4. The Spongiform Encephalopathy Advisory Committee (SEAC)

Establishment of SEAC

4.1 The Interim Report by the Tyrrell Committee, presented to Ministers in June 1989, noted that in relation to research on Spongiform Encephalopathies (SEs), coordination would be important in minimising duplication. It suggested that: ‘A standing mechanism may be needed to oversee this cooperation and coordination beyond the lifetime of our Committee’.167 The Report also asked for guidance on whether the Committee was to have a continuing role in peer review and project coordination.168

4.2 This prompted discussions within MAFF and DH on a proposed new expert group to replace the Tyrrell Committee. On 3 July 1989, Dr Hilary Pickles, Principal Medical Officer DH, minuted Sir Donald Acheson, the Chief Medical Officer, about the future of the Committee:

Some mechanism will be needed to continue to review BSE research being undertaken by a variety of disciplines and to watch out for gaps or overlaps. Also to review the situation in six months or so in the light of fresh evidence on spread of BSE and the outcome of research now in hand.169

4.3 Realising the possible conflict between a committee set up to overview research and the various existing research bodies, the minute added:

Detailed consideration of individual projects will be for the research councils and research institutes. AFRC and MRC might not wish to be second guessed on BSE.170

4.4 Sir Donald’s response to this proposal followed an informal discussion with Sir Richard Southwood in November 1989. In a minute to Dr Pickles on 29 November 1989, Sir Donald noted that Sir Richard ‘rightly points out that as the months go by, he is likely not to be completely up to date and without calling his experts again to go up, can no longer feel that he is in a position to give Ministers authoritative advice’.171 Sir Richard expressed the view that a group under the chairmanship of Dr Tyrrell would be the best way forward. Sir Donald added that the new Committee, in addition to an overview of research, might also adopt a wider brief. He said ‘it might be possible to rationalise the situation in such a way that

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167 IBD1 tab 4 p. 4
168 IBD1 tab 4 p. 1
169 YB89/7.3/3.1
170 YB89/7.3/3.2
171 YB89/11.28/4.1
David Tyrrell perhaps with slightly different groups gives advice not only on research but on the other aspects’. 172

4.5 On 7 December 1989, Dr Pickles minuted the CMO with her vision of ‘a standing committee meeting as and when necessary and unlike its predecessors not producing reports for publication’. Dr Pickles thought it would be ‘inappropriate for a group reporting to MAFF/DH and with a civil service secretariat to go into too much detail on research, but a general oversight role in research would be useful although not without political risks if funding does not match their recommendations’. 173

4.6 MAFF’s views on the proposal for a new committee were similar to those developed in DH. On 20 December 1989, Mr Robert Lowson, Head of the Animal Health Division at MAFF, reported to Mrs Elizabeth Attridge, MAFF Under Secretary (Animal Health and Veterinary Group), that the views of DH officials corresponded closely with ‘what the CVO has already suggested, namely that a small standing group of experts should be created to meet as necessary to respond to specific questions but should not be asked to produce reports for publication’. He noted that Mr Derek Andrews, Permanent Secretary of MAFF, had already agreed with his ‘opposite numbers’ in DH that a small group was needed to monitor and advise on the BSE position, and to follow up the Southwood and Tyrrell Reports. 174

4.7 In addition, Mr Andrews favoured the wider brief proposed by Sir Donald Acheson to include policy advice and endorsed the view that the Committee should not produce reports, but that ‘it would be preferable to think in terms of updating reports at irregular intervals as necessary which would provide a summary statement of the Committee’s work’. 175

4.8 In January 1990, both Mr John Gummer, the Minister of Agriculture, and Mr Kenneth Clarke, Secretary of State for Health, approved the establishment of the committee in the way envisaged by Mr Andrews and Sir Donald Acheson. 176

4.9 Following Ministerial approval, the Departments turned their attention to administrative practicalities. On 20 February 1990, Mr Andrews wrote to Sir Donald Acheson suggesting that ‘for the sake of administrative simplicity’, rather than wind up the existing Tyrrell Committee and create a new one, the existing body could simply be ‘renamed and reconstituted’. 177

4.10 On 3 April 1990, Mr Gummer announced, by way of written answer to a Parliamentary Question, that instead of winding up the Tyrrell Committee, it would be reconstituted as the Spongiform Encephalopathy Advisory Committee (SEAC), with Dr David Tyrrell, Chairman of the existing Tyrrell Committee, as Chairman. 178
Terms of reference

4.11 In a minute to the CMO dated 7 December 1989, Dr Pickles suggested that the terms of reference of the new group might be ‘a combination of Southwood and the earlier Tyrrell group on research’. She set out a first attempt:

To advise the Ministry of Agriculture, Fisheries and Food and the Department of Health on matters relating to spongiform encephalopathies. 179

4.12 Dr Pickles noted that the words ‘including periodic assessments of research priorities’ could be added to this, although she observed that ‘we could also argue that the shortened version could be taken to include research’. 180

4.13 In the event, Dr Pickles’s original version remained unchanged throughout the resulting correspondence between the Departments, and was adopted in Mr Gummer’s 3 April 1990 announcement to the House. The terms of reference were referred to briefly at SEAC’s inaugural meeting on 1 May 1990, where the Committee agreed that its ‘remit . . . was very wide’. 181

4.14 In accordance with its terms of reference, SEAC reported to both MAFF and DH. Mr Lowson explained in his statement to the Inquiry that:

[SEAC’s] wide terms of reference enabled it to operate with the necessary flexibility in a changing situation. Advice about public safety was addressed to the CMO (notably their paper on the Safety of Beef of 24 July 1990 182 . . .). Advice about control measures was directed at MAFF as the Department responsible for operating them, and it was mainly this advice which gave rise to specific operational steps (eg, when evidence about the transmission of BSE to pigs led SEAC to advise about the removal of SBOs [Specified Bovine Offal] from feed for all farm animals). 183

Membership

Chairman

4.15 A table of SEAC members, observers and the secretariat up to the period ending 20 March 1996 can be found at Annex 1 of this volume. As noted above, membership of SEAC was primarily based, ‘for the sake of administrative simplicity’, on the Tyrrell Committee, with Dr Tyrrell continuing in his role as chairman.

4.16 In October 1993, both DH and MAFF sent parallel submissions to Ministers raising the need for a deputy chairman on SEAC, who, as noted in the MAFF submission, ‘could issue statements on urgent topics in the absence of Dr Tyrrell’. 184 Following discussion with officials, Dr Tyrrell, with the Committee’s...
support, recommended Dr Robert Will, on the basis that the nature of emergency meetings required a medical input.\textsuperscript{185} The Ministers’ approval was duly obtained.\textsuperscript{186} Dr Will first attended as Deputy Chairman at the 17th SEAC meeting on 30 August 1994.

\textbf{4.17 MAFF and DH also reviewed the composition of SEAC in 1994, because it was anticipated that Dr Tyrrell, who was nearly 70, would retire from his position as chairman in 1995. It was suggested that Professor John Pattison, Vice-Provost of University College London, Dean of UCL Medical School and Professor of Medical Microbiology, should become a SEAC member with a view to replacing Dr Tyrrell in 6 to 12 months’ time.\textsuperscript{187} Dr Kenneth Calman, the CMO at the time, expressed support for Professor Pattison over other candidates: ‘He has a well justified reputation as a good committee chairman and his scientific credentials are first class’\textsuperscript{188}. Another factor identified by both DH and MAFF was Professor Pattison’s ability to provide ‘effective public presentation of the committee’s deliberations and recommendations’.\textsuperscript{189} Professor Pattison attended his first meeting as a member of SEAC on 10 February 1995 and succeeded Dr Tyrrell as Chairman on 1 November 1995.

\textbf{Members}

\textbf{4.18 In addition to Dr Tyrrell as Chairman, the inaugural members of SEAC comprised Dr Will, Director of the CJD Surveillance Unit, Dr Watson, Director of the CVL, 1986–90, and Dr Kimberlin, independent TSE consultant since 1988, from the existing Tyrrell Committee, with the addition of Professor Fred Brown, a virologist, former member of the ARC Committee on Scrapie 1977–87, and former Deputy Director (Scientific) of the Animal Virus Research Institute (Pirbright). However, one exception to the transfer of membership from the Tyrrell Committee to SEAC was that of Professor John Bourne, Director of the Institute of Animal Health (IAH). When asked in oral evidence to the Inquiry if he knew why he was not appointed, Professor Bourne replied:}

\begin{quote}
Well, no, I do not really. It was explained to me by MAFF that ARC would be represented by an observer and that was adequate for MAFF’s purposes . . . The other suggestion, which I found rather strange, was that as I would be competing for resource it would put me in too favourable a situation had I been a member of SEAC. I did not really understand that at the time. The bottom line, I was not given a sensible reason why I was not a member of SEAC.\textsuperscript{190}
\end{quote}

\textbf{4.19 The minutes of SEAC’s first meeting recorded that: ‘Although the core membership was small, additional experts could be involved for particular topics as necessary’\textsuperscript{191}}

\textbf{4.20 The composition of SEAC changed and enlarged over time. Shortly after its formation, Professor Ingrid Allen, a neuropathologist, was appointed to strengthen the Committee’s human health expertise. Likewise, Professor Richard Barlow of}
the Royal Veterinary College, an expert pathologist and veterinarian who had successfully conducted the first BSE oral transmission experiments to mice, was also confirmed as a member in September 1990. In response to Dr Tyrrell’s request for a ‘practising’ veterinary surgeon, Mr David Pepper, a veterinary surgeon in private practice, was subsequently nominated by MAFF and attended the sixth meeting on 1 November 1990.

4.21 SEAC’s membership did not change again until 1994 when Dr William Hueston was invited to join upon Professor Barlow’s resignation. Dr Tyrrell had requested an epidemiologist of ‘high calibre specialising in the field of spongiform encephalopathies’ to fill the vacancy. Dr Hueston was an American scientist trained in veterinary medicine and epidemiology. Acting on behalf of the US Department of Agriculture, he had spent approximately six months in the UK [at CVL] in the period following the identification of BSE, to make an independent assessment of the disease and to evaluate possible dangers to agriculture in the US. Dr Hueston attended his first SEAC meeting on 26 January 1994.

4.22 In September 1994 Dr Calman, the Chief Medical Officer, suggested that there was a need to ‘strengthen the clinical membership of SEAC’ because of increasing concerns about the risks posed by BSE for human health. As a consequence it was agreed that Professor Pattison would be recommended as an additional appointment to the Committee. As described above, Professor Pattison was appointed Chairman of SEAC from November 1995. He felt that SEAC would benefit from additional members, particularly on the human health side, to balance the Committee ‘in terms of those coming from a veterinary or animal background and those coming from a human background’. This led to the appointment to SEAC of Professor John Collinge, Head of the Neurogenetics Unit at St Mary’s Imperial College School of Medicine; Dr Michael Painter, a consultant in communicable disease control, with a public health background and perspective; Professor Peter Smith, an expert on human epidemiology and statistics of the London School of Hygiene and Tropical Medicine; and Professor Jeff Almond of the School of Animal and Microbial Sciences at the University of Reading, an expert in virology and immunology.

4.23 At the same meeting, Mr Ray Bradley, the MAFF observer since SEAC’s inception, was appointed as a member of SEAC, having officially retired from the Department. All new members attended their first SEAC meeting on 5 January 1996.

Observers

4.24 It was recorded in the minutes of SEAC’s first meeting that additional observers were to be invited when appropriate from the MRC, AFRC (later the BBSRC), and CVL. Although Sir Donald Acheson had desired the inclusion of Mr John Wilesmith, Head of Epidemiology Department at the CVL, as observer for his veterinary epidemiological expertise, it was eventually agreed with MAFF that
Mr Bradley’s position as CVL’s BSE Research Coordinator meant he was the most appropriate CVL member to act as MAFF observer.  

4.25 Mr Bradley attended as the MAFF observer from the establishment of SEAC until 1 January 1996, when he became a member. Similarly, Dr Pickles became the DH observer from SEAC’s fifth meeting, and Mr Thomas Murray replaced her in SEAC’s secretariat. Previously, Dr Jeremy Metters had attended as the DH observer for the third meeting of SEAC. Dr Ailsa Wight, a medical officer at DH, took over from Dr Pickles as the DH observer from 6 September 1991.  

4.26 On 31 August 1990, Dr Deirdre Hine, the CMO at the Welsh Office, raised the prospect of the Territorial Departments attending SEAC as observers at a meeting with her fellow CMOs. This proposal was initially favoured by Sir Donald Acheson. However, as reported by Dr Metters, Dr Tyrrell was opposed to having ‘serried ranks of officials present’. Dr Tyrrell believed that the presence of additional observers might stifle the scientific discussion of the Committee, and considered that there were adequate alternative ways of keeping Territorial Departments informed via circulation of papers. Similarly, Dr Pickles and Mr Murray of the SEAC secretariat argued that the size of the group would become unwieldy, as corresponding attendance of observers from agricultural departments of the Territorial Offices could not then be refused. Dr Metters communicated Dr Tyrrell’s opposition to the proposal to the relevant Territorial CMOs by letter on 8 November 1990. However, Dr Metters noted in his letter that Dr Tyrrell still wished to improve communications between the Committee and interested Departments, and nominated Dr Pickles to ensure that the relevant papers were distributed.  

4.27 The Welsh Office also expressed concern about the lack of a proper medical epidemiologist on SEAC and questioned the validity of conclusions reached by the Committee on CJD. Dr Hine was concerned that SEAC’s conclusions involved ‘no detailed discussion of the literature’. She added in her statement to the Inquiry:  

It seemed to us that MAFF officials did not understand that whilst both Drs Wilesmith and Will are eminent experts, neither is a medical epidemiologist or human public health expert, Dr Wilesmith being a Veterinary Epidemiologist and Dr Will a neurologist.  

4.28 DH rejected these criticisms, while Dr Tyrrell opposed the expansion of SEAC, whether in terms of members or observers. In her supplementary statement to the Inquiry, Dame Deirdre Hine commented:  

I formed the view that formal representations on the risks of possible zoonotic transmission of BSE were likely to be viewed by DH and MAFF as irrelevant, irritating or both. I decided therefore to pursue the lack of a
medical epidemiologist and the need for involvement of the PHLS informally through my routine meetings with the other CMOs. I voiced my concern each time the subject of BSE was on the agenda and on each occasion I was listened to with understanding. However, it became clear to me that policy constraints and in particular agreements between the DH and MAFF constrained my DH colleagues from acting on my representations even when they agreed with them.

On the last occasion on which I raised the lack of involvement of the PHLS privately with Sir Kenneth Calman, in the margins of a public health conference at Sunningdale, he told me that the basis of the consistent opposition to the involvement of the PHLS was the anxiety that their involvement would be tantamount to admitting the possibility of a human health risk.\(^{210}\)

**Secretariat**

4.29 As the Committee reported to both DH and MAFF, SEAC’s secretariat comprised representatives from both, initially Dr Pickles from DH and Mr Lowson from MAFF. Dr Pickles was a Principal Medical Officer (PMO) who also had responsibilities for providing medical and scientific advice on pathology services. She had served as the DH representative on the secretariats of both the Southwood Working Party and Tyrrell Committee. Mr Lowson was Head of MAFF’s Animal Health (Disease Control) Division.

**DH representatives**

4.30 In her statement to the Inquiry, Dr Pickles explained her role:\(^{211}\)

As joint secretary [of the Southwood Working Party and the Tyrrell Committee], I shared responsibility with my MAFF counterpart for preparing and agreeing the agenda, collating relevant papers, and preparing and circulating the Minutes for agreement. We dealt with action points arising from the committees as appropriate, for example, drafting correspondence for the Chair or bringing the committee’s advice to the attention of the relevant people. I drafted a number of the background and discussion papers, which were placed before SEAC. We also supported the committees in the production of reports and bringing them into the public domain.\(^{212}\)

4.31 Dr Pickles’s draft contributions included the following:

The statement from SEAC on the safety of beef was largely drafted by me in the light of the Committee’s comments, although Dr Tyrrell drafted much of the covering letter. I also played a part in drafting the statement from SEAC on breeding from BSE offspring. I prepared considerable text for the second research report as a final gesture of support before handing over policy responsibility for the subject area in September 1991.\(^{213}\)
4.32 Dr Pickles worked closely with Sir Donald Acheson on BSE. In her statement to the Inquiry, she said:

I felt that reporting through to CMO was very helpful, as was holding the entire brief [for BSE] for the Department of Health (other than specialist areas like medicines). This enabled me to act as a single focal point and deal with matters efficiently, and have no doubt that the prime concern was the protection of public health.214

4.33 Early on, Dr Pickles reported directly to Sir Donald Acheson, but when Dr Metters became Deputy CMO in August 1989, she reported to him.215 Dr Pickles was succeeded as the SEAC DH secretary by Mr Murray for SEAC’s fifth meeting on 19 September 1990, although she continued to attend meetings as an observer.216

4.34 Mr Murray described his role in much the same fashion as Dr Pickles and her MAFF counterparts. He was responsible for ensuring that ‘the Committee ran effectively . . . that the Committee was convened in line with their wishes and that they had access to appropriate information and documents’.217 He was also responsible for ensuring that SEAC’s views ‘were properly recorded and passed on to Ministers or Senior Civil Servants for action to be taken’.218 Like Dr Pickles, Mr Murray communicated directly with Sir Donald Acheson and Dr Metters, as both took a personal interest in SEAC matters.219

4.35 Mr Murray continued to consult Dr Pickles throughout his time in the secretariat as she continued to attend meetings as an observer until 1991. Thereafter, he worked in close partnership with Dr Wight, who succeeded Dr Pickles as observer. Mr Murray was succeeded as joint secretary of SEAC by Mr Charles Lister of the DH Health Aspects of Environment and Food (HEF) Division in 1993, in time for SEAC’s 14th meeting on 22 April 1993. In his statement to the Inquiry, Mr Lister stated that his work for the Committee involved drafting the minutes, and also the SEAC statement following the fourth case of CJD in a cattle farmer.220 After a three-year term, Mr Lister was succeeded by Mr Michael Skinner of DH, HEF 1C Division, in time for SEAC’s 23rd meeting on 5 January 1996.

MAFF representatives

4.36 Mr Lowson told us that his position at MAFF complemented his role in the secretariat and ‘contributed to securing a quick and direct response to advice’.221 According to Mr Lowson, the ‘handling of BSE-related issues at the level of my Division followed a constant pattern’.222 His role in relation to SEAC, MAFF, and the DH included ensuring that necessary implementation action was taken (especially when necessary follow-up work fell to MAFF); commissioning, and sometimes drafting, papers for the Committee to consider; drafting minutes; and ‘occasionally drafting the advice which the Committee itself wanted to offer’.223

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214 S115 Pickles para. 7
215 S115 Pickles para. 23.2
216 S115 Pickles para. 62.3
217 S120 Murray para. 9
218 S120 Murray para. 9
219 S120 Murray para. 11
220 S123 Lister para. 40; SEAC statement at YB95/10.00/3.1
221 S104 Lowson para. 20
222 S104 Lowson para. 9
223 S104 Lowson para. 22
4.37 Mr Lowson was succeeded in the secretariat in 1993 by Mr Thomas Eddy in time for SEAC’s 15th meeting on 7 October 1993. Mr Eddy had also succeeded Mr Richard McIvor as MAFF Head of Animal Health (Disease Control) Division in June 1993 (Mr McIvor held this post for 10 weeks, in succession to Mr Lowson), and assumed the same joint responsibilities in respect to SEAC as his predecessor. Mr Eddy said of his duties in relation to SEAC:

I gained the impression, and it was certainly always my practice, that when dealing with SEAC issues I was primarily the servant of the Committee and my responsibility was to ensure that the Committee’s views were correctly recorded and were passed on to Ministers and to ensure that anything which I felt that should be drawn to the attention of the Committee which I came across in the course of my work was reported to them.  

Resources and processes

Payment of fees

4.38 SEAC members received a set daily fee for their services in addition to expenses. However, fees were not available to members of expert advisory groups who were already receiving normal salaries from public service organisations. This meant that Dr Tyrrell became eligible to receive the chairman’s fee following his retirement from the MRC at the end of September 1990. The other members in 1990 who were not in full-time public sector employment and who thus qualified for fees were Professor Brown, Drs Watson and Kimberlin, and Mr Pepper. Those not receiving fees were Dr Will, and Professors Barlow and Allen. Over time, SEAC members received increased payments in line with standard Government increases.

Research information

4.39 At SEAC’s first meeting on 1 May 1990, the Committee agreed that it should aim to keep itself informed about all relevant research – on a confidential basis when necessary. The Committee noted the usefulness of sheets which had been prepared for the six-monthly CVL/NPU meetings to discuss MAFF-funded work being made available. Also, Committee members were to exchange information about relevant scientific meetings, so that at least one person attended and could report to the others on new findings.

4.40 The main difficulty identified by the Committee was how to keep abreast of developments in research, both domestically and overseas. A list of groups interested in spongiform encephalopathies had already been drawn up but required expansion. The Committee considered it difficult to keep up with the relevant literature, particularly for members without ready access to large libraries. Mr Bradley and Dr Pickles agreed to make arrangements for appropriate listings and papers to be circulated. Mr Lowson was asked to organise the collation of relevant extracts from the non-specialist press. In addition, Mr Bradley was asked...
to regularly update a table summarising research work being undertaken in relation to the recommendations of the former Tyrrell Committee, with an indication of both results and progress when possible.\textsuperscript{226}

4.41 In oral evidence to the Inquiry, Mr Bradley explained how SEAC was kept abreast of developments:

I mean we did have a system in SEAC, a very good one, where all publications on TSEs were notified to us in a list on a regular basis, and I would go through that list and select particular papers which I felt were of such importance that should be circulated individually to SEAC members. So, I think that was the way, in general, that we got the information. But of course other individuals had their own interests in this area of work and kept abreast of the literature independently of anything SEAC gave them naturally. So it was not just a one way job, it was a multifaceted information system.\textsuperscript{227}

4.42 At the fourth meeting of SEAC, on 2 July 1990, the Committee gave further consideration to literature searches and felt that these should be conducted by DH and CVL libraries in view of the enormous amount of material to which initial searches had given rise. In particular, the libraries were asked to provide an historical list of relevant titles over as long a period as possible, and a monthly ‘current-awareness’ listing. Other suggestions included the creation of an internal computerised database, and the preparation of an up-to-date bibliography on scrapie and BSE.\textsuperscript{228}

4.43 The Committee also sought to make use of cross-representation with various other committees to keep abreast of research. For example, Professor Allen and Dr Pickles provided a link to the MRC Murray Committee on human encephalopathies.\textsuperscript{229}

4.44 As a regular feature of its role, the SEAC secretariat also commissioned, and sometimes drafted, papers for the Committee to consider, as a focus for the issues on the agenda. Occasional seminars and workshops with experts in various fields were also organised.\textsuperscript{230}

\section*{Communication of SEAC’s deliberations}

\subsection*{Communication within the Departments}

4.45 The two Secretaries to SEAC usually took it in turns to take charge of the preparation of the minutes of Committee meetings. This was a lengthy process which could span a month or more. In a statement to the Inquiry, Mr Eddy described the practice when he was Secretary:

(1) the first draft of the minutes was drawn up from notes taken at the SEAC meeting by MAFF junior officials;

\begin{itemize}
\item \textsuperscript{226} YB90/5.12.1–2.2
\item \textsuperscript{227} T42 pp. 127–8
\item \textsuperscript{228} YB90/7.2/2.1–2.2
\item \textsuperscript{229} YB90/11.12.1
\item \textsuperscript{230} See section entitled ‘Secretariat’, above
\end{itemize}
(2) the first draft minutes were sent to relevant senior officials who had attended the SEAC meeting [including the MAFF observer] within MAFF for comment;

(3) a revised draft, incorporating any comments from MAFF recipients of the first draft, was sent to DH for their comments;

(4) a further revised draft, incorporating any comments from DH, was sent to the Chairman of SEAC . . . for clearance;

(5) once the Chairman cleared the minutes they were sent to all the members of SEAC and a copy was sent to various MAFF, DH and territorial officials;

(6) the minutes would then be agreed at the next SEAC meeting.\textsuperscript{231}

4.46 Mr Eddy added:

I was not personally involved in circulating the SEAC Minutes. That function was carried out by more junior members of staff . . . I do not now recall whether all draft SEAC Minutes cleared by the Chairman were always circulated to the same people.\textsuperscript{232}

4.47 The draft minutes were more widely circulated than the final minutes. In oral evidence to the Inquiry, Mr Lowson explained:

It was my habit to pass the minutes to colleagues whom I felt would be interested, not to Ministers, at the stage when they were in draft. As soon as they were written after meetings, I would circulate them to interested colleagues.\textsuperscript{233}

4.48 In addition, Mr Eddy told us:

Where there was a matter of particular importance or interest which arose at a SEAC meeting I would either do a note or circulate an extract from the Minutes to the relevant officials and, if appropriate, the Minister.\textsuperscript{234}

4.49 Regarding the dissemination within MAFF of papers put to SEAC, Mr Eddy informed the Inquiry that ‘these were not usually circulated’.\textsuperscript{235}

Communication with the territories

4.50 As noted above in the section on SEAC ‘Membership’, the proposal by the Territorial CMOs for observer status on SEAC was rejected by Dr Tyrrell, who believed the size of the Committee should not become unwieldy. Regarding communication with the territories, Dr Tyrrell stated in oral evidence to the Inquiry:

We thought that it had been agreed in the early days that our minutes and our opinions . . . would be also going to the regions, and it was with some
surprise that we discovered it was not happening, and the Welsh in particular felt very much left out. So I made a special journey down to Wales to try and bring them up to date and to make clear that it was a slip-up, not a deliberate ignoring of their place in things.236

4.51 Professor Pattison added:

I have always imagined that before devolution, the Department of Health and indeed MAFF was always informing the CMO Scotland and the CMO Wales in the case of the Department of Health, and the relevant people, who I did not know so well because I come from the medical side, in the Agriculture Departments of Wales and Scotland. So as Chairman of SEAC, one had not gone to any lengths to make sure that the territories were informed, one just imagined that it happened as a consequence of Government. Clearly it might not have done.237

4.52 In fact, on 8 November 1990, the CMOs of the Territorial Departments were advised by Dr Metters, Deputy CMO, that, instead of having observer status on SEAC, they would receive ‘all the relevant papers’ from the SEAC secretariat.238

4.53 However, in oral evidence to the Inquiry, Dr Robert Kendell, CMO at the Scottish Office from October 1991 to September 1996, stated: ‘I never ever saw a minute from SEAC at any stage’.239 Similarly, in her oral evidence to the Inquiry, Dame Deirdre Hine said:

I was concerned that we were not getting – I never saw the minutes and it is clear, I think, from some of the correspondence between us and the Department of Health that for some time those minutes were not coming to us from the Department of Health.240

4.54 Dame Deirdre Hine’s view on what constituted ‘relevant papers’ was that ‘you would normally see both the minutes and the supporting papers’.241

4.55 Dr Henrietta Campbell, CMO for Northern Ireland from January 1995 onwards, said: ‘... we did not receive minutes or supporting papers and, indeed, in the middle of the year 1995, I can remember that we expressly asked for minutes’. Dr Campbell added that SEAC minutes were still not sent to the Northern Ireland Office until post-March 1996.242

4.56 Dr Andrew Matheson, Assistant Secretary in the Meat Hygiene/Animal Health Division, Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD), suggested that from 1994 SEAC minutes and papers ‘that went before SEAC’ were copied to the Scottish Office.243 However, Mr William Gardner, Veterinary Head of Section (VHS) in the Scottish Office at the time, said in oral evidence to the Inquiry: ‘All I can say is that we did not see a full set. I do not recall seeing full sets of SEAC papers until quite recently’.244 He clarified this
as referring to ‘the scientific papers, which were tabled for discussion. The minutes we have seen more recently [from 1997]’. Mr James Scudamore, ACVO for Scotland at the time, stated that he did not recollect seeing either papers or Minutes.

4.57 When Mr Lowson was asked in oral evidence whether he believed the Territorial Departments received draft SEAC minutes, he responded:

I do not think they did. However, as far as MAFF was concerned the Veterinary Service was a GB service, and so in conveying to Tolworth colleagues what came out of the SEAC discussion, we were conveying it to veterinary colleagues who dealt with Wales and Scotland as well. There was, I agree, the possibility that veterinary colleagues in Northern Ireland might sometimes be overlooked. This happens in bureaucracies. But on the other hand I am not aware of any occasion when they failed to get the information that they needed. As far as Health colleagues are concerned, it was not my habit to try to identify Health officials in Scotland, Wales and Northern Ireland to whom the minutes or the findings of the SEAC Committee should be addressed. I would leave my colleagues in the Department of Health to do that.

4.58 In fact, the Territorial Departments relied on personal contacts within the main Departments for dissemination of information from SEAC. Mr Scudamore told the Inquiry:

I do not recollect seeing papers or the minutes; but we did know what was going on. In fact I did get papers. So for example if I wanted a summary of a specific experiment, I would ring up [Dr Danny Matthews – MAFF Senior Veterinary Officer] and ask for the documents. We occasionally asked and we got summaries, not necessarily the document that went to SEAC but similar documents.

4.59 Mr Ron Martin, CVO for Northern Ireland from 1990, added:

I think that would be a right description in Northern Ireland as well. If I wanted to know something, I phoned either Keith Meldrum [CVO] or Kevin Taylor [Assistant CVO] and I would be told of that. I did not see the detailed papers at that stage. Nor do I think I needed to see them, to be quite honest.

4.60 Dr Kendell said:

I thought that what was happening was that Dr Wight, in the Department of Health, who attended all SEAC meetings, passed on all important decisions and all important information to Dr Skinner and Dr Skinner would pass it on to me if she thought it was important.
4.61 Dr Kendell also commented on why ‘Whitehall’ Departments might be reluctant to give their documents to the Territorial Departments on a matter which might be of interest:

I think they probably sometimes have worries about confidentiality. We are not directly involved, so we ought to be content with information on a need to know basis. There is a certain amount of tension, but it is not restricted to this issue. It is much wider. And usually it works reasonably well and a good personal relationship between the two individuals concerned is the key.251

Communication with the public

4.62 On 21 May 1990, during a debate on BSE in the House of Commons, Mr Gummer made the following statement:

All the results of the research [relevant to BSE] will be made publicly available because, throughout the debate I have made it clear that the information and knowledge available to us will be made public. I intend to continue on precisely that course.252

4.63 In response to a question about the Government’s advice to farmers on breeding from calves of BSE-infected animals, Mr Gummer indicated his intention to publish all scientific advice on which the Government’s decisions were based:

The Tyrrell committee [SEAC] produced a report for me . . . it is in the Library . . . I expect that Dr Tyrrell will be giving me a longer report some time soon, and I shall place it in the Library as well – just as I place all information that is given to me on which these decisions are made.253

4.64 Mr Gummer informed the House that he had asked SEAC to consider slaughterhouse practices and went on to say:

I shall always be willing to refer issues which arise in this matter to experts and will make their advice public.254

Role of SEAC

Initial expectations as to SEAC’s role

4.65 As noted in the above section on the ‘Establishment of SEAC’, both Departments initially envisaged that the new group would maintain an overview of research and provide, ‘a continuing source of independent expert advice on policy’.255

4.66 A written statement was submitted to the Inquiry by members of SEAC. According to this, SEAC was expected primarily to:

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251 T102 p. 19 incorporating revisions suggested by S206D, Kendell
252 M7 tab 9 p. 87
253 M7 tab 9 p. 85
254 M7 tab 9 p. 90
255 YB90/1.5/4.2 and YB90/1.5/9.1
. . . spend time going in depth into issues of diseases in various species and evaluate specialised work such as epidemic modelling or molecular biology. It would also receive data from the monitoring of disease in animals and in man and give its views. It turned out that in addition SEAC was expected to give rapid opinions on questions which concerned government and which arose with little or no advance notice.256

4.67 Dr Tyrrell, in his oral evidence to the Inquiry, described the initial expectations of members of SEAC:

I do not think we were really expecting to say much which would go straight into the public realm, no. I think we were – the others can correct me if I am wrong – but we were more, sort of, to use the jargon, to be a back-room group. I mean, we were not even meant to be dealing with the practicalities of the science. We were not directing research programmes or analysing data. We were meant to be one step back from there, reviewing it in, we hoped, an academic and a judicious way, and passing our main findings on for those who had to deal with the real life issues which impinged.257

4.68 The members of SEAC explained in oral evidence that the work required by virtue of their membership was far greater than they had expected. Dr Tyrrell stated:

I thought it was going to be a committee which met to provide an expert analysis of the background science, and advice on a few points. Of course, there were other things added to that and things changed quickly. The number of meetings, as the others have said, turned out to be much greater than we had expected . . . it did grow to be a substantial part of my life . . . If I had been trying to do my previous job, I think it would have been quite impossible.258

4.69 Dr (later Professor) Will said:

. . . I do remember the original letter of invitation to serve on the original SEAC Committee, which I think said it would not be a very onerous task, and it would probably be meeting once or twice a year. It certainly did not turn out like that. I think there were quite a number of meetings, as you can see from the minutes, but I think it is also true that there was quite a lot of background reading in relation to many of the documents that we were sent prior to the meetings, and there was reading the minutes subsequently. So I think the time that was spent on SEAC was slightly more than I had expected originally.259

4.70 Dr William Watson stated: ‘I perhaps anticipated spending two days a month on SEAC business.’260 He then went on to say that two days was not enough and continued:

256 S14 SEAC para. 1
257 T9 pp. 25–6
258 T9 pp. 20–1
259 T9 p. 18
260 T9 p. 18
The background reading alone – having been in the field I wished to keep up with the science as it was developing – that rapidly expanded to make it a major task. 261

4.71 When Mr David Pepper discussed his expectations when he was appointed to SEAC, he said:

I needed to consult my partners [in veterinary practice]. I consulted them on the basis of three or four meetings a year, and assumed that is what it would be. As it turned out, the commitment was a lot more than that. The amount of paperwork to read was impressive, and the number of meetings were sometimes more frequent than that and sometimes less, though as the game hotted up, of course – and as you know from your records – the number of meetings and frequency increased. Therefore it has been a considerably greater commitment than I originally imagined or originally envisaged for the future. 262

4.72 Professor Fred Brown commented that:

I did not consider hours or anything like that, or days or whatever, I just thought that I would try to help where I could. 263

4.73 On the likely number of SEAC meetings per year, Dr Painter stated:

But it was at least an order of magnitude greater than the four meetings a year, I was led to believe. 264

4.74 Sir John Pattison also observed in oral evidence to the Inquiry that:

It was described as a committee which met perhaps three or four times a year to discuss mainly research findings that were published in the literature, or which were directly commissioned research. I felt that I could just about cope with that additional workload. 265

4.75 However, he added that this prediction was in fact not correct ‘by a very long way’. 266

4.76 A minute from Mr Lowson on 27 February 1990 records a meeting with Dr Pickles at which several topics for discussion with Dr Tyrrell were identified:

(i) Working methods. We look to the Committee to respond to specific requests for advice from the two Departments, though the Departments would obviously consider the Committee’s own suggestions for work to be pursued. The Committee needs to sort out how best to organise itself to respond rapidly to requests for urgent advice, and to consider its readiness to give advice to the media when independent scientific views are sought. We need to agree with the Committee a method for keeping them abreast of developments.
(iii) **Topics for advice.** It is likely that the Committee will be asked to advise on what measures should be taken in advance of proof of vertical transmission of BSE. That apart, the Committee might be asked for a view on whether it wanted to recommend any other areas which the Departments might ask it to consider.\(^{267}\)

4.77 The minute also referred to the need to take into account any developments since the *Southwood* and *Tyrrell Reports*.\(^{268}\)

4.78 Mr Keith Meldrum, Chief Veterinary Officer (CVO), felt it should be made clear to the new Committee ‘that they are only required to advise . . . on the encephalopathies. We must ensure that they do not claim a right to be consulted before, for instance, we publish results relating to BSE’.\(^{269}\)

4.79 In early discussions with Department officials, Dr Tyrrell had indicated that he expected the new Committee to play an active role in the coordination of relevant research, including analysis of the activities of the various research bodies (such as the MRC and AFRC) and input into the structuring of their research programmes.\(^{270}\) He had also indicated that the draft agenda for the first meeting should lay maximum emphasis on the Committee’s role in overseeing relevant research and giving advice only on the basis of such results of research work as were known to them.\(^{271}\)

4.80 On 6 April 1990, Dr Pickles wrote to Mr Lowson, offering comments on the agenda for the first SEAC meeting. She noted: ‘We must make sure committee members feel they can raise on the agenda items of concern to them’. Dr Pickles also considered that the agenda should invite the Committee to consider whether ‘any other new information alters the perception about animal or human health risks as given in the *Southwood Report*. Further, that future agenda items should include ‘a timetable of expected research results and a review of the international situation’.\(^{272}\)

4.81 At the first meeting on 1 May 1990, SEAC agreed that:

It was not expected that the committee would be issuing formal reports, although there may be occasions when advice to the Departments might be made public, say by quotation in press releases. Whilst individual members of the committee might be asked by MAFF/DH to be able to give advice on behalf of the group, say when needed urgently in the face of press enquiries, it was felt all members should have the opportunity to make an input, and at the very least the Chairman should be involved. The exception was when members could be asked as individual experts to grant applications for the Ministry/Department. If approached direct, members were free to speak to the media and, with permission, refer specific questions on to fellow members.\(^{273}\)
4.82 At SEAC’s third meeting on 13 June 1990, a paper setting out the following approach to offering advice was agreed:

The Committee was created to advise MAFF and DOH on matters related to Spongiform Encephalopathies. All the advice which it produces will, therefore, go to both Departments in the first instance. There is no set format for such advice, but the assumption must be that all of it will be made publicly available in one way or another. It is up to the Departments to decide how this should be done, but will naturally take account of the Committee’s views on the best way.

The minutes of meetings are not intended as part of the Committee’s advice to the Departments, although the Departments see them and may want to take account of views reflected in them.274

4.83 The minutes of the meeting recorded SEAC’s own view on the limitations of its advice:

It was recognised that its [the Committee’s] job was to assess scientific data and opinions as objectively as possible, then to set down judgements on these in writing. It was important to communicate the message that science was not absolute and it was for policy-makers to decide what measures to adopt; what action might be appropriate depended not just on what the science indicated but also on what the policy objective was.275

SEAC’s role in practice

4.84 SEAC’s statement to the Inquiry explains that as new scientific findings emerged, SEAC would ‘assess and interpret them but we had no power to commission research though we could suggest what needed to be done and comment on proposals’.276 It added:

We certainly were not experts in ‘selling’ the need for new measures to the general public and interest groups; that was the business of the administrators, elected members of parliament and ministers. Our job was to advise on science, and that was hard enough.

4.85 Members of SEAC initially sought to resist requests to provide policy advice. At the fourth SEAC meeting on 2 July 1990, in the context of a discussion on a draft SEAC paper, ‘The Control of BSE in Cattle’ (explaining the scientific background to the Committee’s decision on breeding from offspring), it was noted:

... the objective in this and other cases was to produce ‘opinions’ which set out clearly what was implied by scientific knowledge. It was for others to decide what policy decision should flow from this. These ‘opinions’ could be backed up by more detailed notes setting out their scientific basis.277

274 SEAC3/1
275 YB90/6.13/1.1
276 S14 SEAC para. 6
277 YB90/7.02/6.1–2.3 para. 5
4.86 SEAC’s reluctance to advise on policy appears from a minute from Mr Lowson to Mrs Attridge on 4 July 1990:

The group has not yet been able to establish a crisp and businesslike way of working; the production of documents and advice is cumbersome and as a result inadequate attention has been paid to some issues. The Committee (and particularly the Chairman) obviously feel uncomfortable about offering firm advice on specific measures and from now on may well try to avoid doing so, preferring to describe the scientific situation and explicitly leaving the policy decisions to Ministers. It was only with some difficulty, for example, that they reached a clearer conclusion in writing on the issue of the removal of head meat than that contact between meat and brain or spinal cord should if possible be avoided.

Discussion is not well structured and this is hardly likely to be improved if more members are added.

4.87 Mr Lowson also referred to the ‘soured relations’ between Committee members and CVL staff, because of the Committee’s view of the CVL’s epidemiological work as inadequate. He added that:

The Committee is very keen to involve outside experts in discussion of BSE epidemiology and of the molecular studies that they believe need to be undertaken . . . I think that this goes beyond what they were set up to do and if they go ahead we will need to be very careful about the status of any material which emerges from them.

4.88 Mr Lowson commented in oral evidence to the Inquiry:

I think the committee at the start felt nervous, probably rightly, about saying in detail what official Government action should flow from their advice as scientists. It was for them, as they believed it, to express their scientific opinion and for the Government to do what they wanted to do in the light of that scientific opinion.

I think during 1990 the distinction did become quite blurred because, for example, of Mr Gummer’s quite clear and explicit statements along the lines ‘We ask SEAC what we should do and then we do it’. And that was not the way at the start SEAC would like to have seen their job.

4.89 By the time of Professor Pattison’s appointment as Chairman of SEAC in November 1995, SEAC’s work and remit had evolved from the early days. His statement to the Inquiry outlined three categories:

Surveillance – Regular reports are received concerning the details of Bovine Spongiform Encephalopathy (BSE) in cattle and exotic ruminants in zoos, feline spongiform encephalopathy in domestic cats and captive big cats, and Creutzfeldt-Jakob disease (CJD).
Research – The Committee regularly received lists of relevant scientific publications (the monthly TSE research updates produced by MAFF). Members are circulated with photocopies of papers of particular interest. At each meeting the Committee is updated about the interim results of long-term experiments commissioned by MAFF. SEAC has from time to time been allowed to see pre-publication manuscripts containing important scientific data. The Committee continues to comment on any gaps in the TSE research programme although this remit has been shared with other groups in the funding Departments and Research Councils.

Operational Issues – SEAC is constantly asked for its advice on aspects of various procedures in agriculture, the production of human food, medicines and procedures and the disposal of waste. These items may be referred from Government Departments or agencies or commercial concerns.

4.90 Mr Packer told us that, during his time as Permanent Secretary at MAFF, it was the expectation amongst the public and within the Government that any advice given by SEAC would include a recommendation as to any policy measures which should be adopted.

4.91 Although it was not initially envisaged that SEAC’s role would include the production of formal reports, two such reports were published: the ‘Interim Report on Research’ in 1992, which endorsed the measures in place since BSE was identified; and a second report entitled ‘Transmissible Spongiform Encephalopathies: A Summary of Present Knowledge and Research’ in September 1994, which stated as its objective, ‘to summarise, in accessible language, what is now known about the transmissible spongiform encephalopathies’. Both reports were sent to the relevant Ministers, the libraries of both Houses of Parliament, and made available to the public.

Deliberations and advice

4.92 From 1 May 1990 until 20 March 1996, SEAC was the principal advisory committee to which the Government looked for advice on a range of matters relating to TSEs. SEAC held 28 meetings over the period. In quieter years, the Committee would meet only two or three times. However, in other years, the Committee met regularly every two months or so and in exceptional circumstances emergency meetings were called to discuss matters of immediate importance. SEAC continues to advise the Government on BSE to this day. A chronological table of SEAC’s meetings and the topics discussed can be found at Annex 2 of this volume.

4.93 Where SEAC’s advice impacted on policy decisions that were taken, this is described in the relevant narrative volumes (5, 6 and 7). In this volume we set out, under different topics, an account of the major matters on which SEAC gave advice. In respect of each topic, we follow SEAC’s involvement in a chronological order, including details of relevant background events where we consider this helpful.

281 S15 Pattison para. 3
282 T131 p. 13
283 IBD2 tab 2
284 IBD2 tab 10 p. 9
285 For a more detailed description of these reports, see the section on ‘The two reports’, below
1. Advice on the safety of beef

MAFF and DH specifically asked SEAC for advice about the safety of beef several times between May 1990 and March 1996. Here we look at the first occasion on which SEAC were asked to give such advice and the manner in which that advice was formulated during the period from May to July 1990. Other occasions on which SEAC were asked to advise on the safety of beef are adequately covered in vol. 6: Human Health, 1989–96.

SEAC’s advice

On 24 July 1990, SEAC provided the CMO with its considered advice on the safety of beef in a letter and accompanying annex entitled ‘The epidemic of BSE and the public health implications of eating beef’. The letter stated:

OPINION ON THE PUBLIC HEALTH IMPLICATIONS OF EATING BEEF AND THE EPIDEMIC OF BSE

1. The Spongiform Encephalopathy Advisory Committee having reviewed the evidence available have concluded that British beef can be eaten safely. The rationale for this view is as follows.

2. Bovine Spongiform Encephalopathy (BSE) appears to be closely similar to scrapie since:

   (i) the disease induced in mice with material from BSE animals is like scrapie in mice;

   (ii) the disease behaves clinically and neuropathologically in cattle like scrapie does in sheep;

   (iii) the origin appears to be scrapie-infected feedstuffs.

3. Therefore we would expect that the causal agent of BSE is like the agent causing scrapie in sheep namely:

   (i) that the agent will be present in spleen and similar tissues, and in brain; and

   (ii) that in meat the agent will not be present or if present will be at such low levels that it will be undetectable by the most sensitive method.

We note that so far the results of experiments with the BSE agent are consistent with these assumptions.

4. The epidemiological evidence of a lack of association between scrapie and human disease appears to us to be secure. Therefore if BSE is exactly like scrapie, oral transmission (and any form of natural exposure) should not represent a hazard to man. Because the possibility that the agent might have changed cannot be dismissed, we agree that the measures that
have already been taken in response to BSE in cattle are appropriate, although we do not believe on present evidence that any similar measures are necessary in the case of scrapie in sheep.

5. Oral transmission of some spongiform encephalopathies undoubtedly occurs – although very large doses are needed because the oral route is very much less efficient than, say, intracerebral inoculation.

6. In summary, therefore, protection for humans against oral infection with BSE is afforded by the cumulative effect of the following factors:

(i) the agent is likely to be similar to scrapie and there is no evidence that scrapie agent is hazardous for man;

(ii) the oral route of transmission is very inefficient;

(iii) sick animals are destroyed;

(iv) those offals likely to contain the highest amounts of infective agent in any subclinical cases are removed from human consumption. This is now required by law;

(v) cooking would reduce any remaining infectivity further.

7. In our judgement any risk as a result of eating beef or beef products is minute. Thus we believe there is no scientific justification for not eating British beef and that it can be eaten by everyone.

8. We propose to keep the matter under review as additional evidence becomes available. We have provided in an annex an expanded version of this opinion. 287

4.96 We note the following passages from the annex attached to SEAC’s letter:

1. Summary

1.2 Parallels with scrapie and other spongiform encephalopathies suggest the ‘dose’ of BSE agent if it is indeed present in food as consumed will be so small as to be undetectable by the most sensitive known method for these agents, namely bioassay by intracerebral inoculation into mice. In addition we consider that the oral route of transmission is so inefficient that there is a huge safety margin. There are no reasons to expect specially sensitive subpopulations. The strong probability is that BSE, like scrapie, is no hazard for humans in any event, although the possibility of a modification to the agent cannot be excluded.

1.3 In our judgement, any theoretical ‘BSE risk’ in British beef is so remote that for practical purposes it can be ignored. So this is entirely consistent
with the view that British beef can be eaten safely by everyone, both adults and children . . .

4. **BSE agent in human food**

All cattle showing signs suggestive of BSE are slaughtered and destroyed [16]. All the evidence suggests that very few symptomatic cattle are being detected at slaughterhouses [17] and those that are, do not enter any food chain. On the scrapie model, it is cattle with symptoms which may be expected to have the highest levels of agent in the central nervous system and also high levels in the lymphoreticular system.

Since 13 November 1989 in England and Wales, and from 30 January 1990 in Scotland and Northern Ireland, various bovine offals have been prohibited for human consumption from all bovines over 6 months of age [18]. These offals are the brain, spinal cord, spleen, tonsil, thymus and intestines and are those which could harbour the BSE agent in subclinically infected animals that are apparently healthy . . . In practice, these offals have been used little for human consumption in the UK. Calves under 6 months are exempt: none of these animals will have been fed on meat and bone meal but even were infection possible, say through maternal transmission, based on the scrapie experience [10] . . . the infective agent would not be present in detectable quantities at that age. As a result of these actions taken very little BSE agent is expected to remain in the parts of the bovine carcase available for human consumption. Because of dilution of tissues that might contain small amounts of agent by meat containing none, even in meals from these animals the infectivity is unlikely to be detectable, even by intracerebral mouse inoculation.

The vast majority of animals reaching slaughterhouses at present will not be infected with the BSE agent. Indeed, if BSE is not transmitted maternally and the feed regulations introduced in July 1988 [16] have been effective, and as the majority of cattle being slaughtered are under 24 months of age, only a tiny minority of cattle destined for human consumption are old enough to have been exposed to BSE infection . . .

5. **The oral route of infection**

5.1 The oral route is clearly capable of transmitting spongiform encephalopathies in the diseases of BSE and transmissible mink encephalopathy (TME), and it is assumed to be an important natural route of transmission in scrapie and kuru.

5.2 Experimental studies, however, show ingestion to be very inefficient, at least 5 orders of magnitude less efficient than intracerebral injection [Kimberlin and Walker (1989) *Virus Research* 12, pp. 201–12]. In the transmission work done to date with BSE, the incubation period in mice was longer after a large oral dose of BSE-infected cattle brain than after much smaller parenteral injections [Fraser et al. (1988) *Veterinary Record*, 123, p. 472 and Barlow and Middleton (1990) *Veterinary Record* 126, pp 111–12]. In these, as in other animal experiments, large doses, far in excess of what
would be experienced in nature, appear to be needed for successful disease transmission.

5.3 It is concluded that the occasional low doses of BSE agent in human food are well below those capable of infecting humans, even if humans were specially susceptible to the agent.

6. The species barrier

. . .

6.5 If BSE, like scrapie, presents no hazard for man, there are no public health implications from this new disease. Section 2 above describes how close BSE appears to be to scrapie. The epidemiology strongly suggests that it was not a change in scrapie’s pathogenicity that led to infection in cattle, [Wilesmith et al. (1988) *Veterinary Record*, 123, pp. 638–44.] However, changes, sometimes permanent, can occur as a result of passage through a different species [Kimberlin et al. (1987) *Journal of General Virology*, 68, pp. 1875–81] and the agent to which humans are now exposed may behave differently from scrapie. Nevertheless, it is reassuring that most of the evidence to date . . . emphasises the similarities between BSE and scrapie. We do not yet know if the recent description of spongiform encephalopathy in a cat [Wyatt et al. (1990) *Veterinary Record*, 126, p. 513] indicates transfer of scrapie or BSE to a new species or whether this is a feline disorder in its own right. In our view, this cat case does not increase the likelihood of BSE transmission to humans . . .

7. Risk assessment

7.1 To assess the human risk from BSE we have to take into account the low frequency with which infected animals may reach the abattoir (see 4.3 above) and the small chance of any infective agent being present in meat passed as fit for human consumption (see 4.2 above). In addition, very high doses are needed for successful transmission by the oral route (see 5.2 above) and there is probably at least a partial species barrier to human infection with BSE . . . Thus if there is indeed a human hazard then the risk to humans from BSE in beef must be very small indeed. In our judgement if there is any risk it is negligible . . .

7.4 Our own judgement based on our assessment of the available scientific evidence is that the BSE risk, if there is one, is so slight that it can be ignored. We hope our scientific opinion will help others to make their own decisions, whether personal or national. This will depend on their viewpoint, the weight they give to our opinion and the view they take of what risks they are prepared to accept and what they are prepared to pay for. For our own part and as we discussed with the Chief Medical Officer before he made his statement on 16 May 1990, ‘there is no scientific justification for not eating British beef. We have no hesitation in saying that beef can be eaten safely by everyone, both adults and children’. 288
The genesis of the advice

4.97 In May 1990, following the announcement that a cat had contracted a BSE-like disease, the Government came under immediate pressure to issue a statement on beef. Upon learning of the identification of what appeared to be an SE in a cat, Sir Donald Acheson gave instructions for an emergency meeting of SEAC to be called as soon as possible. In his statement to the Inquiry, he noted that the first practicable date was 17 May, and said that: ‘It was my earnest hope that I would not have to make a public statement on the significance of the case of FSE before having the advantage of the advice of SEAC on that date.’

4.98 In the event the pressure was such that Sir Donald felt he had to respond before the SEAC meeting. The circumstances in which he did so are described in vol. 6: Human Health, 1989–96. Following a meeting with Dr Tyrrell and Dr Pickles and telephone calls with Dr Will and Dr Kimberlin, Sir Donald issued a press release on 16 May 1990, which stated:

I have taken advice from the leading scientific and medical experts in this field. I have checked with them again today. They have consistently advised me in the past that there is no scientific justification for not eating British beef and this continues to be their advice. I therefore have no hesitation in saying that beef can be eaten safely by everyone, both adults and children, including patients in hospital.

4.99 On 17 May 1990, SEAC held its emergency meeting. In his statement, Dr Tyrrell noted the purpose of the meeting ‘was in part to amplify the advice given previously on the safety of beef’. The minutes record that this amplification was to form the basis of a letter to the CMO, ‘from which he could quote in further advice to the medical profession’. The minutes record the following:

In considering the remote risk to humans, the possibility of susceptible sub-populations was discussed. The pregnant and immunodeficient were not thought relevant. The young were not thought particularly susceptible either, although as the Southwood Committee commented there were suggestions in some quarters that they might have increased infection, but the effect of differential exposure was confounding and evidence from some species contradictory.

In describing the risk as no greater than those of everyday life, this was not to imply that they were in any way comparable, say to smoking. BSE was of a much lower order of magnitude. But in the present state of knowledge, it would not be justified to state categorically that there was no risk to humans and it was not appropriate to insist on a zero risk.

The committee recommended additional attention should be directed at abattoir methods in order to minimise cross-contamination of meat with banned offal. The committee also noted with concern the possibility that (a)
there was no ruminant feed ban in Eire in spite of the presence of BSE and (b) there are no restrictions on the importation of offal from Eire.294

4.100 However, the terms of the letter to the CMO were not agreed at that meeting. According to Dr Tyrrell, the ‘members wished to give a detailed and deliberate response and had some concern that they had been asked to give advice at short notice and outside the ambit of their role. However, they concluded that it was within their role.’295

4.101 On the following day, Dr Pickles provided the CMO with ‘unconfirmed draft minutes’ of the previous day’s meeting of SEAC, together with a draft of a letter ‘the chairman may be sending to you on the safety of beef’.296

4.102 Dr Pickles provided the CMO with an updated draft of this letter on 22 May 1990,297 but this draft had yet to be agreed by SEAC.298

4.103 On 11 June 1990, Dr Pickles wrote to Dr Tyrrell about the forthcoming SEAC meeting on 13 June 1990. The letter was copied to Mr Lowson. Dr Pickles noted:299

You explained to me you wanted the committee to go over and lay out all the fundamental arguments, particularly concerning the safety of beef. I think we have covered much of the ground already and the draft of your letter to the CMO could provide the framework. It does not seem as if there will be time at this meeting for much free-ranging discussion and the best way might be to charge the secretariat (ie, me) with providing an amplified version of the letter to CMO, based on the committee discussion to date, as a paper for circulation before the next meeting. Indeed, I have a draft nearly ready . . . Whilst at the start we said the committee was not going to prepare a report, this paper will be something close to that.

The document described by Dr Pickles in this minute ultimately became the annex to the Committee’s letter to the CMO.

4.104 The proposed advice to the CMO on the safety of beef was considered again at the next meeting of SEAC on 13 June 1990. However, it appears that the draft annex being prepared by Dr Pickles was not available for discussion at the meeting. The minutes recorded:

Since it was not yet decided whether CMO would be writing to doctors [on BSE] . . . it was not thought crucial that the chairman finalised and sent CMO his letter on the safety of beef. Indeed, it was preferable for a more detailed paper [in the form of an annex] to come first (a possible was in preparation by Dr Pickles) before the summary letter was agreed. The chairman felt it was helpful for members to clarify their thoughts on this, as on other issues, in writing and this also ensured that they all told the same story.300
. . . it was recognised that its [the Committee’s] job was to assess scientific data and opinions as objectively as possible, then to set down judgements on these in writing. It was important to communicate the message that science was not absolute and it was for policy-makers to decide what measures to adopt; what action might be appropriate depended not just on what the science indicated but also on what the policy objective was.

It was agreed that it would be necessary to resume discussion on presentation of the arguments on the safety of beef at a later date.

**4.105** On 15 June 1990, Dr Pickles sent a minute to Dr McInnes (Private Secretary to the CMO) noting that she and Sir Donald were due to appear before the Agriculture Select Committee the following week. She referred to a document she had drafted for the CMO’s appearance, which she felt could also be presented to SEAC. This was the annex to which Dr Pickles had referred in her letter to Dr Tyrrell of 11 June 1990 (see paragraph 4.103, above). Dr Pickles stated:

CMO had asked for detailed information on tissue distribution in scrapie and of intraspecies transfers. At [annex] D is a lengthy document which includes this information in the context of the arguments that are relevant to the safety of beef. This has been prepared by me to help CMO before he is quizzed by the select committee and has yet to be seen by MAFF. The arguments are those that have or should have been discussed by the Tyrrell Committee. It could well form the basis of a mini-report on this subject from the Tyrrell Committee if we can get the paper before them at their next meeting, and such a report would be welcomed by CMO and Ministers.301

**4.106** The same day, Dr Pickles circulated the document to colleagues within DH for comment. A copy was also sent to Mr Lowson, who forwarded it to Mr Meldrum (and copied it to other MAFF officials, including Mrs Attridge, Mr K Taylor, Mr Lawrence, Animal Health Division, and Mr Maslin, Animal Health Division). Mr Lowson’s manuscript note on the covering letter reads:

If I understand Dr Pickles correctly this is designed as a paper for the CMO to issue to doctors. It looks very good to me. It will be considered by the next meeting of the Tyrrell Committee on 2 July at which point I can feed in any points that recipients may have.302

**4.107** The fourth meeting of SEAC took place on 2 July 1990.303 The minutes record that ‘subject to some amendments, the draft letter to the CMO was agreed’. The supplementary annex was also ‘considered in detail and the secretariat were asked to circulate a revised version for final clearance’.304

**4.108** Following the fourth meeting of SEAC, Dr Pickles wrote to colleagues in Health Departments in Scotland, Wales and Northern Ireland advising that the CMO was ‘still under pressure to write to some doctors (eg, those in public health) about BSE’, but that the annex as it stood was ‘too lengthy for a routine CMO letter’.305

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301 YB90/6.15/7.1  
302 YB90/6.15/19.1  
303 SEAC4 tab 2  
304 YB90/7.2/2.1–2.3  
305 YB90/7.4/14.1
4.109 As agreed at SEAC’s fourth meeting, a number of changes had been made to the draft letter and to the annex. A revised draft of the letter was circulated by Dr Pickles on 3 July.306

4.110 Mr Murray had taken up post as Head of Section of Environmental Health and Food Safety Division within the DH in June. One of his tasks was to assist on the dissemination of SEAC’s advice.307 In a minute of 4 July to Mr Peter Otley, then acting as his Branch Head, Mr Murray expressed concern as to how the SEAC advice would be received by the public:

Frankly I found the *Tyrrell Report* worrying. I understand the difficulties of the science of the subject but the Annex will give us considerable presentational problems and do little/nothing to reassure the public about the safety of British beef. Without very much twisting by the media many of the Committee’s statements will further fuel the BSE controversy. We must be ready for this through the proposed Press Notice and in our capacity to deal with the subsequent media etc interest.308

4.111 On 6 July 1990 Mr Murray wrote to Dr Pickles, expanding on points made at a meeting with her on the previous day:

I understand the need to get the report finalised and put to the Select Committee as soon as possible. However, as we agreed these are aspects of the report which require very careful consideration before we go public on it. In the circumstances I am not sure we can do this adequately within the timescale envisaged in your minute. We need to reach a quick agreement with MAFF colleagues on this point in the light of the CMO’s views.

In discussion we agreed that the report required a reconsideration of the terms of recent DH/MAFF assurances on the safety of beef. You mentioned that CMO was already alert to this as a priority matter. Can you confirm MAFF colleagues are aware of this and have advised their Ministers accordingly. I will speak to them if you wish.

I do not want to go too far into the detail of the report at this stage, but it makes comments which will be picked up by the media and contrasted with the prevention of infection measures presently in operation. Here I am thinking of:

in the early stages of infection no (infectious) agent can be detected (para. 3.3);

the infectious agent can be found in tissue not covered by the offal ban (paras 3.4 and 3.5);

it is plausible for small amounts of infection to be present even after cooking (para. 4.6);

the oral route is capable of transmitting BSE (para. 5.1);
there is a suggestion that the young might be more susceptible to infection (para. 7.2);

the agent to which humans are now exposed may behave differently from scrapie (para. 6.5).

I realise that a lot of this is not new. This will not hinder the media in putting a story together.309

4.112 In his statement to us, Mr Murray emphasised:

I was not concerned about the conclusions of the Tyrrell Report, but how to put them across.310

4.113 A further draft of the annex was prepared by 6 July 1990.311 None of the concerns raised by Mr Murray were addressed by the redraft. Indeed, all of the references that caused Mr Murray concern were maintained in the final form of the annex as sent to the CMO.

4.114 Dr Pickles wrote to Dr Tyrrell on 10 July 1990 confirming that she had received his further comments on the drafts ‘in yesterday afternoon’s post’. She enclosed a further draft and explained that ‘the enclosed version takes on board those comments from you on the last draft that were still relevant and those you gave to me on the phone’.312 Dr Pickles noted:

The other suggestions were from CMO and it is up to you whether you include them or not. He felt a sentence or two on the cat might be helpful since the public and the media thought that was relevant somehow to beef. I have tried to add something in 6.5 on this.

4.115 On the subject of the cat, two additional sentences had been added to paragraph 6.5. This paragraph dealt with the ‘apparent’ similarities between BSE and scrapie. The additional sentences were as follows:

We do not yet know if the recent description of spongiform encephalopathy in a cat indicates transfer of scrapie or BSE to a new species or whether this is a feline disorder in its own right. In our view, this cat case does not increase the likelihood of BSE transmission to humans.313

4.116 It should be noted that the first draft of this annex contained the words ‘if this is the start of a new cat epidemic it suggests this species could be sensitive to BSE in a way it has not been to scrapie.’ This sentence was deleted in the draft of 3 July 1990.

4.117 After dealing with a number of further drafting points, Dr Pickles continued:

[The] CMO when giving evidence to the select committee defined beef as all those parts of the carcass now available for human consumption. Since the
committee has yet to discuss mechanically-recovered meat, there could be
difficulties in expressly stating the same sentiment here. But maybe you feel
there would be no problem in doing so.

Subject to your views, I could circulate again to committee members for
information since there has been a fair bit of tidying up since they
commented last. We then need to discuss if and when you send it to CMO
and what happens thereafter.

4.118 On 10 July 1990, Mr Lowson forwarded both the letter and annex to
Mr Gummer, Mr David Maclean, Parliamentary Under Secretary (Commons) at
MAFF, and other MAFF colleagues stating: ‘The most potentially inflammatory
pieces of drafting in earlier versions have now been edited out and I see no particular
points that should be raised with DoH about the manner of its publication.’314
A manuscript note on the accompanying minute states: ‘The Minister is content
with this draft.’

4.119 We have not found it possible to identify with any precision the ‘potentially
inflammatory pieces of drafting’315 referred to by Mr Lowson, nor to identify which
drafting amendments were made at the instigation of the Committee and which by
the secretariat. The following amendments seem to us to have the effect of removing
passages which might give rise to public concern.

4.120 Indeed, the following passages were deleted from the draft of 3 July:

[Tissue distribution of the agent]

3.5 . . . Traces [of the scrapie agent] have also been found in isolated
experiments in liver, pancreas and bone marrow [Hadlow et al. (1980)
Journal of Infectious Diseases, 146, pp. 657–64] and in lung [Hadlow et al.

[BSE agent in human food]

4.3 . . . Such agent that does remain may lie in peripheral lymph nodes and
possibly in major peripheral nerves, parts discarded in normal meat cutting,
but which may still accompany some preparations of meat. Some of the
edible offal mentioned in paragraph 3.5 that have on rare occasions
demonstrated low titres of infectivity are not included in the offal ban [The
Bovine Offal (Prohibition) Regulations 1989] and may also be available.

[The species barrier]

6.4 . . . Of course, it is impossible for any current or past cases of CJD to be
causally linked to BSE, since the latter is a very new disease and the CJD
incubation period is thought to be several years.316

4.121 In addition, the sentence which we have italicised in the following passage
from the section of the paper on risk assessment, was removed from the 3 July draft:

314 YB90/7.13/5.1
315 YB90/7.13/6.1
316 YB90/7.31.4–1.7
There are some who insist on nothing less than an absolute guarantee of safety. *No scientist is in a position to do that at present for British (or Irish) beef.* This search for absolute safety is a misconception that adversely influences many aspects of life today.317

4.122 As we noted at the outset, the letter and annex were sent to the CMO on 24 July 1990.

**Communication of SEAC’s advice**

4.123 A draft submission to Health Ministers, prepared by Mr Murray on behalf of the CMO, considered the uses to which SEAC’s report might be put. It was noted that if presented to the media in a controlled way, the report would be useful in providing reassurances to the public about BSE and the safety of beef. The draft submission also considered that that the report would be of great value to DH and MAFF officials in handling routine correspondence on this issue. It was proposed that a letter from the CMO with a copy of the report be sent to all Directors of Public Health and Chief Environmental Health Officers, and that a copy of this letter would be provided by the MAFF Minister to the Chairman of the Agriculture Select Committee.318

4.124 The CMO subsequently circulated the letter and report to all regional Directors of Public Health, explaining that this ‘sets out the scientific basis for the statement which I have made on this issue on the 16 May’.319

4.125 The submission also noted that MAFF Ministers had given an undertaking to the Agriculture Select Committee that all SEAC reports to Ministers would be made public and the same would apply to this report.320 It would appear, however, that this was not the CMO’s intention in this case, as is supported by Mr Lowson’s comments subsequently.

4.126 On 10 August 1990, Mr Lowson minuted Mr Maclean stating:

I understand that the Chief Medical Officer is rather sensitive about its being widely publicised. Although a copy has been sent to the Clerk of the Agriculture Committee, Department of Health have not put out any kind of press notice and are circulating it at present only to regional directors of public health.

As I have indicated before, this document is one that could be useful in dealing with the criticism that the Government has not made public the scientific basis of some of the assertions that it has made. It could therefore be used quite widely, for example in the context of the briefing of consumer organisations which the Minister proposed on 12 July. I think therefore that it would be helpful to make it clear that we would intend to use the document perhaps more freely than the CMO proposes.321
4.127 A manuscript note on the document reads: ‘We need to be somewhat careful as the paper does contain some hostages to fortune.’ On 16 August 1990, a letter from Mr Maclean was subsequently sent to Mr Kenneth Clarke, Secretary of State for Health, advising:

While under the present circumstances it is not appropriate to draw too much public attention to it, it is nevertheless a paper which should be used to provide background for example to interested organisations and I intend to use it fairly widely in this way.

4.128 Similarly, Mr Murray was concerned at the limited state of knowledge held by Environmental Health Officers (EHOs) on BSE matters and minuted Dr Pickles on whether DH should be producing a separate information pack (including the safety of beef paper) for enforcement agencies. In response, Dr Pickles expressed her own concern over the distribution of the safety of beef paper:

We decided some time back to leave MAFF in the lead in providing information on BSE since there was a real chance any subtle differences in material provided by the two departments would be exploited by the media. But a few months back, I felt uneasy continuing that line and originated the ‘Safety of Beef’ document as our contribution particularly designed for Directors of Public Health and EHOs. As you know, I had intended that this document would be made readily available, with in addition to private circulation from DH/MAFF, publication in Health Trends to make it accessible to the medical community at large . . .

CMO had different views, and at first was not proposing to treat the ‘beef’ paper as anything other than private advice to him. He then suddenly arranged a limited circulation to Regional Directors of Public Health but without clarifying what he expected them to do with the document. I sense that he would not welcome further advice from me about a wider distribution either of that paper or any document based on it.

Maybe CMO’s response to suggestions put up the administrative route might be different. Clearly we would have to discuss any such plans with MAFF since anything I would be happy to see released from DH would have subtle and not so subtle differences in emphasis to material produced by MAFF.

4.129 Later, Dr Pickles also saw an opportunity for the paper to be used in the Government’s response to the Fifth Report of the Agriculture Select Committee on BSE. In a minute dated 12 October 1990 to Mr Lowson, she stated:

Provided we can persuade CMO, it would be an ideal opportunity to add the Tyrrell advice on ‘Safety of Beef’ as an annex. We want this to be the main message picked up by the media when the Command Paper is published.

4.130 However, the CMO does not appear to have been persuaded. The Government’s response to the Select Committee report was published in November.
1990 with a single annex relating to the number of suspect cases reported on a weekly basis from 1989 up to 31 August 1990.\textsuperscript{327}

**Discussion of SEAC’s paper on the safety of beef**

4.131 There are a number of aspects of SEAC's involvement in producing the letter to the CMO on the safety of beef and its accompanying annex which we find unsatisfactory.

4.132 It was not satisfactory for those members of SEAC who could be contacted to be asked to approve the CMO's press release without notice (see paragraph 4.98). We have criticised the terms of that release in that it gave an unqualified assurance that it was safe to eat beef when Sir Donald only felt able to give that assurance on the premise that SBO was being removed from the human food chain. The members of SEAC then found themselves called upon to produce a letter endorsing the CMO’s statement. They did not find this an easy exercise and we question the justification for the time they had to devote to it. As Dr Kimberlin commented in oral evidence, the production of the document by SEAC was a catching-up exercise designed, somewhat later in the day, to provide scientific support for what the CMO had said: ‘In the ideal world that is not quite the right way round you would do things.’\textsuperscript{328}

4.133 The letter and its annex were largely drafted by Dr Pickles, and were circulated within DH and MAFF for suggested amendments before going back to the Committee. We have no criticism, in principle, of a secretary to a committee preparing a draft paper for consideration by the committee. What causes us concern in this instance is that, while the documents were intended to represent an expert Committee’s appraisal of risk, amendments were being made to the draft by officials whose agenda was not necessarily compatible with the production of a document that fairly reflected the Committee’s views. These officials were anxious, first, that the drafts should support the statement made by the CMO, and secondly, that statements which might prove ‘inflammatory’ (see paragraph 4.118 above) should be edited out.

4.134 It seemed to us that this process carried the risk that SEAC’s ultimate advice might be unduly reassuring.

4.135 Our concerns were raised with Dr Tyrrell when he returned to give evidence at Phase 2 of the Inquiry:

MR MATOVU: Were you aware that the draft which you subsequently considered had been circulated around MAFF?

DR TYRRELL: Not in detail, but in principle, yes, because we wanted this to be document which a wide range of people could see and read with understanding and with benefit. I suppose the jargon is we were sending it out to limited consultation. I thought that was helpful, particularly in view of the fact that it might be going to a wider range of people; we did not want it to go public until it had at least had a preliminary canter as to how it was seen by administrators and other people like that.
MR MATOVU: You did not see a possible difficulty in the fact that those Departments who were expecting advice from your committee were in fact feeding into the advice which was to go to them?

DR TYRRELL: Yes, well –

MR MATOVU: Did you think of that at time?

DR TYRRELL: I think we had already sold the pass; we had already said, ‘We are going to be involved in doing things to help a CMO’. We had given up the idea of trying to stand back and do nothing else but evaluate science at a distance and impartially. I think that was something which seemed to be part of what we had got ourselves involved in willy nilly. There is a slight worry that people who have got some sort of departmental personal concern, some axe to grind, might put into it things which were not really there, in our original draft, in our original thinking. But we were going to have it back again at the end to review it, so if somebody said, ‘White is black’, and we believed that black was white, we would have picked it up and we would have said it.

I thought the possible gain of having other people’s angles on it was probably worth it. Do remember that we were all under this worry about what was the outside world, what were the papers, what was television going to make of this thing when it came out? I suppose the people in the Ministries and the politicians would have that as a stronger pressure on them, but we all had it to some extent.

LORD PHILLIPS: Do you think there was a possibility that somebody in one of the Ministries might say, ‘That looks a bit too black, let us shade it down to a shade of grey that is likely to be less alarming’?

DR TYRRELL: I think there is a record that even when we got to the end, Robert Lowson said there were inflammatory remarks. Actually, Mr Underhill and I went through all the alterations that had been made along the way, as very helpfully laid out in the RFA, and we came to the conclusion that there were none of them that were particularly worrying to us, the possible exception being there was phrase that said, ‘No scientist would say there was no risk of eating beef’. That disappeared; perhaps that should not have disappeared, but by and large I think it was an indication of how worried he was about the possible response from outside, rather than that there was anything particularly damaging to his Department which he felt should be excised.

LORD PHILLIPS: Could we just stand back at this point with some hindsight, and ask the question: should a committee like yours have a draft paper it is going to produce on a subject such as this subjected to this kind of process?

DR TYRRELL: That is a tough one.

LORD PHILLIPS: We have to look at some tough ones.
Scientists after Southwood

DR TYRRELL: I think, sir, it would depend on the situation. In an ideal world, when it was a reasonable option to get your committee together and let them stand back over a long period of time, or a long enough period of time to do their science and phrase it in a completely acceptable form to all members of the committee, then I think it would be much better, and I would like to avoid even the appearance of the fact that Government Departments could alter it.

I would defend the situation, dropping the hindsight, at the time by saying it was so fraught, almost, that we had to do something, or at least it was seen by those in the Ministry that we had to do something and get it out soon. We had, after all, forced upon them in a way the fact that they had got to wait two or three months from the time that the issue was first raised, was it safe to eat beef? We felt we ought to accelerate the business of consultation to make it a generally useful document. 330

4.136 We agree with Dr Tyrrell that there does not appear to have been any editing of the letter and its annex that was ‘particularly worrying’. The most significant change was that which related to the commentary on the cat. We suspect that the original version reflected Dr Pickles’s conclusions and that members of SEAC did not think it helpful to include discussion of a position that was, as yet, hypothetical.

4.137 Putting hindsight on one side, we accept Dr Tyrrell’s ‘defence of the situation’. With the benefit of hindsight we are of the view that it was undesirable for SEAC to be asked to endorse advice on the safety of beef when this depended upon matters outside their knowledge, and it was equally undesirable that the advice should have been subject to an editorial process under which officials sought to tone down any passages that might give rise to public concern.

Discussion of the treatment of ‘dose’

4.138 We had a further concern in relation to the letter and its annex. This focused particularly on the following comments about dose:

(a) Paragraph 5 of the of the letter stated:

Oral transmission of some spongiform encephalopathies undoubtedly occurs – although very large doses are needed because the oral route is very much less efficient than, say, intracerebral inoculation.

(b) The introductory summary to the annex of SEAC’s letter stated that:

Parallels with scrapie and other spongiform encephalopathies suggest the ‘dose’ of BSE agent if it is indeed present in food as consumed will be so small as to be undetectable by the most sensitive known method for these agents, namely bioassay by intracerebral inoculation into mice. In addition we consider that the oral route of transmission is so inefficient that there is a huge safety margin . . .

5. The Oral Route of Infection
5.1 The oral route is clearly capable of transmitting spongiform encephalopathies in the diseases of BSE and transmissible mink encephalopathy (TME), and it is assumed to be an important natural route of transmission in scrapie and kuru.

5.2 Experimental studies, however, show ingestion to be very inefficient, at least 5 orders of magnitude less efficient than intracerebral injection [21]. In the transmission work done to date with BSE, the incubation period in mice was longer after large oral doses of BSE-infected cattle brain than after much smaller parenteral injections [4,5]. In these as in other animal experiments, large doses, far in excess of what would be experienced in nature, appear to be needed for successful disease transmission.

5.3 It is concluded that the occasional low doses of BSE agent in human food are well below those capable of infecting humans, even if humans were specifically susceptible to the agent.

4.139 These passages suggested to us, when we read them, that substantial quantities of infective material would have to be eaten by a human before there could be any risk of transmission and that, in practice, this could not occur.

4.140 We raised our concerns with Drs Tyrrell, Will and Kimberlin. Their response was threefold:

(i) All comments about dose had to be read in the context of the risk attaching to consumption of muscle. The letter and its annex made it plain that the premise on which the advice was given was that SBOs were removed from the food chain.

(ii) References to dose related not to the amount of infectious material but to the infectivity of the agent contained in the infectious material. A small amount of material with a high titre would constitute a large dose.

(iii) The letter and its annex were written primarily in order to provide advice to the CMO and to professionals who would have no difficulty in understanding the true concept of dose.

4.141 These arguments did not allay our concerns.

4.142 When giving evidence during Phase 2 of the Inquiry, Dr Tyrrell told us that SEAC appreciated that the annex:

. . . was going to be possibly far more than just a document for the CMO's eyes, that it might go far and wide, and that it might be read by other medics, other scientists, administrators, journalists, all sorts of people might read it.

4.143 Having heard members of SEAC explain the meaning that they intended ‘dose’ to bear we can see that it is capable of bearing that meaning, wherever used in the letter and its annex. Nonetheless, it does not seem to us that the reference to
the need for a large dose in order to effect oral transmission had any significance unless this carried the implication that such a dose would not be found in a small quantity of infective material.

4.144 We asked Dr Tyrrell what SEAC envisaged when referring in the annex to ‘the occasional low doses of BSE agent in human food’ in paragraph 5.2 of the annex. He replied that in the course of the slaughterhouse operations:

... a tiny fragment of the tissue of the cervical spine might have got loose somewhere. We can never say that there could not possibly be any on any meat at all, but our judgement was that this amount was so small that it was not going to reach the concentrations which we guessed would be needed to infect man.

4.145 This answer reinforced our concern that the reader of the annex might well conclude that contamination as a result of slaughterhouse operations would not involve sufficient infective material to give rise to the risk of transmission.

4.146 In a recent statement to the Inquiry, Professor Barlow, who was not at this time a member of SEAC, had this to say about the comments on dose in SEAC’s letter to the CMO:

In most work with BSE, such precision is impossible and most workers have preferred to avoid the word ‘dose’, though in the pig transmission studies, for example, ‘exposure dose was calculated on the basis of replacing the theoretical daily intake of meat and bone meal... with an equivalent weight of BSE-infected bovine brain’. This seems to suggest that the concentration of active agent, uniformly distributed, in BSE brain and meat and bone meal is similar. It is but a small step from here to equate dose of agent with the amount of potentially infected material administered. Perhaps, that is a useful shorthand way of distinguishing much from little, if one understands the degree of imprecision. This may well be what Keith Meldrum had in mind when he made the point that our mice had consumed more than their body weight of infected brain to become affected – something unlikely to happen with people! Unfortunately David Tyrrell, in his letter to the CMO of 24 July 1990, used the same shorthand without qualification. In my view his letter also makes too much of the ‘inefficiency’ of oral compared with parenteral routes of infection. The data supporting that statement were derived from experiments in well-defined systems. It is likely that a suspension of known titre material in saline administered by gavage to a mouse from whom food and water may have been withheld, will be digested differently from infected material eaten on demand over a prolonged period.

4.147 In relation to paragraph 5.3 of the annex, Professor Barlow added:
I cannot imagine what the justification was for adding the paragraph... unless SEAC had been thoroughly reassured that the SBO ban had been effectively applied in all abattoirs. 338

4.148 It appears from these observations that Professor Barlow shares our view as to the natural meaning of the references to dose in the letter and its annex.

4.149 We have already observed that it is possible to ascribe to SEAC’s statements about dose the meaning that they intended those statements to bear. It is also right to note that the advice was primarily intended for professionals who would be expected to understand the concept of dose. In these circumstances, we do not think it would be fair to criticise SEAC for the fact that it is at least possible to draw the wrong inferences from those statements, although it is a pity that the paper did not include a precise definition of dose. It is perhaps fortunate that the CMO did not give the letter and its annex the wide circulation that Dr Pickles had hoped that it would receive. It is not clear how widely the documents were circulated within MAFF. The evidence shows that in 1990, and indeed for some years thereafter, there was a perception on the part of many within Government that a substantial quantity of infective material would be required orally to transmit BSE to a cow and that the same would be true of transmission from cow to human, if indeed such transmission was possible. The letter of 24 July 1990 and its annex may well have played a part in fostering these views.

2. Advice on breeding from the offspring of BSE-affected cattle

MAFF’s early advice to veterinary surgeons

4.150 On 30 April 1988, a short article appeared in the Veterinary Record. It included the following advice:

In the light of experiences with possibly similar diseases in other animals and in the present state of knowledge on BSE it is recommended that the progeny of affected cows should not be retained for breeding purposes. 339

The Southwood Working Party considers maternal transmission

4.151 The Southwood Working Party’s Report was published in February 1989. 340 In its report, the Working Party qualified its estimations of future infections in cattle by saying:

No allowance has been made either for new infections arising from maternal transmission: insufficient time has elapsed to determine whether maternal transmission occurs in BSE and if so at what incidence. Given the age distribution of the BSE cases at the onset of clinical signs and therefore the number of offspring which will survive the minimum incubation period, the occurrence of maternal transmission, should it occur, is unlikely to be witnessed until 1990.

338 S565 Barlow para. 15
339 Veterinary Record, vol. 122 p. 428; YB88/4.30/1.1
Though maternal transmission would increase the number of cases on its own it would probably be insufficient to sustain BSE in the national cattle population because it is likely that the number of offspring per case which will reach a susceptible age and produce their own offspring will be less than one.\footnote{IBD1 tab 2 p. 12}

4.152 The Report did not make any recommendation on breeding from the progeny of BSE-affected animals.\footnote{IBD1 tab 2 p. 18}

**The BVA offers advice**

4.153 On 25 January 1990, the British Veterinary Association (BVA) issued a press release giving the following advice:

[W]hile there is at present no evidence of vertical transmission (research is continuing) it would be prudent for farmers not to breed from calves from confirmed BSE parents and to be punctilious in keeping movement records.\footnote{YB89/1.25/4.1}

4.154 On 6 February 1990, Mr Gummer, Minister of Agriculture, met Mr Andrews,\footnote{MAFF Permanent Secretary. Sir Derek Andrews from 1991} Mr Meldrum, Mrs Attridge,\footnote{Head of the Animal Health Group} Mr Cruickshank,\footnote{Principal Finance Officer} Mr Capstick\footnote{Head of the Food Safety Directorate} and other MAFF officials to discuss BSE. Mr Meldrum advised that there was a ‘three to one chance in favour’ of maternal transmission being proved. This prompted Mr Gummer to suggest that MAFF should not wait for proof, and ‘should identify what measures we would wish to take once proof was established, and adopt them now’. Mr Meldrum said that there were a number of policy options to be explored. Mr Gummer therefore asked for a paper to be prepared setting out the options, with accompanying recommendations.\footnote{YB90/2.12/4.1–4.2}

4.155 In a manuscript note dated 12 February 1990, Mr Meldrum informed Mr David Kyle, the Assistant CVO with responsibility for animal health and welfare, that he had asked Mr Kevin Taylor, Veterinary Head of Notifiable Disease Section, to provide a paper on ‘maternal transmission and the various options’. Mr Meldrum suggested to Mr Kyle that ‘we need to have a plan that we can implement if and when more results become available’.\footnote{YB89/8.24/4.1}

4.156 In a minute on the same day, Mr A J Lebrecht, private secretary to Mr Gummer, asked Mr Lowson, Head of Animal Health Division, to prepare the paper requested by Mr Gummer. He was asked to collaborate with Mr Meldrum and to present it by 16 February 1990.\footnote{YB90/2.12/4.1–4.2}
Preparation of advice for Ministers

4.157 On 8 February 1990, Mr Meldrum provided Mr Taylor with ‘some thoughts’ for inclusion in the paper being prepared.³⁵¹ He set out policy options that he thought MAFF might consider:

i. *Keep the present policy, which was to record the unique ear number of the progeny:* Mr Meldrum noted that this was attracting criticism from the industry and practising veterinary surgeons, who believed that more should be done;

ii. *Advise owners not to breed from progeny:* Mr Meldrum said this was the option supported by the BVA, and noted it was ‘a wise course to follow in case maternal transmission does take place’. In addition, MAFF could use existing powers to require that such progeny were retained on the farm of origin and were not sold except for slaughter or fattening;

iii. *Slaughter the most recent calf born of an affected dam:* Mr Meldrum noted that this would be a ‘crude instrument of control’, given that healthy animals would be slaughtered; and

iv. *Slaughter all progeny of affected cows:* Mr Meldrum explained that scientists had suggested that if progeny of affected cows were to be slaughtered, then all progeny should be slaughtered because there was no evidence that maternal transmission was restricted to the most recent calf born.³⁵²

4.158 Mr Meldrum noted that ‘there are clear presentational difficulties in destroying some thousands of healthy cattle when we have no evidence that maternal transmission can occur and where there is no evidence that the cattle themselves have actually been exposed’. He concluded that:

*I am clearly of the opinion that we should not require slaughter of progeny of cattle affected with BSE but it would be wise to consider whether option 2 should be pursued to limit the animal health damage that could occur in a herd should maternal transmission occur.*³⁵³

4.159 On 19 February 1990, Mr Lowson provided Mrs Attridge with a draft note on maternal transmission for Mr Gummer, which was accompanied by a more detailed paper prepared by the State Veterinary Service (the SVS Paper).³⁵⁴

4.160 The SVS Paper set out possible control measures, listed in order of increasing severity:

- improved identification of calves – this was recommended, irrespective of any other measures adopted (see vol. 5: *Animal Health, 1989–96*, ch. 5 on cattle tracking);
- advise owners that progeny of BSE cases should not be retained for breeding;

³⁵¹ YB90/2.8/5.1
³⁵² YB90/2.8/5.1–5.2
³⁵³ YB90/2.8/5.3
³⁵⁴ YB90/2.19/1.1
control movement of progeny by marking or licensing to prevent breeding;

- segregate the offspring of BSE cattle – it was noted that this would be impracticable, and would attract suspicion and undermine confidence in existing control measures;

- slaughter the female progeny of BSE-affected cows; and

- slaughter all progeny of BSE-affected cows, and all their progeny – it was noted that this step could not be justified, so would not be considered further.355

4.161 The SVS Paper argued that the main source of infection – contaminated feed – had been eliminated, with the result that maternal transmission was the only possible means of future transmission.356 However, it stated that ‘maternal transmission alone is incapable of maintaining the epidemic’.357 It did not therefore recommend slaughter or segregation of progeny. However, the Paper did recommend that owners be formally advised that the progeny of BSE-affected cases should not be used for breeding. If Ministers felt there was a need to go further, then it suggested controls on the movement of progeny by marking or licensing could also be implemented.358

4.162 Mr Lowson’s draft submission briefly summarised the main points in the SVS Paper. He said:

The SVS Paper concludes that it would make sense to introduce now restrictions on the use of the offspring of BSE cattle for breeding. As indicated in the note, it is possible to envisage simply issuing advice to farmers rather than using compulsion, but Ministers would certainly be asked why, if there was a problem, they were not taking compulsory powers to deal with it. The only realistic option may therefore be to introduce a compulsory licensing and marking system to ensure that BSE progeny are not used for breeding . . . Such a step would go well beyond the advice of the Southwood Committee . . . and Ministers might feel it appropriate to seek the advice of [SEAC] on the point first.359

4.163 The draft submission asked Ministers:

(i) to endorse the view that the slaughter or segregation of the offspring of cattle infected with BSE would not be appropriate;

(ii) to indicate whether they want to pursue the question of restrictions on the use of such offspring for breeding, and if so whether [SEAC] should be consulted first.

4.164 Dr Pickles, Principal Medical Officer DH, provided Mr Lawrence with her comments on Mr Lowson’s draft submission on 20 February 1990. She qualified her remarks by noting that they represented ‘a personal viewpoint since I have not...
had time to consult on a collective DH view’. In addition to pointing out a lack of cost-benefit analysis, Dr Pickles commented on obtaining expert advice:

> It is in my view essential to consult outside experts, ie, [SEAC]. Firstly because there may be alternative interpretations of the scientific data, and the mechanism of transmission of scrapie from ewe to lamb is a case in point; secondly because there may be alternative ways of controlling infection which should perhaps be looked at, even if just to dismiss (eg caesarean section, at least for valuable calves or those for export, or restocking from overseas); and thirdly because it is useful for Ministers to be able to confirm that new actions are endorsed by outside expert opinion.360

**Mr Lowson’s final submission to Mr Gummer**

4.165 Mr Lowson’s final submission was forwarded to Mr Gummer on 22 February 1990. Both the submission and the SVS Paper attached had been amended in line with comments received from various MAFF officials. However, the final submission also contained some substantive changes.361

4.166 In particular, Mr Lowson observed that to adopt the SVS Paper’s recommendation either to advise against breeding from progeny of BSE affected cows, or to implement legislative controls to prevent such breeding:

> ... would go well beyond the advice of the Southwood Committee ... In the absence of any new risk to public health even if maternal transmission were shown to occur, there is no reason for the Government to abandon its stance of proceeding on the basis of the best scientific advice.362

4.167 Mr Lowson also noted that the introduction of further controls would ‘risk that the public will perceive such controls as tantamount to an admission that there is a risk to public health from consumption of calves of infected animals’.363

4.168 Mr Lowson recommended that Ministers:

> (i) ... endorse the view that the slaughter or segregation of the offspring of cattle in which BSE is confirmed would not be appropriate;

> (ii) ... seek advice from [SEAC] on the question of restrictions on the use of such offspring for breeding;

> (iii) note the arguments made on the possible impact of new measures. ...364

**MAFF Ministers consider the advice**

4.169 On 14 March 1990, Mr David Curry, one of the Parliamentary Secretaries at MAFF (the other was Mr Maclean) chaired a further meeting as requested by Mr Gummer, attended by Mr Maclean and MAFF officials.365 The note of the
meeting records that Mr Curry summed up the discussion on breeding from calves produced by BSE animals as follows:

It was agreed that there would be considerable benefits obtainable through voluntary action. However, whether controls were voluntary or statutory, we could not expect complete coverage and some animals would slip through the net. If statutory action was taken, this would send signals which would re-inforce public concerns about the disease. There would also be a significant marketing effect on beef. At the same time, it was recognised from experience of management of public relations and the political climate, that there would be demands for statutory controls which would be difficult to resist. At this stage, it was for consideration whether we should pre-empt what would, inevitably, be seen as a weakness later, even though such a decision would not necessarily have a scientific basis.366

4.170 It was agreed that the advice of SEAC should be sought, ‘in the knowledge that [SEAC] would judge the matter on objective scientific criteria, which might question the value of statutory controls’. It was also recognised that there would be other criteria to take into account, ‘and that it was likely that some form of action would be taken on breeding, irrespective of [SEAC’s] recommendations’.367

4.171 Mr Curry requested that the draft advisory note to farmers, which was being drafted at that time, should include a paragraph advising that there should be no breeding from the offspring of BSE-affected cows, ‘in anticipation of action in this area’.368

4.172 Mr Lowson prepared the requested passage on breeding for inclusion in the advisory note, with a draft press release highlighting the advice. He submitted them to Mr Andrews on 19 March 1990.369 The passage read:

Experiments are being carried out to determine whether BSE can be spread at calving. Results may not be available for several years. Spread at calving would make the eradication of BSE more difficult. Therefore, even though transmission at this time is not known to occur, Ministry advice is that calves born to cows which are or which become confirmed cases of BSE should not be used for breeding.370

4.173 Mr Gummer met senior MAFF officials371 on the next day to discuss the outcome of the meeting on 14 March 1990. It was confirmed that SEAC’s advice would be sought on breeding from the offspring of BSE affected cows. It was further agreed that segregation of BSE offspring would be impractical, and that a slaughter policy should not be pursued in the absence of evidence that it was desirable.372
DH’s consideration of the advice

4.174 On 2 April 1990, Dr Pickles expressed concern to Sir Donald Acheson, the Chief Medical Officer:

We had agreed with MAFF that any new initiatives would be subject to outside expert advice from [SEAC].

However, it now seems MAFF are preparing to offer new advice to farmers without that expert advice. Within the draft advisory note attached, it is recommended that ‘even though transmission is not known to occur, Ministry advice is that calves born to cows which are or which become confirmed cases of BSE should not be used for breeding’. This advice is new.

This arose from the MAFF Ministers’ view that should there be action that we might want to take were BSE shown to be passed on from cow to calf, we should take that action now. Advice from within MAFF was to have breeding records of all cows/calves and advise against or prohibit breeding from any cows who are themselves offspring of cows who later develop BSE. Although pressed to refer the whole matter to [SEAC], it seems MAFF propose to refer only the question of whether these offspring of cases should be slaughtered.373

4.175 Dr Pickles was concerned that with no substantial new evidence following the Southwood Report, taking action not recommended by that group might ‘call into question the rest of the Southwood advice, including the remoteness of the risk to humans’.374

4.176 Dr Pickles set out her reservations with MAFF’s proposed action:

there is no substantial new and relevant scientific evidence since Southwood reported a year ago. So taking action not recommended by that group might call into question the rest of the Southwood advice, including the remoteness of the risk to humans.

The public/pres will be worried by the giving of this advice and the net response could well be that these identified offspring of BSE cases become not acceptable as beef cattle or for export either. There will be pressure to turn informal advice into statutory controls. Farmers will then lose money unless they ignore the advice or evade new controls, setting off more media worries. Yet the experts will have to admit it is impossible to identify all calves born to cows infected with BSE, since many of these will have been killed before showing symptoms. Hence more public worries about the ineffectiveness of the new ‘controls’.

There is no substantial benefit and the whole exercise is unlikely to warrant the cost and hassle. Even if BSE is transmitted from cow to calf, the epidemic will almost certainly die out in a few years.
Why have an expert group if their advice is not asked for on a matter as major as this? Justification for any new action should be that advice was sought and then followed. There is only a month to wait before the first meeting of the experts.

4.177 Annexed to Dr Pickles’s minute was a document entitled ‘Maternal Transmission’, which set out DH’s understanding of the reasoning behind MAFF’s proposals. Under the heading ‘Comments from DH on the proposals include’, it was said that:

There may be pressure from the farming lobby for advice on breeding. So far, this issue has not been taken up more widely. Bringing attention to it with new measures has to be fully justified and that justification has yet to be produced. This looks like MAFF digging another big hole for themselves to fall in.

4.178 Sir Donald agreed that:

. . . it would be foolish of MAFF to make such a decision of this sort which must be based on a view of risk of transmission from cows to calves without seeking advice. If they do not they will undermine [SEAC] from the start.

4.179 On 4 April 1990, Mr Lowson informed Mr Lebrecht that he had sent a copy of the draft advisory note to DH on 19 March 1990, and that DH had now told MAFF that they objected to the reference to breeding from offspring of affected cattle. DH’s concerns were:

- to offer advice to farmers would go beyond what the Southwood Committee advised, which would call into question the rest of Southwood’s recommendations;
- to put out advice so soon before asking [SEAC] to advise on the topic would run counter to the objective of proceeding on the basis of scientific advice only; and
- to put any kind of question mark against a new category of animal would heighten public concern about the safety of beef.

4.180 Mr Lowson noted that these arguments ‘were ventilated at Mr Curry’s meeting, and it is the CVO’s strong recommendation that advice about breeding should be offered’. He also said that the BVA’s view was consistent with Mr Meldrum’s, ‘and we know that some at least of the [SEAC] members already support it’. However, Mr Lowson suggested that DH’s concern ‘certainly cannot be brushed aside’. This left three possible courses of action:

- One possibility would simply be to drop the reference to breeding from the leaflet, and to deal with any enquiries by saying that we were seeking further scientific advice on the topic, even though Southwood did not make any
recommendations. Another would be to recommend that farmers should seek advice from their veterinary surgeons about breeding from the offspring of BSE cattle. The third possibility, which corresponds with the approach which Ministers have so far adopted, would be for them to seek to impress upon DOH colleagues the importance that they attach to this point . . . 380

4.181 Mr Curry and Mr Maclean both responded that they agreed with Mr Meldrum, and that the reference to breeding should be retained in the advisory note. However, there was also concern that MAFF should not be seen to be pre-empting the deliberations of SEAC. 381

4.182 Dr Metters, Deputy Chief Medical Officer, minuted Sir Donald Acheson on 10 April about MAFF’s proposal to issue advice on breeding. He said that Dr Tyrrell’s view was that the advice should be delayed until SEAC had considered the issue. Dr Metters had spoken with Mr Meldrum, and pointed out that issuing the advice before SEAC had considered the issue would undermine their credibility. Mr Meldrum had admitted that MAFF would be reluctant to issue the advice if DH had doubts, and following Dr Metters’s affirmation that it did, conceded that he could agree to wait, though other officials might not. Dr Metters said that Mr Meldrum had indicated that if Sir Donald conveyed DH’s views to Mr Andrews, then this would be enough to delay the issue of advice. 382

4.183 Mr Maclean wrote to Mr Roger Freeman, DH Parliamentary Secretary, on the same day to explain MAFF’s position. He noted that farmers’ organisations and other representative groups had been pressing MAFF for official advice on breeding from offspring of BSE-affected cattle, and that he believed such advice should be offered. Mr Maclean suggested that ‘if we were not do so, we would be accused of irresponsibility’. He continued:

The strong recommendation that I have received from the State Veterinary Service is that farmers should be advised not to use the female offspring suffering from BSE for breeding. In doing so it would be important to make it clear that this was a common-sense precaution to reduce the risk of the introduction of BSE to farms which had not already suffered it, with no implications for human health and on the basis of no new scientific evidence of maternal transmission. We would, as already discussed between officials, want to seek the advice of [SEAC] on the topic, but in the meantime I do not see how we could issue advice to farmers which did not contain any information on the one point on which they most want to be advised. 383

4.184 After reading the letter, Dr Pickles minuted Dr Metters on 11 April 1990 and reiterated DH’s arguments against the issue of advice. She suggested:

It seems that we and MAFF may have different views on the facts. The first sentence of the second paragraph [of] Mr Maclean’s letter suggests animals suffering from BSE might be used for breeding – we understood all ill animals were slaughtered. His next sentence mentions introduction of BSE to farms as if herds that have not had clinical cases are free of infection – it was our understanding that all cattle in this country must be regarded as
suspect for subclinical infection. Whilst we still believe BSE has no direct implications for human health, and any new measures will not change this, we are also concerned about public perceptions of risk and the anxiety caused by any ill-judged new moves. These are all good reasons for using the mechanisms we have set up to get the advice of independent experts.  

4.185 Dr Pickles attached a draft letter for Mr Freeman to send to Mr Maclean. It pointed out that Mr Maclean had previously agreed that ‘important new measures were to be approved by both departments and also that these would be based on advice from [SEAC]’. In suggesting that the issue of the advice should be delayed until after SEAC had considered the matter, it continued:

I think it is important we stick to these agreements, particularly as my own officials appear to have a rather different interpretation of the facts available – a clear indication that we need independent expert advice. As you say, there is no relevant new scientific evidence on maternal transmission, so we must be careful in the presentation of new advice that goes beyond what was recommended by the Southwood group in case this calls into question the rest of their advice.

4.186 The final version of Mr Freeman’s letter, sent on 17 April 1990, said:

I think it is important we stick to these agreements, particularly as [SEAC] is to meet on 1 May. To issue this advice just before they meet will only undermine their credibility. As you say, there is no relevant new scientific evidence on maternal transmission, so we must also be careful to ensure that any new advice that goes beyond that recommended by the Southwood group is backed by independent experts.

I believe the right approach is for you to delay the issue of the advice to farmers, or to issue it with no comment about breeding, and present the problem to [SEAC]. Depending then on their views, we can reconsider what advice, should be offered.

4.187 Following receipt of Mr Freeman’s letter, the issue of the advisory note was delayed until SEAC had considered the issue, and Mr Maclean asked that the draft advisory note be forwarded to SEAC for its consideration.

4.188 It appears that Mr Gummer had already resigned himself to this approach. On 11 April 1990, the Press Office forwarded the draft text of the advisory leaflet to Mr Gummer. A manuscript note on the covering minute records:

The Minister discussed this with the Secretary this morning; He has decided that the leaflet should be submitted to [SEAC] for comments before it is used.

4.189 On breeding, the draft advisory leaflet read:
Experiments are being carried out to determine whether BSE can be transmitted from dam to calf. Results may not be available for several years, but the existence of such transmission would mean that the eradication of BSE would take longer and be more difficult. Therefore, even though transmission is not known to occur, Ministry advice is that calves born to cows which are or which become confirmed cases of BSE should not be used for breeding.\textsuperscript{389}

\textbf{4.190} On 24 April 1990, in relation to a suspected BSE case born after the ruminant feed ban, Mr Bradley suggested to Mr Meldrum that at worst it indicated the possibility of maternal transmission existed. He continued:

However, there have been no reported cases yet in the offspring trial even though some animals are over two years old and some had exposure or possible exposure to MBM before July 1988. There is still time of course for these to develop BSE but the . . . case, even if confirmed, may be the unusual example rather than the norm.\textsuperscript{390}

\textbf{SEAC consideration}

\textbf{4.191} SEAC considered the breeding issue during its first meeting on 1 May 1990. The paper on this matter, which had been provided to SEAC by MAFF, asked:

Is it advisable, in advance of clear evidence about the natural transmissibility of BSE, to control the use of offspring of identified BSE cows for breeding – considering (a) animal health aspects and effect on the extent of the epidemic and (b) wider issues such as perception of the media, public and export trade. And is it reasonable to maintain the position that there is no scientific justification for the slaughter of the offspring of cattle suffering from BSE?\textsuperscript{391}

\textbf{4.192} The paper went on to ask, in the light of the above consideration, whether it would be appropriate to introduce controls on breeding and whether such controls should be in the form of a compulsory system involving marking the relevant animals, or by advice to farmers. The SVS Paper, which had been prepared for Ministers in February 1990, was also provided to SEAC. The Paper is described in detail at paragraph 159 above.

\textbf{4.193} The minutes record that SEAC had several reservations about MAFF’s proposal to issue advice:

The incidence of subclinical infection invalidated any action proposed. Any advice against breeding from BSE offspring might imply breeding from other cows was acceptable, and yet this was not necessarily the case since these animals could have silent infection. The evidence with natural scrapie suggested there was no association with birth order, so even young cows might be capable of passing infection on to offspring. With the proposed measures, there would be incentives to cheat, perhaps even leading to an increase in infection as farmers offload suspect animals, with difficulties in
buying in replacement cows at appropriate ages. There could be disposal of certain useful genes if BSE-offspring were not used for breeding. It was possible infectious but resistant genotypes would be selected, leading to further problems. The effect on the public and the meat trade was thought important: if all these offspring could be properly identified then there would be difficulty in finding buyers for them, but if not properly identified there would be presentational difficulties and little chance such measures would have any effect. In view of the expected elimination of the disease eventually in any case (barring horizontal transmission), at best new measures might be able to accelerate this slightly. At worst, new measures could conceivably make the epidemic worse, although minimal effect was most likely. Introduction of new measures now would lead to suspicion of something unpleasant being concealed.

Proper modelling would be very valuable in formulating advice here and the committee reiterated how important it was that this was undertaken.

Whilst not persuaded that the BVA’s advice should be endorsed, for all the above reasons, the committee supported obtaining more accurate breeding records and noted MAFF’s intention of strengthening the legislation in this area.392

4.194 The day after SEAC’s meeting, Dr Pickles informed Dr Metters that the committee ‘were not persuaded on MAFF’s proposed line . . . vindicating our stance that this action should await independent expert advice’.393

4.195 On 9 May 1990, Mr Lowson sent a letter to Dr Pickles to help finalise the minutes of SEAC’s first meeting, and said, ‘I will put fresh advice to our Ministers about advice regarding the use for breeding of the offspring of BSE cattle’.394

4.196 Mr Meldrum forwarded his comments on SEAC’s first meeting to Mr Lowson on 14 May 1990. On the breeding issue, he said:

The Committee have been over influenced by the possibility that sub-clinical infection not only may occur but that such animals, as in scrapie, could transmit maternally. That is also pure conjecture, particularly as there are already indications that the agent of BSE is a single agent and that there may not be a genetic resistance to the agent in cattle. I would argue, strongly, that it is far better to offer advice for a percentage of the population where disease has been confirmed, even though this would not cover those where sub-clinical infection may exist, than to offer no advice at all and to extend the duration of the epidemic . . .

All in all the arguments deployed are not convincing to me . . . and, if this is the view of the Committee, then it will not be supported by me . . .

You will, I am sure, understand my position and that I must in such situations retain the right to offer my own advice to Ministers. All of this reinforces my earlier view that in such delicate situations it is imperative that I am in a position to present my case to [SEAC]. You will appreciate that there was no
The next day, Mrs Attridge sent Mr Gummer a draft submission prepared by Mr Lowson, in light of SEAC’s advice. Mr Lowson’s submission said that:

[SEAC’s] arguments are convincing and the Minister is therefore recommended to agree to the release of the advisory leaflet . . . without the passage on the use of the offspring of BSE cattle for breeding. If challenged on this point, we can point to the strong scientific advice that we have received.

Mr Gummer met NFU representatives on the same day to discuss BSE issues, including the proposed advice on breeding. The note of the meeting records that:

The Minister said that, given he was basing his position firmly on reliance on scientific advice, he could not possibly with credibility take a decision which contradicted that advice and might lead to a worsening of the situation.

Although the NFU representatives expressed some doubt about the advice given by SEAC, they ‘eventually accepted that the Minister could not stand against that advice, given its source’.

Mr Maclean met Mr Andrews, Mr Capstick, Mrs Attridge, Mr Meldrum and Mr Simon Dugdale, the Chief Information Officer, on 16 May 1990. It was noted that a statement was being prepared on SEAC’s advice on breeding from the offspring of BSE-affected cows, which would be put to Dr Tyrrell for endorsement within the next day or two. Mr Maclean thought the advice ‘should come out in full’.

Although Mr Meldrum said the obvious advice for veterinarians to give to farmers was that they should not use offspring of affected cows for breeding, he acknowledged that ‘in the context of general advice to farmers, [SEAC] was right to draw attention to the problems [it] had identified’.

At SEAC’s next meeting, on 17 May 1990, two draft letters were circulated for the Committee’s consideration. The first was a draft letter to the CMO, which stated:

[T]here is no scientific evidence currently available to support official advice against the use for breeding of the offspring of cows suffering from BSE, even if infection can pass down from cow to calf, a possibility that cannot be excluded at present. Decisions about breeding should be left to individual farmers and their veterinary advisers.

Because the likely origin of the epidemic has been eliminated, the outbreak in cattle will be self-limiting unless infection can be spread freely between
cattle – in which case restricting breeding would be pointless. So at best, restricting the use of the offspring of BSE cattle would accelerate the decline that was likely in any case. Because of the possibility that subclinically infected animals might infect their offspring, not all potentially infected calves might be identified, which would reduce any benefit. Other possible consequences might even be unhelpful, since it could lead to the increased dispersal of infected animals to other herds, and to the loss of valuable genetic material. We support MAFF’s intention to impose more stringent requirement to secure better records of cattle, their offspring and their movements. In any case, vertical transmission, if this is found to occur, would make no difference to the remoteness of the hazard for humans.

This viewpoint may need to be revised in the light of new scientific information.402

4.202 The minutes of the meeting record that the draft letter was agreed by the Committee. The letter was sent later that day to the CMO.

4.203 During the meeting, the Committee discussed what they regarded to be the ‘assumed facts on vertical transmission’:

Scrapie spreads in sheep mainly from dam to offspring and also from adult to adult but the exact mechanism is unknown. But when scrapie infects mink it does not spread. To date we cannot say whether BSE will spread naturally among cattle or not but we note an experiment has been set up to determine whether transmission was possible from cow to calf.

We assume that affected and some exposed and unaffected cattle herds contain infected animals. Therefore in the worst case, calves may be infected whether or not there has been BSE disease in the herd and may subsequently themselves breed while still healthy. Even if infection from the dam is 100 per cent, and if at least some infected dams become sick and produce fewer calves, the epidemic will be self limiting. However, to the extent that infection can spread from adults to other cattle or be reintroduced into cattle by some other route, then the self-limiting effect will diminish.403

4.204 In the course of these discussions a second draft letter, addressed to the Veterinary Record, was distributed. The second draft letter attempted to set out the Committee’s position on this matter in greater detail than that addressed to the CMO. The minutes of the meeting record that ‘difficulty was found in expressing the genetic arguments, particularly the possibility that “resistant” (ie, long-incubation) genotypes might be selected’.404 The draft stated:

In forming this advice we have envisaged the worst possible scenario, namely that BSE can be transmitted from infected cows to all their calves . . . Even with this worst case scenario, barring the occurrence of horizontal transmission, the epidemic will not be self-sustaining and will die out, probably to very low levels within the next decade. The reason behind this is simple: since the feed ban will prevent new index cases, and only one in five calves from infected cattle is used for breeding, and because of
premature loss through BSE each infected cow has on average less than five calves, the prevalence of infection will fall with every succeeding generation. If only a proportion of calves born to an infected mother is infected the drop in the overall infection rates would occur more rapidly.

At first sight, it may appear that the recent advice from the BVA, that the offspring of known cases should not be used for breeding must be helpful . . . However, only a proportion of infected cows – those that survive long enough to present with symptoms – can be identified. Animals used for breeding in place of the identified BSE offspring could well be themselves infected. Indeed, if the identified BSE offspring become marked in some way, there may be temptations to offload these from the herd early so they become precisely those animals brought in for breeding. Many farmers would not have records good enough to convince themselves, or the purchasers of their calves, that they could identify even those few animals which had mothers known to be infected.

There are other considerations, however. Some of the genes discarded in such a programme may have other positive attributes and so should not be disposed of lightly. Furthermore, much more work needs to be done about the potential role of genetic factors in the control of BSE and it would not be wise to take any action that might prejudice this.

In view of the possibility that there could be deleterious consequences, we believe it is inappropriate to offer general advice . . .

In formulating our advice although we were conscious of the presentational aspects, and also the possible economic consequences of new actions, these did not influence the decision we reached which was based on the scientific evidence available at the time. We did conclude, however, that even were BSE vertically transmitted, this would not be relevant to human health. On current evidence, the risk to humans from BSE is remote.405

4.205 This second draft letter was not agreed at the meeting.

4.206 Later that day, Mr Gummer issued a press release, which quoted a statement he had made in the House of Commons that day. On breeding, he said:

There are some who have suggested there should be a ban on breeding from the offspring of BSE cattle. The Southwood Committee did not recommend that. But I was concerned to ensure that all up-to-date information was taken into account so I referred the question back to [SEAC]. They confirm fully what Southwood said.406

4.207 It appears that, following SEAC’s second meeting, Dr Tyrrell considerably redrafted the ‘second letter’, which had been discussed at the previous meeting but had not been agreed. Mr Meldrum was provided with a copy of the revised draft, which was now a more detailed document entitled ‘The Scientific Background to the Control of BSE in Cattle’. On 31 May 1990, Mr Meldrum wrote to Dr Pickles saying that he had ‘severe reservations about this paper since it does contain a
number of inaccuracies and misconceptions’. He thought the paper needed further redrafting, which he believed a member of SEAC was doing in any event. He concluded by saying that, ‘it might be advantageous if I were to see a copy of the paper before submission to Ministers in view of the importance of this issue and the delicacy of its presentation’. Copies of Mr Meldrum’s letter to Dr Pickles were sent to Mr Lowson, Mr Kevin Taylor, Dr Kimberlin and Mr Lawrence.407

4.208 SEAC next met on 13 June 1990. A further draft of the paper was discussed by the Committee together with an alternative draft by Dr Kimberlin.408 The paper was now entitled, ‘Breeding from identified BSE offspring and the control of BSE in cattle’. The minutes of this aspect of the meeting are very brief. However, they record that following discussion, the secretariat was asked to provide a further draft. The key points to emerge were:

– the need for clarification of the reasoning behind the view that the epidemic would die out if transmission was from cow to calf only; and

– a recognition that the possibility of limited horizontal transmission of the disease was a more important problem than that of simple maternal transmission and hence precautions at calving including disposal of placentae [which was known to carry the infective agent in scrapie] could be important.409

4.209 In respect of the first key point identified above, the draft paper explained the view that maternal transmission alone would not maintain the disease, in very similar terms to the paper which was presented to the previous meeting on 17 May 1990. That explanation is set out at paragraph 203, above. In the latest draft the explanation was as follows:

We believe, however, that even with free vertical transmission, barring the occurrence of other than very restricted lateral transmission, the number of cases will fall to a very low level within the next decade and the epidemic will not be self-sustaining and will die out. The reason behind this is as follows: since the ruminant protein ban will prevent new infections from feedstuffs and only about one in five of all calves of dairy cows is used for breeding, and because each cow has on average substantially fewer than five calves, the prevalence of infection will fall with each generation. If only a proportion of calves born to an infected mother is infected or only some infected mothers can pass on the infection, the drop in overall infection rates would occur even more rapidly . . . We emphasise that even were BSE vertically transmitted, this would not be of relevance to human health.

SEAC members provide evidence to the Select Committee

4.210 On 18 June 1990, Dr Tyrrell, Dr Will and Dr Kimberlin gave evidence to the House of Commons Select Committee on Agriculture.410 Dr Tyrrell was asked:
On page 16, in the second paragraph, your report [the Tyrrell Report\textsuperscript{411}] states that: ‘If BSE becomes established as an endemic infection of cattle, selective breeding would become a major option for the control of BSE’. Yet in your later note you advise Ministers against a breeding ban. Could you explain why you now think that it is unlikely that BSE will become endemic in cattle?

He responded:

I think there are two ideas woven together in your question, if I may say so. One is our judgment on whether BSE will become endemic or not. The other is whether genetic methods of control might be sought by breeding. I think the answer about whether it will become endemic really turns on our belief that probably the Southwood Committee’s general conclusion was right, that this is likely to be a dead-end host, and if it is a dead-end host, then the disease will die out as the infected animals finally die or become sick.\textsuperscript{412}

4.211 Asked whether it would be desirable to ensure or hasten the eradication of the disease from cattle by avoiding breeding from the offspring of BSE-affected cows, he stated:

We have been having discussions actually on that very point because it is a very difficult one and we wish to give a clear answer and we are still arriving at [what] we think is the right way to present it. I think that is the most honest thing I can say to you.\textsuperscript{413}

4.212 When asked why, if BSE was so like scrapie, BSE should not act like scrapie in respect of maternal transmission, Dr Kimberlin responded:

I think the short answer to your question is that BSE, whatever it turns into, did not start out by being scrapie. It started out as a TME [transmissible mink encephalopathy] story, an infection, if you like, that should not have been there but got in through the mink feed. One of the remarkable things about the TME mink disease story is that it is a dead-end infection, so that at the top of my list I would put, since BSE started like TME it is likely to continue that way, and it is only if circumstances change and it now becomes an endemic infection of cattle, in the manner that scrapie is of sheep, that we will be faced with a rather more difficult problem, potentially, of eradication.\textsuperscript{414}

4.213 Dr Tyrrell then interjected to say:

. . . it is true that the agent is expected to behave like mink, be a dead-end disease, but I think we should say as honest scientists that we do not know, and that is why the Southwood Committee recommended – and we thoroughly endorse – a large-scale, I must admit expensive, experiment to try and determine whether, in fact, maternal transmission does occur, because this is a crucial fact to have. I should tell you then that at the moment our thinking, which is incomplete, is moving in the direction of saying that,
as there is no real evidence that transmission does occur, there is really no need to stop people breeding from affected cattle or from earlier calves for instance. But it might turn out that it did, if transmission does occur, in that case it could be a wise precaution to make sure there is an adequate register of the breeding and of the fate of calves which come from animals which in the end prove to be infected, so that if we decided in perhaps a couple of years’ time that this was a real risk and not just a hypothetical one, we might move as efficiently as possible towards doing something appropriate about those potentially infected animals. But at the moment there would be some losses which might be entirely unnecessary if one decided, ‘we will take the worst action head on and we will kill off or prevent breeding from all the progeny’, and that, I think, will be a decision finally for administrators, ministers, farmers and so on to take.

4.214 It was then suggested to Dr Tyrrell that SEAC was:

second-guessing to a great extent with regard to whether it is going to be a dead-end source or not and we know that it is not in sheep. Surely it would be better, to quote a Minister, to use belt and braces and ban the breeding at this particular stage, because if we find out you were wrong, Dr Tyrrell, then the problem is going to be much greater in two or three years’ time.

Dr Tyrrell responded:

[T]he science is very difficult because we are proceeding on the basis of analogies and hypotheses about what might happen if breeding proceeded and there is no sure knowledge. I feel that, to be perfectly honest, in the area of managing the British beef herd we have to deal with much less well established science and scientific principals than we have when we are dealing with the safety of human beings, so it is a more difficult issue.

We have suggested that as a half way house we put forward the idea of adequate records so that if we are wrong any necessary, administrative action can be taken and we do not in two or three years time say, ‘Oh, but we were wrong and we never thought of it before’, and then did not do anything ahead of time to govern and prepare for a route of action that would be needed if we were wrong. That is the line.

**SEAC’s fourth meeting and finalisation of the paper on maternal transmission**

4.215 SEAC further discussed the draft paper on maternal transmission at its fourth meeting 2 July 1990. At that meeting, Dr Tyrrell said:

The objective in this and other cases was to produce ‘opinions’ which set out clearly what was implied by scientific knowledge. It was for others to decide what policy decision should flow from this. These ‘opinions’ could be backed up by more detailed notes setting out their scientific basis.
4.216 The minutes of the meeting further recorded that following ‘detailed discussion’, the secretariat was asked to produce a further draft, which after clearance by Dr Tyrrell would be shown to other members for agreement in a very short timescale.

4.217 The final paper, ‘Control of BSE in Cattle’, was agreed and published on 12 July 1990. The paper set out the basis for SEAC’s advice to Government on breeding from offspring, as follows:

10. Slaughtering, or avoiding breeding from, the female offspring of affected cows may harm the productivity of the herd and would remove animals which could be valuable for improving the stock – eg, because of their potential milk yield or quality. There could also be a tendency for animals which were infected, but had not yet shown clinical disease, to be disposed of to other farms rather than to be retained for breeding, thereby dispersing infected animals to other herds. If, as we believe is possible, maternal transmission does not occur, such measures would obviously bring no benefit because the only animals that will develop clinical signs in the future are those which are already infected but have not yet succumbed to clinical disease.

11. If the disease were transmitted from dam to calf exclusively, or nearly exclusively, there would still be a tendency for the disease to die out, because cows which became clinically affected would have fewer calves than those which remained well, and infected animals would not produce enough calves for the epidemic to be maintained. Consequently preventing the progeny of cattle suffering from BSE from breeding would do no more than accelerate the self-limitation of BSE that would occur anyway.

12. If the mechanisms of transmission were like those of scrapie, the value of applying restrictions to the offspring of known BSE cattle would be severely limited because infection could be passed to their calves and even to their offspring’s offspring before the dam showed signs of the disease. Some cows could pass the disease to their offspring without ever developing clinical signs of BSE.

13. The factors in paragraphs 10–12 above were the main considerations which led us to the conclusion that we could not advise the Government to take measures to limit the use of the offspring of cattle suffering from BSE for breeding. 416

MAFF issues the Advisory Note to Farmers, June 1990

4.218 On 31 May 1990, Mr Maslin forwarded to Mr Maclean a revised draft advisory note for farmers. Mr Maslin suggested that to take into account SEAC’s advice, the section on breeding be changed to:

Experiments are being carried out to determine whether BSE can be transmitted from dam to calf but results may not be available for several
years. If you wish to obtain advice on breeding from the offspring of cows affected with BSE you should consult your veterinary surgeon.417

4.219 MAFF issued the *Advisory Note to Farmers* in June 1990. It set out general guidance on BSE symptoms, the slaughter and compensation scheme and health and safety. Mr Maslin’s suggestion for the breeding section was also included.418

4.220 During oral evidence, Dr Francis Anthony of the BVA was asked what his understanding was for MAFF’s withdrawal from its 1988 advice (see paragraph 4.150 above). He responded:

> I wish we could have understood. We were extremely frustrated as an association because the advice not to breed from an animal which might be carrying a disease which we did not know was transmissible or not maternally, there is no other advice.419

4.221 On 12 July 1990, MAFF issued a press release to coincide with the publication of SEAC’s paper, ‘Control of BSE in Cattle’. It quoted Mr Gummer’s written answer to a Parliamentary Question:

> I have today received [SEAC’s] paper on the Control of BSE in Cattle. This paper discusses the scientific background to the opinion which the Committee offered on 17 May to the effect that there is no scientific evidence currently available to support official advice against the use for breeding of the offspring of cows suffering from BSE and that some possible consequences might even be unhelpful.420

The Agriculture Select Committee’s report on BSE

4.222 In their report on BSE, published on 10 July 1990, the House of Commons Agriculture Select Committee (the Select Committee) commented on whether there should be a ban on breeding from the offspring of cows with BSE. SEAC’s advice was considered, and the Select Committee said that it found SEAC’s reasoning ‘neither fully convincing nor fully clear’. It acknowledged that Dr Tyrrell had admitted that the advice was produced in haste, and that a second report was being prepared. The Select Committee continued:

> The essence of Dr Tyrrell’s advice is that decisions on whether or not to breed from the offspring of confirmed cases should be left to farmers on their veterinary surgeon’s advice. His reasons for this are abstruse and depend less on pure science than a series of finely balanced judgements about whether particular constraints on breeding would be warranted by their likely effectiveness. Our own view is that this is an area where scientific advice needs to be considered in conjunction with other factors and where, beneath the agonising over technicalities, the issue may be a comparatively simple one. If it was known that BSE was maternally transmissible, no Government could countenance the offspring of BSE-affected cows breeding freely since that would signal an indifference to eradicating the disease. Since it is only speculated that the disease is maternally transmissible, what is at issue is
whether one proceeds on the basis of speculation or awaits certain knowledge.

The judgement is a fine one but, in our view:

no legislative action is necessary unless maternal transmission is confirmed;

in the interests of public confidence, farmers should be discouraged from breeding from animals whose dams have been affected by BSE.421

4.223 The Select Committee suggested that one way of achieving this would be for MAFF to ‘indicate that it would not pay compensation on animals which had been knowingly bred from a dam with BSE in its lineage’.422

The Government’s response

4.224 On 24 July 1990, Mr Lowson sent a submission to Mr Gummer, which advised that the Select Committee’s recommendations on breeding should be rejected.423 Mr Gummer acceded to this advice when he met with MAFF officials the next day.424

4.225 In November 1990, the Government presented its response to the Select Committee’s report. On breeding from offspring of BSE cows, the Government stated:

The arguments are complex and it is important that [SEAC’s] views should be read in full. But the Government finds them convincing and therefore does not accept the Select Committee’s recommendation on this point.

It follows that the Government does not accept either the recommendation that farmers who breed from known BSE cases should not get compensation if the offspring succumb to BSE. Such action would act as a clear discouragement to reporting suspect disease, even though it is a legal requirement. Moreover, the Animal Health Act 1981 lays down that if the Minister requires the compulsory slaughter of an animal, the owner must be compensated.425

Subsequent advice on breeding, 1995–96

4.226 Towards the end of 1995, MAFF began work on revising the original 1990 Advisory Note to Farmers. A draft version was submitted for SEAC’s consideration at its meeting on 23 November 1995. On maternal transmission the draft stated:

Experiments are being carried out to determine whether BSE can be transmitted from dam to calf. Although these will not be completed until 1997, it is already clear that this happens rarely, if at all. If you wish to obtain
advice on breeding from the offspring of cows affected with BSE, you should consult your veterinary surgeon.426

4.227 However, by the time the final version was distributed in September 1996, maternal transmission studies had indicated that BSE could be maternally transmitted (see vol. 2: Science). Thus, the advice issued was:

Experiments have shown that BSE can be transmitted from a BSE-infected dam to her calf. This maternal transmission of BSE is most likely to occur when a calf is born within six months of its dam developing clinical BSE; around 1 per cent of cows which die of BSE will have produced a calf which will die of BSE as a result of maternal transmission. This will not prevent the eradication of BSE. MAFF advice is that you do not retain for breeding the most recent offspring of a BSE-affected dam. You may wish to obtain further advice on breeding from the offspring of cows affected with BSE from your veterinary surgeon.427

Discussion

4.228 When examining advice on breeding in vol. 5: Animal Health, 1989–96, we discussed the part that SEAC had played. We set out here the conclusions that we reached.

4.229 The possibility that there might be a genetic factor in susceptibility to BSE, or that BSE might otherwise be transmissible from cow to calf (‘maternal transmission’) led both the MAFF veterinarians and the British Veterinary Association (BVA) to conclude that it was preferable that the progeny of cattle with BSE should not be used for breeding lest they, having been infected with the disease, should pass it on to their own progeny.

4.230 On 30 April 1988, MAFF recommended, in the Veterinary Record, that the progeny of affected cows should not be retained for breeding purposes (see paragraph 4.150). This would have brought the advice to the attention of veterinarians, but not to most farmers. On 25 January 1990, the BVA issued a press notice giving the same guidance (see paragraph 4.153).

4.231 On Mr Gummer’s initiative, the SVS prepared a paper setting out the options for action to address the possibility that BSE might be vertically transmissible. In essence, the choice was between simply advising farmers not to breed from the progeny of cattle affected by BSE or imposing regulations that would prevent them from doing so. The latter course raised tricky policy considerations. If statutory action was taken, this might reinforce public concern about the disease and have an adverse effect on the market. If no mandatory action was taken, the public might criticise MAFF for failure to take adequate precautions. In the event the decision was taken to refer the matter to SEAC (see paragraph 4.187).

4.232 We do not believe that it can have occurred to MAFF that there would be anything controversial about giving advice not to breed from offspring, pending the possibility of SEAC recommending more stringent measures. Dr Pickles’s
intervention, in a matter which was pre-eminently one of veterinary expertise, cannot have endeared her to the MAFF veterinarians.

4.233 The arguments raised by Dr Pickles against the issue by MAFF of advice against breeding from the offspring of dams affected by BSE were:

i. Southwood had not given such advice. For MAFF to do so might call in question the soundness of other parts of the Southwood Report, including its assessment that the risk to humans was remote.

ii. Such advice would raise concerns on the part of the public and the media about the offspring of BSE victims. This might lead to their being made the subject of an export ban.

iii. There would be pressure to replace such advice with statutory controls.

iv. The result might be a loss of income to farmers.

4.234 Dr Pickles added that there would be little benefit from the advice as, even if maternal transmission occurred, BSE would almost certainly die out within a few years.

4.235 The question of the extent to which the proposed advice would be beneficial in expediting the eradication of BSE, should maternal transmission occur, was one that called for expert input from the veterinarians. The points raised by Dr Pickles were essentially political questions.

4.236 In those circumstances we question whether SEAC had much to contribute to the debate. MAFF’s veterinarians were as well if not better placed to provide the expertise that was needed to inform the debate. It was for MAFF administrators and for Ministers to weigh veterinary considerations against the wider political implications of the proposed advice.

4.237 We can, however, see force in Dr Pickles’ point that, having just set up SEAC, it might discredit the Committee to proceed to issue advice without consulting them. In these circumstances, we consider that Mr Gummer acted reasonably in deciding that guidance from SEAC should be sought before MAFF’s advice to farmers was given.

4.238 The basis on which SEAC’s advice was sought, however, was not satisfactory. They appear to have been expected to produce an opinion on a difficult matter at their first meeting. They were asked not merely to advise on the scientific justification for taking action in relation to breeding from the offspring of cattle suffering from BSE, but to have regard to ‘wider issues such as perception of the media, public and the export trade’. We do not think that SEAC was the right body to reach a decision that involved evaluating those wider issues. Yet the minutes of SEAC’s meeting indicate that much of their discussion was devoted to these issues.

4.239 It seems to us that after their meeting SEAC had some difficulty in formulating a scientific basis that justified their disapproval of the advice that MAFF had wished to give to farmers. Dr Tyrrell failed to produce a convincing explanation of this when he appeared before the Select Committee and SEAC’s final paper did not persuade us that Mr Meldrum’s position was unsound. But
SEAC, dealing with this matter at their first meeting, was constrained to advise under pressure. For most members of SEAC policy on animal breeding was unfamiliar territory. Their advice is not a matter for criticism.

4.240 Mr Gummer felt that he could not take a decision which contradicted SEAC’s advice as he was basing his position firmly on scientific advice. We, like the National Farmers’ Union (NFU), appreciate the difficulty that Mr Gummer would have had in disregarding the first advice to be proffered by the new advisory Committee. Mr Meldrum commented in a minute to Mr Lowson:

... in such delicate situations it is imperative that I am in a position to present my case to the Tyrrell Committee. 428

4.241 We sympathise with Mr Meldrum. On a matter such as this, it would have been preferable for SEAC to have had the benefit of hearing from him.

4.242 In summary, we consider that a preferable way to have made use of SEAC in relation to the breeding issue would have been:

i. To have targeted the advice sought on the scientific issues.

ii. To have allowed SEAC more time to reach a considered advice.

iii. To have invited SEAC to discuss the veterinary issues with Mr Meldrum or some other member of the SVS.

4.243 Although this episode provides a lesson for the future about the way in which the Government should make use of scientific advisory committees (we discuss this further in vol. 1: Findings and Conclusions), we do not think that it calls for criticism of any of the individuals who were involved at the time.

3. Advice on slaughterhouse practices and MRM

4.244 The introduction of the human Specified Bovine Offal (SBO) ban in November 1989 led to concerns being raised regarding the potential for meat intended for human consumption to be contaminated by the designated offal during the process of its removal in the slaughterhouse. The principal areas of concern which were ultimately referred to SEAC were:

i. Head-splitting: The splitting of the skull in order to remove the brain caused concern because of the potential for brain material to contaminate head meat, which was often removed thereafter and used for human consumption.

ii. Carcass-splitting: It is a requirement of European meat hygiene legislation that bovine carcasses are split following slaughter. This was achieved by the use of a circular saw which was passed down the back of the carcass splitting the spinal column. Concerns over this practice were twofold. First, there was potential for the spinal cord to be ‘shredded’ during splitting so that small fragments could become lodged in the spinal column. Second, the saws might throw up spinal
cord material onto the surrounding carcass including meat for human consumption.

iii. **Pithing**: After the animal has been stunned the pithing rod is inserted into the skull and pushed down the spinal canal for a length of about one metre and then withdrawn. It is designed to destroy spinal nerve roots so as to prevent the reflex, convulsive kicking that is sometimes seen in stunned cattle. Concern was expressed that meat for human consumption might become contaminated with brain or spinal cord material as a result of contact with the pithing rod or material discharged during the pithing process.

iv. **Mechanically Recovered Meat (MRM)**: A number of mechanical methods were used to remove residual meat from the bones of the carcass after manual deboning had taken place. Concern was expressed that MRM could be contaminated with spinal cord fragments which remained in the spinal column after carcass-splitting.

4.245 Each of the above processes is described in detail in vol. 13: *Industry Processes and Controls*. In addition, the consideration given to these processes by MAFF and DH, which led to these matters being put to SEAC, is described in full in vol. 6: *Human Health 1989–1996*. What follows here is a brief summary of the evidence put to SEAC, their deliberations and conclusions.

**Head-splitting**

4.246 The potential problems associated with the practice of head-splitting were drawn to the attention of MAFF almost immediately after introduction of the SBO ban. Concerns were raised by a number of Environmental Health Departments of local authorities responsible for enforcement of the SBO regulations. These concerns were then taken up by the Institute of Environmental Health Officers (IEHO) which canvassed its members regarding the effectiveness of the regulations and communicated their responses to MAFF. Among the matters addressed by the IEHO was the fear that the practice of head-splitting, prior to removal of head meat, might lead to head meat used for human consumption becoming contaminated with brain material.

4.247 To help assess the validity of the complaints being received, in early February Mr Stephen Hutchins, SVO, Red Meat Hygiene Division, MAFF, visited selected abattoirs to review brain removal methods. His report to Mr Keith Baker, Assistant Chief Veterinary Officer (Meat Hygiene), concluded that the ‘very small amounts of a bone paste that would have included traces of brain tissue’, produced by three different methods of sawing through the head and brain, might be transferred to cheek meat, ‘but only in tiny quantities’. An alternative method involving the use of water and air jets posed ‘some risk’ of contamination and ‘represented the least hygienic method witnessed’. However, he saw no reason for prohibiting the ‘open-skull’ methods, provided saws and work surfaces were adequately cleaned down between heads.
4.248 In the face of continuing concern, Mr Gummer ‘undertook to organise a review of the contrasting arguments put forward by the EHOs and the SVS’. He would ‘invite a suitable outside expert to advise him’. Mr Andrews suggested that Dr Tyrrell, Chairman of SEAC, was not ‘necessarily an appropriate person to make judgements about butchery practices’, and recommended Mr A M Johnston, senior lecturer at the Royal College of Veterinary Surgeons.

4.249 Mr Gummer agreed to this, and Mr Meldrum wrote to Mr Johnston on 1 March 1990 enclosing Mr Hutchins’s report. He asked whether Mr Johnston ‘could let us, as an independent expert, have your assessment of this report’.

4.250 Mr Johnston sent his report to Mr Meldrum on 7 March 1990. This expressed reservations about all the methods identified in Mr Hutchins’s report, especially the high-pressure water/air method – ‘I am convinced that this method is not acceptable if contamination of the meat on heads is to be avoided’. He concluded that ‘whenever possible, meat intended for human consumption should be removed before any saw cut which enters the cranium is made’.

4.251 On 29 March 1990, Ms Bronwen Jones, Meat Hygiene Division, distributed a first draft of a guidance note to local authorities on head-splitting, which was intended to take into account Mr Hutchins’s and Mr Johnston’s reports. The note explained that:

Brains may be removed at the slaughterhouse, in which case there are no further requirements in the Regulations governing the removal of head meat. Concern has been expressed that the practice of removing brains before the head meat is removed gives rise to the risk of cross-contamination of that meat with brain tissue. Since the brain tissue in question is from healthy animals, it follows that the risk is in any case negligible.

4.252 The guidance included the following principles which, if followed, ‘will ensure that any transfer of brain tissue to meat is kept to an absolute minimum’:

1. Where possible head meat intended for human consumption should be cut from the skull before any cut is made into the skull to remove the brain.

2. Where this is not possible, heads should be opened in such a manner that the possibility of brain tissue being spread to meat is kept to an absolute minimum.

3. It is recommended that the removal of the brain should take place within 24 hours of slaughter. Where this is not possible skulls should be stored prior to opening under chilled conditions.

4.253 The guidance also included ‘recommended techniques’:
The preferred technique for opening the skull prior to brain removal is an oblique cut through the skull with a reciprocating saw, from a line immediately anterior to the normal site of the captive bolt hole (but avoiding the hole itself) to a line immediately above the foramen magnum. This will allow the easy removal of the brain without exposing meat to the possibility of contact with the minimum amounts of brain tissue that might escape from the skull during the sawing operations.

If this method of removal is unavailable the skull may be split along the middle of the head in the median plane with a band saw. Before this technique is employed, all the meat from around the area of the hyoid bones and the base of the skull should be removed.

Methods involving the use of high pressure water jets to remove brain tissue from otherwise intact skulls are not recommended in view of the amount of splashing of brain tissue and water that occurs.440

4.254 However, concerns continued to be reported to the Government about the removal of brain before head meat. The IEHO reiterated its view that the practice should be expressly prohibited.441 In addition, representatives of consumer groups met with Ministers and officials in May and voiced their own concerns about the practice.442

4.255 On the night of 21 May 1990, there was a debate in the House of Commons on the Government’s handling of the BSE outbreak. During the debate further concerns were expressed by Mr Matthew Taylor MP about the practice of head splitting. Mr Gummer responded:

I thank the hon. Gentleman for his comments about what I have done. I hope that he recognises that the matter has gone to the Tyrrell Committee because our expert advice is that what we are doing is in general perfectly acceptable. However, I do not want there to be a scintilla of doubt.443

SEAC considers ‘head-splitting’

4.256 SEAC considered head-splitting guidelines during its 13 June 1990 meeting. The guidelines were essentially the same as those produced by Ms Jones earlier (see paragraphs 4.251–4.253 above). However, there were some drafting amendments, which had been effected under Mr Andrews’s ‘chairmanship’ on 23 May 1990,444 to emphasise that head meat intended for human consumption should be removed prior to the brain being removed, and high pressure water hoses should not be used to remove brain tissue. SEAC concluded that:

[P]recautions about the removal of the brain from bovine skulls were a common sense measure. It was not consistent with this policy to permit the removal of the brain before head meat was harvested.445
Ministers agreed that guidelines should be issued reflecting SEAC’s advice.\(^{446}\) On 14 June 1990 Mr Meldrum sent a telex to all Divisional Veterinary Officers (DVOs) and Regional Veterinary Officers (RVOs) in England, Scotland and Wales, all Regional Meat Hygiene Advisers (RMHAs), and a number of industry, retail and professional bodies. This included the following guidelines:

As a result of a detailed evaluation of practices currently in use in slaughterhouses and boning plants the Ministry of Agriculture, Fisheries and Food has concluded that bovine head meat must be recovered from the intact skull before the brain is removed.\(^{447}\)

**Evidence to the Agriculture Select Committee**

As described earlier, Dr Tyrrell gave evidence to the Agriculture Select Committee in June 1990. During evidence to the Committee, Dr Tyrrell discussed SEAC’s consideration of head-splitting practices. He noted that head-splitting practices could lead to contamination of meat for human consumption, and continued:

> It is, therefore, inconsistent to say, ‘We want to prepare the meat so that it can be safely eaten even if the animal is infected’ and then contaminate it again in the process of preparing it . . . Our conclusion was that it should not be allowed.\(^{448}\)

In its report, which was published on 10 July 1990, the Committee said that an area of particular concern was that action should be taken to make the ban on specified offal as watertight as possible. In particular:

> We do, however, feel in a position to *recommend that the practice of splitting the heads of cattle in abattoirs be outlawed*. It brings no significant benefits to anybody and is practically guaranteed to spread public alarm.

> We were pleased to note that Dr Tyrrell voiced similar reservations about the latter practice. Recent MAFF guidelines also stipulate that ‘bovine head meat must be recovered from the intact skull before the brain is removed’. This is a substantial step in the right direction, although we would like to see appropriate safeguards enshrined in legislation at an early opportunity.\(^{449}\)

Dr Tyrrell wrote to Mr Gummer on 23 July communicating SEAC’s advice in relation to brain removal from bovine skulls. He stated:

> [T]he specified offal ban . . . is designed to remove certain nervous and lymphatic tissue, including brain, from the human food chain. To be consistent, slaughtering practice should therefore also ensure that possibly infected brain and spinal cord material does not contaminate muscle tissue destined for human consumption. Various procedures such as sawing the skull open or driving the brain out by water pressure would disperse brain tissue which could contaminate meat and would not be satisfactorily removed by washing. Such procedures should therefore be carried out in

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\(^{446}\) YB90/6.14/2.1

\(^{447}\) YB90/6.14/3.3

\(^{448}\) IBD1 tab 7 p. 84

\(^{449}\) IBD1 tab 7 pp. xvii
such ways and places that contamination of meat does not occur. We therefore recommend, as far as bovine heads are concerned that head meat should be removed from the skull before the brain is removed.450

4.261 On 21 November 1990, the Government published its response to the Agricultural Select Committee’s report and recommendations. The response noted the Select Committee’s recommendation that head meat should be removed from the intact skull before the brain is removed and stated:

The Government accepts the principle of these recommendations. An amendment will shortly be made to the Bovine Offal (Prohibition) Regulations 1989. It will lay down that head meat must be recovered from the intact skull before the brain is removed, thereby avoiding any possibility of contamination through brain tissue.451

Bovine Offal (Prohibition) (Amendment) Regulations 1992

4.262 The Bovine Offal (Prohibition) (Amendment) Regulations 1992 came into force on 12 March 1992. These Regulations:

- prohibited the removal of any meat for human consumption from the head of a bovine animal after the skull had been opened or the brain had been removed;452
- prohibited the removal of the brain from the head of a bovine animal in a slaughterhouse or boning plant except in a specific area which at no time was used for food for human consumption;453 and
- permitted those bovine heads from which the brain had not been removed to be moved under a movement permit to premises of a processor or a place of storage before transfer to a processor.454

Slaughterhouse practices and MRM

4.263 Following their discussion of head-splitting practices on 13 June 1990, SEAC considered the potential for contamination of meat with spinal cord and asked for further advice. The minutes of the meeting record the following observation:

Similar issues arose with spinal cord; if it made sense to avoid contamination by brain tissue of meat for human consumption it appeared on the face of it to make equal sense to avoid the contamination of such meat with spinal cord, which was just as likely to carry infection. Further information was needed on this.455

4.264 This concern had particular relevance to the safety of Mechanically Recovered Meat (MRM).
4.265 At the meeting which took place on the same day between Ministers and senior MAFF officials, it was recognised that SEAC would not be expert in the procedures involved in the MRM process, so it would be necessary for MAFF to prepare a paper on the technical issues involved. Mr Meldrum and Mrs Attridge were asked urgently to take forward the preparation of a detailed assessment of the possible hazards of MRM.

4.266 It was not until October 1990 that Mr Lowson produced the final draft of the paper for SEAC. A detailed account of the drafting of the paper is to be found in vol. 6: *Human Health, 1989–1996*, ch. 4. The final draft added to the consideration of MRM a section provided by Mr F Taylor, Meat Hygiene Division, on ‘Carcass-splitting’, and a further section on ‘Pithing rods’. At the suggestion of Mr Bradley, the section on carcass-splitting included the following information:

The splitting of the bovine carcass the last major dressing operation prior to carcass inspection. The carcass is spread so that the hind legs are anchored as far apart as is practicable. The back saw cuts down from the sacro-coccygeal area through the mid-line of the spinal column until the two halves are separated. In most cases a reciprocating saw is used. This has relatively slow action and produces visible amounts of bone waste . . . The spinal cord will inevitably receive some damage during this operation, although it is often surprisingly intact. It will generally be removed by use of a blunt hook, or similar implement, drawn down the length of the spinal canal.

The concern that has been expressed regarding carcass-splitting relates to the possible transfer of material from the damaged spinal cord onto the carcasses. The volume of material is likely to be small, in most cases no more than a few grams. It will be concentrated around the cut surface of the spinal column, perhaps with some slight spill over onto exposed meat surfaces. The routine washing of the carcasses will, if done sufficiently promptly (as would be normal practice), remove the greater part of any gross particular matter. However no data are available about the quantity of spinal cord tissue likely to come into contact or remain with material used for human consumption. Such data could be obtained by comparing the mean weight of spinal cord collected after splitting with that obtained after necropsy using a standard procedure to account for the length of spinal nerves, etc.

4.267 In relation to MRM, the paper stated:

Inevitably when bovine carcasses are split through the centre of the vertebral column in the slaughterhouse some nervous tissue can remain and some contamination of the vertebrae with central nervous system (CNS) tissue can occur. This will be as a result of:

(a) small pieces of spinal cord inadvertently remaining in the vertebral column;

(b) contamination from carcass-splitting; or

(c) the failure to remove nerves from between the vertebrae.
It is unlikely that lymph nodes and other nervous tissue associated with the muscle are left adhering to the bones, since only residual meat remains after the deboning stage. However, there will probably be some peripheral nervous tissue still present within the vertebral column. Therefore, any risk passed by MRM would seem to be by the transference of the BSE agent from nervous tissue to the MRM. It is still not known however, if even where the spinal cord is removed cleanly, any risk exists from the remaining nervous tissue in the vertebral column.\(^{459}\)

4.268 The paper listed areas in which research could be useful; including

the quantification of the extent of any residue of CNS tissue left with the carcass when the cutting process is complete;

assessment of possible alternative methods of removing the spinal cord or cutting the carcass;

methods of detection of CNS tissue in MRM, and then determination of the presence of CNS tissue in MRM.\(^{460}\)

4.269 In respect of pithing, the paper stated:

Since the rod is introduced into the skull at the start of the dressing line, before the hide has been removed, there should be no transfer of neural tissue onto exposed meat. That part of the skull around the captive bolt hole is not in any case used in foods intended for human consumption. The rod itself will have traces of the spinal cord on its surface, but these should be removed during the washing and sterilisation that occurs between each carcass.\(^{461}\)

4.270 The paper closed with a one-paragraph conclusion inviting the Committee to:

Consider on the basis of the available evidence whether any action or guidance is required in relation to slaughterhouse practices, and whether any new R&D is needed.\(^{462}\)

4.271 Before their sixth meeting, at which they discussed the paper on slaughterhouse practices, most of the members of SEAC between them visited two slaughterhouses. Dr Kimberlin later gave this description of the visits to the Lamming Committee:

Committee members had visited commercial abattoirs to witness the removal of the spinal cord from carcasses, and had been very impressed by the way it had been performed. The spinal cord had been surprisingly tough and easy to remove . . . the demonstration had probably taken place in the better slaughterhouses, and that the purpose of the visits was to assess the feasibility of spinal cord removal, not how well it was done in all slaughterhouses.\(^{463}\)
SEAC’s conclusions

4.272 SEAC considered the paper at its sixth meeting on 1 November 1990. The minutes do not record any specific discussion of MRM. In relation to slaughterhouse practices, they record:

Those members who had been involved in the slaughterhouse visit had noted that, if proper procedures were followed, specified offals could be satisfactorily removed at the slaughterhouse, and in particular that the spinal cord could be extracted from the carcass without difficulty. The Committee therefore concluded that, provided all the rules were properly followed and supervised, there was no need to recommend further measures on the grounds of consumer protection (operator safety was a matter for HSE).  

4.273 In a statement to the Inquiry, Dr Tyrrell stated on behalf of SEAC that:

The advice given by SEAC was expressed to be subject to a proviso or condition. That condition or proviso is set out above and is in the use of the words ‘if’ and ‘provided’. It is necessary to read the conclusion in full to understand it. It was for Ministers and their officials to consider SEAC’s advice and decide if the provisos or conditions explicitly mentioned could be met . . .

SEAC members regarded giving advice, in the qualified terms in which it was expressed, to be within their role and expertise. The conclusion was, essentially, negative.  

4.274 Mr Lowson summarised the Committee’s position in a minute to Mr Maclean, which was copied to, among others, Mr Gummer, Mr Andrews, Mr Capstick, Mr Meldrum, Mrs Attridge and Mrs Brown. This stated that SEAC had specifically considered . . . the issues raised by carcase splitting, mechanically recovered meat and pithing rods. This included visiting two slaughterhouses and seeing the slaughtering process at first hand. In the light of these visits and of papers prepared in Tolworth [MAFF HQ] the Committee concluded that so long as the rules were properly observed and proper supervision was maintained, there was no need to recommend further control measures on grounds of food safety.

The Committee does not intend to produce a formal document setting out this advice, but are aware that Ministers may choose to make some kind of public announcement. 

4.275 Mr Lowson suggested that the advice be announced by an appropriate insertion in the Government Response to the Report of the Agriculture Select Committee. A handwritten note at the foot of the minute records that Mr Maclean was content with this approach.
Discussion

4.276 SEAC’s ‘advices’ on slaughterhouse practices are discussed at length in vol. 6: Human Health, 1989–1996, ch. 4. So far as brain removal was concerned, the critical question was whether contamination of head meat was possible from the splitting of the skull and the removal of brain was cause for concern. MAFF officials expressed the view that it was not, because it would come from healthy animals and because the amount of contamination would be very small (see paragraphs 4.247 and 4.251 above). This was, however, a matter on which SEAC were better placed to form an opinion. Their opinion was that the potential contamination should be avoided by requiring head meat to be removed while the brain was intact. This was robust advice given ‘as a matter of common sense’ without any sophisticated analysis of the amount of contamination involved or weighing of the financial consequences of this advice.

4.277 The outcome of SEAC’s consideration of other slaughterhouse practices was less satisfactory. We refer to our detailed discussion of what went wrong in vol. 6: Human Health, 1989–1996, ch. 4. Here we have merely set out our resume at the end of that discussion.

4.278 Mr Gummer had been reassured by his officials that there was no cause for concern about MRM. There was, however, public concern about slaughterhouse practices in general and MRM in particular, which was reflected in Parliamentary attacks on the Government’s handling of BSE.

4.279 In these circumstances Mr Gummer decided to refer slaughterhouse practices to SEAC. SEAC did not have expertise in the technical aspects of slaughterhouse practices, but was well qualified to express a view on the significance of any contamination that resulted from them.

4.280 The reference of slaughterhouse practices to SEAC stimulated MAFF to carry out a detailed assessment of the contamination consequent upon carcass-splitting for incorporation in a comprehensive paper on slaughterhouse practices for SEAC. Contributions were made from various divisions including the State Veterinary Service, Meat Hygiene Division, Food Standards Division and Food Sciences Division.

4.281 This assessment noted that inevitable contamination would result from small pieces of spinal cord inadvertently remaining in the vertebral column. It also explained that carcass-splitting would inevitably, on occasion, transfer tissue from the spinal cord onto the carcass, where it would be concentrated around the cut surface of the spinal column. How much of this would remain after routine washing and be transferred into MRM recovered from the spinal column was unknown.

4.282 Those who carried out this assessment identified a number of options to address this contamination problem. The least was the giving of advice on carcass-splitting to the slaughterhouse operators and on inspection to local authorities. The preferred option, if the amount of contamination entering MRM was unacceptable, was to ban recovery of MRM from bovine vertebrae. Further research was desirable to quantify the contamination.
4.283 At this point most of the task necessary for assessment of the risk had been done. Input from SEAC was needed by way of confirmation that officials’ proposed action was appropriate having regard to the contamination that MAFF officials had diagnosed as inevitable.

4.284 Had this question been put to SEAC we have little doubt that it would have endorsed the proposal for research to quantify the amount of spinal cord getting into MRM. In the event, having been asked to advise generally, SEAC advised on the basis of its own assessment that if slaughterhouse procedures were properly carried out there would not be a problem. This assessment was at odds with that of the authors of the paper, who were better qualified to make it.

4.285 SEAC’s advice was treated as establishing definitively that the contamination described in the SEAC paper was not cause for concern. The effect of SEAC’s advice was that no action of any kind was considered necessary or taken to address the potential risk posed by MRM until 1995. This demonstrates a serious breakdown in communications. SEAC’s intervention had hindered rather than helped the process of risk evaluation and management.

4.286 This unhappy chapter in the BSE story demonstrates the importance of targeting advice sought from expert committees so as to ensure that they provide input based on their expertise. It also demonstrates the dangers of overloading a part-time committee of busy people.

4. Advice on animal feed

4.287 We noted earlier, in the context of SEAC consideration of the ‘safety of beef’, the emergency meeting of SEAC held on 17 May 1990 to discuss the implications of the first case of a spongiform encephalopathy in a cat. The minutes record that the Committee asked for consideration to be given to pig and poultry feed at the next meeting. This led Mr Gummer to decide that SEAC’s advice should be sought on the practice of including animal protein in animal feed. Mr Andrews commented that the issue would have to be very carefully handled and that it would be appropriate for the Department to provide a background paper explaining its present policies and the reasons underlying these.

4.288 Mr Gummer and Mr Andrews identified three principle issues to be put to SEAC: first, the question whether there should be a ban on the feeding of any animal protein to ruminants; second, whether the feeding of any animal protein to any animal should still be permitted; and third, whether there should be a ban on the inclusion of specified bovine offal in pig and poultry feed. They agreed that it would be appropriate for the Department to provide a background paper explaining present policies and the reasons underlying these. As regards implementation of any measures arising from SEAC: ‘Our powers to act would depend upon the terms of the advice given by the Committee. The question of whether action was taken for health reasons or because of public sensitivity was crucial.’
4.289 At its meeting on 13 June 1990, SEAC had before it a paper prepared by MAFF’s Animal Health Division entitled, ‘Spongiform Encephalopathies and other Species: Pigs and Poultry’. The paper referred to the pressure to extend the SBO ban to animals, and noted that the Government had ‘resisted calls to extend the scope of the ban in the firm belief that there is no scientific justification for such action’. It explained that this view was based on the conclusions of the Southwood Report that non-mammalian species were unlikely to be susceptible to BSE, scrapie or any spongiform encephalopathy, and on the absence of any record of pigs getting a TSE. Kuru had not proved to be experimentally transmissible to pigs. The paper went on to explain the value of MBM as a source of protein. It gave details of transmission experiments of BSE to pigs, with negative results after 16 months.

4.290 Minutes of the meeting record that the Committee agreed that the question of feeding ruminant material to pigs and poultry needed further study. Points for consideration were that pigs would have received the same exposure to the BSE agent as cattle, that most pigs were slaughtered before the disease was likely to express itself, and that bovine material in the gut contents of slaughtered pigs might be used in MBM fed to cattle. However, it was felt that the probability of the agent being recycled back into cattle was small.

Agriculture Select Committee’s inquiry into BSE

4.291 On 10 July 1990 the House of Commons Agriculture Select Committee’s Fifth Report on BSE was published. The Committee noted the Minister’s resistance to making the PFMA’s voluntary ban on the inclusion of SBO in pet food statutory, and stated that ‘in this instance, which is not one of pure science but political judgement, we take the opposite view’. The Committee thought that:

...with a disease as distressing as BSE, people are entitled to expect that the food they feed their pets should be protected by the same basic legislative safeguards as their own food, particularly in view of the uncertainties surrounding the newly identified feline encephalopathies.

It therefore recommended that the PFMA’s voluntary ban on SBO in pet food be made statutory.

4.292 The Committee also dealt with the proposal for a statutory ban on feeding cattle offal to pigs and poultry, and stated that it was a view with which it had some sympathy. It noted that MAFF had resisted a statutory ban due to a lack of scientific evidence, and then commented on UKASTA’s voluntary ban:

We understand the reasons for this measure which are, first, to maintain public confidence and, secondly, to insure against the remote possibility that BSE is transmissible to other species; and we trust that, in judging how long to keep it in force, the industry will be guided by the latest scientific evidence.

4.293 Whilst the Committee felt that it had not taken enough evidence to reach firm conclusions of its own, it advised that the Government should establish an expert
committee to examine animal feeds and advise on the need for industry regulation. This led to the establishment of the Lamming Committee in 1991.\textsuperscript{477}

**Experimental transmission of BSE to a pig: SEAC recommends an animal SBO ban**

\textbf{4.294} On 16 August 1990, Mr Lowson submitted to Mr Gummer a paper, to be put to SEAC at its meeting on 19 September 1990, on the inclusion of SBO in feed for non-ruminants. The paper quoted the *Southwood Report* ‘s conclusions in relation to pigs, poultry and pets – essentially that no action was called for other than research. It gave details of unsuccessful efforts to transmit kuru to poultry and to pigs. It also described the CVL’s experiment to transmit BSE to pigs, which had to date produced no positive results. The paper set out by way of summary and conclusion:

> Although cats have succumbed to a spongiform encephalopathy, and have been infected experimentally with CJD, no major pet species, pigs or poultry have been shown to be susceptible to spongiform encephalopathies transmitted by ruminant material, even by intracerebral inoculations, and there is no significant evidence of pigs, poultry or dogs having been infected with any scrapie like disease. Pigs and poultry will have been exposed to the BSE agent over as long a period as cattle have been, without succumbing to the disease, and the total quantity of agent in the specified offal is now likely to be on a downward trend. There is wide scope for pet owners to avoid any material which they consider unsuitable, in spite of the absence of evidence.

> There does not therefore seem to be any current evidence on which to take the view different from the Southwood Working Party’s. This position would need to be reassessed if there was evidence that the inclusion of material derived from specified offals in pig and poultry feed or pet food was substantially higher than before the offals ban was introduced, but that is certainly not the case at present.

> The Committee is invited to endorse these conclusions.\textsuperscript{478}

\textbf{4.295} The paper was overtaken by the events that we now turn to describe.

\textbf{4.296} On 20 August 1990, a positive result was recorded in the CVL’s experiment to transmit BSE to pigs. One pig had been diagnosed by post-mortem pathology as having developed a spongiform encephalopathy. A confidential pathology report submitted by Mr Gerald Wells, Head of the CVL’s Neuropathology Section, to his colleague Mr Michael Dawson in the Virology Department, included the following remark:

> The result, albeit confined to one animal in the experimental challenge group is incontrovertible evidence of the transmissibility of BSE to the pig by simultaneous intracerebral, intravenous and intraperitoneal inoculation routes.\textsuperscript{479}
Mr Meldrum told the Inquiry that he decided that the discovery should be kept confidential until SEAC had had an opportunity to review and discuss it, although he informed the Minister, Mr Gummer, by telephone as soon as the preliminary results were known and they discussed the matter via video link.\textsuperscript{480}

On 23 August 1990, Dr Pickles reported the discovery to Sir Donald Acheson. Her minute noted:

CMO should be aware that a pig inoculated experimentally (i.e., i.v. and i.p.) with BSE brain suspension has after 15 months developed an illness, now confirmed as a spongiform encephalopathy. This is the first ever description of such a disease in a pig, although it seems there are no previous attempts at experimental inoculation with animal material. The Southwood group had thought pigs would not be susceptible. Most pigs are slaughtered when a few weeks old but there have been no reports of relevant neurological illness in breeding sows or other elderly pigs.

An urgent meeting is being called of [SEAC] but since key members and the chairman are now overseas at a meeting this may not be until the week beginning the 3\textsuperscript{rd} September. Points for consideration:

(i) In view of the long term exposure of pigs to scrapie without ill effect, does this suggest the species range for BSE is wider than that of scrapie, and if so what are the implications?

(ii) Should the feeding of ruminant protein including BSE and scrapie-infected offal to pigs now be discontinued?

(iii) Is any action needed to protect humans, eg extending the offal ban to pigs?

For information, there are now 9 cats confirmed with feline spongiform encephalopathy, suggesting this is indeed a new disease and exposure to BSE unlike exposure to scrapie has been hazardous for cats.

Mr Maclean was informed last night and has agreed an early meeting of [SEAC] is required to give advice on which decisions will be made. In the meantime, he does not want to go public. Mr Maclean is expected to advise Mr Gummer. In these circumstances, CMO might like to consider whether [Mr Dorrell] should be informed.\textsuperscript{481}

Sir Donald Acheson informed Mr Dorrell of the diagnosis of the pig on the same day:

While this clearly is a cause for concern we should not jump to the conclusion that this means that pigs will necessarily be infected by bone and meat meal fed by the oral route as is the case with cattle. An important point to take into account is that it appears that brain material from sheep infected with scrapie has never been experimentally injected into pigs and it may well be that pigs would also be infected by this route.

\textsuperscript{480} S184A Meldrum para. E49
\textsuperscript{481} YB90/8.23/1.1
At the moment there is insufficient information on which to base any further action. In particular I do not think that it is necessary for the Medicines Control Agency or the Procurement Directorate to take any action about porcine materials. The next step should be to await the result of discussions at the next meeting of the Tyrrell Committee which will be held early in September. I have discussed the matter with Professor David Tyrrell and he agrees. Mr Maclean has been advised of the situation. 482

4.300 A meeting of SEAC was called at short notice on 7 September 1990 to consider the implications of the experimental results. A paper prepared by Mr Meldrum was before the Committee which considered the preliminary results of the experiment, and considered whether as a consequence any changes should be recommended in relation to animal and health controls. The paper outlined the experiment results noting that:

_The Committee will wish to consider_ whether the transmission of BSE to one pig under challenging experimental conditions alters our scientific knowledge of the disease to an extent whereby additional animal or public health control measures should be recommended to Ministers. 483

4.301 In relation to the animal health implications the paper noted:

15. _The Committee will also wish to consider_ whether there is any need to make recommendations for further action relative to the animal health implications of BSE. There are a number of options:

**Do nothing**

16. The argument would be that the result is not a surprising one, given the weight of challenge and method used. It is a laboratory experiment and is quite different from the position in field conditions. For instance, the oral route of transmission is less efficient than the parenteral route by a factor of 10^5 (Kimberlin and Walker, 1983). The monitoring of the adult pig herd nationally has not been revealed any case suggestive of a scrapie-like sub-acute spongiform encephalopathy. Furthermore, most pigs are slaughtered under seven months. Thus, even if transmission were possible through the feed route, the vast majority or animals would be too young to pose any risk.

**Legislate to ensure that meat and bone meal derived from specified offal cannot be used in pig rations**

17. Many industry and consumer organisations have advocated that the Government should legislate to prevent the use of processed specified bovine offals in pig and poultry rations and, indeed, in pet (dog and cat) food. The Government’s response has been to point to the lack of scientific evidence to warrant such a course. Clearly the situation has changed in that, for the first time, a transmissible spongiform encephalopathy has been recorded in a pig. Although the range of scientific and other arguments and counter-arguments do not, perhaps, point to this measure being necessary on strict scientific grounds or at least until more evidence becomes available.

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482 YB90/8.23/4.1
483 SEAC5 tab 8
from transmission studies, it would, in practice, simply add the weight of legislation to an arrangement which is already operating, de facto on a voluntary basis. This is the option that holds most attraction for the Ministry’s veterinary advisers and would ensure that bovine offals that are not permitted to be used for human consumption are not used in the food of livestock or poultry either. Such action might defuse a situation in Germany whereby guarantees are now being sought that imported pet food does not contain any bovine material of UK origin.

**Ban the use of ruminant-based meat and bonemeal as a feed ingredient in pig rations**

18. This would represent the most radical solution. It would deal not only with concerns about BSE agent being re-cycled to pigs, but also the continuing exposure of pigs to the scrapie agent from sheep. The logic of such a course would, almost inevitably, require that such rations are also banned from use in other livestock – poultry and horses and also in pet food. In the latter case the evidence from the investigations arising from the ten cats which have succumbed to a spongiform encephalopathy is that we are probably witnessing a new disease in cats. However, it could be argued that pursuing such an option would be over-reaction since there is no evidence of a porcine encephalopathy under natural conditions and it is possible that pigs are not susceptible to BSE by the oral route but only when presented with a massive challenge.

19. The consequences of following this option are very serious indeed. There would be major repercussions for the rendering industry, which would reverberate throughout the agri-food cycle. There is currently no practical or viable alternative use for the 400,000 tonnes of meat and bonemeal which is produced annually. This would mean that it would have to be buried or incinerated after processing. Cost estimates put this at about £70 million using burial and £150 million using incineration. It would mean an increase of something between 1p–2p per pound of meat. But it is unlikely that all this additional cost would be borne by consumers. Even if it were, it would only have a small impact on the retail price index. This, in turn, would put further pressure on the meat market and place the UK industry at a competitive disadvantage even though we have in place far more comprehensive control measures than any other country. There would also be some spin off in Europe making it more difficult to export pig meat as the public would perceive such action as tantamount to an admission that pig meat presented a public health hazard.

4.302 At its meeting, SEAC accepted CVL’s conclusion that the experimental result provided ‘incontrovertible evidence’ of the transmission of BSE to pigs. The points emphasised by SEAC included:

i. the pig had become infected after receiving a massive dose of BSE infected material by a highly efficient route, ie, intracebral, intraperitoneal and intravenous inoculation with brain tissue from cattle affected with BSE;
ii. the clinical symptoms shown by the pig could not have been easily confused with those of any other condition and it would be unlikely that more than an occasional case had occurred and gone unnoticed in the field; and

iii. many questions remained unanswered; for example, would smaller doses cause disease, would large doses given by mouth be effective and would scrapie produce spongiform encephalopathy in pigs under similar conditions? 484

4.303 The minutes of the meeting record that:

It was very difficult to draw conclusions from one experimental result for what may happen in the field. However it would be prudent to exclude specified bovine offals from the pig diet.

Although any relationship between BSE and the finding of a spongiform encephalopathy in cats had yet to be demonstrated, the fact that this had occurred suggested that a cautious view should be taken of those species which might be susceptible. The ‘specified offals’ of bovines should therefore be excluded from the feed of all species.485

4.304 The Committee noted that pigs and other species would have been exposed, for many years, to material from scrapie infected sheep without apparently developing a spongiform encephalopathy. As a consequence they concluded that ‘there were no grounds for extending the ban on the use of ruminant protein to non-ruminants, providing the specified bovine offals had been excluded’.486

4.305 In general, the Committee felt that ‘there were no implications for human health in the fact that a pig had shown itself susceptible under laboratory conditions’. The Committee stated that if there were a hypothetical risk, it would be greatest where porcine tissues likely to contain the agent were used in preparations which were injected or implanted into human beings or livestock. They recommended that this possibility should be brought to the attention of the Medicines Control Agency, the Medical Devices Directorate, and the Veterinary Medicines Directorate. This matter was discussed by the BSE Working Group and is discussed in vol. 7: Medicines and Cosmetics.

4.306 On 14 September 1990, Mr Lowson put a submission to Mr Gummer setting out the proposed action in light of experimental transmission of BSE to a pig.487 He noted that SEAC were due to meet in the following week to finalise their advice. He said:

They can be expected in particular to recommend that the specified [bovine] offals excluded from human consumption and protein derived from them, should be banned for use in feeding to animals as well. A separate submission will be coming forward seeking Ministerial approval to an Order which achieves this. The aim will be that it should come into force as soon as the decision is announced.488
4.307 It continued:

A ban on the use of specified offals in animal feed will no doubt lead to claims for compensation from the Industry, as it will effectively make meat and bone meal derived from them unsaleable . . . It is therefore recommended that when this point is raised we should take a negative line. Nevertheless the ban can be expected to lead to further costs being passed onto slaughtering and livestock industries by renderers and knackers.

Consultation has so far been restricted to a very limited circle. However as the ban on the use of the specified offals for animal feed will apply throughout Great Britain, and will need to be mirrored in Northern Irish legislation too, I hope that the Minister will agree to our telling colleagues from the other Agricultural Departments about what is happening. We will also, if the Minister agrees, set up a meeting for interested industry organisations as soon as the information is released.489

4.308 SEAC issued formal advice on 20 September 1990, following its meeting on the previous day. The advice stated:

Since this result shows that pigs can get spongiform encephalopathy, even though there is no evidence that they have done so in the field, we believe that pigs should no longer be fed with protein derived from bovine tissues which might contain the BSE agent, ie, those ‘specified’ bovine offals that are already excluded from human consumption. It would make sense to extend this prohibition to feed for all species, including household pets, as other species have now developed spongiform encephalopathies. We are aware that many animal feed compounders and pet food manufacturers are already applying such a ban on a voluntary basis.490

4.309 In a statement to the Inquiry, Dr Tyrrell said:

It was the rapid increase in the BSE epidemic, the occurrence of more cases of FSE and the results of the pig transmission experiment which led SEAC to give the advice we did on the extension of the SBO ban. Before then (September 1990), we were not asked to advise on the extension of the SBO ban.

It was important to consider humans before other animals. It should be remembered that prior to the test results of the pig transmission experiment, pigs and poultry were not known to be susceptible to TSEs. Breeding pigs, in particular, were thought to have received a very high exposure to the same type of contaminated MBM as cattle but without any evidence of the occurrence of TSE. The issue of symptom-less hosts was considered very carefully because it could apply to all domestic and farmed animal species.491

4.310 Mr Meldrum concurred that the result from the pig experiment had also changed the landscape for MAFF:

489 YB90/9.14/7.1–7.2
490 YB90/9.20/2.2
491 S11B Tyrrell paras. 187–8
It was not until . . . August 1990, that the result from the pig persuaded both SEAC and us to change our view and to take out of pig rations any residual infectivity that might have arisen from the SBOs.\textsuperscript{492}

Discussion

4.311 Policy decisions in relation to the practice of incorporating animal protein in animal feed called for a number of factors to be weighed in the balance. On the one hand was the risk that this practice might result in the transmission of the BSE agent. On the other hand were the following facts:

- Converting animal offal into animal feed was a large and profitable industry.
- Converting animal offal into animal feed solved what would otherwise be a massive and costly waste disposal problem.

4.312 Until the experimental transmission of BSE to a pig, MAFF officials and Ministers were in no doubt as to how the balance tilted. Experience strongly suggested that pigs and poultry were not susceptible to TSEs. There was no justification for the costs that a ban on the use of SBO for non-ruminant feed, let alone a total ban on feeding animal protein to animals, would involve.

4.313 The Southwood Working Party had shocked MAFF officials when they appeared to be challenging the practice of feeding animal protein to animals. They, and their Ministers, were anxious that SEAC should not advise against this practice without appreciating fully the implications of doing so. It was for this reason that Mr Andrews remarked that the issue would need to be carefully handled. No doubt it was for this reason that the paper for SEAC dealing with the issue was submitted to Mr Gummer himself for approval.

4.314 The paper prepared for SEAC had annexed to it a paper on the rendering industry describing the ‘crucial service’ that it performed for abattoirs and the value of the industry. The paper set out in detail MAFF’s reasons for concluding that BSE was not transmissible to pigs or poultry and invited SEAC to endorse their conclusions.

4.315 It seems to us that this manner of approaching SEAC came close to delegating to SEAC the policy decision. SEAC was in a position to offer expert advice on the likelihood that BSE might be transmissible to non-ruminant animals. Whether that likelihood would justify the consequences of an SBO ban, or a total ban on feeding animal protein to animals, was essentially an issue for Government in the light of SEAC’s expert advice. It was something that could profitably have been discussed with SEAC in a dialogue. This would have been a preferable course to advancing their case on paper for SEAC to accept or reject.

4.316 In the event, the draft paper was overtaken by the experimental transmission of BSE to a pig. It is interesting that at that point, the MAFF veterinarians submitted a paper advancing as their preferred option a ban on incorporating MBM derived from SBO in pig rations. MAFF officials’ previous line had been that experimental

\textsuperscript{492} T69 p. 108
transmission to a pig would not justify this step. Once again SEAC was asked to take the policy decision, with a very firm steer from MAFF.

Feeding porcine MBM to cattle

4.317 In September 1992, MAFF received a report that a company was looking at the feasibility of producing porcine meat and bone meal to sell for incorporation into cattle feed.\textsuperscript{493} The Minister’s view of this was that ‘we should not take a neutral line, but should actively discourage, and be seen to discourage this practice’.\textsuperscript{494} As neither the Lamming Committee nor the Tyrrell Committee had identified the feeding of pig material to ruminants as a matter that required action, SEAC was asked to consider this question at its next meeting on 15 October 1992.\textsuperscript{495}

4.318 SEAC advised that:

While there was at present no way of assessing the risk that the use of porcine material in cattle feed might lead to the transmission of an SE agent, and while it was reasonable to assume that any risk was low, it was not possible to say there was no risk. The Committee noted that in practice porcine material was not being fed to cattle and felt that it was advisable for this situation to continue.\textsuperscript{496}

4.319 At its next meeting, on 22 April 1993, SEAC was informed that MAFF Ministers had accepted the advice that porcine protein should not be fed to cattle. MAFF felt that a statutory ban was unnecessary but the industry would be told that legislation would be introduced if there were any indications that such material might be used in practice.\textsuperscript{497}

Discussion

4.320 It is not easy to follow the precise nature of risk evaluation that led to Mr Gummer’s reaction or SEAC’s endorsement of it. We suspect that the former was a broad reaction against reinstituting the ‘unnatural practice’ of feeding animal protein to ruminants and that SEAC were happy to endorse a precautionary approach that did no more than continue the existing position.

Born-after-the-ban (BAB) cases

4.321 The detailed consideration given to the emergence of cases of BSE, in animals born after the introduction of the ruminant feed ban (ie, BABs), is described in vol. 5: Animal Health 1989–1996. The significance of the BABs was that, having been born after the introduction of the ruminant feed ban, these animals should not have been fed rations containing MBM. As a consequence, they should not have been exposed to the agent of BSE via feed. The identification of BABs therefore raised questions about the possibility of alternative routes of infection (for example, maternal transmission) and about the level of compliance with the feed ban.
The first BAB – maternal transmission is considered

4.322 On 22 March 1991, soon after Mr Meldrum expressed to the Lamming Committee his doubts over controls on BSE, Mr Kevin Taylor, Assistant CVO, reported to Mr Gummer the first confirmed case of BSE in an animal born after the introduction of the ruminant feed ban (BAB). The infected animal was the progeny of a cow confirmed as having BSE in March 1989. Mr Taylor advised:

This is not the first confirmed case of BSE in the offspring of a confirmed dam: there have been 23 others, but they were all born before the introduction of the feed ban and so exposed in the same way as the other 25,000 confirmed cases.

Although this could be the first case of maternal transmission of BSE, further detailed investigations on the farm and at the feed suppliers have still to be carried out before the probable cause of infection can be established. These investigations are being carried out as a matter of urgency.498

4.323 On 25 March 1991, Mr Lowson provided Mr Gummer with a draft Parliamentary Question for written answer and a news release to announce the discovery of BABs in a ‘low-key way’. In his covering minute, he noted:

Further detailed work needs to be done on this case, in particular to establish conclusively whether or not the animal might have been fed on ruminant-derived protein (eg, as a result of using up old stock or accidentally being given feed from the poultry operation on the same site).499

4.324 The news release was issued on 27 March 1991. It noted that:

The [BAB] was born in November 1988, after the imposition of the feed ban. This one animal should not have been fed on ruminant-derived protein and its feeding regime, and other possible sources of infection, are being investigated.500

SEAC considers the first BAB

4.325 SEAC discussed the first BAB at its meeting on 10 May 1991. The Committee had been provided with background information on the BAB in a minute from Mr Bradley. The paper indicated that the dam of the affected calf had been affected by BSE, and that clinical signs had manifested in the dam approximately three months after the birth of the affected calf. As regards the potential for a feed source for the case, the paper recorded that there was no pig food kept on the farm where the case was discovered, and that poultry food was kept in hoppers inaccessible to cattle. Cattle feed was received in bulk into one ton bags. It also noted that the SVS was investigating what care was taken with residual food in bags before refilling.501 The minutes of the meeting highlighted:

[T]he possibility that the animal concerned had been fed on ruminant protein could not be fully ruled out. But even if it could, this case, and further similar
sporadic cases at a low level in the future, would not alter the Committee’s view of the disease and the advice that had been offered. There were apparently no similar cases in the field and no positive results had occurred in the offspring study, whereas if BSE were going to be widely transmissable more examples would have occurred.\textsuperscript{502}

4.326 At its meeting on 28 June, it was reported to SEAC that a food source for the single confirmed BAB case could now almost certainly be ruled out. The Committee noted:

[T]he incubation period of the disease could be shorter than the period since the feed ban had been imposed. It was noted that some animals in the ‘offspring study’ were now nearly four years and none has shown BSE symptoms.\textsuperscript{503}

4.327 However, the source of the infection in the BAB remained unclear. In a statement to the Inquiry, Mr Wilesmith explained that:

As epidemiological data accumulated on the BAB cases, early in 1992, it became apparent that the 1988 and early 1989 born BAB cases were most likely to have been infected from the feedborne source as a result of cattle feedstuffs containing ruminant derived MBM which had been manufactured before 18 July 1988 and was still in the feed supply chain or on farms.\textsuperscript{504}

4.328 On 9 April 1992, SEAC met with the Lamming Committee. In the course of their discussions, the integrity of the ruminant feed ban was briefly mentioned. Dr Tyrrell explained that 33 confirmed BABs were being fully investigated and though it was difficult to establish the cause of infection, there was a clear possibility the animals had received contaminated feed. He reported that there was one case of probable maternal transmission, but even there, meat and bone meal could not be ruled out totally as a source of infection. Mr Bradley added:

[T]here was confidence that, in general, in those cases where cattle had been fed ruminant protein after the ban, this had only occurred up to three months after the ban. However, there was an incident as late as June 1989 when a compounder had accidentally incorporated ruminant material into cattle feed. A significant drop in the incidence of the disease in the youngest age group appeared to bear out the belief that the ban was broadly being observed.\textsuperscript{505}

SEAC’s further consideration of BABs

4.329 At SEAC’s meeting on 15 October 1992, Dr Matthews and Mr Wilesmith gave a ‘detailed presentation of the procedures for investigating individual BSE cases born after the feed ban and of the epidemiological evidence’.\textsuperscript{506}

4.330 A paper on BAB cases prepared for SEAC’s consideration stated that up to the end of August 1992 there were 122 confirmed BABs. It explained in detail the
investigations undertaken when a suspected BAB was reported, and described the risk assessment used for potential sources of infection. Three categories were used to assess the risk for feed:

- **High**: There has been a definite carry over of food rations purchased before 18 July 1988 or where a ration was fed in which MBM was known to have been included accidentally

- **Medium**: Potential exposure from feedstuffs potentially containing MBM manufactured before 18 July 1988

- **Unknown**: No feedstuffs potentially containing MBM known to have been fed during the animal’s lifetime.\(^{507}\)

**4.331** The paper summarised the detailed epidemiological investigations that had been undertaken and concluded:

> The results of the investigations of these cases supplement the results of analyses of age specific incidences over time which indicates that the ban on the inclusion of ruminant derived protein in ruminant rations has produced the expected effect on the epidemic. It was known at the time the legislation was introduced that rations manufactured before 18 July 1988 could remain in the food supply chain for 6 months. Therefore, realistically, an instantaneous effect of the ban could not be expected. The current epidemiological evidence suggests that the lag in the ban taking effect is between 3 and 6 months. This is supported by these specific investigations. As a result cases in animals born after 18 July 1988 will continue to occur and increase in number over the next two years when animals born shortly after the ban will reach the modal age at onset of BSE. However, the results indicate that the cases which have occurred so far do not present any cause for concern.\(^{508}\)

**4.332** The main points to emerge from discussion during SEAC’s meeting were:

- the pathological characteristics of the BABs remained the same as those of the rest of the epidemic;

- it was impossible to establish how much meat and bone meal remained in the animal feed chain, and for how long, after the ban. But because of recycling, this would have been the material with the greatest level of infectivity;

- the incubation period did not appear to have changed substantially, which was surprising in view of the recycling effect; and

- although the numbers were very small, there appeared to be a deficiency in the very youngest category (ie, born in 1989).\(^{509}\)

**4.333** SEAC noted that:

\(^{507}\) SEAC13 tab 3 pp. 13–14
\(^{508}\) SEAC13 tab 3 pp. 17–18
\(^{509}\) YB92/10.15/2.3–2.4
Of the BABs so far analysed, a large majority had a high risk of having had access to infected feed. The epidemiological evidence continued to support existing hypotheses about the origin of the epidemic. They therefore concluded that all the evidence continued to suggest . . . that infected feed was the origin of infection and that there was still no evidence of any alternative source. 510

4.334 At the following SEAC meeting on 22 April 1993, the Committee supported a proposed case control study on BABs aimed at establishing what, if any, factors beside feed were involved in these cases. However, SEAC noted that there still remained no evidence of maternal transmission. 511

4.335 SEAC considered a progress report on BABs during its meeting on 7 October 1993. The Report noted that of the 4,010 confirmed BABs, 3,392 were born in 1988, 614 in 1989 and 4 in 1990. The risk of feed being the source was high for 1,636 cases, medium for 1,756 and unknown for 618 cases. 512 The minutes of the meeting record that:

The Committee was disturbed that the feed ban had not been as effective as early as hoped when the industry had given assurances that the material would be used up in 2–3 months. It was recognised that the level of infectivity in meat and bone meal produced just before the ban was still increasing due to recycling of bovine material and it is now obvious that compounders and farmers have taken longer to use up this material than expected. It was agreed that some of the present data were being overinterpreted for example by commenting on fluctuations in incidence in single months. Information on cases in the cohort born in 1990 would be critical. Mr Wilesmith’s data on the decline in age-specific incidences in younger age classes, and other information supported a downward trend in the epidemic. 513

4.336 An emergency meeting of SEAC was held on 25 June 1994, to discuss recent experimental results which had identified infectivity in the distal ileum of calves challenged orally with BSE. During its discussion, the Committee considered an internal ‘working paper’ prepared by Mr Wilesmith, Miss L Hoinville and others on a case control study of BABs. The paper concluded that maternal or horizontal transmission was a risk in only a small number of cases. SEAC agreed that feed contamination was likely to be the major source of infection and expressed its concern that:

. . . the later BAB cases suggested that there could still be some contaminated material slipping through the controls into animal feed through cross-contamination in mills producing ruminant and monogastric feed and through lax compliance with the SBO rules. 514

4.337 SEAC was advised that Mr Wilesmith had recently met the UK Agricultural Supply Trade Association (UKASTA) and had been told that whilst cross-contamination had been a problem, improvements had been made lately. Mr Eddy
also advised that the ELISA test would be introduced to detect ruminant protein in feed, and SEAC hoped ‘that this could be used pro-actively particularly in the areas where there were suggestions that contaminated feed might still be a problem’.\textsuperscript{515}

4.338 The Committee was told that there were some BSE suspects from January 1991. The minutes record:

The Committee was left in a difficult position that there was no clear evidence of maternal or horizontal transmission and no way of knowing whether problems with contaminated feed which may have led to BABs being born up to the end of 1990 and possibly later, were still occurring albeit at a low level.\textsuperscript{516}

4.339 At the 17th meeting of SEAC on 30 August 1994, a paper was presented on maternal transmission. Members commented that the results of the case control study had not ruled out maternal transmission and raised the possibility of horizontal transmission. Further, it was suggested that ‘the real issue could be failure to properly implement the feed ban’.\textsuperscript{517}

4.340 In September 1994, SEAC published a report entitled, ‘Transmissible Spongiform Encephalopathies: A Summary of Present Knowledge and Research’. On BABs, it stated:

There was surprise in some quarters that despite the imposition of the animal health controls in 1988 (ruminant feed ban) and 1990 (SBO ban for feeding to other species) 12,807 cases of BSE have been confirmed (to mid-September 1994) in animals born after the 1988 ban, and this has given rise to comment. This was because it was expected that the ban could be implemented immediately, but this view did not take account of human nature and the practical difficulties involved. As nothing was done to eliminate the large amount of feed already in the distribution ‘pipeline’, the benefits of the ban were not instantaneous and complete.\textsuperscript{518}

4.341 The report noted a number of factors that suggested BSE was a food-borne epidemic:

i. the number of confirmed BABs was much lower than the expected number of confirmed BSE cases had the epidemic run its natural course;

ii. the majority of BABs were born in the calving season following the introduction of the ruminant feed ban; and

iii. enquiries had shown that BAB cases had a greater association with feed history than possible maternal or horizontal transmission.\textsuperscript{519}

4.342 A further paper on the case control study of BAB cases and another update on the epidemiological studies were presented at the 18th meeting of SEAC on 10 February 1995. The papers revealed that cross-contamination at feed mills, which also produced pig and poultry feed containing MBM using the same
equipment, had occurred in the past. It was stated that this appeared ‘to be the main reason for BAB cases’.\textsuperscript{520} Later epidemiological investigations also showed that BABs were more frequently associated with areas where multi-species feed mills were commonplace.\textsuperscript{521} SBO was permitted to be used in the manufacture of MBM for pig and poultry feed until September 1990, when the SBO ban to protect non-ruminant species was introduced.

4.343 The Committee noted that the ELISA\textsuperscript{522} test developed by MAFF for measuring ruminant protein in ruminant feedingstuffs had been in use for a trial period and seemed ‘to be having a salutary effect’. Dr Tyrrell concluded that it should be possible to develop the test so that it could be performed on a large number of field samples. The Committee remained ‘very concerned’ that possible contamination of feed would continue the epidemic, and that as 40 per cent of suspect cases being reported were now BABs, ‘MAFF must continue to look for a consistent, significant feed source’.\textsuperscript{523}

4.344 At the 19th SEAC meeting on 21 June 1995, the Committee was informed of the identification of a BAB born in 1992. The minutes record that:

It was recognised that the 1992 case was not a one-off and evidence suggested that the existing controls had not been fully applied in some slaughterhouses and in some feed mills. Dr Tyrrell said that for contamination of feed to continue there must have been failures at all three levels: the slaughterhouses, the renderers and the feed mills.\textsuperscript{524}

4.345 The Committee was also informed of widespread deficiencies in abattoir SBO practice. The Committee considered that the best hypothesis for the continuing number of BABs now seemed to be that SBO had continued to leak through the system. Although the new rendering rules implemented by 1 January 1995 provided one safeguard against the spread of BSE, the possibility of cross-contamination in feed mills remained. The application of another safeguard, the ELISA test, had not proved straightforward, and the test was not yet validated. However, following sampling using the test, some mills had admitted that there was no way with their current set-up that they could prevent small-scale cross-contamination. The Committee remained concerned that any problems of control should be rectified as speedily as possible.\textsuperscript{525}

4.346 On 8 September 1995, SEAC was briefed on the new SBO controls implemented by the Specified Bovine Offal Order 1995, which tightened the controls on the movement SBO material. SEAC concluded ‘that there may have been some leakage of SBO into animal feed, prior to the new 1995 SBO Order and the revised surveillance programme’. However, it expected ‘a decline in the number of new BSE cases born after the 1995 SBO Order’.\textsuperscript{526}

4.347 SEAC discussed the implementation of Commission Decision 95/287/EC. Amongst other things, the decision required use of the ELISA test for routine
monitoring of feedstuffs, ‘in particular in plants which produce feed for pigs and/or poultry as well as for ruminants’. Dr Matthews had provided a progress report for this purpose. Under the voluntary sampling regime, 1,260 samples had been received, with three returning positive results. Those samples had been tested before the cross-reactions with some plant proteins had been identified.527

4.348 Dr Matthews’s paper advised that before a statutory sampling programme could commence, it was necessary to:

(a) agree on action subsequent to a positive result, bearing in mind the doubts that still exist surrounding the validity of the test;

(b) identify the plants to sample;

(c) calculate the number of samples to be collected on a regular basis to provide sufficient guarantee that deliberate inclusion or cross-contamination are not taking place;

(d) scale up the testing capacity at Luddington VIC;

(e) put in place sampling arrangements by the Veterinary Field Service.528

4.349 The paper outlined the steps that had been taken so far to implement the sampling regime. It also identified cross-contamination of feed whilst in transit and on farm as additional risk areas that required action. The paper advised that the former was being addressed by communication with haulage companies, ‘although attempts to police this area of concern will be fraught with difficulty’. An advisory leaflet to be issued to farmers would deal with the latter area.529

4.350 During the meeting, it was agreed that MAFF would present at SEAC’s next meeting a progress report on the sampling strategy that it was developing.530

4.351 Following the identification by SEAC of the possibility of a link between a new variant of CJD (vCJD) and BSE in early 1996, the Committee discussed the need for a total ban on the use of mammalian MBM on farms. The minutes of the 27th SEAC meeting on 16 March 1996 record:

The epidemiological evidence of the born-after-the-ban cases suggested that there had been appreciable exposure of cattle to BSE infectivity after the ruminant feed ban and the most likely explanation of this was cross-contamination from other feed and then inadvertent feeding of that contaminated feed to cattle. Also the results of the rendering experiments suggested that complete inactivation, certainly of the scrapie agent, by conventional rendering methods was not practical. Finally, the recent findings of cross-contamination in feed mills suggested that this would be difficult to avoid. A ban on the use of all meat and bone meal of mammalian origin in farm animal feed would remove the possibility of new infection of cattle in the future and so bring the BSE epidemic to a close as quickly as

527 SEAC20 tab 3 p. 4
528 SEAC20 tab 3 p. 4
529 SEAC20 tab 3 p. 5
530 YB96/9.8/2.5
possible. This would solve the animal health problem and by doing so, reduce any risk to public health.531

4.352 The Committee agreed to recommend that the use of mammalian MBM in feed for farm animals should be prohibited. This recommendation was included in a statement by SEAC for discussion by the Cabinet on 20 March 1996, advising on the adequacy of existing measures to protect human and animal health in view of the apparent link between BSE and vCJD.532

4.353 The Government responded to the advice of SEAC by introducing the Bovine Spongiform Encephalopathy (Amendment) Order 1996, which came into force on 29 March 1996. This prohibited the sale or supply of MBM, or feedstuffs containing MBM, to farm animals, including horses and farmed fish.533

Discussion

4.354 Until March 1996, SEAC’s role in relation to the growing number of BABs was essentially a passive one. The explanations provided by the MAFF epidemiologists were accepted. The surprise expressed in October 1992 that the incubation period of the BABs had not changed indicates that SEAC still assumed that these were second generation cases and that the first generation had been infected from the scrapie reservoir. The comment that there was a deficiency in the very youngest category, those born in 1989, would seem to indicate an underestimate of the incubation period. Indeed, 12,638 cattle born in 1989 were to develop clinical symptoms of BSE.

4.355 When SEAC’s ‘Summary of Present Knowledge and Research’ was published in September 1994, it attributed the BABs to the ‘large amount of feed already in the distribution pipeline’ when the ruminant feed ban was introduced.

4.356 The recommendation made on 20 March 1996 that the use of mammalian MBM in feed for farm animals should be prohibited was the draconian measure, turning rendering into a waste disposal industry, that MAFF had sought to avoid. Ironically, we can now see that it came at a time when the continuation of the ruminant feed ban and the animal SBO ban were coming close to eradicating new cases of infection. At the time it was impossible to know this. The measure was an inevitable reaction to the discovery that BSE was not merely an animal health problem, but was probably transmissible to humans.

5. Advice on the safety of bovine eyes

4.357 During the period with which this Inquiry is concerned, SEAC was asked to advise on two aspects of the use of bovine eyeballs. The first concerned their use for dissection in schools and other educational establishments. The second concerned their alleged use in food for human consumption.

4.358 The Government’s consideration of the risks associated with occupational exposure to bovine eyeballs and their use in schools is described in detail in vol. 6: Human Health, 1989–1996. What follows here is a brief description of the
consideration given by SEAC to the use of bovine eyeballs in schools, followed by a more detailed description of action taken in respect of the potential for bovine eyeballs to be used in food for human consumption.

The use of bovine eyeballs in schools

Advice from SEAC

4.359 In April 1990, Dr Pickles wrote to Mr Lowson of MAFF’s Animal Health Division regarding the agenda for the forthcoming first meeting of SEAC. She asked whether they were going to raise the relatively minor matter of bovine eyeball dissection and offered to put some brief papers together. On 12 April 1990, Dr Pickles faxed Mr Lowson a draft paper entitled ‘Routes of possible transmission of BSE to man’, stating that this would ‘challenge the committee about possible routes of transmission to man that may have been overlooked’. The paper asked SEAC to advise on, among other things, the practice of using bovine eyeballs for dissection and stated:

Dissection of bulls’ eyes still takes place in some schools and it is now being questioned whether this might present a hazard from BSE. Can the committee advise whether the eye is likely to be infected in BSE cases, and if so whether the chance of a schoolchild inadvertently inoculating themselves with such material is great enough for us to advise against this practice? If the worry is injuries with contaminated sharps, gloves may be no protection. Horse/pig eyes could be alternatives, but supplies of the former are too limited and of the latter not readily available.

In conclusion, the committee is asked to consider whether additional advice is needed to guard against the remote chance that exposure to certain bovine tissues by certain routes could present a hazard to man.

4.360 On 23 April 1990, Mr Meldrum commented on Dr Pickles’s paper stating:

Unfortunately I do not agree with the thrust of the paper . . .

Bearing in mind that these eyes are derived from perfectly healthy animals which do not show evidence of BSE it would be illogical to take the action that she describes. If such eyeballs were a human health hazard then they should be included in the definition of specified offals and be destroyed at source. I have no objection to the issue being raised with the Committee but not in this blank and unhelpful way.

The whole paper needs far more detail and background before it can be put to the Tyrrell Committee, with particular reference to the general background of our control measures and the offal ban. I suggest that it be re-drafted and expanded and cleared with us before submission to a later meeting . . .

534 YB90/4.06/4.1
535 YB90/4.12/1.1–1.4. The paper also asked SEAC to advise on the use of bovine products in cosmetics. Further discussion about this paper is covered in vol. 7: Medicines and Cosmetics
536 YB90/4.12/1.4
537 YB90/4.23/1.1
4.361 On receipt of the CVO’s comments, Dr Pickles faxed Mr Lowson stating that there was no alternative but to withdraw the paper from the agenda of the first SEAC meeting pending a more detailed version. Dr Pickles also referred to a point she had discovered at a recent (unspecified) ‘lunch’ meeting:

[E]yes are infected in spongiform encephalopathies and indeed are used in some experimental models. Like placentae, they did not need to be included in the offal ban since this only concerned human consumption in this country. There is no illogicality in what I was proposing. The speculated route of transmission during eyeball dissection, whilst having no relevance to the offal ban, might of course be relevant to advice given by HSE to abattoir workers and indeed seems consistent with it. I regard the eye as an extension of the brain. Whilst abattoir workers have no alternative but safe handling, there is a real alternative for schools. The question for the group was whether they agreed there was a theoretical hazard. And if so, whether the level of risk was such, when weighed up against the educational benefit of using bovine eyes rather than eyes from alternative species, they advised against this practice.

Maybe on further reflection, CVO will not be so negative about my paper. Of course I can add further detail about the infection in the eye in the established spongiform encephalopathies. But the simple question to the committee remains the same.

4.362 A revised paper, entitled ‘Route of Possible Transmission of Bovine Spongiform Encephalopathy to Man via the Practice of Eyeball dissection’, was prepared by Ms Ailsa McGinty, Principal Scientific Officer, DH, at Dr Pickles’s request. This was submitted to SEAC in June 1990 and discussed at SEAC’s fourth meeting on 2 July 1990. The paper considered the theoretical route of transmission of BSE to man via the practice of eyeball dissection and asked what action, if any, needed to be taken. It set out what was known about infectivity in the eye in experimental rodent scrapie and CJD, and reached the following conclusions:

i. It seems likely from scrapie models that the retina of eyes from cattle with clinical BSE will contain the BSE agent.

ii. It is feasible that some sub-clinical cases of BSE may be slaughtered in abattoirs, and therefore it is possible eyes infected with the BSE agent may be amongst those used for dissection.

iii. Dissection involves the use of instruments capable of causing deep penetrating wounds, and the possibility of parenteral inoculation of the BSE agent therefore exists.

iv. Sterilisation of eyeballs prior to dissection is not an option, and disposable instruments do not remove the risk of penetrating injuries occurring during the dissection procedure.

v. Viable educative alternatives are available in the form of anatomical models, videos and other teaching aids. Ovine and pig eyes may be available but are less suitable on a size basis. With other types of bovine dissection carrying similar risks of inoculation injury such as veterinary
studies or abattoir practices, unlike eyeball dissection in schools, there may be no acceptable alternative.

vi. The Scottish Education Department has already recommended that the practice of bovine eye dissection be discontinued (March 1990). Inevitably pressure will be brought to bear for a similar recommendation in England.

vii. The eyeball is not included in the ‘offal ban’ since like the placenta it is a tissue not usually chosen for human consumption. Thus there should be no particular presentational issues with any new advice concerning eyeballs. 540

4.363 The paper also concluded that:

If the rodent scrapie model is accepted as a reasonable parallel for BSE, it is likely that the BSE agent is present in the eyes of BSE cattle, and it may be present before the clinical symptoms of the disease are apparent.

4.364 The document asked SEAC whether the balance between educational value of eyeball dissection and the potential risk of exposure to the BSE agent was such that the practice of bovine eyeball dissection in classrooms should be discontinued.

4.365 The minutes of SEAC’s meeting record:

[The paper] was discussed and its findings accepted. The Committee agreed to advise that the use of the eyes of cattle more than six months old should not be used for dissection in schools. 541

4.366 Considerable delay occurred in the issuing of guidance based on this advice to schools and other relevant institutions. As mentioned above, a full description of this matter is provided in vol. 6: Human Health, 1989–1996.

The use of bovine eyeballs in human food

4.367 On 25 March 1993, Professor Richard Lacey, Emeritus Professor of Clinical Microbiology, University of Leeds, forwarded to Dr Tyrrell a copy of an article that he had submitted for publication asking for SEAC’s views. 542 One of the criticisms of the Government’s policy contained in Professor Lacey’s article was that bovine eyes had not been included in the offal ban and ‘are still quite legitimately entering processed food’. 543 The article also referred to recent advice from the Department of Education concerning the dissection of bovine eyeballs in classrooms. This article was considered by SEAC at its 22 April 1993 meeting, where the minutes record simply that ‘Dr Tyrrell should write to Professor Lacey pointing out the errors on which his conclusions had been based’. 544

4.368 On 23 April 1993 Mr Richard McIvor, Assistant Secretary in MAFF’s Animal Health (Disease Control) Division and joint secretary of SEAC, provided a minute to Ministers to alert them to plans of the Vegetarian Society to launch a

540 SEAC4 tab 4 p. 3
541 YB90/7.2/3.4
542 YB93/3.25/2.1
543 Not published, but referred to in YB93/4.23/4.1
544 YB93/4.22/2.6 para. 26
publicity campaign alleging that bovine eyeballs were widely used in meat products. He explained that this was triggered by the unpublished article by Professor Lacey. Mr McIvor said that there was no statutory ban on the use of bovine eyeballs in food, but the meat industry had categorically denied to MAFF that they were used in practice.545 At a meeting on 5 May 1993, the Minister of Agriculture agreed that SEAC’s urgent advice should be sought.546 Mr Kevin Taylor, Assistant CVO, accordingly wrote to Dr Tyrrell on the same day.547 He said that MAFF had been unable to identify any evidence that bovine eyes are used in food, but noted that ‘it is impossible to be certain that bovine eyes are never used in food as someone, somewhere may do so’. He went on to refer to SEAC’s second interim report:

The SEAC Report published in April 1992 states in paragraph 5.4 that:

‘At present the Committee are satisfied that all the necessary safeguards are in place to minimise further spread of spongiform encephalopathies in animals and to prevent any risk of transmission to humans.’

The Minister would now be grateful if, bearing in mind the current questions raised about the use of bovine eyes in food, you could give him urgent advice on the following questions:

Is there any aspect of the advice that you have previously given about the action needed to prevent any risk of transmission of BSE to humans that you would wish to change?

If there is, what further action would you wish to recommend on scientific grounds that the Minister should take?548

4.369 Mr McIvor sent a further minute to the Minister on 6 May 1993 referring to officials’ concern over the possible introduction of legislation in response to the Vegetarian Society’s advertisement. It was felt that this would result in further pressure to legislate on any item that the Society or any other group cared to suggest contained infection and could be used in food. He added, ‘we would clearly need to be sure that we had scientific evidence for any ban and that we had some evidence that the banned item would be used in food’. He informed the Minister that officials were continuing to seek definite evidence that bovine eyes were being used in food.549

4.370 Mr McIvor attached Dr Tyrrell’s draft response to Mr Taylor’s letter of 5 May 1993. He explained that Dr Tyrrell’s draft had been agreed over the telephone. Other SEAC members were being consulted, but Dr Tyrrell was confident that they would agree with his reply following discussion at SEAC’s last meeting. The draft letter from Dr Tyrrell said:

The SEAC first discussed bovine eyes in connection with their dissection in practical biology classes. We concluded that while cases of BSE were occurring in the UK cattle herds, there was a small chance that the agent
might be present in the tissues collected from animals in abattoirs. No specific tests had been done to confirm or refute this. Nevertheless, there was a chance that the agent might enter a student’s skin through abrasions, especially as they were inexperienced and using dissecting instruments. We, therefore, advised that administrative measures should be taken to prevent this practice.

We debated Professor Lacey’s paper at our last meeting, and we are writing to him to point out one or two misunderstandings it contains. We did not debate the matter of bovine eyeballs being eaten in processed food as we were informed that the manufacturers had told the Ministry that they do not use them and there was, therefore, no need to prevent this practice.

If there is now evidence that bovine eyeballs are being eaten, then it would be logical to prevent them entering the human food chain.

The answer to your question is, therefore, that we suggest the MAFF ascertain whether bovine eyeballs are actually being used for food. If they are, then regulations should be framed to prevent the practice. 550

4.371 Mr McIvor wrote to SEAC members on 6 May 1993 attaching the draft letter from Mr Taylor and Dr Tyrrell’s reply and seeking agreement that the reply represented the views of SEAC. 551

4.372 A minute of the same day records the Minister’s conclusions following discussion with the Permanent Secretary. These were that legislation should be prepared to add bovine eyes to the list of SBO if necessary; that meat industry organisations should be approached to ask for assurances that eyes are not used in food; and that it might be necessary to revert to Dr Tyrrell in light of the response from the meat industry. 552

4.373 The Minister’s direction to prepare legislation was followed up by Mr Martin Haddon, Under Secretary for MAFF’s Animal Health and Veterinary Group (restructured and renamed Animal Health Group in November 1994). Mr Haddon outlined three options:

(a) to add bovine eyeballs to the list of SBO;
(b) to extend the definition of SBO to the whole head; or
(c) for a separate ban of bovine eyeballs in any food product.

The first two options were considered to affect significantly industry practice and costs. The preferred third approach also offered ‘some presentational disadvantages in a separate ban, which could not be presented as a tidying-up of the SBO order’. 553

4.374 Following inquiries by MAFF, replies were received on 7 May 1993 from various industry organisations. Mr McIvor forwarded these to the Minister on the same day with a covering note which summarised the letters:

550 YB93/5.6/5.1
551 YB93/5.6/2.3
552 YB93/5.6/4.1
553 YB93/5.7/8.1
The replies all state that to the best of their knowledge eyes are not used in human food. They cannot give an unqualified assurance but despite much searching they know of no instances where eyes are so used, whether by their members or otherwise. 554

4.375 Letters were received from Professor Allen 555 and Mr Pepper 556 on 7 May 1993, and from Dr Brown 557 and Dr Will 558 on 8 and 10 May 1993 respectively, all of which confirmed their agreement with Dr Tyrrell’s advice on bovine eyeballs.

4.376 On 10 May 1993, Mr John Maslin wrote to SEAC members again, enclosing the responses by industry organisations on whether bovine eyes were used in food. A manuscript note dated 13 May 1993 from Dr Alisa Wight, SEAC DH observer, to Mr Maslin stated:

The reply from Mr Maclean, MLC, refers to the sale of bovine eyeballs for educational purposes and implies this practice may still be continuing. I hope this is not the case. Can you find out any further details? 559

4.377 A minute dated 10 May 1993 records that the Minister had accepted the proposal from the Parliamentary Secretary (Commons) and the Permanent Secretary and that there should be no legislation on bovine eyes. 560 On 14 May 1993, the Minister replied to a Parliamentary Question on bovine eyes, indicating that he had been assured by all the main meat industry organisations they had no evidence of any use of bovine eyes in food and referring to the British Meat Manufacturers Association’s accredited standard scheme, under which eyes were totally banned from use by their members.

4.378 Mr Maslin replied to Dr Wight’s query on 21 May 1993, noting that he hoped this referred to past practices before the guidance to schools was sent out. However, he added, at a recent meeting with the trade, one abattoir owner said that he was still supplying eyeballs to schools. 561 On a separate but related issue, he noted, ‘Ray Bradley was alarmed at the delay between the consideration of the matter by SEAC and the issue of the guidance on eyes’. Mr Maslin asked that consideration be given as to how and whether Dr Tyrrell should be informed. 562

4.379 There matters stood until 1995, when it was proposed that the existing SBO Order be amended to include a ban on the removal of bovine brains from the skull, and a requirement that bovine heads (other than tongue and cheek meat) be treated as brain, which was an SBO. Mr Meldrum explained in his written statement to the Inquiry that this was due to a number of factors, including a recommendation from Mr Alick Simmons, Senior Veterinary Officer, to increase SVS visits to headboning plants (as part of further improvements on monitoring the handling and disposal of SBO). Indeed, the recent results from the attack rate study, which indicated that the amount of unprocessed brain needed to cause disease was very small. Moreover, there was difficulty in ensuring that all brain material had been
removed from the skull before the latter was processed to produce MBM intended for use as feed for pigs and poultry.563

4.380 On 31 March 1995, a submission by Mr John Howard of MAFF’s Animal Health Division, was forwarded by Mr Richard Packer (Permanent Secretary) to the Minister, inviting him to agree to a ban on the removal of brains and eyes from bovine heads and to the notification of SEAC. As this was considered a tightening up of the controls it was not viewed necessary to seek advice from SEAC, which was to be notified at the same time industry was consulted.564 The submission noted:

... an experiment is underway with tissue from the eye injected into mice and although the results are not yet available, we believe on balance that it would be prudent to include them now while the rules on dressing skulls are being reviewed in case there is a positive result.565

4.381 On the question of presentation of the new legislation, the submission observed:

We would need to make it clear that this is not a public health protection measure. There is no evidence to suggest that bovine eyeballs are a risk to public or animal health.566

4.382 At SEAC’s 19th meeting on 21 June 1995, Mr Bradley informed the Committee that some of the mice inoculated with retina from BSE cattle were showing clinical signs. The minutes record:

The Committee noted that it had earlier recommended, on general principles, that eyes should not be used for dissection in schools, though unfortunately it had taken some time for this information to reach the schools. The new evidence on infectivity of retinas would be covered by the new SBO changes since the eyes would have to be left in the skull with the brain.567

4.383 The Specified Bovine Offal Order 1995 took effect on 15 August 1995, and included a prohibition on the removal of brains and eyes so that the whole skull was required to be disposed of as SBO.568

4.384 At the 20th meeting of SEAC on 8 September 1995, a paper was tabled informing the Committee that the Department for Education and Employment had issued new guidelines advising that bovine eye dissection should be avoided and that anatomical models should be used as an alternative.569

Discussion

4.385 The exchange of correspondence in 1990 involving Dr Pickles and Mr Meldrum was symptomatic of strained relations between MAFF and DH in relation to the use of SEAC at this time. Mr Lowson was to remark that Dr Pickles tried to treat SEAC as a body to consider her own particular concerns rather than

563 S184A Meldrum para. F143
564 YB95/3.31/7.7
565 YB95/3.31/7.5
566 YB95/3.31/7.6
567 YB95/6.21/2.5–2.6
568 L2 tab 13, art. 10
569 YB95/6.8/2.1
those of her Department (see paragraph 4.521 below). The reality was that Dr Pickles had the lead on BSE for DH and was doing the thinking for her Department. DH was fortunate in having someone as proactive and wide visioned as Dr Pickles. The points that she raised tended to be points that merited consideration, and bovine eyeballs were an example. SEAC endorsed her concerns about the risk posed to schoolchildren and others dissecting bovine eyeballs.

4.386 As Dr Pickles pointed out, it did not follow from the fact that eyeballs were potentially infective that they should be included in the list of SBO. As enquiries indicated that they did not go into human food, there was no need to make them subject to the human SBO ban. Unfortunately, this led to a lacuna in the animal SBO ban, which followed the definition of SBO in the human SBO Regulations: bovine eyeballs could still be included in rendered material that was incorporated into animal feed. This was not remedied until August 1995.

6. Advice on the safety of tallow

4.387 Prior to the emergence of BSE, tallow produced from bovine material was used in the manufacture of a large number of diverse products. It was used in the preparation of food for human consumption and feed for animals, including ruminants. It was also used in the production of pharmaceuticals, cosmetics and in the oleochemical industry. As a consequence, the consideration given by the Government and its advisers to the potential risks associated with tallow spans a number of volumes of this Report. The potential for tallow to transmit BSE via inclusion in human food is touched upon in vol. 6: Human Health, 1989–1996; the inclusion of tallow in animal feed is touched upon in vol. 3: The Early Years, 1986–88 and vol. 5: Animal Health, 1989–1996; and the inclusion of tallow in human and veterinary medicines and cosmetics is discussed in vol. 7: Medicines and Cosmetics.

4.388 In this volume, we describe in detail the circumstances in which the Government requested advice from SEAC regarding the safety of tallow and the Government’s reaction to SEAC’s advice.

The process by which tallow is produced

4.389 The process by which animal waste is rendered to produce tallow and other by-products is described in detail in vol. 13: Industry, Processes and Controls. Tallow is the primary product of the rendering industry. Essentially, rendering involves crushing animal by-products (eg, fat, bones and internal organs), heating them to drive off the water content (which can be as high as 65 per cent by weight) and then separating the residue into fat (generally called ‘tallow’) and solids (known as ‘greaves’).

4.390 Tallow is produced and sold according to grades laid down by the British Standards Institution. There are six different grades of tallow, the grading depending on the concentration of ‘free fatty acid (ffa), colour, and general appearance, moisture and dirt content’. The single most important factor in determining grading is colour. Tallow of the highest calibre, or ‘good colour’ tallow, is used for soap manufacture and for human consumption, while the lower
grades are used for animal feeds and fatty chemicals. The greaves are used in fertiliser or animal feed, or are processed further by pressing, centrifugation or solvent extraction to remove more tallow. The colour of the tallow, and therefore its grade, is determined by the raw materials used in its production. The source of the material used in the production of particular grades of tallow is discussed in the context of the matters set out below.

The decision to exclude tallow from the ruminant feed ban

4.391 The first consideration of the potential for tallow to act as the vehicle for transmission of the BSE agent occurred in the context of Mr Wilesmith’s early epidemiological investigations. Mr Wilesmith told the Inquiry:

By December 1987 the evidence suggested to me that BSE was associated with a feedborne source which was most likely to be MBM, although other animal-derived products such as blood and tallow, could not be excluded at this stage.

4.392 In the course of his investigations, Mr Wilesmith wrote to Dr James Hope at the Edinburgh Neuropathogenesis Unit (NPU) asking him to identify means by which it might be possible to determine the likely presence of the scrapie agent in both tallow and meat and bone meal produced by the rendering of animal carcasses and offal. Mr Wilesmith provided Dr Hope with details of the rendering processes identified during MAFF’s recent investigation of the rendering industry. Dr Hope replied on 27 April 1988. Having considered the rendering processes identified in Mr Wilesmith’s letter, he said:

I think no guarantee can be made that scrapie infectivity is absent from any grade of waste. Subjectively, I think the risk of scrapie contamination increases with waste grade number.

4.393 Dr Hope briefly described the experiments which could be undertaken in order to establish the infectivity in tallow or MBM, although he drew attention to a number of ‘problems of design and interpretation of results’. In particular, he noted that there was no standard production process to test since production varied from plant to plant. He also noted that there was considerable potential for cross-contamination in the rendering process:

The cooking procedures take place at a relatively early stage in the production process. Hence there are opportunities for cross-contamination of heat-sterilised produce with uncooked, infected material. No routine chemical disinfection of cookers and equipment was mentioned in any of the site reports and ‘leapfrogging’ down the production line may be considerable in processing plants. Even in the production of pharmaceutical-grade growth hormone from human pituitaries, it was concluded that the contamination of growth hormone by Creutzfeldt-Jakob disease was most

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571 M12A tab 1 p. 17; YB89/6.67.3
572 S91 Wilesmith para. 12
573 S91 Wilesmith para. 32
574 YB88/4.53.1
575 YB88/4.27/1.1
likely to occur by cross-contamination and not by the inability of the process itself to remove infectivity.576

4.394 Despite the views expressed by Dr Hope, Mr Wilesmith ultimately concluded that tallow was unlikely to have been implicated in the spread of BSE. In a statement Mr Wilesmith informed the Inquiry that:577

In subsequent discussions I had with Dr Kimberlin, also of NPU, the view was taken that scrapie-like agents would be more likely to partition with the MBM fraction because of their ‘membrane adherence’ properties.

4.395 Furthermore Mr Wilesmith stated that:578

In the course of May 1988 I received the information which had been requested from feed suppliers on the composition of rations. This information indicated that all affected animals had consumed feed containing MBM. I reported this to Mr Rees, the CVO. This accumulated evidence of MBM as the vehicle of infection was considered sufficient by Mr Rees to submit an appropriate Ministerial submission on 6 May 1988.

4.396 The report provided to Mr Rees, CVO, to May 1988, which is referred to by Mr Wilesmith in the above quotation, was sent on 3 May 1988.579 In respect of tallow, Mr Wilesmith said:

At present, the opinion of experts on the scrapie agent [is] that meat and bone meal is more likely to be the vehicle of the agent rather than tallow.580

4.397 On 6 May 1988, Mr Rees provided a submission to the Minister. He told the Inquiry that the submission was made ‘on the basis of [Mr Wilesmith’s] report and other information which had been assembled’.581 Mr Rees said that he was ‘satisfied from the information produced by the investigating teams that the source of the transmissible agent which has caused BSE is through meat and bonemeal’. Tallow was not mentioned in the CVO’s submission.

4.398 On 18 May 1988, Ministers agreed that action should be taken to prohibit the use of meat and bone meal, to make the disease notifiable and initiate a consultation with industry to float the possibility of introducing a slaughter and compensation policy.582 As a consequence, on 24 May 1988, Mr Lawrence wrote to Mr Yavash of MAFF’s Legal Division, with the proposed wording of the ruminant feed ban:

Having consulted various colleagues we believe that something on the following lines might suffice:

‘The use of any animal derived protein for incorporation into rations for feeding to ruminants is prohibited.’583

4.399 Explaining the wording he stated:

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576 YB88/4.27/0.2
577 S91 Wilesmith paras 46–49
578 S91 Wilesmith para. 43
579 YB88/5.3/1.1–1.7
580 YB88/5.3/1.6
581 S126 Rees para. 70
582 YB88/5.24/1.1
583 YB88/5.24/1.1
I have not used the term ‘meat and bone meal’ because, as I understand it, it is also referred to by other names such as ‘meat meal’. The description ‘animal derived protein’ also has the merit of excluding tallow which is produced from the fat element of the rendering process.

4.400 The BSE Order 1988, which (amongst other things) prohibited the feeding of ruminant derived protein to ruminants, came into force on 18 July 1988. The introduction of the Order (‘the ruminant feed ban’) is described in detail in vol. 3: The Early Years, 1986–1988. UKASTA had earlier notified its members of MAFF’s intention to introduce the ban in its Feed Circular 412, dated 3 June 1988. The circular advised that:

The Order does not cover fishmeal, poultry meal, poultry offal or tallow.

The Southwood Working Party’s consideration of tallow

4.401 In its consideration of the potential for tallow to act as the vehicle for transmission of BSE, the Southwood Working Party endorsed the work of Mr Wilesmith and others involved in establishing the epidemiology of the disease. On 17 December 1988, an article by Mr Wilesmith, Mr G A H Wells, Mr P Cranwell and Mr J B M Ryan was published in the Veterinary Record, setting out the results of the epidemiological studies to date. The article stated:

Meat and bone meal is distributed, and incorporated into animal rations, within a relatively small radius of its production compared with tallow (MMC 1985). The geographical variation in incidence [of BSE] is not consistent with the distribution and use of tallow. Also, scrapie like agents are intimately associated with cell membranes (Millson and others 1976) and in the rendering process such agents would probably partition with the cellular residues of the meat and bonemeal fraction, rather than the lipids of tallow.

4.402 In respect of tallow the Southwood Report agreed with this conclusion of Mr Wilesmith and others. The Report followed the wording of the published article closely in concluding that:

Meat and bone meal is distributed, and incorporated into animal rations, within a relatively small radius of its production, compared with tallow. The geographical variation in incidence indicates a geographical variation in risk which is not consistent with the distribution and use of tallow. In addition, in the rendering process the BSE agent would probably partition with the cellular residues of the meat and bone meal fraction, rather than with the lipids in tallow.

4.403 Neither the article published by Mr Wilesmith and others, nor the Southwood Report, addressed the potential for cross-contamination during the rendering process, which had earlier been highlighted by Dr Hope. However, this issue was raised again on 25 March 1989 in an article published in the Veterinary Record by Dr David Taylor, Principal Research Scientist at the NPU, which discussed the
physical decontamination procedures effective against the scrapie agent.\textsuperscript{588} The article referred to the problems of cross-contamination involved in the rendering process and mentioned the concerns expressed about cross-contamination of human growth hormone, to which Dr Hope had referred in April 1988. Dr Taylor concluded:

Epidemiological studies support the idea that transmission of scrapie from sheep to cattle was via commercial feedstuffs (Wilesmith and others 1988). Of the two main ingredients (meat and bone meal, and tallow) of feed supplements, meat and bone meal was thought to be the more likely source of infection. Contamination of the tallow fractions cannot be ruled out although the geographical incidence of BSE cases fitted with the parochial distribution and use of meat and bone meal and did not correlate with the distribution of blended tallow used for cattle feed (Wilesmith and others 1988).

4.404 Mr Wilesmith told the Inquiry:

The fact that tallow was blended by a relatively small number of companies meant that it was likely to be diluted in feed nationally, thus reducing any effect it may have as a vehicle for infection. Dr Taylor's article in the Veterinary Record of 25 March 1989 does not provide any evidence to suggest otherwise. However I agreed that tallow should be included in the experimental studies of the effects of rendering processes on the inactivation of the BSE agent. In addition the question as to whether tallow was a vehicle of a scrapie-like agent was the subject of the continuing epidemiological studies and the monitoring of the epidemic . . .\textsuperscript{589}

The introduction of the human SBO ban

4.405 The Bovine Offal (Prohibition) Regulations 1989 which introduced the human SBO ban, came into force on 13 November 1989. The introduction of the ban is discussed in detail in vol. 6: Human Health, 1989–1996. The Regulations required that no person should:

sell; or

use in the preparation of food for sale, for human consumption, any specified bovine offal.

4.406 The Regulations did not specifically refer to the use of tallow derived from SBO. However, in a paper prepared for SEAC’s meeting of 10 May 1991 the following interpretation of the Regulations was provided by MAFF:\textsuperscript{590}

Under the Bovine Offal (Prohibition) Regulations 1989 the use in human food of the specified bovine offals from all cattle over six months of age is prohibited. It is considered that this includes tallow derived from this material. However in case there is any doubt one of the amendments to be made as part of the amending Regulation, which should come into force later

\textsuperscript{588} Veterinary Record vol. 124, p. 291–2
\textsuperscript{589} S91 Wilesmith para. 49
\textsuperscript{590} SEAC8 tab 9, p. 1
this year, will make it absolutely clear that the prohibition includes all material derived from specified bovine offal.

4.407 SEAC’s consideration of this matter and the subsequent amendment of the human SBO ban is discussed below.

SEAC advice on the use of bovine-derived tallow

4.408 On 3 July 1990, the Minister of Agriculture (Mr Gummer) and Parliamentary Secretary at MAFF (Mr Maclean) met with the Permanent Secretary (Mr Andrews) and a number of MAFF officials to discuss the adequacy of current legislative controls on the rendering industry in the light of BSE. Mrs Attridge had prepared a note for the meeting, which was used as a basis for the discussion. The note did not directly address the safety of tallow for inclusion in either animal or human food. However, it did describe the likely effect of proposed EC regulations, relevant to the production of tallow, that were the subject of negotiations at the time.

The EC Regulations relating to the health rules for the production and placing on the market of melted animal fats, greaves and by-products of rendering for human consumption are also likely to create problems for some of the traditional renderers but it will also create opportunities since EC proposal on rendering will require waste material to be rendered. In particular the need to keep separate any fats which may be going on to the human consumption market at all stages is contrary to the current practice under which the fat for human consumption is refined from the more general fat extracted.

4.409 During the meeting, Mr Andrews expressed concern that the existing ban on the feeding of ruminant protein to ruminants did not cover tallow produced from ruminants, which ‘could also contain the infective agent’. Mrs Attridge responded that Professor Southwood had considered the issue and ‘failed to find any epidemiological evidence that tallow was implicated in the appearance of BSE’. She went on to say that ‘it was likely that, if the active agent did occur in this material, it would be at a far lower concentration than in meat and bone meal’. Mr Gummer concluded that it might be appropriate to ask Dr Tyrrell to look at the question in the context of SEAC’s investigation of the feeding of ruminant protein to pigs and poultry.

4.410 A paper on the rendering industry, prepared by MAFF, was subsequently presented to the Committee at SEAC’s meeting on 19 September 1990. The paper provided only the most generalised description of the process by which tallow was produced and the regulations controlling such production. The minutes of the meeting record that, in the light of the paper, the Committee felt that:

It was important to consider the rendering industry in detail – especially so as to get a clear picture of the experimental work that has been commenced,
to consider whether any further experiments should be initiated, and to consider the use of tallow in animal feed.

Questions about the rendering process emphasised the importance of maintaining monitoring of the outbreak; has it been clearly demonstrated that the food-borne source of the outbreak has been cut off? The secretariat was asked to produce a further paper on this topic.

4.411 Soon after the meeting, on 25 September 1990, the Bovine Spongiform Encephalopathy (No.2) Amendment Order 1990 came into force. The Order provided that:

No person shall knowingly sell or supply for feeding to animals or poultry any specified bovine offal or any feedingstuff which he knows or has reason to suspect contains specified bovine offal or animal protein which is derived from any specified bovine offal.596

Since tallow was not regarded as animal protein, it was not considered to fall within the definition of ‘animal protein which is derived from any specified bovine offal’. As a consequence, it was believed that tallow derived from SBO could legally be included in animal feed after the introduction of the animal SBO ban.597

4.412 As requested at SEAC’s meeting in September, MAFF prepared a paper dealing specifically with the production of tallow for inclusion in animal feed, which SEAC discussed at its sixth meeting on 1 November 1990.598 In relation to the potential for tallow to act as the vehicle for transmission of the BSE agent, the paper referred to the findings of the Southwood Working party, to which we have referred above. Expanding on the Working Party’s conclusions, the paper explained that current thinking was that ‘the [BSE] agent will associate with the lipo-protein fraction, which in turn will be found in the solid or meat and bone meal fraction’.599 However, it went on to say:

In practice feed grade tallow may contain very small quantities of protein, and may therefore contain minute quantities of the BSE agent. The relevance of this must be considered in the light of the measures already taken to control BSE in terms of the effective exposure necessary to establish infection or disease. Since all infected cattle are destroyed, and the feed ban imposed in July 1988 means that more than 80 per cent of the cattle slaughtered for human consumption have not been fed ruminant meat and bone meal, the titre of the BSE agent in material to be rendered has been significantly reduced. This reduction in titre, combined with the very small cellular fraction in tallow, suggests that any agent present will be in such minute quantities that neither infection nor disease (the development of which is believed to be dose related) is possible.600

4.413 In relation to the ruminant feed ban, the paper explained:

596 L2 tab 5 para. 8(3)
597 See further on this question at para. 4.440, below
598 SEAC6 tab 2
599 SEAC6 tab 2 para. 4
600 SEAC6 tab 2 para. 4
In the light of epidemiological evidence and the various measures taken to deal with BSE, it has not been considered necessary to impose restrictions on the use of tallow in rations for ruminants and other animals, birds or poultry. Neither has it been considered necessary to ban the use of tallow produced from specified bovine offal in feed rations. Most of this latter material is processed in one plant and is used for industrial purposes.

**4.414** In respect of the need for research, the paper explained that the Tyrrell Committee had not identified studies on tallow in animal feed as being a priority.\(^{601}\)

It described the investigation of tallow in the BSE deactivation studies being conducted by MAFF, the NPU and others, that had been recommended in the *Tyrrell Report*. It was reported that these studies would include inoculation of tallow into mice.

**4.415** Having considered the paper, SEAC did not feel that there was an urgent need to consider any risks associated with the use of tallow. However, the Committee requested further information on the use of tallow derived from cattle and from scrapie infected sheep.\(^{602}\)

**4.416** A paper was prepared by Mr Lawrence describing the sources of material used in the production of tallow and procedures used in the production of different grades of tallow, which was considered by SEAC at its next meeting on 7 March 1991.\(^{603}\)

The paper explained that tallow was produced and sold according to grades laid down by the British Standards Institution. It stated:

*Grade 1 and 2* tallow is derived from fat and bone from butchers’ shops, food factories, boning out and pre-packing plants. After rendering tallow is either passed through a centrifuge to remove solids or settled in tanks to allow for the removal of any further precipitation. Grade 1 tallow is sold for refining into an edible fat for use in margarine and food manufacture. Grade 2 is used mainly to make toilet soap.

*Grade 3 and 4* tallows are derived from slaughterhouse animal waste (but not generally low grade soft offals) and can be used in the manufacture of industrial soaps and detergents. Some grade 3 material may find its way into toilet soap and some grade 4 material, which may be blended with 3, into animal feed.

*Grade 5 and 6* tallow is derived mainly from the low grade soft offals from abattoirs. Some grade 5 material is used in animal feed but generally it is used, after splitting, for various chemical products and in some cutting oils.

**4.417** The paper explained that ‘historically’ about 10 per cent of the raw material used in the production of tallow had come from knacker’s yards and hunt kennels, which handled fallen or casualty animals. The paper stated that this material was used in the production of grade 5 and 6 tallow. With poultry waste, to a very large extent, being processed in dedicated plants, the composition of the raw material rendered in the UK was estimated to be as follows:

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\(^{601}\) SEAC6 tab 2 p. 6

\(^{602}\) YB90/11.1/2.1–2.7

\(^{603}\) SEAC7 tab 2
Pigs 18 per cent
Cattle 54 per cent
Sheep 28 per cent.

4.418 Of the 250,000 tonnes of tallow produced each year, the paper stated that 75,000–100,000 tonnes, mostly grade 4 material, was used in animal feed. Of this, 5,000 tonnes was used in cattle and calf rations. The paper informed SEAC that samples analysed at one of the major rendering plants indicated maximum levels of 0.1–0.3 per cent protein in tallow intended for animal feed.

4.419 In terms of the potential for protein to find its way into feed grade tallow, the paper stated:

It is just conceivable that feed grade tallow might contain protein, but in view of the four filtrations and blendings the quantities would be minute. The possible presence of the BSE agent as a result of any minute quantities of protein in tallow was considered in the previous paper [presented to the Committee at its meeting in November 1990]. It suggested that it would be in such small quantities that neither infection nor disease would be possible. It is considered that the same would apply to tallow derived from specified bovine offal, not only because of filtration and blending but also because well over 80% of the raw material will be from cattle which have not been exposed to the agent. In any case the UK Renderers Association confirm that all the 10–20,000 tonnes of tallow derived from this market is used for industrial purposes.

Feed grade tallow may also contain a very small quantity of the scrapie agent. But, for the reason described, it would be minute. In addition rendering practices would indicate that the major proportion of feed grade tallow is not derived from raw material from fallen stock (which could include sheep which had died of scrapie, although the numbers are unlikely to be significant since there is circumstantial evidence that sheep farmers are well able to spot early clinical signs and will market them well before their demise). Again it is suggested that neither infection nor disease (the development of which is considered to be dose related) is possible.

4.420 The Committee concluded that it was:

. . . reassured by the evidence that the protein content of tallow was very low and that MAFF did not believe that tallow derived from specified offals was likely to reach the food chain . . . On the basis of the available evidence, it was not appropriate to offer specific advice on tallow. 604

4.421 However, the Committee asked for a further note ‘about the real scope for leakage of [tallow derived from SBO] to reach the food chain’. It also requested a paper on the use of bovine material in non-food preparations such as cosmetics. 605

604 YB91/3.7/2.4
605 YB91/3.7/2.4
4.422 In the period after the introduction of the animal SBO ban, MAFF introduced a programme of SVS surveillance at slaughterhouses and rendering plants, to ensure that the ban was being properly complied with by operators and enforced by local authorities. On 7 May 1991, in one of his regular reports summarising the results of SVS visits to rendering plants, Mr Hutchins, SVO, informed Mr Crawford (Director of the Veterinary Field Service) that, with regard to the use of tallow:

A wide variety of uses was reported. Although specific details were not generally available. Options included, edible tallow, animal feed, technical grade tallow, industrial purposes (unspecified), soap production, poultry feed, fuel and sale to brokers (ultimate use unknown). There was little evidence to suggest that tallow produced from SBOs was handled separately from tallow produced from other offals.\(^{606}\)

4.423 Following further inquiries into the use of tallow, Mr Hutchins circulated a minute within MAFF on 3 June 1991.\(^{607}\) He noted that it was ‘now stated that no SBO-derived tallow is used in the preparation of human foodstuffs (apparently an error in the original report)’, but that it was used in three cases for animal feed production. Mr Hutchins noted that in other premises SBO-derived tallow was used for chemical or manufacturing purposes, or was disposed of with other SBO-derived material.

4.424 Before Mr Hutchins circulated his corrective minute regarding the use in human food of tallow from SBO, SEAC held further discussion on this issue at its meeting on 10 May 1991.\(^{608}\) At its previous meeting, SEAC had asked for a further note ‘about the real scope for leakage of [tallow derived from SBO] to reach the food chain’. The paper described the legislative position under the Bovine Offal (Prohibition) Regulations 1989, which MAFF regarded as prohibiting the use of tallow derived from specified offal in human food. The paper also stated:

The rendering industry has confirmed that tallow derived from specified bovine offals does not enter the food chain. Apart from anything else the grade of tallow produced would be such as to be unsuitable for incorporation into cooking materials or as an ingredient in products for human consumption.

4.425 The paper concluded, that ‘use of tallow derived from specified bovine offal in human foods would be illegal. But there is no evidence that it is being used in this way and in any case it would not be of a quality suitable for human use.’\(^{609}\) The minutes of the meeting record that the Committee ‘noted paper 8/9 [dealing with tallow] and did not call for any further action on tallow’.\(^{610}\)

4.426 On 12 March 1992, the Bovine Offal (Prohibition) (Amendment) Regulations 1992 came into force. As anticipated in MAFF’s paper to SEAC in May 1991, an amendment clarified the position regarding the inclusion of SBO-derived tallow in food for human consumption. It prohibited the sale or supply for human consumption, or for use in the preparation of food for human consumption, of any specified bovine offal or any material ‘derived wholly or partly from it’.\(^{606}\) YB91/5.7/2.2
\(^{607}\) YB91/6.3/1.1
\(^{608}\) SEAC8 tab 9
\(^{609}\) Ibid.
\(^{610}\) YB91/5.10/2.7
4.427 On 9 April 1992, a joint meeting took place between members of the Expert Group on Animal Feedingstuffs (‘Lamming Committee’) and members of SEAC. The Lamming Committee had been established in February 1991 to review the existing framework covering the animal feed industry in the UK. One of the matters raised for discussion at the meeting was the use of tallow from specified bovine offal. In the course of the discussion, Dr Tyrrell said:

The Committee [SEAC] had been content with the situation with regard to tallow derived from specified bovine offals, as they had been informed that all such tallow was being used for industrial purposes rather than for animal feed.

4.428 The minutes record that Mr Colin Maclean, a member of the Lamming Committee, felt that:

This could only be said with any certainty in relation to Prosper de Mulder, which had a plant dedicated to processing specified offals. Mr Lowson confirmed that tallow from specified bovine offals could still be legally fed to animals, as the ban only covered the offals themselves or protein derived from them.

4.429 At SEAC’s meeting on 28 April 1992, the Committee was presented with minutes of the meeting with the Lamming Committee. This led to further discussion of the matters which had been discussed at that meeting. On the subject of tallow, the minutes of SEAC’s meeting record that:

The Committee’s view that further restrictions were not needed had been based on assurances from MAFF that tallow derived from SBOs did not get into the food chain. The Lamming Group would need to satisfy itself that this was the case. It might be appropriate for MAFF to explore the issue further to produce evidence which could reassure the Group on this point.

4.430 SEAC considered a further MAFF paper on the production of tallow at its next meeting on 15 October 1992. The paper began by saying that, although SEAC had considered tallow in some detail previously and had not requested any further information, the Committee might be interested in additional information gained as a result of a visit to one of the largest tallow blenders in the UK. At the meeting with MAFF, the tallow blending company had confirmed that the figures for the inclusion of tallow in animal feed, which had been provided to SEAC by Mr Lawrence in March 1991, correctly reflected the position. As regards the production of tallow from SBO, the paper stated:

About 12,000 tonnes of tallow derived from SBOs is produced annually. The UKRA has always claimed that none of it enters the animal feed chain. The problem, as has been identified in reports from the field service (who visit rendering plants on a regular basis, principally to check on the production and disposal of meal derived from SBOs) is that some renderers simply state that the tallow is sold to blenders, brokers or traders. In the circumstances they cannot, with hand on heart, possibly know where the material ends up.
However all the evidence points to the fact that those involved in the trade know about SBOs and are ensuring that such tallow goes for chemical use. And in practice most of the tallow derived from SBOs (produced by the major renderer in the UK) is sold direct to chemical companies such as Unichema and Croda.

4.431 The paper then explained the financial and practical difficulties involved in producing high grade tallow from SBO material. In conclusion, it stated:

These facts must scotch once and for all any allegations there might be that tallow from SBOs can get into the human food chain. And apart from the technical and financial obstacles, it would be illegal to do so . . . As regards tallow derived from SBOs ending up in animal feed, all the evidence points to a situation where it can be concluded that the material is used by the chemical industry.

4.432 The minutes of SEAC’s meeting record that:

In general the Committee saw no problem with the use of tallow of bovine origin for any outlet. However, they noted that tallow derived from specified bovine offals was excluded from human food. As the BSE epidemic declined, it would be necessary to deal with every possibility that the infective agent might be sustained. So even though the risk that the presence of infectivity was slight, it would make sense to bring the rules about the use of SBO-derived tallow for animal consumption into line with those applied to human consumption.615

4.433 The following day, Mr Lowson provided the Minister with a minute summarising the conclusions reached in SEAC’s meeting, which were ‘likely to be of public interest’. In respect of the Committee’s recommendation on tallow, Mr Lowson stated:616

[SEAC] recommended that tallow derived from specified bovine offals should not be incorporated in animal feed (it is already banned from human food). The quantity used this way, and the risk, are likely to be negligible but they felt that this would be a sensible step to eliminate as much BSE agent as possible from circulation as the epidemic declined. There are not likely to be any enquiries on this issue but if there are we could emphasise that [SEAC] endorsed their earlier advice that in general tallow represents no risk.

4.434 On 22 October 1992, Mr Bradley sent a minute to Mr Meldrum in response to a request from Mr Meldrum for his views on how to proceed with the SEAC recommendation on tallow.617 Mr Bradley repeated that the risk from tallow was ‘negligible’ as a result of the partitioning of the agent with the protein fraction and the filtration and other procedures applied to tallow. However, he pointed out an apparent inconsistency in the Government’s current position. He proposed that it was ‘logical’ that once SBO are ‘proscribed at the abattoir (in regard to feed use) no product from them should be used for feed’. He repeated that the risk from tallow was ‘exceptionally small’ but stated:

615 YB92/10.15/2.6 para. 16
616 YB92/10.16/5.1–5.5
617 YB92/10.22/11.1–11.2
I accept that there is no evidence at all that feeding tallow has ever been associated with SE occurrence but no one has ever tested this experimentally. Several Tyrrell Committee members would view tallow from SBO as a slightly more than negligible risk. It would be unfortunate if that was positive. Also the rendering study is testing tallow by bioassay whilst this loophole remained.

Tallow from SBO is banned in use for human feed . . . and this is across the species boundary. If there is no risk why is this the legal position? Any risk would virtually certainly be higher if fed to cattle as no species barrier exists.

4.435 Mr Bradley then explained the basis for the Committee’s concern about SBO-derived tallow entering the feed chain:

I am personally content that tallow from SBO prepared by de Mulders does not go into any food chain and may well be used 100 per cent for industrial use and this excludes use for soaps, cosmetics and the like.

However this route of disposal for other plants is not so clearly defined in the June 1992 AHVG document [the paper provided by MAFF for SEAC’s meeting in October 1992]. Paragraph 10 of this document [this is quoted in full at paragraph 429 above] states the effort put in by the VFS to check on disposal of MBM but no mention is made about checks on tallow disposal which is the point in dispute. The cosmetics industry is only just learning about SBO tallow and had little expert knowledge before the recent meeting.618

4.436 Mr Bradley told Mr Meldrum that if these concerns about the use of tallow derived from SBO, other than that produced by Prosper de Mulder, were answered satisfactorily, the Committee ‘could be persuaded that the loophole was closed for animal feed contamination by tallow from SBO even in the absence of legislation’. However, he advised:

Should any further opportunity arise to ‘tidy up’ any existing legislation then I would recommend that the use in animal feed of tallow prepared from SBO be banned.

4.437 Mr Meldrum was one of those who had received Mr Lowson’s minute of 16 October 1992 informing the Minister of SEAC’s recommendation on tallow. It appears that, on receipt of the minute, Mr Meldrum communicated to Mr Lowson some concern about SEAC’s recommendation. On 29 October 1992, Mr Lowson sent a minute to Mr Meldrum, in which he reported a conversation he had had with Dr Tyrrell on 27 October. Mr Lowson said:619

I took the opportunity to mention your concerns about the Committee’s advice on tallow. He confirmed that the Committee had agreed that in general there was no problem about tallow. Their concerns related only to tallow derived from the specified offals, and that concern furthermore only needed to be treated in a very low key way. He saw no need for haste in dealing with this issue and believed that the Committee’s concern would be

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618 This meeting between MAFF, DH, DTI and the cosmetic industry is discussed in vol. 7: Medicines and Cosmetics, ch. 7
619 YB92/10.29/5.1
met so long as, one way or another, it could be shown that in practice tallow derived from specified offals did not find its way into animal feed.

4.438 Mr Meldrum responded to Mr Lowson’s minute on the following day, 30 October 1992.620 Mr Meldrum repeated to Mr Lowson his concern ‘at the presentational aspects of this recommendation’. He argued that any mishandling of the issue by the ‘media or our critics’ could give the appearance that MAFF had second thoughts on the safety of tallow in both animal and public health terms. He went on:

It follows that if this issue is to be dealt with as a tidying up exercise at the same time that we restrict the feeding of porcine meat and bone meal to ruminants then our line is defensible so long as we are able to say, at the same time, that it is the view of the Tyrrell Committee that tallow presents a negligible risk. This is the view that Ray Bradley is following and I fully support the line he takes.

In presenting any case for further legislation in a deregulatory era we shall also need to say that on the basis of information from the trade there is very little contamination of tallow with meat and bone meal based on free fatty acid content which I seem to have seen in some of the background papers at some time.

The way forward would be for the preparation of a paper to explain the background to our present regulations on tallow and that we are now producing a tidying up operation at the same time as the porcine meat and bone meal for the reasons I have described. I would be grateful if you could have a first shot at such a paper for clearance within Tolworth at our leisure before it is put back to the Tyrrell Committee for their agreement prior to submission to Ministers.

Implementation of the Order banning the use of SBO-derived tallow in animal feed

4.439 On 25 February 1993, Mr Lowson provided Mr Nicholas Soames, MAFF Parliamentary Under Secretary (Commons), with a submission on the implementation of SEAC’s recent recommendations. With respect to the recommendation on tallow, the submission reminded Mr Soames that the Tyrrell Committee saw ‘no problem about the use of tallow for any purpose’. However, at its last meeting SEAC had noted:

- if there is any chance that the BSE agent might be present in tallow, that chance would be greatest in tallow derived from rendering ‘specified bovine offals’ (SBOs);
- tallow derived from the SBOs may not enter human consumption because no material derived from them may be used in human food; and
- as the BSE epidemic declines, it becomes increasingly important to eliminate all possible means by which any of the agent may be sustained.621

620 YB92/10.30/1.1 para. 3
621 YB93/2.25/1.3
4.440 The submission stated that the Committee had concluded that it would ‘make sense’ to align the rules about the use of SBOs for animal feed with those relating to human consumption. It argued that:

Given the Committee’s advice about the acceptability of tallow rendered from other tissues, it should be possible to rebut firmly any suggestion that this reflects any serious risk from such material, and to present this change as a largely technical measure. It is therefore recommended that the Bovine Spongiform Encephalopathy Order 1991 should be amended to ban the use in animal feed of all material derived from SBOs.

4.441 The submission also dealt with a further ‘technical’ amendment to the BSE Order 1991, which was relevant to the use of tallow in animal feed. Legal advice had been received that the terms of the Order, banning the feeding of ruminant protein to ruminants, were such as to ban the use in feed for ruminants of any materials which might contain ruminant protein. This would include tallow, which the Minister was informed might include 0.1–0.3 per cent protein. The submission stated that it was not the intention of the Order to ban the use of materials ‘such as tallow from which protein has been virtually eliminated’. It was proposed that the Order be amended so that it would be permitted to feed tallow (and other specified products) to ruminants.

4.442 In a manuscript note to Mr Lowson’s covering minute, Mr Tanner (private secretary to Mr Soames) informed Mr Lowson that the Minister was not content with this latter recommendation, and that he was considering this carefully with officials.622

4.443 On 23 March 1993, the Parliamentary Secretary, Mr Soames, met with Mr Meldrum, Mr Lowson, and other MAFF officials to discuss a submission on SEAC recommendations. On the question of tallow, Mr Soames said that the proposed amendment to the Bovine Spongiform Encephalopathy Order 1991, banning the use in animal feed of all material derived from SBO, was ‘a prudent course of action to take’ and should be made ‘sooner rather than later’.623 However, in respect of the amendment which would specifically allow tallow not produced from SBO to be included in ruminant feed, the Permanent Secretary explained that both he and the Minister had concerns over the recommendation. He asked that a short note be prepared for consideration at his meeting with the Minister the following day.

4.444 The minute of the Parliamentary Secretary’s meeting with the Minister the following day simply noted that consideration had been given to the submission of 25 February 1993 and that it had been agreed that the amendment allowing tallow to be included in ruminant feed ‘should not be made’.624

4.445 Following this meeting, Mr Lowson wrote to Mr Gummer’s private secretary, and asked Mr Gummer to confirm that although he wished no amendment made to the Bovine Spongiform Encephalopathy Order 1991, products containing negligible amounts of ruminant protein could still be permitted in animal feed, given the clear scientific advice that this was safe (particularly since all material

622 YB93/2.25/1.1
623 YB93/3.23/4.1–4.2
624 YB93/3.24/1.2
derived from SBO would be excluded). A manuscript note from Mr Gummer’s private secretary to Mr Lowson dated 14 April 1993, confirmed that Mr Gummer was content with this position.

4.446 At its meeting on 22 April 1993, SEAC was informed that Ministers had accepted its advice and would be introducing legislation to ban the use in animal feed of all SBO material. This would bring the rules on SBO derived tallow for animal consumption into line with those for human consumption.

4.447 On 29 July 1993, Mr Martin Haddon, Under Secretary, Animal Health and Veterinary Group, put up a submission to the Parliamentary Secretary to seek his agreement to arrangements for the introduction of changes to three BSE controls. One of these was to ban the use in animal feedstuffs of all material derived from SBO. A manuscript note on this submission dated 2 August 1993 records that the Parliamentary Secretary (Commons) was content with the recommendations in the submission. A further note for the Parliamentary Secretary from Mr Eddy dated 29 October 1993 proposed to introduce the new Order (the Spongiform Encephalopathy (Miscellaneous Amendments) Order) in January 1994, following consultation with the industry and completion of a three-month standstill because of the requirement to notify the European Commission. The consultation letter was duly issued on 9 November 1993.

4.448 At SEAC’s meeting on 26 January 1994, Mr Eddy drew the attention of the Committee to a possible problem concerning tallow from SBO, which had come to light in recent discussions between MAFF and the industry. He explained that although tallow from SBO was not sold directly to renderers for animal food, it was sold to the chemical industry that produced fractions for use in animal food. Mr Eddy reported that the process involved in producing the fractions had been considered by Dr Taylor. Although he had not carried out specific experiments, based on previous experience, he felt it unlikely that the process would be effective in deactivating the BSE agent.

4.449 Mr Eddy told the Committee that some of the by-products produced after processing were sold for animal feed and the companies had put the point to MAFF that this material should be exempted from the proposed ban on using tallow from SBO in animal feed because of the rigorous processing to which it had been subjected. Dr Tyrrell said that more information was needed on the exact situation. It was agreed that a paper would be produced for the next meeting.

4.450 On 28 April 1994, Mr Eddy sent the requested paper to members and observers of SEAC. The paper described the use of SBO-derived tallow to produce chemicals for the oleochemical industry and the sale of some of the by-products for animal feed. In his covering letter, Mr Eddy explained that Dr Tyrrell had agreed that MAFF should try to clear the paper in writing since a meeting was not

625 YB93/4.6/2.1; see also S326 Soames para. 54
626 YB93/4.22/2.3 para. 7
627 YB93/7.29/1.1–1.2
628 YB93/10.29/1.1
629 YB93/11.9/3.1–3.4
630 Mr Eddy appears to have misread Dr Taylor’s paper, for he had advised that the process was likely to inactivate the agent – see para. 458, below
631 YB94/1.26/2.4 paras 18–21
632 An industry, centred on the production of chemical derivatives from naturally-occurring animal and vegetable fats and oils, analogous to but separate from the petrochemical industry which derives products from fossil oils
633 YB94/4.28/4.1–4.3
scheduled for the near future and ‘we are anxious to make some progress on the matter’.635 The paper enclosed two responses to the earlier consultation exercise from two UK companies, which processed tallow derived from SBO and produced end products used in the feed industry. These showed that substantial quantities of tallow derived from SBO were sold for incorporation in animal feed. More alarmingly, the distillation residues that formed in the tank bottoms were sold for the same purpose. Advice from Dr Taylor was also attached, giving his opinion on whether the tallow-splitting procedure described by the two companies could inactivate the BSE agent. Dr Taylor’s broad conclusion was that, on the basis of the combination of processes applied to tallow, ‘it seems extremely unlikely that BSE infectivity could survive the complete tallow-splitting process’.

4.451 At the next SEAC meeting on 30 August 1994, the paper circulated by Mr Eddy was tabled for discussion.637 The secretariat asked the Committee to consider whether in light of this information, tallow derived from SBO should continue to be permitted for use in animal feedstuffs when subjected to the processes used in the oleochemical industry. The Committee agreed that SBO-derived tallow could continue to be used in feed, provided that the material had first been fractionated by the oleochemical process. However, the sediment from tank bottoms should not be sold under the proposal. In any case, none of this material should be used in human food.

4.452 At the 18th SEAC meeting on 10 February 1995, Dr Tyrrell and other members sought clarification on the uses to which settlement tank contents might be currently put. They were unaware that this material could still legally be used for animal feed. Mr Eddy confirmed this to be the case, but said that forthcoming legislation would ban this use.

4.453 The Specified Bovine Offal Order 1995 subsequently extended the scope of the ban on inclusion of specified bovine offal in animal feedstuffs by providing that:

5. -(5) For the purpose of this article ‘specified bovine offal’ includes anything derived from it other than fatty acids which have been extracted from tallow subjected to thermal hydrolysis at hyperbaric pressure.

4.454 The effect of this provision was to prohibit the sale or use of SBO-derived tallow in animal feedstuffs except where it had been subject to the fractionation process used in the oleochemical industry.

Discussion

4.455 Mr Wilesmith and the Southwood Working Party had good grounds for concluding that MBM was much more likely to contain infective protein than tallow. It did not follow from this, however, that tallow might not also be capable of transmitting the BSE agent, albeit to a lesser degree. SEAC are to be commended for pursuing the question of the potential infectivity of tallow. They did not, however, consider that this was a matter of urgency.
4.456 Had there, at the outset, been a thorough audit of what happened to all products and by-products of the cow, SEAC might have received information which would have led them to treat tallow as a matter of greater urgency. It was not until 1994 that they learned that the sediment from the bottom of settling tanks used for fractioning tallow made from SBO was being sold for incorporation in animal feed. If Dr Taylor was correct, this was likely to have been inactivated by the fractioning process. That was, however, pure chance. In the event, it seems unlikely that tallow, or sediment derived from it, was a significant source of infection in cattle feed.

7. Advice on the use of gelatine

4.457 In the period prior to the emergence of BSE, gelatine, either wholly or partly derived from bovine material, was, like tallow, used in a wide variety of different products. Of primary interest in terms of the risks of transmission of BSE were its uses in the production of food for human consumption, and medicines and cosmetics. The consideration given to the use of gelatine in medicines and cosmetics is discussed in detail in vol. 7: Medicines and Cosmetics. See also vol. 13 Industry Processes and Controls, ch. 8.

4.458 Gelatine is manufactured from the bones and hides of animals, including bovines. It is a highly processed product produced by acid/alkaline hydrolysis.

The legislative position in respect of gelatine

4.459 SEAC first considered the safety of gelatine in October 1992. Before we describe their deliberations, it is necessary to explain, by way of background, the legislative position relevant to the use of gelatine prior to that date.

4.460 In the UK, the introduction of the ruminant feed ban in 1988 prohibited the feeding of ruminant-derived protein (excluding milk, milk products and dicalcium bone phosphate\(^{641}\)) to ruminant animals. Although the ban did not specifically refer to the use of gelatine in animal feed, it effectively banned the inclusion of gelatine derived from ruminants in ruminant rations.\(^{642}\)

4.461 No such ban existed in respect of the inclusion of gelatine derived from ruminants in food for human consumption. The human SBO ban, introduced in 1989, prevented the use in food for human consumption of any SBO or material derived from SBO. This effectively banned the use of SBO material in the production of gelatine. However, the use of bovine heads and spinal column (those bones most likely to be contaminated by SBO material) was not prohibited in the production of gelatine for human consumption, even after the introduction of the SBO controls.\(^{643}\)

4.462 Relevant scientific advice provided to the EC did not regard gelatine as posing a significant risk to animal or human health. On 7 February 1992, a report of the EC Scientific Veterinary Committee Sub-Group on BSE was adopted, which assessed the risks from gelatine.\(^{644}\) The report concluded that:

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\(^{641}\) dicalcium phosphate is a by-product of gelatine manufacture and has been described as "a valuable fodder" (see YB95/3.15/4.7)

\(^{642}\) BSE Order 1988

\(^{643}\) Bovine Offal (Prohibition) Regulations 1989

\(^{644}\) SEAC19 tab 1
Whatever the tissue source (bone or hide) there is negligible risk from trading gelatine for technical use, for consumption or for use in cosmetics. Additional guarantees are therefore not necessary.

4.463 Subsequent changes in the legislative framework are described at the appropriate points in the narrative below.

SEAC consideration of gelatine in the context of medicines and cosmetics

4.464 On 21 July 1992, Dr Philip Minor, Head of Virology at NIBSC, wrote to Professor Gerald Collee, Chairman of the BSE Working Group on human medicinal products, informing him that:645

At a recent meeting in Heidelberg a gentleman from a gelatine manufacturing concern presented an account of the process which was very worrying. As you know, the assumption has been that gelatine is produced under such vigorous conditions that it gives no cause for concern, but the process he described was, to me, shockingly mild. Moreover he claimed that any old cow bone went into the production vat, including spine and skull . . .

4.465 Dr Taylor also wrote to Professor Collee regarding the meeting in Heidelberg:646

Like Philip [Minor], I was not impressed by the reassuring noises made . . . at the Heidelberg meeting. However, I am not really familiar with gelatine manufacturing processes in the UK . . . I would certainly be concerned if it is produced by a similar procedure to the German process described at the meeting.

4.466 On 31 July 1992, Dr Kimberlin wrote to Professor Collee about Dr Minor’s observations.647 He concluded:

(a) The general assumption that gelatine is of very low risk with regard to BSE contamination is still tenable.

(b) Any uncertainty would be if the source material included significant amounts of brain and spinal cord from countries which either had reported BSE or were at risk of getting BSE cases, and which did not have a specified offals ban.

(c) In these circumstances it might be reasonable to require either that these potential risk tissues were excluded from the source material, or that validation studies were carried out which were capable of demonstrating a clearance factor appropriate to the potential contamination.

4.467 On 5 August 1992, Dr Tyrrell wrote to Professor Collee. He had seen Dr Minor’s letter of 21 July and he thought it was ‘necessary to get more details.’648
In response to the above concerns, Professor Collee, with input from both Dr Minor and Dr Kimberlin, produced a written opinion on gelatine and BSE, which stated:

It is possible that gelatine is of low risk with regard to BSE contamination, but there are justifiable anxieties when the source material includes brain and spinal cord of cattle (or sheep) from countries with known cases of BSE or at risk of having BSE cases.

Validation studies to demonstrate the safety of processing and extraction procedures in this context would be commendable, but there are very significant practical difficulties and such an exercise would take some years.

It is reasonable to press for assurances with regard to quality and sourcing, analogous to those sought with respect to catgut sutures, in relation to gelatine manufactured for use in the pharmaceutical industry. Full compliance with the BSE guidelines should be required for the starting material.

However, Professor Collee’s suggestion was not without difficulties. On 28 August 1992, Dr Minor wrote to him.

[T]here may be a slight difficulty raised by the sentence in your summary requiring full compliance with the BSE guidelines. In the European version of the document gelatine is specifically singled out as a product which given assurances of adequate collection and processing is unlikely to present any risk of contamination. The implication to me is that the source animal probably does not matter.

Dr Tyrrell received a copy of Professor Collee’s paper in September and Mr Lowson circulated it to other members of SEAC as well as to the CVO. It was suggested that a short note should be put together on the subject for discussion at the next SEAC meeting.

On 11 September 1992, Mr Meldrum wrote to Mr Lowson about the paper. He said:

I am a little concerned at the comment that the raw materials should be sourced from a BSE-free country. I have no difficulty with the definition applying to Australia and New Zealand, but not to other countries where they do not have an active surveillance system.

He went on:

I am worried at the possibility that we may be clobbering the UK even though we have got excellent controls in place, but still be ignoring the unknown and unquantifiable risks from overseas.
4.472 On 25 September 1992, Mr Bradley wrote to Mr Lowson in response to Professor Collee’s written opinion. He said that he was surprised with the views expressed there:

In view of the after treatment of these products (tallow, gelatine and collagen) I cannot conceive the risk of infectivity being more than negligible.

The ScVC of the EC and WHO have effectively pronounced gelatine ‘safe’ and the Tyrrell Committee have pronounced tallow as ‘safe’. However, as some alert individuals have started to question these decisions, by inference if not in fact I would be pleased to see a confirmation of our stance in view of these recent challenges. I am surprised to see Professor Collee’s comment on gelatine with apparent support from Kimberlin. The report to WHO and the EC ScVC Sub-Group on surveillance of SE’s which he contributed to, or wrote is suggesting something different. Perhaps this is a misquote.

4.473 Mr Bradley went on:

Skulls and vertebrae especially of old dairy cows, as a source of tallow or gelatine may increase the risk that some infectivity could be present in the raw material. Thus it is essential we are satisfied that in all cases where tallow or gelatine is used in medical or cosmetic products, it is safe.

4.474 At its 13th meeting, on 15 October 1992, SEAC considered Professor Collee’s paper. The minutes of the meeting recorded the following:

Mr Bradley pointed to some inconsistencies in the relevant advice offered by various agencies. Although gelatine could be used in a variety of ways which could involve a risk if an infectious agent was present, the advice from WHO, the EC and other bodies was that it could be used safely. This contrasted with the advice on pharmaceutical products, which included for example advice that animals from which tissues for the preparation of biological products or medical devices should not be penetratively stunned.

The Committee note that for technical reasons spinal cord was not likely to be included in the raw material of gelatine manufacture. So long as brains were excluded from the manufacturing process, the risk that an agent might be present in gelatine was negligible. It was necessary also to identify potentially hazardous routes; these would be material used for injection or implantation, or taken by mouth. Bovine material used in the manufacture of gelatine for such purposes should exclude specified offals, as well as skulls and vertebrae.

4.475 MAFF officials understood that this recommendation was limited to the use of gelatine in pharmaceutical products. While this is not entirely clear from the minute, we think that they were probably correct. They understood that SEAC’s recommendation would be implemented by DH. As described above, the paper which formed the basis of SEAC’s discussion of this matter was prepared by

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654 As to the opinion of the ScVC see para. 4.462 above. The reference to the Tyrrell Committee is a reference to SEAC whose consideration of tallow is described earlier in this chapter
655 YB92/9.25/6.1
656 YB92/9.25/6.1
657 YB92/10.15/2.6–2.7
Professor Gerald Collee, a member of the BSE Working Group on human medicinal products. The paper was circulated among key members of the Working Group and its secretariat, and Dr John Purves of the Medicines Control Agency has told the Inquiry: ‘We would have taken Professor Collee’s recommendation into account when we were subsequently assessing product licences for gelatin.’

Amendment of the position under EC legislation

4.476 On 27 June 1994, Commission Decision 94/381/EC was introduced, prohibiting the feeding of protein derived from mammalian tissues to ruminant species. The effect of this Decision was to ban the inclusion of gelatine in ruminant rations. However, it appears that the reversal of the Commission’s position on gelatine was made in error. On recognition of this fact, the Scientific Veterinary Committee recommended that gelatine (along with a number of other products) should be specifically exempted from Decision 94/381/EC. Their recommendation was incorporated in Commission Decision 95/60/EC. The events that led to the introduction of Decision 95/60/EC are described below.

Concerns emerge over the inclusion of gelatine in animal feed

4.477 On 30 January 1995, UKASTA met with MAFF to discuss MAFF’s routine monitoring of the ruminant feed ban. UKASTA’s note of the meeting records that the potential inclusion of gelatine in ruminant rations was raised in the course of the discussion:

It was noted that this product [gelatine], which could be present in by-products of the human food industry used as an ingredient in animal feedingstuffs, contained protein, some of which could come from ruminant animals and was banned under current legislation. UKASTA was to write to MAFF on this subject. Recognising the legal position, MAFF agreed to look at this saying that further advice from the SEAC might be sought but the case would need to be supported by scientific evidence.

4.478 On 15 February 1995, Miss Nelson of UKASTA wrote to Mr Howard of MAFF’s Animal Health Disease Control Division regarding the presence of gelatine in ruminant rations. Miss Nelson stated that the assertion by Dr Danny Matthews that the use of gelatine in ruminant feed was banned caused UKASTA ‘extreme concern’. She went on to describe the vital ingredients used in animal feed which potentially contained gelatine:

[G]elatine is used in many human foods which are, when downgraded, subsequently recycled into animal feed, including ruminants. More critically, however, permitted additives such as vitamins A and D3 are on a gelatine beadlet. Also, we are not in a position to say whether any other feed additives contain gelatine . . .

With regard to down-graded human food in ruminant feedingstuffs, we believe that these products would amount to between 100–150,000 tonnes of raw materials per annum. We do not know how much gelatine is used in total
but we have been informed that some of these human food products contain 2.5 per cent gelatine. The use of these materials has the effect of reducing the cost of ruminant feeds to farmers by approximately £1 million per annum. Maybe more importantly, they give an environmentally friendly way of disposing of these foods, which for one reason or another (broken biscuits, out of date stock, etc) would, presumably have to be dumped in landfill sites, if they were not used in animal feeds.\textsuperscript{660}

4.479 Miss Nelson requested MAFF’s guidance on the legal position in respect of the use of gelatine in ruminant feeds and advice from SEAC on the issue.

**Ministers are informed and relaxation of the rules recommended**

4.480 On 6 March 1995, Mr Eddy wrote to the Minister informing him of the problem and stated:

> UKASTA estimate that 100–150,000 tonnes of material containing gelatine are used in *ruminant feedstuffs* each year.\textsuperscript{661}

4.481 Mr Eddy made the following recommendation:

> It is proposed therefore as a first step to write to UKASTA as soon as possible confirming that gelatine from mammalians cannot be used in ruminant feedingstuffs. That is clearly the current legal position and UKASTA must be alerted to the need to comply with UK and EC law on this.

> The EC Commission have not acted on this yet but we propose raising this with them informally... It may well be an issue which would affect other Member States and would best be introduced as a Commission response to the scientific advice to meet an EC wide problem.\textsuperscript{662}

4.482 In view of the fact that this would constitute ‘a relaxation rather than a toughening of the rules’, Mr Eddy recommended that SEAC’s opinion be sought first.\textsuperscript{663}

4.483 On 15 March 1995, Mr Eddy minuted the Private Secretary to Mr Waldegrave, with copies to other MAFF Ministers and to officials in MAFF, DH and the Territorial Departments.\textsuperscript{664} He informed the Minister that:

> A separate note is due to come forward shortly on proposed changes to the rules for handling SBOs which would lead to an end to the practice of removing brains from skulls. This would remove the one main concern the SEAC had in 1992 about the use of gelatine even for high risk pharmaceutical products and should help them to be even more sure that gelatine is not a risk in animal feed, but we clearly cannot anticipate their advice until they have been consulted.\textsuperscript{665}

\textsuperscript{660} YB95/2.15/3.1
\textsuperscript{661} YB95/3.6/5.1
\textsuperscript{662} YB95/3.6/5.2
\textsuperscript{663} YB95/3.10/4.1
\textsuperscript{664} YB95/3.15/4.1
\textsuperscript{665} YB95/3.15/4.2
4.484 Mr Eddy attached a note summarising previous consideration of gelatine by SEAC and the Scientific Veterinary Committee of the EU. He recorded that in late 1994 the Standing Veterinary Committee had considered the position of gelatine, in respect of the ban on the inclusion of mammalian protein in ruminant feed, and had unanimously decided that gelatine posed a negligible risk. The amending legislation was due to appear in the *Official Journal* ‘within the next few weeks’.

Public concerns

Continuing concerns over gelatine

4.485 On 25 March 1995, the Proprietary Association of Great Britain wrote to the Medicines Control Agency and warned them of public concern on gelatine. The letter stated:

> I am told by our companies . . . that there is growing public concern about gelatine capsules used for food supplements and medicines. The media is suggesting that there might be a link with BSE and the Consumers Association is supporting this statement.666

4.486 Private producers also issued public statements regarding the safety of their products which contain gelatine.667

4.487 On 26 April 1995, Mr Eddy sent a minute to Messrs Meldrum, Baker and Taylor, Mrs Brown and Dr Cawthorne, among others. He set out SEAC’s position on the use of bovine skulls and spinal column, which might contain residues of nervous tissue, in the manufacture of gelatine for use in animal feed:

> The position as put by Dr Tyrell is that the risk of some nervous tissue contaminating bone exists with the backbone as well as the skull and if we are concerned about the use of skull to produce gelatine for animal feed we should be equally concerned with the use of backbone. He is willing to accept that there might be an argument that it is more difficult to remove the base of the brain from the skull and that the risk of cross-contamination is greater but that we cannot completely exclude any risk from the backbone.668

4.488 On 24 May 1995, Dr Cawthorne minuted Mr Peter Hewson, Meat Hygiene Veterinary Section, and Mr Andrew Fleetwood, Animal Health (Zoonoses) Division, regarding a recent meeting with Mr Meldrum to discuss whether skulls and vertebrae should be excluded from the production of gelatine destined for use in ruminant feed rations.669 Dr Cawthorne reported:

> As you may be aware, a meeting was held in the CVO’s office on 22 May to discuss gelatine and, in particular, whether skulls and vertebrae should be excluded from its production if it was to be used for ruminant feed.

> Skulls present no problem as they will effectively become SBO when the new SBO Order is introduced in a few months time. The position on...
vertebrae is rather different and the CVO was anxious to ensure that spinal cord is properly removed from vertebrae during the slaughtering process, that meat inspectors should take particular note of this operation and prevent carcasses/parts of carcasses in which spinal cord was still in evidence in the vertebral column from entering the human/animal feed chains.  

SEAC again discusses gelatine

4.489 SEAC was requested to consider the question of gelatine again in 1995 in the light of Commission Decision 95/60/EC, which amended Commission Decision 94/381/EC to permit the inclusion of gelatine (amongst other things) in all feed. The impact of this Decision had meant that either the UK had to seek a derogation as it was believed that a risk remained, or that the relevant amendment would have to made in UK law.

4.490 SEAC discussed this issue at its 19th Meeting on 21 June 1995, during which it was conceded that there had, in fact, been a long-standing breach of the ban:

UKASTA had confirmed that, despite the legal ban, gelatine was a component of animal feed both in feed supplements and in large quantities of downgraded human food . . . If a ban was applied, the latter would have to go to landfill with environmental and economic consequences. The position was delicate, since, in practice, the existing ban was being breached.

4.491 The minutes of the meeting record that:

Dr Tyrrell concluded that in order to agree to the exemption for gelatine the Committee needed to be convinced that a negligible amount of infectivity was present in the raw material used to produce it. Their acceptance of the exemption for gelatine was therefore conditional on the adequacy of controls to prevent this. The Committee’s main concern was not whether UK legislation was aligned with the EC Decision but whether our animals and humans were protected. This turned on the quality of the practice. Although the risk from gelatine itself was vanishingly small, the Committee could only be satisfied if it was convinced that the existing regulations were being effectively implemented and the new ones were in place.

4.492 The new SBO Order came into force on 15 August 1995. The Order prohibited the removal of the brain or eyes from the head of a bovine animal except for the purposes of veterinary or scientific examination. After such examination the skull, eyes and brain were required to be disposed of as specified bovine offal. Where the brain had not been removed for the purpose of such examination the whole head, after removal of any head meat, was required to be disposed of as SBO. This effectively prevented the skull from being used for the purpose of the
production of gelatine. SEAC next met on 8 September 1995. The minutes of the meeting record that:

> With the enforcement of the new SBO Order, MAFF confirmed that gelatine can be regarded as free from SBOs. [SEAC] were content for the exemption of gelatine to be given effect.\(^{673}\)

**4.493** However, at the following SEAC meeting on 23 November 1995, newly identified problems over compliance with SBO controls emerged in relation to MRM and the removal of spinal cord:

The Chairman quoted from the minutes of the June 1995 SEAC meeting that MRM was safe if removal of spinal cord was satisfactory. Having learned that this was not the case he wished to reconsider the matter.\(^{674}\)

**4.494** Given that bovine MRM from vertebrae of adult cattle remained a risk, Professor Pattison, who had taken over as Chairman of SEAC from Dr Tyrrell, stated that SEAC might also need to reconsider its earlier advice on gelatine. However:

> It was agreed that this should be done scientifically and more formally at a later date.\(^{675}\)

**4.495** On 5 January 1996, SEAC considered their advice in relation to gelatine again and decided that there was no need to alter it:

> Dr Kimberlin felt that there was no need for the committee to alter its advice. The key issue was the removal of spinal cord. As spinal cord was an SBO it should not be present in vertebrae being used for the production of gelatine. Additionally, because production techniques include degreasing and acid hydrolysis the degree of inactivation should reduce the risk from any small pieces of spinal cord remaining in the vertebrae to negligible levels.\(^{676}\)

**4.496** On 8 March 1996, SEAC held its 25th meeting and reiterated that gelatine was safe:

> The Committee agreed that the manufacturing processes appeared to be adequate for reducing any risk of contamination by the infective agent of BSE to a negligible level. The Chairman asked MAFF to keep the Committee informed of progress on the spiking studies being carried out by Inveresk using scrapie agents in case there were any grounds for the Committee to revise its opinion.\(^{677}\)

**4.497** Gelatine was expressly excluded from the definition of ‘protein’ under the Bovine Spongiform Encephalopathy Order 1996, which came into force on 1 August 1996, thus allowing for its inclusion in foods for ruminants from that date.\(^{678}\)

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\(^{673}\) YB95/9.8/2.4
\(^{674}\) YB95/11.23/1.4
\(^{675}\) YB95/11.23/1.5
\(^{676}\) YB96/1.5/1.3
\(^{677}\) YB96/3.8/1.10
\(^{678}\) L2 tab 23
4.498 Mr Eddy has informed the Inquiry that after March 1996, research revealed that lower levels of inactivation were achieved in the gelatine manufacturing process than initially thought. Mr Eddy said:

You will also wish to be aware of the fact that the assessments were based on studies undertaken for the Gelatine Manufacturers in Europe by a private research contractor and that further work by this group resulted in reassessment indicating rather lower levels of inactivation in the gelatine manufacturing process. This arose after March 1996 and neither I, nor, as far as I am aware, anyone in this Department or, I believe, anyone on SEAC, would have been aware of those results at an earlier time when the risk assessments were undertaken or when SEAC’s pre-March 1996 discussions were taking place on gelatine. At present all gelatine for food, animal feed, pharmaceutical and cosmetic use manufactured in the United Kingdom is produced from imported raw material or non bovine material. Bovine raw material is still used to manufacture gelatine for technical purposes, primarily photographic film. This is in order to meet EU export standards which in this sector apply to UK domestic production for practical reasons.679

Discussion

4.499 The gelatine story is a further instance of ignorance of potential infectivity resulting from a failure to carry out a rigorous audit of what happened to all bovine products and by-products. Throughout the period with which we are concerned, the ruminant feed ban was breached by the inclusion in ruminant feed of 100–150,000 tonnes a year of human food products containing 2.5 per cent gelatine. Two facts alleviate the concern to which this might give rise:

i. The gelatine was not made from SBO.

ii. The processes involved in making gelatine would normally be expected to inactivate the BSE agent.

4.500 There is, however, some cause for concern in that:

i. Cattle heads and, less commonly, spinal columns, were used to produce gelatine and these were likely, on occasion, to be contaminated with brain, spinal cord or dorsal root ganglia.

ii. A question mark has been raised over the extent to which the process of manufacturing gelatine does, in fact, deactivate. These concerns are paramount in relation to the use of gelatine in human food.

4.501 Once SEAC learned of concerns about gelatine in 1992, they adopted an appropriately cautious approach to the potential risks involved. In 1992, they advised that skulls and vertebrae should not be used in the manufacture of gelatine for injection or human consumption.

4.502 When concerns arose in 1995 about the use of gelatine in ruminant feed, SEAC was not prepared to follow the Scientific Veterinary Committee of the EC in

679 S109A Eddy para. 21
concluding that gelatine posed negligible risk. Only when satisfied that there was no question of gelatine being manufactured from matter contaminated with SBO was SEAC prepared to advise that it could be exempted from the ambit of the ruminant feed ban.

8. Consideration of the risks from milk

4.503 At the SEAC meeting on 7 March 1991, the Committee accepted a proposal to ‘feed very large quantities of milk from affected cows to mice with the intention of detecting transmission’. The Committee asked to see the protocols for the experiment and a note considering the implications of positive results.

4.504 SEAC considered a brief draft protocol for the feeding of ‘BSE milk’ to mice at its eighth meeting on 10 May 1991. The minutes of SEAC’s meeting recorded that the Committee thought there were two possible objectives for this experiment:

The first was to discover whether infection could be transmitted by milk – in which case it made sense to use the most sensitive forms of assay – and oral exposure of mice even with the large amounts proposed was unlikely to be more sensitive than intracerebral inoculation.

The second possible objective was to establish whether transmission through milk might be important to the spread of the disease. In principal field evidence, if adequate data could be obtained, could give the best indication of this (by comparing the pattern of the disease in beef and dairy herds). Another approach to this second objective would be to feed calves the milk of affected cows, in the same way as had already be done with placenta.

Generally the Committee felt that the detail of the experiment needed to be considered further. The prime reason for doing this work was to determine by the most sensitive means whether infectivity could be conveyed in milk (although thought needed to be given to the possible implications of a positive result). A field study would be the most useful approach to determining the role of milk in the epidemic; if this were not possible the oral exposure of calves could be pursued.

4.505 At the next SEAC meeting, on 28 June 1991, it was reported that MAFF had concluded that the best approach in respect of the milk transmission experiment was to feed milk to mice as it was not certain that if calves were used they were not incubating BSE already. SEAC expressed concern that negative results from an oral only experiment would not be convincing and recommended that, in addition to the oral experiment, some of the mice be inoculated with the same milk intracerebrally and intraperitoneally.

4.506 SEAC next discussed the risks associated with transmission of BSE via milk at its 14th meeting on 22 April 1993. Dr Will reported that the CJD study continued to show no link with occupation or diet. The possibility that a UK farmer, recently diagnosed with CJD, might have drunk milk from a BSE-affected cow was discussed. Given the lack of any evidence from epidemiological or transmission
studies that milk transmitted the disease, the Committee took the view that there was no further evidence to suggest that milk was a hazard to animals or man and no further measures were needed to protect human health.\textsuperscript{683}

\textbf{4.507} An emergency meeting of SEAC was held on 16 March 1996 to discuss the vCJD cases in detail.\textsuperscript{684} The Committee noted the historical evidence against the SE infectivity of milk. However, Professor Almond ‘sounded a note of caution commenting that infectivity had however been found in the mammary gland of kudu’, and the Committee agreed to ‘reflect on this matter further’.\textsuperscript{685}

\textbf{4.508} At SEAC’s 28th meeting on 19 March 1996, the Committee made a number of final recommendations before the official Government announcement of a BSE/vCJD link the following day. Professor Pattison explained that the focus of the meeting would be on the adequacy of existing control measures to protect animal and public health and the need for any additional measures in the light of the new form of CJD. On the safety of milk and dairy products, the Committee ‘was clear that there was no evidence that milk could act as a vehicle for BSE in cattle or TSEs in other species. The Committee’s advice would not therefore be changed by the recent findings of a new form of CJD’.\textsuperscript{686}

\section*{9. Risk from sheep}

\textbf{4.509} Intermittently, throughout the period covered by the Inquiry, concerns were expressed as to whether BSE might have transmitted to sheep, so that sheep apparently affected by scrapie might in fact be infected with BSE. This possibility had obvious implications for human health. Here we follow through a number of occasions on which this question arose, and in particular those when it came before SEAC.

\textbf{The matter is first raised}

\textbf{4.510} It seems to have been Mr Bradley who first identified the possibility that BSE might have passed into sheep. In April 1989, as part of a lengthy manuscript note to Dr Watson, he commented:

Scrapie has existed for two hundred years or more and man has been widely exposed to highly infective tissues without evident harm. This argument was solid until the early 1980s or perhaps a bit later. From at least 1985 BSE-infected material via rendered products may have been exposed to sheep, therefore, from two years about sheep developing scrapie could have obtained infection from a scrapie or a BSE source. If BSE is a danger to humans, however unlikely we must assume in 1989 scrapie or rather an unknown proportion of it is also a potential risk.

\textbf{4.511} Dr Alan Dickinson, a former Director of the NPU, told us that he had considered in the 1970s that the rendering of sheep’s heads might have been responsible for recycling scrapie in MBM fed to sheep. When he enquired what happened to these, he was told that they were exported to the Continent as a
delicacy, so thought no more of it. It is a remarkable fact that, with this exception, no one appears to have explored the possibility that scrapie was being recycled in MBM fed to sheep, at least before BSE focused attention on MBM as a source of transmission of TSEs.

4.512 In 1989, a private veterinary surgeon in Bedford contacted MAFF to inform them of outbreaks of scrapie on two farms, which had previously been free of the disease. On each occasion the sheep had been fed concentrates and each farm had experienced a case of BSE. This at least illustrates the possibility of transmission of either scrapie or BSE to sheep through the vector of feed.

4.513 On 11 June 1990, Dr Pickles wrote to Mr Bradley raising concerns about BSE, including the possibility of the transmission of BSE, as a changed agent, back into sheep:

The significance is that we cannot then rely so much on the data on the lack of transmission of scrapie to humans... To be consistent with BSE-infected offal, we should ban sheep offal for human use too — since that might by now be BSE — not scrapie-infected.

4.514 On 17 June 1990, Mr Bradley responded:

This is a theoretical possibility but for it to occur exposure would have to be high as the species barrier would have to be breached. Sheep are fed little concentrate or none except in bad winters. I do not think this is likely to be a serious problem; in any case feed borne infection has ceased since 1988.

It would be a draconian step to ban offals from sheep... that would spell disaster and take us further down the slippery slope of annihilation of ruminants... The starting point is that Southwood required no offals ban at all except possibly for babies. All this is a million miles from that and nothing has changed in the meantime.

4.515 In a statement to the Inquiry Mr Bradley elaborated on the reasoning behind his reply to Dr Pickles:

Whereas many dairy cattle and especially dairy calves were fed MBM as part of their staple diet, sheep were not usually fed concentrates, except in special circumstances such as fat lamb production for the Easter trade, in bad winters when forage was short and at any time when sheep were in advanced pregnancy to prevent twin lamb disease (pregnancy toxaemia). Therefore, the scale of exposure to sheep from this source was relatively much less than for dairy calves. Unlike dairy calves that received MBM in their diet from an early stage, sheep receiving concentrates would for the most part only receive concentrate feed at an older age or as adults. Furthermore young sheep receiving concentrates to hasten fattening would be killed at such a young age that clinical scrapie is unlikely to have occurred. The great majority of sheep used for human consumption in the UK are killed as lambs at such a young age that clinical scrapie is unlikely to occur. I indicated to...
Dr Pickles that feed-borne infection should have ceased in 1988. This was a reference to the introduction of the ruminant feed ban in 1988.

I also referred Dr Pickles to the research which was on-going to investigate the possibility that BSE existed in sheep. By way of further explanation, there were a number of experiments on-going. Sheep had been challenged with BSE at NPU by the intracerebral and oral route. In the EC the Scientific Veterinary Committee were developing projects to determine the effect of EU rendering methods on the BSE and scrapie agents. Further, the VIS and CVL were monitoring the occurrence of scrapie in the national flock and investigating the possible occurrence of scrapie (that could be BSE) via a feed source. Strain typing of isolates from sheep with scrapie, including scrapie suggested on epidemiological grounds to have been possibly initiated from a feed source, were planned or in progress at the NPU. Mr Wood was conducting a histopathological study of the neuropathology of scrapie in sheep at CVL. Work was also being done to develop the SAF test and tests for PrP Sc .

4.516 Despite Mr Bradley’s view that action was unnecessary, a paper on the potential risk from a new form of scrapie was presented at SEAC’s fourth meeting on 2 July 1990. It appears that Dr Pickles was largely responsible for ensuring that this matter received SEAC’s attention and it was she who tabled the paper for SEAC’s consideration. The paper presented the issue, as follows:

Scrapie has been endemic in the UK for some years. It is possible however that the disease has changed recently in at least some sheep. (1) There could be a ‘cattle modified’ strain which arose some years ago and spread naturally in sheep before changes in the rendering industry allowed transfer to cattle. Or, as a result of the feeding of meat and bone meal to sheep there could be as well or instead (2) food borne scrapie arising from feed infected in the last nine years and/or (3) ovine BSE resulting from recycled BSE infection in the last four years. It is important that we seek for any evidence that scrapie might have changed recently in incidence, clinical presentation or pathology.

4.517 In respect of the potential human health implications of the above, the paper suggested that if scrapie had changed ‘perhaps we should no longer rely on historical evidence that scrapie is no danger to man’. The paper noted that apparently scrapie-affected animals could enter the human food chain. In terms of the potential animal health consequences, the paper noted that scrapie could be passed on between sheep and suggested therefore that ‘new’ scrapie might also prove endemic.

4.518 The paper stated that ‘in the present state of knowledge’ it would be premature to recommend new measures against scrapie. However, in the event that evidence emerged of ovine BSE, ‘then for the sake of consistency certain measures might be thought necessary’. Suggested measures included notification, compulsory slaughter and an offal ban, as well as appropriate restrictions on movement of live sheep.

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691 S071D Bradley para. 35–36
692 SEAC4 tab 6
693 YB90/7.4/4.1, YB90/8.28/2.1
4.519 The paper suggested that full discussion of this matter should take place and asked what papers the Committee would like on the subject. Minutes of the meeting simply record that the Committee agreed that MAFF should be asked to produce a paper on the questions it had raised.694

4.520 On 4 July 1990, Mr Lowson minuted Mrs Attridge about SEAC’s interest in this area:

They have also been egged on by my DoH co-Secretary to take an interest in scrapie in sheep. Rather than resist discussion of the latter issue it seemed to me better to suggest that MAFF would produce a paper on this too. Their concern is that if the scrapie agent has changed, this could have implications for human health which could require BSE-type restrictions to be imposed on sheep.695

4.521 On 25 July 1990 Mr Lowson provided the Permanent Secretary, Mr Andrews, with a briefing for his forthcoming meeting with the Department of Health Permanent Secretary, Sir Christopher France. The briefing note included the following:

The Secretary will be aware that Dr Tyrrell, egged on by DOH joint Secretary to the committee (Dr Pickles) is concerned that some of the epidemiological work done at CVL has not been subject to adequate scrutiny, and may be technically flawed.

This reflects a more general problem about the way in which the Tyrrell Committee operates, namely that the DOH co-Secretary tries to treat it as a body to examine her particular concerns rather than as a means of pursuing points of concern to the Departments. (A recent example was a series of questions on scrapie in sheep.) The Secretary should emphasise that the priorities for work to be given to the Committee by the Departments should be properly agreed between them.696

4.522 On 28 August 1990, Dr Pickles minuted Mr Lawrence (in Mr Lowson’s absence) with detailed comments regarding the preparation for SEAC of the draft paper ‘Scrapie and Human Health: Tyrrell Committee’.697 In relation to BSE in sheep, she said:

The origin of this paper is the discussion we had at the last meeting based on the paper I tabled [at the recent SEAC meeting] . . . and which I suggest we circulate again this time. The version you provide reads more like a paper for Ministers (I understand you want to clear it with them, though at least in this Department that would be very unusual practice for a technical committee). The Tyrrell Committee needs more facts and figures and a guide to the relevant key points in the argument. It is up to them to advise on the appropriate response.

Can you have the conclusions more open to invite the committee to form their own view? Try this. ‘We believe there was a time period of around four...
years during which some sheep were fed material not only infected with sheep scrapie but also with the agent passaged through cattle, i.e., BSE agent . . . The committee is invited to review the evidence available to date, to consider whether the current research programme needs modification to give due priority to these questions and to give advice on the implications if any for human health.

I note you have restricted your paper to human health implications, but you might like to consider using this opportunity to discuss what this might mean for sheep too.698

4.523 A detailed paper was presented to SEAC at its fifth meeting on 19 September 1990, which largely incorporated Dr Pickles’s suggestions.699 The paper stated:

Experimental evidence shows that BSE can be transmitted by bovine tissues, at least brain (the inoculation of other tissues having not yet led to the transmission of clinical disease). Although there is no scientific evidence that sheep are susceptible to BSE by the oral route, the probability is that they would be if exposed to a sufficiently large dose. Sheep appear to be susceptible to scrapie by oral transmission, and as the original cause of BSE was eating scrapie-infected material, it is theoretically possible that a new strain which had emerged as a result of exposure of cattle to the scrapie agent could have been reintroduced into sheep by the consumption of meat and bone meal containing infected material (although this would required a second crossing of the species barrier). Since July 1988 the feeding of sheep with protein rations derived from ruminant material, including brain (and other tissues known to carry the scrapie agent), has been banned. As the vast majority of sheep (over 75 per cent) are slaughtered in their first year, and most of the rest in their second year, only a small number and decreasing number of animals directly exposed to possible infection with either scrapie or BSE by the feed route will be slaughtered for human consumption.

. . . if, like other forms of scrapie, it were naturally transmissible, it is possible that the new infection could be maintained in sheep flocks alongside other strains. If the BSE agent replicated relatively quickly in sheep (as it does in mice) it might become the dominant sheep strain within susceptible appropriate genotypes.

4.524 In terms of possible action which might be taken to protect public health the paper said:

The bovine offal ban has been imposed because of a theoretical possibility that in the transfer from sheep to cattle the scrapie agent might have increased pathogenecity for man. It is not based on any evidence or any quantified risk assessment. There is a similar theoretical possibility, although there is no evidence for it, that if such a new agent exists it might also be present in the sheep population. But there are factors which make such a situation less likely than the original transfer of BSE to cattle:

• a further species barrier would have had to be crossed;
sheep would have been less exposed to the BSE agent than cattle to scrapie, because of the lower use of compound feed for sheep. (There has been no direct exposure since July 1988);

• recycling in cattle, except at levels incapable of producing clinical disease, may have occurred for only a short time.

4.525 If the BSE agent were present in sheep, the risk to human health would be less than any risk arising from BSE in cattle, because the large majority of animals were slaughtered before the agent had time to multiply in the vulnerable organs. If current experimental results were maintained, this would suggest that differences in the infectivity of the organs measurably infected with BSE, as compared with scrapie, could point to the possibility that those sheep organs most used for human consumption would not be infectious. Nevertheless, if it was felt to be a significant risk, the response to be considered would, on the BSE analogy, be a ban on the use for human consumption of the sheep offal most likely to harbour the BSE agent, or possibly the destruction of infected animals and their milk, ‘which would of course produce huge practical and economical problems’.

4.526 In terms of the possible action to be taken in respect of animal health, the paper pointed to the ‘massive obstacles to a scrapie eradication programme’. It concluded that ‘there would need to be a clear objective in view if the very large resources required if such action were to be justified’.

4.527 Also at the fifth SEAC meeting, Mr Bradley tabled a paper providing a preliminary account of an investigation of possible changes in the neuropathology of sheep with scrapie over the last two decades. The study involved reexamination of all scrapie submissions to the CVL at Weybridge since the early 1970s. It concluded that ‘there is little evidence for a change in the neuropathology of scrapie in sheep from the 1970s to date’. 700

4.528 The minutes of SEAC’s meeting recorded that Mr Bradley’s paper had been tabled and discussed:

Mr Bradley tabled document RB238, providing a preliminary account of an investigation of possible changes in the neuropathology of sheep with scrapie. The work suggested that if there were any abnormalities appearing in scrapie lesions in the field, they were very rare, and that the neuropathology of field scrapie was very different from that of animals infected with BSE with the notable exception of only one animal to date. The Chairman requested that some thought be given to a study of neuropathological material to see if it could produce a classification breakdown of the BSE agent.

Professor Barlow and Mr Bradley were asked to produce a paper for the next meeting summarising the evidence relating to possible changes in the agent and its recycling through different species. This might lead to a study reviewing the neuropathological findings. 701

4.529 A paper produced by Professor Barlow was considered at SEAC’s next meeting on 1 November 1990. The intention of the paper was to compare archived

700 SEAC5 tab 10
701 YB90/9.19/2.5
material from animals slaughtered ten years previously with material recovered in the last five years. The study concentrated on those breeds most likely to have been fed concentrates containing animal protein. Professor Barlow described a number of difficulties in obtaining sufficient historical data. However, he concluded that no real pattern appeared to emerge from the recent data and discussions with colleagues suggested that no major changes had taken place over the time period. Professor Barlow suggested that this was ‘a bit anecdotal but the data could possibly be firmed up though it would take time and money’. The minutes of the Committee’s meeting recorded:

The Committee considered Professor Barlow’s paper. This mainly reflected the fact that data simply were not available on which to draw clear conclusions. The current requirement was for general indications of developments rather than for highly detailed data. The paper’s proposals for information gathering would conflict with the much higher priority task of securing enough sheep brains for inactivation studies. For the time being at least the best approach might be to consider ways of improving the ad hoc provision of information about possible changes in the agent.702

4.530 At the same meeting, SEAC was provided with an update of NPU transmission studies. It was noted that positive results had been found in the intracerebral (i.c.) transmission of BSE to sheep and goats, and via oral transmission to sheep.703

4.531 On 28 November 1990, Mr Meldrum and Mr Bradley met with representatives of the UK Agriculture Supply Trade Association (UKASTA). Concern was raised by UKASTA over the inclusion of ovine material in pig rations. In response, Mr Meldrum stated:

[T]he feed industry would need to think most seriously about the consequences of their taking ovine heads, even from mature sheep, out of source material for meat and bonemeal. This would undoubtedly result in similar action on spinal cords and other offals. This would, in turn, lead to a scrapie control programme which would have disastrous effect on the UK sheep industry and the export of sheep and sheep meat.704

SEAC returns to the issue

4.532 SEAC next considered the risks associated with the incorporation of sheep material in food at its 12th meeting on 28 April 1992. The Committee had met earlier in the year with members of the Lamming Committee. During their meeting on 28 April, SEAC discussed some of the emerging views of the Lamming Committee. It was in that context that the Committee came to discuss removing sheep heads from the food chain. The minute of the meeting recorded:

As regards the advisability of removing from the food chain the heads of sheep suffering from scrapie, they noted that the quantity of lymphoreticular and nervous tissue in a sheep carcase exceeded that of brain tissue; so simply to remove the brains from the food chain would not have much effect on any

702 SEAC6 tab 1 para. 18
703 YB90/11.1/2.4. This result was particularly significant as only ½ gram of infective material had been used for the transmission experiment. The update did not record this fact
704 YB90/11.28/8.2
problem that might exist. If a case for action could be established, then the implication was that there would need to be an extension of the specified offals ban to sheep. But this would have enormous practical implications and there was no epidemiological or other evidence that there was a problem. The Committee therefore concluded that the presence in animal feed of sheep brains, nervous tissue and lymphoreticular tissue did not represent a risk. If any action were called for, then the first step would be to improve surveillance mechanisms, if the Lamming Group felt that these were not adequate.

However the Committee agreed that one possibility that should be examined was that as a result of recycling of BSE through sheep, potentially dangerous changes in the scrapie agent might have occurred. Epidemiological study was likely to be a key element in this, supported by laboratory studies of the behaviour of the scrapie agent in mice. Mr Wilesmith might be asked to consider what new work should be done on the epidemiology of scrapie. 705

4.533 At the 16th meeting of SEAC on 26 January 1994, the routine update on research reported the recent results of transmission studies being carried out by IAH/NPU. The update indicated that experimental BSE in sheep had been transmitted to mice through the intracerebral inoculation of infected spleen material. 706

4.534 Meanwhile, Mr Bradley had prepared a Concept Note at the request of MAFF’s Chief Scientist Group. This included the following passages:

Sheep of selected classes could have been naturally exposed to BSE agent via feed. Other exposures would be most unlikely. The groups of sheep potentially so exposed might include:

- hill sheep in bad winters;
- housed, intensively reared sheep;
- sheep destined for breeding in their first year of life; and
- possibly selected rams.

The extent to which these groups of animals have been fed concentrates is not known. Neither is the proportion of feed so fed that contained MBM and particularly ruminant-derived MBM. Since July 1988 exposure should have ceased but, if this selected sheep population was exposed before the ban there is a potential for a smaller number of sheep to be exposed thereafter too, as were cattle and for the same reasons. The important exposures would be of sheep for breeding.

Any sheep fed such rations only as adults would create a lower risk than if fed as lambs because the incubation period could exceed the remaining life span. Although we have no direct evidence, it is unlikely that any significant number of sheep would be fed concentrates until after weaning (therefore there would be a delayed onset to the incubation period compared with...
calves and any possible age-related resistance to infection would come into play).

Assuming that the feed ban in regard to sheep rations was 100 per cent effective from July 1988 onwards and no maternal transmission occurred, very few, if any, sheep still incubating BSE would remain alive today. If maternal transmission did occur, as it does in scrapie, and it occurred via placenta, there would be an opportunity for horizontal transmission and perpetuation of BSE infection in sheep. Whereas we can distinguish natural and SSBP1 experimental scrapie in the NPU Cheviot flock from experimental BSE it may not be possible to readily distinguish natural scrapie in the field situation.

Significant natural transmission of BSE to sheep would probably be recognised by a significant rise in incidence of ‘scrapie’. Even allowing for the problems of detection and notification and allowing for a known rise in incidence of scrapie it is not apparently at a level high enough to infer a significant ‘new’ infection of the national flock with BSE agent.

CONCLUSION

On the basis of our current knowledge, whilst BSE infection of sheep via feed could have occurred, it is likely overall to have been on a minor scale, and may not be perpetuated by maternal transmission.

If BSE agent occurred at any significant incidence in sheep there is no protection for the consumer of infected tissues. On the basis of scrapie evidence a worst scenario situation would be a distribution in neural and non-neural tissues like that in sheep scrapie (and time related in accordance with the time during incubation that the sheep was killed for human consumption) coupled with an opportunity for maternal transmission via placenta. There is no ovine offals ban and, in particular, casings prepared from sheep intestines are an important commodity traded widely for use for human consumption. We do not know if lymphatic tissue in sheep intestine is retained in casings. The extent of use for human consumption of other offals equivalent to SBO is not known though supermarkets have for some years been removing spinal cord from lamb chops as an ultra precautionary measure.

QUESTIONS TO ANSWER

1. Are British sheep naturally infected with BSE agent and if so at what incidence?

2. Is any infectivity for life time only or is it maternally and/or horizontally transmitted (particularly via the placenta)?
3. What is the extra-neural distribution of agent in clinically affected sheep and in sheep during the incubation period?

4. What is the agent titre in any infected tissue?

5. What is the extent of the species barrier between sheep and cattle, between cattle and sheep and between both these species and man with respect of BSE and scrapie agents?709

4.535 Mr Bradley discussed this with Mr Meldrum, who gave instructions that consideration of a number of avenues of research into BSE infection of sheep should be explored.710

4.536 In February 1995, a review of MAFF R&D was carried out by four independent referees. They identified the need, in relation to BSE in sheep, to determine:

whether BSE was present in the national sheep flock and . . . whether BSE can be maintained (ie spread) within the flock was considered a high priority. Although one proposal likely to be accepted in principle was presented at the review . . . it was agreed that it needed to be amended. Additional work was also needed to identify whether BSE can be maintained in the national flock.711

4.537 On 27 February 1995, Mr Eddy sent a briefing to the Minister describing current ‘action on BSE issues’. In respect of sheep, Mr Eddy observed:

There is insufficient evidence to justify a sheep offal ban, which would cause major upheavals in the sheep industry and SEAC has not called for one to be introduced for human food or other purposes. Sheep material is of course covered by the ruminant to ruminant feed ban. We are considering the possibility of more research in this area to confirm that there is no BSE type agent present in our sheep and goat population.712

4.538 On the following day, Mr Meldrum sent a minute to the Permanent Secretary, in which he provided a more detailed description of the recent and proposed research relevant to BSE in sheep.713 Mr Meldrum described the results of the experiment in which BSE infectivity had been detected in sheep spleen, which had been first reported to SEAC at their meeting in January 1994. Mr Meldrum stated:

The BBSRC’s Neuropathogenesis Unit (NPU) in Scotland, in one of their projects without MAFF funding, have infected sheep with BSE and have subsequently demonstrated infectivity in spleen as well as brain. In clinically affected cattle infectivity has been demonstrated only in the brain and cervical spinal cord although in sheep scrapie the agent is more widely distributed in tissues which include the brain and spleen. The finding of BSE infectivity in sheep spleen after experimental infection with BSE is not therefore surprising when seen in this context. Nevertheless this finding will
be presentationally awkward because the BSE agent appears to be
distributed in a different manner or at a different titre in cattle as against
sheep. This supports the view [set out below] . . . that we need to do more
research work in sheep.

4.539 Mr Meldrum went on to describe further work by the NPU which had raised
a doubt as to whether embryos (and possibly semen) were capable of transferring
the scrapie agent. This was not thought to be the case. The interim results, which
were due to be published, were by no means conclusive and Mr Meldrum was again
concerned about presentational difficulties. He continued:

This is an unsatisfactory situation and one we are hoping to resolve through
work with the CVL and the BBSRC to design better experiments to study
possible links between scrapie and BSE in the future. To that end we are
arranging a closed scientific meeting in early March to attempt to define
what experimental work is necessary to investigate these relationships and
in particular whether the agent of BSE is already in sheep – for which there
is no current evidence . . . This whole area of the relationship between BSE
and scrapie is one which is extremely sensitive but it is one which we cannot
ignore.

4.540 At the SEAC’s 20th meeting on 8 September 1995, the Committee was
provided with a summary of BSE and other TSE transmission studies. This included
a report on experiments designed to explore the possibility that BSE had spread to
sheep. The minutes of SEAC’s meeting record that ‘future research priorities and
unanswered questions for the Committee to consider were suggested’. Of relevance
were the following questions:

(i) Is there any epidemiological evidence of BSE in sheep?

. . .

(vii) Is there any evidence for the transmission of BSE from cattle to
sheep? 714

4.541 At SEAC’s 25th meeting on 8 March 1996, the Committee was presented
with a draft NPU paper for publication, describing the detection of BSE in the brain
and spleen of experimentally infected sheep. The paper stated that ‘the infection
recovered from the spleens of these experimentally challenged sheep was BSE and
not a hypothetical subclinical, natural scrapie infection’. The paper concluded:

Our studies of experimental BSE in sheep have indicated that replication or
accumulation of the infectious agent occurs in brain and spleen, irrespective
of the route of challenge, and that the isolate has maintained remarkable
stability as demonstrated by transmission to inbred mice. The significant
levels of infectivity found in spleens of these sheep show that the
pathogenesis of BSE in this species is more akin to that expected for natural
and experimental scrapie in sheep, and differs from that of BSE in cattle. 715

4.542 The minutes of the meeting recorded the following:

714 YB95/9.8/2.5
715 SEAC25 tab 5
Dr Kimberlin reiterated the need for a risk assessment before deciding on any control measures. He also suggested that a study to inoculate transgenic mice with ovine BSE would provide useful information. Dr Matthews would discuss this with Dr Kimberlin and Professor Collinge. Professor Collinge agreed that this would be important but pointed out that these studies would take some time, and that control measures would probably need to be taken before such results were available.716

4.543 Mr Wells designed studies to identify possible homologies between scrapie agents in the British sheep population and the agent of BSE by strain typing in mice (SE 1919). It was hoped to begin this experiment in April 1995. In the event the start of the project was delayed by one year, principally as a result of:

i. uncertainties created by an earlier budget reduction; and

ii. difficulties in obtaining agreement with AHVG to target flocks for obtaining scrapie cases.

Discussion

4.544 It should occasion no surprise that there was little enthusiasm within MAFF in the earlier stages of the BSE story for this complex area of experimentation. For the reasons given by Mr Bradley to Dr Pickles, the potential risk to humans from sheep infected with BSE was significantly more remote than the risk posed by cattle with BSE – itself considered remote. Mr Meldrum was acutely aware of the danger that MAFF would come under public pressure to take similar measures in respect of scrapie to those taken in response to BSE.717

4.545 In 1994, when the perception of risk had changed, Mr Meldrum took the initiative in attempting to set research into this question in train. It was not, however, an area of research that was pursued with urgency.

4.546 Had SEAC been able to perform the role of coordinating research,718 it may be that they would have ensured that greater priority was given to the task of investigating whether BSE had been transmitted to and become endemic in sheep. As it was, they did not focus on the absence of any research in this important area. It required the input of the independent review of MAFF’s research led by Professor Almond in February 1995 to identify the urgency of this research.

10. Blood

4.547 The question of whether TSEs might be transmissible in blood was considered by SEAC in a number of contexts.

Spreading bovine blood on farm land

4.548 At the SEAC meeting on 7 March 1991, the Committee considered a paper from the MAFF Animal Health Group on spreading blood on land. The paper pointed out that the practice had grown in scale because ‘renderers have increased

716 YB96/3.8/2.9
717 See, for example, YB89/7.31/1.2; YB89/10.19/7.1; YB90/11.5/3.1
718 See paragraphs 4.636ff below
their charges to abattoirs for the removal of blood. In these circumstances spreading it on land may be a cheaper option. It seems likely that more than 500 tonnes per year is currently being disposed of in this way.\textsuperscript{719} SEAC concluded that:

\begin{displayquote}
As there was no evidence that blood carried detectable infectivity, spreading bovine blood on agricultural land carried with it no extra risk of distributing the BSE agent so long as existing controls were properly applied in the slaughterhouse to ensure that blood was not contaminated with other tissues.\textsuperscript{720}
\end{displayquote}

**Use of blood products in animal feed**

4.549 At its 19th meeting on 21 June 1995, the Committee was asked to advise on the use of dried plasma and other blood products in ruminant feed. These materials were currently prohibited in UK law by the ruminant feed ban but a recent EC Decision would permit their inclusion in all feed. The Committee noted that this amendment had been made on the advice of the EC Scientific Veterinary Committee, and considered that the exemption from the ban of blood and blood products did not represent a matter for concern.\textsuperscript{721}

**Consideration of risk associated with human blood transfusions**

4.550 At its 22nd meeting on 23 November 1995, SEAC was asked about the risk of transmission of SEs in humans through blood transfusions and blood products. An overview of the current exclusion criteria for donors with regard to CJD was given. Professor Pattison asked if members knew of any new data on the safety of blood. Mr Bradley referred to two transmission studies, neither of which had shown any evidence of transmission to date. Professor Pattison advised setting up epidemiological surveillance to identify clusters of cases and to act in response. There was also reference to the need for further transmission studies from CJD cases. SEAC concluded that there was no new evidence of risk from blood that suggested the need for new measures. However, the Committee did recommend the collection of data on recipients and donors of blood where patients die of any form of CJD.\textsuperscript{722}

4.551 At its meeting on 5 January 1996, SEAC reconsidered the risk from blood transfusions. Dr Collinge drew attention to the scientific literature, namely Tateishi’s 1985 research results that suggested blood could be a vehicle for transmission of CJD in humans.\textsuperscript{723} Reference was also made to a major new paper by Dr Paul Brown of the National Institute of Health (USA), currently in press.\textsuperscript{724} SEAC advised that although recipients of blood from CJD cases could be traced and monitored, it would be inappropriate to notify them in view of the very small risk involved in relation to the stress that would be caused. Again, the Committee felt it was important to record details of blood donations by patients who die of CJD.\textsuperscript{725}
Discussion

4.552 These different questions that were raised in relation to blood illustrate the diversity of the matters on which SEAC were asked to advise, and the limitations on the extent to which a part-time voluntary committee can carry out detailed investigation of individual matters.

4.553 SEAC’s advice on spreading blood on land echoes that which they gave in relation to slaughterhouse practices, in that it was subject to the proviso that existing controls were properly applied to ensure that blood was not contaminated with other tissues. On this occasion also we presume that MAFF officials proceeded on the premise that this proviso was satisfied.

11. Disposal of carcasses and SBO material

4.554 At SEAC’s seventh meeting on 7 March 1991, the Committee discussed a paper from the MAFF Animal Health Group on the use as fertiliser of MBM derived from SBO. The paper pointed out that most of the SBO-derived MBM was being dumped at landfill sites costing from £10 to £40 a tonne. Renderers were assessing whether there were other outlets for this material. Possibilities were use as a fuel or as a fertiliser, though the latter option was not being advocated by UKRA. There was at this stage no prohibition on using MBM derived from SBO in this way. 726 The minutes of the meeting recorded the following:

Concern arose only over the use of meal derived from specified bovine offal. If the offal itself contained infectivity, then it could not be assumed that meal produced from it would not. The risk of the agent being communicated from the meal was probably slight, but account had to be taken of evidence about the survival of the scrapie agent [see paragraph 547, below] and of the possibility that even if spreading were restricted to arable land it could find its way elsewhere. There were other safer means of disposal – burning or burial – so on balance it would be better not to use material derived from specified offal as a fertiliser. The practice would be acceptable if the material were subject to more rigorous heat treatment (ie, to the standard for dealing with the CJD agent). Because of the much lower incidence of BSE in Northern Ireland and the fact that any infected material would be diluted considerably, there was less need for similar caution there. 727

4.555 At the same meeting, the Committee considered an article by Brown and Gajdusek, which described burial for three years of scrapie-infected hamster brain homogenate, mixed with soil. The article concluded that the experiment established the durability of the scrapie virus exposed to natural environmental conditions. 728 The Committee considered that this article added little to what was already known about the agent. Where carcasses of BSE needed to be buried, the problems of contamination ought not to arise. It was not advisable to leave fallen cattle near the surface, where they could be exposed again, although this was more of a problem for other animals than for man. The decline of the service operated by knackers could lead to an increase in this risk, which was of considerable concern to the Committee. 729

726 SEAC7 tab 5
727 YB91/3.07/2.5
728 P Brown and D C Gajdusek (1991) Survival of Scrapie Virus After 3 Years’ Interment, the Lancet, 337, 269
4.556 The minute of SEAC’s meeting on 10 May 1991, records the following discussion on the use of SBO material:

Based on analysis of experimental data, it seemed clear that heat treatment similar to that required to neutralise the CJD agent could be expected to reduce the amount of BSE agent present – particularly as an increasing proportion of slaughtered cattle had not been exposed to ruminant protein, and as preliminary data suggested that at least in clinically affected cattle the agent was not present in all the specified offals. But distribution data was not yet complete and the kind of treatment necessary to neutralise the BSE agent was still not clear. It could not therefore be guaranteed that material subjected even to the CJD neutralisation treatment would contain no agent. Experimental work could well provide more data about the distribution of the BSE agent in bovine tissues and the treatments required to kill it. But for the time being the use of any material derived from specified offals could not be recommended.730

4.557 This recommendation led to the introduction of the provisions in Bovine Spongiform Encephalopathy Order 1991, which came into force on 6 November 1991. The Order required that all movement of protein derived from SBO must be under a license issued by the Agriculture Departments of England, Scotland, and Wales.731

4.558 At the Committee’s meeting on 28 June 1991, the Committee considered a recent Parliamentary Question from Dr David Clark MP, Opposition front bench spokesperson on food, agriculture and rural affairs, about its view of the safety of landfill disposal for BSE carcasses. It noted that most carcasses were now incinerated. In any case, properly controlled landfill sites dealt effectively with materials that were more difficult to contain than the BSE agent, so such disposal did not pose any problems.732

4.559 The disposal of whole carcasses of affected cattle was discussed at SEAC’s 14th meeting on 22 April 1993. MAFF submitted a paper that referred to a book by Mr G D Hunter, the ex-Deputy Director of the ARC Institute For Research On Animal Diseases, which was strongly critical of MAFF’s policy of incinerating carcasses and proposed instead that they should be buried in lime on the farms where the disease occurred.733 The paper invited the Committee’s views on this issue. To assist the Committee in forming its views, two papers by Brown and Gajdusek were provided on the resistance of the scrapie agent to dry heat and its survival after burial (the latter paper had also been tabled at the 7 March 1991 SEAC meeting).734 The minutes of the meeting record that the MAFF paper sought the Committee’s endorsement of incineration as the Government’s preferred disposal method. SEAC agreed that incineration was preferable to burial.735

4.560 At its meeting on 10 February 1995, SEAC was asked to advise on a proposal to use SBO-derived greaves as a fuel for generating power. Having considered the

729 YB91/3.7/2.4
730 YB91/5.10/2.1–2.2
731 L2 tab 7 art. 9
732 YB91/6.28/2.7
733 SEAC14 tab 4
735 YB93/4.22/2.4
information available on the thermal inactivation of infectivity and given the high technical specification, the Committee concluded that this would be a good way of disposing of MBM derived from SBO and felt it should be encouraged. However, each proposal should be judged on its own merits. Mr Eddy confirmed that the ash from incinerated suspect BSE carcasses was buried and not used as fertiliser.736

4.561 At SEAC’s 28th meeting on 20 March 1996, the Committee made a number of final recommendations before the official Government announcement of a BSE/vCJD link later that day. Included in the statement SEAC presented to Ministers was the following recommendation:

The Committee reviewed the decision made on 16 March 1996 to recommend a prohibition on the use of mammalian meat and bone meal in feed for all farm animals. The Committee confirmed its views in the light of what is known about the transmissibility of BSE to several other species and decided that there was no need to ban other uses of meat and bone meal that would not result in exposure to ruminants, namely use as fertiliser or pet food;737

4.562 The problems of disposing of matter that had to be treated as waste by reason of BSE regulations is considered in vol. 6: Human Health, 1989–1996, Chapter 10.

12. Risk from zoo animals

4.563 At the ninth meeting of SEAC on 28 June 1991, the Committee noted that an SE had been confirmed in one eland at a safari park and was suspected in another. Pasture contaminated with bovine brain material was a possible source, and investigations were continuing.738

4.564 At the tenth meeting on 6 September 1991, the Committee noted two articles describing SEs in ostriches in Germany. They suggested that consideration should be given to alerting veterinary surgeons handling zoo animals to the need to look out for suspicious symptoms.739 Guidance notes for zoo keepers had previously been distributed by MAFF in August 1990.740

4.565 At the Committee’s 13th meeting on 15 October 1992, SEAC considered a paper on SEs in cats and exotic species. It did not believe that the apparent high susceptibility of kudu was relevant to BSE in cattle. However, the Committee did welcome a MAFF proposal to make the identification of an SE in species other than cattle notifiable.741

4.566 The Committee was asked about the risk to zoo visitors from greater kudu at its 18th meeting on 10 February 1995. Dr Tyrrell concluded that the hypothetical risk was so minuscule as to give no cause for concern. He was concerned about the mechanism by which infectivity occurred and about security concerning feeding of the kudu. It was agreed to draft a formal letter to Dr Kirkwood at London Zoo.
Mr Bradley was to telephone Dr Kirkwood in the meantime to say that SEAC was happy about visitor safety but not about the background epidemiology.742

4.567 SEAC discussed the results of the bioassay of kudu tissues by CVL at its 24th meeting on 1 February 1996, and again at its twenty-fifth meeting on 8 March 1996. It was reported that since October 1992, London Zoo had introduced its own safety precautions, including the wearing of surgical gloves when handling the animals, and incineration of all waste from the kudu house and paddock. The Committee recommended that Mr Bradley should inform London Zoo that, at this stage, the only additional safety measure that could be introduced would be for the keepers to wear eye protection.743

13. Advice on thymus and intestine of calves

4.568 The consideration given to the safety of calves thymus and intestine is also covered in vol. 6: Human Health, 1989–1996.

4.569 In November 1989, the Bovine Offal (Prohibition) Order was introduced, banning the use in food for human consumption of the specified bovine offals (SBO) of all cattle over six months of age.744 In September 1990, the ban was extended to so as to prevent the use of the specified offal in animal feed. Offal from calves under six months were excluded from the bans because the available evidence (based on the scrapie analogy) suggested that the BSE agent would be undetectable at this age and thus not present a risk of transmission of the disease via the oral route, which at that stage was considered relatively inefficient.

4.570 On 17 June 1994, Mr Meldrum informed Ministers, and a number of other MAFF officials, that ‘for the first time the BSE agent has been shown to be present in tissues outside the central nervous system’.745 In particular, he reported that infectivity had been found in the distal ileum, part of the lower small intestine including lymphoid tissue, of 10-month-old calves, which were part of the pathogenesis experiment. Mr Meldrum briefly described the pathogenesis study: 4-month-old calves were each fed 100 g of brain from a clinical case of BSE and were being killed at intervals to obtain 44 different tissues which were then subject to bioassay in susceptible mice. The first calves were killed two months after exposure when six months old and succeeding kills had been at 4-month intervals thereafter.

4.571 Mr Meldrum explained that the distal ileum was amongst the specified bovine offal, which had been selected on the assumption that the distribution of BSE agent in cattle incubating the disease would be the same as in sheep incubating scrapie, but an exemption applied for calves under six months. Mr Meldrum suggested that no announcement on the findings should be made until they were published in the Veterinary Record. He also said: ‘We intend to advise Dr Tyrrell about these results, and to provide his committee with a copy of the short communication when available.’746
4.572 It was agreed between DH and MAFF that SEAC’s advice on the findings, and the possible implications for existing public health measures, would be obtained before any public announcement was made. DH was reportedly concerned to avoid any suggestion of delay in handling this new information and to take any necessary action to protect public health. The earliest publication date was seen as 1 July 1994, so an emergency meeting of SEAC was scheduled for 29 June.

4.573 In advance of the meeting, on 22 June, Dr Tyrrell’s initial views were sought by telephone by Dr Metters, and reported in an email of that date to the CMO. Dr Metters’s account of the conversation records that Dr Tyrrell did not regard the results as a surprise and noted that the calves in question had been fed BSE-infected brain from a clinical case designed to provoke transmission. Further, that the findings would have marginal or no implications for the epidemic as the number of BSE cases was reducing rapidly among young cattle. He believed that the risk to human health was small compared with that before the SBO ban was introduced in 1989. In Dr Tyrrell’s view, the issue was one of political and public perception of risk, which had always been magnified out of proportion to the scientific assessment. However, he concluded that some members of SEAC were more cautious than he and might well press for further precautionary action to be taken at the meeting called for next week. 747

4.574 The feeling within MAFF was that SEAC would press for additional controls. Following a request from the MAFF secretary, Mr Taylor, Assistant CVO, provided more information on the pathogenesis experiments to Ministers and other MAFF officials on 23 June. Mr Taylor outlined the study and the recent results in more detail. He said:

At worst this indicates that, contrary to what was believed until now, a potentially infected tissue is still available for use in human or animal food (although ruminants are protected by the ruminant feed ban). This is why Tyrrell is being given the information and asked for advice. It is unlikely that his committee will be content to recommend no action. They could suggest that intestine from cattle of any age should be specified: or even that the SBO ban should be extended to cattle of all ages. 748

4.575 The emergency meeting of SEAC was subsequently brought forward to 25 June 1994 to discuss the new findings. The minutes record Dr Tyrrell ‘expressing his concern, which the Members shared, at the nature of the meeting and the difficult position this placed the Committee in when they were expected to produce top class scientific opinions in a rush. This was an unrealistic expectation.’ 749 The minutes also recorded that ‘It was agreed that the findings on infectivity in the distal ileum was not unexpected since this was similar to results for natural scrapie in sheep’. However, the minutes continued: ‘What was somewhat unexpected was the fact that infectivity was present by six months and could not be ruled out at any time between two months and six months’. 750

4.576 The agenda for the meeting requested advice on four points:

747 YB94/6.23/1.1
748 YB94/6.23/2.1–2.3
749 YB94/6.25/2.1 para. 2
750 YB94/6.25/2.2 para. 7
i. whether the finding indicated that the range of tissues included in the SBO ban should be changed;

ii. the six months’ exemption for calves from the SBO ban;

iii. whether current advice given by the CMO needed amendment in light of the findings; and

iv. whether any other safeguards were necessary.751

4.577 The Committee concluded with regard to human health that:

... the theoretical risk of infection of man via food derived from infected calves is minuscule if it occurs at all but information on calves is still very limited and as the experiment is still in progress and further information is expected it will be necessary to monitor these results carefully to see if this basic conclusion is correct and to see whether further action is needed.752

4.578 On animal health the Committee advised that no further action was necessary on the basis of the scientific evidence. The minutes continued:

It also noted in relation to these conclusions that at this stage one cannot give a definitive answer. There is a theoretical risk and Government could respond by a limited SBO ban for calves to exclude the intestines. The Committee was also concerned that other tissues might carry infectivity and be used for human food but there was no evidence of this at the moment. The situation should be carefully monitored.753

4.579 In its joint statement to the Inquiry, SEAC stated in relation to its considerations of the findings at the emergency meeting:

The results were preliminary and we were uncertain of the relevance of the very high exposure used in the experiment to the control of the epidemic. If intestines represented a risk to the human food chain from normally reared calves it must be minuscule. However, although we thought that no action was called for, we realised that those in government would have to respond to other than scientific opinions.754

4.580 In relation to SEAC’s considerations at this emergency meeting, Dr (now Sir) Kenneth Calman stated in written evidence to the Inquiry that:

In ordinary circumstances SEAC would naturally wish to take their time to consider latest developments and the evidence in full. However, faced with the impending publication of data on 7 July 1994 suggesting infected material had entered the human food supply, SEAC was placed in the unavoidable position of having to consider the facts and advise as a matter of urgency.755

4.581 MAFF Ministers held a series of meetings on 27 June 1994 to discuss results from the BSE pathogenesis experiments and their handling. The Minister

751 YB94/6.25/1.1
752 YB94/6.25/2.4
753 YB94/6.25/2.4 para. 15
754 S14 SEAC para. 58
755 S179 Calman para. 65
questioned Department officials over the value of SEAC’s advice in view of the limited time available for its preparation. He asked whether the Committee ‘was likely to have drawn different conclusions had there been more time’. He was informed that the Committee had indicated that it would like to see the whole pathogenesis study complete, but on the basis of the evidence they would not reach a different conclusion. The Minister noted that the Committee’s findings were in fact inconclusive, but felt that this issue would not be looked at ‘rationally by the public’. Dr Calman and DH officials then met with those who had been present at the earlier Minister’s meeting. Dr Calman noted that SEAC had left the way open if Ministers wished to go further than SEAC’s limited conclusion. Dr Calman also recalled that the Southwood Committee had reported on the science in 1988, but the Government had chosen to go beyond its recommendations to ensure that every action had been taken. Dr Calman advised that:

The decisions reached could be justified on the basis of science. First, for all calves slaughtered between two and six months, intestines and thymus should be removed. There was no scientific evidence to justify removal of spleen, tonsils and spinal cord. For calves under two months going to human consumption, the same conditions should apply, though calves under two months which died on farm would not need removal of intestines and thymus, but if rendered should not be used for human consumption.

4.582 On 30 June 1994, Mr Eddy sent a letter to SEAC members explaining that the Government had decided in the light of the advice from the Committee and further consideration by Dr Calman that it would be prudent to extend the SBO ban in relation to thymus and intestines to calves under the age of six months. He attached a copy of the SEAC meeting minutes and confirmed that Dr Tyrrell had agreed that the advice relating to human and animal health could be publicly quoted and that Ministers would be doing this in relation to an announcement of the policy they wished to take on calf offal that day. The resulting announcement also stated that the results had been assessed by the SEAC Committee and by Dr Calman:

Although they consider that the risk to human health is minuscule, the existing ban on the use of specified bovine offals is to be extended to include the thymus and intestines of calves under the age of six months, in line with the Government’s policy of extreme caution in dealing with BSE.

4.583 An attached joint statement from the CMO and CVO included the following:

Although no finding of infectivity has been made in bovine thymus this is an organ which is sold for human consumption as sweetbreads, and which is a permitted ingredient of meat products. Inclusion in the definition of specified bovine offals will ensure that any risk of transmission of BSE by this route is closed off. The remaining offals of calves which are defined as specified bovine offals in the case of cattle over six months – the brain, spinal cord, spleen and tonsils – are not considered, in the light of available information, to present any risk.
4.584 In June 1994, MAFF wrote to all operators of slaughterhouses recorded as handling calves, informing them of the decision to amend the regulations to extend the SBO ban to the thymus and intestines of calves under six months of age. The letter enclosed the announcement by the Minister and the joint statement issued by Mr Meldrum and CMO, and explained the proposed extension of the SBO ban and referred to the period of consultation which would be needed before legislation could be introduced. Operators were nevertheless asked to reassure the public by putting the new arrangements into effect immediately, on a voluntary basis, until the regulations could be amended. The letter was also copied to the relevant local authorities who were responsible for enforcing the legislation.761

4.585 At its 17th meeting on 30 August 1994, SEAC considered the minutes of its emergency meeting held on 25 June 1994. In relation to the Committee’s conclusions, as set out in the earlier minutes, it was recorded that:

The Committee noted that the Government response to the findings discussed on 25 June went beyond what SEAC considered scientifically appropriate. Professor Allen said that she would like the Government to maintain the principle that SEAC’s advice is always followed. Dr McGovern [the DH observer] explained that the Government’s decision in this case was taken not on scientific grounds alone but in a wider context.762

4.586 Sir Kenneth Calman stated in written evidence to the Inquiry that:

The Department of Health has always adopted a precautionary approach in relation to public health issues arising from BSE in their deliberations with MAFF.

On occasions this has necessarily resulted in differences of opinion. An example of this included the extension of the SBO ban in 1994 to include the removal of the intestines and thymus of calves under six months of age. MAFF argued against the extension of the ban as an additional expense to the industry not justified by scientific evidence. I and the Department of Health, notwithstanding the advice of SEAC, argued strongly for an extension of the ban which was ultimately accepted by Ministers.763

4.587 The Bovine Offal (Prohibition) (Amendment) Regulations 1994 and the Spongiform Encephalopathy (Miscellaneous Amendments) Order 1994 were introduced on 2 November 1994 and extended the SBO ban by prohibiting the use, in food for humans and food for animals, of thymus and intestines from calves under six months of age.764

Discussion

4.588 This is an example of the way that a scientific advisory committee should be used. While we sympathise with Dr Tyrrell’s concern at being expected to produce top class scientific opinions in a rush, Government will naturally seek urgent advice when unforeseen contingencies arise. The important thing is that the Committee should not be rushed into expressing definitive conclusions where time or data

761 YB94/6.30/1.1–1.4
762 YB94/8.30/2.3
763 S179 Calman paras 138 and 139
764 L2 tabs 11 and 11A
available does not permit this. On this occasion, as Mrs Gillian Shephard, Minister of Agriculture, observed, SEAC’s advice was inconclusive. That is no reason for criticism – where SEAC did not feel it possible to draw firm conclusions, it was right to be inconclusive.

4.589 SEAC was right not to ‘box in’ Government by making a specific policy recommendation. The Government took its own policy decision. Professor Allen’s comment that she would like Government to maintain the principle that SEAC’s advice was always followed was illuminating, as was Dr McGovern’s reply. Few decisions turn on scientific grounds alone, and there should never be a ‘principle’ that an expert committee’s advice is always followed.

14. CJD in farmers and young people

4.590 The surveillance of CJD in the UK, which had been recommended by the Southwood Working Party, led ultimately to the discovery of significant similarities between the clinical presentation of BSE in cattle and a new form of CJD which was occurring in young people (‘vCJD’). In this section we will look at the consideration given by SEAC to the emergence of a number of cases of CJD in farmers, which were statistically unlikely and therefore suggested a possible connection with the emergence of BSE. We will then set out the consideration given by SEAC to the later cases of what turned out to be vCJD. For a more detailed description of the work of the CJD Surveillance Unit (CJDSU) in monitoring cases of CJD, refer to vol. 8: Variant CJD (vCJD).

4.591 On 13 August 1992, Dr Calman was informed of a first possible case of CJD in a dairy farmer. On 21 August 1992, Mr Lowson was copied in on a minute from Mr Murray informing the Secretary of State for Health of a probable case of CJD in a farmer who had a cow with BSE on his farm. Mr Maslin reported the news to Mr Soames, the MAFF Parliamentary Under-Secretary (Commons), on the same day. He explained that DH advised that there was nothing to suggest that there was any link between this case of CJD and BSE on the farm. Nevertheless, the full facts of the case would be put to SEAC.

4.592 At SEAC’s 13th meeting on 15 October 1992, Dr Will reported that a cattle farmer, one of whose animals had been confirmed with BSE in 1989, had developed CJD two years later and had died three months after that. Dr Will conveyed his intention to publish a report of the case, which would probably draw the conclusion that there was no evidence that this was not a chance occurrence of normal disease. He also reported that an analysis of the occupational backgrounds of CJD cases in his study revealed no trend. The minutes of the meeting record that DH would look at what needed to be done to ensure that funding was available for follow-up laboratory studies of this case. The importance of such studies in strain typing the agent was stressed.

4.593 The case was the subject of a letter by Dr Will which was published in The Lancet on 6 March 1993. It resulted in intense media interest. In response,
Dr Calman released a statement on 11 March 1993 confirming that beef was still considered safe. An extract from the statement reads:

I wish to emphasise that there is no scientific evidence of a causal link between BSE in cattle and CJD in humans. The Tyrrell Committee have considered the details of this case [of CJD in a farmer] and have advised that this does not alter the advice that has previously been given.770

4.594 At SEAC’s 14th meeting on 22 April 1993, Dr Will reported that the CJD study continued to show no link with occupation or diet.771 The possibility that the UK farmer might have drunk milk from a BSE-affected cow was discussed. Given the lack of any evidence from epidemiological or transmission studies that milk transmitted the disease, the Committee took the view that there was no further evidence to suggest that milk was a hazard to animals or man and no further measures were needed to protect human health.

4.595 On 12 July 1993, Dr Calman learned of a second case of CJD in a dairy farmer. SEAC was immediately requested to consider this.772 Mr Kevin Taylor reported this development to the MAFF Minister by a minute dated 19 July 1993.773

4.596 A meeting was convened at short notice for 20 July 1993 at which an ad hoc group from SEAC considered the second case of CJD in a dairy farmer. Dr Will began by confirming that the CJD Surveillance Unit (CJDSU) had learnt two weeks previously that a patient with suspected CJD was a dairy farmer with BSE in his herd.774

4.597 A number of possible routes of infection were discussed which were connected with the case’s work as a dairy farmer were discussed. It was agreed that Dr Will would write to the farmer’s wife to ask:

- whether the farmer assisted in calving with BSE animals;
- what his system was for dealing with the placenta;
- whether he carried out de-budding as well as de-horning;
- whether the farmer himself injected the cattle and, if so, what injections were actually used?775

4.598 In connection with the assessment of risk following the identification of the new case, Dr Will drew attention to the CJDSU’s Second Annual Report, which had concluded that ‘these figures [relating to the case control study on occupation] did not suggest any significant increase in risk of developing CJD in association with any of the specified occupational groups [including farmers]’. 776

4.599 SEAC members considered a fax from Professor Peter Smith, an epidemiologist at the London School of Hygiene and Tropical Medicine,
concerning the number of cases of CJD that would be expected in the first five years of the national surveillance scheme. On the basis of the information available, Professor Smith concluded that ‘the observation of two cases in workers in dairy farmers with BSE-infected herds is disquieting, but the evidence is insufficient at this stage to draw any definite conclusions’.777

4.600 SEAC members concluded that there was no evidence that inoculation of BSE tissue from affected animals had occurred in this case; that the fact that the illness in the cattle and the patient were incubating together made it very unlikely that there was a connection between the two; and that no conclusions could be drawn from the available statistical information. It was agreed that DH would draw up a statement on the basis of these conclusions and that transmission studies should go ahead on the two cases of CJD in dairy farmers.778

4.601 SEAC reconsidered the case of the second dairy farmer at its next full meeting on 7 October 1993. Dr Will brought the Committee up to date with the detail of the case. The minutes of the meeting recorded:

The statistical view is that this [second] case should not cause too much concern, however the scientific meaning of the statistical information was discussed. It was agreed that there was a need to use other occupational groups and other countries as a base-line. Dr Will outlined proposed studies using the CJD material from this case and the previous one. The Committee agreed that biological characterisation of the agent needed to be carried out as a matter of urgency. It was also agreed that if a third case of CJD in a farmer with BSE in their herd occurred, an immediate full Committee meeting would be required.779

4.602 At SEAC’s 16th meeting on 26 January 1994, the Committee was informed of an alleged case of CJD in a teenage girl.780 CJD had not been confirmed and the CJDSU was continuing to monitor the case. Dr Will reported that there were three cases of sporadic CJD in teenagers in the literature. Turning to the incidence of CJD, he reported that there were 28 definite and probable cases of CJD reported to the Unit in 1993, compared with 53 in 1992. The 1993 figure would probably increase slightly because of lags in post-mortems and because death certificates were not yet available for 1993. This drop was therefore consistent with ascertainment bias.781 Dr Will also reported that a final funding decision for transmission studies on the brain material from the two dairy farmers with CJD was expected in the first week of February 1994, but there was no money for adding extra patients.782

4.603 At the SEAC meeting called at short notice on 25 June 1994 to discuss the result of the pathogenesis experiment, Dr Will presented the annual report of the CJDSU. This showed that the general increase in CJD cases in recent years could be ascribed to more cases in patients aged over 75 and that the likeliest explanation was better ascertainment. Subject to some further work, the case control study showed no occupational risk groups but positive association between CJD and eating lamb, beef, venison, veal, kidney and brain. More detailed statistical analysis

777 YB93/7.20/1.5
778 YB93/7.20/1.5–1.6
779 YB93/10.7/2.2
780 YB94/1.26/2.3
781 The collection of data on humans or any other organism often introduces a bias into the data because of the method of obtaining the data
782 YB94/1.26/2.2
to strip out confounding variables left only a higher risk of CJD in those with a lifetime exposure to consumption of veal (to a ratio of 13). Meat puddings that had been a factor in the previous year had dropped out. It had to be emphasised that the numbers were very small. 783

4.604 At SEAC’s meeting on 30 August 1994, Dr Will reported that the transmission studies on the two dairy farmers had not yet started. The facilities at the NPU were not complete and might not be for two to three months. The Committee expressed extreme disappointment at this lack of progress. The draft annual report of the CJDSU was also tabled. 784 A covering note for the draft report from the secretariat asked members to form a view on the significance of the finding that veal eating may be a risk factor for CJD. It explained that DH proposed to publish the report at the earliest opportunity, and that it would be helpful if SEAC could provide a statement of its conclusion which DH could include in a press notice. 785

4.605 The overall conclusion of the draft report was that there was no conclusive evidence of any change in CJD that could be attributable to BSE. On the finding of increased risk related to consumption of veal, the draft report concluded:

In the context of the overall findings of the study, it is unlikely that this statistical association is of biological significance and the likeliest explanation for the positive findings in the dietary case-control study is recall bias. 786

4.606 Members agreed a statement that could be used by DH when the report was published. This noted that evidence so far from the combined study of CJD in the EC had demonstrated no difference in the incidence of CJD in countries with or without BSE. This project would provide important comparative information in assessing any epidemiological changes that might be identified in the UK, including the following:

There is no evidence of space-time clustering of CJD cases and no evidence of links with particular occupations. Analysis of possible dietary links continues but interpretation is difficult. We note that the statistical association between black pudding consumption and CJD in last year’s report has not been confirmed in the present analysis. The finding on veal in this year’s report should be seen in this context. It does, however, appear worthy of further investigation by the Unit in conjunction with other national CJD surveillance projects within Europe.

We have no further recommendations to make to Government on the basis of the report and remain satisfied with the adequacy of current controls to protect public health in regard to CJD. 787

4.607 On 19 September 1994, Dr Calman and DH Ministers were informed by Mr Lister of a possible case of CJD in a third farm worker. 788 Mr Eddy wrote to the
MAFF Minister on the same day to report that MAFF had just been informed by DH of this possible case.

**4.608** A special meeting of SEAC was convened on 13 January 1995 to consider the significance of this third case. Dr Will confirmed that a dairy farm worker aged 54, who had worked on a farm with three reported cases of BSE in the herd, had died from suspected CJD. The man was known to have assisted with calving but never with any operative procedure. He rarely drank unpasteurised milk and never drank milk from BSE-affected animals. It was not known if he had ever eaten cattle feed.789

**4.609** The minutes of the meeting recorded that members were reminded that, after the death of the second dairy farmer in 1993, Professor Smith had advised that if four cases arose in the first five years of the surveillance scheme the possibility of an association which was not due to chance had to be given very serious consideration.

**4.610** Dr Sheila Gore of the MRC Biostatistics Unit, Cambridge, said that if the adult incidence of sporadic CJD in the UK was taken as one case per million (the figure used by Professor Smith) and if the same incidence applied to workers on dairy farms with BSE-affected herds, the probability of observing three or more definite CJD cases in such workers in England and Wales in five years was low: four in a thousand. The probability was higher if the calculation was made using the total number of dairy farm workers in England and Wales. However, this was considered to be less relevant as the only reported cases of CJD in dairy farm workers since 1990 had been in lifetime dairy farm workers all with BSE-affected herds. Dr Gore recommended:

- the number of dairy farmers should be put on a UK basis;
- it should be established whether the figure used for the proportion of herds with one or more cases of BSE applied to the UK or to England and Wales only;
- actual CJD incidence figures should be used for 1990 to 1994 rather than the guesstimate of one case per million.790

**4.611** The importance of comparative data with other occupational groups was again stressed. For example, the CJDSU had received reports of three cases of confirmed CJD in priests, but had no priests in the control group. Dr Will presented information on CJD in farmers in other European countries – three cases in France in 1992 and 1993, two of which were dairy farmers, and two cases in dairy farmers in Germany since October 1993. However, he had no information on numbers of dairy farmers in these countries. There were no comparative occupational data on CJD in New Zealand or Australia, although Australia was beginning to collect some data.791

**4.612** The Committee concluded that CJD occurring in three dairy farm workers with BSE in their herds within the first five years of the surveillance study was of concern given the low probability of this happening by chance, although there was no evidence to suggest that these were other than sporadic cases. More information...
was needed before firmer conclusions could be drawn, and Members recommended that the following work should be undertaken as a matter of priority:

- a further statistical analysis comparing the relative risks of developing CJD between farmers and other workers who have contact with animals (such as abattoir workers, veterinary surgeons and butchers) with other occupational groups who have no such contact, for example priests and teachers. It was suggested that a breakdown of these cases would be helpful;

- a study of working practices in occupational groups such as farmers, abattoir workers, veterinary surgeons, etc, which could be potential risk factors for transmission of the BSE agent. One suggestion was farmers’ contact with dust from cattle feed;

- a comparison of the incidence of CJD in farmers in the UK with cases in countries with no, or little, BSE;

- brain material from the third farmer should undergo transmission studies in the same way as that from the first and second farmers.\textsuperscript{792}

\textbf{4.613} The Committee recommended that additional resources should be found for these studies if necessary. It was further agreed that:

- the case did not suggest that there was any need for Government to revise the measures already taken to safeguard public health against occupational and other possible routes of exposure to the BSE agent;

- a statement reflecting the Committee’s assessment of the situation should be prepared by the secretariat for the Department of Health to use in response to any media enquiries.

- any further evidence would be considered at the Committee’s next meeting on 10 February.\textsuperscript{793}

\textbf{4.614} The statement prepared by the SEAC secretariat stated that the third case of CJD in a dairy farmer had been referred to SEAC. It repeated the Committee’s conclusion that no further measures were necessary to safeguard public health. In relation to the Committee’s view of the statistical relevance of the case, it stated:

> Although it is statistically reasonable that three cases of CJD in farmers could have occurred by chance, the Committee recognised that this is a cause for concern. The Committee therefore recommended that, as a matter of priority, further statistical analysis should be undertaken comparing farmers and other workers who have contact with cattle with other occupational groups who don’t.

The Committee also noted that cases of CJD in dairy farmers occur in other European countries where BSE is very rare. It is therefore important that the incidence of CJD in farmers in the UK is compared with these cases before any conclusions are drawn.\textsuperscript{794}
4.615 On 16 January 1995, Mr Eddy reported to the Minister the outcome of SEAC’s meeting. He informed the Minister that further work had been requested to refine the statistics to take account of a number of factors to try to get a more accurate idea of the probability of three cases arising in dairy farmers and farm workers purely by chance. In this regard, he reported that MAFF would be cooperating with the study and providing information on the age distribution of farmers, so that the analysis could take account of the age of farmers rather than that of the whole population.795

4.616 At the 18th meeting of SEAC on 10 February 1995, Dr Will presented preliminary information on the third CJD case in a dairy farm worker. He informed the Committee that familial CJD could still not be ruled out in the third case but that the clinical presentations of the three dairy farmers were all typical of sporadic CJD.796 Dr Tyrrell again emphasised that transmission studies in mice and strain typing in mice of isolates from the three farmers with CJD must be given the highest priority.

4.617 By the time of SEAC’s meeting on 8 September 1995, one case of CJD had been identified in a 19-year-old and had been confirmed and another in a 17-year-old was suspected. In addition, Professor Allen was able to update the Committee on studies of the brain of the third farmer.797 In response to the news of the second case of CJD in a teenager, the Committee concluded:

It was the Committee’s view that the presentation of CJD in adolescents is exceptional but not without precedent. CJD has occurred in adolescents in other countries which are free from BSE and it would therefore be premature to conclude that its occurrence in a teenager in the UK was indicative of transmission of BSE. The Committee agreed that these cases should be studied in great detail and it should consider whether they had any implications for the cause of management of the disease.798

4.618 In earlier discussions relating to the third case of CJD in a farmer, Dr Will concluded that the priority cases for study, in order of importance, were the cases of the 19-year-old, the 17-year-old, and the third farmer. Professor Allen questioned why teenagers should be given priority over farmers. Dr Will replied that the youngest case prior to the two teenage cases had been 34 years old. He said:

If BSE were infecting the human population, it could be argued that it would be first seen in a teenager. There were also some atypical features – the pathology was unusual for CJD – whereas with the third farmer the clinical features and pathology were typical of sporadic CJD.799

4.619 Professor Allen said that the ‘real problem’ was one of resources and of deciding priorities. The work had ‘been compromised by a lack of funding, but this should not be an issue for the NPU to address’.800 Dr Will commented that the NPU had been very helpful in setting up the first cases but they had made it clear from the outset that they did not wish to be a ‘titration centre for CJD’. The Chairman said that obtaining resources was not a matter for the Committee. He was worried
about deciding on different priorities ahead of time. It was agreed that the issue would be placed on the agenda for the Committee’s next meeting.

4.620 The Committee was also invited to consider a draft of the fourth annual report of the CJDSU. The report noted an increase in the incidence of sporadic CJD in the UK; that there was no evidence of a link between occupational exposure to animals and CJD; and that there were statistical associations between various meats/meat products, the strongest association being with venison – veal was no longer a major dietary risk factor for CJD. The minutes of the meeting record that, broadly speaking, the Committee found the findings reassuring. The Committee concluded that although there had been an increase in the incidence of CJD in 1994, it would be premature to conclude that this indicated any additional risk factor for CJD in the UK as this may be due to increased ascertainment, and the incidence in other countries without BSE was similar or even higher. The Committee agreed that no conclusive evidence existed of any change in the incidence of CJD attributable to BSE.

4.621 On 28 September 1995, Mr Eddy reported to the Minister on a fourth probable case of CJD in a farmer. He referred to advice to SEAC in 1993 from Professor Smith of the London School of Hygiene and Tropical Medicine, that if four cases of CJD occurred in farmers over a five-year period, the possibility that the association was not due to chance had to be given very serious consideration. A special meeting of SEAC was therefore to be convened to discuss the case.

4.622 This was held on 4 October 1995. Professor Smith and Dr Simon Cousens of the London School of Hygiene and Tropical Medicine attended this meeting to provide expert epidemiological advice. SEAC advised that it was important to undertake further epidemiological studies to detect any particular risk factors that might be involved.

4.623 Dr Wight invited members to make a ‘fairly clear’ statement on how they viewed the significance of a fourth case and to consider what other practical measures might be taken. Dr Tyrrell concluded that although numbers were higher than expected they were still extremely small. It would be irrational to take specific measures at the moment. A statement was drawn up to be issued by DH which included the following:

The Committee concluded that [the fourth suspect case] was difficult to explain as simply a chance phenomenon . . . There may be other explanations for such an association besides infection with BSE, and the Committee noted that there are no reported cases in other occupational groups such as veterinarians who might be expected to be similarly exposed. They also noted that surveillance of CJD elsewhere in Europe has shown a similar incidence of CJD in farmers, including dairy farmers, in countries with no or very few cases of BSE. They therefore felt that it was important to undertake further epidemiological studies to detect any particular risk factors which might be involved, and reiterated their advice that the UK cases of CJD in
cattle farmers and the strain of the agent recovered from them should be covered in greater detail.

The Committee have asked for further work to be done, but have not altered their advice to the Government on the precautions necessary to protect either the public health, including farmers, or animal health.806

4.624 At the 23rd SEAC meeting on 5 January 1996, Dr Will updated SEAC on the CJD situation. There was discussion of a new CJD suspect, aged 52, who had worked in an abattoir. Professor Smith (now a member of SEAC) calculated that one would expect 0.2 cases over a five-year period in the red meat slaughterhouse industry, and felt it was not possible to come to any conclusions on the basis of this case alone even if CJD were confirmed. Nevertheless, he considered that the number of cases in ‘at risk’ occupations could not be dismissed. Dr Will reviewed the age distribution of cases. Since 1990, there had been four confirmed cases under 30 and one possible, with a very high chance that two of these were genetic. He was not unduly concerned at the overall number of CJD suspect cases that had occurred in the under 30 age bracket, but found it worrying that all the cases had occurred over a very short period. Professor Collinge was ‘extremely worried’ at the number of young cases in such a short period, ‘which could suggest a link to BSE’, and requested that a formal statistical analysis be carried out. The Committee concluded that the situation demanded the continuation of the intensive monitoring of CJD.807

4.625 SEAC’s consideration of the events following the 23rd SEAC meeting is dealt with in detail in vol. 6: Human Health, 1989–1996, ch. 7. We can summarise the story as follows. SEAC met again on 1 February. Further concern was expressed about the cases of CJD in young persons. Five cases of patients under 30 years of age had been confirmed. These had an unusual pathology. Further investigations into their genetic data and into the incidence of young cases abroad needed to be carried out before firm conclusions could be drawn.

4.626 SEAC’s discussion was clear indication of a real possibility that a link between BSE and a new variant of CJD might be established. It did not, however, result in any attempt to discuss with SEAC what action, if any, might be desirable if the link were established, nor to contingency planning between or within Departments.

4.627 At SEAC’s next meeting on 8 March 1996, the Committee was informed that the CJDSU had concluded that a new variant of CJD had emerged in young people in the UK. Eight or nine possible cases had been identified. SEAC expressed concern at the possibility that this disease was related to BSE. At Dr Calman’s request, Professor Pattison attended an inter-departmental meeting on 13 March. There was discussion about additional controls that might be introduced. Professor Pattison was told that if SEAC made a recommendation, the Government was likely to follow it. He asked for guidance on the limits of SEAC’s considerations and was told that, while economic considerations were secondary, any recommendation should be balanced.808

4.628 SEAC held an emergency meeting on Saturday 16 March. It agreed to recommend that ‘all steps should be taken to ensure that the current SBO ban be
enforced completely rigorously’, but did not reach any conclusion on the need for further action. In the course of discussion, Professor Almond remarked that ‘ultimately a decision on whether a zero or minimal risk was acceptable was a political one’. It agreed the following formal advice to Ministers:

This is cause for great concern. On current data . . . the most likely explanation at present is that these cases are linked to exposure to BSE before the introduction of the SBO ban in 1989.

CJD remains a rare disease and it is too early to predict how many further cases, if any, there will be of this new form. The Committee are actively seeking further data from both the UK and abroad to help assess the full significance of the Unit’s findings.

4.629 At a meeting of Cabinet Ministers, chaired by the Prime Minister, SEAC’s position was explained as follows:

SEAC themselves were split on what action should be taken. Some were of the view that nothing should be done above and beyond the existing controls. Some were of the view that total eradication was the only answer. Others were of the view that the position the Minister of Agriculture was proposing would be acceptable. No doubt SEAC would produce a common position in due course, but given the differing views of some members of the committee, it might not be acceptable to rest on that.

4.630 Professor Pattison was invited to a further meeting of Ministers on the morning of Tuesday 19 March 1996. He explained that SEAC would be giving further consideration of the measures that should be taken at a meeting scheduled for the following weekend. This was not soon enough for the Government, who were anxious to make a statement about the probable link between BSE and CJD, coupled with the Government’s response, before the news leaked out.

4.631 A further meeting of SEAC was convened on the afternoon of 19 March, and continued the following morning, in response to a request to deliver their advice by 10.30 a.m.

4.632 At the 28th SEAC meeting on 20 March 1996, the Committee agreed a statement for discussion by the Cabinet in preparation for Ministerial statements:

The Spongiform Encephalopathy Advisory Committee have considered 10 cases of CJD which have occurred in people aged under 42 which have recently been identified by the CJD Surveillance Unit, Edinburgh. The Committee have concluded that the Unit has identified a previously unrecognised and consistent disease pattern. A review of patients’ medical histories, genetic analysis to date and consideration of other possible causes, such as increased ascertainment, have failed to explain these cases adequately. Although there is no direct evidence of a link, on current data and in the absence of any credible alternative the most likely explanation at present is that these cases are linked to exposure to BSE before the introduction of the SBO ban in 1989. This is cause for great concern . . .
The Committee emphasised it is imperative that current measures to protect the public health are properly enforced and recommend constant supervision to ensure the complete removal of spinal cord.

The Committee also recommend:

a. that carcasses from cattle aged over 30 months must be deboned in licensed plants supervised by the Meat Hygiene Service and the trimmings must be classified as SBOs.

b. a prohibition on the use of mammalian meat and bone meal in feed for all farm animals.

c. that HSE and ACDP, in consultation with SEAC should urgently review their advice in the light of these findings.

d. that the Committee urgently consider what further research is necessary.

The Committee does not consider that these findings lead it to revise its advice on the safety of milk.

If the recommendations set out above are carried out, the Committee concluded that the risk from eating beef is now likely to be extremely small. 812

Discussion

4.633 There was much that was unsatisfactory about this series of events. A policy decision was needed. The range of options included:

- do nothing;
- debone meat from animals over 30 months;
- prohibit consumption of animals aged more than 30 months; or
- slaughter the entire herd.

4.634 SEAC was in a position to advise on its perception of the risk of further transmission to humans and the effect on that risk of each of the options. The choice of options should also have been influenced by:

- the practicalities;
- the financial consequences;
- the need to maintain or restore public confidence in beef; and
- the implications of international trade.

4.635 It was desirable that there should be a dialogue between Government and SEAC, resulting in Government weighing all the considerations and taking the policy decision. In the event, the policy decision was effectively delegated to
SEAC, although SEAC was not well placed to weigh either the practicalities or the political considerations.

4.636 The option selected by SEAC and adopted by the Government proved not to be viable as a result of problems both of practicality and market perception. This outcome was, we believe, attributable to:

- a tradition of relying upon SEAC to decide policy; and
- a failure to establish a dialogue between Government and SEAC to discuss possible responses should the link between BSE and the new cases of CJD become established. The need for this should have been appreciated after SEAC’s meeting on 1 February, if not before. 813

Research

Coordination

4.637 As noted in the section on the establishment of SEAC (paragraphs 4.1–4.10, above), it was initially envisaged that SEAC would maintain an overview of the Government-funded research programme into BSE and CJD.

4.638 At the first SEAC meeting on 1 May 1990, Dr Pickles explained that it seemed likely that there would be one overall joint coordinating committee to oversee SE research sponsored by the Medical Research Council (MRC) and Agriculture and Food Research Council (AFRC) SE research. Cross-representation between SEAC and this committee would be important, but Dr Pickles said there was a place for SEAC to have an overview of the entire research programme. 814 The minutes also recorded that the future work of the committee included further consideration of arrangements for oversight of research. 815

4.639 On 22 June 1990, the idea of appointing a research ‘supremo’ or ‘task force’ was raised at a meeting between Sir Donald Acheson and Mr Andrews. Sir Donald ‘advocated very strongly’ the idea of a task-force approach to BSE research. 816 Noting that ‘Dr Tyrrell had been frustrated by the lack of progress on some parts of the BSE research programme’, he referred to the success of the directed research programme into AIDS and proposed that a single director, with ministerial backing and possibly a single budget, could take on the role of coordinating the SE research effort between MAFF, the AFRC and MRC. Sir Donald believed that this would assist in making progress on crucial experiments by cutting through the red tape. Sir Donald and Mr Andrews agreed that MAFF would consider the matter before the issue was progressed any further. 817

4.640 Sir Donald Acheson’s proposals were discussed at a follow-up meeting between Mr Andrews and other MAFF officials. The conclusion reached was that the proposal for a ‘task force’ was not appropriate, but that there was advantage in
an individual (ie, ‘supremo’) who was not just a ‘progress chaser’, but someone who would ensure that work commissioned by MAFF was being carried out, and to see how this fitted in with work carried out by the MRC/AFRC. The ‘supremo’ would need to take account of work carried out by universities and abroad to see if any of this work needed to be duplicated by the Government. It was envisaged that the individual would report directly to Mr Andrews (as the person responsible for the proper use of research funds), who could then consult the AFRC and MRC on any problems. It was recognised that any new arrangements would not be effective without the prior agreement of the AFRC and MRC. MAFF envisaged the coordinator being someone eminent in the field of animal health research, one possibility being Professor Biggs, formerly Director of the Institute for Animal Health.

4.641 On 5 July 1990, Mr Stephen Dorrell, the DH Parliamentary Under-Secretary (Commons), wrote to Mr Gummer proposing that their Departments jointly appoint ‘an eminent research specialist enjoying both the confidence of the scientific community and at the same time of Ministers’. In view of the Research Councils’ interest, Mr Dorrell felt this selection process must involve DES. He added that ‘it will clearly be important to take David Tyrrell along with us in these arrangements’. 819

4.642 At a meeting between the MAFF and DH Permanent Secretaries on 27 July, it emerged that the MRC preferred a coordinator with a human health background and had proposed Sir James Gowans, their former Secretary. It was agreed that Mr Andrews would speak to Mr Caines, Permanent Secretary of the Department of Education and Science (DES). 820 ‘to see whether MRC could be persuaded to accept Professor Biggs’. 821

4.643 Mr Andrews contacted Mr Caines. Having made enquiries, DES officials advised that there might be ‘misunderstandings between the various parties about what is intended’. They had misgivings about the proposal, considering that ‘with the emphasis on priorities for the use of resources it looks . . . very politically sensitive’, and that they would have expected it to have been agreed by Ministers collectively, including Treasury Ministers. They advised that a written description should be prepared of what was proposed, which officials could discuss at a meeting. 822 When writing to Mr Caines on 10 August, Mr Andrews agreed that a meeting should be held ‘to discuss the terms of reference for the individual and how he would fit in with other existing institutional arrangements’. 823

4.644 On 16 August 1990, a meeting was duly held between MAFF officials and representatives from DH, DES, MRC and AFRC, with Mrs Attridge of MAFF in the chair. It was agreed that the coordinator’s role should be that of a collector of information but under no circumstances should he/she direct the research taking place. It was also agreed that he/she would provide feedback of information from SEAC to the research project leaders. Further, the coordinator’s terms of reference and reporting arrangements would need to clarify his/her relationship with three Departments and two Research Councils. 824

818 YB90/6.26/3.1–3.2
819 YB90/7.05/2.1
820 DES held the Science Vote and thus funded most of the MRC’s work
821 YB90/7.27/5.1–5.2, para. 6
822 YB90/8.9/1.1–1.2
823 YB90/8.10/1.2
824 YB90/8.16/2.1–2.2
The DH representative, Mr Murray, briefed his medical colleagues, Dr Metters and Dr Pickles, saying that:

Mrs Attridge caused considerable upset on the part of the MRC, AFRC and DES when she showed some ignorance of the relationship between these bodies. This left MRC and AFRC with a suspicion they still retain that the BSE research supremo is a backdoor means of Central Government directly interfering with MRC/AFRC autonomy. They will therefore be very sensitive to any suggestion the new postholder will be ‘directing’ research, or making assessments of individual projects.\(^{825}\)

Dr Pickles subsequently concluded that:

The past history of bad feeling between the research councils over the NPU\(^ {826}\) will make research coordination a very difficult, if not impossible, task . . . It will take an exceptional individual who can smooth over the rivalries and tensions between the various factions.\(^ {827}\)

In its own summary of the situation, the Advisory Board for the Research Councils noted: ‘MAFF . . . wanted a coordinator who would be responsible for and report on a national coordinated programme of research to the Minister of Agriculture, Fisheries and Food.’\(^ {828}\)

In a draft paper to Mr Andrews setting out thoughts on the possible method of working for such a coordinator, Mr Lowson suggested that it would not be necessary to establish formal relationships with each of the Government Departments and Research Councils; rather that the coordinator could attend the individual coordination committees of each organisation, and would likely be a member of SEAC. The lines of reporting would be to the MAFF Permanent Secretary and CMO.\(^ {829}\)

However, at a meeting on 12 October, Mr Meldrum (the CVO) was concerned that such an appointment ‘would result in too much coordination’\(^ {830}\) – and also that:

. . . there would be pressure to appoint Professor Murray, a molecular biologist . . . If this post were created, it should be filled by a vet.

The note of the meeting records that Mr Meldrum ‘argued that if coordination was required, this should be carried out by the Tyrrell Committee [ie, SEAC] which would be able to pull the various strands of the research together and give advice to Ministers’.\(^ {831}\)

Mr Andrews was recorded as agreeing with the CVO that:

The responsibility for coordination should not pass out of the Ministry’s control. If [SEAC] were to take the responsibility for overseeing research on

\(^{825}\) YB90/8.20/2.1–2.4  
\(^{826}\) An episode described in Chapter 6 of vol. 2: Science  
\(^{827}\) YB90/11.16/2.2  
\(^{828}\) YB90/9.11/1.1  
\(^{829}\) YB90/9.26/1.1  
\(^{830}\) A point echoed by Dr Pickles, who noted that ‘there are grumblings from the researchers about the number of committees being set up, particularly if this is to increase the reporting burden for them’ – see YB90/11.16/2/1  
\(^{831}\) YB90/10.17/5.1–5.3, para. 3
BSE, it would need to have available to it information on the programmes being carried out.\textsuperscript{832}

4.651 It was agreed that Mr Andrews would raise the issue with Dr Tyrrell and that ‘once [he] had spoken to Dr Tyrrell he would need to consider how to handle the Chief Medical Officer’.\textsuperscript{833}

4.652 The note records that Mr Andrews consulted Dr Tyrrell on 15 October 1990, indicating that the job would involve keeping the total programme under review and ensuring that the available resources were used to best effect, and that the AFRC and MRC had their own coordination arrangements and it would be for SEAC to examine the work in hand and to say whether any changes were needed. Its role would be to advise the Departments, and through DES to advise the Research Councils – it would not have any executive functions. Mr Andrews hoped that the Research Councils would listen to its advice.

4.653 Dr Tyrrell’s recorded response was that this was a difficult request for him to be presented with. Everything would depend on the remit that his Committee was given and how much time would be taken up in this role. He therefore wanted to be clear exactly what commitment would be involved and asked Mr Andrews to put down on paper and send to him the remit that he was being asked to take on. He would then consider how this remit could be carried out and would come back to the Mr Andrews on whether he thought he could put the proposal to his Committee.

4.654 On 16 October 1990, Dr Pickles minuted Sir Donald Acheson observing:

\[
\text{[I]t appears MAFF are backtracking and Andrews has been approaching Dr Tyrrell about his group dealing with research coordination. In view of the other pressing matters they have to deal with, this can not be realistic, although the research supremo could report to us (MAFF and DH) through the Tyrrell group.}\textsuperscript{834}
\]

4.655 Nevertheless, agreement was reached between MAFF and DH that it would in fact be appropriate for SEAC to take on this task. Sir Donald Acheson suggested two alterations to the terms of reference: first, that if SEAC were charged with monitoring BSE research the Committee must be able to survey the whole field; and second, ‘That it should have a clear remit to report gaps, delays or other problems in the research programme direct to Ministers’. He noted that ‘Without these provisos I fear we will continue to have difficulties’.\textsuperscript{835} Mr Andrews agreed that there was a need for SEAC to report to Government Departments with one caveat. He believed that the Committee should not report direct to Ministers as much of its work in this area concerned management not policy, while MAFF Ministers had committed themselves to publish any advice they received directly from the Committee.\textsuperscript{836}

4.656 On 16 January 1991, Sir Donald Acheson wrote to Sir Derek Andrews on this matter. He said:
I was unhappy with the way in which you proposed to leave the reporting arrangements for the Tyrrell Committee. In my view it is too open.

But I am sure that we would all agree that the important thing now is to give Dr Tyrrell and his colleagues their new remit. In the interests of getting this moving, I should be prepared to go along with the formula . . . you propose, on the clear understanding that in practice reports would come to me at the Department of Health as well, no doubt, as to MAFF, wherever else they may go. There are clear potential public health implications as we all know.837

4.657 On 5 February 1991, Sir Derek Andrews wrote to Dr Tyrrell about whether SEAC might maintain an overview of research into SEs. Sir Derek said that he was aware that coordination machinery had already been established to cover particular parts of the publicly funded programme, but noted that there was no single person or body in a position to take a view of the programme as a whole, and to offer advice both to sponsoring bodies and to researchers on possible improvements in the work that was already being done. He added that it might be appropriate to consider creating a research subgroup for this purpose and to seek participation from the MRC and AFRC.838 An attached description of the task noted:

The Research Councils and commissioning Departments need to have their attention drawn to any delays, gaps, overlaps, and deficiencies in the work for which they are responsible. They and researchers need guidance, subject to the requirements of confidentiality, about work in which they are not directly involved.839

4.658 Draft terms of reference also included in the description noted that this was to be achieved ‘working with the existing coordinating machinery in MAFF/DoH and the Research Councils’.840

4.659 At the seventh meeting of SEAC on 7 March 1991, the Committee considered recent correspondence between Sir Derek Andrews and the Chairman.841 The minutes of the meeting record that Dr Tyrrell had made contact with the MRC and AFRC coordinators. Experience suggested that there was an important coordination job to be done; there was a danger that funding could be directed to institutes without sufficient expertise in the field and that important work could be given too low a priority because of an over-emphasis on molecular biology. However, the Committee did not have the resources to get a close first-hand view of the work being done by individual experimenters. A workable approach could consist of members of the Committee familiarising themselves with work at particular institutes; consultations involving Mr Ray Bradley, CVL BSE research coordinator and SEAC observer, Professor Jeffrey Almond of the School of Animal and Microbial Sciences, University of Reading, and Professor Sir Kenneth Murray of Edinburgh University; and occasional seminars (no more than one per year) involving a wider spread of workers in the field.842
4.660 Dr Tyrrell wrote back to Sir Derek Andrews on 27 March 1991. His letter included the following:

My Committee is certainly ready to play its part in this process; in fact I do not believe we could do our job of providing advice on the spongiform encephalopathies without maintaining an overview of research in the field. On the other hand it would not do anybody any good if we said that we would try to do more than we honestly felt we were able to do. We do not have the time or resources to do the kind of detailed monitoring that is reflected in places in the note that you sent me; indeed you may not feel that this is so important in view of the existing machinery that I mentioned above [that the funding bodies had set up their own co-ordinating machinery]. However, even though this would involve asking the Committee members to take on an additional burden, we believe that we could make a useful contribution to advising on the overall objective of drawing attention to delays, gaps, overlaps and deficiencies in the work that is being commissioned.

We would propose, if you agree, to do this as follows:

• members of the Committee would establish contacts with the Research Institutes involved to discuss the work that they are doing in this field, and report to the Committee;

• I and my colleagues would bring together the research coordinators periodically for discussion of the whole research programme on spongiform encephalopathies.

• we would organise, in consultation with the coordinators of the government-funded programmes, large-scale seminars (no more often than once a year) to involve a wider group of workers in the field to consider research results and possible new initiatives.843

4.661 Sir John Caines, Permanent Secretary at the DES, wrote to Sir Derek Andrews explaining that his Department would not be able to agree to Dr Tyrrell’s proposals until he was sure ‘that the AFRC and MRC really were content’.844 He also requested that, as the sponsor Department for the Research Councils, DES should receive papers routinely, and that his Secretary of State should be involved in any Ministerial decisions affecting the interests of the Research Councils. In reply, Sir Derek Andrews acceded to these latter requests, and confirmed that the SEAC secretariat would be asked to ensure that the relevant papers were forwarded.845

4.662 However, Professor Fred Brown, a member of SEAC, had perceived a lack of coordination of research on BSE. He wrote to MAFF, DH and Research Council officials in April 1991, expressing his concern:

Although we are kept fully informed about the epidemiology of BSE by Ray Bradley and the Weybridge group, we have no information regarding the research work being conducted on such important topics as diagnosis and the

843 YB91/3.27/8.1–8.2
844 YB91/4.11/5.1
845 YB91/4.24/2.1
nature of the agent. Indeed it seems that the MRC and AFRC are hardly working together on the problem . . .

4.663 He continued:

I found it particularly ludicrous that the MRC should set up a committee of eminent scientists whose unifying credential was their lack of knowledge of the disease of the causal agent.

Since BSE is so important, not only as an economic problem for British Agriculture and world trade in general, but also as a potential threat to human health, it is unthinkable that the two Councils cannot provide a united approach. There seems to me to be an urgent need for the appointment of a co-ordinator who really knows the field and commands respect, not only of national but also of international scientific opinion.

4.664 The various replies to Professor Brown’s criticism sought to point out the extent of cross-representation among the committees advising on scientific issues. Professor Sir Thomas Blundell of the AFRC set out the range of mechanisms that were already in place including coordination between MAFF and AFRC (such as the BSE R&D meetings) and between MRC and AFRC. In addition to MRC and MAFF representation on the BSEP Working Party, AFRC was represented on the MRC Coordinating Committee on Spongiform Encephalopathies. Also, an MRC assessor had been appointed to the AFRC Animals Research Committee. The Jarrett Working Group considering Science Budget research funding included two MAFF observers and also Dr Tyrrell and Professor Allen, a member of SEAC.

4.665 However, Sir Thomas Blundell pointed out that the AFRC was not represented on the Tyrrell (SEAC) Committee, although Professor John Bourne, Director of Institute of Animal Health (IAH) had been a member of the original Tyrrell Consultative Committee on Research. He believed this applied to IAH and CVL representatives as both were ‘heavily involved as contractors’ of research. However, the CVL had observer status on SEAC through Mr Bradley. Sir Thomas Blundell said in his statement to the Inquiry:

A continuing problem for the AFRC was its lack of membership of the Tyrrell Committee. I did write several times concerning the overall coordination and pointing out that the AFRC was at a disadvantage if my organisation had no representation on the Tyrrell Committee.

4.666 Sir Donald Acheson replied to Professor Brown’s concerns on 3 May 1991, indicating that he believed that an agreement had been reached on the role of SEAC on coordinating research, and that ‘new encouragement has been given to Dr Tyrell to get his committee more actively involved in this area’. Sir Donald added that if the Committee was concerned by the lack of progress after a few months, he hoped it would make those concerns known to him.
4.667 The minutes of the eighth meeting of SEAC on 10 May 1991 record that:

The Chairman had been in touch with the MRC and AFRC coordinators of work on SEs, who were willing for information to be exchanged with the Committee. Arrangements for consultation and coordination were becoming established; these fell short of the unified expert guidance that would exist with a directed programme but it would not be realistic to pursue such an approach.853

4.668 Some problems identified by the Committee regarding the existing research structure were:

i. the need for monoclonal antibodies for a number of different experiments;

ii. the lack of facilities other than those at Edinburgh for processing CJD-infected material; and

iii. further delays in the improvement of facilities at NPU (about which the Committee were particularly concerned, as it had been suggested that the whole range of slow virus work could be compromised).

4.669 The minutes also record that:

The Committee would be happy to invite observers from the Research Councils to participate in relevant discussions, as indeed had been intended from the start. They did not however want to see the permanent membership of the Committee expanded.854

4.670 On 16 May 1991, Mr Lowson minuted Sir Derek Andrews advising on letters which had been received from the secretaries of MRC and AFRC. He stated:

What I think that both are saying in their different ways is that the Tyrrell Committee can do what they like but that the Councils are already satisfied with the way their spongiform encephalopathy work is organised at present. This may indicate that some problems of cooperation will arise in future.855

4.671 Professor Brown sent a number of replies to those who had responded to his letter of 5 April 1991. In his reply to Sir Donald Acheson he said, ‘I am interested to learn that you seem to be re-assured that coordination will be achieved by the arrangements you describe. I am less optimistic but we shall see what transpires.’856 In his reply to Mr Meldrum he said, ‘I think you are expecting too much if you think a group of people, meeting every two months or so, can coordinate the work on BSE’.857 To Dr Dai Rees, MRC Secretary, Professor Brown replied:

Frankly, however, I would be hard pressed to devise a more inefficient way for studying the problem and ensuring practical messages come out of the work. It seems to follow the traditional English method for studying a problem by first forming a committee of amateurs . . . Clearly my suggestion

853 YB91/5.10/2.3 para. 7
854 YB91/5.10/2.4 para. 11
855 YB91/5.16/4.1
856 YB91/5.29/1.1
857 YB91/5.29/2.1
of a coordinator who knows the field does not come into your plans. I hope your strategy works. We shall see. 858

4.672 At a subsequent meeting between the Departments and the AFRC and MRC, it was made clear by MAFF that the primary purpose of SEAC performing the role of overseeing research on SEs, was to ensure that it gave properly informed advice to MAFF and DoH on the policy issues related to public and animal health. However, it was envisaged that SEAC might also wish to form opinions about the balance of effort in the national programme and the progress being made, and advise on gaps or overlaps. Further:

It was only now that the Tyrrell Committee had emerging [sic] from the large number of policy issues which it had been asked to address and had time to look at the totality of the publicly funded programme. It was always envisaged that AFRC and MRC would be invited to serve as observers on the Committee when appropriate and that time was now approaching. 859

4.673 However, the AFRC indicated that it had no formal way of providing information to the Committee and pressed for permanent observer status. 860

4.674 The issue of permanent observer status for the Research Councils was raised again at the ninth SEAC meeting on 28 June 1991. It was noted that:

The Committee still wanted to keep attendance to meetings as restricted as was consistent with their need for information and was likely to continue to be asked to consider ad hoc policy questions, when the attendance of Council representatives might not be appropriate or productive from their point of view. It was agree that the Committee had no objection to representatives from the Councils participating by invitation in future meetings. 861

4.675 At the same meeting, a draft paper was tabled which set out a possible framework for a report by the Committee on research into SEs, including a draft section by Dr Tyrrell. The second Interim Report was intended to summarise the Committee’s conclusion on research that was now completed, in progress or commissioned. 862

4.676 At its tenth meeting on 6 September 1991, SEAC discussed the second interim report. They felt that three questions needed to be addressed:

i. had the recommendations of the first interim report, ie, the Tyrrell Report, been implemented?

ii. did the scientific evidence support the action being taken by the Government?

iii. were there gaps in the scientific work or scope for better coordination?

858 YB91/5.29/3.1
859 YB91/6.17/2.1–2.2
860 YB91/6.17/2.2
861 YB91/6.28/2.3–2.4
862 SEAC9 tab 1
4.677 SEAC’s conclusion was that it should work on two papers, the first dealing with the implementation of the Tyrrell recommendations and the second being a thorough review of the scientific work being undertaken and what evidence was emerging. The second would be a longer term project than the first.863

4.678 However, the Research Councils remained sceptical of SEAC’s ability to coordinate their affairs. At another meeting between the Councils and the Departments to discuss prevailing arrangements for coordinating TSE research, it was agreed that:

There was considerable scope for improving the contribution made by the Tyrrell Committee. It had been set up to advise on the implications of SE for public and animal health, and to review SE research activities. It was well placed to act as a forum in which to exchange information about research activities and to advise on practical issues such as the production of common reagents; but it was not competent to formulate the directions in which future research should go or to direct programmes of research;

It was doubtful whether the present arrangements, whereby Research Council assessors on the Tyrrell Committee were invited only for those items in which it was thought they had an interest, enabled them to play a full part in the Committee’s work. For example they would not be well placed to advise on whether experiments were likely to have politically sensitive results if they had not been involved in the Committee’s wider discussions.864

4.679 On 7 October 1991, Dr Pickles wrote to Professor Michael Peckham, DH Chief Scientist, about a meeting attended on his behalf with representatives from the Research Councils. Dr Pickles noted that SEAC intended to undertake a detailed review of the science ‘that the Research Councils, with good reason in my view, take objection to and which they argue the Tyrrell Committee lacks competence to conduct’.865 Dr Pickles also reported on a proposal at the meeting for a couple of existing SEAC members to be dropped in favour of observers from the Research Councils.

4.680 On 14 October 1991, Dr Metters minuted Dr Pickles regarding her letter to Professor Peckham, noting that ‘while coordination and communication may have improved, for [DH] and MAFF the main reason for proposing a research “supremo” remains’. Dr Metters also reminded Dr Pickles that it was ‘for the policy colleagues, with MAFF, first to consider whether the Government should be considering a change to the remit of the Committee’. He added ‘Within DH, discussions between all those involved with BSE are needed before one-off suggestions are made about possible changes to the Tyrrell Committee or its remit’.866

4.681 On 15 October 1991, Dr Pickles minuted Dr Ailsa Wight, Senior Medical Officer in the Health Aspects of the Environment and Food Medical Division (DH), to report on a MRC Committee meeting which she had attended. This was approximately the time of Dr Pickles ending her relationship with SEAC and

863 YB91/9.06/2.3
864 YB91/10.4/1.1–1.2
865 YB91/10.72/1
866 YB91/10.14/2.1 (original emphasis)
moving into the Research and Development Division under Professor Peckham. She reported that:

It was quite clear from the type of detailed discussion of molecular biology that was taking place yesterday and the wealth of experimental studies now underway that it is not feasible (even were it sensible) for [SEAC] to attempt a detailed overview. I suggest we need to broach this fairly urgently with Dr Tyrrell before these views get fed back to him by another route. 867

4.682 DH views on this were communicated to MAFF, who were in basic agreement. Mr Thomas Murray, DH SEAC secretary (who replaced Dr Pickles), minuted Dr Pickles on 25 October 1991 about recent discussion on research coordination. He commented:

I share your views about [SEAC] avoiding getting involved in a very detailed review/evaluation of the SE research programme. For the reasons you mentioned I think it is likely Dr Tyrrell will come to the same view . . . 868

4.683 Dr Pickles’s reply noted that the draft [MRC] Murray Committee report covered ‘much of what [SEAC] had been hoping to do. This will make the task of dissuading Tyrrell from a detailed look at research that much easier’. 869

4.684 The research ‘supremo’ alternative first suggested by Sir Donald Acheson appears to have enjoyed a brief revival of support within DH, but was not supported by MAFF officials. On 23 October 1991, Mr Murray informed Dr Pickles that:

In the improved research coordination situation we now have, and in the light of the MRC/AFRC sensitivities which have been exposed, I think the case for a ‘supremo’ is now less strong. If CMO and Professor Peckham want to revive the idea we need a hard look at the implications with MAFF colleagues. 870

4.685 In reply, Dr Pickles referred to Dr Metters’s minute of 14 October 1991 stating that the ‘main reason’ for a ‘supremo’ still remained. However, she agreed with Mr Murray that ‘the difficulties are so great that I was assuming this idea was being gently dropped’. 871

4.686 The matter was finally laid to rest at a DH/MAFF meeting on the research coordination of SEs in November 1991. The minutes of the meeting record:

The general feeling was that the ‘supremo’ idea as conceived by previous CMO should be left on one side to die a natural death.

Mr Murray felt that Dr Metters would probably allow the matter to drop as long as the Tyrrell Committee are clear that they advise on policy as opposed to research. 872

867 YB91/10.15/1.1–1.2
868 YB91/10.23/4.1
869 YB91/10.26/1.1
870 YB91/10.23/4.1
871 YB91/10.26/1.1
872 YB91/11.18/3.1–3.2
4.687 On 19 November 1991, Mr Lowson suggested in a minute to the Permanent Secretary that SEAC be gently steered away from undertaking a detailed look into research, which might antagonise the Research Councils. A manuscript note on the minute records that Sir Derek agreed with this proposal.873

4.688 The outcome of this episode is perhaps best explained in minute dated 14 February 1992 from Dr Peter Bunyan, MAFF Chief Scientific Adviser and Head of ADAS Regional Organisations, to Dr Kenneth MacOwan, MAFF Scientific Liaison Officer responsible for Veterinary Science, Chief Scientists Group. Dr Bunyan stated:

We have agreed that informal input by AFRC and MRC to the Tyrrell Committee satisfied honour all round. The sensibilities of the Research Councils have thus been soothed and the Tyrrell Committee seems to be less inclined to dabble in areas in which it is ill-fitted.874

4.689 Mr Lowson has stated in written evidence to the Inquiry that:

From the start a central concern of Dr Tyrrell was to ensure contacts between different research groups working in the field of SEs, and SEAC worked energetically to facilitate this. Part of my role was to facilitate these contacts, although I did not personally represent SEAC in contacts with research bodies. The difficult interdepartmental discussion which started with the CMO’s proposal for an SE Research ‘supremo’ in June 1990 (a proposal welcomed by MAFF) and ended with agreement that SEAC should be asked to pay particular attention to advising on the delays, gaps, overlaps and difficulties in research programmes, illustrated the problems with this. My role in this process was, in consultation with DoH and DES (as the sponsor Department for Research Councils) to find an approach that satisfied all the research bodies’ desire to be overseen only by somebody acceptable to themselves. This required extensive consultation with DoH and DES officials, and frequent advice to the Permanent Secretary, MAFF, on steps in the process. I think it was my idea that SEAC itself was the answer. In practice I found that cooperation between SEAC and the AFRC (the most important non-MAFF commissioning body) was very good, and it was easy to facilitate the kind of open discussion that SEAC wanted.875

4.690 Regarding the practical consequences of the decision to limit SEAC’s coordination role, Dr Tyrrell observed in oral evidence to the Inquiry:

So the compromise was to say, well, whereas MRC and AFRC had come along when it seemed to be of interest, they really ought to come regularly to meetings, send a representative, so they knew actually what things were being said at SEAC. We ought to stimulate a workshop, because one of the great successes of the AIDS directed programme was an annual workshop, which pulled together all sorts of people in all sorts of areas. I thought that could be valuable for transmissible spongiform encephalopathies in general. We messed about a bit, but in the end one was set up, and, of course, the special funds went to the MRC and the AFRC and Professor Almond chaired the group which looked after the award of grants. So the sort of jobs which

873 YB91/11.19/2.1–2.2
874 YB92/2.14/1.1
875 S104 Lowson para. 25
could have been done by a co-ordinator were rearranged and, in my view, most of them were done. What we were left with doing was following on the work which was more directly involved with BSE and with the problem of its spreading to man, which was ample. I mean, there was so much to do there that we would not have done it so well if we had been distracted in looking into basic science.876

Discussion on research coordination

4.691 The Tyrrell Report had suggested that ‘a standing mechanism’ might be needed to oversee the ‘cooperation and coordination of research’.877 When SEAC was set up to succeed the Tyrrell Committee, its terms of reference were widened to cover giving advice ‘not only on research but on other aspects’.878 It was never envisaged, however, that SEAC would perform a proactive role in directing the coordination of research into BSE and CJD.

4.692 Sir Donald Acheson’s concept of a research ‘supremo’ who would direct a task-force approach to BSE research was an ambitious one. The Research Councils were jealous of their autonomy and suspicious of any person or body that might purport to direct the research that they sponsored. MAFF were happy to have a coordinator, provided that he reported to their Minister and was under their control. Great diplomacy would have been required to get agreement to the supremo envisaged by Sir Donald. In the event the project foundered. Dr Pickles was right to observe that MAFF, who had originally supported the proposal, were backtracking.879

4.693 The role that MAFF suggested SEAC should play in overseeing research was over ambitious. SEAC recognised this. The role that Dr Tyrrell agreed to play was no more than that of facilitating interchange between those responsible for research.

4.694 SEAC’s proposal to carry out ‘a thorough review of scientific work being undertaken’ disturbed the Research Councils, which received support from both DH and MAFF in their reaction that this was not a task that it was feasible to undertake. In the event SEAC’s Interim Report on Research fell far short of an overview that aimed to identify gaps in research or scope for better coordination.

4.695 From their first meeting, members of SEAC found themselves under such pressure to provide advice on current issues in relation to BSE that they had little time for attempting to identify gaps in research. Both the merits of central coordination of research and gaps that persisted in BSE research are considered in vol. 2: Science.

Reports by SEAC published in 1992 and 1994

The Interim Report on Research – April 1992

4.696 In relation to Government research, the first interim report was the interim report of the Tyrrell Committee, published in June 1989. At its eighth meeting on

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876 T110 pp. 95–6 incorporating revisions suggested by S011E, Tyrrell
877 IBD1 tab 4 p. 4
878 YB89/11.28/4.1
879 YB90/10.16/3.1, para. 2
10 May 1991, SEAC considered the regular review of the progress of research initially recommended by the Tyrrell Committee. The minutes of that meeting recorded that the Chairman and secretariat would draft an overview and commentary on the current research programme. This would be considered at the following meeting and circulated to interested parties for comment before becoming a further interim report.

4.697 Dr Tyrrell duly provided a draft to the secretariat, which was circulated for comment. On 18 June 1991, Dr Pickles wrote to Mr Lowson noting ‘some major problems’ with Dr Tyrrell’s draft. Dr Pickles felt that in the introduction to the report Dr Tyrrell had given the impression that the same committee which had undertaken the original review was involved in this second review. She thought it particularly important in view of the ‘sensitivities’, and the fact that there was no full time member from the AFRC, that the report clearly indicate that ‘whilst some members are common, the second interim report is from a different committee’.

4.698 In addition, Dr Pickles argued that Dr Tyrrell’s draft mixed ‘public health/animal health interpretation of research results with descriptions of the research’. In some cases, she felt he had gone ‘beyond’ the discussions that had been had in the Committee. She added that:

I would much prefer that the style remains as in the first interim report, looking at the research that needs to be done to answer the key questions, with any advice to government anticipating results not included at all, or at least put in a speculative way in a separate chapter.

4.699 To this end, Dr Pickles attached her own outline of ‘the sort of document I presume was intended’.

4.700 At the ninth SEAC meeting on 28 June 1991, both Dr Pickles’s outline and Dr Tyrrell’s draft entitled ‘Research into Spongiform Encephalopathies: “Second Interim Report”’ were tabled. The minutes of the meeting record that there was no detailed discussion of the text; it was agreed that members would pass comments to the secretariat in time for a revised version to be tabled at the next meeting.

4.701 By the tenth SEAC meeting on 6 September 1991, Dr Tyrrell’s original draft had disappeared, with only Dr Pickles’s outline (and her supporting text for section 3 of the outline, relating to broad progress) tabled at the meeting. In discussion, the Committee identified three questions to be addressed:

(i) had the recommendations of the first interim report been implemented;

(ii) does the scientific evidence support the action being taken by [the Government]; and
(iii) are there gaps in the scientific work or scope for better coordination.\(^{888}\)

**4.702** The minutes record that the Committee felt work should be done on two reports, the first ‘largely based on Dr Pickles’s draft’, dealing with the First Interim Report, which it was thought ‘could be produced fairly quickly’. The second document was envisaged as a longer-term project ‘which attempted a thorough review of the scientific work being undertaken and what evidence was emerging . . . The document would need to look at a series of key foci of research effort, which would facilitate commenting on real and apparent gaps and overlaps’.\(^{889}\) The first report produced by SEAC became the ‘Interim Report on Research’ (1992).\(^{890}\) The second became the ‘Transmissible Spongiform Encephalopathies: A Summary of Present Knowledge and Research’ (1994).\(^{891}\)

**4.703** On 9 September 1991, Dr Pickles wrote to Mr Murray noting SEAC’s decision to ‘go ahead with a brief commentary on the work in progress in response to the first interim report’. She enclosed an amended section of the draft report, which took on the comments of the Committee. She stated that the Committee hoped to ‘nod through’ a final version at their next meeting.\(^{892}\)

**4.704** By the 12th meeting of SEAC on 28 April 1992, the report had been completed and discussion by the Committee centred on ‘what further work to do so as to fulfil their remit to maintain an overview of research’:

> It was clear that adequate machinery existed to evaluate the quality of individual research programmes and that the committee did not have a role in this process. The committee did however need to keep abreast of developments in research across the whole field of SEs, in the UK and overseas – on the basis of published reports and of information from workers – and to consider whether it would be helpful to draw attention to the wider implications and conclusions as they emerged. This being the case, there need be no commitment at this stage to produce a further report. The Secretariat would consider with the Chairman how this process should be carried forward.\(^{893}\)

**4.705** On 1 May 1992, Dr Tyrrell wrote to the Minister, referring to the interim report of the Consultative Committee on research into spongiform encephalopathies presented in June 1989 and stating that the Committee had felt it appropriate to undertake a survey of the research being carried out to establish the extent to which that Committee’s advice had been followed. He enclosed a copy of the report ‘which records a broadly satisfactory situation and which I hope will be of some interest to those involved in this field’.\(^{894}\)

**4.706** The ‘Interim Report on Research’ was published on 30 June 1992. In its summary, the Interim Report concluded: ‘As a result of the review we have concluded that all the studies justifying a high priority have been started and we are content with the progress of implementing the recommendations overall.’\(^{895}\) The

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\(^{888}\) YB91/9.06/3.4
\(^{889}\) YB91/9.06/3.4
\(^{890}\) IBD2 tab 2
\(^{891}\) IBD2 tab 10
\(^{892}\) YB91/9.9/1.1
\(^{893}\) YB92/04.28/2.5–2.6
\(^{894}\) YB92/5.01/3.1
\(^{895}\) IBD2 tab 2 p. 1
report did not document its consideration of priorities. However, in section 5, entitled ‘Continuing Work of the Committee in the Research Field’, the report acknowledged:

We have made only a superficial commentary on the research currently in progress . . . Few studies are completed, and the majority are still in the early stages . . . Although we felt the timing was not right for a detailed review of the research in progress, there seemed no need to delay the present report which confirms that all the work identified as essential two years ago is underway. So a detailed review may still be needed of the adequacy of the present research effort, to ensure there are no important gaps in a programme which correctly attempts to balance scientific opportunity and strategic national need.

Discussion

4.707 The *Tyrrell Report* had commented:

Many of the practical measures taken have been based on shrewd judgements of the analogy between BSE and scrapie of sheep. Specific studies on BSE itself are now needed to establish whether those conclusions were sound.

4.708 SEAC’s Interim Report on Research included the following statement by way of background:

As scrapie is the most common and geographically widespread SE, the scrapie agent is thought to be the most likely initial source of BSE infection. Protein material derived from sheep had been included in cattle feed for some decades, but changes in rendering practices around 1979–82 can explain the emergence and timing of the BSE epidemic in the mid 1980s onwards. Furthermore the BSE agent was presumably recycled in cattle feed, exposing further animals to infection until July 1988 when a ban on feeding ruminant protein to ruminants was introduced.

4.709 There followed a brief review of the progress of the research projects recommended as necessary in the *Tyrrell Report*. The only conclusion drawn from the research in relation to the cause of the emergence of BSE was the statement that:

Further analysis of the epidemiological data has strengthened the hypothesis that it was the elimination of solvent extraction and the removal of the associated additional heat cycle from the rendering process that allowed infection into animal feed through contaminated meat and bone meal.

4.710 The Report recorded that experimental transmission of BSE to other species had yielded positive results in (*inter alia*) sheep and goats. This was a reference to the NPU experiment. No comment was made on the fact that transmission had been effected to a line of sheep not susceptible to scrapie.
4.711 The Report recorded that transmission experiments showed little or no variation in BSE strains and that the incubation period in mice was shorter than with natural ovine strains. Again no comment was made on any implications of this.

4.712 The Report identified no gaps or shortcomings in research. It made no recommendations of any ‘second generation’ experiments.

4.713 Our conclusion is that this was a report of limited value. It achieved its relatively modest aim of ensuring that the studies recommended by the Tyrrell Report as of high priority were under way. The Report left the reader with the understanding that there was no reason to doubt Mr Wilesmith’s conclusions as to the scrapie origin of BSE and the changes in rendering that resulted in its emergence. For the most part, however, SEAC had left the drawing of conclusions from research to be dealt with in their next report.

‘A Summary of Present Knowledge and Research’ – September 1994

4.714 At the 14th meeting of SEAC, on 22 April 1993, under the heading ‘Third Interim Report’, the minutes record that: ‘The Committee made a number of comments on a draft report which [the Chairman] and Mr Bradley had prepared as a general structure.’ The Chairman also ‘proposed to consult several experts in the field of SEs individually, including some members, on the revision/writing of contributions for the report’.

4.715 When talking about the Third Interim Report in oral evidence, Dr Tyrrell stated:  

After our first two interim reports, we really had not justified the fact that we knew anything about spongiform encephalopathies and the science that lay behind them, either the basic historical origins of the diseases or the current molecular studies. So we felt it was incumbent upon us at least to put on record that we had reviewed the science and could distil it in a reasonably digestible form for people in general to read, and to say that is the basis upon which we had been saying the things we had been saying in the past.

4.716 Further discussion on the purpose of the Third Interim Report was held at the 15th SEAC meeting on 7 October 1993, where the minutes record that it was agreed ‘that the Report should aim to reach as wide an audience as possible’. At the 16th SEAC meeting on 26 January 1994, it was agreed that ‘the top priority in producing the report should be quality rather than speed’.

4.717 SEAC considered an updated draft at its 17th meeting on 30 August 1994, where publication was scheduled for autumn that year. The report was renamed, ‘Transmissible Spongiform Encephalopathies: A Summary of Present Knowledge and Research’, and published on Tuesday 7 February 1995. In his statement to the Inquiry, Mr Eddy said the Report was still dated September 1994 ‘because that
was the date up to which contemporary events and the scientific literature were incorporated’.

4.718 In its preface, the Report stated:

We believe the time has come to set out our understanding of these diseases since this forms the scientific basis of the advice we give. The objective of this third report is therefore to summarise, in accessible language, what is now known about the transmissible spongiform encephalopathies. We aim this report at those who wish to be informed of the current status of research into the TSEs, the questions that recent results have answered, those that are outstanding and those which now require investigation. We do not make recommendations or comment on policy; these are not appropriate to the Committee.902

4.719 The Report began with a condensed account of SEs for the general reader, before embarking on detailed sections on epidemiology, genetics, pathogenesis, transmission molecular studies, alternative hypotheses, and concluding with details of recent research and advice to help the planning of future studies.

Discussion903

4.720 The Report’s coverage on risk assessment, CJD surveillance and monitoring, which was part of Chapter 5 on Transmission, was as follows:

The SEAC has continuously reviewed the new data emerging from the epidemiological and other studies on the BSE epidemic with a view to making a judgement of the risks to man and other species. The risk to man from BSE depends on the inherent risk that the BSE agent is a human pathogen, which cannot yet be evaluated, and on the level of exposure to the pathogen, which can. Since scrapie was first clearly described in the literature of the 18th century there has been no epidemiological linkage of the disease, or indeed any animal TSE, with human disease, or vice versa. This does not prove there is no risk, but it suggests that any risk is probably small. To check that it is, the only means is to continue the in-progress CJD surveillance programme. This is because any unaccountable rise in incidence of CJD might hypothetically derive from animals. The logical target origin would be BSE, because it is a new disease and had occurred at a high incidence.

Twelve years after the first effective exposure of cows to BSE agent no such cases in man have been identified. Two recent cases of sporadic CJD in British dairy farmers are regarded as chance occurrences, not least because the clinical signs and other features are entirely consistent with a diagnosis of sporadic CJD. They are not like those in kuru or in peripherally exposed iatrogenic cases, which experts consider would be the more likely clinical presentation of BSE-derived infection. Our conclusion therefore is that, as the Southwood Working Party determined, taking all the available evidence together, the risk to man from BSE is remote. Nevertheless, advice given by them and this Committee has been aimed at reducing exposure of humans to

902 IBD2 tab 10 p. 9
903 This section of discussion is also to be found in vol. 6: Human Health, 1989–96, ch. 5
the BSE agent. Long term this is achieved by the ruminant protein feed ban which is already showing evidence of success in eliminating BSE in the cattle population and preventing new infections of all ruminants via feed. In the short term the compulsory notification, slaughter and complete destruction of clinically suspect BSE cases, together with the SBO ban (including the extension to include the distal ileum and thymus of calves under 6 months of age used for human consumption) is protecting consumers from any significant exposure.

We are also content that the bioassay of tissues from confirmed, affected BSE cattle realistically reflects the tissues in which the agent may be present in significant quantity (brain and spinal cord) and those in which it is not detected (muscle, milk, liver, kidney, heart, testis, ovary, semen, tonsil, spleen, gut lymphoid tissues and many others). We believe that these measures and others relating to biologicals prepared from bovine tissues, or used in their manufacture (another potential source of BSE infection for man and animals), are sufficient with current knowledge to satisfactorily protect human and animal health.

Although we do not know for certain the sources of FSE in domestic cats, all evidence (temporal and geographic occurrence of the disease, and agent strain typing) points to a feed source and probable origin from BSE rather than from scrapie. The initial cases of SE in all the captive wild ruminant species, except the scimitar-horned oryx, were exposed to the same infected feed as cattle. The origin of the infection in the scimitar-horned oryx and subsequent cases in greater kudu and eland is not known. The wild FELIDAE affected by FSE have been exposed to raw, central nervous tissue from potentially BSE-affected/infected cattle carcasses. ‘Species jumping’ is not an appropriate term to use since all these species have been exposed, probably via feed, provided ‘artificially’ by man. Indeed without man’s interference BSE itself would never have occurred. In conclusion, therefore, our scientific assessment is that the risk to man and other species from BSE is remote because the control measures now in place are adequate to eliminate or reduce any risk to a negligible level. We do however point out that any species exposed already and before any bans were effective could be incubating disease, and therefore continuous monitoring is very important until any possible incubation period has been exceeded.\(^{904}\)

4.721 The joint News Release after the Southwood Report had informed the public that the risk of transmission of BSE to humans appeared remote and that it was very unlikely that BSE would have any implications for human health.\(^{905}\) It had reported that the Working Party believed that risks as then perceived would not justify special labelling requirements for products containing either bovine brain or spleen.

4.722 By September 1994, much had occurred to alter the perception of risk. SEAC’s Report recorded that it was possible that BSE was the source of infection of newly recognised SEs in:

i. gemsbok;

ii. Arabian oryx;

\(^{904}\) IBD2 tab 10 pp. 71–2
\(^{905}\) IBD1 tab 3
iii. greater kudu;
iv. eland;
v. cat;
vi. moufflon;
vii. puma;
viii. cheetah; and
ix. scimitar-horned oryx.

4.723 By September 1994, 57 cases of FSE in domestic cats had been reported.

4.724 The Report introduced reference to measures that included the human and animal SBO bans with the words:

Control measures are necessary for public health and animal health reasons, the former because the BSE agent may be a human pathogen . . .\textsuperscript{906}

4.725 There then followed the passages on risk assessment set out at paragraph 4.703, above.

4.726 The careful reader might conclude that SEAC had assessed the risk of transmissibility to humans as significantly greater than had the Southwood Working Party. The Southwood Working Party had not thought that the risk justified labelling products containing spleen or brain, let alone banning them. SEAC described the risk as remote because of the reduction of that risk attributable to the control measures in place, which included the SBO ban.

4.727 SEAC did not, however, clearly spell out that their perception of risk differed from that of the Southwood Working Party. It stated ‘our conclusion therefore is that, as the Southwood Working Party determined, taking all the available evidence together, the risk to man from BSE is remote’.\textsuperscript{907} This might have misled the less careful reader into thinking that nothing had changed.

4.728 We do not criticise SEAC for what was a detailed and careful analysis of the existing data. Nonetheless, we think it a pity that their Report did not spell out more clearly and simply the fact that perception of risk had changed since Southwood. Had they done so, their Report might have attracted some attention and resulted in the public being better informed about risk.

4.729 The Report was published in February 1995, under cover of a News Release which stated that it ‘summarises what is now known about TSEs. The Report provides an insight into research both completed and underway’.\textsuperscript{908} It appears to have attracted no press coverage.
Lessons to be learned from the use of SEAC

Why have an advisory committee?

4.730 Since 1996 a great deal of thought has been given, and is still being given, to how government should best make use of scientific experts and, in particular, expert committees. We have looked back on the use that was made of SEAC with this debate in mind. We have decided that there were a number of aspects of the use of SEAC which were unsatisfactory. These are conclusions reached with the benefit of hindsight. They are lessons to be learned from experience. They are not matters which call for criticism of those who were involved at the time.

4.731 Guidelines published by the Office of Science and Technology (OST)\textsuperscript{909} emphasise the importance of identifying as early as possible those issues for which scientific advice will be needed. If a scientific advisory committee is to be set up, it is advisable at the outset to give rigorous thought to those matters on which the committee is likely to be asked to advise. Unless this is done:

- It will not be possible to ensure that the composition of the committee is tailored to the tasks that it will be required to perform.
- It will not be possible to draw up terms of reference which restrict the roles of the committee to those that it is competent to perform.
- It will not be possible to explain to those invited to serve on the committee the nature of the commitment that they are undertaking.
- It will not be possible to define satisfactorily the relationship between the committee and the commissioning Department or Departments.
- It will not be possible to identify the role and appropriate source of the secretariat.

4.732 Although there was discussion about the role that SEAC was intended to perform, this was not clearly defined. The Tyrrell Committee had left work in relation to research undone. They had published an \textit{Interim Report} and drawn attention to the need for peer review of research projects and for a continuing overview of BSE research. It was the need to review the BSE research that was being undertaken and to look out for gaps and overlaps that first prompted the idea of setting up SEAC, but it was then agreed that the new Committee would have a wider brief to advise on ‘other aspects’. It should respond to ‘specific questions’ which the Government might wish to put to it. Plainly it was difficult to foresee what these might be, but there were some aspects of what the Committee would need to consider that were capable of identification at the outset. When the agenda for the first meeting was being considered, Dr Pickles suggested that the committee should be invited to consider whether ‘any other new information alters the perception about animal or human health risks as given in the Southwood Report’. This was not just an item for a single agenda. We think that the obvious, and probably the most important, ongoing task for the new committee was to keep under review, in the light of advances in knowledge, the conclusions set out in the \textit{Southwood Report}.

\textsuperscript{909} The Office of Science and Technology, \textit{Guidelines 2000 on Scientific Advice and Policy Making}
That Report had been taken by the Government as the basis for its policy on BSE, and it was vital that the Government should be advised if any of the assumptions or conclusions in that Report proved to be unsound. These included:

- the scrapie theory as to the cause of BSE;
- the likely future incidence of the disease;
- that it was likely that cattle would be a dead-end host for BSE; and
- that it was most unlikely that BSE would have any implications for human health.

Had the task of keeping the Southwood conclusions under review been made an express part of SEAC’s remit, this would have assisted the identification of the appropriate membership of the committee. It would also probably have led SEAC to produce clearer and more specific risk evaluation than that to be gleaned from their 1990 paper on the safety of beef and their 1994 Report on TSEs.\(^\text{910}\)

**The composition of the Committee**

Dame Deirdre Hine suggested to us that SEAC would have benefited from the inclusion in its membership of a medical epidemiologist and a human public health expert. With hindsight we can see that she was correct. Indeed, when Sir John Pattison took over the chair of the Committee in 1995, his first act was to strengthen the human health representation. By then concerns about the possibility that BSE was transmissible to humans were growing. What might, we think, have been appreciated from the outset was the desirability of having an epidemiologist on the Committee. Concerns about the epidemiology of BSE were repeatedly recorded in the minutes of SEAC meetings. Dr Tyrrell pointed out, correctly, that members of the Committee were familiar with the principles of epidemiology. He commented that to gain added value in veterinary epidemiology a person in the top class was needed and, until Dr Hueston became available in 1994, there was no one qualified to perform this role. That is a sad commentary on the importance attached at the time to epidemiology in the veterinary field. We do not believe, however, that the epidemiological expertise which SEAC lacked could only have been supplied by a veterinarian. The science of epidemiology is the same, whether of humans or animals, and an epidemiologist such as Professor Anderson, who was to join SEAC’s epidemiology subcommittee much later, would have significantly strengthened the committee.

**The terms of reference**

The terms of reference provided that SEAC was to ‘advise MAFF and DH on matters relating to spongiform encephalopathies’. Mr Lowson said that these wide terms of reference had the merit of flexibility. That is true, but the benefit of flexibility carried with it the disadvantage of imprecision.

When we asked Dr Tyrrell whether it was sensible to ask his Committee for their views on ‘slaughterhouse practices’, he responded that he felt that they ought to try to answer the questions that government asked and pointed out that the letters

\(^{910}\) The Report was published in 1995 (IBD2 tab 10)
inviting new members to join SEAC asked them to advise on all matters relating to spongiform encephalopathies; the committee was not described as a Scientific Advisory Committee.

4.738 In 1997 MAFF and DH commissioned a review of SEAC.\(^9\) This recommended that SEAC’s terms of reference should be amended to ‘explain the purpose of the Committee’ and should provide that they were:

\[\ldots\text{to provide scientifically based advice\ldots}\text{taking account of the remits of other bodies with related responsibilities.}\]

4.739 It was plainly desirable that SEAC’s terms of reference should have at least this degree of precision.

**Role in relation to policy**

4.740 Particularly careful thought needs to be given by government to the manner in which it wishes an advisory committee to contribute to the taking of policy decisions. Options include the following:

- The committee advises on those ingredients of a policy decision that fall within its own areas of expertise but does not advise on which of the policy options should be adopted.
- The committee discusses the pros and cons of each of the policy options but does not recommend which should be adopted.
- The committee advises which of the policy options should be adopted.

4.741 When SEAC was set up, there was at least a possibility that it would advise on policy. Even so, little thought seems to have been given to how MAFF and DH would interact with SEAC. This was a question on which the Committee itself had something to say at its third and fourth meetings.

4.742 The minutes of SEAC’s third meeting record:

It was recognised that [the Committee’s] job was to assess scientific data and opinions as objectively as possible, then to set down judgements on these in writing. It was important to communicate the message that science was not absolute and it was for policy-makers to decide what measures to adopt.\(^9\)

4.743 This was not a message that got across to the Government.

4.744 At its fourth meeting SEAC returned to the theme. The Committee felt that one of its objectives was:

\[\ldots\text{to produce ‘opinions’ that set out clearly what was implied by scientific knowledge. It was for others to decide what policy decisions should flow from this.}\]

\(^9\) YB97/07.00/2.1–2.55
\(^9\) YB90/6.13/1.1
\(^9\) YB90/7.02/2.2
4.745 In the event SEAC was seldom asked to do this. It was frequently asked not the scientific question ‘what does this mean?’, but the policy question ‘what should we do?’:

- Should we advise farmers not to breed from the offspring of BSE dams?
- Should we permit brains to be removed before head meat?
- Should any changes be made to slaughterhouse practices?
- Should porcine material be fed to cattle?
- Should we permit animal protein to be fed to farm animals?
- Should we permit MBM derived from SBO to be included in animal feed?
- Should we permit tallow to be incorporated in animal feed?
- Should we permit tallow derived from SBO to be incorporated in animal feed?
- Should we permit MRM to be extracted from bovine vertebrae?
- If BSE is transmissible to humans WHAT ACTION MUST WE TAKE?

4.746 On each of these questions SEAC was in a position to give informed scientific advice. Each one called for an evaluation of the likelihood of a risk of transmission of BSE to humans or to animals. But in most cases there were other factors to be weighed in the balance and it should have been government rather than SEAC which took the final policy decision. We can see the attraction of asking SEAC to provide the policy answer. It enabled the Government to say that they were following the best scientific advice. But this disguised the fact that the scientists were being asked to evaluate considerations which were not questions of science, and it raised problems as to whether and how government should provide input to SEAC’s decisions.

4.747 The effect of asking SEAC to advise on the adoption of policy options was to put the Government ‘in a box’. Once the advice was given, the Government had little option but to adopt it. In those circumstances it was desirable for government to put before SEAC all the relevant matters that needed to be considered when reaching a policy decision.

4.748 On occasion MAFF did more than this and advocated the option which SEAC ought to adopt. Before the experimental transmission of BSE to a pig, MAFF officials prepared a paper in which they invited SEAC to endorse their conclusion that it was satisfactory to include animal protein, even that derived from SBO, in pig and poultry feed. After transmission to the pig, they suggested to SEAC that in their view the preferable option was to ban the incorporation of SBO in animal feed. When in June 1995 the question of MRM came back before SEAC, MAFF gave the Committee a firm steer by stating that instructions to the Meat Hygiene Service and audit checks proposed by the Ministry would ensure that all spinal cord was removed before MRM was extracted.

4.749 We do not suggest that expert committees should never be asked to advise on policy options. What the BSE story shows is that, before asking such a committee to advise on a policy decision, careful thought should be given to the
contribution that the committee is in a position to make to it. In most of the examples that we have set out above we feel that it would have been preferable if SEAC had been asked to advise on the risk of transmission involved, reserving to government the decision on the action to take in the light of that advice. If SEAC were to discuss the policy options, this would have been better done by dialogue with MAFF officials speaking to the papers that were put before the Committee.

4.750 The history of the response to BSE leads us to endorse the following OST Guidelines:

Scientific advice is only one element among the considerations which may need to be taken into account by decision makers, which might also include social, political, economic, moral or ethical concerns. Departments will need to judge how and at what stage the scientific and other concerns are to be brought together in the decision making process. Where it is intended that those offering the advice should take such concerns into account, departments should make it clear at the outset that this is the case.

When asking experts to identify policy options or to comment on policy options prepared by others, departments should respect the line between the responsibility of experts to provide advice, and the responsibility of departments for any subsequent policy decisions based on that advice.

4.751 We note the guidance or best practice recommended in the ‘May Review’ in relation to advisory committees dealing with food safety:914

Advisory committees should, when appropriate, set out a range of risk management options for policy makers, together with their implications, to avoid placing unnecessary constraints upon the decision-making process.

SEAC did not adopt a guideline of this kind when asked to advise on food safety. Looking with hindsight, it would have been better if they had – particularly in March 1996. Indeed, matters would have been improved if the Committee had adopted such a guideline when advising not merely on food safety but on policy measures generally. However, we add a note of caution about the words ‘when appropriate’ in the quote above: it would not have been appropriate to expect a scientific committee such as SEAC to identify all possible risk management options. That would require input from others.

The secretariat

4.752 In helpful written comments provided to us on the role of advisory committees, Mr Meldrum submitted:

The secretariat of the committee should be totally independent of the commissioning department. It should consist of administrators not scientists. If there is a need for scientific input into the committee’s considerations it should be obtained from the members themselves and not from any outside hidden source.

914 The Review of Risk Procedures used by the Government’s Advisory Committees dealing with Food Safety, July 2000, by a group led by Sir Robert May, the Chief Scientific Adviser
4.753 This is a delicate area, particularly where there are two commissioning Departments that do not always see eye to eye. We have noted the significant role played by Dr Pickles in the preparation of the Southwood and Tyrrell Reports and in SEAC’s advice on the safety of beef. We have also expressed concern at the process of editing drafts of that advice, when officials sought to tone down any passages that might have given rise to public concern. Where a Department has a particular viewpoint on a matter that is before an advisory committee, this should be placed before the committee in a manner that is transparent, and the secretariat should not act as the Department’s advocate. This does not lead us, however, to support Mr Meldrum’s call for a principle that the secretariat should be totally independent of the commissioning Department. Dr Tyrrell told us that it is valuable for the secretariat to be sufficiently expert to be able to draft background papers and to act as a two-way channel of communication between committee and Department. Sir John Pattison said that at times the input from the secretariat was valuable and should be invited. We consider that the role played by the SEAC secretariat as a two-way channel of communication was important and it would have been a mistake to sacrifice this out of concern for the independence of the committee. We would, however, endorse the principle suggested by the OST’s ‘Consultation Document on a Code of Practice for Scientific Advisory Committees’ that the secretariat should respect the independence of the committee’s operational role.

Conflicts of interest

4.754 The OST Guidelines advise that:

Departments should ask prospective experts to follow the seven principles of public life as set out by the Committee on Standards in Public Life, which include the obligation to declare any private interests relating to their public duties. Departments should judge whether these interests could undermine the credibility or independence of the advice.

4.755 We do not subscribe to the view that potential conflicts of interest should necessarily disqualify someone from membership of an expert committee. Often the involvement which creates the potential conflict of interest gives the committee member particularly valuable expertise. It is, however, essential that potentially conflicting interests are declared. The interests of SEAC members were published in the form of replies to Parliamentary Questions. The 1997 MAFF and DH review of SEAC sensibly suggested that these should be published in a SEAC Annual Report.

4.756 It is important not only that committee members should register interests which may give rise to conflict, but that if any special circumstances give rise to an appearance of a conflict of interest for a member in respect of any item of business, the member should make that plain. We have noted a failure to observe that principle in relation to the formulation of answers to Mr Hogg’s questions in 1995 (see below).915

915 ‘Mr Hogg’s questions’ are dealt with more fully in vol. 6: Human Health, 1989–96, and also discussed in vol. 1: Findings and Conclusions
Remuneration

4.757 Members of SEAC who were not public servants were paid for the time that they spent on the work of the Committee. Having regard to the workload that membership of SEAC involved we think that it was reasonable that members should be paid.

Workload

4.758 Care should be taken that those invited to join a committee are given as realistic an estimate of the amount of work that will be involved as is possible. We believe that there is a tendency of officials to err on the side of optimism – this was certainly so in the case of SEAC. Care must also be taken to see that agendas are realistic having regard to the time available. If agendas are overloaded it is not realistic to expect that all items will receive the rigour of consideration that they deserve. SEAC’s agenda was often overloaded. One occasion when this had serious consequences was when advice was given on slaughterhouse practices on the basis of impressions made on a visit to a slaughterhouse, rather than detailed consideration of the lengthy paper prepared by MAFF.

4.759 In order to make the best use of committee members’ limited time, it may be necessary to select those questions on which their advice will be of the greatest value. Producing a paper in 1990 confirming advice already given by the CMO about the safety of beef was not the most profitable use of SEAC’s time. Nor was the time spent in 1995 attempting to draft answers to the questionnaire that Mr Hogg wished to have answered in order to provide publicity material.

The manner of seeking advice

4.760 Careful consideration should be given to the advice needed from the advisory committee and to ensuring that the advisory committee is the best source of that advice. The advice requested should be targeted so as to avoid the risk of the answers being influenced by considerations falling outside the committee’s expertise. We have set out in paragraph 4.738 above examples of failures to adopt this approach.

Application of principles of risk analysis

4.761 When exploring earlier this year the risk procedures used by the Government’s advisory committees dealing with food safety, Sir Robert May’s Group received answers from SEAC about their role as follows:

Role in risk assessment

Analysis and assessment of the risk to public health from exposure to TSEs, particularly BSE. Whilst much work is done internally SEAC also commissions advice from external contacts on specific issues. Its main area is risk assessment, which is informed by regularly reviewing research and drawing on scientific expertise. Use qualitative and quantitative, systematic risk assessment procedures.
Role in risk management

SEAC informs rather than drives decision-making. Risk management decisions may be influenced by factors that cannot be built into a formal quantitative risk assessment. SEAC offers advice on risk management.

4.762 These answers suggest that today SEAC is consciously applying principles of risk assessment and is not being asked to choose policy options. This is in marked contrast to the position during the period with which our Inquiry is concerned. As MAFF’s 1997 Review of SEAC recorded:

SEAC’s activities may sometimes seem more like those of a risk management committee than a risk assessment committee.

That Review also observed:

The Committee is conscious of the potential economic impact of its advice, and of the need – on questions where scientific certainty is not possible – to have regard to the practical consequences of possible courses of action.

4.763 This is clear recognition that SEAC was, in effect, choosing the policy options. We have been unable to find from first to last any mechanism for ensuring that SEAC was informed of the potential economic impact and practical consequences of its advice, or any conscious application of the ALARP principle of risk management.916

4.764 During the period covered by our terms of reference, SEAC often did not clearly distinguish between risk assessment and risk management. Our examination of that period provides strong support for the statement of best practice in the ‘May Review’:

Advisory committees will usually be helped by following a formal structure for the process of risk assessment, even when the scientific facts are cloudy, disputed or even unknown.

The form of advice

4.765 In some cases SEAC went to great lengths to set out the reasoning behind their advice – the explanation of their conclusions on breeding from the offspring of BSE dams and their ‘beef is safe’ advice are examples. In other cases they gave no formal explanation – their advice on slaughterhouse practices is an example of this approach. It is also an example of the danger of misunderstandings where advisory committees do not explain their reasons in detail. ‘It is important that committees make clear to policy maker the assumptions and uncertainties underlying their advice.’917 It is, of course, essential that the advice itself should be clear.

916 ALARP = As Low as Reasonably Practicable
917 May Review, see para. 4.751
Circulation of advice within government

4.766 It was not clear that SEAC’s views – especially when recorded only in minutes of meetings – were always circulated to all those in MAFF and DH who might be affected. The evidence as to circulation outside MAFF and DH, and in particular to the Welsh, Scottish and Northern Ireland Departments, was confused. Our examination of both formal and informal advice given by SEAC suggests a need to identify, either generally or on specific issues, all those within government with responsibility for policy decisions to which the advice is relevant. They can then be sent relevant minutes and more formal ‘advices’, and any papers necessary to understand them. It was particularly desirable that the Agriculture and Health Departments in Wales, Scotland and Northern Ireland be kept abreast of SEAC’s proceedings.

Openness and transparency

4.767 The extent to which the public should be informed of the deliberations and conclusions of advisory committees is part of a wider debate about open government. Mr Gummer introduced the principle that the formal advices of SEAC should be made public, but this was normally delayed until the Government was in a position to announce the measures to be taken in response to the advice. The advices were published by the Government and not by SEAC. It was not, however, the practice to make public the matters on which SEAC had been asked to advise. Thus when UKASTA was seeking to convince MAFF of the merits of an animal SBO ban, and MAFF officials and Ministers were arguing that there was no justification for this, it was not thought appropriate to inform UKASTA that this question had nonetheless been referred to SEAC.

4.768 We have remarked upon the general impression that up to 20 March 1996 the Government was not being open with the public about the risk posed by BSE to humans. We have also, with hindsight, queried the wisdom of Mr Hogg’s questions to SEAC about the safety of beef. Had the Committee given the answers he sought, the process of seeking and publishing them would have been likely to damage public faith in SEAC’s objectivity. If SEAC had itself adopted a practice of making public details of advices given to government, together with the reasons for them, we consider that this would have gone some way to reassuring the public that information about BSE was not being and had not been concealed from them.

4.769 The OST Guidelines recommend:

Departments should ensure their procedures for obtaining advice are open and transparent. The evidence upon which the advice is based should be published. The analysis and judgement which went into it, and any important omissions in the data, should be clearly documented and identified as such. Any claims for material to be protected, e.g. on grounds of the commercial confidentiality of the information concerned, should be rigorously tested.

Departments should ensure that data relating to the issue are made available as early as possible to the scientific community, and more widely to enable a wide range of research groups to tackle the issue and to provide a check on the advice going to government. This will be particularly important, for
example, where the advice will rely on research which has not been peer reviewed, or which has not been previously published.

4.770 The history of scientific advice concerning BSE shows the wisdom of these recommendations, but they leave unanswered some difficult questions:

- Should the agenda of meetings of advisory committees be published?
- Should the minutes of meetings be published?
- Should meetings of advisory committees take place in public?

4.771 There is inevitably a tension between being open about the details of the discussions of advisory committees and maintaining a lack of inhibition on the part of those involved in those discussions. Both Dr Tyrrell and Sir John Pattison believe that there is a need for a degree of confidentiality. They expressed the view to us that meetings should not be held in public, or at least not the whole of them, and minutes should not be published.

4.772 We do not find that the BSE experience provides a clear answer to the question of where precisely freedom of information should give way to the pragmatic requirements of confidentiality.

4.773 Witnesses representing consumer interests made the point that a lay member can play a valuable role on an expert committee, and in particular can ensure that advice given by the committee addresses the concerns of, and is in a form that is intelligible to, the public. There is force in this.

Conclusion

4.774 The reader of this lengthy list of lessons to be learned from the use of SEAC may have reached the end with the impression that little went right about the assistance provided to the Government by SEAC. That would be a false impression. SEAC was a diligent and conscientious body of professionals of high calibre. Whether or not they made use of techniques of risk assessment, whether or not the advice sought from them was satisfactorily targeted, whether or not they were effectively making policy decisions which should have been reserved to government, they made a significant contribution to the protection of human and animal health.
Annex 1 to Chapter 4: SEAC members, observers and secretariat

<table>
<thead>
<tr>
<th>MEETING</th>
<th>DATE</th>
<th>MEMBERS</th>
<th>OBSERVERS</th>
<th>SECRETARIAT</th>
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<td>Dr D A Tyrrell (C) Dr F Brown Dr R Kimberlin Dr W Watson Dr R Will</td>
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<td>Mr R Lowson MAFF Dr H Pickles DH</td>
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<td>Mr T Murray DH Professor R Barlow Mr D Pepper</td>
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Note: (C) stands for Chairman
## Annex 2 to Chapter 4: SEAC meetings

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<tr>
<th>NUMBER &amp; DATE OF MEETING</th>
<th>TOPIC(S)</th>
<th>MAIN COMMENTS</th>
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<tbody>
<tr>
<td>1st Meeting 1/5/90</td>
<td>Terms of reference</td>
<td>The Committee agreed that its remit was very wide.</td>
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<td>Membership</td>
<td>The Committee felt additional experts could be involved for particular topics as necessary.</td>
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<td></td>
<td>Overview of developments in research</td>
<td>It was proposed that there would be one overall joint coordinating committee to oversee the AFRC and MRC research programmes.</td>
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<td>Experimental results</td>
<td>Research on the neuropathology of BSE showed consistent pattern of lesions suggesting, unlike scrapie, a single strain and route of infection.</td>
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<td>It was also reported that there had been positive intracerebral transmission of BSE to negative-line sheep reported.</td>
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<td>The Committee confirmed that the new information had not altered their perception about the probable lack of hazard of BSE to humans.</td>
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<td>Non-food uses of bovine material</td>
<td>MAFF and DH were to investigate the possible use of bovine and ovine tissues in products (such as cosmetics); this work remained high priority.</td>
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<td></td>
<td>Epidemiology</td>
<td>Concern was expressed that the full range of hypotheses for the recent increase in reporting had not been considered. It was agreed that MAFF would arrange for the Committee to receive data on the progress of the disease.</td>
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<td>Breeding from BSE offspring</td>
<td>The Committee was not convinced of the line proposed by MAFF concerning advice against the use for breeding of the offspring of BSE cows. The incidence of subclinical infection invalidated any action proposed. Other consequences identified were the loss of certain useful cattle genes and of public confidence in the meat trade. With the expected elimination of the disease (barring horizontal transmission), the new measures might accelerate this only slightly.</td>
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| 2nd Meeting 17/5/90     | Breeding from BSE offspring | The Committee made clear, after a request for clarification from MAFF, that it wished to amplify its previous advice on breeding. It was unknown whether BSE spread naturally among cattle, but even 100 per cent maternal transmission would not sustain the epidemic. The Committee issued a statement on the issue of breeding and it was released attached to a press release from MAFF. |
|                         | Safety of beef             | The CMO had sought the endorsement of the Committee on the issue of safety of beef. The Committee discussed a draft letter to the CMO. It was decided that in the present state of knowledge, it was not thought justified to state categorically that there was no risk to humans and that it was not appropriate to insist on a zero risk. |
|                         | Slaughterhouse practices   | The Committee recommended additional attention should be directed at abattoir methods, in order to minimise cross-contamination of meat with banned offal.                                                         |
|                         | FSE                       | The Committee discussed the implications of the reported case of feline SE. Three possibilities were identified: (a) a feline disorder with no association with BSE or scrapie; (b) feline scrapie; or (c) feline BSE. The Committee felt it premature to draw conclusions without further data. The HSE was alerted to the potential for exposure to cat nervous tissue in neurophysiologists and others. Information was also sought on the potential for cross-species transfer in veterinary products. |
**ANNEX 2 TO CHAPTER 4: SEAC MEETINGS**

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<tr>
<th>NUMBER &amp; DATE OF MEETING</th>
<th>TOPIC(S)</th>
<th>MAIN COMMENTS</th>
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<tbody>
<tr>
<td>Membership</td>
<td>The Committee recommended strengthening the regular membership of the Committee with a human neuropathologist.</td>
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<tr>
<td>3rd Meeting 13/6/90</td>
<td>Role of SEAC</td>
<td>It was recognised that the Committee’s role was to assess scientific data and opinions as objectively as possible, then to set down judgements on these in writing. It was important to communicate the message that science was not absolute and it was for policy-makers to decide what measures to adopt. The Committee agreed that all advice would go to MAFF and DH in the first instance with the assumption that it would be made publicly available.</td>
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<td></td>
<td>Maternal transmission</td>
<td>The Committee requested further information on the theory that the epidemic would die out if transmission were from cow to calf only, and whether horizontal transmission (including disposal of placentae) was a more important problem.</td>
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<tr>
<td></td>
<td>FSE</td>
<td>The Committee considered the question of possible human health implications in the recent discovery of a SE in three cats. They felt that there was still no way of knowing whether the condition was a previously unrecognised species-adapted encephalopathy, feline scrapie, or a BSE-related disease. The Committee agreed it was in no position to offer advice on the implications for human health until more was known about the condition. The Committee recommended urgent research work.</td>
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<td></td>
<td>Other species</td>
<td>As with the cat, it was too early to recommend action regarding the appearance of SEs in other animals. The Committee noted that its views on the safety of beef did not rely on the species susceptibility of BSE.</td>
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<td></td>
<td>Animal feed</td>
<td>The Committee was asked to look at the issue of ruminant feed. The Committee recommended further study on the issue of feeding ruminant feed to pigs and poultry. Particular points to be considered were: (a) pigs had continued to receive the same exposure to the BSE agent in cattle; (b) most pigs were slaughtered before the likely expression of the disease; and (c) if pig offal were used in MBM production, the possibility of the agent being recycled back into cattle was small.</td>
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<tr>
<td></td>
<td>Slaughterhouse practices</td>
<td>The Committee was asked by MAFF to consider a paper on slaughterhouse practices. They recommended that the removal of bovine brains before head meat was harvested should not be permitted. Similarly, the same principle of avoiding contamination arose with procedures involving the spinal cord. Further information was requested on this practice.</td>
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<td></td>
<td>Epidemiology</td>
<td>The Committee observed that the methodology that had been applied to the CVL’s modelling remained obscure.</td>
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<tr>
<td>4th Meeting 27/90</td>
<td>FSE</td>
<td>The Committee noted that MAFF was willing in principle to fund transmission experiments with the brains of infected cats.</td>
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<td>Resources and processes</td>
<td>The Committee considered that the DH and CVL libraries should undertake literature searches on behalf of the Committee.</td>
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<td></td>
<td>Role of SEAC</td>
<td>The Committee felt one of its objectives was to produce ‘opinions’ that set out clearly what was implied by scientific knowledge. It was for others to decide what policy decision should flow from this. These opinions could be backed up by more detailed notes setting out their scientific basis.</td>
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<td></td>
<td>Safety of beef</td>
<td>The draft letter to the CMO was agreed, and the longer supporting paper requested to be circulated for final clearance.</td>
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<td></td>
<td>Epidemiology</td>
<td>The Committee noted there continued to be no evidence of cattle-to-cattle transmission either in the field or experimentally.</td>
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<td>NUMBER &amp; DATE OF MEETING</td>
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<tr>
<td>Slaughterhouse practices</td>
<td>The Committee noted MAFF was preparing a paper on practices relevant to BSE, and agreed that a visit to a plant by members was necessary.</td>
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<td>Bovine eyeballs</td>
<td>The Committee was asked to look at the question of the use of bovine eyeballs in schools. They agreed with the paper from DH and advised that the eyes of cattle over six months of age should not be used for dissection in schools.</td>
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<td>Scrapie and BSE in sheep</td>
<td>The Committee requested that MAFF produce a paper on the implications of the possible modification of the scrapie agent and on BSE in the sheep population.</td>
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**5th Meeting 19/9/90 (YB90/9.19/2.1)**

| Overview of developments in research | Concern was expressed about the complexity of arrangements being set up to coordinate research work, and the MRC would be advised of the importance of streamlined mechanisms. The secretariat reported Government discussion on the possibility of an expert to oversee the coordination of Government-sponsored research. |
| Epidemiology | The Chairman reiterated that there were still questions to be answered about the analysis of the data collected on the epidemic by the CVL. It was considered sometimes difficult to judge whether alternative scenarios to those advanced by the CVL had been adequately tested. |
| Animal feed | The Committee approved its report produced from a previous meeting on the intracerebral transmission of BSE to a pig. The Committee recommended that pigs should no longer be fed with protein derived from SBO. It was also thought sensible to extend this prohibition to feed for all species. |
| FSE | The Committee recommended that the cost of funding clinical examination of cats should be met by public funds to encourage owners to cooperate. Although the Committee did not believe the disease in cats was of direct relevance to human health, it needed to be properly investigated to clarify the nature of the agent that caused it. |
| Rendering industry | The Committee was asked to look at processes employed within the rendering industry. Questions about the rendering process emphasised the importance of maintaining monitoring of the outbreak: had it been clearly demonstrated that the food-borne source of the outbreak had now been cut off? The Committee advised that experimental work be continued and that the use of tallow in animal feed be considered. |
| Scrapie and BSE in sheep | The Committee noted that a study of archived sheep scrapie brains had revealed only one case with a neuropathology similar to BSE. |

**6th Meeting 1/11/90 (YB90/11.1/2.1)**

| FSE | The Committee clarified that MAFF should provide free histological examination of brain samples from suspect cases but that this did not extend to the initial clinical examination. |
| Overview of developments in research | The Chairman reported approaches from MAFF suggesting the Committee should have the role of taking an overview of all Government-funded research into SEs. Concern was expressed that the members of the Committee did not have the time to do the job properly. |
| Experimental results | Differences between the BSE agent and scrapie had been demonstrated by: |
| BSE in sheep | It was recorded that BSE had been transmitted both intracerebrally and orally to sheep. |
### Epidemiology

The Committee welcomed the modelling set out by the NPU comparing the effect of culling and not culling the offspring of cattle. Although this might not provide an accurate forecast, it was a useful approach for identifying key variables. The Chairman felt it would be helpful to see more of the basic data and detailed workings of the CVL and NPU lying behind some of the conclusions drawn. The Committee were concerned that basing hypotheses about the course of the disease only on cases reported early put a question mark against some conclusions (and noted that if the BSE agent had changed over time this could undermine the value of offspring experiments using only material derived from early cases).

### Slaughterhouse practices

A paper from MAFF tabled at the meeting noted the theoretical possibility that some slaughtering practices could involve contact between the spinal cord and meat destined for human consumption. Having asked the Committee for advice on the subject some members visited a slaughterhouse. The Committee concluded that, provided all the rules were properly followed and supervised, there was no need to recommend further measures on the grounds of consumer protection. In particular, it was noted that the spinal cord could be extracted from the carcass without difficulty.

### Tallow and Animal feed

Subsequent to enquiries from MAFF, the Committee did not feel that there was an urgent need to consider any risks associated with the use of tallow. However further information was requested on that derived from cattle and scrapie-infected sheep. A MAFF paper tabled at the meeting noted that between 30 – 40 per cent of all tallow was used in animal feed.

### 7th Meeting 7/3/91 (YB91/3.7/2.1)

#### Epidemiology and scrapie

It was observed that a new EC directive on trade in sheep and goats required that scrapie should be notifiable. The Committee felt that it was particularly important that a focused investigation of the prevalence of scrapie should be undertaken – in advance of the data yielded by notification.

#### Tallow

The Committee was reassured by MAFF evidence that the protein content of tallow was very low and that MAFF did not believe that tallow derived from SBOs was likely to reach the food chain. The Committee requested further information about the real scope for leakage of such material into human food. On the basis of the available evidence, it was not thought appropriate to offer specific advice on tallow.

#### Non-food uses of bovine material

The Committee requested a note on the use of bovine material in non-food preparations such as cosmetics.

#### Disposal of carcasses and SBO material

Noting the article by Brown/Gajdusek on the survival of the scrapie agent in soil, the Committee advised that it was not advisable to bury fallen cattle near the surface, where they could be exposed again. Concern was expressed over the decline of the service operated by knackers, which might lead to an increase in this risk.

The Committee also recommended that on balance it would be better not to use material derived from SBO as a fertiliser, but that the practice would be acceptable if the material were subject to more rigorous heat treatment (ie to the standard for dealing with the CJD agent). Less caution was needed in Northern Ireland because of the much lower incidence of BSE and the fact that any infected material would be diluted considerably.

#### Blood

The Committee reviewed a MAFF paper and concluded that, as there was no evidence that blood carried detectable infectivity, spreading bovine blood on agricultural land carried with it no extra risk of distributing the BSE agent so long as existing controls were properly applied in the slaughterhouse to ensure that blood was not contaminated with other tissues.

#### Overview of developments in research

The Committee considered that there was an important coordination job to be done but that it did not have the resources to get a first-hand view of the work. Cross-representation with other committees and occasional seminars was felt to provide a workable approach.
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<tr>
<td>8th Meeting 10/5/91 (YB91.10/2.1)</td>
<td>Disposal of carcasses and SBO material</td>
<td>The Committee considered a note tabled by MAFF on the use of heat treatment similar to that required to neutralise the CJD agent which could reduce the amount of BSE agent present. It was however concluded that it could not be guaranteed that material subjected to the heat treatment would contain no agent. Experimental work could provide more data on the subject.</td>
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<tr>
<td>Milk</td>
<td>The Committee considered the short draft protocol for the milk transmission experiment. It generally felt that the detail of the experiment required further consideration, the prime reason for doing the work being to determine by the most sensitive means whether infectivity could be conveyed in milk. It concluded that a field study comparing the pattern of the disease in beef and dairy herds would be the most useful approach. Another would be to orally expose calves with the milk of affected cows.</td>
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<tr>
<td>Overview of developments in research</td>
<td>Arrangements for consultation and coordination were becoming established. The Committee’s role fell short of the unified expert guidance that would exist with a directed programme but this was not felt to be a realistic approach to pursue. The Committee concluded that it would be happy to invite observers from the Research Councils to participate in relevant discussions but it did not want to see the permanent membership of the Committee expanded.</td>
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<tr>
<td>BAB cases</td>
<td>The Committee noted that the possibility that the animal identified as born after the ban had been fed on ruminant protein could not be fully ruled out. However, this would not alter the Committee’s view of the disease and the advice that had been offered. This was due to a lack of similar cases in the field and no positive results in the offspring study.</td>
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<td>Non-food uses of bovine material</td>
<td>The Committee requested from MAFF a list of non-food uses of bovine material that had been drawn up in consultation with the slaughtering industry. It also suggested the advisability of seeking from the cosmetics industry an indication of whether it used bovine material.</td>
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<tr>
<td>9th Meeting 28/6/91 (YB91.28/2.1)</td>
<td>Overview of developments in research</td>
<td>The Committee emphasised that although contacts had improved with the AFRC, it was important that the attendance of AFRC representatives at SEAC meetings were restricted as was consistent to their need for information. The AFRC had discussed organising workshops discussing research into SEs. The Committee thought that the AFRC should be encouraged to look into allowing the attendance of non-AFRC funded workers/bodies to any such workshops.</td>
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<tr>
<td>Milk</td>
<td>MAFF had reported that it thought the best approach to the transmission experiments was to feed milk to mice. The Committee agreed that this was the best course of action.</td>
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<tr>
<td>Epidemiology</td>
<td>The Committee requested progress reports on the contacts established following the epidemiology seminar in February with the London School of Hygiene and Tropical Medicine, and on the publication of the mathematical modelling of the epidemic. The Committee requested information on whether contact lens care products were covered by the Committee on the Safety of Medicines’ guidelines. Also whether any SBOs going for industrial use were likely to end up in products which might come into contact with human tissues.</td>
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<td>10th Meeting 6/9/91 (YB91.9.6/3.1)</td>
<td>FSE</td>
<td>The Committee emphasised the importance which it attached to a properly constructed study of the condition in cats. The species was probably the animal with the highest level of human contact.</td>
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<td>Preparation of SEAC’s Second Interim Report</td>
<td>The Committee felt that three questions needed to be addressed in the Second Interim Report – (a) had the recommendations of the First Interim Report been implemented; (b) did the scientific evidence support the action being taken by HMG; and, (c) were there gaps in the scientific work or scope for better coordination?</td>
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<tr>
<td>11th Meeting 28/11/91</td>
<td>Epidemiology, Overview of</td>
<td>The Committee commented on the three CVL draft papers on the spread of the epidemic and emphasised the great importance of prompt publication of these and other scientific papers.</td>
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<td>developments in research</td>
<td>The Committee had been invited to consider a transgenics research proposal from St Mary’s Hospital. The proposal had previously been turned down for funding by MAFF and had been further proposed to the AFRC. While concluding that it did not support the application, the Committee recognised the importance of work in this emerging field.</td>
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<td>Risk from zoo animals</td>
<td>The Committee noted the two articles describing SEs in ostriches. It noted that transmission experiments involving tissues from the affected birds were in hand in Germany. It suggested that consideration should be given to alerting veterinary surgeons handling zoo animals of the need to look out for suspicious symptoms.</td>
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<tr>
<td>12th Meeting 8/4/92</td>
<td>Communication with Lamming</td>
<td>The Committee made it clear that whilst happy to help the Lamming group by providing its views on particular issues, it did not want to participate in producing an agreed report. The right procedure would be for Lamming to make its recommendations and for the Departments to consider whether these required action by other advisory groups such as SEAC.</td>
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<td></td>
<td>FSE</td>
<td>The Committee reviewed the proposed study into SE in cats at Bristol. The AFRC had initially been prepared to fund the study but this had been aborted as a result of MAFF’s refusal to provide BSE material for inoculation into cats. The Committee requested that MAFF reconsider its refusal to do so.</td>
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<td>Role of SEAC</td>
<td>The Committee considered the scope for further work in order to fulfil its remit to maintain an overview of research. It was clear that adequate machinery was in place but the Committee emphasised the need to keep abreast of developments in research across the whole field of SEs and to consider whether it would be helpful to draw attention to the wider implications of results.</td>
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<tr>
<td>Overview of development in research</td>
<td>The Committee discussed the Report of the visiting group to the CVL epidemiology department. The Committee welcomed the Report’s emphasis on the importance of epidemiological work and its approval of the high quality of work at CVL. The Committee were convinced of the crucial importance of documenting the diagnoses in those cases found not to be infected with BSE, and welcomed the proposed detailed study of 1,500 suspect cases per year, of which a proportion would not be confirmed as BSE.</td>
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<tr>
<td>13th Meeting 15/10/92 (YB92/10.15/2.1)</td>
<td>Feeding porcine MBM to cattle</td>
<td>The Committee considered that porcine material was not being fed to cattle and that it was advisable to continue.</td>
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<td>Overview of developments in research</td>
<td>The Committee considered further research on pigs. It felt it was theoretically possible that pigs could be carrying the agent of BSE or scrapie. It would therefore make sense to design an experiment to expose pigs to massive doses and to assess the presence of signs in the CNS.</td>
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<td>BAB cases</td>
<td>The Committee concluded that all the evidence continued to suggest, in the case of BABs as in earlier ones, that infected feed was the origin of infection and that there was still no evidence of any alternative source.</td>
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<tr>
<td>CJD in farmers and young people</td>
<td>The Committee concluded that DH would look at what needed to be done to ensure that funding would be available for follow-up laboratory studies of Dr Will’s study into CJD in a cattle farmer.</td>
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<tr>
<td>Maternal Transmission</td>
<td>The Committee considered recent findings on maternal transmission and concluded that further investigation was required.</td>
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<td>Tallow</td>
<td>The Committee was asked to review its position on the production of tallow. It concluded that even though the risk that the presence of infectivity was slight, it noted that tallow derived from SBOs was excluded from human food. It would therefore make sense to bring the rules about the use of tallow for animal consumption into line with those that applied to human consumption.</td>
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<tr>
<td>Gelatin</td>
<td>The Committee looked into the use of gelatine in the pharmaceutical process. The Committee noted that for technical reasons spinal cord was not likely to be included in the raw material of gelatine manufacture. As long as brains were excluded from the manufacturing process, the risk that the agent might be present in gelatine was negligible. It was however necessary to identify potentially hazardous routes, such as material used for injection or implantation, which merit more serious consideration than that taken orally. Bovine material used in the manufacture of gelatine for such purposes should exclude specified offal, as well as skulls and vertebrae.</td>
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<tr>
<td>FSE</td>
<td>The Committee noted that MAFF had agreed to make BSE material available to Bristol University for the study of FSE, subject to their approval of the detail of the experiments in which it was to be used.</td>
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<td>Risk from zoo animals</td>
<td>The Committee considered the infectivity studies of tissues from the London Zoo kudu. The Committee did not believe that the apparent high susceptibility of kudu was relevant to BSE in cattle.</td>
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<tr>
<td>14th Meeting 22/4/93 (YB93/4.22/2.1)</td>
<td>Milk</td>
<td>The Committee concluded that there was no evidence to suggest that milk was a hazard to animals or man and no further measures were necessary to protect public health.</td>
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<td>Tallow</td>
<td>The Committee noted that Ministers had accepted their advice on tallow.</td>
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<td>BAB cases</td>
<td>The Committee supported the proposed case control study on BABs aimed at establishing what, if any, factors beside feed were involved in those cases.</td>
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<tr>
<td><strong>Disposal of carcasses and SBO material</strong></td>
<td>MAFF had sought the Committee’s endorsement of incineration as the Government’s preferred method of disposal. The Committee agreed that incineration was preferable to burial.</td>
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<td><strong>Risk from zoo animals</strong></td>
<td>The Committee recommended that the Institute of Zoology gave researchers access to greater kudu tissues to study the basic biology of the species in relation to others and try to establish why these animals appeared to be more susceptible to SE.</td>
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<tr>
<td><strong>Overview of developments in research</strong></td>
<td>The Committee considered a paper on Dr Narang’s research proposal into a diagnostic test for the live animal and agreed that it was necessary to have independent corroboration of his findings. The Committee also emphasised the importance of defining bovine brain disorder in detail with transmission studies and PrP examination. The Committee agreed that after the ACDP working Party on SEs had produced their guidelines on occupational risk, it would take on the responsibility for considering the occupational risks involved in SEs.</td>
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<tr>
<td><strong>15th Meeting 7/10/93 (YB93/10.7/2.1)</strong></td>
<td><strong>CJD in farmers and young people</strong></td>
<td>The Committee reviewed the evidence of the case of CJD in a farmer. They agreed that biological characterisation of the agent needed to be carried out as a matter of urgency. Also that if a third case of CJD in a farmer with BSE in their herd occurred, an immediate full Committee meeting would be required.</td>
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<tr>
<td><strong>Hormones</strong></td>
<td>The Committee considered the paper on hormone extracts from Professor Lamming on behalf of the Veterinary Products Committee. It was agreed that there were no reasons to worry about the particular material proposed but that the question of risk acceptance by consumers should be considered. The Committee agreed that the reply to Professor Lamming would be drafted along those lines with a proviso stating that it was given in light of present knowledge and that new information coming to light may alter the advice given.</td>
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<td><strong>BAB cases</strong></td>
<td>The Committee was disturbed that the feed ban had not been as effective as early as hoped. It was recognised that the level of infectivity in MBM produced before the ban was still increasing due to recycling of bovine material and it was obvious that compounders and farmers had taken longer to use this material than expected. Information on cases in the group born in 1990 would be critical.</td>
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<td><strong>Maternal Transmission</strong></td>
<td>The Committee commented on the most recent study and it was agreed on the information presented that the number of cases seen in the progeny of cases were not different from those seen in the population as a whole. It was appreciated that it was still possible that alternative routes of transmission might emerge as the epidemic continued.</td>
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<td><strong>16th Meeting 26/1/94 (YB94/1.26/2.1)</strong></td>
<td><strong>Set up of SEAC</strong></td>
<td>It was suggested that a Deputy Chairman was required. Dr Will was proposed and the proposal was agreed.</td>
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<td><strong>SEACs Second Interim Report</strong></td>
<td>The Committee made detailed comments on the report. It was agreed that the top priority in producing the report should be quality rather than speed.</td>
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<td><strong>Tallow</strong></td>
<td>The Committee’s attention was drawn to a possible problem concerning tallow from SBOs, which had come to light in recent discussion between MAFF and the industry. The Committee reviewed the situation regarding tallow. They requested more information on the process which was allowing tallow into animal feed through the oleochemical industry process.</td>
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<td>Emergency Meeting 25/6/94 (YB94/6.25/4.1)</td>
<td>Advice on thymus and intestine of calves</td>
<td>The Government asked for the Committee’s advice on the infectivity of distal ileum of calves under six months of age. The study indicated that there was infectivity present in BABS. This suggested that the exemption of SBO from calves under six months was perhaps inadvisable. The Committee, however, thought that the risk to human health from food derived from infected calves was minuscule if it occurred. It concluded that the experiment should be closely monitored to see whether further action was required.</td>
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<tr>
<td>17th Meeting 30/8/94 (YB94/8.30/2.1)</td>
<td>Advice on thymus and intestine of calves</td>
<td>The Committee noted that the Government response to the findings discussed on 25 June went beyond what SEAC considered scientifically appropriate. A Transmission studies</td>
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<td>CJD Surveillance Unit’s Third Annual Report</td>
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<td>Maternal transmission</td>
<td>The Committee considered the maternal transmission study. It was agreed that more work was needed in the area. Possible areas of consideration could include the possibility of change in the agent, differential diagnosis and the implementation of the feed ban.</td>
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<td></td>
<td>Tallow</td>
<td>The Committee were asked by MAFF to reconsider the evidence on the use of tallow in the oleochemical industry. The industry thought that the processes used would be successful in inactivating the BSE agent. The Committee agreed that the risk from the SBO tallow fractionalised by the industry was minuscule if it existed at all. This recommendation was conditional on the introduction of good monitoring and control of the end product.</td>
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<td>Overview of developments in research</td>
<td>The Committee reviewed the hound study undertaken by the SVS, as they had recommended. This was carried out in the form of general monitoring of domestic hounds and also a specific survey of hound packs. The Committee concluded that there had clearly been problems with it, particularly the control on the histology, and that it was more or less inconclusive. It was agreed that there should be a re-evaluation of the pathological material in the study.</td>
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<tr>
<td>Special Meeting 13/1/95 (YB95/1.13/1.1)</td>
<td>CJD in farmers and young people</td>
<td>A special meeting was called to consider the significance of a third case of CJD arising in a dairy farm worker. The Committee thought that more information was needed before firmer conclusions could be drawn. It agreed that the case did not suggest that there was any need for Government to revise the measures already taken to safeguard public health against occupational and other possible routes of exposure to the BSE agent. The Committee felt that a statement reflecting the Committee’s assessment of the situation should be prepared for the DH to use in response to media enquiries.</td>
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<tr>
<td>18th Meeting 10/2/95 (YB95/2.10/1.1)</td>
<td>Overview of developments in research</td>
<td>The Committee strongly endorsed the conclusions of the minutes of the special meeting and emphasised that transmission studies in mice and strain typing in mice of isolates from the three CJD cases in dairy farmers must be given highest priority. The Committee considered the proposal to burn SBO-derived greaves at a power station. The Committee concluded that this process would be a very good way of disposing of SBO-MBM. The resulting ash would be buried in approved land-fill sites.</td>
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### Transmission studies

The Committee reviewed the latest transmission studies which showed that infectivity had not been found in any tissues from calves killed two months after challenge. The Chairman asked whether any representations had been made as a result of these findings for a relaxation in the SBO ban. It was felt that it was too early to consider any revision of the ban.

### Risk from zoo animals

The Committee concluded it was happy about the safety of zoo visitors but not about the background epidemiology.

### Epidemiology

The Committee considered further evidence of BABS and cross-contamination of feed. It concluded that there were a number of possibilities for cross-contamination which appeared to be the main reason for BAB cases. Epidemiology needed to be continued and reiterated. The Committee was very concerned that possible contamination of feed would continue the epidemic.

### Gelatin

The Committee examined the status of gelatine in the context of Commission Decision 95/60 of 6 March 95 concerning protection measures with regard to BSE and the feeding of mammalian derived protein. This excluded gelatine and blood products from the SBO ban. This had not been implemented as yet in the UK. The Committee concluded that in order to agree the exemption for gelatine it needed to be convinced that a negligible amount of infectivity was present in the raw material. This was reliant on the adequacy of the SBO control measures.

### Blood

The Committee considered whether the exemption in the Committee decision of blood and blood products from the SBO ban would represent any risk and concluded that it did not believe it to be a matter for concern. It agreed that the exemption from the ban was appropriate.

### MRM

The Committee concluded that, provided in the slaughtering process the removal of the spinal cord was done properly, the MRM process was safe and there was no reason for it to change its advice.

### BAB cases

The Committee reviewed the first case of BSE in an animal born in 1992. It thought that for contamination of feed to have continued there must have been failure at three levels: the slaughterhouses, the renderers and the feed mills. The Committee concluded that although it had no further comments on the BAB case it remained a concern that any problems of control should be rectified as soon as possible.

### SBO material

The Committee was very concerned at the reports of the lack of compliance in removal of SBOs. The Committee felt that if there was something going wrong, action should be taken as a matter of highest priority.

### Overview of developments in research

The Committee reviewed the results of the Idiopathic Brain Neuronal Chromatolysis study (transmission studies in mice from brains of two cows with IBNC). It noted that the results were unusual and thought a suggested line to take would be to say that these were scientifically unpublishable results but in line with the policy of openness they would be made publicly available and further work done to test their validity. Since the BSE precautions were applied to IBNC cases, human health was protected.

The Committee reevaluated the hound study to see if any useful results could be gained from it. The Chairman concluded that there were varying opinions within the Committee on further work. It did not suggest any further transmission studies and thought that the lack of clinical data was a major weakness.

### Research priorities

The Committee reaffirmed its view that the case of the third farmer with CJD should be included in the transmission studies – regardless of cost because of its potential importance.
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<td>20th Meeting 8/9/95</td>
<td>Gelatin</td>
<td>The Committee was content with the exemption from the SBO ban under EU law for gelatine to be given effect. This was after MAFF confirmed that with the new SBO Order gelatine could be regarded as free from SBOs.</td>
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<td></td>
<td>BAB cases</td>
<td>The Committee discussed that there may have been some leakage of SBOs into animal feed, prior to the new SBO Order and the revised surveillance programme, which may have affected the incidences of BSE in cattle born after the 1990 SBO Ban.</td>
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<td></td>
<td>CJD in farmers and young people</td>
<td>The Committee reviewed the CJDSU’s Fourth Report (August 1995). They concluded that although there had been an increase in the incidence of CJD in 1994, it would be premature to conclude that this indicated an additional risk factor for CJD in the UK. The Committee agreed that no conclusive evidence existed of any change in the incidence of CJD attributable to BSE. However, because of the long incubation period, the study would need to continue for a number of years before firm conclusions could be drawn. The Committee agreed that the cases of CJD in adolescents should be studied in great detail and it should consider whether they had any implications for the cause or management of the disease.</td>
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<tr>
<td>21st Meeting 4/10/95</td>
<td>CJD in farmers and young people</td>
<td>The Committee was required to comment on the possible fourth case of CJD in a cattle farmer. The Committee concluded that there was a worrying number of cases in farmers exposed to cattle with BSE. However, if there were an occupational link, there would be other occupations equally, if not more at risk. The stage was being reached where it was difficult to explain the cases as a chance phenomenon. It was unclear whether the potential risk factor might be association with animals with BSE or the food given to them. The transmission studies were particularly important. The Committee recommended that transmission studies were carried out. It decided that it would be irrational to take specific measures at the present time. It issued a statement which DH could use in response to media enquiries if required.</td>
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<td>22nd Meeting 23/11/95</td>
<td>MRM</td>
<td>The Committee considered the issue of removal of spinal cord. It reviewed its previous opinion that, provided the process was carried out properly, MRM was safe. It decided that in light of recent audit reports showing failure to remove parts of the spinal cord in a small number of carcasses its position should change. The Committee concluded that until it was clear that removal of spinal cord was being undertaken properly in all cases it would be prudent to suspend the use of vertebrae from cattle over six months old, in the production of MRM. It also considered that rib of beef joints were safe.</td>
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<td>Blood</td>
<td>The Committee was asked by DH to look at the risk of transmission through blood transfusions. The Committee reviewed its position on blood and concluded that there was no new evidence of risk from blood suggesting the necessity for new measures, although other EU States may raise the issue independently.</td>
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<td>Advice on animal feed</td>
<td>The Committee was asked to comment on the Advisory Note for Farmers issued by MAFF in 1990 and whether or not it should include advice not to eat cattle feed. The conclusion was that there was no significant risk, therefore no specific advice should be included.</td>
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<td>Overview of developments in research</td>
<td>The Committee agreed that SEAC should seek a neutral critique of Dr Dealler’s article by an independent epidemiologist.</td>
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<td>23rd Meeting 5/1/96</td>
<td>Publicity</td>
<td>The Committee discussed publicity and decided that the minutes of meetings would remain confidential but individual Committee members were free to speak on the subject as they saw fit.</td>
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<td>(YB96/1.5/3.1)</td>
<td>公共宣传</td>
<td>该委员会讨论了公共宣传，并决定会议的记录应保密，但个别委员会成员可根据自己的判断自由讨论该主题。</td>
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<td></td>
<td>CJD in farmers and young people</td>
<td>The Committee discussed recent cases of CJD. It concluded that the situation demanded the continuation on the intensive monitoring of CJD.</td>
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<td>MRN</td>
<td>The Committee had a discussion about MRM and the discovery of spinal cord attached to carcasses. Concern was expressed by a number of Committee members on this issue. They felt they needed reassurance that SBO controls were being carried out properly before they could maintain their current advice on MRM.</td>
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<td>Blood</td>
<td>The Committee reconsidered the question of blood transfusions. Although recipients of blood from CJD cases could be traced through and monitored, the Committee felt that it would be inappropriate to notify them in view of the very small risk involved in relation to stress caused. It did however consider it important to record details of blood donations by patients who die of CJD.</td>
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<td>Risk from sheep</td>
<td>The Committee considered a DH paper on scrapie and its link with hGH CJD cases. It did not feel that it was something which was likely to be a significant factor. Transmission from humans, with no species barrier, was the most likely cause of all the hGH derived cases.</td>
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<td></td>
<td>Overview of developments in research</td>
<td>The Committee considered the scrapie rendering experiment and it was clear that all systems other than the pressurised German type had failed to fully inactivate the BSE agent. Although this could be considered sufficient evidence to advise on policy, it was an EC funded experiment and would as such be interpreted by the SVC. The Committee recommended that Ministers should ensure that the CJDSU had sufficient funds to allow it to carry on with its epidemiological studies. The Committee discussed research priorities and would consider the projects paper fully before deciding on priorities. It placed considerable importance on directing some funds towards new facilities for strain-typing. Also that it might be useful to commission some further work about the cause of the epidemic and the explanation for the continuing number of BABs.</td>
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<tr>
<td>24th Meeting 1/2/96</td>
<td>Advice on slaughterhouse practices and MRN</td>
<td>The Committee discussed its future visit to a slaughterhouse and the level of current compliance with SBO controls. Dr Matthews would produce a paper for the next meeting.</td>
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<td>(YB96/2.1/1.1)</td>
<td>劝告有关屠宰场的做法和MRN</td>
<td>该委员会讨论了其未来的屠宰场访问以及SBO控制的当前遵守水平。Dr Matthews将为下一次会议生产一份报告。</td>
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<td></td>
<td>Overview of developments in research</td>
<td>The Committee reviewed the bovine transgenic mouse models. It concluded that scientifically classical panels of mice and transgenic mice were equally important for surveillance and epidemiological studies of human and animal TSEs and both need to be adequately resourced to meet current and future needs. The Committee judged that the surveillance and epidemiology of human and animal disease was of high priority, as was the study of occurrence and incidence of BSE in the National Sheep Flock. The Committee discussed the issue of other research and concluded that there was a need for continued basic research on TSEs and that Research Council funding should continue.</td>
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<td>NUMBER &amp; DATE OF MEETING</td>
<td>TOPIC(S)</td>
<td>MAIN COMMENTS</td>
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<td>Advice on safety of beef</td>
<td>The Minister required the Committee’s views on specific questions that could be published in the form of a press release. The principal questions to be answered were whether beef was safe to eat. This was entirely dependent on the full implementation of the SBO regulations. Also whether beef products were safe to eat. This was answered in the positive as long as SBOs were removed, there should be no greater risk than from prime beef. It also drafted responses to the questions of whether the epidemic was in decline and the cause of BSE.</td>
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<td>Overview of developments in research</td>
<td>The Committee addressed the critique of Dr Dealler’s paper and agreed to seek yet more neutral critics to review the paper.</td>
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<td>Slaughterhouse practices</td>
<td>The Committee discussed its visit to a slaughterhouse and confirmed it was pleased with the safety measures in place. It did not identify any new measures which it felt should be recommended immediately. It wanted all slaughterhouses to follow the standard set by this particular slaughterhouse. Concern was expressed over the potential exposure of the slaughterhouse operatives and it was suggested that there might be a need to invite the HSE to review their guidance to the industry.</td>
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<td>CJD in farmers and young people</td>
<td>The Committee reviewed the evidence on the nvCJD cases. It concluded that they must take very seriously the possibility that the common risk factor in the cases was BSE, although it was noted that the data did not allow this conclusion to be drawn firmly. The Committee agreed to recommend that all steps should be taken to ensure that the current SBO ban be enforced completely rigorously. It also agreed to recommend that the use of MBM in feed for farm animals should be prohibited. The Committee considered the possibility of requiring the removal of all animals over two-and-a-half years old from the food chain. They decided they needed to reflect in more detail on the issue. The Committee advised that steps should be taken to ensure that the findings of a new variant of CJD were drawn to the attention of those responsible for health and safety legislation and the safety of workers. The Committee also reviewed the work on strain typing and agreed that money should be made available immediately to ensure that the work could begin.</td>
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<td>CJD in farmers and young people</td>
<td>The Committee considered the recent findings about a new form of CJD. The Committee recommended that (a) carcasses from cattle over 30 months must be deboned in licensed plants supervised by the MHS and the trimmings must be classified as SBOs; that (b) there should be a prohibition on the use of MBM in feed for all farm animals; that (c) HSE and ACDP, in consultation with SEAC, should urgently review their advice in the light of these findings; and that (d) the Committee urgently consider what further research was necessary. The Committee did not see the need to revise its advice on the safety of milk.</td>
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Note: **Bold** type denotes more detailed discussion in main narrative.