Solvent solution
In an epidemiological study published in The Veterinary Record (128, 199–203; 1991), J.W. Wilesmith et al. trace the onset of the bovine spongiform encephalopathy (BSE) epidemic in British cattle back to a change in the practice of meat and bone meal production. Around 1980, most British ‘rendering’ plants stopped using hydrocarbon solvents to separate fat from carcasses. This abrupt change fits in with the supposed transmission to cattle, through their feed, of the infective agent of scrapie (a similar disease afflicting sheep) in the winter of 1981–82. The authors point out that the additive effects of heat treatment and solvent action, or the additional steam heating needed to remove the solvents, may explain the agent’s inactivation when solvents are used, and that regional variation in rendering practice could underlie the distribution of BSE cases.

Bated breath
Is the Earth warming up in response to increased atmospheric concentrations of greenhouse gases? The answer, according to T. Karl et al. (Science 251, 1058–1061; 1991), is that we won’t be able to tell for some time yet. Although the past decade was the warmest on record, it is difficult to distinguish the effects of additional greenhouse gases from natural variations in the climate. Comparing the records of temperature and precipitation for the central United States with model projections for the next 50 years, the authors find no significant indications of warming trends. If the model projections are right, an unambiguous greenhouse signal will emerge only after the next 10–20 years. It will take even longer for any effects of greenhouse warming to show up in levels of precipitation. This leaves policy makers, the authors remark, “in an unenviable position”.

Sweet success
Using linkage studies, G.J. Bell and colleagues have mapped the gene responsible for one form of non-insulin-dependent diabetes mellitus (Proc. natn. Acad. Sci. U.S.A. 88, 1484–1488; 1991). First described in the 1970s, maturity-onset diabetes of the young (MODY) is an autosomal-dominant disorder that otherwise closely resembles late-onset non-insulin-dependent diabetes. Using 79 DNA markers, Bell et al. excluded about 40 per cent of the human genome, including several candidate genes such as the insulin-responsive glucose transporter on chromosome 17. Close linkage to the MODY locus was finally demonstrated in one large affected family with the adenosine deaminase gene, which maps to the long arm of chromosome 20. Although the location of the MODY gene does not betray its identity, its eventual isolation may provide insight into other forms of diabetes as well.

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WHEREAS water on the surface of most artificial plastics and elastomers beads up as shown in the top frame, Issao Noda has developed (page 143) an elastomeric latex that is fully wettable by water (bottom frame; the fully spread droplet is barely visible). The surface of this polystyrene–polybutadiene latex is rendered hydrophilic by adding a diblock copolymer during synthesis, one end of which is water-soluble (polyethylene oxide, PEO) and the other hydrophobic (ensuring solubility in the hydrocarbon latex). For reasons as yet unclear, the amphiphilic copolymer migrates to the surface during polymerization of the latex constituents, thereby becoming immobilized with the PEO ends exposed to the air.

Block copolymers, used already as emulsifying agents for polymer alloys, are thus able to influence surface as well as bulk properties. The immediate applications (nappies and bandages) may seem prosaic. But might this be a general way to make surfaces wettable only by specific adsorbates? P.B.