reviews

Prediction of a global cooling

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Ice or Fire? Surviving Climatic Change. By D. S. Halacy, Jr. Pp. 212. (Harper and Row: New York and London, 1979.) $9.95; £5.95.

THE fascinating subject of climate, and the likelihood that the world may soon witness another climatic change, has attracted the attention of several semi-popular book writers in the past few years (*Hothouse Earth,* by Howard Wilcox; *The Weather Machine,* by Nigel Calder; *The Genesis Strategy,* by Stephen H. Schneider; and *Climates of Hunger,* by Reid A. Bryson and T.S. Murray, to mention but four of the more celebrated ones). As one contemplates these very different approaches to climatic change and its many implications for mankind one is struck by the difference in tone and approach taken by the scientists actually doing climate research (Schneider and Bryson) and the science-writers who are not actively working in the field (Wilcox and Calder — and now Halacy).

It is not surprising that this difference should exist. Research scientists are trained to be critical and questioning, and are usually very cautious about jumping to conclusions too quickly (though some do, of course). This trait tends to make their scientific writings a bit dull for the average intelligent layman, although it should be quickly added that Schneider and Bryson are among the liveliest of scientist-writers.

On the other hand, a science-writer approaches his subject with the eye of the journalist, and may be on the lookout for a good story rather than a presentation of a balanced account. Halacy, in *Ice and Fire?* like Calder, has chosen to write a book whose central theme is the prediction of a global cooling as the beginning of a new ice age — perhaps occurring very quickly. Although he mentions the fact that Calder's book was criticised by many climatologists and other scientists as "irresponsible scaremongering", he has followed the same chilling path: The coming ice age, the slow growth of ice sheets over North America and Europe, the lowering of sea level as the water is trapped as ice on land, the changing patterns of precipitation, and the global scramble for new sources of food as the old ones become unfavourable are all described — almost, it would seem, with relish.

There is a strong counterpoint to this prediction of an imminent ice age, and that is the thought that we might be able to modify or avert it if we tried hard enough. This theme is developed in Part I, which occupies more than half of the book. Halacy wrote a book called *The Weather Changers*, in 1968, and the part on weather (and climate) modification has the same title and seems to be an update on the earlier work, with an emphasis on the subject of *weather* modification — notably rainmaking. There is relatively little said about *climate* modification that would be relevant to the prospect of a coming ice age.

The book is written with an engaging style, but it gives the overall impression of a clever collage of anecdotes, theories, and facts, rather than a development of a main thesis. Furthermore, even a non-expert will notice that he has blurred his timescales cleverly (as did Nigel Calder, whom he quotes extensively), giving the impression that the advent of an ice age could occur in a matter of a decade or so — perhaps it will take a century if we are lucky, he says. This will be recognised as Calder's "snowblitz". Halacy does mention that the periodic fluctuations that have accounted for major natural climate changes are 2,500 to 100,000 yr long (although there seem to be some weaker climate changes associated with shorter periods), but this matter of time-scale is never made clear in talking about the impending ice age. Few climatologists would question the likelihood of a new ice age coming *eventually* — but how many thousands of years from now?

Similarly, he does mention the idea that the burning of fossil fuels and the addition of carbon dioxide to the atmosphere is likely to cause a global warming in the next few decades, and that a "worst case" estimate calls for a warming of over 3°C by the year 2050. This, he concedes, "would play havoc with weather and climate". However, he dismisses the prospect of a warming due to human activities by saying, "There are those who reason that other pollutants stop more incoming radiation and will outbalance the CO_2 to create a cooling rather than a warming trend." This is an idea proposed some time ago by Bryson and others, but there are few left who now subscribe to it.

The expectation of a global warming in the next few decades and centuries, rather than the onset of an ice age, was expressed most authoritatively by the more than 100 experts assembled by the World Meteorological Organization (WMO) for the World Climate Conference in Geneva in February 1979. Said the Declaration of that Conference: "We can say with some confidence that the burning of fossil fuels, deforestation, and changes of land use have increased the amount of carbon dioxide in the atmosphere . . . and it appears plausible that [this] can contribute to a gradual warming of the lower atmosphere, especially at high latitudes . . . It is possible that some effects on a regional and global scale may . . . become significant before the middle of the next century."

Thus, Halacy seems to have a rather poor batting average in his predictions, if we can judge them against current evidence; and one of his statements, presumably written a year or more ago, has already turned out to be quite wrong! "There is no evidence of a global or national [US] climate programme of significance" (p 205). Early in 1979 the US Congress passed the National Climate Program and it is now part of the law of the land; and in May 1979 the Congress of the WMO adopted the World Climate Programme. These are both official programmes being actively pursued on many levels, and the WMO's Programme in particular demonstrates the serious concern of all nations with the problems of climatic variability and climatic change.

Although *Ice or Fire?* deals with a vital set of questions, and although it contains a great deal of information recounted in a lively manner, it is seriously flawed by a combination of emphasis on subjects only remotely relevant to the main theme, and by a main theme that is itself based on a faulty premise. Perhaps if Halacy had written his book a year or two later he would have followed the lead of Wilcox and played on the prediction of a warmer Earth instead of an ice age. That too would have been a good story. □

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