 SO IF YOU ARE DRAWING WATER FROM
14 THE BROAD STREET PUMP IN LONDON, YOU GET CHOLERA.
15 IT HAPPENS RIGHT AWAY. THERE IS NO LAG TIME.

16 IF YOU ARE TALKING ABOUT AN
17 INFECTIOUS DISEASE AND VENEREAL DISEASE, YOU CAN
18 TRACE THE CONTEXT OF AN INDIVIDUAL WHO MIGHT
19 CONTRACT SYPHILIS OR GONORRHEA WITH SOMEONE WHO HAS
20 IT, THE LAG TIME IS SHORT.

21 ONE OF THE SCIENTIFIC PROBLEMS OF
22 CHRONIC DISEASES IS THAT WE SPEAK OF LONG LAG
23 TIMES, LONG LATENCIES. SO IF YOU ARE TALKING ABOUT
24 CIGARETTE SMOKING AND LUNG CANCER, IT IS NOT THAT
25 YOU START SMOKING AND DEVELOP LUNG CANCER RIGHT
26 AWAY, AS AN ACUTE DISEASE, YOU ARE EXPOSED TO
27 MALARIA, YOU GET MALARIA RIGHT AWAY.

28 THERE IS SUCH A LONG PERIOD OF TIME

1 BEFORE YOU DEVELOP IT THAT IT CONFUSED PEOPLE. IT
2 WAS JUST NOT ON THE RADAR OF MEDICAL SCIENCE AT
3 THAT TIME.

4 PLUS, WITH MANY ACUTE DISEASES,
5 IT'S ALL OR NONE. YOU FALL OFF A TRUCK, YOU BREAK
6 AN ARM YOU ARE EXPOSED TO MALARIA OR CHOLERA, YOU
7 GET IT.

8 THE CONTEXT OF RELATIVE RISK WAS
9 NEW WITH ACUTE DISEASES.

10 IF YOU ARE TALKING LUNG CANCER AND
11 CIGARETTE SMOKING, 80, 90 PERCENT OF THE SMOKERS
12 DID NOT GET LUNG CANCER. INSTEAD, IF YOU DID
13 SMOKE, YOUR RISK WAS GREATER. THIS WAS ANOTHER NEW
14 CONCEPT THAT HADN'T BEEN WORKED OUT YET.

15 SO FOR ALL OF THESE REASONS,
16 EPIDEMIOLOGY HAD BEEN APPLIED VERY SUCCESSFULLY
17 WITH INFECTIONS AND ACUTE DISEASES BUT ITS USE IN
18 CHRONIC DISEASE, PARTICULARLY CANCER, WAS IN ITS
19 INFANCY.

20 Q. OKAY. NOW, WOULD IT BE FAIR TO SAY
21 THAT IN 1950 THERE WERE NO DEPARTMENTS OF
22 EPIDEMIOLOGY IN MEDICAL SCHOOLS?

23 A. WELL, CERTAINLY EPIDEMIOLOGY OF
24 CHRONIC DISEASES, THAT IS CORRECT.

25 Q. ALL RIGHT. AND NO EPIDEMIOLOGY
26 TEXT?

27 A. NOT OF EPIDEMIOLOGY OF CHRONIC
28 DISEASES. I WANTED TO DISTINGUISH BETWEEN CHRONIC

1 DISEASE, WHAT IS SOMETIMES CALLED CLINICAL
2 EPIDEMIOLOGY TODAY, AND THE LONG-STANDING
3 EPIDEMIOLOGY OF ACUTE DISEASES.

4 Q. WELL, WHAT WAS THE REACTION OF THE
5 SCIENTIFIC COMMUNITY THEN TO THESE EPIDEMIOLOGIC
6 STUDIES LINKING SMOKING AND LUNG CANCER IN 1950?

7 A. WELL, THE REACTION WAS, I THINK, A
8 VERY CONSTRUCTIVE REACTION. THERE WAS A LOT OF
9 SURPRISE BECAUSE PEOPLE HAD BEEN SMOKING CIGARETTES
10 FOR A LONG TIME AND NO ONE HAD REALLY SUSPECTED
11 CIGARETTES AS THE CAUSE OF LUNG CANCER UNTIL THEN.

12 SO MANY MILLIONS OF PEOPLE SMOKED,
13 SO FEW PEOPLE DEVELOPED LUNG CANCER.

14 AND THE CONTEXT OF 1950, THERE WERE
15 APPROXIMATELY 65 TO 70 MILLION ADULT SMOKERS IN THE
16 UNITED STATES AND THE SAME YEAR, THERE WERE 18,000
17 DEATHS FROM LUNG CANCER.

18 18,000 TOO MANY.

19 NEVERTHELESS, YOU ARE TALKING
20 APPROXIMATELY THREE OUT OF EVERY 10,000 SMOKERS
21 DYING FROM LUNG CANCER.

22 SO THERE'S REALLY A GREAT DEAL OF
23 SURPRISE. THIS IS AN INTERESTING ASSOCIATION BUT
24 WHAT DOES IT REALLY MEAN IF CIGARETTE SMOKING WERE
25 THE CAUSE? WHY AREN'T MORE PEOPLE DYING? WHY
26 DON'T MORE PEOPLE DEVELOP LUNG CANCER RELATIVELY
27 SOON AFTER THEY BEGIN SMOKING?

28 SO THERE'S A LOT OF SUSPICION AND

1 DOUBT. BUT THERE IS A LEGITIMATE SCIENTIFIC
2 CONCERN.

3 AND A VERY IMPORTANT PART OF THE
4 SCIENTIFIC PROCESS, AND THIS EVOLUTION OF KNOWLEDGE
5 IS THIS CONFIRMATION AND DUPLICATION.

6 WHEN YOU HAVE A REPORT THAT CATCHES
7 YOU BY SURPRISE, CONFIRMING IT AND DEMONSTRATING TO
8 THE SCIENTIFIC COMMUNITY THAT THIS IS REAL, IT'S AN
9 IMPORTANT PART OF THE SCIENTIFIC PROCESS. SO I
10 THINK TO SUM UP, THE INITIAL REPORTS WERE VERY
11 SURPRISING, AND THEY STIMULATED NEW WORK.

12 AND ADDITIONAL RETROSPECTIVE
13 STUDIES WERE DONE WHICH CAME UP WITH SIMILAR
14 CONCLUSIONS, THEY SHOWED A SIMILAR STATISTICAL
15 ASSOCIATION BETWEEN CIGARETTE SMOKING AND LUNG
16 CANCER.

17 1964, WHEN THE SURGEON GENERAL'S
18 REPORT WAS PUBLISHED, 29 RETROSPECTIVE STUDIES HAD
19 BEEN COMPLETED BY THAT TIME.

20 Q. SO DURING THIS FIRST PERIOD WE ARE
21 TALKING ABOUT, 1950 TO '53, AFTER THE INITIAL
22 STUDIES IN 1950, THERE WERE A CONTINUING SERIES OF
23 RETROSPECTIVE STUDIES; RIGHT?

24 A. THAT IS CORRECT. THE NEW STUDIES
25 WERE TAKEN AND PUBLISHED.

26 Q. WERE THERE OTHER KINDS OF RESEARCH,
27 OTHER KINDS OF STUDIES THAT WERE BEING DONE TO
28 FOLLOWUP ON THESE ORIGINAL 1950 RETROSPECTIVE

1 THE FIRST SKIN PAINTING EXPERIMENT. IT WAS THE
2 FIRST SKIN PAINTING EXPERIMENT THAT HAD POSITIVE
3 RESULTS.

4 SO PEOPLE WANTED TO CONFIRM IT,
5 DUPLICATE IT, MAKE CERTAIN THAT THEIR OBSERVATION
6 WAS REAL. BUT THEY ALSO REALIZED THAT THIS IS
7 CIRCUMSTANTIAL EVIDENCE. IT IS NOT PROOF THAT
8 CIGARETTE SMOKING IN ORDINARY CONDITIONS IN HUMAN
9 BEINGS CAUSES LUNG CANCER.

10 IT WAS DISTURBING CIRCUMSTANTIAL
11 EVIDENCE. IT WAS NOT PROOF. AND IN FACT,
12 DRS. WYNDER AND GRAHAM THEMSELVES SAY IN THEIR
13 IMPORTANT FAMOUS 1953 PAPER THAT THIS SHOULD NOT BE
14 CONSIDERED PROOF.

15 Q. WYNDER AND GRAHAM THEMSELVES SAID
16 THIS SHOULDN'T BE CONSIDERED PROOF?

17 A. RIGHT. IT WAS NOT PROOF OF
18 CAUSATION.

19 Q. I'D LIKE TO SHOW YOU A DOCUMENT
20 WHICH WE HAVE SEEN BEFORE. AND I WILL ZOOM IN ON
21 IT HERE IN A MINUTE SO WE CAN AT LEAST TRY TO READ
22 WHAT'S ON IT. BUT HAVE YOU SEEN THIS BEFORE?

23 A. YES, I HAVE.

24 Q. THIS IS THE FRANK STATEMENT TO
25 CIGARETTE SMOKERS ISSUED IN JANUARY OF 1954?

26 A. YES.

27 Q. ALL RIGHT. AND THIS IS EXHIBIT
28 7394.

1 I ' D LIKE TO FOCUS IN ON THE VERY
2 FIRST SENTENCE, IF I COULD.

3 CAN YOU READ THAT FIRST SENTENCE,
4 "RECENT REPORTS, " DO YOU SEE THAT?

5 A. (READING)
6 "RECENT REPORTS ON
7 EXPERIMENTS WITH MICE HAVE GIVEN WIDE
8 PUBLICITY TO A THEORY THAT CIGARETTE
9 SMOKING IS, IN SOME WAY, LINKED WITH
10 LUNG CANCER IN HUMAN BEINGS. "

11 Q. IS THAT REFERRING TO THE WYNDER AND
12 GRAHAM MOUSE SKIN PAINTINGS THAT YOU JUST TOLD US
13 ABOUT?

14 A. YES, IT IS.

15 Q. OKAY. AND LET ' S LOOK DOWN, IF WE
16 COULD, AT THE THIRD PARAGRAPH. DO YOU SEE THAT?
17 AT THE SAME TIME -- LET ' S JUST READ
18 THE SECOND PARAGRAPH.

19 "ALTHOUGH CONDUCTED BY
20 DOCTORS OF PROFESSIONAL STANDING,
21 THESE EXPERIMENTS ARE NOT REGARDED AS
22 CONCLUSIVE IN THE FIELD OF CANCER
23 RESEARCH. "

24 YOU WOULD AGREE WITH THAT?

25 A. YES, I WOULD, FOR THE REASONS I
26 SAID BEFORE. MICE ARE DIFFERENT FROM HUMANS.
27 TAKING CIGARETTE SMOKE CONDENSATES AND PAINTING IT
28 ON THEIR SKIN IS MUCH DIFFERENT FROM THE CONDITIONS

1 OF NORMAL INHALATION IN HUMAN SMOKING. PLUS THESE
2 MICE WERE CHOSEN BECAUSE THEY WERE, GENETICALLY,
3 STRAINS OF MICE THAT HAD A PREDISPOSITION TO
4 DEVELOP CANCER. SO IT IS MUCH DIFFERENT. SO I
5 WOULD AGREE WITH THAT STATEMENT.

6 Q. AND THEN IT CONTINUES:

7 "HOWEVER, WE DO NOT BELIEVE
8 THAT ANY SERIOUS MEDICAL RESEARCH,
9 EVEN THOUGH ITS RESULTS ARE
10 INCONCLUSIVE, SHOULD BE DISREGARDED OR
11 LIGHTLY DISMISSED. "

12 THAT'S WHAT IT SAYS.

13 NOW, I'D LIKE YOU TO LOOK AT THE
14 THIRD PARAGRAPH.

15 "AT THE SAME TIME, WE FEEL
16 IT IS IN THE PUBLIC INTEREST TO CALL
17 ATTENTION TO THE FACT THAT EMINENT
18 DOCTORS AND RESEARCH SCIENTISTS HAVE
19 PUBLICLY QUESTIONED THE CLAIMED
20 SIGNIFICANCE OF THESE EXPERIMENTS. "

21 IN JANUARY OF 1954, WAS THAT
22 ACCURATE?

23 A. IN THE CONTEXT OF THE TIME, IT WAS.
24 ACTUALLY, THAT'S WHAT I SAID ABOUT
25 THE AUTHORS OF THE STUDY ITSELF, DR. WYNDER AND
26 DR. GRAHAM

27 THEY POINTED OUT THAT THIS WAS AN
28 IMPORTANT CLUE, THAT THEY, THEMSELVES, WERE

1 CLAIMING THAT IT DID NOT SHOW CAUSE AND EFFECT.

2 Q. NOW, WE CONTINUE ON DOWN. IT SAYS,
3 IT STARTS OUT, RIGHT HERE:

4 "DISTINGUISHED AUTHORITIES
5 POINT OUT, " AND THEN THERE'S A SERIES
6 OF NUMBERED PARAGRAPHS. LET'S LOOK AT
7 THE FIRST ONE.

8 "THE MEDICAL RESEARCH OF
9 RECENT YEARS INDICATES MANY POSSIBLE
10 CAUSES OF LUNG CANCER. "

11 IN JANUARY OF 1954, WAS THAT A TRUE
12 STATEMENT?

13 A. YES, IT WAS.

14 Q. HAVE YOU PREPARED A DEMONSTRATIVE
15 THAT ILLUSTRATES SOME OF THESE OTHER POSSIBLE
16 CAUSES OF LUNG CANCER?

17 A. THERE SHOULD BE SUCH A
18 DEMONSTRATIVE.

19 Q. AND THIS IS EXHIBIT 11,094. OKAY.
20 JANUARY OF 1954, THESE WERE CONSIDERED OTHER
21 POSSIBLE CAUSES OF LUNG CANCER?

22 A. YES, AT THAT TIME.

23

24 * (EXHIBIT 11,094,
25 DEMONSTRATIVE, MARKED FOR I. D.)

26

27 Q BY MR. CARLTON: CAN YOU TELL US A
28 LITTLE BIT ABOUT THEM?

1 A. THERE WAS GENUINE SCIENTIFIC
2 CONCERN THAT AIR POLLUTION MAY BE THE FACTOR. WE
3 LIVE IN AN INDUSTRIAL SOCIETY OF THE LATE 19TH AND
4 EARLY 20TH CENTURY. THERE WAS A LOT OF POLLUTION.
5 THERE WAS A TIME THAT PUTTING THINGS IN CONTEXT,
6 THE HISTORIANS' TASKS, THIS WAS THE TIME THAT THE
7 ENVIRONMENTAL MOVEMENT WAS BEGINNING. THERE WAS A
8 LOT OF CONCERN THAT THE ENVIRONMENT WAS GOING BACK
9 AND THAT THERE WAS AIR POLLUTION AND THAT THIS WAS
10 CONTRIBUTING TO CANCER IN HUMANS.

11 SIMILARLY, THERE WAS VERY GREAT
12 CONCERN AT THAT TIME THAT THE PROBLEM MAYBE
13 RADIATION.

14 THIS WAS LESS THAN A DECADE AFTER
15 THE, BOTH ATOMIC AND NUCLEAR BOMBS HAD BEEN
16 DROPPED, THE H-BOMB AND THE A-BOMB. FALLOUT WAS A
17 HUGE PUBLIC ISSUE. NUCLEAR TESTS WERE STILL BEING
18 CONDUCTED ABOVE GROUND, RATHER THAN UNDER GROUND
19 AND MEDICAL SCIENCE HAD ALREADY SHOWN THAT
20 RADIATION CAN DESTROY GENES, CAN DESTROY THE
21 CHROMOSOMES, THE PART OF THE CELL THAT CARRIES THE
22 GENE AND THAT IT CAN PRODUCE CANCER.

23 AND PEOPLE THOUGHT THAT THAT MIGHT,
24 SOME PEOPLE THOUGHT THAT THAT MIGHT BE A SOURCE FOR
25 THE RISE OF LUNG CANCER.

26 SIMILARLY, THERE WAS CONCERN AMONG
27 RESPONSIBLE SCIENTISTS THAT EXPOSURE IN CERTAIN
28 OCCUPATIONS, MINING AND DUSTING AND USE OF

1 RADIOACTIVE WAR AND OCCUPATION AND THAT SORT MIGHT
2 BE PRODUCING LUNG CANCER.

3 INCREASED USE OF THE AUTOMOBILES,
4 TARRING OF THE ROADS, EXHAUST FUMES.

5 THESE ARE ALL, BY THE WAY, IN
6 ADDITION TO CIGARETTE SMOKING, NOT IN PLACE OF IT.

7 AND THEN A FINAL MAJOR CANDIDATE,
8 AT THIS TIME WAS THE GENETIC HYPOTHESIS, PUTTING
9 CANCER IN THE CONTEXT THAT THE -- PUTTING IT IN
10 CONTEXT, GENETICS IS DEVELOPING VERY -- IN VERY
11 RAPID FASHION AT THIS TIME.

12 1954, WAS WHEN WATSON AND CRIPP
13 FOUND DNA. MOLECULAR BIOLOGY AND GENETICS ARE
14 RAPIDLY GROWING AT THIS TIME.

15 ALREADY IN THE 1950'S, A FEW CAUSES
16 OF DISEASE HAD BE SHOWN TO HAVE GENETIC CAUSES.
17 TODAY THERE ARE ABOUT 400,000. A FEW DOZEN
18 DISEASES HAD ALREADY BEEN SHOWN TO BE GENETICS.

19 FOR EXAMPLE, SINGLE CELL ANEMIA,
20 TASACK'S DISEASE, CYSTIC FIBROSIS IN CAUCASIANS,
21 PARTICULARLY FROM SCANDINAVIAN EXTRACT, AND INDEED,
22 IT HAD ALREADY BEEN SHOWN THAT LUNG CANCER, STOMACH
23 CANCER HAD A GENETIC CAUSE. IT WAS LINKED WITH
24 TYPE, A BLOOD TYPE. AND IT WAS THOUGHT THAT THERE
25 WAS A GENETIC FACTOR WITH STOMACH CANCER.

26 SO IT WAS A REASONABLE IDEA IN 1954
27 THAT MAYBE THERE WAS A GENETIC A SUSCEPTIBILITY
28 AMONG THOSE WHO DEVELOP LUNG CANCER.

1 Q. NOW, IN 1954, THEN EACH OF THOSE
2 WAS CONSIDERED A POSSIBILITY AS THE PRIMARY CAUSE
3 OF LUNG CANCER?

4 A. CORRECT, AS THE PRIMARY CAUSE.
5 THERE IS SOMETHING THAT'S MISSING
6 FROM THERE WE SHOULD SAY.

7 THERE WAS NO GUARANTEE IN 1954 THAT
8 CIGARETTE SMOKING OR ANY OF THESE WERE PROVED TO BE
9 THE MAIN FACTOR.

10 CIGARETTE SMOKING AND THOSE FIVE
11 FACTORS WERE THE FACTORS IN 1954 THAT WERE THE
12 CENTER OF ATTENTION. THERE WAS NO GUARANTEE THAT
13 THE ANSWER WOULD BE FOUND IN ONE OF THOSE.
14 SCIENTISTS REALIZE THAT MAYBE IT IS SOMETHING ELSE,
15 MAYBE THESE SUSPICIONS WILL PROVED NOT TO BE
16 FOUNDED.

17 Q. AND DOCTOR, EVEN TODAY, HAVE ANY OF
18 THESE BEEN ELIMINATED AS BEING POSSIBLE
19 CONTRIBUTORS, IF NOT PRIMARY CAUSES, TO LUNG
20 CANCER?

21 A. WELL, I AM NOT AN EXPERT ON CANCER
22 CAUSATION TODAY BUT IT'S NOT UNDERSTANDING THAT
23 THESE CAUSES CONTINUE AS CONTRIBUTING -- NOT AS THE
24 MAIN CAUSE, THAT CIGARETTE SMOKING WITH OUR CURRENT
25 UNDERSTANDING IS THE MAIN CAUSE BUT THAT'S NOT TO
26 SAY THAT A GENETIC PREDISPOSITION IN SOME PATIENTS
27 IS A FACTOR OR THAT OCCUPATIONAL EXPOSURE IN
28 CERTAIN PATIENTS IS A FACTOR.

1 SO I THINK THAT THESE STILL REMAIN
2 IN THE BACKGROUND.

3 BUT YOU WILL NOTICE AN EXPERT ON
4 PRESENT DAY IDEAS OF CAUSATION.

5 Q. ALL RIGHT, LET'S RETURN TO THE
6 FRANK STATEMENT IF WE COULD.

7 AND LET'S LOOK AT THE SECOND
8 NUMBERED PARAGRAPH, DISTINGUISHED AUTHORITIES POINT
9 OUT THAT THERE IS NO AGREEMENT AMONG THE
10 AUTHORITIES REGARDING WHAT THE CAUSE IS, THE CAUSE
11 OF LUNG CANCER.

12 AGAIN, PUTTING OURSELVES IN JANUARY
13 OF 1954, WAS THAT TRUE?

14 A. AT THAT TIME, IT WAS. AS WE SAW IN
15 THE PREVIOUS DEMONSTRATIVE, THERE WERE A NUMBER OF
16 DIFFERENT THEORIES THAT WERE POPULAR AT THAT TIME.

17 Q. LET'S MOVE ON TO THE THIRD NUMBERED
18 PARAGRAPH, THAT THERE IS NO PROOF THAT CIGARETTE
19 SMOKING IS ONE OF THE CAUSES, WHAT DO YOU HAVE TO
20 SAY ABOUT THAT?

21 A. WHAT I HAVE TO SAY THAT IN JANUARY
22 OF 1954, THAT IT IS VERY MUCH CORRECT. CERTAINLY
23 THERE WAS EVIDENCE THEY HAD PEOPLE WORRIED AND
24 LEGITIMATELY. SO YOU HAVE RETROSPECTIVE STUDIES
25 AND NOW SKIN PAINTING BUT EVIDENCE IS DIFFERENT
26 FROM PROOF. SO I BELIEVE THAT IS A CORRECT
27 STATEMENT.

28 Q. NOW, IF THAT HAD SAID THAT THERE IS

1 NO EVIDENCE THAT CIGARETTE SMOKING IS ONE OF THE
2 CAUSES, WOULD THAT HAVE BEEN TRUE?

3 A. THAT WOULD NOT HAVE BEEN A CORRECT
4 OR ACCURATE STATEMENT.

5 Q. BUT AS IT WAS WRITTEN, THERE IS NO
6 PROOF THAT CIGARETTE SMOKING IS ONE OF THE CAUSES
7 THAT WAS AN ACCURATE STATEMENT?

8 A. THAT WAS AN ACCURATE STATEMENT AT
9 THAT TIME. AND AS I MENTIONED, EVEN THE AUTHORS OF
10 THE MOST IMPORTANT PAPER OF THAT PERIOD, THE WYNDER
11 AND GRAHAM STUDY, MADE THAT POINT THAT, THEY HAD
12 EVIDENCE BUT THEY DID NOT HAVE PROOF.

13 Q. AND THEN THE FOURTH NUMBERED
14 PARAGRAPH, LET'S JUST LOOK AT THE FIRST SENTENCE:

15 "THE STATISTICS PURPORTING
16 TO LINK CIGARETTE SMOKING WITH THE
17 DISEASE COULD APPLY WITH AN EQUAL
18 FORCE TO ANY ONE OF MANY OTHER ASPECTS
19 OF MODERN LIFE. "

20 DO YOU AGREE WITH THAT AS OF
21 JANUARY 1954?

22 A. YES, I DO.

23 Q. WHY?

24 A. WELL, IT GETS BACK TO THE FACT THAT
25 A STATISTICAL ASSOCIATION IS NOT THE SAME AS
26 SHOWING A CAUSE AND EFFECT RELATIONSHIP.

27 LUNG CANCER BECOMES MORE AND MORE
28 PREVALENT IN U. S. SOCIETY IN THE '30'S AND EVEN

1 MORE IN THE '40'S AND EVEN MORE IN THE '50'S.
2 THERE IS A STATISTICAL ASSOCIATION WITH THE RISE OF
3 CIGARETTE SMOKING, AS A HABIT IN OUR SOCIETY.

4 BUT THERE IS A SIMILAR STATISTICAL
5 ASSOCIATION WITH MANY OTHER THINGS AS WELL.

6 THERE ARE MORE MOVIE THEATERS,
7 THERE IS MINIATURE GOLF, THERE IS COUNTRY CLUBS,
8 THERE ARE NYLON STOCKINGS IN WOMEN AND GREATER USE
9 OF THE POTATO CHIPS.

10 YOU CAN SHOW THE SAME TYPE OF
11 STATISTICAL ASSOCIATION, BOTH ARE RISING IN
12 FREQUENCY IN THE EARLY AND MIDDLE AND 20TH CENTURY.

13 NO ONE, AT THAT TIME, SERIOUSLY
14 THOUGHT THAT POTATO CHIPS OR MINIATURE GOLF WAS THE
15 CAUSE OF LUNG CANCER.

16 ON THE OTHER HAND, THE FIVE
17 POSSIBILITIES ON THE PREVIOUS SLIDE, SPECIFICALLY
18 OF THOSE POSSIBILITIES DID HAVE A SIMILAR
19 STATISTICAL ASSOCIATION AND THOSE WERE REASONABLE
20 BIOLOGICAL POSSIBILITIES, THE USE OF THE
21 AUTOMOBILE, TARRING OF THE ROADS. IT WAS NOT HARD
22 TO IMAGINE EXHAUST FUMES OR SOMETHING COMING FROM
23 THE TAR THAT PEOPLE START BREATHING AND IS BEING
24 ASSOCIATED WITH SIGNIFICANT RISK SMOKING,
25 OCCUPATIONAL EXPOSURE, AIR POLLUTION, RADIATION.

26 SO YOU HAD THE SAME TYPE OF
27 STATISTICAL ASSOCIATION WITH THOSE EVENTS AS YOU
28 DID WITH CIGARETTE SMOKING, AND OF COURSE THERE'S A

1 BIOLOGICAL PLAUSIBILITY WITH THOSE FACTORS AND I
2 BELIEVE THAT'S WHAT THAT STATEMENT IS REFERRING TO.

3 Q. ALL RIGHT.

4 SO JUST TO MAKE SURE I UNDERSTAND,
5 THE EARLY PART OF THE 20TH CENTURY, YOU HAVE A RISE
6 IN CIGARETTE CONSUMPTION, AND SOMETIME LATER YOU
7 HAVE GOT A RISE IN LUNG CANCER. THAT'S THE
8 STATISTICAL ASSOCIATION?

9 A. CORRECT.

10 Q. THAT THESE EPIDEMIOLOGY STUDIES ARE
11 POINTING TO, ONE OF THEM, RIGHT?

12 A. CORRECT.

13 Q. AND WHAT YOU ARE SAYING IS THAT IN
14 JANUARY OF 1954, YOU CAN LOOK BACK AND SAY, IN THE
15 EARLY PART OF THE 20TH CENTURY, THERE WAS A RISE IN
16 AIR POLLUTION, THERE WAS A RISE IN RADIATION LEVEL,
17 THERE WAS A RISE IN THE USE OF AUTOMOBILES, THERE
18 WAS A RISE IN A LOT OF DIFFERENT THINGS THAT COULD
19 BE CORRELATED IN TIME TO A LATER RISE IN LUNG
20 CANCER?

21 A. THAT IS CORRECT.

22 Q. NO WAY TO RESOLVE THAT IN JANUARY
23 OF 1954?

24 LET'S LOOK AT THE SECOND SENTENCE
25 HERE IN NUMBERED PARAGRAPH 4.

26 "INDEED, THE VALIDITY OF THE
27 STATISTICS THEMSELVES IS QUESTIONED BY
28 NUMEROUS SCIENTISTS. "

1 WAS THAT TRUE?

2 A. IN JANUARY 1954, IT WAS. BECAUSE
3 THERE ARE MANY INTRINSIC INHERENT PROBLEMS WITH
4 RETROSPECTIVE STUDIES THAN EVEN THE INVESTIGATORS
5 OF THOSE STUDIES ACKNOWLEDGED.

6 Q. IN JANUARY OF 1954, WAS IT
7 REASONABLE TO BELIEVE THAT SMOKING DID NOT CAUSE
8 LUNG CANCER?

9 A. AT THAT TIME, THAT VIEW WAS
10 CERTAINLY CONSISTENT WITH SCIENTIFIC DATA THERE
11 THAT WAS NOT AN UNREASONABLE VIEW AT THAT TIME.

12 Q. ALL RIGHT.

13 I'D LIKE TO TURN TO THE PERIOD 1954
14 TO '64 NOW, BUT YOUR HONOR, I AM NOT SURE THAT
15 MAKES SENSE, GIVEN THE TIME.

16 THE COURT: ALL RIGHT. THEN LET'S GO
17 AHEAD AND TAKE OUR BREAK.

18 LADIES AND GENTLEMEN, BE BACK HERE
19 AT QUARTER TILL 11:00. AND ARIZAMENDI, WOULD YOU
20 PLEASE STAY WITH US.

21

22 (THE FOLLOWING PROCEEDINGS
23 WERE HELD IN CHAMBERS:)

24

25 THE COURT: I HAVE BROUGHT THE LAWYERS
26 BACK BECAUSE YOU GAVE ME A NOTE. COULD YOU TELL
27 ME, WE ARE IN CHAMBERS ON THE RECORD OUTSIDE THE
28 PRESENCE OF EVERYONE ELSE WITH COUNSEL PRESENT.

1 WHAT IS YOUR SITUATION?

2 JUROR ARIZMENDI: WELL, I FIND OUT MY
3 MOTHER HAS CANCER OF THE COLON. THIS IS THE SECOND
4 TIME THAT SHE HAS IT. WE WENT INTO IT BEFORE AND I
5 KNOW WHAT TO EXPECT. BUT WE ARE GOING TO HAVE AN
6 APPOINTMENT TODAY AT 2 O' CLOCK.

7 HE HAS A VACANCY, AND I NEED TO
8 TALK TO HIM AND ASK HIM WHAT DOES HE THINK IS
9 NECESSARY TO DO MORE THERAPY OR SURGERY.

10 THE COURT: FOR YOUR MOM?

11 JUROR ARIZMENDI: UH-HUH, RIGHT. AND HE
12 ONLY SEES PATIENTS ON MONDAYS, WEDNESDAYS AND
13 FRIDAYS. AND THIS IS THE SAME DOCTOR THAT ALREADY
14 OPERATED ON HER. HE'S THE CHIEF OF SURGERY.

15 SO I WOULD LIKE HIM TO SEE HER
16 AGAIN AND HE HAS A VACANCY TODAY, I JUST FIND OUT,
17 AT TWO O' CLOCK, OR I HAVE TO WAIT UNTIL MAY THE
18 30TH.

19 THE COURT: YOU ARE NOT GOING TO WAIT
20 UNTIL MAY THE 30TH.

21 JUROR ARIZMENDI: BECAUSE I ASKED FOR THE
22 EARLIEST, SO TO SAVE TIME AS MUCH AS POSSIBLE.

23 THE COURT: AND YOU NEED TO BE THERE WITH
24 YOUR MOM?

25 JUROR ARIZMENDI: YES.

26 THE COURT: I KNOW THAT YOU WANT TO SAY
27 ON THE CASE.

28 JUROR ARIZMENDI: I SURE DO.

1 THE COURT: BUT YOU ARE ALTERNATE NUMBER

2 5.

3 JUROR ARIZMENDI: RIGHT.

4 THE COURT: SO YOU WILL BE FIFTH, YOU
5 WILL BE THE FIFTH PERSON. WE WOULD HAVE TO HAVE
6 FIVE OTHER JURORS STEP ASIDE BEFORE YOU WOULD COME
7 IN. SEE WHAT I MEAN?

8 OKAY, WHAT I HAVE TO DO IS I NEED
9 TO TALK TO COUNSEL AND THINK ABOUT IT MYSELF, AS TO
10 WHETHER OR NOT IT WOULD BE IN THE BEST INTERESTS OF
11 EVERYONE, NOT JUST YOU, OF COURSE, TO LOSE A COUPLE
12 OF HOURS THIS AFTERNOON, BECAUSE, YOU KNOW, FOR
13 EXAMPLE, A WITNESS IS COMING IN FROM EVERYWHERE AND
14 SO FORTH.

15 JUROR ARIZMENDI: I WAS THINKING ABOUT
16 THAT.

17 THE COURT: IF YOU WOULD LET ME TALK TO
18 MY LAWYERS ABOUT IT AND I JUST WANT YOU TO KNOW, IF
19 WE GO AHEAD AND PUT THE TRIAL IN RECESS, THAT'S
20 FINE. BUT IF I DON'T PUT THE TRIAL IN RECESS, IT'S
21 NOTHING BAD ABOUT YOUR MOM, BECAUSE, YOU KNOW, WE
22 ALL CARE ABOUT YOUR MOM. WE CARE ABOUT YOU IN THAT
23 SITUATION. BUT IT IS IMPORTANT ALSO TO KEEP THE
24 TRIAL GOING.

25 JUROR ARIZMENDI: OKAY.

26 THE COURT: WOULD YOU LIKE --

27 JUROR ARIZMENDI: I HAVE ONE QUESTION, I
28 ALSO, THERE WAS ALSO, ANOTHER VACANCY WAS MONDAY AT

1 11:30, BUT I UNDERSTAND THAT MONDAY WE DON'T START
2 AT 1:30 ANY MORE; IS THAT CORRECT?

3 THE COURT: THAT IS RIGHT. IT'S THIS
4 COMING MONDAY AT 11:30?

5 JUROR ARIZMENDI: YEAH. BUT I FIGURED
6 THAT I NEED MORE -- I WOULD BE USING MORE TIME ON
7 MONDAY THAN TODAY.

8 THE COURT: BECAUSE YOU HAVE TO GO GET
9 YOUR MOM AND TAKE HER?

10 JUROR ARIZMENDI: NO, I MEAN, AS FAR AS
11 THE COURT IS CONCERNED, IF I GO TODAY, WE WILL BE
12 USING ONLY TWO HOURS.

13 BUT IF WE STARTED AT 8:45 ON MONDAY
14 AND THE APPOINTMENT IS AT 11:15, I WILL BE USING
15 MORE TIME. SO I THOUGHT THIS WAS THE BEST.

16 THE COURT: YOU SAID 11:30 ON MONDAY, YOU
17 WOULD BE BACK HERE BY 1:30 FOR THE TRIAL ON MONDAY.

18 JUROR ARIZMENDI: RIGHT.

19 THE COURT: WELL, THAT'S A POSSIBILITY
20 AND THANK YOU FOR TELLING ME THAT BECAUSE IT MAY BE
21 THAT THERE IS A SCHEDULING THING OR SOMETHING ON
22 MONDAY WHERE THEY CAN'T STARTED EARLY ANYWAY, SO
23 LET ME JUST FIND OUT WHAT THEIR SITUATION IS.
24 OKAY.

25 JUROR ARIZMENDI: OKAY.

26 THE COURT: THANK YOU SO MUCH.

27 YOU ARE GOING OUT AND HAVE A BREAK,
28 ALL RIGHT. AND I WILL TALK TO YOU PROBABLY AT NOON

1 TIME.

2 (JUROR ARIZMENDI LEFT
3 CHAMBERS AT THIS TIME.)

4

5 THE COURT: DO YOU WANT TO THINK ABOUT IT
6 AND I WILL JUST GET BACK TO YOU AT NOON?

7 MR. PIUZE: THIS DOESN'T HAVE TO BE ON
8 THE RECORD. WE HAD, I THINK, SORT OF LIGHTLY
9 ASSUMED, WE, THE LAWYERS, THAT WE ARE BACK TO OUR
10 TYPICAL MONDAY SCHEDULE OF NO JURY IN THE MORNING.

11 MR. CARLTON: WE HAD TALKED ABOUT THAT,
12 AND ACTUALLY, I WANT TO RAISE IT AGAIN, BECAUSE I
13 AM NOT SURE THAT MIGHT BE THE BEST THING TO DO. WE
14 ARE GOING TO HAVE A WITNESS, MR. WHIDBY, WHO IS
15 STARTING TOMORROW, WHO PROBABLY WON'T FINISH
16 TOMORROW, WHO WILL BE OUR GUEST FOR THE WEEKEND AND
17 IT MIGHT BE OUR PREFERENCE TO GO MONDAY MORNING SO
18 THAT WE TO TRY TO FINISH HIM UP AND GET HIM OUT.

19 THE COURT: IT MAY BE WHAT I CAN DO IS
20 KIND OF LOOK AND SEE WHAT HAPPENS ON FRIDAY, IN
21 OTHER WORDS, I DON'T NECESSARILY HAVE TO MAKE A
22 DECISION WITH RESPECT TO HER UNTIL I SEE HOW THINGS
23 GO.

24 MR. CARLTON: IF DR. WHIDBY DID FINISH WE
25 WOULDN'T HAVE A PREFERENCE IF HE WAS STILL ON THE
26 STAND. IT MIGHT BE OUR PREFERENCE TO GO MONDAY
27 MORNING SO THAT HE COULD FINISH AND NOT HAVE TO
28 STAY MONDAY NIGHT.

1 THE COURT: WHAT IS HIS SUBJECT?

2 MR. CARLTON: HE IS A PHILIP MORRIS
3 SCIENTIST AND HE IS GOING TO BE TALKING ABOUT
4 PRODUCT DEVELOPMENT, BASICALLY THE STATE OF THE ART
5 ON THE PRODUCTS THAT.

6 THE COURT: THAT MIGHT BE SIGNIFICANT
7 TESTIMONY.

8 OKAY, YOU HAVE A NICE BREAK AND WE
9 WILL SEE YOU IN FEW MINUTES.

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28