

Mr. DADDARIO. I understand the way it translates itself now.

Dr. GATES. This is where we are in trouble. We simply don't know what is going to happen. What if the change was in the other direction and the climate was getting warmer, this would be more disastrous. Cooler, not so bad, things will grow and produce. Warmer. Very quickly many plant and animal communities get into disaster. They get overheated; they get too hot. That is a long story in itself.

Mr. DADDARIO. Your judgment would be that we ignore the effect of jet flight on our system?

Dr. GATES. Absolutely.

Mr. YEAGER. According to the CO₂ greenhouse theory, isn't there a possibility that there might be a warming trend?

Dr. GATES. Beginning about 1887 and during the first half of the century there was a warming trend in the mean temperature of the Northern Hemisphere. The speculation and considerable evidence through calculations and measurement showed that the increase in carbon dioxide from industrialization caused the greenhouse effect. The atmosphere is not all that neat so it is not very easy to sort out one thing and say this is it. This is part of the reason why we have to hedge a little bit on a definite answer.

But the striking thing is that this warming trend and the increase in carbon dioxide did occur, occurred over the same period of time. Since 1950 there has been an abrupt change from a warming trend to a cooling trend so that today we have a mean temperature approximating that of 1900. In other words, in a decade and a half we have gone clear back to what things were like half a century ago, and what occurred as a warming trend over nearly 50 years was reversed in about 16 or 17 years, and this is striking. Coincidental with that, 1950—

Mr. DADDARIO. Can we go back far enough, however, to come to any determination as to this being a natural cyclical trend during which there will be increasing warmth and then sharp temperature changes?

Dr. GATES. There are cyclical trends either way. This would appear to be beyond that. This is what makes it difficult to sort it out because of the fluctuations that occur and the cycles that occur. But coincidental with this cooling trend starting about 1950, this is very close to the date when jet flights became predominant. It looks like a cause and effect. We can't yet be absolutely certain.

My next point has to do with our dependence on plants and animals. Mankind is utterly and completely dependent upon plants every way he turns. Plants are the ultimate basis of all food production which refers back to photosynthesis, converting solar energy to chemical energy. Man needs plants for food, for fiber, for pharmaceuticals, for medicinals, for beauty, for color, for form, for mental therapy to escape from fellow man. We like to get away from one another once in a while and we need plants, we need forests, we need grasslands and other places to hunt, to fish, to get away from one another and to camp.

Plants slow the winds which sweep and desiccate the earth. Plants absorb the punishing noises which man creates—the trucks on the highways and the jets overhead. If we didn't have these natural plant communities in little pockets and valleys and pieces and strips all