Volume II

P U B L I C H E A R I N G

before

ASSEMBLY JUDICIARY, LAW, PUBLIC SAFETY AND DEFENSE COMMITTEE

on

A-1722 through A-1729

(Smoking Regulations)

Held:
November 12, 1980
Room 219
State House
Trenton, New Jersey

MEMBER OF COMMITTEE PRESENT:

Assemblyman Martin A. Herman, Chairman

ALSO:

Bradley S. Brewster, Research Associate
Office of Legislative Services
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I N D E X

ASSEMBLYMAN MARTIN A. HERMAN (Chairman): I would like to thank everyone for coming this morning. A number of our Committee members are on their way. I am not going to detain anyone who has taken the time to come here today by delaying this. We have three types of time: Daylight Saving Time, regular time and Trenton time. But in keeping with the normal time schedule of most folks, we are going to begin.

This is a continuation of a prior public hearing. We have a number of witnesses scheduled this morning that we would like to hear from on this matter. The transcript of this proceeding will be made part of the public record. It is an important public record, we believe. Likewise, a summary of today's testimony will be made by our staff for distribution to the members of the General Assembly and the Senate for their meeting of the 24th, so that the full membership of both Houses will have an opportunity to be aware of what was said here today, other than just reading it in the press and hearing it through other communication media.

I would like to note that this morning - and we will make them part of the official record - I received two items, one from Dr. Mitchell, who is Director of the Governor's Study Commission on Cancer Control, entitled, "On the Cutting Edge." I have distributed that to some of the doctors who were in the room earlier who may wish to comment on it. We will mark that as an exhibit. ("On the Cutting Edge" can be found beginning on page 1X of this transcript.) Also the Tobacco Institute has submitted for the record an exhibit and some testimony. We will have that marked part of the record as an exhibit. (See page 5X for statement.) Thirdly, I would like to note that we invited a representative of the Prudential Insurance Company to be here. We were unkind to them and gave them very brief notice. It would be difficult for them to appear. As you know, Prudential has recently instituted an advertising program geared to giving reduced rates for nonsmokers. We certainly would like to have their testimony, whether written or oral, on the record, which we will obtain, as to their rationale for making such an offer. We just have more than a sneaking suspicion that it will sustain some of the effort behind the intent of these bills.

Without any further comment from the chair, other than again a reiteration of a "thank you," I would like at this time to ask Dr. Reichman if he will be so kind as to speak first.

Has Dr. Fares arrived yet? If anyone sees him or recognizes him, please let me know.

Dr. Reichman, would you briefly give us a resume of your professional status?

D R. L E E B. R E I C H M A N: My name is Lee Reichman. I am Professor of Medicine and Director of the Pulmonary Disease Division at the College of Medicine and Dentistry of New Jersey - New Jersey Medical School. I am based at the College Hospital in Newark. I was born in 1938, went to Oberlin College in Ohio and the New York University School of Medicine where I got my M.D. degree in 1964. I received a Masters in Public Health from the Johns Hopkins School of Hygiene and Public Health in 1971. From 1971 to 1974, after internal medicine and pulmonary disease training at Bellevue and Harlem Hospitals, I was at the New York City Health Department where I finally was Assistant Commissioner for Environmental Health Services. In 1974, I went to the New Jersey Medical School, first, as Associate Professor, and, currently, as full Professor and Director of the Pulmonary Disease Division.

I am Board Certified in General Internal Medicine and the Subspeciality of Pulmonary Disease. I am a Fellow of the American College of Physicians, the

American College of Chest Physicians and the Academy of Medicine of New Jersey. Although I have been asked to testify here on behalf of the Medical Society of the State of New Jersey, of which I am the Chairman of the Chest Section, I am also Vice-President of the New Jersey Thoracic Society. I am a member of the Board of Directors of the American Lung Association nationally and also a member of the Board of Directors and a member of the Executive Committee of the American Lung Association of New Jersey and I am co-author of 70 publications and abstracts in my field.

I would like, first, to thank the Committee for asking me to appear here to present my views on A-1722 to A-1729. Your Committee has a major responsibility to produce important pioneering legislation on a subject of critical importance while being fair to the citizens as well as the manufacturers and job-holders and everyone else in the State. Whatever comes out of your Committee after your deliberations will be scrutinized nationally and internationally, so you must be careful and fair and thorough, as you apparently have been in your investigations to this point.

As you know, when two physicians get together like two lawyers or two politicians, it is hard to get agreement. What is proof to one may not be proof to another. When you hear conflicting testimony from so-called experts, you must, as you have been doing, scrutinize and analyze and then I suppose follow the line of the most expert. But since that judgment is difficult, you will end up voting your conscience.

As the American Thoracic Society said in a statement, Health Effects of Air Pollution, published in 1978, which pertains directly to that body of evidence which you have heard directed to the bills under consideration, "In any case regulatory bodies must depend on the judgment of clinicians and other health scientists for an interpretation of the various and sometimes contradictory lines of evidence on the health effects of air pollution," and we can add to that, or cigarette smoking.

There is one point which I think all will agree is not at issue and that is, "Today no one doubts that smoking has marked effects on health and this habit is a major cause of many specific diseases which in turn account for many deaths in the United States." Incidentally, this is not my quote; it is taken verbatim from the first paragraph of Liu and LenFant's editorial accompanying the White-Froeb study which, "Faultlessly demonstrated a reduction in measure of small airways in healthy non-smokers exposed to cigarette smoke in the workplace," same source. This same editorial, you may recall, was used by some of your expert witnesses last July to try to impeach the White-Froeb study. While apparently some of your experts believe that tobacco is not harmful to the smoker, the danger of cigarette smoke to the smoker is probably the most agreed upon thing in all of medicine and is not at issue here.

What is at issue is the effect of side-stream smoke. Your Committee and the State Public Health Council before it has carefully reviewed the data and it won't help to rehash it here. What is reiterated again and again is that side-stream smoke has an effect on the health of children, on exacerbation of allergic symptoms, on increases in blood carbon monoxide, on cardiac circulation reserve leading to less time until angina and, most recently, in small airways dysfunction of the lung which is an actual anatomical derangement of pulmonary function. To counter this evidence, the tobacco industry's experts present what they consider data from environmental studies which purport to show that the amounts of carbon

monoxide, nicotine, polycyclic aromatic hydrocarbons and other things in areas with smokers are seen to be below levels that produce known pathological effects.

As you know, occupational disease, like disease caused by cigarette smoking, has a considerable latent period. Even in high risk and high concentration situations, such as in smokers, it is acknowledged to be many, many years until the smoker gets lung cancer or vascular disease. In several other situations there has been a similar lag time, but this being between medical sciences' first suggestion of causation, and general acceptance by the medical community of cause and thus the final institution of specific control measures. I call this the "etiology-to-action lag time." Some examples of this lag time are with asbestos exposure leading to lung cancer. The increased incidence of asbestos exposure leading to lung cancer was first suggested in 1935. Medical science deemed, after many studies and much work, that it was probably causative in 1948. It was finally generally accepted by medical science that this causation existed in 1955. Thus, the etiology-to-action lag time was 20 years. Another nonsmoking related condition, mesothelioma, a tumor that has also been linked to asbestos exposure, was first suggested in 1945; causation, after much work, was thought to be probable in 1955; and finally it was generally accepted in 1965 - an etiology-to-action lag time of 20 years. Turning to cigarette smoking and lung cancer, the first suggestion of cause was actually made in 1912, but to make my graph narrower, I will consider a second report as raising the question in 1941; probable causation was considered in 1950; and it was finally accepted in 1964 with the first Surgeon General's Report, a period of 24 years etiology-to-action lag time.

Now, we come to the effects of second-hand smoke. As far as I can find, it was first questioned in the 1969 report from Germany. It was considered probable with an increasing number of reports and articles in 1975. Most knowledgeable physicians accept causation of anatomical lung problems with the White and Froeb report. Thus, the etiology-to-action lag time is now 11 years and still counting. Causation is accepted, but action is waiting.

I have, as a pulmonary physician practicing and teaching, often been concerned by the 10 percent or so of lung tumors we see in people who, after careful history, are found never to have smoked. And we had one we diagnosed in our hospital in a 28-year-old this week. Is it possible that their risk factor was second-hand smoke? Of course, the tobacco industry will rightfully point out that cancer has never been shown to be caused by second-hand smoke. But if it took so long to show that cancer is caused by first-hand smoke even in high concentrations directly inhaled, because of the long latent period between exposure and disease, what evidence do we have that second-hand smoke is not responsible for those ten percent cancers that cannot be explained by smoking?

What is your Committee to do? In medicine, we look at our patients and we make therapeutic and diagnostic decisions utilizing what we call the risk-benefit ratio. We do what might be the greatest benefit for the least risk. I am told that stockbrokers do the same thing. They talk about upside potential and downside potential.

Let's think for a moment what happens if you pass these bills and the tobacco industry is right and that all of these studies and opinions of the State Medical Society, the American Lung Association, the American Cancer Society, the American Heart Association, the American Medical Association, and so on, are all wrong and that second-hand smoke does not cause anatomic problems or disease in the nonsmoker.

Well, there is a benefit still that people who are sensitive to tobacco smoke will not have to worry about that anymore and that the individuals and stores and restaurants that these bills are directed to will have to put up signs, and not allow smoking on the job or public places. It seems to me that that is not too much harm. I might have to forego an after-dinner cigar occasionally or sit in the smoking section. But let's look at the other alternative: what if you don't pass the legislation and these medical societies and voluntary associations are right that second-hand smoke does cause angina to increase in severity, does cause difficulty breathing to people who have lung disease, anatomical derangement of the lungs in second-hand smokers and maybe even in one person, a nonsmoker who may get cancer from a long and constant exposure? What that would mean is that until data that is acceptable to the tobacco industry is forthcoming, exposure and the potentially harmful exposure will go on to non-consenting second-hand smokers.

As a practicing physician, I see every day respiratory cripples who are living the horrendous life brought about by their habit which started, incidentally, with small airways disease. I also see healthy asthmatics - relatively healthy asthmatics - bronchitics, children with cystic fibrosis who are afraid to go into restaurants or classrooms for fear of smoke. I also see people who have derangement of lung function who never smoke. What is it caused by? For their benefit, I believe that if this Committee is to make a recommendation, it must be on the side of smoke-free air.

What I am saying is that those who don't learn from history are destined to repeat it. We must now have control on the basis of strongly probable evidence. If we continue to wait for evidence that the tobacco industry feels is definite, how much disease in innocent, nonsmoking individuals might we have caused with second-hand smoke?. If we do take an initiative, we can have a real chance of diminishing the etiology-to-action lag time.

On September 13, 1980, a letter was published in the New York Times and several other newspapers and it was sent to airline presidents and several government agencies. It was from Richard Sinsheimer, the President of the American Lung Association, who requested a ban on all smoking on airliners, citing a survey done by the Federal Aviation Administration and the National Institute for Occupational Safety and Health which demonstrated that 60 percent of the nonsmoking passengers reported annoyance from second-hand smoke and also demonstrated the health hazard which you have reviewed in previous testimony. Mr. Sinsheimer states that it took "many years of scientific investigation to demonstrate that the inhalation of smoke into the lungs of the smoker subjects the smoker to substantial health hazards. Long before this thesis was unequivocally demonstrated there was sufficient data to establish a reasonable probability that smoking hurt health."

As this point has been reached and surpassed with respect to second-hand smoking, I submit that healthy lungs should not be exposed to secondary smoke until it can be demonstrated and proved that such healthy lungs will not be adversely affected. So long as smoking poses a risk to the health and safety of nonsmokers, the right to smoke must yield to the right of health and safety. In other words, I am asking why the burden of proof must be on those of us who want to control second-hand smoke.

I thank you very much for your indulgence and will be glad to answer any questions.

(A curriclum vitae submitted by Dr.Reichman is on file with the Committee.)

ASSEMBLYMAN HERMAN: Doctor, I do have some.

First, as a non-medical person, from time to time I go into not a little smoke-filled room but a banque or some other social or political function where there is a great deal of smoking. My eyes will tear up and become irritated. What causes that?

DR. REICHMAN: I think that probably is an individual reaction. I have the same reaction in my eyes. I don't cough or anything. It is probably the particulate matter in the smoke is just causing an irritation of the membranes of your eyes.

ASSEMBLYMAN HERMAN: That is not an uncommon thing?

DR. REICHMAN: I don't believe it is uncommon. As a matter of fact, I always get the same response when I go into shopping malls. I always thought it was just the recirculated air. Not until I started reviewing the testimony before this Committee did I realize, "Hey, that is probably the cigarettes in the recirculated air that did it."

ASSEMBLYMAN HERMAN: So, even though it doesn't have any permanent harm, giving the Tobacco Institute the total benefit of any doubts, from the standpoint of inconvenience, it is common to have a substantial inconvenience in social settings?

DR. REICHMAN: That's right. Most people, I guess, live with it. Some of my patients complain. But most people just live with it or they don't go shopping. Some of these people that I mentioned that have other lung conditions don't like to go to restaurants or don't like to go to malls, or wherever, because of this. It depends how important it is to get out and do these things.

ASSEMBLYMAN HERMAN: Would it be fair to say for the record here today that you do speak for the position of the New Jersey Medical Society?

DR. REICHMAN: Yes, Ido.

ASSEMBLYMAN HERMAN: And I assume that the position of the New Jersey Medical Society is in favor of A-1722 through A1729?

DR. REICHMAN: Yes, it is.

ASSEMBLYMAN HERMAN: If you were sitting in my chair - when I say "my chair," whether it be one of eighty in the Assembly or one of forty in the Senate - and you were pushing the buttons, what would be your advice as a colleague to the various Senators and Assemblymen in regard to this bill?

DR. REICHMAN: I think you cannot afford to err on the wrong side of this one. I think it is so important that these bills must be passed. Actually, I believe that the one in the work place - and it has come out in further testimony - probably should be done in work places with two or more people, not fifty or more people, because you don't cover very many work places with fifty or more people.

ASSEMBLYMAN HERMAN: One last question if I may. I assume in medical science ,as in other sciences and disciplines, that we are talking about probability.

DR. REICHMAN: Yes, sir.

ASSEMBLYMAN HERMAN: Based on your studies and your expertise and your knowledge of the literature and the experiments involved, what would be in your medical opinion, setting aside the Tobacco Institute's opinions, the medical probability that second-hand smoke does have an adverse effect on human beings?

DR. REICHMAN: Any adverse effect on human beings?

ASSEMBLYMAN HERMAN: Yes.

DR. REICHMAN: I would say 100 percent. That takes it away from probability.

I should probably make it 99 percent so that we can continue to use the word "probability." But there is no question in my mind. I think the longer we wait, the more evidence there will be, and we will say, "Why didn't we do it?" I think the whole point of my prepared statement was: Why don't we do these things earlier rather than later.

Asbestos is such a good example because the asbestos manufacturers now I think really are sorry that they didn't do this earlier to control these things, just because they are all getting sued a lot. I think the same thing is present here.

ASSEMBLYMAN HERMAN: Healthwise, you think it would be fair to say then, the day of rain has arrived, right?

DR. REICHMAN: Absolutely.

ASSEMBLYMAN HERMAN: Doctor, thank you very kindly. I appreciate your coming. Also, please, extend my thanks to Vince Maressa too.

Is Dr. Fares here? Dr. Fares, I believe you said you had some time problems.

DR. FARES: There is no problem. I can stay as long as you need me. Am I next?

ASSEMBLYMAN HERMAN: Someone told me that you had to leave early.

DR. FARES: That is true.

ASSEMBLYMAN HERMAN: Then please sit down. Thank you, Doctor, for coming.

D R. L O U I S G. F A R E S: I am Louis G. Fares. I am an M.D. who has been in practice just short of 35 years. I have spent about 75 percent of those years as a volunteer for the American Cancer Society.

I am not unique, looking over the transcript of the testimony of others who have been here previously. I am here on my own time and at my own expense. And I am very proud of that when I look and see who some of my adversaries are. I come here as a concerned practitioner and as a concerned citizen.

I do not have a prepared statement. I would like to give you some background material on what we are up against.

ASSEMBLYMAN HERMAN: I understand that you do have some specialities. Could you, for the record, enumerate them.

DR. FARES: Yes. I have been a general surgeon for practically all my career, except for a few years when I was in the Army and about four years in general practice. But since then, I have been in general surgery.

As mentioned earlier, I have been a volunteer for over 25 years for the American Cancer Society. Like all volunteers, it is on my own time and I am very glad that I, hopefully, can help fellow citizens. I have been interested in the problem of smoking because a lot of our work is in general cancer surgery. Some things have shown up recently relating smoking and cancer, and smoking and the effects it has on people with cancer, that it has really fortified my interest in the field.

Earlier in the year, you were told that every minute and a half someone dies in this country from cancer. The statistic that impresses me the most is that in this present year of 1980 it is calculated that we will lose over 100,000 people. When we consider during the Vietnam War where we had no battle front as such and where our enemy could be our next door neighbor or one behind or in front of us, we lost a little more than half of that amount. In ten years of gorilla warfare, we lost roughly 60,000. In one year from cancer of the lung, we are going to lose 100,000. To me, that is a frightening figure and I can't

see in good conscience how some of the people who defend smoking feel that way.

I learned a lesson, however. A couple of years ago, I spoke at the Lions Club in Trenton. I was called a couple of months later and told that the Tobacco Institute was sending an individual to rebut my statements. They felt it was important enough to pay her way to come up, I believe by chauffeured limousine, from Washington. They sent a very shapely young lady whose scientific knowledge I didn't have to refute at all. She was dealing with mostly professional people from our business community, a couple of whom had engineering degrees, and they really shattered her testimony, without my having to say too much.

ASSEMBLYMAN HERMAN: They haven't sent up anybody shapely yet. But we will be on guard, Doctor.

DR. FARES: Please be on guard.

What I want to alert you to is that you are battling probably the most powerful lobby in this country. For those of you who read the New York Times, I brought a copy of a business review on tobacco, which is described as having a potent lobby. I would like to quote some things from here. On a photograph sent to the Director of the corporation of Philip Morris was, "You helped on my campaign and made this day possible," signed "Jimmy Carter." Another quote: "Hour for hour and dollar for dollar, they are probably the most effective lobby on Capitol Hill." That is quoting Senator Edward M. Kennedy. I don't want to bring politics in here; I am just quoting.

The tobacco industry has set up two arms: the Tobacco Institute and the Council on Tobacco Research. The Tobacco Institute is the one that makes it a point to send speakers around. In a three-year period of time, they spoke in over 400 cities in 48 of the states, fighting against legislation of this nature. I realize it is their bread and butter. But I also realize we don't have people going around singing the great merits of arsenic. Arsenic in small doses, actually, is a good medication. But in large doses, it is a homicidal agent. They continue singing the praises of their product to the extent of trying to knock down others.

Joseph Califano, who was head of HEW, was a chain smoker until he started reading the Surgeon General's Report. At that time, he had a study undertaken and then decided to spend six million dollars of the government's money to try to discourage people from starting to smoke or to try to encourage those who did smoke to stop. As a result, the head of the Liggett Tobacco Company called him a silly ass. That is a quote from one of the newspapers. Dr. Bourne then said we should not class these people as outcasts, defending the tobacco industry. Dr. Bourne is the same gentleman, a psychiatrist, who was thrown out of Carter's administration for prescribing quaaludes and other drugs under assumed names. So, at times, I question some of the people they have speaking on their behalf.

The tobacco industry, as I mentioned, is a powerful industry. It is a $7 billion industry. When you are talking sums like that, you are almost talking about the budget for one of our armed forces.

Just to introduce Merit cigarettes, Philip Morris spent $40 million. That is more than the government spends on cancer research usually in any given year. They spent $40 million to introduce one product.

With that background, you can see why people like myself feel obligated to speak in behalf of people who can be harmed by cigarettes. The tobacco industry never mentions the price supports the government guarantees it. It seems unusual that in one department, the government says, don't smoke - that's HEW - and in

another department, Agriculture, they are given money to support their prices.

ASSEMBLYMAN HERMAN: Maybe you could be helpful to us. We had testimony before by witnesses on behalf of the Tobacco Institute that there was no definitive evidence not only that tobacco produced any harm as far as second-hand smoke is concerned, but there was no definitive evidence that it produced any harm involving people who smoke upon themselves. I assume that you disagree with that particular position.

DR. FARES: The second part, as far as the smokers, themselves, I cannot in good conscience see how anybody in good conscience, in turn, can make that statement. I would like to show you the size of the first Surgeon General's Report. The last report is three and one-half times this size. It was too big for me to bring in. Scientifically, without any question, it has been proved that it does.

All you have to do is take any dog, make an opening in his neck and have him smoke x number of cigarettes. You will see a change in his cells and eventually a cancer. In that respect, they are absolutely wrong that smoking does not cause cancer. Their answer is, you can't prove cause and effect. If you take a gun, put it to your head and pull a trigger and it blows your brains out, that is cause and effect. If you smoke cigarettes and you get cancer of the lung, with the exception of some rare cancers not due to smoking, it is due to smoking.

ASSEMBLYMAN HERMAN: Do you do cancer surgery, Doctor?

DR. FARES: Yes, I do.

ASSEMBLYMAN HERMAN: What I am really trying to get for the record is: based on your experience as a surgeon who does work in cancer surgery, could you perhaps give us some definitive examples as to why, based on your medical knowledge and experience, cigarette smoking does, in fact, cause cancer?

DR. FARES: Yes, I can. There are very, very few patients that we see with cancer of the lung, small-cell cancer, which you know is due to irritants, where it is not due to smoking. I probably can count them on two hands. That is in my 34 years' experience. Equally few are those who have cancer of the tongue or vocal chords and do not smoke - very few. I don't do that type of surgery anymore. But I do speak frequently with my colleagues. I see patients who come in with hoarseness, thinking they have something wrong with their thyroid, and when you look down there, you see cancer. Then you send them to your colleagues who do that type of surgery and they will tell you that is due to smoke.

Smoking also causes another problem. We have a test now in which we guide patients with cancer. It is called, abbreviated, CEA. This test is helpful to see if the cancer has recurred so you can go back and operate the second time, the so-called second-look operation, to prevent it before it spreads too far. For people who smoke, this test is way off. In all our lab tests that come back, they mention normals up to 2.5, smoking up to x number, depending on their lab. So, smoking does affect the body in a lot of ways.

ASSEMBLYMAN HERMAN: Do you know of any responsible colleague or medical journal that has taken the position that smoking does not have an effect on the human body?

DR. FARES: To my knowledge, no, except those who are paid by the Tobacco Institute. I have argued with some, one on one, and I can assure you that they don't believe that in their heart.

Another interesting thing, in the Surgeon General's Report, over half

of those that started with the original report were smokers. By the time the report was in the printing, a lot of them had stopped smoking.

ASSEMBLYMAN HERMAN: Let me ask you this if I may: You are aware that we have before the Assembly a package of bills designated as A-1722 through A-1729.

DR. FARES: That is correct.

ASSEMBLYMAN HERMAN: And I assume that you appear here in support of those bills?

DR. FARES: Very strongly.

ASSEMBLYMAN HERMAN: I would like to ask you the same question I asked Dr. Reichman before and I probably will ask every witness. If you were sitting as a member of the General Assembly or as a member of the Senate, what would be your advice to those persons who had the ability to either vote "yes" or vote "no" for these bills - and why?

DR. FARES: In behalf of the health of this country, I feel those bills should be passed. I don't think we have any alternative. On something as relatively harmless as cyclamates, we took it off of the market because in animals, not proven in human beings at all, it can cause cancer in a very small percentage. That was taken off the market. But there was a reason for it. It was one company against the government. Now, we are fighting a $7 billion industry. I don't think you are going to get honest opinions from those people from the industry.

I would strongly urge an individual like yourself to take the Surgeon General's last report because it does have a section on involuntary smoking.

ASSEMBLYMAN HERMAN: Could you refer to that, sir, just for the purpose of the record? Do you have that in front of you?

DR. FARES: Yes, I do.

ASSEMBLYMAN HERMAN: Could you perhaps make some comment on it?

DR. FARES: Yes. "Involuntary smoking, passive or second-hand smoking," in the original report, they didn't mention it, but they did in the new report. "One, side-stream smoke which comes from the lighted tip of the cigarette between puffs has higher concentrations of some of the irritating and hazardous substances than does main-stream smoke, the smoke inhaled by the smoker. Children of parents who smoke are more likely to have bronchitis and pneumonia during their first year of life, regardless of age, weight,. . . Cigarette smoking in enclosed spaces can produce carbon monoxide levels which are above the ambient air quality standard, which is nine parts per million, even where ventilation is adequate. Substantial proportions of the population experience irritation and annoyance when exposed to cigarette smoke. The eyes and nose are more sensitive to irritation and such irritation increases with increasing levelsof smoke contamination." I can go on. They have ten things. They even mention it eliminates the psychological factors. People with heart problems get angina easier, which has been mentioned by earlier speakers. They say that may be psychological. They go on ---

ASSEMBLYMAN HERMAN: I assume you will leave that for us so we can make it a part of our record.

DR. FARES: Yes, I will. (See page 27X for paper submitted by Dr. Fares.)

ASSEMBLYMAN HERMAN: Based on those observations in that document from which you have just read, what does that mean to me, Marty Herman, either being a member of a household or just being in a social setting, involving that type of second-hand smoke? What impact does it have on me?

DR. FARES: Hopefully, it will encourage you, if you are a smoker, to

stop smoking. Whether you are a smoker or not, hopefully, you will help to pass legislation that will restrict where we smoke. We have legislation restricting noise levels, legislation restricting speed and gun handling; I feel we should have the same type of legislation restricting smoking.

ASSEMBLYMAN HERMAN: Forgetting me as a legislator - perhaps I didn't make my question clear - just assuming me, Marty Herman, every-day citizen - I am either that member of the family that you described with the incidence of bronchitis or I am one of the people in a room with particles of second-hand smoke which you mentioned, what impact, negative or positive, would that have on me as an individual?

DR. FARES: Hopefully, it is a positive impact that you will exert your rights to be in a non-smoking area. Also, hopefully, it would encourage you not to smoke if you have children in an area which is not exceptionally well ventiliated.

ASSEMBLYMAN HERMAN: What would it do to me physically if the people around me wouldn't stop under those circumstances? I assume it would have an effect on my health.

DR. FARES: Yes. Again, I hope you would take the time like myself to come here and argue in behalf of legislation to control it.

ASSEMBLYMAN HERMAN: Let me allow you to conclude your remarks.

DR. FARES: You asked me very leading questions, excellent questions. I think in this country we are behind the British and the Europeans in general. I was in Europe this past spring. They smoke. I think they smoke more than we do. However, they don't advertise tobacco. Their scientific societies are not badgered by tobacco institutes. The Royal College of Physicians has its third report out on smoking.

ASSEMBLYMAN HERMAN: Could we have the title of that, sir, and what the publication is?

DR. FARES: "Smoking or Health," is the title. It is the report of the Royal College of Physicians. It was printed by Pitman, Medical. It is their report.

ASSEMBLYMAN HERMAN: What is the date of that, sir?

DR. FARES: They don't date their publications in England. I'm sorry. But this is the latest. This is probably about the same time as our last report from the Surgeon General. It is right up to date. For smoking in public places - their recommendations at the end - greater restrictions on smoking, especially in enclosed places, such as shops, theaters, restaurants and public transport. Then they have this: All tobacco sales, including advertising coupons and sponsorship, to be phased out over a period of a few years, starting with the higher tar-content cigarettes.

ASSEMBLYMAN HERMAN: I assume that publication was not paid for by the Tobacco Institute.

DR. FARES: They don't have it and this is why they don't have people fighting them. Technically, we have laws to take off the market, as I mentioned earlier, any substance that is carcinogenic. But the Tobacco Institute was smart enough to exempt itself in federal law from this rule. That is why it is still on the market. I think we all favor any law that helps the health of the country. I am a physician and nothing would make me happier than running the undertakers out of business first, then running myself out of business. The we would have a perfect country with all senior citizens for thousands of years.

All kidding aside, we don't complain where we have noise levels, normal noise levels like here. But if somebody turns a radio on and it starts making a

lot of noise, people have a legal right to call and have the police quiet it down. I mentioned earlier speeding and gun control. There are laws regulating these things. Yet the head of the Tobacco Institute took it upon himself to write 3,500 Police Chiefs, asking them to go to legislative committee meetings like this and fight against this rule or law-to-be, because to enforce it would interfere with their other duties. We have new duties constantly in our work as legislators or policemen or doctors. We have to go along with it. If it is a law, I think it should be enforced if it is going to help people. I don't think this law is going to interfere with the policeman performing his duties whether he smokes or not. The policeman may not believe in capital punishment, but he still arrests a person who has committed murder. I don't think a policeman is not going to perform his duties properly or be harassed by his conscience if he has to ask somebody not to smoke where he is not supposed to.

I would like to say in resume that I reviewed the article which was criticized in the copy of the public hearing report that I got by Dr. White in the New England Journal of Medicine. It is like anything else, it depends on what color you want to shade something. The people that criticize it are taking one angle or one test which they thought was better than the test they chose to use. I am not trained in pulmonary medicine, except in the way in which it pertains to my field of surgery. But from what I read here, this is a legitimate, scientific paper and I think it is going to be the basis of a lot of other papers along the same line. I am sure it will be duplicated. I cannot find any great flaws in the New England Journal of Medicine article.

ASSEMBLYMAN HERMAN: Doctor, it would be your recommendation to us as non-scientists, if we had to lean on one side or the other, the greater probability would be to accept the findings of that report rather than reject them?

DR. FARES: Yes, it would be, very definitely.

I don't want to tie up the time of others, but I would like to say that I am strongly in favor of this proposed law. I would like to offer myself to be at your call at any time if a problem comes up again or any question. I sincerely mean that. I live right here in town.

ASSEMBLYMAN HERMAN: I appreciate that and, hopefully, you will make sure that those representatives that are in this area will be on the side of right, justice and the American way, or whatever. Doctor, thank you very kindly for taking your time to be here.

I would like at this time to ask Dr. McGarrity to come forward. Doctor, thank you too for coming.

D R. G A R Y M c G A R R I T Y: It is my pleasure, Mr. Chairman.

I would like to thank the Committee for the invitation. By way of personal introduction, my name is Dr. Gary McGarrity. I am the head of the Department of Microbiology at the Institute for Medical Research in Camden, New Jersey. The Institute is a private, non-profit institution devoted to cancer, genetics and cell biology research.

ASSEMBLYMAN HERMAN: And well worth continued legislative support, I might add.

DR. MC GARRITY: I am glad to hear you say that.

I live in Wenonah, New Jersey in Gloucester County; and I have been a resident of New Jersey for the past 16 years.

I am a graduate with a degree of Medical Microbiology from Jefferson

Medical College in Philadelphia. By way of professional credentials, I am presently the Vice President of the Tissue Culture Association. That is a professional organization devoted to the study of cells and tissues in flasks and bottles outside the body. We have approximately 3,000 national and international members from 43 countries.

I am also a member of the Recombinant DNA Advisory Committee of the National Institutes of Health. This committee counsels and advises the Director of the National Institute on procedures and policies regarding recombinant DNA.

My specific research interests of interest to this committee is that I am the recipient of a grant from the National Institute on Drug Abuse to study the carcinogens and mutagens in body fluids of cigarette smokers. It has been shown by Dr. Aimes in California that cigarette smokers' urine contain mutagens, chemicals that damage DNA. These are not present in the urine of nonsmokers.

ASSEMBLYMAN HERMAN: Could you perhaps expand on that a little bit for the purpose of our record, what they are and what the difference is?

DR. MC GARRITY: A mutagen is a chemical that will damage or mutate DNA. So, to do its job, it must get into the cell, damage the genetic apparatus, DNA chromosome's genes, and be passed on to succeeding generations.

ASSEMBLYMAN HERMAN: It is a clearly definitive known fact that nonsmokers don't have those mutagens?

DR. MC GARRITY: Nonsmokers that are considered normal, that are not on particular therapy or having particular diseases, yes.

ASSEMBLYMAN HERMAN: There is conclusive evidence that in smokers those mutagens do exist?

DR. MC GARRITY: Yes, and our objective is to extend the studies and to see if we can also pick up genetic changes in the blood cells of the body, to see if we can pick up populations of smokers that may be more susceptible than other smokers to the damage.

ASSEMBLYMAN HERMAN: Thank you. Please continue.

DR. MC GARRITY: I also have a contract from the New Jersey Department of Environmental Protection to detect and isolate mutagens in the New Jersey environment in air and water samples.

By way of definition for this presentation, I use the word carcinogen to refer to a chemical that induces cancer; a mutagen, as I have described; and I will also be using the terms main-stream smoke and side-stream smoke, which I think this Committee is familiar with.

Regarding the components of cigarette smoke, itself, the smoke as it leaves the cigarette contains up to 5 billion particles per ML. An ML or a milliliter is a measure of volume. It is approximately the size of a drop from a small eyedropper. In addition to these 5 billion particles, many gasses are contained. Within the lighted cigarette, the temperature may reach more than 1,000 degrees and the normal temperature during puffing is approximately 900 degrees.

For the purpose of this presentation, it should be pointed out that between 55 and 70 percent of the tobacco is actually burned between puffs - this is the secondary or side-stream smoke - and more than 2,000 chemical compounds are present in cigarette smoke. I don't think it is necessary or advisable to go through the list of identified components. However, a number of toxic chemicals have been identified. These include carbon monoxide; hydrogen cyanide; nitropropane, which causes liver cancer; a variety of nitrosamines; hydrazene; urethane; vinyl chloride; formaldehyde; aromatic amines; at least two dozen benzine hydrocarbons; a variety of polynuclear aromatic hydrocarbons and phenols. This litany

of toxic chemicals actually comprises a number of chemicals that the government has set standards on industrial exposures and through the Environmental Protection Agency.

As past speakers have indicated, I don't think there is any question whatsoever that cigarette smoking is harmful and dangerous to smokers themselves. The Technical Information Center of the Office on Smoking and Health in the Department of Health and Human Services, lists more than 30,000 scientific articles on the effects of smoking on health. The major health effects are cancer, cardiovascular disease, respiratory disease, and miscellaneous diseases such as stomach and duodenal ulcers.

I don't think it is necessary to go through the morality ratios for all of the specific diseases within these general classifications. I would assume that you have seen this. But these toxic chemicals producing these diseases account for more than 300,000 American deaths each year from the effects of smoking. In fact, it is estimated that 30 to 50 percent of American smokers will die from their habit.

My field is chemical carcinogenesis and mutagenesis and I would like to take just a few minutes to explain how some of these carcinogens act on living cells. A carcinogen can act in several different ways. First of all, a carcinogen can come into the cell and simply convert it to a tumor cell and cancer is produced. That is a very simple process. However, it can act in more complicated fashion. Some chemicals are not carcinogenic in themselves. They come into the body and the body actually changes them into carcinogens and cancer is produced that way.

When two or more carcinogens come into the body at one time, a variety of things can happen. You can have an added effect. Chemical A and chemical B, both carcinogens, can produce double the amount of cancer incidence. That is the additive effect.

ASSEMBLYMAN HERMAN: Is that strictly arithmetic or can that be geometric?

DR. MC GARRITY: Well, this is arithmetic when I am talking additive effects. There can also be a synergistic effect when chemicals C and D, both carcinogens, come into the body, interact, and instead of being a doubling of incidents, you can have five-fold increase, ten-fold or forty-fold.

Another area that is receiving considerable attention in cancer research is the concept of tumor initiation and promotion. In this concept, a chemical will come into the body and irreversibly change a cell, making it more sensitive to the action of a second carcinogen. This is irreversible change and the second carcinogen may not come into the body for months or even years. It is somewhat analagous to the first chemical coming in and cocking the cancer gun and then the second chemical coming in and pulling the trigger perhaps months or years later. All of these are operative in environmental and smoking carcinogenesis. There is more data available on the synergistic effects with asbesto or uranium miners. For example, white male cigarette smokers have an increased risk of respiratory cancer of 4.4-fold over the normal population. Uranium miners who do not smoke have an increase of 7.1. However, uranium miners who smoke have an increased incidence of respiratory cancer of 42.2-fold over background.

The same synergistic effect is seen in the rubber industry in rubber workers and in the asbestos industry. In fact, Johns-Manville, one of the major suppliers of asbestos in this country now prohibits smoking in their asbestos plants.

So, smoking may contribute an effect ---

ASSEMBLYMAN HERMAN: Johns-Manville will fire you if they do catch you

smoking, right?

DR. MC GARRITY: I am not aware of that.

ASSEMBLYMAN HERMAN: I believe the workers have to sign a contract with Johns-Manville acknowledging the fact that you are not going to smoke and, if you do, it is an automatic reason for expulsion.

Please continue.

DR. MC GARRITY: Well, smoking then may contribute to an effect comparable to that which may result from exposure to toxic agents found in the workplace or in the general environment.

We also spoke of initiation and promotion and there are at least 17 tumor-initiators identified in cigarette smoke. Some, for example, benzopyrene, are highly active. So this is highly appropriate in industrial workers and I would hope that this measure would also receive union support because they have lost a substantial number of workers because of this problem.

It is also appropriate to New Jersey because, like it or not, we are still referred to as the cancer capital or cancer alley. In 1979, the American Cancer Society estimated that approximately 29,000 new cancer cases were reported in the State and that approximately 15,000 New Jerseyans died of cancer in 1979.

Now, applying these data to secondary smoke, I would have to say that not quite as much information is available on the effects of passive smoking. I think there are two reasons for this. For a long time, equipment and adequate assays have not been available to perform studies. Then, secondly, there are some difficulties with epidemiological studies. It is hard to place persons in secondary smoking situations and then put them on a bus or the New York subway, or put them out into the general environment. Nevertheless, I think this is changing and sufficient data are available to make a proper assessment of the potential hazards of secondary cigarette smoke.

We said the toxic substances are present in smoke and, as the past speaker mentioned, many substances are actually present in greater concentrations in side-stream smoke than in the main-stream smoke that is inhaled by the smoker. These include carbon monoxide, methyl chloride, nitrosamines, benzopyrene, and other hydrocarbons.

ASSEMBLYMAN HERMAN: What does it mean to me as the person standing next to the smoker?

DR. MC GARRITY: That means that the smoke may be diluted, but the smoke that you are breathing may actually be richer or more concentrated as far as certain toxic compounds are concerned.

ASSEMBLYMAN HERMAN: It means that the person standing next to the smoker may get - may have - a greater negative impact than the person who is actually smoking?

DR. MC GARRITY: Yes, and that is going to depend on the size of the room, the ventilation and all those variables that would enter into a conclusion. Even nicotine is present in greater concentrations in side-stream smoke.

The arguments I have seen and read against adverse effects of second-hand smoke usually cite the fact that the concentration of toxic chemicals in second-hand smoke is too low to be biologically active. So the basic question is whether there are enough toxic chemicals to cause adverse health effects to non-smokers. And I think you would have to consider the potential for additive and synergistic effects, plus the effects of chronic low-dose exposures, in this consideration.

You can look at several different effects of secondary smoke. First is what is called the annoyance factor. This may be simply due to the physical irritation or psychological factors of the nonsmokers in the presence of cigarette smoke. And regardless of whether it is physical or psychological, the effect is very real. The cigarette smoke can be readily smelled, which is an indication that there are air-borne chemicals in the environment. In fact, surveys reported in the Surgeon General's Report stated that between 77 and 80 percent of nonsmokers said it was annoying to be near smokers. A significant but less percentage of smokers also agreed with that statement. So, as far as the general public is concerned, an actual majority of people think it is annoying to be around cigarette smoke.

The reported effects are mainly eye and throat irritations and displeasing odors. I think this annoyance factor will be increasing as nonsmokers become more assertive of their rights in regard to exposure to cigarette smoking.

The past speaker also mentioned cigarette smoking can produce CO , carbon monoxide, levels that exceed ambient air quality levels. And this can have an effect on the respiratory and circulatory systems.

You also heard that several studies have shown that young children, less than one year of age, are sensitive to second-hand smoke. The children of cigarette smokers have a higher incidence of pneumonia and bronchitis. This has been shown in a number of studies both in Britain and in Israel. The exact mechanism is unclear, but I can think of at least two possibilities. One is that cigarette smokers themselves have a higher incidence of respiratory illness. They have higher disease in the respiratory tract. They cough more. They produce more phlegm. Then they spread infection more readily. This would also apply to adult second-hand smokers.

Another possibility is that the toxic chemicals in the cigarette smoke may destroy the cilia in the respiratory tract and the cilia are protective mechanisms. If they are destroyed, you may not only be more susceptible to infections but you may be more susceptible to other disease processes.

You have heard extensively about the paper by White and Froeb and I don't think I have to spend any more time on that. But also in that study, it was reported that the carbon monoxide levels in office buildings, well ventilated office buildings, often exceeded the air quality standard for carbon monoxide. The paper of White and Froeb is not just an individual report. It actually confirmed an earlier paper by Tager and his associates who showed similar results in nonsmoking children exposed to parental cigarette smoke.

ASSEMBLYMAN HERMAN: Does that carbon monoxide factor also affect reaction time in an automobile? If a group of people have been driving along for an hour on a turnpike and they have all been smoking, does that have an effect on reaction time; and, if so, what is it?

DR. MC GARRITY: Yes, it also has an effect. It slows you down. I think that was covered actually in the Surgeon General's Report on the effects of excessive amounts of carbon monoxide.

So, there are annoyance factors, respiratory and airway resistance. As to carcinogenic effects, there is actually no solid data available as yet. There are some interesting papers and I would like to just mention one to you. That is the paper by Harken and Evans from Edinburgh University in Scotland. It was published last year in "Nature," a British journal. They were performing studies to determine if cigarette smoke condensates - this is the collection of tars - could damage DNA, again, the genetic apparatus in human cells. Surprisingly, they found as little as

0.5 milligrams of smoke condensate could cause significant damage to DNA in human cells. They stated that this 0.5 milligrams represents only 1/80th of a high-tar cigarette. So, in looking at the concentrations of these carcinogens and mutagens in cigarette smoke, these are very, very low and reports have said that you would have to get 40, 80 or 100 cigarettes to produce this kind of damage. But when you take the whole tar concentrate by itself, there is indication that this additive or synergistic effect is present and as little as 1/80th of a cigarette could produce the damage. These studies are being expanded by these and other workers.

I would like to end with just some basic general procedures that we perform in our laboratory and that other workers are performing in laboratories around the world who handle chemical carcinogens and mutagens. If you look at the concentration of these toxic chemicals in cigarette smoke, they are on the level of what we call microgram and nanogram as quantities. That means one million or one billion of a gram, very, very small concentrations. They are saying that these concentrations simply aren't high enough to cause damage. We handle the same chemicals and others in our laboratory in research settings. We handle them in the same weight, in the same concentrations, on microgram and nanogram levels. But, interestingly, when we handle them, we make sure that our technicians undergo a complete clothing change when they come in the laboratory. They handle all of these chemicals with two pairs of rubber gloves in specially ventilated and filtered cabinets and specially wiped-down areas. We are doing that not because we want to reduce our productivity or our efficiency, or, God knows, because we have so much research money available to us. We are doing it because we recognize what the potential effects of these chemicals may be and we are aware of the potential for long-term chronic exposures. There are adequate references on this. And this type of procedure is being performed in literally hundreds, perhaps thousands, of laboratories throughout the world.

My basic recommendation to this Committee is I would firmly and fully support the measures being considered here today. I think it is the consensus of the overwhelming majority of my scientific colleagues that there are adverse effects of second-hand smoking. I think the only thing that would be in opposition to that would be the policy of the Tobacco Institute, a policy which I think is scientifically medieval and completely out of touch with reality.

ASSEMBLYMAN HERMAN: But profitable.

DR. MC GARRITY: Yes, but profitable.

I would also think that a side by-product of this legislation is that it may help to reduce the overall incidence of smoking cancer. If you look at the dates of legislation and the dates of the Surgeon General's reports, the Surgeon General's reports show that after publication of these kinds of data, the actual smoking incidence has gone down. Perhaps that would be a very nice side benefit to this.

The advent of so-called low-tar cigarettes has been proposed as a way out of all of this mess. But the latest issue of the Harvard Medical School News Letter casts serious doubt as to whether the low-tar cigarettes are as safe as they were once thought to be.

I would like to close, Mr. Chairman, with another study that was reported two years ago in a journal called "Animal Behavior," by a Dr. Silverman. He was trying to study the effects of side-stream smoke on rodents. He would deliver smoke through a glass tube into a mouse cage to study what the effects would be. He found to his surprise that the rodents would actually stuff feces into the air delivery tube so that they would prevent themselves from being exposed to the noxious fumes

of the cigarette smoke. I think we humans can do perhaps a better job, a more effective job, and I am sure a more aesthetic job of trying to prevent exposure to this.

ASSEMBLYMAN HERMAN: You had me worried there for a moment, Doctor. I would like to direct a question to you, if I may. Sometimes I will come home from a social event, a political event, or what have you, where there has been a great amount of smoking. My wife will say to me, "Boy, you really stink. Your clothes really smell." With my bad sinus condition, I smell nothing. What causes that?

DR. MC GARRITY: I think it is the collection of just gasses and particulates that are in the cigarette smoke. If you ever go to a fire sale to buy a piece of clothing, you smell the same thing. This is the same kind of combustion produced on a much smaller scale.

ASSEMBLYMAN HERMAN: It is nothing that I have done personally, right?

DR. MC GARRITY: No, no.

ASSEMBLYMAN HERMAN: A couple of other questions if I may: Based on your knowledge, investigation and expertise, do you know of anyone outside of those who have been employed by the Tobacco Institute in the field of cancer research or related research that endorsed the position of the Tobacco Institute that smoking is not harmful to an individual?

DR. MC GARRITY: No, I have never heard that at all.

ASSEMBLYMAN HERMAN: One of the things that you said in particular which was of great interest to me was this matter of synergistic effect. In New Jersey, obviously we have a great many industries that have a high potential for harm, who nevertheless are employers of a great many people and produce a great many positive social benefits. Vis-a-vis the Johns-Manville example, could one potentially in a reasonably scientific way expect if we were to limit smoking in these types of workplaces, whether it is the chemical industry or asbestos, that we would have a reverse synergistic effect; in other words, that the probabilities would be the less one would be exposed to an additive in the system, that we could expect a higher return on safety and health?

DR. MC GARRITY: I think we would get some cost effective benefit. I don't think there is any question about that. The overall incidence, I think, would depend on what happened to those workers when they want home. If they were to light up a cigarette as soon as they leave the plant, there may not be as great a benefit. But I am sure there would be a cost effective measure obtained.

ASSEMBLYMAN HERMAN: So, as you were saying, it would have a positive effect in protecting union members; and, likewise, it would have a potential positive effect for industry in the State.

DR. MC GARRITY: Yes. I think one of the sad commentaries on the field of medicine today is that, first, we cannot pick out these asbestos workers or rubber workers who are more susceptible to the cancer. Secondly, even if we did, there is nothing you can do for them at the present time. So the greatest thing they can do to help themselves is to stop smoking completely.

ASSEMBLYMAN HERMAN: Doctor, thank you very much.

I would like to call Dr. Daniel Horn. Doctor, thank you very much for coming here today.

D O C T O R D A N I E L H O R N: Good morning. I am Dr. Daniel Horn. I have been intimately involved in the research and the control of the problems resulting from cigarette smoking almost since the beginning of scientific evidence on the subject.

For background, I graduated with my Bachelor of Science Degree in mathematics from Northeastern University; took my Master's Degree and my Ph.D. at Harvard. I've had faculty appointments at Harvard, Princeton and Yale. I entered the United States Navy as an aviation psychologist during the war and served there and was then engaged as the Director of Psychological Research on aircraft accidents for the United States Air Force.

In 1947, I joined the staff of the American Cancer Society with the obligation of studying behavioral components that affected the development of cancer. It became very obvious, from the time I joined the Cancer Society, that one of the big problems with cancer at that point in time was the burgeoning rate of lung cancer. A small amount research was going on in this area and this became one of the most important areas of research.

In 1951, Tyler Hammond and I started a massive study of 200,000 men--28,000 of them actually came from New Jersey--and we followed them for a period of time, exploring, first, their smoking habits and then setting up a system whereby we would receive notification of death on the part of these people. We anticipated, and I might say that Dr. Hammond and I were both cigarette smokers and I think that somehow we hoped that we would exonerate our behavior and be able to continue smoking cigarettes. Unfortunately, the evidence did not come out that way. In 1954, we presented a paper to the American Medical Association reporting on the results of the first 5,000 deaths that occurred in this study. At that point, one fact became very clear and that was that cigarette smokers died at earlier ages than comparable non-cigarette smokers. Lung cancer was a substantial part of this, but not, by any means, the entire part. It was the first paper that showed that the risk of dying of coronary heart disease was significantly greater in people that smoked cigarettes than in people who didn't. It was the first major study that showed a similar effect for a wide variety of respiratory diseases, implicated early deaths from a number of other diseases such as stomach ulcers and, in fact, what was astonishing was the wide variety of diseases that were implicated. This study had a major effect on both the continued use of cigarettes and the action, even the financial action with regard to the stock market. I remember that the total value of tobacco stocks dropped by nearly $1 billion within 48 hours after the report was released. So, even though changes in smoking habits were more slowly affected, nevertheless, changes in stock purchasing habits were immediately affected by scientific evidence.

This was in 1954 and one of the earlier individuals that testified spoke of the delay in the acceptance of knowledge. Nevertheless, that knowledge was accepted by a very large number of people. The total number of smokers in the United States dropped by several million persons, but it was a very selective kind of drop. It consisted of a very high proportion of physicians. It consisted, next, of people, well, almost entirely of men and men who were college graduates, men who were members of various professions. It was an extremely elite kind of change and it was seven or eight years before the rate of increase of tobacco from cigarette use regained the level that it had been prior to the report in 1954.

During the years that intervened, a great deal of more research went on. Similar studies were reported in England, Canada and a large scale study of

United States Army veterans, done through the Public Health Service, also was reported and all of these confirmed each other. At the same time, a number of other studies were begun to try to identify some of the biomechanisms that were responsible for the changes that were very clear in terms of early death from cigarette smoking.

In 1962, I left the American Cancer Society and joined the Public Health Service as Assistant Director for Research in the Cancer Control Program. It was just about this time that the Surgeon General's committee had been appointed as a political action to identify the position that the government would take with regard to the evidence that had accumulated over the preceding ten years. I had no responsibility to that committee since the committee had been selected to be unbiased and the only way you could be unbiased in this subject was to be unknowledgable. That is, you had to be somebody who had not done any work in the field.

In 1964, the famous Surgeon General's Report was prepared and issued for the public and I was asked by the Surgeon General of the United States to develop the plans for a government program to control the effects of cigarette smoking and to continue research on cigarette smoking and its effects. When Congress approved the appropriation for this, I became the Director for the National Clearinghouse for Smoking and Health, as part of HEW and held that position for the 13 years that the Clearinghouse existed. During that time, I was responsible for the preparation of the annual reports to Congress on the continuing analysis of worldwide research on the effects of smoking on health. I was also responsible for contracting numerous studies on ways of dealing with the health problems engendered by cigarette smoking and the development of educational programs for children, the exploration of better ways of helping people to stop smoking, if that is what they wanted to do and during the period of time when the Federal Communications Commission decided that television and radio would be required to give a reasonable amount of time to giving the other side of the story from the one presented by the tobacco industry, we were responsible for a large portion of the television commercials and the television and radio programming that went on in educating people about the effects of smoking on health. I spent a year and a half in 1975 through the middle of 1976 as a special consultant to the World Health Organization living in Geneva analyzing the problems around the world that resulted from cigarette smoking and developing a blueprint for the kinds of actions that the World Health Organization might take. A kind of action that has been taken since, for example, last April, the World Health Organization declared World Health Day, which happens every year, to be devoted to the subject of smoking or health--the choice is yours. That was the subject and I held a press conference for the United Nations body in New York to answer questions from the press about that. I have been a member of the Expert Committee on Smoking of the World Health Organization since it was established in 1975 and did a special report for the World Health Assembly in 1970 which began the worldwide concern about the subject of smoking in the World Health Organization.

I must admit that I am probably more responsible than any other one individual for the question of the effect of second-hand, passive smoking or the term that I prefer, involuntary smoking, because I prepared the report in 1970 that was part of the health consequences of smoking that was submitted to Congress who reviewed the scientific evidence on the subject.

The epidemiology of chronic disease, if I may indulge myself in lecture for a moment, is very different from the problems of the epidemiology or the study of causation of the infectious diseases or the communicable diseases. In fact,

if the smoking problem taught us anything, it taught us how to study chronic disease, how to study the development of chronic disease. We are dealing here with a situation in which long time exposure to very small insults of the human organism results in effects many years after these insults began. Sometimes, these insults take place over a short period of time and then are not repeated, but years later their effects are manifested. Sometimes, the insults take place over a long period of time, but in very minute amounts. Nevertheless, it may take thirty or forty years before the effects are evident. As a result, the identification of cause and effect becomes not only a problem of identifying the fact that certain kinds of exposures do result in injury, but it also requires the development of theories about the biomechanisms that are involved in producing this effect.

In 1964, the time the first Surgeon General's Report was issued, the statement of the Surgeon General's committee on cardio-vascular disease, coronary heart attack, was that there was an association, very clearly, but that they could not say anything about the potential for causal relationship because there were no good theories about biomechanisms that might account for this. During the years between 1964 and 1969, this was remedied. A number of research studies in the laboratory began to show some of the biology that produced heart attacks as a result of the kinds of changes in the organism that take place from smoking. One of these involved the role of carbon monoxide, which had not even been suspected in 1964. Studies showing that carbon monoxide could lead to an increase in the rate in which atherosclerotic plaques were laid down and some very nice studies done in Europe showed that rabbits on a high cholesterol diet who lived in an atmosphere of carbon monoxide developed more atherosclerosis than those who lived in an atmosphere that had only a normal carbon monoxide level, the kind that would produce about 1% diminution of oxygen supply. Secondly, the studies showed the nicotine in cigarettes also increased the secretion of enzymes which changed the oxygen demand of the myocardia--that is the heart muscle, the coronary artery--and the need of oxygen to be supplied to the heart. This set up a situation in which you have a kind of one-two punch. That is, you have one chemical in cigarette smoke which reduces the availability of oxygen and you have another chemical in cigarette smoke which increases the need of the heart muscle for oxygen and in the individual with impaired circulation as a result of developed arteriosclerosis this could lead to a critical event, that is, a heart attack and the triggering of a heart attack. This is the kind of biomechanism that we needed in this area.

Secondly, there were a series of studies which culminated in a conference held by the New York Academy of Medicine on the effects of low levels of carbon monoxide. Prior to that time, it had been thought that you needed rather high levels of carbon monoxide in order to have biological effects. These studies showed that you could get effects at relatively low levels of carbon monoxide, the kind of level that you can achieve with a single cigarette that is smoked down to the end and well inhaled and you can certainly can achieve it if you smoke several cigarettes over the course of several hours because the half life of carbon monoxide in the blood system is approximately four hours. In other words, if a single cigarette takes you up to the level of 5% carboxyhaemoglobin, it will take four hours for that to drop to 2½% and another four hours for that to drop to 1¼%. The background level of carbon monoxide in our somewhat polluted society is somewhere close to 1% and the average nonsmoker will carry a 1% carboxyhaemoglobin around with him most of the time. At that point in time, there was evidence then that the carbon

monoxide could be, that is, effective dosages of carbon monoxide could be attained with cigarette smoking, the kind that would impair the functioning of the heart. Another series of studies then showed that people with impaired circulation, an extra burden of carbon monoxide produced angina and produced deterioration in the functioning of the heart and muscle. Now, we began to have the biological mechanisms that could account for the kinds of results we were seeing in these early deaths of cigarette smokers. But, the interesting thing that developed was that in 1969, also, there were studies done in Germany that showed that the buildup of carbon monoxide under not infrequent conditions of inadequate ventilation, combined with a modest or greater level of cigarette smoking would produce levels of carbon monoxide in the atmosphere that would give you levels of carboxyhaemoglobin in an individual exposed to this area that were comparable to the kinds of levels of carbon monoxide that you got in the smoker. Now, you must remember that it is not a matter of a smoker being exposed only to the smoke that he sucks into his lungs and the nonsmoker being subject to side-stream smoke. The smoker also inhales side-stream smoke because he has to breathe in between his puffs on his cigarette and he is surrounded by a cloud of smoke that contains the same elements in the side-stream smoke.

ASSEMBLYMAN HERMAN: Is that one of the reasons that a company like Bell Telephone doesn't allow smoking near extra sensitive equipment?

DR. HORN: There's no question about that. I noticed that in the record of the July hearing, you refered to the report of the action in the Shimp case here in New Jersey in which the judge refered to the fact of the delicacy of the human organism and the fact that it was at least as precious as and more unreplaceable than the electronic gear of the New Jersey Bell Company.

ASSEMBLYMAN HERMAN: But, the theory is the same as to the damage, right?

DR. HORN: Yes. At that point in time, I decided that it was important to review all of the literature and we had set up a system for monitoring all worldwide literature on smoking research and I must admit that I was surprised that there was enough research available to show that it was possible to place an individual in a condition where he was exposed to a level of carbon monoxide that had already been shown to be harmful for people who already had either cardio-vascular or respiratory impairment. Now, I am not talking about a small population. In the United States, there are tens of millions of people who function perfectly well, hold down jobs, carry to work every day and carry out perfectly normal lives who have cardio-vascular impairment and who have respiratory impairment. These individuals are, in a sense, in an emergency situation with regard to exposure smoke or I should say exposure to carbon monoxide and under conditions where they are exposed to carbon monoxide that exceeds the levels of 1% and under which seem to be reasonably safe. They can have a seriously effect. So, the question of whether or not the healthy, husky individual who doesn't have anything wrong with him is hurt physically and damaged physically by cigarettes becomes of secondary importance. We have a very large population and there is no question that they are hurt.

The addition of the recent study by White and his colleague showing the effect of the second-hand smoke on the nonsmoker in terms of small airway resistance is an important study and a useful one, but it is not a necessary one to condemn the exposure to somebody else's cigarette smoke that we already knew prior to that time. Sir George Godbury, who is the Chief Medical Officer of the British Health Services for many years until he retired four or five years, in 1970, when this issue first came

before the World Health Organization, summed it up when he said, "At some point, cigarette smoking will become an activity limited to consenting adults in private." Perhaps this is the area within which one has the freedom to express one's self, that consent adults, exposing each other to cigarette smoke, but not exposing non-consenting adults to their own cigarette smoke.

ASSEMBLYMAN HERMAN: Could you, perhaps, within the next few minutes, tell us what your role is what the role of the National Clearinghouse on Smoking and Health is?

DR. HORN: The National Clearinghouse on Smoking and Health has become part of the new Office on Smoking that was set up by Secretary Califano. Shortly after it became set up, I became eligible for retirement and I have retired to the glories of rural existence in New Jersey, where I have had my residence for the past 24 years and I tore myself away from the cold weather up in my woods in Hunterdon County to come down here to testify.

ASSEMBLYMAN HERMAN: We appreciate it. What does the National Clearinghouse on Smoking and Health do?

DR. HORN: Well, there is no National Clearinghouse on Smoking and Health, but there is an Office on Smoking, which has absorbed that in the Technical Information Center of the National Clearinghouse. It is the coordinating body for all smoking activity within the Department of Health and Human Resources. Over the years, it has been responsible for both the control program and the public education program which has been conducted as well as the review of scientific information and the publication of the surgeon general's reports.

ASSEMBLYMAN HERMAN: If you were in my position as a legislator looking to promote the adoption of this legislation, if you had to point out a few pages of vital information to your colleagues to encourage their support, what would you direct them to?

DR. HORN: Well, I think one thing I would direct them to would be the report that appears in the 1970 Health Controversies of Smoking. This has been reprinted in the book reviewing the Shimp case that Mrs. Shimp has published because it was part of the testimony that was provided to the court, when that case took place, reviewing the evidence on the effect of cigarette smoking, of involuntary smoking, on health and the subsequent chapters that have appeared. The most complete one since that time was the one in the Surgeon General's report that appeared in 1979.

ASSEMBLYMAN HERMAN: Doctor, how many years have you been working on the smoking issue, research-wise?

DR. HORN: Well, my first connection with the smoking problem came in terms of it potential effect on lung cancer when I assisted a physician in Memorial Hospital in New York in 1947 on his data on smoking by people who had cancer of the mouth. I have not been able to get rid of the problem ever since. I didn't give up smoking until 1953, but that is 33 years. To answer your question, let me say this. The effect of exposures in the production of disease depends on three things. It depends on the dosage of exposure to the toxic elements; it depends on the natural resistance that people have; and it depends on the contribution of other factors that may be additive or cinergistic with the exposures that we are talking about and it becomes very difficult to identify what an individual's potential for being damaged by the extraneous substance because one does not always know what these other factors are. If I worked in an asbestos factory and had been exposed in my lifetime to asbestos dust, under those conditions, I wouldn't want to be in the

same room with an individual who was smoking a cigarette, and I means just one, because the inter-active effects are so great that the potential for damage is very high. This is one of the reasons that I think, here in New Jersey, we have a special obligation to protect individuals from the many chemicals in cigarette smoke that can act together with other exposures to increase the likelihood of disease. If two substances interact to increase the likelihood of disease, you take action on the one you can take action on and I think that one can legitimately take action on cigarette smoking by protecting the individuals from exposure to other people's cigarette smoking, even if you say, if you want to take your chances, you have a right to do it, but you don't have the right to invade the privacy of other individuals.

ASSEMBLYMAN HERMAN: So, you espouse the view expressed by our prior witness, Dr. McGarrity, who seemed to suggest very strongly that in New Jersey, with all the other problems that we have, when you take the additive and cinergistic effects that by stopping smoking in the social setting, in the workplace, you greatly enhance the industrial and labor output of the State?

DR. HORN: I don't think there's any question about that. The fact that social action of one kind or another can have real effects is very clear. For example, one of the things that has happened with the changes in emission standards is that the level of air pollution of carbon monoxide in the air is down. The University of Wisconsin samples the donated blood in blood centers throughout the country and they have been keeping records on this for many years and beginning with the early 1970's, when emission standards, the carbon monoxide standards were dropped by law, the carboxyhaemoglobin levels in blood donor samples taken in the center of Chicago had consistently dropped for nonsmokers. They haven't dropped for smokers, but they dropped for nonsmokers because, for the nonsmoker, the carbon monoxide from automobiles served as the primary source of the carboxyhaemoglobin.

ASSEMBLYMAN HERMAN: One question that we haven't asked prior witnesses and it just was mentioned to me--I assume the answer, but I don't think non-scientists ought to assume anything in an area that we're not expert in--pipe smoking, cigars, is there the same problem, the same result?

DR. HORN: Yes. Well, let me put it this way. There is a big difference between the effects of smoking cigars or pipes on the individual who smokes them and the effect of smoking cigarettes. I remember in 1954 when I tried to draw comparisons. A two pack a day smoker who was 50 years old had the same death rate as the nonsmoker who was 57 years old. I remember somebody from the press asking me, did that mean that the person who smoked two packs a day had seven years chopped off of the end of his life. I said, no, it was more taken out of the middle of his life. Now, for the pipe smoker--and I was also a pipe smoker at that point in time--it was three months and I stopped smoking cigarettes on the basis of that, but I continued for quite a few years after that smoking a pipe because I was willing to tolerate the hazard of the loss of three months out of the middle of my life, but not seven years. So, as far as the person who does involuntary smoking from somebody else's smoke, the smoke from cigars and pipes is almost identical in composition to the smoke from a cigarette, except for the fact that it is apt to be somewhat more voluminous and in one other respect it is even worse. At least the cigarette smoker almost always inhales. That means that he draws some of the smoke into his lungs and his own lungs filter out 60% of the carbon monoxide, 95% of the particulant matter, 80% of the hydrogen cyanide. In other words, he is doing you the favor of purifying the smoke that he has taken into his body before he lets it go back

out into the air. But, the typical cigar and pipe smoker jsut puffs. So, he is not only giving you the side-stream smoke, but also the unpurified main-stream smoke.

ASSEMBLYMAN HERMAN: So, what you are really saying is that the pipe smoker and the cigar smoker may be lessening his or her own health risks, but, at the same time, increasing the involuntary smoking risks--

DR. HORN: A modest increase. I wouldn't say it was very much larger.

ASSEMBLYMAN HERMAN: If we can allow you to sum up for a minute or two, if you wish, if you have anything else to add for the record, we would appreciate it.

DR. HORN: No. I think I've made my main points and I would certainly urge the Committee to go ahead with this. Yes. There was one thing that I wanted to point out. I have been very much involved in supplying information and material to legislative bodies and municipalities around the country in the Clearinghouse and kept track of the burgeoning of laws of the kind that you are proposing here. I have been very impressed with the fact that these laws had turned out to be useful, effective and relatively easy to manage.

ASSEMBLYMAN HERMAN: Do you think you could give us some examples?

DR. HORN: Yes. I think, certainly, the experience in Arizona, the experience in Minnesota, which has one of the best laws on the books, is well implemented and has not created problems. You go into the airport in Minneapolis and there are large signs that tell you that smoking is permitted only in places that are clearly designated as smoking areas. Places are clearly designated and you don't see people smoking outside of them. As somebody testified earlier at the July hearing, this comment has already been made, but I think it needs reinforcement. I was responsible for developing the code of smoking practice, first in 1973, in the Department of HEW, and then the more recent one that was promulgated when Secretary Califano was in charge, and consistently, the people who had to manage the cafeterias would say, "Oh, you can't do this, people won't accept it." It was easy. All you had to do was set up some rope stanchions and say, these tables are for smoking and no smoking is permitted at these tables, and then find out how many people use the tables. The experience has consistently been that they have to keep moving the stanchions back and increasing the nonsmoking section because even the people who smoke have discovered that it is a lot more pleasant to eat in an area that was free from cigarette smoke.

ASSEMBLYMAN HERMAN: So, if I had some "doubting Thomases" that were assemblymen and senators, it would be fair to say that if I would point them in the direction of Arizona and Minnesota, the fact is that there has been a large degree of voluntary compliance?

DR. HORN: In the cafeteria of the National Cancer Institute in Bethesda, they will find that compliance is very good and the number of problems is minimal. I think we've had one complaint from the 50,000 workers for HEW that are in the Washington area.

ASSEMBLYMAN HERMAN: The point I want to make, for instance, in the Arizona and Minnesota experience, has there been a backlash from the public to legislators in those states saying, "Gee whiz, you shouldn't have done it; it was restrictive?"

DR. HORN: No, there has been support. But, you know, we started doing public opinion tests of how people felt about smoking. One of the questions we asked was, "Do you find it annoying to be next to somebody who smokes," and even back in the early 1960's--our first study was done in '66--we found that a majority

of the nonsmokers, but only a substantial minority of the smokers, said that this was so. But, this has increased rapidly over the years and now, nearly two thirds of the people who smoke express annoyance with other people's smoke. So, we have a large support, even among the smokers, not just the nonsmokers, who are reducing the availability of smoke. The one group of people that object and object violently to this are the people who work for the tobacco industry in positions where they have to deal with the public and lobby on this issue. But, even among people who work for the tobacco industry in terms of employees and cigarette factories, people who sell cigarettes, they are like everybody else and they prefer cleaner air.

ASSEMBLYMAN HERMAN: Doctor, thank you very much for coming. I would like to ask Dr. Elaine Panitz to come up.

D R . E L A I N E P A N I T Z: Mr. Chairman and members of the Committee, I am Dr. Elaine B. Panitz. I hold an M.D. degree from Harvard Medical School. I trained in internal medicine at Yale New Haven Hospital and Columbia Presbyterian Medical Center. I am certified by the American Board of Internal Medicine and I specialize in the practice of Occupational Medicine. I am an attending physician in medicine at the Medical Center of Princeton and I am on the clinical faculty at Rutgers Medical School and the New Jersey Medical School, College of Medicine and Dentistry of New Jersey. For the last five years, I have been Medical Director for a large employer in this area,concerned with the health maintenance of thousands of employees. I am here to speak to you from what I believe to be the mainstream of thought in American internal medicine and occupational medicine. I would like to make a few brief points that perhaps have not received emphasis in your prior meetings.

1) The so-called short-term and reversible health effects of passive smoking have been well-documented in the medical literature and have been discussed here. To summarize, passive smoking causes eye, nose and throat irritation, cough, headache, nausea, irritability, and decreased ability to concentrate. We in industry know these effects all too well and it is costing us much more than just money.

2) In 1979, Tager, Weiss, et al, in the American Journal of Epidemiology, reported data on passive smoking in children that should be closely scrutinized by all of us. Tager studied the pulmonary function of children of nonsmoking parents, of one smoking parent and children of two smoking parents. Pulmonary functions was evaluated using a time-honored and highly regarded method, that of comparing forced expiratory flow rates. Results point to what we in medicine have suspected and feared for years: that a child in the home of a smoking parent suffers a detrimental change in small airway function, compared to the small airway function of a child with no smoking parents and a child with two smoking parents suffers a greater change in small airway function than a child with only one smoking parent.

3) In March of this year, White and Froeb examined the effect of long-term passive smoking and long-term voluntary smoking on the small airway function of 2100 working subjects. The study was well-designed and well-controlled and is highly regarded among internists and pulmonary specialists. White and Froeb demonstrated a clear, deleterious change in small airways function in nonsmokers exposed to tobacco smoke at work. The decrease in small airways function was of the same magnitude as the decrease in light smokers and those who smoke, but do not inhale.

4) What is the meaning of such studies? Does a change in small airways function indicate disease of any significance? My colleagues and I know that a

change in small airways function is the first measurable change in those who smoke and that some of those who smoke subsequently develop life threatening bronchitis and emphysema.

5) Recent studies by the EPA are pointing to increasing problems of indoor pollution, problems that are eclipsing outdoor pollution, due, largely, to the effects of energy conservation. Reductions in ventilations have increased the concentrations of indoor pollutants such as carbon monoxide, nitrous oxide, benzoapyrene, smoke particles and radioactive radon gas. Since the average person spends 90% of his life indoors, we can expect that the average person will be exposed to higher levels of all indoor pollutants. If smoking continues to add to indoor pollutant levels, we may well see a significant increase in cardiopulmonary disease. I refer you to the most recent review of this subject in Environmental Science and Technology, Volume 14, page 1023, September, 1980.

Finally, as explained in the Surgeon General's Report on Smoking and Health in 1979, there is evidence addumulating that smoking may act cinergistically with physical and chemical agents in the workplace to produce or increase adverse health effects. Sorting out the morass of physical and chemical exposures in the workplace--and I might add that that includes offices--is a formidable task that might take decades. Eliminating smoking in the workplace is a rapid, effective means to reduce the health impact of physical and chemical exposures.

I wish to urge passage of Assembly bills # 1722-1729 as a vital step in preserving the health of all individuals, smokers and nonsmokers, who must breathe indoor air. I would like to recommend a change, however, in the wording of lines 10-12 in each act to read: "Tobacco smoke is a substantial health hazard to the nonsmoking public."

ASSEMBLYMAN HERMAN: That's in the preamble?

DR. PANITZ: Yes. Instead of reading--in the sentence in line 8, it begins, "In addition to the deleterious effects upon smoking, tobacco smoke is a substantial health hazard to the nonsmoking public." I also might add--

ASSEMBLYMAN HERMAN: That recommendation will be brought before the full Committee.

DR. PANITZ: I agree with prior testimony to the fact that limiting the impact of this legislation to employers of 50 employees or more is almost negating the impact of the legislation because 90% of employers--

ASSEMBLYMAN HERMAN: Assuming that we couldn't sell anything better than that to our colleagues, this is the art of compromise. You still say that something is better than nothing to get the public policy started? We will also bring that observation to the members of the Committee. Doctor, just a couple questions, if I may. There was some substantial criticism from witnesses appearing on behalf of the Tobacco Institute of the White Study. What are your observations of those criticisms, if at all? Do you think that they are valid criticisms?

DR. PANITZ: I think that the study was very well-designed, as I said, and very carefully controlled. They bent over backwards to rule out all other extraneous factors influencing pulmonary function of the employees. The only valid criticism of such a study, of any such study, is what do these results mean, not are these results valid. The results are valid. There is no question that they are valid. There is not a colleague of mine, outside of the Tobacco Institute, that doesn't agree with that.

ASSEMBLYMAN HERMAN: So, it is the interpretive aspect, not the clinical

aspect that one would give rise to a difference of opinion. If I could direct myself to the interpretive aspect for a moment, do you agree with the White Study, the interpretive aspect?

DR. PANITZ: Yes, I do.

ASSEMBLYMAN HERMAN: Do you know of any colleagues, outside of the Tobacco Institute who don't agree with the White Study?

DR. PANITZ: No, I do not.

ASSEMBLYMAN HERMAN: I would like to ask you, perhaps, the same question that I asked a few of the prior witnesses. Based on your work in the field and your associations in the field, which I assume are national as well as local, is there anyone that you know of by way of medical expertise or otherwise, outside of those employed by the Tobacco Institute, who support the Tobacco Institute's views, in any way, on primary or secondary smoke?

DR. PANITZ: No. The overwhelming information is against tobacco smoke and its impact on the nonsmoker and smoker.

ASSEMBLYMAN HERMAN: Okay. Is there anything else that you would like to add? I assume that you adopt a great deal of the testimony that was previously given and have just not repeated it.

DR. PANITZ: Right.

ASSEMBLYMAN HERMAN: It is always tough to be the cleanup hitter. I, again, want to thank you for appearing here. We have one more witness, but I would like to make an observation as a non-medical witness. As far as I am concerned, this is, perhaps, one of the most important mornings, in the seven years that I have been in the Legislature, that I have had the pleasure to chair a public hearing and I've had more than my fair share: generic drugs and a lot of other legislation that some of us thought had a great impact on the people of New Jersey. I don't think there can be any doubt that secondary smoke has a substantial impact on the smoking as well as the nonsmoking public; that there is substantial benefits to be gained by New Jersey workers and New Jersey industry by limiting smoking in the workplace. I think Bell Telephone and John Mansville and a number of other employers have already proven that point and, given the testimony of prior witnesses involving the cinergistic effect and the problems that we in New Jersey have in particular with the chemical industry and other such industries, that we, perhaps, could do ourselves a great favor by limiting smoking, which probably will increase productivity and, certainly, benefit those types of New Jersey industries which have other types of social benefits which we all need so much. Maybe I'm biased in this respect, being the sponsor of the bills, but I don't think there is any comparison on the quality of the testimony, both from the qualitative as well as the quantitative aspects, here today, vis-a-vis, those people that appeared from the Tobacco Institute and I do not say that to deprecate or demean. I think it is just abundantly clear to any neutral observer that the testimony today evidences the fact that we are engaged in one of the most important public hearings, as I said, that we've ever been involved in in my seven years in the legislative process and I think that the quality of the testimony underscores the need that this Legislature take some action.

Something else--I guess it is my obligation--I would hope those in the medical profession, as well as those in the media will help to point out that this type of legislation is not meant to dump on smokers, but just to provide a fair balance in given social settings as to the distribution of rights and it is not an unpopular topic. There is, perhaps, much broader public support for this

type of legislation, at least from my perception and from what I've heard and what I've seen, than one would otherwise expect. Just from the folks who have testified here at the two hearings that we've had, it is quite obvious to me that even those who appeared from the League of Municipalities appeared in an apologetic way, directing themselves to the potential enforcement problem. I think that the experiences in Arizona and Minnesota have, from we have been able to ascertain, in addition to the testimony that we've heard today, dictate and prove that there has been a large amount of voluntary compliance and that these laws are rather well-accepted. Although the Restuarant Association would not like to see one of these bills passed, there are quite a number of chai restaurants who are voluntarily doing what one of these bills would propose. I think that the Committee has some work to do. I think that, perhaps, we can downgrade the relative unimportance of fines and try to assure some of the people in the restaurant industry that there may be another approach--and we'll try to work on that--to let the marketplace know that what we'll be looking for is a state policy, not to arrest people. We're not looking to do that. We're not looking to punish restaurant people or people who smoke in restaurants when they shouldn't. What we're looking to do is provide a broad spectrum of public support and develop a public health policy which will benefit the excess of 7 million people who live here and benefit industry and benefit the public. I just wanted to say that in extending my thanks, not to take away from the position of the witness who will be next, who we should have had at the prior hearing, but didn't notify and didn't give some time. But, I wanted to make those observations to the folks who have come here today and given of their very valuable time to, hopefully, help put across a point of view that needs to be said.

Mr. Slavin, I would like to provide you with the 15 minutes or so that we promised you. Again, my thanks to you for being patient and waiting. It is not easy to be down in the batting order, whether it is the World Series or just a public hearing.

R O B E R T S L A V I N: The pitcher always gets up last. My name is Bob Slavin and I am the President of the Clean Air Company and a distributor for Honeywell, for their electronic air cleaners. I have been in the clean air industry for 19 years and have been selected to present a viable alternative to the Committee. It is hoped, after careful consideration, that you might consider and adopt this proposal as an alternative to the regulations.

The companies with offices and manufacturing facilities located in New Jersey have been solving dirty air problems for over 30 years. Firms such as Honeywell, Carrier, General Electric, Bryant and Edison have been dealing with industrial and residential contamination with great success. Pollutants such as asbestos, fiberglass, welding smoke, paintover spray, sawdust, sanding and the like were serious problems to health and welfare and they were solved with air cleaning. People with allergies, cardio-vascular diseases and respiratory ailments were allowed to breathe clean air and lead healthier lives again because of air cleaners. As a matter of fact, medical specialists prescribe electronic air cleaners to patients who suffer with these diseases.

What I am trying to point out, Mr. Chairman, is that, if you have a problem and you can apply the solution to the problem, you can get rid of it. The testimony this morning had to do with contamination, with smoke and if you can understand what smoke is, and it has been explained by a few of the doctors--

ASSEMBLYMAN HERMAN: Let me ask you this. Your proposed solution is that we don't need a law to do it, that private industry can clean up the contaminants, right?

MR. SLAVIN: No, sir. I haven't said that.

ASSEMBLYMAN HERMAN: What is you position, then, with reference to these bills?

MR. SLAVIN: The alternative, give industry and the private businessman an option, an alternative if you will. If he can do something about improving the quality of the air, then he is doing something for the public.

ASSEMBLYMAN HERMAN: You are saying, in essence, make the bills saying, no smoking unless you have an accepted system, is that what you're saying?

MR. SLAVIN: Absolutely not, sir.

ASSEMBLYMAN HERMAN: I'm trying to understand what your position is. What is your position in reference to these bills? How would you amend them? What would you suggest to the Committee?

MR. SLAVIN: I would offer that the independent businessman, industry would be able to select, as an alternative, give them an alternative, give them the right of choice.

ASSEMBLYMAN HERMAN: That's what I'm saying. Is it your position that the bills ought to be worded in the alternative, if they have an acceptable air filtering or air monitoring system, then they don't have to comply with the bill.

MR. SLAVIN: Exactly, sir. We do not have a school yet that has educated smoke, that it will stay in a segregated area. Smoke will travel where it wants to.

ASSEMBLYMAN HERMAN: Let me ask you this. I'm just trying to follow your line of thinking. It is your position that the status of the technology is such that it can reduce or eliminate the potential hazards, is that correct?

MR. SLAVIN: That is correct, sir.

ASSEMBLYMAN HERMAN: Just as a matter of common sense, if we eliminated the smoking in the first instance, would I then have to worry about the state of the technology in eliminating the contaminant?

MR. SLAVIN: No, sir, but--

ASSEMBLYMAN HERMAN: In other words, if I said to you, there is no smoking permitted in this particular room, wouldn't that, in effect, eliminate the need for the device?

MR. SLAVIN: Not exactly, sir, because these devices are also used in computer rooms where they try to keep the electronic equipment as clean as possible. They are used in electronic workshops.

ASSEMBLYMAN HERMAN: I'm trying to limit this discussion to the smoking issue. Your position is that we should recommend to the Committee that the Committee should word the bills in the alternative, that the contents of these bills involving no smoking should not be applicable or could be an employer option where he had air monitoring or air filtering devices that would, in effect, do the same thing?

MR. SLAVIN: That is correct, sir.

ASSEMBLYMAN HERMAN: Well, let me go back to my original question. Wouldn't I solve that problem in the first instance by eliminating the ability to smoke?

MR. SLAVIN: Yes, sir, if you stopped smoking altogether, there wouldn't

be any need for an electronic air cleaner to get rid of the smoke. If there isn't any smoke, there is no need for an air cleaner. Air cleaners were used many, many years ago before the Surgeon General's report. They were used to eliminate welding smoke, they were used to eliminate fiberglass, overspray, asbestos. They were used to clean the air. They were actually designed in 1936 to clean the air, not to get rid of cigarette smoke, but to clean the air. It is the same type of device that is used in an atomic submarine.

ASSEMBLYMAN HERMAN: To be fair to your point of view, what you are saying is that in order to be fair to smokers, the employer, at least, ought to have that option.

MR. SLAVIN: No, sir. Not fair to smokers, but let him have a choice. If he can improve the quality of the air and, perhaps, in industry--let's take industry and forget restaurants--if he has two key people who work in the same area and one is a smoker and one is a nonsmoker, he would like to keep them there for business reasons.

ASSEMBLYMAN HERMAN: Can we stop there for just a moment? Perhaps you can help educate me, which is the whole process of hopefully being a public official and having these types of hearings. I would assume that Bell Telephone, in its computer equipment room, has appropriate air filtering and air monitoring devices, correct?

MR. SLAVIN: Mr. Chairman, if I could reverse that, in the Morristown office, three electronic air cleaners were placed in there to eliminate a grievance that was posed by one of the--

ASSEMBLYMAN HERMAN: I'm talking about the computer equipment. Forget the people. Bell Telephone has testified, as part of the Shimp case, as part of the testimony here, that in all of their computer rooms, they had signs that said, "No Smoking."

MR. SLAVIN: Right.

ASSEMBLYMAN HERMAN: Isn't it fair to assume that based on the needs of technology, with little I know about computers, that computers have to be air conditioned and there has to be a filtering mechanism in the room? Is that correct?

MR. SLAVIN: Yes.

ASSEMBLYMAN HERMAN: Would it be fair to say that places like Bell Telephone that have sensitive computer equipment have the type of clean air devices that, in addition to other devices, that you speak of?

MR. SLAVIN: I would assume. I don't know, sir.

ASSEMBLYMAN HERMAN: Then, perhaps you can help me out. In places such as that, that have such monitoring devices for sensitive equipment, why would, in your opinion, places like Bell Telephone and places like that also have signs that say, "No Smoking", that it is harmful to the equipment?

MR. SLAVIN: Again, sir, for the same reason that they use electronic air cleaners to get rid of a grievance in the Morristown office and also the New Brunswick office. To the best of my knowledge, I believe that they have electronic air cleaners in the Elizabeth office to protect the equipment.

ASSEMBLYMAN HERMAN: You are saying that it is to get rid of a grievance that they have the monitoring equipment next to their machinery? I assume that they were protecting the machinery before they were protecting their employees.

MR. SLAVIN: We're talking about two things here, sir.

ASSEMBLYMAN HERMAN: What I am trying to ascertain, you know, I'm looking at a very progressive company such as Bell Telephone with all their Nobel prize winners and we're very proud of them and their technology and science and all that. Before the Shimp case, they had signs on their equipment saying, "No Smoking, it can damage the equipment." Now, what I'm wondering--and I also have to assume and maybe it is a bad assumption, but I think my assumption is probably correct, that their computer and sensitive equipment is protected probably by the best air filtering systems and air conditioning and circulation systems that are known to technology. That would be a fair assumption, wouldn't it?

MR. SLAVIN: I would assume so, sir.

ASSEMBLYMAN HERMAN. If we have that state of the art and technology and Bell has that, why would they also have signs up that say, "No Smoking?" Why would those "No Smoking" signs be needed if the art of the technology is such to protect the equipment?

MR. SLAVIN: Well, perhaps, we're advancing in the art of technology. When a computer firm in New York, New York Computer, purchases electronic air cleaners to protect their equipment and then wants to recommend them to their customers, it is pretty fair to assume that the electronic air cleaners must work and protect the equipment because it costs $75 per hour in New York City for a truck to service computers. The biggest cause of breakdown with computers is dirt and dust in the heads.

ASSEMBLYMAN HERMAN: You heard Dr. McGarrity's testimony here this morning?

MR. SLAVIN: Yes, sir.

ASSEMBLYMAN HERMAN: Let's assume that the court reporter, you and he are in the workplace and your desks were right next to each other and we had the air monitoring devices that you are recommending as an alternative. Are you trying to tell me--let's assume that there is one desk here to your left, you're in the center and there is one desk to your right and the people to your left and right are both heavy smokers and smoke was coming in your direction. Are you trying to tell me that the problems that Dr. McGarrity and others spoke about would all be magically corrected by having that air monitoring system? Is that what you are telling me?

MR. SLAVIN: Do you mean, would it be 100% efficient and remove all the smoke, sir?

ASSEMBLYMAN HERMAN: In other words, if I'm saying to you--forget the fact that if I'm at one end of the room and you're working at the other end of the room. I'm talking about the common employee desk situation where desks could be close together, three, four five people within maybe 15 or 20 feet of each other and there is a great deal of smoking, or around the table at a meeting. Are you trying to say to me, under those situations, that the potential for harm that the witnesses, with the backgrounds that they had and the expert opinions and the information that they produced in regard to second-hand smoke or whatever you want to designate it, that that would be corrected by a monitoring system?

MR. SLAVIN: Yes, sir. I am stating that.

ASSEMBLYMAN HERMAN: In other words, if I were sitting there puffing smoke in your face right next to you, that would be corrected if you had a monitoring system.

MR. SLAVIN: If you were puffing smoke right in my face, sir, no it would not. That would be an extreme.

ASSEMBLYMAN HERMAN: If I were sitting two feet or three feet away from you at a desk and smoke was coming in your direction?

MR. SLAVIN: I guess I can give you a pretty good example with a firm by the name of Annauer, a bond firm up in Livingston, who just put air cleaners in their very large, sophisticated office space, as well as their computer room. They've had problems with smoke up there for the past three years and we installed the air cleaners about three weeks ago and there is nothing but praise from the people who smoke and from people who don't smoke and from people who are in management. I could use them as a recommendation, sir. Perhaps, Prudential, who is also lowering their insurance rates, might be able to tell you why they are purchasing electronic air cleaners for the bullpens, what they call the bullpen, which is a work area for their sales people.

ASSEMBLYMAN HERMAN: I want you to understand, sir, I am not deprecating the need or use of your equipment. I assume that that has a positive effect. The point I want to make and try to get across to see whether you agree or disagree with me, assuming we install your equipment, what would be the public policy harm by also prohibiting smoking, based on what you've heard here this morning?

MR. SLAVIN: By prohibiting smoking?

ASSEMBLYMAN HERMAN: Yes, in the same social situations? What would be the public policy harm? Tell me what we would be doing to hurt the public or employers or workers?

MR. SLAVIN: By telling them not to smoke? I still don't understand the question.

ASSEMBLYMAN HERMAN: That's right, by telling them not to smoke in those given, limited social situations which we've described and which are described in Assembly bills 1722-1729. Assuming that everyplace in this State had all these--and I'm saying that in a positive way from a business standpoint--assuming that every one of these business establishments had a proper air filtering or cleaning system, every one of them had that type of system, tell me what would be the public policy harm or detriment by still adopting 1722-1729? What negative effect would it have on the people of New Jersey and the workers?

MR. SLAVIN: Your question is kind of long and I hope I understand it. Could you repeat it?

ASSEMBLYMAN HERMAN: I'll repeat it in very simple terms. Assuming that the places that have your equipment, if we ban smoking as we have described it in those given situations, what would be the public policy harm to those people? How would we be hurting them?

MR. SLAVIN: Public policy harm?

ASSEMBLYMAN HERMAN: Yes. How would we be hurting them by adopting this legislation? What would we be doing wrong to them?

MR. SLAVIN: Sir, you wouldn't be hurting them at all. If they are using an electronic air cleaner, are you saying, then, prohibiting--

ASSEMBLYMAN HERMAN: You had asked me to suggest to the Committee that we do this in the alternative.

MR. SLAVIN: I offer it as an alternative, yes sir.

ASSEMBLYMAN HERMAN: That's the point I'm making. I'm asking you if, notwitstanding the fact that there is an air cleaning system in effect, what

would be wrong with these bills by having them the way they are?

MR. SLAVIN: Well, the way the bills are right now--let me explain it this way. If you had 25% no smoking in this room or rather 25% smoking in this room and 75% no smoking, this room would be filled with smoke without any problem or without too much of a problem. If you had an electronic air cleaner and permitted people to smoke throughout the room, you wouldn't have a problem either.

ASSEMBLYMAN HERMAN: Let me repeat my question again. Tell me what would be the harm to the people of this State or the people who are within that particular room that has your particular device installed by prohibiting smoking. Tell me what we would be doing wrong as a Legislature.

MR. SLAVIN: Sir, you wouldn't be doing anything wrong, to answer your question directly.

ASSEMBLYMAN HERMAN: I appreciate that.

MR. SLAVIN: Now, I would like to ask you a question. You are familiar with smoke. We do know that it is made up of particulants. That is the big problem. Each of the witnesses today has testified that it is made up of particulants and carbon monoxide. I would like to offer to you, if you would, some photos that were taken of an electronic cell that was in operation in a 12 seat package store for a period of seven days.

ASSEMBLYMAN HERMAN: What do these photos show?

MR. SLAVIN: What this photo does show is how the cell is cleaned, what the water looked like and this is a picture of a sample of that water. These are the carcinoginic hydrocarbons that the medical profession is talking about.

ASSEMBLYMAN HERMAN: Fine. So, what you are really saying--may we retain these, by the way?

MR. SLAVIN: Yes, sir. They are yours.

ASSEMBLYMAN HERMAN. So, what we're really saying is that this photograph graphically and empirically substantiates exactly what every witness says, that there is one hell of a lot of carcinogenics and particles in a room over a given period of time, right?

MR. SLAVIN: Absolutely correct.

ASSEMBLYMAN HERMAN: By the way, just for the purpose of the record, since we're going to attach this photo to the record, this jar of particles was collected in what size room, over what period of time?

MR. SLAVIN: It was collected in Louis Liquors, Route 35, Middletown, New Jersey. It is a 12 seat bar-package goods store, a very small area of which is the bar. 90% of his store was filled with smoke and he was losing customers, women customers, because they objected to coming into a smoke-filled store. Since he installed the air cleaners, the air is clean and he does not have a problem with the smoke.

ASSEMBLYMAN HERMAN: Over what period of time was that?

MR. SLAVIN: A week.

ASSEMBLYMAN HERMAN: How big a store did you say this was?

MR. SLAVIN: How many square feet?

ASSEMBLYMAN HERMAN: Right.

MR. SLAVIN: I would say he was about forty by fifty, roughly.

ASSEMBLYMAN HERMAN: So, if you multiply this by all the business and social settings and places of public accomodation in New Jersey, in effect, what we're really saying is that regardless of whether this equipment solves it

or doesn't or whether it is a substitute, you would agree that, based on the work that Honeywell has done, that the information shows that we have one hell of a problem, is that correct?

MR. SLAVIN: Your sentence is kind of long. I'm trying to understand it.

ASSEMBLYMAN HERMAN: Well, Mr. Slavin, I really think you understand, with due respect. You're a pretty smart guy and what this photograph shows is that, if we have this problem of smoking within a week's period, certainly, throughout the rest of the state in all the business and other establishments and places of public accomodation where smoking is now permitted that would otherwise be prohibited under these bills, we now have one hell of a problem. Is that a fair statement?

MR. SLAVIN: Yes, sir. Now, the picture also demonstrates that those carcinogenic hydrocarbons were removed from the air and people were not permitted to breathe them because of the electronic air cleaner.

ASSEMBLYMAN HERMAN: Are you saying this in a medical way? Is there anything from the company to back it up, that because these devices are there that there is no effect, no medical effect, physical effect on the other patrons who don't smoke? Is that what you are saying?

MR. SLAVIN: If we can understand what the problem is, the carcinogenic hydrocarbons are caused by smoking. They are in the air. If those hydrocarbons are removed and you have cleaned the air, you have removed the problem. Now, will air cleaners remove 100% of them? No, sir. According to the American Dustspot Testing method or something like that, the air cleaners have been rated to be 93% efficient.

ASSEMBLYMAN HERMAN: So, we both can agree, then, that the most effective way of stopping it 100% is to stop smoking.

MR. SLAVIN: Well, sir, using electronic air cleaners is far superior to having a reserved section for smoking, where smoke travels.

ASSEMBLYMAN HERMAN: Let me ask you the question again because you and I can banter all day, but you understand my question. If it is 93% effective, then the way to stop it 100% is to stop the smoking.

MR. SLAVIN: Well, in all simplicity, yes sir, but that would be difficult.

ASSEMBLYMAN HERMAN: Thank you very much. Is there anything else that you would like to add for the purpose of the record?

MR. SLAVIN: Yes, sir. I believe when you are using electronic air cleaners, you can also reduce the amount of energy that must be used. There are only two ways of getting rid of smoke in a room. One is to exhaust it and the other is to clean it.

ASSEMBLYMAN HERMAN: And the third way is to not permit it to happen in the first instance.

MR. SLAVIN: Well, of course, that's correct, sir. By using electronic air cleaners, you can reduce energy consumption. I have been to Minnesota and I have observed their no smoking laws. They're not worth a rap, no more than Hanover Trails, specifically the chain in New Jersey that you might be refering to. Their no smoking area is not worth a darn. Up in Morristown, I believe that's the area, I sat in a no smoking section. I'm a smoker. I wish I could stop, if you want the truth. The waitresses and the people I was with didn't agree that this no smoking area was worth a rap. Smoke travels.

ASSEMBLYMAN HERMAN: That's really funny because the survey that our office did, the very same restaurant, and we have one in our area, seemed to think that they work well and that they're good for business. So, I guess there is a different perception between the waitresses and management.

MR. SLAVIN: Well, sir, the idea of the no smoking regulation throughout the country, I think New Jersey has the opportunity to demonstrate some leadership. We do live in Cancer Alley. We do have the highest rate of pollution in the country, as was testified by the last witness, and we also have an increasing problem of indoor pollution and, again, the only way to get rid of that pollution is to either exhaust it or to clean it.

ASSEMBLYMAN HERMAN: Or not to permit it to happen in the first instance.

MR. SLAVIN: You mean no smoking at all, sir?

ASSEMBLYMAN HERMAN: That's right.

MR. SLAVIN: Well, no smoking at all would be the answer, the direct answer. If you look at the no smoking regulations that other states have, a four foot wall, a three foot aisle, a 25% or 50% reserved seating, logically and practically, they aren't worth a rap. A four foot wall is not going to stop smoke from going over it. A three foot aisle is not going to stop smoke. Increasing the number of air changes is only a tremendous way os wasting energy. I think it would be ideal if New Jersey, who has gotten all this bad publicity on having the worst outdoor air in the country, if our legislators could come through with a positive indoor clean air act, where they were not only doing something to improve the quality of the air and clean it, but also reduce energy consumption at the same time. New Jersey could be a leader.

ASSEMBLYMAN HERMAN: We would be more than happy to pass along your company's recommendations for--

MR. SLAVIN: Not my company.

ASSEMBLYMAN HERMAN: Are you a citizen here? Do you live in New Jersey?

MR. SLAVIN: Yes.

ASSEMBLYMAN HERMAN: Occasionally, we call upon our citizens. That's why you were invited to testify. I extended the invitation to you, I believe.

MR. SLAVIN: Yes, you did, sir.

ASSEMBLYMAN HERMAN: Rather than 15 minutes in my office, as you requested, I gave you participation in the public hearing.

MR. SLAVIN: My original thought was to ask for participation, if I could.

ASSEMBLYMAN HERMAN: I believe you asked for some time in my office to express your opinions.

MR. SLAVIN: Right.

ASSEMBLYMAN HERMAN: And I expressed to you that the better point of view was to express your opinions publicly, right?

MR. SLAVIN: Absolutely, sir.

ASSEMBLYMAN HERMAN: And I am expressing to you something we say to everyone who interested in the progress and welfare of our state. If you have special expertise and have specific suggestions and wish to reduce them to legislation, I will see that they get into the proper chanels. The operation of government in New Jersey involves 7.2 million, plus or minus, not just 80, 40 and a Governor's office. So, I'm putting it to the test, sir. If you think there are better ways in which we can do business in New Jersey and there are other pieces of information

or legislation that should be considered, we'll be happy to entertain them. I want to thank you for coming here, as well as everyone else who appeared here this morning.

MR. SLAVIN: Thank you, sir.

ASSEMBLYMAN HERMAN: These bills be listed within the next two to three weeks, I would hope, no later than the middle of December, for consideration. We have to give some time for the transcripts to be typed up and I would like the other members of the Committee to have a chance to review all the testimony that was given here today and we will proceed from there. Thank you, again, for coming.

(Hearing Concluded)

SUBMISSION FOR THE RECORD

This statement is submitted for the record and is intended to address the following sentences that appear in the "Statement" accompanying the proposed legislation. "There is also substantial scientific evidence that tobacco smoke is also detrimental to nonsmokers' health, welfare, and comfort, especially to those who have allergies or cardiovascular or respiratory diseases. The regulation of smoking in certain confined places, i.e., determining when and where, rather than whether, a smoker may legally smoke, is, therefore, necessary for the public health."

This conclusion is simply not supported by a number of research findings relating to the possible health effects of tobacco smoke on nonsmokers. What is more, it is not consistent with a conclusion contained in the 1979 Surgeon General's Report: "Healthy nonsmokers exposed to cigarette smoke have little or no physiologic response to the smoke, and what response does occur may be due to psychological factors." [1] Many independent scientists have made similar determinations based on their review of the existing literature. For example, Dr. Hiram T. Langston, a former president of the American Association for Thoracic Surgery and presently Clinical Professor of Surgery at the Northwestern University Medical School, emphasized, in testimony before

the Chicago City Council's Committee on Environmental Control, his conclusion that:

> An assertion that tobacco smoke is a health hazard to the normal nonsmoker is untenable. The weight of evidence as it exists in the world literature does not support a claim of adverse health effects for those exposed to "passive smoking." [2]

The assertion implied by the sentences accompanying the legislation is that certain high-risk populations (e.g., those with heart or lung disease) exposed to tobacco smoke could suffer adverse consequences to their health and welfare. This implication, as it relates to people with heart disease, relies heavily on articles published by Dr. Wilbert Aronow. In his most publicized study, Aronow examined 10 patients with angina pectoris and reported that they developed heart pain sooner after exercise when they had been exposed to tobacco smoke. [3] However, Aronow's study design and results have been publicly criticized. The sample was extremely small, no allowance was made for the possible effects of psychological stress, and although Aronow attributed some of the results to nicotine, no measurements of nicotine absorption were published. After reviewing these objections, one professor of pathology called the experimental design of Aronow's work "exceedingly poor," [4] and a Los Angeles chest physician concluded that the study is "questionable." [5] Dr. Suzanne B. Knoebel, Professor of

Medicine at the Indiana University School of Medicine, stated:

> There are no indications that tobacco smoke in the atmosphere either causes or accelerates cardiovascular disease in the healthy nonsmoker. Nor do available studies establish that atmospheric tobacco smoke under realistic conditions adversely affects nonsmokers with preexistent cardiovascular disease. [6]

With respect to patients with lung problems, Canadian researchers studied the reactions of asthmatics to levels of tobacco smoke typically found in public places. [7] After two hours of exposure, no systematic lung changes could be observed. These and other findings prompted a well-known pulmonary expert to say: "I must conclude that there is no proof that smoking in public places adversely affects patients with lung disease either acutely or chronically." [8]

Regina Carlson's testimony presented at the initial hearing alluded to studies which reportedly found that children's health can also be harmed by living with parents who smoke in the home. It is hard to understand the relevance of this testimony in view of the fact that the hearings were concerned with the public smoking issue, not the issue of smoking in the privacy of one's home. However, Ms. Carlson's testimony appears to ignore the results of studies which reported conflicting findings. Lebowitz and Burrows, for example, found that "when the presence of symptoms in adults was taken into account...no statistically significant difference remained in children's symptoms related to the household smoking habits. [9] Dutch researchers, after a

five-year study of respiratory ailments in 428 children, concluded: "Smoking and nonsmoking parents have about the same proportion of children with respiratory symptoms. The number of cigarettes smoked by the parents has no influence on respiratory symptoms in their children." [10] In one of the largest studies on the subject, Schilling, et al., concluded that "exposure to low levels of smoke produced by cigarette smokers does not result in chronic respiratory symptoms or loss of lung function among children nor among adults." [11] Considering these and several other studies with similar findings, the statement accompanying the proposed legislation, hardly seems justified.

It would appear that the bills proposing the restriction of smoking in public places are based almost entirely on the findings regarding the pulmonary functions of office workers reported earlier this year by White and Froeb. [12] By comparing the test results of nonsmokers who said they worked for more than 20 years in offices where there was no smoking with the measurements of nonsmokers who had reportedly worked the same length of time in offices where smoking did occur, White and Froeb asserted that "chronic exposure to tobacco smoke in the work environment...significantly reduces small-airways function." [13]

Despite the widespread media attention the paper has received, many medical experts have questioned whether the

reported findings provide proof of any real harm to non-smokers. For example, Dr. Michael J. Halberstam, a well-known medical columnist, said, "Whether or not this study will be confirmed by other investigations, and whether or not actual diseases appear in nonsomking people who work in a smoking environment has yet to be resolved." [14]

Dr. Claude Lenfant and Ms. Barbara Liu of the National Institutes of Health noted in an editorial accompanying the White/Froeb article that "Generally speaking, the evidence that passive smoking in a general environment has health effects remains sparse, incomplete and sometimes unconvincing...there is no proof as yet that the reported reduction in air-ways function has any physiological or clinical consequences." [15]

Recently, several other experts have criticized the White/Froeb study. In a letter to the editor of the journal which published their study, one doctor questioned their experimental premise: "It is difficult to believe that the researchers have been able to identify a truly representative group of subjects who have work histories of 20 years or more but have never been exposed to tobacco smoke." [16] Another researcher asserted that White and Froeb did not have reliable estimates of the amount of smoke to which the nonsmokers were exposed because "carbon monoxide is not an 'accurate' index of smoke exposure..." [17]

Another doctor stated that their study was "flawed" because they used a lung function analyzer which "fails to meet the technical recommendations of the American Thoracic Society." [18]

So it would seem that, based on a review of the existing scientific literature, Dr. Langston's evaluation of the legislative aspects of the nonsmoker issue is still valid: "The regulation of public smoking, under the guise of a mandate to protect the public health, is without scientific justification." [19] Lenfant and Liu addressed the same issue in their editorial. They asked rhetorically whether this new evidence was "sufficient to initiate new legislative actions that would further restrict smoking in public places." They responded with the observation that this is a "difficult and delicate question" and concluded that the White/Froeb study "is confined to only one aspect of an issue too complex to be resolved on such a limited basis." [20]

Once the alleged danger of these "potential hazards" has been put into perspective, the difficulties underlying legislation such as that proposed become much clearer. At hearings on bills proposed to restrict smoking in public places in other states, experts have repeatedly underscored the problems surrounding such prohibitions. Chiefs of police have discussed their concerns over the difficulty in enforcing such laws; owners of restaurants have predicted their loss of income when customers become dissatis-

fied; office managers have anticipated unpleasant confrontations between smoking and nonsmoking employees and the destruction of harmony in the workplace. In fact at the initial hearings held in conjunction with the legislation at hand, similar testimony was given by Mayor Patrick Fiorelli on behalf of the New Jersey Conference of Mayors. He was concerned with problems of enforcement. Anthony Caselnova, speaking in his capacity as President of the New Jersey Restaurant Association and Mr. Paul Samperi spoke to the impact of excessive government regulation on the American business scene today.

A danger posed by possible government excess is made clear by the results of one such law regulating smoking in public places. An analysis of one month's operation of the now defunct Chicago smokers' court reveals that out of 279 people summoned, 248 were black. A columnist who is himself an anti-smoker has observed: "The suspicion is strong that Chicago's smokers' court has absolutely nothing to do with promoting clean public air." [21]

Another well recognized facet of this issue is that certain people simply do not like cigarettes or cigarette smoke. Some seek to justify their annoyance by claiming that they are allergic to it. Yet the fact is that no scientific research has proved that people are allergic to cigarette smoke. [22] Certainly there are "documented"

cases of annoyance and discomfort, but how extensive are these complaints among the general public? According to one national survey, administered by Response Analysis of Princeton, New Jersey, only three percent of the annoyances listed by nonsmokers were related to cigarette smoke. [23]

Those results should prompt a number of questions. Most importantly, it can be asked whether the high visibility of this issue is the result of certain "anti-smoking" group tactics. If so, should laws be passed to satisfy the preferences of a small minority? Single-interest factions can be blind to the larger concerns of society. But policy makers cannot afford to be.

In recent years, smoking has become an easy target for people anxious to solve our nation's health problems. But these problems will not be solved by ignoring the scientific complexities surrounding smoking and health issues, nor will they be resolved by legislation that interferes with the personal choices of a large section of the population and has the potential for unfavorable social and political impacts.

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LUTHER L. TERRY, M.D.

Corporate Vice President
for Medical Affairs

November 7, 1980

The Committee on Judiciary, Law,
Public Safety and Defense
The Assembly of the State of New Jersey
Trenton, N. J. 08625

Gentlemen:

I was recently invited to testify before the N. J. State Legislative Committee relative to the proposed Assembly, No. 1722 to restrict tobacco smoking in certain public places. Unfortunately, previous commitments prevent my appearing at the Committee hearings and I would like to submit this statement for your consideration.

I formerly served as Surgeon General of the United States and on January 11, 1964 I endorsed and released the Report of the Surgeon General's Advisory Committee on Smoking and Health. It was clear at that time that smoking constituted a major health problem for the smoker. In recent years it has been scientifically established that smoking in public places also poses a real health hazard to persons with heart disease, allergies and chronic lung disease. In addition, the majority of our citizens who are non-smokers find such exposure to be unpleasant and objectionable. It is for these reasons that I feel there should be certain restrictions on smoking in public places.

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