Foot and Mouth and Wet

THE catastrophic epidemic of foot and mouth disease which began at Oswestry in October 1967 had one favourable result—it provided the stimulus for an analysis of the role of weather in the spread of foot and mouth disease (see page 712, this issue). The outstanding feature of the early days of the epidemic was the way in which the disease spread downwind from Oswestry into Cheshire. The evidence that L. P. Smith of the Meteorological Office and M. E. Hugh-Jones of the Central Veterinary Laboratory have accumulated from analysis of prevailing weather and spread of the disease during four separate outbreaks leaves little room for doubt that wind and rain play the chief part in dispersing foot and mouth disease virus.

Like any other particle less than a few microns across, foot and mouth virus particles no doubt readily become airborne and are presumably carried downwind. Although experiments with foot and mouth virus itself are, for obvious reasons, impossible, airborne particles only a few microns in size are usually deposited only slowly from dry air, although rain greatly increases the rate of deposition. Indeed, P. Goldsmith of the Meteorological Office has evidence that particles less than a micron in size can penetrate clouds and actually act as nuclei for the formation of rain drops, thereby hastening their own deposition. As far as foot and mouth disease is concerned, a plausible explanation of dispersal of the virus is that it becomes airborne, travels downwind and is precipitated by rain, thereby contaminating the grass which uninfected cows are eating.

The evidence which Smith and Hugh-Jones have produced in support of this scheme is admittedly circumstantial but none the less compelling. The correlation between spread of the disease in four outbreaks analysed—Chester (1952), Oswestry (1961), Northumberland (1966) and Hampshire (1967)—is too close to be coincidence. During all four episodes, the spread of the disease was more or less downwind of the primary outbreak. An increase in the rate of new outbreaks correlated with the onset of wet weather, and 91·4 per cent of all secondary infections occurred in the sector of the compass defined by the prevailing wind and rain. Only 8·6 per cent of secondary outbreaks could not have been spread by meteorological factors including the few cases in which infected stock or contaminated vehicles are known to have been moved from the site of infection.

Analysis of the pattern of outbreaks during the 1967–68 epidemic also supports the idea that rain at night, when ultraviolet inactivation of the virus is minimal, is more important than rain during the day. Indeed, it seems likely that a period of wet, windy weather at a time when the primary outbreak is at its most infectious can change a seemingly small outbreak into an epidemic on the scale of 1967–68. Until the ninth day, indeed, the 1967–68 epidemic seemed less threatening than any of the four other episodes analysed; the turning point came on days 10–14, when continuous wet weather coincided with a high infectious rating. In an attempt to introduce a quantitative index, Smith and Hugh-Jones have assumed an infection rating of 1 on day one to 20 on day twenty. When this rating is multiplied by the hours of rain between six in the evening and six in the morning for the first twenty days of the epidemic, the index is 1,752. The corresponding indices for the 1952 and 1961 outbreaks in the same area are only 191 and 138. Purists may insist that only experiments can prove that wet winds transmit foot and mouth disease, but it seems that the weather plays a more important part than anyone had previously credited.

Neologonumismatology

PASSION for the abstract has inflicted some brutal wounds on the English tongue. The fervid ransacking of dead languages has already spawned enough neologisms for a pedant to talk Greek under the mask of English. If the noise of the fireworks is giving him a headache, he may attribute his cephalalgia to the cacophony of the pyrotechnics. Unfortunately the otiose pomposity that would be laughed to ridicule in speech has come to be almost the hallmark of certain kinds of written language including, dare it be said, much of what passes for scientific communication. Scientists, to be sure, have a greater need than others to adopt new words, but it is a deplorable lack of imagination that sends them scurrying to Latin and Greek to coin their ugly isms and ologies. The nuclear physicists stole a bold march by turning to *Finnegans Wake* for the term to describe the fractionally charged sub-atomic particle. The etymology of "quark" has attracted attention in several articles (in which, however, there is a regrettable tendency to insert into "Finnegans" the apostrophe that Joyce was at pains to exclude).

Where quarks have led, the editor of *Biological Conservation* has sadly failed to follow. In the fourth issue of this important new journal, he has commended the suggestion of a contributor, L. K. Shaposhnikov, that the science of nature conservation should henceforth be known as "sosiecology". The etymology, from σωσειν meaning "to save", has been certified correct by the Regius Professor of Greek at Oxford. The kindest hope one can wish this new infant, despite the endorsement of its godfather, is a speedy and painless extinction. For one thing, it is unpronounceable. The best the unwilling tongue can produce is a sound