

*Knight, Dannill*

"THE IMPACT OF OUR MODERN, CHEMICALIZED ENVIRONMENT ON MANKIND"

Statement Before the Senate Committee on Water Resources

RE: SB 729 (Senator Richardson) 5/26/71

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Gentlemen:

It is a privilege to appear before you in order to present some of my ideas and experience relative to the hazards of long continued exposure of human beings to many of our modern chemicals. I wish to make it clear that I am speaking only for myself and for no organization.

CURRICULUM VITAE

M.D. degree obtained from P & S at Columbia, 1930: Internship included two years at Presbyterian and two at Bellevue Hospital in New York: In the practice of private medicine since 1935: Specialty, allergy and nutrition: Member, A.M.A., California Medical Association; Fellow, American College of Allergists; International Association of Allergists; and numerous other allergy societies. Interested for many years in the effect of minute amounts of chemicals on human beings, which, as a corollary, has included an interest in clinical nutrition.

In order to understand what is happening to us, we must think in terms of ecology, which includes a study of our ancestors. At first, they subsisted primarily upon raw meat and vegetables or berries. Not too long ago came the agrarian period when the cultivation of grains added variety to the food supply. After the founding of our country, when the soil was worn out, those who were farming the area could move west and find more fertile soil. Now that a move to the west is no longer feasible, we must depend upon revitalizing the soil in some manner or other in order to keep on producing new crops.

The widespread usage of the newer insecticides, together with artificial fertilizers, has created a serious problem. Since 1945 we have been spreading over vast areas of the United States - and more recently, throughout the world - a cloud of toxic insecticides which have never been before encountered by either insect life, plant life, animal or man. The chlorinated hydrocarbons have a fantastically long life. They are soluble in fats but insoluble in water. When once applied to soil, some of these have been shown to persist in toxic amounts for as long as 20 years. I am speaking particularly of DDT, chlordane, aldrin, dieldrin, and other more recently manufactured derivatives. They all have the common

*^  
BHC was phased out 15-20  
yrs ago because it imparted a musty flavor  
to vegetables.*

characteristic of being extremely resistant to breakdown both in the soil and in the fat of animals or human beings. Added to these are the herbicides, such as 2,4-D, 2,4,5-T, and Silvex. There are numerous other post-emergence herbicides which may have an influence on the metabolism of those consuming vegetables to which these herbicides have been applied. We know practically nothing about these effects.

It should be of interest to this committee that the herbicides 2,4-D, 2,4,5-T and Silvex have been found to be contaminated in the past by approximately 27 parts per million of the highly chlorinated dibenzo-p-dioxins. Recent research has revealed the dioxins to be incredibly potent in producing birth deformities in animals. Even 2,4-D and 2,4,5-T by themselves, with the dioxins reduced to one-half of one part per million still produced mutagenic effects. It is quite revealing that the combination of the dioxins, plus 2,4-D or 2,4,5-T, seems to be definitely more potent than either one alone. This suggests an additive effect. Unfortunately, the chlorophenols which usually contain the dibenzo-p-dioxins yield, if burned, 60% dibenzo-p-dioxins! This has been found in the air.

## CHEMICAL HAZARDS

We are faced with many chemical contacts, all or some of which may be causing trouble. Most of these were never encountered by primitive man. For example:

### I. Air Contamination.

A. Smog. As you are well aware, smog contains ozone, unsaturated hydrocarbons, sulphuric acid, fluorides, carbon monoxides, acrolein, and many unknown compounds which result from the action of sunlight on the nitrogen compounds. Air also contains lead, molybdenum, and other metals. There may be a summation effect of which we are completely unaware. We must also add insecticides, herbicides, mercury and the dibenzo-p-dioxins.

B. Radioactive Fall-Out. To my mind, this is a minor factor.

C. House dust, illuminating gas, insecticides, tobacco smoke and tars, as well as hair lacquer and other allergens constitute a menace as far as the house is concerned. It is my clinical experience that more and more individuals are becoming sensitive to these chemical contacts.

### II. Water Contamination.

Nitrates and nitrites; detergents; traces of alum; copper; lead; fluorides; insecticides; strontium 90; and other radioactive compounds. Carcinogenic

petrochemicals are found in our rivers and lakes, which include insecticide and herbicide residues, as well as methyl mercury, which is now almost universal.

### III. Chemicals in Foods.

Include nitrites, nitrates, <sup>fluorides</sup> dyes, bleaches, emulsifiers, anti-oxidants, preservatives, flavors, buffers, insecticides of all types, acidifiers, alkalizers, <sup>Synthetic</sup> deodorants, moisteners, drying agents, extenders, blenders, thickeners, dis-<sup>hormones</sup>infectants, defoliants, fungicides, sweeteners, anti-caking agents, anti-foaming agents, conditioners, hydrolizers, hydrogenators, maturers, fortifiers, hormones, antibiotics, and others.

These chemicals may destroy vitamins and enzymes in food, as well as denaturing or damaging amino acids. They affect the bodies of those consuming such foods along similar lines and in other ways not yet understood. Those who are allergic, malnourished, or ill are undoubtedly more susceptible to the action of toxic chemicals than individuals in excellent health. <sup>These chemicals act on</sup> <sup>Symptoms - allergies</sup> <sup>Stressors</sup>

Most of us are dosing ourselves, or being dosed, with many toxic medications. These work through their effect on enzyme systems. I will take the liberty of suggesting how this occurs.

### MECHANISM OF ACTION

1. Increased destruction of vitamins, particularly Vitamin C. Fever, excessive smoking, aspirin, sedatives, arsenic, etc., increase the destruction of Vitamin C. It is interesting that Vitamin C has a counteracting effect on smog when it is sprayed on plants. In my experience, it is very useful in the treatment of virus infections when given by injection and by mouth around the clock. It is also useful in the treatment of snake bite and black widow spider bites when administered intravenously in large doses.

2. Anti-metabolites. These consist of chemicals similar to the ones being ingested and they compete for vitamins in the enzyme systems. An example is the sulfonamides versus paraminobenzoic acid, etc.

3. Sedatives and anesthetics. We must think in terms of cellular chemistry. Each tiny body cell which is invisible, except under the microscope, contains probably 3,000 or more enzyme systems. These are catalysts which enable the body to function at a temperature of 98.6, plus or minus one or two degrees, and to burn sugar at this temperature; whereas in the crucible, it would have to be heated to 1200° F. For metabolism to occur, we have to have the enzymes which catalyze or speed up ordinary reactions and enable them to go on to completion. These catalysts consist of a protein (amino acid), plus trace elements or metals

in larger amounts, such as magnesium, plus vitamins; and these constitute the enzymes or co-enzymes which enable life to go on and metabolism to continue.

### ACTION OF CHEMICALS AND DRUGS

All drugs and chemicals, if they interfere with enzyme systems, produce, in some instances, predictable effects; in others, they are non-predictable. We know that if a patient is given ether or some other anesthetic, which has been well tested, that this patient will go to sleep, will lose all sense of pain, and when awakened (providing he had a good anesthetist), will be as good as new. This, of course, means that the oxidative enzyme systems in the brain were reversibly slowed down. Tranquilizers and most medications act through similar effects on enzyme systems. In this respect, cyanide, which is known to be lethal, unites with iron in the cytochrome oxidase enzyme system and prevents any oxygen reaching the body tissues. Therefore, unconsciousness occurs within six seconds after inhalation of hydrogen cyanide and death supervenes ten or fifteen seconds later.

One could go on to describe the action of antibiotics, tobacco and alcohol, allergenic reactions, softeners, extenders, and other food additives as well as coal tar dyes. However, they all react more or less in the same way but not to the same extent. They include inactivation or slowing down of enzyme reactions, and, in some instances, speeding up such reactions. This is particularly true when we come to the effect of DDT residues in birds. The increased fragility of eggs of the peregrine falcon and a few other species seems to be due to accelerating <sup>or destruction</sup> action of ~~the~~ estrogenic hormones, thus destroying the ability to produce a hard egg shell. This species, therefore, may be practically finished.

Dr. Malcolm Hargraves of the Mayo Clinic has traced many cases of leukemia to repeated or severe exposures to pesticide sprays or to the oils in which they were dissolved.

### SUMMARY

This is merely a brief introduction to the subject of the effect of numerous chemicals in food, air and water on the metabolism of our present day citizens.

The effect of chemicals is complicated by poor food selection, cooking methods, and the increasing use of highly processed foods, raised primarily for quantity rather than quality. A failure to provide body cells with adequate amounts of high grade protein, essential unsaturated fatty acids, Vitamin E, minerals, other

vitamins and unknown nutritional factors associated with fresh produce grown on highly mineralized soil, which has not been laced with artificial fertilizers, may help to account for what is happening to our people.

Our nutritional deficiency is serious enough, but it is compounded by contact with hundreds of synthetic and toxic chemicals. Many of these act as anti-enzymes and interfere with efficient body chemistry. Some are cancer inducing agents. The action of most of these is not known. Exposure for a lifetime to these noxious agents may have dire results, accounting at least in part for many of our degenerative diseases.

As a clinician, I am convinced that we are in serious trouble. We must somehow reduce the toxic load which is afflicting our ordinary citizens. Unless we think in terms of prevention, we are going to have an ever increasing demand on our hospitals, rest homes, and those who must be supported by the relatively few remaining workers.

*Number of nutritional cripples who are unable to support themselves*  
*Support the increasing*

Some of the answers are amazingly simple and I would be very happy to cooperate with this committee in making suggestions to this end.

Obviously, one of the most important things to do is to decrease the amount of chemicals in our environment insofar as that is possible. Unless we are willing to make heroic efforts along these lines, I believe that we are doomed within 20 years. Our body chemistry was never meant to deal with the multiplicity of petrochemicals which contaminate our environment today.

Since fluorides constitute a universal and increasingly toxic contaminant of air, food and water, it seems absurd to meter <sup>these</sup> it into domestic water supplies under the long disproven theory that <sup>these are</sup> it is beneficial to children's teeth or to the long bones of the elderly.

Unless we change our ideas and raise food for quality and not quantity, as well as eliminating as many as possible of the increasing number of chemical contacts tolerated by our civilization, we may be facing the end of the road.

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It is even possible that we can foresee a decline in our civilization so rapid that within ~~20~~ years we will be taken over either by primitives from abroad or degenerates from within.

Respectfully submitted,