

1 NORTH CAROLINA
2 HALIFAX COUNTY.

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
Files Nos. 79-Cr-919 and 79-Cr-920

3
4 STATE OF NORTH CAROLINA)
5 - Vs -)
6 ROBERT EARL "BUCK" WARD, JR.)

TRANSCRIPT OF TESTIMONY
OF

7 STATE OF NORTH CAROLINA)
8 - Vs -)
9 ROBERT EARL "BOB" WARD, III)

RENATE KIMBROUGH
DEBORAH BARSOTTI
LEONARD J. GOLDWATER
AND
R. EMMIT KELLY

10
11 BEFORE:

12 Hon. Donald L. Smith
13 Judge Presiding
And a Jury

14 Halifax, North Carolina

15 June 6 and 8, 1979

16 APPEARANCES:

17 For the State:

W. H. S. Burgwyn, Jr., Esq.
District Attorney
Sixth District
Woodland, North Carolina 27897, and
Donald Stephens and James L. Stuart,
Esqs., Assistant Attorneys General
and J. Michael Carpenter, Esq.
Associate Attorney General
Department of Justice
Raleigh, North Carolina 27602

22 For the Defendants:

Tharrington, Smith & Hargrove
Attorneys at Law
P. O. Box 1151
Raleigh, North Carolina 27602
Wade M. Smith and Roger W. Smith,
Esqs., appearing, and
Mark Fogel, Esq., Attorney at Law
Raleigh, North Carolina

I N D E XWITNESSES:DIRECT CROSS REDIRECT RECROSS

Renate Kimbrough	3	16	55	57
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Deborah Barsotti	58	74	79	79
(Voir dire 61 to 63)				

Leonard L. Goldwater	80	100		
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R. Emmitt Kelly	110	115	121	
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EXHIBITS:IDENTIFIED INTRODUCED

Defendant's Exhibit Five, envelope	88	92
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and contents, A through E		92
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REPORTED AND TRANSCRIBED BY:

Mildred C. Howell, RPR
 Court Reporter
 Route 1, Box 73A
 Halifax, North Carolina 27839
 826-3763

1 term that no one will suffer cancer or any ill health effects
2 from what happened here, and you are absolutely sure about that.

3 A. As I said, nobody can be absolutely sure about anything. I
4 say that the probability is so remote that one should really for-
5 get about it. I think that the harm done by frightening people
6 is much more devastating than the actual chemical threat from that
7 particular situation.

8 Q. And that is your opinion as a scientist?

9 A. That is my opinion as a scientist, yes.

10 MR. STEPHENS: Just a moment.

11 THE COURT: Anything further?

12 MR. STEPHENS: That's all I have.

13 -----
14 R. EMMIT KELLY, being first duly sworn, testified as follows dur-
15 ing DIRECT EXAMINATIN BY MR. ROGER SMITH:

16 Q. What is your name, please?

17 A. R. Emmitt Kelly, M.D.

18 Q. Dr. Kelly, where do you live?

19 A. Defiance, Missouri. My home is in Defiance, Missouri; my
20 office is in St. Louis, Missouri.

21 Q. And, Dr. Kelly, what is your field?

22 A. I am a physician specializing in occupational disease and
23 internal medicine.

24 MR. STEPHENS: No problem. We'll stipulate.

25 THE COURT: All right, based on the stipulation the

1 Court finds that he is an expert in the field of occupational
2 disease and--

3 MR. ROGER SMITH: Occupational medicine and internal
4 medicine, Your HOnor.

5 THE COURT: Okay. --in those fields. The Court so
6 finds.

7 MR. ROGER SMITH: Thank you, your Honor.

8 Q Dr. Kelly, what position or positions do you hold at the
9 present time?

10 A. I'm a consultant in occupational medicine -- private con-
11 sultant in occupational medicine. I'm an associate physician at
12 the Industrial (Unintelligible), St. Louis, Missouri.

13 Q Dr. Kelly, have you ever been employed by the Monsanto Chemi-
14 cal Company?

15 A. Yes, I have.

16 Q And during what period in your career were you employed by
17 Monsanto?

18 A. I started with Monsanto in 1936, stayed as a part-time plant
19 physician for about two years, then I became Medical Director on
20 a part-time basis until 1942 when I went into the service and
21 stayed with the Chemical Warfare Service as a Medical Officer. I
22 returned to Monsanto in 1946, became head of their Medical Depart-
23 ment and stayed there until I retired because of age at 65 in '75.

24 Q Retired in 1975.

25 A. Right.

1 Q. Where were you located?

2 A. My headquarters were in St. Louis but I was responsible for
3 the medical affairs throughout all their manufacturing installa-
4 tions throughout the world.

5 Q. All right, sir. Speak up, if you would, please, Dr. Kelly.
6 What does Monsanto do?

7 THE WITNESS: Now or up to 1975?

8 Q. What did Monsanto do during the period of time in which you
9 were involved?

10 A. They manufactured a great variety of chemicals, plastics and
11 fibers.

12 Q. Did they make PCB compounds?

13 A. Yes, they did.

14 Q. Were you in close proximity or did you have occasion to go
15 into the plants in which they were manufacturing PCB compounds?

16 A. Yes, I did.

17 Q. Was your office located in or near a plant where PCB com-
18 pounds were manufactured?

19 A. It was across the river from a plant in Sauget, Illinois,
20 which is almost east of St. Louis. There was also another plant
21 at Anniston, Alabama, which I visited. Also one in the United
22 Kingdom which I visited.

23 Q. Did you have occasion to go into these plants?

24 A. Yes.

25 Q. Did you have occastion to go into the plant you described

1 which was near your office?

2 A. Yes.

3 Q. How frequently would you go into the plant or plants?

4 A. At least yearly until the early seventies, then when investi-
5 gations of PCB became much more popular, I went in oftener, some-
6 times three times a year, sometimes oftener.

7 Q. Did you after, in connection with these trips, become fami-
8 liar with the process and equipment--

9 A. Yes.

10 Q. --which was used to manufacture PCB compounds?

11 A. Yes.

12 Q. What were your duties at Monsanto during those years?

13 A. Primarily, my duties were to prevent any occupational ill-
14 ness in our employees.

15 Q. Did you have occasion during those years to observe the ex-
16 posure of employees to the manufacturing processes for PCB com-
17 pounds?

18 A. Yes.

19 Q. Would you describe the nature of the exposures that were en-
20 countered in the plants?

21 A. Yes. To make PCBs, you start out with a compound called by-
22 phenyl which is a solid. You put that in a big pot -- covered
23 pot, you heat it with a lead bath to raise it to a certain tem-
24 perature. This becomes molten, becomes a liquid. It's pumped
25 into a reactor and chlorine gas is also fed into this reactor in

1 varying amounts, depending on which member of the PCB family you
2 want. Then it is distilled and then it is filled into fifty-
3 five gallon drums or sometimes into holding tanks and from there
4 to tank cars.

5 Q. In connection with that process, Dr. Kelly, did you have oc-
6 casion to observe the exposure of employees to PCB compounds?

7 A. Yes, I did.

8 Q. What concentrations of PCB compound were these workers ex-
9 posed to?

10 A. There were no analytical testing of air early in the manu-
11 facture of PCB because, with the exception of the cases that were
12 related during World War II and with the exception of an occa-
13 sional case of chloracne, which is a sort of a teenage acne which
14 occurs on different parts of the skin, there were no ill effects
15 in our manufacturing group.

16 Q. But, Doctor, my question was: What kinds of exposure were
17 these workers exposed to?

18 THE WITNESS: I thought you said--

19 Q. What kinds of exposure were the workers--

20 A. They were exposed to vapor, exposure in skin contact.

21 Q. With respect to the equipment itself, how did they have oc-
22 casion to be exposed?

23 A. Wherever you are pumping around liquids, wherever you are
24 filling containers, one has leaks. One has leaks in the flanges
25 of the pipes. One has overflows of the fifty-five gallon drums

1 on its breakdown in equipment. One has cleaning out the pots and
2 reactors and they were exposed in those times.

3 Q And, Doctor, what concentration of PCB compounds were they
4 exposed to?

5 A A hundred percent. It was all PCBs.

6 Q Is that one million parts per million?

7 A One million parts per million.

8 Q How often did you examine the employees?

9 A I saw the medical records on the employees in Alabama yearly.
10 I did not do hands-on examination of these people myself. I ex-
11 amined the people in East St. Louis at least once or twice a year
12 for a matter of several years. These are men who had been work-
13 ing in the PCB Department in our East St. Louis plant for various
14 durations from two years to twenty years.

15 Q Dr. Kelly, how many people, total, did you do-- Well, how
16 many hands-on examinations of employees did you do?

17 A Sixty to a hundred.

18 Q Sixty to a hundred employees?

19 A That's right.

20 Q During all those years, how many employees did you examine?

21 A I can't answer that. I don't know. I would say not any
22 more than two hundred, I don't think. That's a relatively stable
23 employment population so I cannot give you a factual answer in
24 that.

25 Q Doctor, did you examine employees who had had one million

1 parts per million PCB compound on their skin?

2 A. Yes.

3 Q. What was the health of the employees you examined? What did
4 you find when you examined these employees?

5 A. With the exception of chloracne at our Anniston, Alabama,
6 plant, I did not find any ill effects in any of our Monsanto em-
7 ployees.

8 MR. ROGER SMITH: All right. That's all the questions
9 I have.

10 THE COURT: Your witness.

11 CROSS EXAMINATION BY MR. STUART:

12 Q. Dr. Kelly, how long did you say you did these studies? I'm
13 sorry, I missed that.

14 A. I don't know what you mean by studies, sir.

15 Q. How long were you working and observing or examining the em-
16 ployees to see the effects of these things on them?

17 A. From 1946 until 1975.

18 Q. Has medical science progressed any since 1945?

19 A. I hope so.

20 Q. Would you say it's a fair statement to say that your later
21 studies might have had more scientific -- you might have had more
22 scientific tools to judge what the effects were in the later years
23 than you did thirty years ago?

24 A. That is correct, but some of these tests were in the later
25 years, sir.

1 Q. Right. I can understand that. Thank you. Did you say that
2 chloracne is like teenage acne? Is it not a lot more serious
3 than teenage acne?

4 A. Oh, yes, it's more -- it may or may not.

5 Q. Isn't it-- Oh, excuse me, I'm sorry.

6 A. You can have chloracne in an individual which just means
7 that he has three or four blackheads on one part of his face.
8 That's all. That's chloracne. It can also be very severe in
9 which it could be over his face, over his arms, over a good part
10 of his body. There are all types of chloracne.

11 Q. Sure. But is it the same as you find in a teenager in that
12 you might just put a little ointment on the surface or might you
13 have to go further with your medical skills to clear it up or to
14 remove it from a person?

15 A. Well, first of all, I do not believe that the etiology, the
16 cause of acne, whether in teenagers or in people exposed to PBC,
17 has been demonstrated. Some cases clear up very well. Some teen-
18 agers carry their acne until they are forty-five. I would say
19 in a person who has generalized chloracne from an industrial com-
20 pound--and that can occur from any number of chlorinated com-
21 pounds in addition to PCB--it is harder to clear up than the aver-
22 age case of teenage acne.

23 Q. Thank you. Were the employees that you studied working only
24 with PCB or transformer oil manufactured by Monsanto?

25 A. At the time I examined them, some had worked in the depart-

1 ment and were working in the plant at other occupations. There
2 is a great mobility in a chemical plant where you have a union
3 that can allow people to move from one department to another.

4 Q So there was more than one department. It wasn't just a
5 gigantic PCB oil department.

6 A I don't follow you. Yes, there were more--

7 Q Monsanto made other things besides PCB.

8 A Yes, with the exception of at Anniston, Alabama, they probably
9 made only one or two other compounds. At East St. Louis, they
10 might have made fifty other compounds.

11 Q Do you have any idea what relative proportions they were,
12 were they ninety percent PCB or fifty percent, of their total
13 product production every year?

14 THE WITNESS: Which now? Which plant? The whole com-
15 pany?

16 MR. STUART: No. No, sir. At that one plant that you
17 made reference to.

18 A At East St. Louis the amount of PCBs manufactured probably
19 constituted under ten percent of the total tonnage of the plant.
20 At Anniston, Alabama, it probably fifty percent of the total tonnage
21 of the plant.

22 Q Did these workers wear any type of protective clothing when
23 they worked with PCBs or the other chemicals they worked with?

24 A Not in the early days.

25 Q They did not.

1 could not do it just to see what PCBs did to the individual. If
2 somebody had decided fifteen years ago that PCBs might cure multi-
3 ple sclerosis, people could have done that with the cooperation,
4 obviously, of the individual.

5 Q If they were diagnoses as having something that was either
6 terminal or incurable.

7 Q No, not that. No. If there was a valid reason. There are
8 several industrial chemicals that are used in medicine. The
9 drug that's used in prevention of alcoholism started off as a rub-
10 ber chemical and they found out that the people who worked with
11 this compound couldn't drink, they got headaches. So, they took
12 this compound and gave it to alcoholics, after testing, and it's
13 a clinical club. The wife puts it in the man's coffee every
14 morning and he isn't going to take a drink that day. So, that is
15 what is done -- the type of clinical work that is done with indus-
16 trial chemicals.

17 Q I understand now. You indicated that you just can't do that,
18 I believe. Would you feel right about dosing people with PCBs
19 and then observing the health effects on them?

20 THE WITNESS: For what reason?

21 Q For any medical reason you might have because isn't that the
22 best way to find out what effect PCBs have on human beings, to
23 put them in a controlled environment and give them a little bit
24 with their diet or inject a little bit into them every day and
25 then--

1 A. No---

2 Q. --see if -- when they pass away see what effect it--

3 A. --I would not.

4 Q. --had on them?

5 A. No, I would not.

6 Q. Well, do you think that doing that to animals gives some in-
7 dication of what might happen to humans if you did the same
8 thing?

9 A. I think there is some relationship between animal testing
10 and human testing.

11 Q. Well, at the time you worked at Monsanto, do you know what
12 the industrial standards, like, for the World Health Organization
13 or the American Conference of Industrial Hygienists was for PCBs
14 in an occupational environment in terms of concentration?

15 A. I would say that-- Yes, I do. It was something in the
16 order-- It varied. It started with five milligrams per cubic
17 meter, depending on the chlorination of the compound, then it
18 went down to one milligram per cubic meter. It has not been drop-
19 ped below that. I don't know what has happened since I left Mon-
20 santo, but in 1976 it was one milligram per cubic meter.

21 Q. Would it surprise you if it has gone down below that?

22 A. I wouldn't be at all surprised because--

23 Q. Why did Monsanto quit making PCB oil?

24 A. First of all, they found out-- Well, PCBs were used in a
25 great number of uses. Now, I am not the man who made the decision

1 for Monsanto to quit making PCBs, but it was used in a variety of
2 applications. It was used as a plasticizer and Dr. Goldwater
3 said in these wire coatings. It was used in paint. It was used
4 in carbonless carbon paper. It was recommended by the Department
5 of Agriculture to be used as a spreading agent for pesticides.
6 It was used as a heat transfer agency. It was also used as a
7 transformer dielectric. That means it was a coolant for trans-
8 formers but did not conduct electricity. Monsanto voluntarily
9 stopped using PCBs -- selling PCBs for anything but a closed sys-
10 tem because they found that they had no control over the end use --
11 of an end deposition of the product. And there were any number
12 of studies that were started -- not started, but showed that
13 there was some deleterious effect on the ecology of some species.

14 Q. What do you mean by deleterious effect?

15 A. If you had a high enough concentration of PCBs in a particu-
16 lar estuary or water or stream going into the ocean, if it were
17 taken up in the food chain by small fish, bigger fish would eat
18 it, and the falcons or bald eagles would come down and eat the
19 fish, you would get in these eagles a lack of the ability to put
20 an egg shell around the egg. There is a harmonal change in these
21 female eagles.

22 MR. STUART: No further questions.

23 MR. ROGER SMITH: May I ask one more question?

24 THE COURT: Yes.

25 REDIRECT EXAMINATION BY MR. ROGER SMITH:

1 Q. What is the longest period of exposure to PCB compounds for
2 any one of the patient employees that you examined? How long
3 had the person been working there who had worked there the long-
4 est that you know?

5 A. With PCBs, probably over thirty years. At least thirty
6 years.

7 MR. ROGER SMITH: That's all I have.

8 THE COURT: Step down.

9 -----
10 NORTH CAROLINA

11 HALIFAX COUNTY

12 I, Mildred C. Howell, hereby certify that the foregoing
13 testimony of Dr. Renate Kimbrough, Miss Deborah Barsotti, Dr.
14 Leonard J. Goldwater and Dr. R. Emmitt Kelly was taken by me in
15 shorthand and thereafter reduced to typewriting by me, and that
16 this is a true and correct transcription of my said shorthand
17 notes.

18 IN WITNESS WHEREOF, I have hereunto set my hand, this
19 the 19th day of July, 1979.

20
21 Mildred C. Howell
22 Court Reporter
23 Route 1, Box 73A
24 Halifax, North Carolina 27839
25 826-3763