Where Real Trouble Lies

IN the past several months, all kinds of fears have been expressed about the damage that might be done by pollution of various kinds to species of animals which are either of economic importance or of some other value to society at large. By now, for example, it is known that DDT and other organochlorine pesticides can damage the reproductive capacity of birds, particularly falcons and eagles. Similarly, there have been fears that pesticides and other chemicals in the sea may cause irreparable damage to breeding stocks of fish or other sea animals. It is therefore ironical but important that signs are now rapidly accumulating to show that the most serious and rapidly growing threat to the survival of these species lies not in any form of pollution but in the activities, sometimes illegal, of people armed with nothing more unfamiliar than guns and trawling nets.

The case of the American eagle is already something of a scandal. Over the years, the populations of the bald eagle and the golden eagle have steadily declined to 2,000 and 8,000 respectively and, because both birds are protected by federal legislation, it has been assumed that the decline in their populations is to be attributed to the hostile influences of the contemporary environment, DDT and all. But now it turns out that farmers in states such as Wyoming, anxious to protect flocks of sheep and other livestock against predators, have been hiring helicopters so as to destroy eagles in flight. One estimate is that close on a thousand eagles have been destroyed by these techniques in Wyoming in the past year, and it is clear that others have been killed by poisoned bait of various kinds. On the face of things, at least, it looks very much as if the illegal operations of the farmers are in themselves sufficient to account for the decline in the populations of the eagles, and that they are sufficient to jeopardize the future of the two species. Because there are bound to be serious limits to the efficiency with which the law can be enforced, is there not a strong case for asking that some of the ecologists who worry about the effects of pesticides on the breeding stocks of eagles in North America should turn their attention to such a close understanding of the habits of these splendid creatures that means might be evolved for keeping them out of reach of their most serious enemies, the farmers of the north-west?

The case of vertebrates in the North Atlantic is potentially much more serious. It is already well established that at least two species of whale have been exterminated as a result of hunting in Antarctic waters, and others are in danger (see *Nature*, **232**, 80; 1971). There is now a serious danger that species of commercial fish may be exposed to insupportable pressure from fishing vessels. It is already well documented that the catch of herring in the North Sea and around the British Isles has declined steadily since the Second World War, and this is one of the reasons why the British government is sensitive about the limits preserved for national fishing in coastal waters, due to be negotiated in Brussels this week with the members of the European Community. But it is also becoming harder for fishing vessels to keep up their productivity in catches of cod and haddock, two of the principal catches in the North Atlantic. Figures recently made available by the Fisheries Research Board of Canada (ref. Technical Report 260) illustrate how sharp has been the decline of the population on what is called the Scotia Bank, the shallow region of the continental shelf east and south of Nova Scotia. By means of comprehensive samples in the region, it has been possible to show that for both species, the present rates of exploitation are comparable with or even exceed the maximum sustainable yield of the two species. But there is at present no limit to the intensity of fishing in regions such as this; instead, there is a constant incentive to travel further afield in search of fish. Although not nearly enough is known of the population dynamics of cod and haddock, there is at least a strong danger that over-fishing could bring about a marked reduction of the stocks of fish available within a decade.

One obvious moral is that some attempt should be made to set up international controls of the intensity of fishing in the North Atlantic. If the snail's pace at which similar attempts to restrict the sovereignty of nations and the independence of fishermen is any guide, a decade leaves hardly any time for manoeuvre. The second important lesson is that those who fear the way in which pollution of various kinds may damage marine life should acknowledge that whatever the rightness of their case, there are still more urgent problems to be tackled.

100 Years Ago

The Aurora

I HAVE just read Mr. Wilson's interesting paper entitled "Some Speculations on the Auroras," published in your periodical for September 7. In the *Philosophical Magazine* for July 1870 I made a suggestion as to the origin of auroras similar to that just published by Mr. Wilson.

The periodicity in auroral displays noticed by Mr. Wilson had not attracted my attention. It would doubtless, if it were well established, be confirmatory of the views independently put forward by Mr. Wilson and myself. A. S. DAVIS

Meteor

ON Saturday, September 2, at 8.14 or 8.15 P.M., I saw a fine meteor under very favourable circumstances. I was standing with several friends at the door of Mr. W. F. Moore's house at Croakbourne, in the Isle of Man, and we were looking up at the western sky at the moment when the meteor came. It started between, I think, γ and π Herculis (it was too cloudy to see those stars), descended nearly vertically, passing through Corona Borealis, and vanished a little below ζ Bootis, at about 15° above the horizon. It moved slowly but continuously, taking from two to three seconds in travelling over 45°. It broke into three, which followed one another, connected and followed by a luminous train which was visible for about one second. The first part of the three was brilliant white, and was estimated by Mr. A. W. Moore and myself independently as equal in size to $\frac{1}{3}$th of the moon's surface. It was very brilliant, being mistaken by the Rev. John Howard, who was looking in another direction, for a flash of lightning. The two latter globes were blue.

Rugby, September 6 J. M. WILSON

From Nature, 4, 385, *September 14, 1871*