

government. Might I turn this around the other way and say that Canadians in government in this field are so highly regarded that they form a very high proportion of the expertise in the international agencies. I think that is a guarantee that our country has been and is being well looked after on the matter of the hazards of pesticides to humans.

That is the only statement I would like to make, Mr. Chairman, with regard to humans. Of course, wildlife is another thing but perhaps that could be taken up later.

The CHAIRMAN: First of all I would like to thank Professor Brown for his very clearcut, very concise and very knowledgeable statement.

Before I ask members of the committee if they have any questions for Professor Brown I would like to say that Professor Brown will make a short statement later on dealing particularly with wildlife and with resistance to pesticides, and the development of resistance. If it is the wish of the committee, we will open the meeting for questions now.

Mr. ROXBURGH: As a fruit grower and a fruit sprayer I think I can go along with your general statements, but I have been reading one of your articles, which certainly is very interesting to me, telling us of the enormous number of insects that have become resistant. I had realized there were some, but I did not realize the number.

You mentioned in your talk just now about feeding these compounds to prisoners, and that when they reached a certain level the body threw them off. What is your opinion on human beings becoming resistant in the same way as insects? We are all animal life. Why would not the human beings automatically do the same thing over a period of years? What is your thought on that?

Mr. BROWN: Mr. Roxburgh, this is a question which involves the fundamentals of biology, and particularly genetics. Insects develop resistance to specific compounds by a process of selection, meaning the killing of certain of them which were genetically or constitutionally the most susceptible. Those that were genetically the more resistant survived to breed and thus, generation by generation passed on that characteristic, to develop the resistant strains. I am sure Mr. Roxburgh would not like humans to develop their resistance in this way.

Mr. ROXBURGH: It might be a good thing.

Mr. BROWN: However, since you raise this most interesting point, resistance to D.D.T. has been induced in mice by selection, in experiments performed in our own country at Macdonald College. Moreover, down in the cotton-growing areas of Mississippi there are two species of frog and one species of fish which have acquired or developed resistance to the chlorinated hydrocarbons which are applied so heavily there.

Mr. ROXBURGH: There is one other question I would like to ask. We have talked about D.D.T. and about phosphates. What about tetrachlorides such as those which we know have caused death and severe sickness by an overdose of their fumes? As a matter of fact I lost a cousin in that way; he had been treating grain. Just recently in my own area in Simcoe another farmer was careless and is now in very grave condition because of the breaking down of the liver. We use the same material that is used in the household all the time for cleaning spots off clothes and so on. People have died from liver diseases or liver complaints. What would your opinion be about the use of these compounds in the home where one gets a little whiff now and again? What is your idea about tetrachloride being used in that way? Do you think it is indirectly responsible for some of the deaths and some of the sicknesses over the years? I know that is a rather general question.