
Interview: Hugh Ellsaesser

Ozone layer: truth versus mythology

Dr. Ellsaesser, meteorologist at Lawrence Livermore National Laboratory in California, was interviewed by Rogelio Maduro on March 10. Excerpts follow:

EIR: The environmentalists maintain that ozone at low levels is poison, and at high levels is of the greatest benefit to man. How is that?

Ellsaesser: Because they don't care what they say. They look only at the detrimental consequences. Low-level ozone has several very beneficial effects. It is one of the chemicals that helps to scavenge all of the things we release into the atmosphere. The hydrocarbons from plants, for example, which cause most of the hazes you see around the country. Those are decomposed by ozone and other energetic chemical reactions going on in the lower troposphere. It's what keeps the atmosphere clean. There is also a lot of bactericidal action accomplished by ozone, and by ultraviolet light as well. So that odors are kept down, bacteria are kept down.

EIR: Is it possible that the EPA standards for ozone pollution and other forms of pollution are simply not attainable, because they are trying to regulate the natural atmospheric levels of these chemicals?

Ellsaesser: It is my opinion, and the opinion of several people including a former director of the Los Angeles County Air Pollution Control District, Robert Chass, back in the 1970s, that the present EPA standard for ozone could not be attained in Los Angeles even if they evacuated the entire basin. In other words, the prescribed standard is below the background that would exist there even in the absence of man.

EIR: Where would the ozone come from then?

Ellsaesser: The most likely source—suggested already by the occurrence of high ozone levels before—is hydrocarbons from plants. If you look at the records, you find that ozone goes up very sharply on hot days. There is nothing in the chemistry that explains that. The only thing that makes any sense is that on those hot days the plants have the hydrocarbons essentially boiled out of them to try to keep their temper-

ature down, and to keep from being scorched by the heat.

EIR: You mean, instead of transpiring water, they are transpiring hydrocarbons?

Ellsaesser: Right. They put out hydrocarbons instead of water because they run out of water in trying to keep their temperature down. So they are releasing these hydrocarbons under conditions that are very favorable for producing ozone. If you take the release over a whole year, it may not be very great. But it could be very significant during this particular period, because it's right when you need it, when the temperature is hot, and conditions are favorable to form ozone.

Now, not only do you have this temperature effect, suggesting the importance of plants, if you look at the individual stations around Los Angeles and the Bay Area, you find that the stations consistently recording the highest ozone are the ones that are near to slopes on which there are evergreen plants. In *Science* magazine (June 2, 1978, p. 1051), Jim Sandberg, who works for the Bay Area Control District, found that he could explain something like 30-50% of the excesses in ozone for the next year from the winter precipitation. In other words, in California, we get all of our precipitation in the wintertime. That determines how much the plants can produce, and therefore how much hydrocarbons they can produce the next summer. Using that argument, he was able to get a statistical relationship that explained something like 30-60% of the variations in ozone exceedences for the follow year.

EIR: So you mean that the amount of hydrocarbons produced by cars and other industrial sources is not equivalent to the amount produced by plants.

Ellsaesser: Yes. That's correct. . . . The Bay Area stands out as one of the few areas around the country that claims to have been able to reduce the ozone substantially. I think it raises questions about their observations. If you look at their data, you find that essentially all of their improvement had occurred by 1972. By 1972 we did not have catalytic converters or any controls on oxides of nitrogen in our autos. So I think that the measurements themselves are questionable. If you look at EPA and the Air Resources Board here in California, they specifically do not compare observations since 1979 with previous ones, and they do not compare observations since 1973 with previous ones, because in 1973 we switched from oxidant to ozone, and in 1979 there was an abrupt jump in all the data that no one understands.

EIR: So you mean that you cannot really compare the levels of ozone "pollution" today with those of the 1950s and 1960s?

Ellsaesser: That's right. You are looking at different things. You are looking at ozone now. Back then you were looking at what they called oxidant. No one has come up with a way to make these comparable.