

REPORT OF A DINNER/DISCUSSION

BSE and vCJD: The Current Understanding of the Science

Held at the Royal Society on Tuesday, 5th June, 2001

Sponsored by:

The Department of Health
The Embassy of France
The Ministry of Agriculture, Fisheries and Food

In the Chair: **The Rt Hon The Lord Jenkin of Roding**, Chairman, The Foundation for Science and Technology

Speakers: **Professor Brian Heap FRS**, Foreign Secretary and Vice-President, The Royal Society
Professor Dominique Dormont, Chef de Service, Service de Neurovirologie (SNV), Service de Santé des Armées (CEA), Paris
Professor Roy Anderson FRS, Department of Infectious Disease Epidemiology, Imperial College of Science, Technology and Medicine, London

The meeting took place on the publication of the policy document "Transmissible spongiform encephalopathies"[†] by the Royal Society and the Academy of Medical Sciences. The document recommended further basic research into transmissible spongiform encephalopathies (TSEs); steps to encourage high quality young researchers in this area; a continued ban on the recycling of animal protein; the eradication of TSEs from food animals; the development of better diagnostic tests; further work on the sterilisation of surgical instruments and on the safety of blood transfusions; and urgent consideration of the possibility of cross-infection in abattoirs which slaughtered animals for food and also culled cattle over thirty months of age. The statement also noted that there were prospects for the future development of therapies.

In response to the document the Food Standards agency announced that it would examine the risk of cross-contamination in the eight dual-use abattoirs, which had not been in operation since 23 February because of foot and mouth disease.

Professor Dormont's lecture explained the continuing uncertainty over the structure of abnormal prion-related protein (PrP), and one speaker wondered why this was so hard to elucidate. The answer given was that the structure of the normal protein had only been obtained by nuclear magnetic resonance imaging, not by

crystallisation, and even then with difficulty because it was very hard to obtain a pure solution. No-one had yet managed to obtain a pure sample of abnormal PrP.

The policy document noted that the nature of the infective agent in TSEs was not yet resolved. The scope for controversy was illustrated in the discussion when one speaker advocated the theory that TSEs were autoimmune disorders, while another declared roundly that this view was exploded by experiments carried out even before it had been propounded. Another theory mentioned by Professor Dormont turned on the action of chaperone proteins causing PrP to be folded wrong. There was no clinically described chaperone disease in humans, but some evidence existed of a role for chaperone mechanisms in diseases with misfolded proteins.

There was dispute also over the likely future incidence of vCJD. The document reported that it was not currently possible to improve on the estimate that the total number of people becoming infected would be in the span of a few hundred to over a hundred thousand. One speaker argued that new cases were falling gently and future cases would be limited to a few hundred, while others disagreed strongly. It was pointed out that all the victims hitherto had been of the same genotype as the early kuru victims, with short incubation times.

Later victims were liable to have genes conferring longer incubation periods.

It was argued that it was no longer necessary to invoke the precautionary principle in relation to vCJD. That principle should come into play when there was not only real uncertainty but also scope for serious harm if the wrong decisions were made. In fact all the steps needed to minimise the risk of getting vCJD had already been taken, and the public ought to be told this. In response one speaker agreed that the continuing risk in the UK was low, in the sense that future cases of vCJD would almost all result from past exposure to the infection. People going abroad still, however, had to decide whether it was safe to eat meat.

The development of better diagnostic tests was seen as a big scientific challenge, and one speaker thought the effort devoted to it disproportionately small. One suggestion was that the Food Standards Agency should commission more work in this area.

Noting the document's call for measures to encourage high quality young researchers, one speaker wondered what was wrong with the existing researchers. Nothing, according to one response: the UK had a substantial, internationally leading TSE research programme which collaborated with many others. But a creative programme needed young people and there was a recruitment problem, particularly for good postdoctoral scientists. One problem was that a budding science career needed quick results, and TSE research was a long haul.

The question was raised how best to communicate with the public over the hugely complicated science of TSEs.

In this connection one contributor to the discussion criticised the document which had just been published. The summary on the front page talked about eradicating TSEs from sheep and goats: how many people ate goat meat? It called for further work on the sterilisation of surgical instruments: what should the speaker do to ensure the safety of her diabetic child? The possible of cross-infection was mentioned in "those abattoirs" which handled both culled cattle and those entering the food chain: which abattoirs? It was said that there were prospects for the development of therapies, "but" that this would need public money: why not "and"?

Messages had to be tailored to their audience. One organisation, indeed, was said to have made a practice of issuing different press notices for the tabloids and the broadsheet press.

There was a particular problem in talking about risk and uncertainty and explaining that science did not present ineluctable facts. A lack of evidence of risk was not the same as no risk, and if there was

no relevant research it was important to make this clear. An invariably fatal disease such as vCJD called for a different approach to risk from one with less extreme consequences.

One speaker suggested that the media had not addressed the issues. A BBC crew had asked him why they had not been told more about prions. Another participant thought the media were responding well to the Food Standards Agency's policy of openness and admitting uncertainty. It was said, indeed, that a television journalist famous for demanding black and white statements from Ministers had been told to stop seeking absolute assurances of safety.

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†The Royal Society and Academy of Medical Sciences Report on "Transmissible spongiform encephalopathies" can be obtained from:

The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

Tel: 020 7451 2691, science.policy@royalsoc.ac.uk or from the Royal Society website www.royalsoc.ac.uk

Copies of all dinner/discussion meeting discussion summaries are posted on the Foundation's web site, which can be found at www.foundation.org.uk.

<p>The discussion was held under the Foundation's Rule that the speakers may be named but those who contribute in the discussion are not. None of the opinions stated are those of the Foundation, since by its nature and constitution, the Foundation is unable to have an opinion.</p>
