

**“To investigate the circumstances that have led to the ill health, and in some cases death, of over 6,000 British troops following deployment to the first Gulf War, and to report”.**

# **Independent Public Inquiry on Gulf War Illnesses**

The Rt Hon The Lord Lloyd of Berwick – Chairman

Dr Norman Jones FRCP

Sir Michael Davies

# CONTENTS

## INDEPENDENT PUBLIC INQUIRY ON GULF WAR ILLNESSES

	<b>PAGE</b>
<b>TERMS OF REFERENCE</b>	<b>1</b>
Tribunal Members	1
<b>INTRODUCTION</b>	<b>2</b>
Acknowledgement	3
<b>CHAPTER 1</b>	<b>4</b>
Background	4
The Issues	4
The Symptoms	4
Outline of Report	5
<b>CHAPTER 2 - Evidence of Veterans</b>	<b>6</b>
Other Veterans	8
<b>CHAPTER 3 - Evidence of other witnesses</b>	<b>14</b>
<b>CHAPTER 4 - United Kingdom Experts</b>	<b>20</b>
<b>CHAPTER 5 - United States Experts</b>	<b>28</b>
<b>CHAPTER 6 - War Pensions</b>	<b>35</b>
Gulf War Syndrome	37
The Rusling Case	39
Conclusion	41
<b>CHAPTER 7</b>	<b>42</b>
Causation	42
<b>CHAPTER 8</b>	<b>46</b>
Medical Counter-Measures	46
Medical Records	46
The Missing Fax	47
Medical Assessment Programme	47
The Research Programme	48
Khamisiyah	50
Organophosphates	51
Other Concerns	53
<b>CHAPTER 9</b>	<b>54</b>
Conclusions	54
Compensation	56
Recommendations	58

<b>MEDICAL APPENDIX</b>	<b>59</b>
Historical Introduction	59
<b>PART I OF MEDICAL APPENDIX</b>	<b>62</b>
Review of Ill Health in Gulf War Veterans	62
Epidemiology	62
Symptomology	64
Neurology	66
Genetic Factors	68
Stress and Psychiatry	69
Mortality Studies	71
Reproductive Issues	72
Summary of Part I	73
<b>PART II OF MEDICAL APPENDIX</b>	<b>75</b>
Review of Possible Causes of Illness in Gulf War Veterans	75
Vaccines	75
Pesticides	79
Nerve Agent Pre treatment Sets (NAPS)	81
Exposure to Chemical Weapons, Notably sarin and cyclosarin	85
Depleted Uranium	87
Exposure to Fumes from Burning Oil Wells	93
Infections	95
Stress & Psychological Factors	96
The Social Milieu of Gulf War Veterans	96
Summary & Conclusions	99
<b>ANNEX A</b>	<b>100</b>
Chronology	100
<b>ANNEX B</b>	<b>105</b>
Statistics	105
<b>ANNEX C</b>	<b>107</b>
List of Witnesses	107
<b>ANNEX D</b>	<b>109</b>
Documents provided by MOD	109
<b>ANNEX E</b>	<b>121</b>
Public Inquiry correspondence	121
<b>GLOSSARY OF TERMS</b>	<b>135</b>
<b>MAP</b>	<b>137</b>

# INDEPENDENT PUBLIC INQUIRY ON GULF WAR ILLNESSES

## TERMS OF REFERENCE

“To investigate the circumstances that have led to the ill health, and in some cases death, of over 6,000 British troops following deployment to the first Gulf War, and to report”.

## THE MEMBERS OF THE TRIBUNAL:-

The Rt Hon The Lord Lloyd of Berwick - Chairman

Dr Norman Jones FRCP

Sir Michael Davies

# INDEPENDENT PUBLIC INQUIRY REPORT ON GULF WAR ILLNESSES

CHAired BY THE RT HON THE LORD LLOYD OF BERWICK

## INTRODUCTION

1. On 14 June 2004 it was announced that the Rt Hon Lord Morris of Manchester had asked me to chair a Public Inquiry into the illnesses suffered by some 6,000 veterans returning home from the first Gulf War. Lord Morris is the honorary Parliamentary Adviser to the Royal British Legion. He was one of the founder members of the Inter-Parliamentary Gulf War Group in 1994. He has done more than anyone to promote the welfare of the Gulf War veterans.

2. It was obvious from the start that the Inquiry would need to have the benefit of expert medical advice. I am extremely fortunate that Dr Norman Jones, formerly Consultant Physician at St Thomas' Hospital, and Sir Michael Davies, formerly Clerk of the Parliaments, agreed to become members of the Tribunal. I am convinced that an Inquiry of this kind needs a Tribunal of not less than three members. All three of us have contributed to this report but I owe a special debt of gratitude to Dr Norman Jones for writing the Medical Appendix. Our recommendations are unanimous.

3. One of our witnesses asked, very understandably, how our Inquiry was being financed. He may perhaps have been concerned that the source of our funds might influence our views. The answer is that we have been financed by a private Trust. The Trust has asked to remain anonymous. We are bound to respect that request. The Trust has no private axe to grind, other than to serve the interests of the veterans. Without the funds provided by the Trust, this Inquiry would not have been possible. We have also had two other substantial donations for which we are very grateful. In addition we are grateful to the Royal British Legion for providing administrative support.

4. We estimate that the total cost of the Inquiry, including publication, will be less than £60,000.00. Sir Michael Davies will be receiving his expenses, if any, and a modest honorarium. Dr Jones will be receiving his expenses. As a retired Law Lord I do not wish to receive any remuneration or expenses myself.

5. At the outset one of the organisations representing the veterans had doubts about our independence. But it soon appeared that this was due to a misunderstanding. We wish to make it as clear as we can that we are as independent of the Government as we are of the Royal British Legion. Our task has been to listen to a great deal of evidence from the veterans and others, to read a great many papers and documents and to express our own conclusions. There is no hidden agenda.

6. We held our first meeting in public on 6 July 2004, and sat for our first full day of evidence on 12 July 2004. We took evidence on ten days in all, in the course of which we heard from thirty-five veterans or their families, three very senior members of the Armed Forces, three MPs, a member of the House of Lords, two

Congressmen from the United States, and twenty-one experts, including six from the United States and one from Germany. A full list of the witnesses who gave oral evidence is set out in Annex C.

7. On 29 June 2004 I wrote to the Secretary of State for Defence in the hope that his Department would take part in the Inquiry. I wrote in similar terms to the Secretary of State for Health. On 12 July Ivor Caplin MP, Parliamentary Under Secretary and Minister for Veterans, replied that the Government did not consider it appropriate for a Government Minister or serving officer to attend. The reason given was as follows:-

*“The Government has carefully considered the merits of an official inquiry and while we have not ruled out such an inquiry, for the present, we remain of the view that the only way we are likely to establish the causes of ill health in some Gulf veterans is through scientific and medical research”*

8. In other words the Government’s view is that although it is now over thirteen years since the Gulf War, the time for a Public Inquiry is not yet ripe. This is a view, which they have expressed on many occasions.

9. However the Minister offered to make all relevant documents available at the end of July 2004, which he duly did. In his covering letter the Minister said that while the Government accepted that some of the veterans are ill, and that sadly, some have died:

*“the issue is whether this ill health and mortality is unusual and related to service in the Gulf”*

10. That is the underlying issue to which this report is directed.

## ACKNOWLEDGEMENT

11. Parliamentary Committees and other forms of Public Inquiry are provided with considerable staff and technical support. We did not have these advantages. Instead, we had the enthusiasm, organisational skills and hard work of one man, Vijay Mehan a young Solicitor with Messrs Pattinson & Brewer. We wish to record our debt of gratitude to him for all he has done. Without him, this Inquiry could not possibly have functioned as well as it has and this report would not have been published. We also wish to record our thanks to Joanne Duffy who typed and retyped successive drafts of our report; and to Messrs Pattinson & Brewer for making Vijay and Joanne’s services available to us.

## CHAPTER 1

### BACKGROUND

**12.** In August 1990 Iraqi troops invaded Kuwait. Between September 1990 and the end of the war about 53,500 British troops were deployed to the Gulf, together with 697,000 US troops, 25,000 French troops and smaller contingents from Canada and Australia. The aerial bombardment of Iraqi positions started on 17 January 1991. It included the bombing of storage sites of chemical and biological weapons. The ground offensive started on 24 February. On 28 February there was a cease-fire. There had been very few casualties.

**13.** During 1993 the Royal British Legion received a trickle of reports that some Gulf War veterans were ill. By 1994 the trickle had become a stream. About 6,000, or just over 11% have reported illnesses. 4,975 of them are in receipt of War Pensions or Gratuities. Similar proportions have reported sick in the US. For reasons which we will come to, very few veterans have reported sick in France.

### THE ISSUES

- (i) Are the 6,000 British Gulf veterans who have made claims for War Pension ill? If so what is the nature of their illness or illnesses?
- (ii) Are their illnesses due to their service in the Gulf?
- (iii) If so, were those illnesses due to one or more of the following causes:-
  - (a) Multiple vaccinations.
  - (b) Nerve agent pre-treatment sets (NAPS tablets) containing pyridostigmine bromide (PB)
  - (c) Organophosphate (OP) pesticides.
  - (d) Exposure to sarin following air bombardment of chemical weapon sites in Iraq and destruction of the dump at Khamisiyah.
  - (e) Inhalation of Depleted Uranium (DU) dust.
  - (f) Any other identifiable cause.
- (iv) May their illnesses be described as a syndrome?
- (v) What is the experience in the United States, France, Canada and Australia?
- (vi) Are the sick veterans and their widows satisfied with the way they have been treated by the Ministry of Defence (MOD)? If not, what are the causes of their present discontents?
- (vii) What can be done to restore confidence and trust between the veterans and the MOD?

### THE SYMPTOMS

**14.** The most commonly reported symptoms are chronic fatigue, muscle pain, joint pain, mood swings, loss of concentration and depression. Many other associated symptoms have been reported.

## OUTLINE OF REPORT

In Chapter 2 we comment on the evidence of the veterans and their families.

In Chapter 3 we comment on the evidence of the remaining witnesses, other than the experts.

In Chapter 4 we summarise the evidence of the United Kingdom experts.

In Chapter 5 we describe recent developments in the United States of America, and summarise the evidence of the United States experts.

In Chapter 6 we describe the present system of War Pensions.

We also discuss the meaning of the word “syndrome” and the effect of the decision in Secretary of State for Defence v Rusling.

In Chapter 7 we discuss the problem of causation, and apply the current law and practice to the facts and conclusions drawn from Chapters 4 and 5.

In Chapter 8 we comment on the way in which the MOD has handled veterans’ affairs since the Gulf War, and the main areas of complaint.

In Chapter 9 we set out our final conclusions and recommendations.

The Medical Appendix contains our more detailed conclusions as to the medical issues.

Annex A contains a brief chronology.

Annex B contains some relevant statistics.

Annex C contains a list of those who gave oral evidence.

Annex D contains a list of documents submitted by the Ministry of Defence.

Annex E contains correspondence relating to the Inquiry.

**15. The non-expert reader may wish to start by reading the Historical Introduction at page 59, glance at the Chronology in Annex A, and then read Chapters 2, 3 and 6 to 9 followed by Chapters 4 and 5. The expert reader should start with the Medical Appendix.**



## CHAPTER 2

**16.** We heard evidence from thirty-five veterans, or their wives or widows. Five of the veterans hold, or have held, official positions in the Royal British Legion or the two representative organisations, the National Gulf Veterans & Families Association (NGVFA) and the Gulf War Veterans Association (GWVA). These five were as follows: -

Flight Lieutenant John Nichol, President of the Gulf Veterans branch of the RBL

Dr Nigel Graveston, Chairman of the NGVFA

Shaun Rusling, Vice-Chairman, NGVFA

Raymond Bristow, Chief Executive, NGVFA

Larry Cammock, Chairman GWVA

**17.** These five witnesses all described their own illnesses (except for Flight Lieutenant John Nichol who was shot down and held as a prisoner for forty-nine days, but did not suffer illness). They have also, very naturally and properly, acted as advocates for their causes.

**18. Flight Lieutenant John Nichol** made two points among many others. He said that in the early years, when the veterans were claiming that vaccines may have caused some of their illnesses, they were:

*“Rebuffed .... rejected and ignored by the Government that sent them to the war”.*

**19.** Secondly the Government has not spent enough money on research, although he acknowledged that the present Government had done better than their predecessors. Since 1997 the Government has spent £8.5million on research, which averages out at £1.2million per year over seven years. Yet in one year the MOD spends nearly £8million on entertainment.

**20.** He wanted the Government to take part in this Inquiry, so as to be able to explain their side of the argument. He added:-

*“When the Prime Minister wrote to me explaining why he would not have a Public Inquiry he said that nothing can be gained. But, surely, the whole purpose is that nothing can be lost and there is everything to be gained, and so that is why your independent inquiry is so important to us”.*

**21. Dr Nigel Graveston** was deployed in late 1990 with 32 Field Hospital RAMC. He was repatriated on 10 March 1991 and returned to work as a Consultant Anaesthetist. He became ill in November 1999. He worked on and off during the next few years. By April 2003 his health had deteriorated to such an extent that he was off work for eleven months. His brain scan was highly abnormal.

22. Dr Graveston described the great diversity of symptoms reported by veterans. But Dr Robert W Haley had grouped them into three distinct sub-syndromes (see Chapter 5). It was Dr Graveston's considered view, as a doctor, that Gulf War illness is due to the cocktail of vaccines given to the troops and in particular the anthrax/pertussis/plague combination. This had resulted in dysfunction of the limbic system due to physical damage to the brain, as shown by Dr Haley. He wanted to see:-

*"A recognition that a framework exists; that it is a physical organic illness; that there is appropriate research into this; and that there is development of effective treatment for ill veterans".*

23. **Shaun Rusling** was formerly a paratrooper in the RAMC. He spent a few days at Blackadder Transit Camp before moving to 32 Field Hospital in the desert. He described the constant spraying of the tented area with OP pesticide. He was also at 32 Field Hospital when the chemical weapons dump at Khamisiyah was blown up between 4 and 10 March 1991. The chemical alarms had, by then, been dismantled. It was highly likely that anybody in the vicinity would be affected.

24. He was demobilised on 16 March 1991. In 1993 he suffered a complete mental and physical breakdown. He was finally given a medical discharge in December 1995. It took him thirty medicals to obtain a 90% war pension, and many years of fighting to get recognition of what had happened to him. He never gave his "informed consent" to the vaccinations which he received, and when he subsequently asked about them he was told that they were classified as secret.

25. He described the background to the case of Secretary of State for Defence v Rusling,

*"In which the Government tried to overturn the Pensions Appeal Tribunal Award on the basis of Gulf War Syndrome"*

26. The Government had failed on every point of law. We discuss the case more fully in Chapter 6.

27. He referred to various other possible causes of Gulf War illness. On 20 May 2004 he wrote to the Prime Minister asking for a Public Inquiry. The veterans were "hugely disappointed" when the Prime Minister replied that it would not be beneficial. He called on the MOD to replicate the tests carried out by Dr Haley in the US, which showed damage to the basal ganglia in the brain among veterans.

28. **Raymond Bristow** joined the Territorial Army in 1975, and spent 20 years in the medical corps. He served in the Gulf War as a theatre technician. He described himself as being "exceedingly fit" before deployment. On reaching the Gulf he was stationed at Blackadder Transit Camp before moving on to 32 Field Hospital in the desert. Like Mr Rusling he described the constant spraying of the tented area at Blackadder Camp by civilian employees with plastic containers. During the air bombardment of chemical sites in Iraq the chemical detectors often sounded. At first they were told it was due to sarin in the atmosphere. Soon after they were told it was due to burning rubbish. Like Mr Rusling, he was at 32 Field Hospital during the

demolition at Khamisiyah on 4 and 10 March. He was the first British soldier to be tested for Depleted Uranium. He was found to be highly positive. In 1998 he was tested in the US by Dr Reid for radiation exposure. The published results showed that he was over a hundred times the safe limit. When tested by Professor Schott for chromosomal aberration he had the highest level of damage of all those tested. It took him 3 ½ years to process his claim for Gulf War illness. He is now in a wheelchair when out for any length of time.

**29.** Lastly, **Larry Cammock**, who had joined the RAMC as a National Serviceman in 1959. He was recalled on 28 December 1990 at the age of 52. He gave a graphic description of his vaccinations on arrival in the Gulf. He had sixteen vaccinations in two days, including plague and yellow fever twice. He was told to take two NAPS tablets three times a day (it was in Part One orders). Within a few days his left leg was double its normal size. The doctor told him to reduce the dosage, and his leg then recovered. Five days later, on 19 January 1991, he was given anthrax with pertussis and a second plague injection. On 16 February he called in at an American refuelling depot, where he was given another anthrax vaccination, this time with squalene as an adjuvant.

**30.** He was critical of the Medical Assessment Programme (MAP) and stated, “...it is not a genuine medical as such”. It was little more than a public relations exercise designed to show that something was being done. In fact nothing was being done.

## OTHER VETERANS

**31.** The other veteran witnesses are a cross section of those who served in the Gulf. They were chosen from among the 180 or so veterans who responded to our request for evidence. So far as we know none of them were persuaded to do so by the Royal British Legion or anybody else. They came because they wanted someone to listen to their story.

**32.** We tried to select witnesses that would be representative of the different Services deployed to the Gulf. Thus ten of them served in the Army, either in Line Regiments or as drivers, eleven served in the RAF, five served in the RAMC or as medical volunteers. Others included Royal Engineers – two, Royal Army Ordnance Corps – two, Royal Artillery, Royal Electrical & Mechanical Engineers and Fleet Air Arm, one each.

**33.** But we also picked out some with unusual features, either because they had developed specific diseases or because of something unusual in the way they had been treated.

**34.** Thus we heard from **Samantha Thompson**, the widow of **Nigel Thompson**, who died of Motor Neurone Disease (MND) at the age of 44. His widow spoke of a “sense of betrayal of trust” among the veterans. In the US there is a presumption that Motor Neurone Disease is attributable to service in the Gulf. There is no such presumption here. She had hoped that Ministers would take part in this Inquiry. When we asked her to explain she replied:

*"I think it would make us feel that we are actually being listened to at long last because we do feel sometimes that we are occasionally in the way or we represent to them a problem that they would rather not face, but they have to realise that we are not a problem that will just go away and until they do face us and deal with these issues head on, then it will be carrying on"*

**35.** Another witness, **Mrs Carol Avison**, told us about her husband, **Major Ian Hill**, who died in 2001 of a brain tumour. At the Inquest the Coroner found that he had died of natural causes to which his Gulf service had contributed. **Mrs Avison** gets a Widows' Pension of £144.00 per week. £60.00 of this goes towards her rent. She has a 14-year-old daughter, and finds the money quite tight. She remembers Tony Blair saying before the 1997 election:-

*"If we get into Government, we will leave no stone unturned and we will get a Public Inquiry"*

That is what he promised to do himself. She said she had written but it just seems that it is all dead promises. They make promises before they are in Government to get that vote and that is it.

**36.** We heard about **Paul Carr** from his sister **Mrs Lisa Mates**. He became ill about nine months after leaving the army and never recovered. He died of a brain tumour in 1997. He was very bitter with the MOD for never recognising Gulf War Syndrome. He never received any support in his quest for the truth about his illness.

**37.** **Alexander Izett**, another witness, suffers from osteoporosis, a disease which is most uncommon in the young. When he applied for an interview with the MAP he was at first told that he did not qualify because, although he was vaccinated in Germany in preparation for service in the Gulf, he was never in fact deployed. It took him five years to get a pension. He says he has lost everything in life. He does not want money. All he wants is the truth as to why he is ill.

**38.** These are some of those who are suffering or have died from specific diseases. But there are many others who are suffering from what they would call Gulf War Syndrome. We would like to mention them all by name, and quote from their evidence. But this would not be practicable.

**39.** They almost all described their symptoms as including chronic fatigue, joint pains, muscle pains, mood swings and depression. But the most compelling description of the symptoms was given by the wives, widows and friends of those who have died or committed suicide or are suffering from severe dementia (**Mrs Capps, Mrs Graham, and Mrs Calvert**).

**40.** While there was much praise for Wing Commander Coker in the early days of the MAP, many were critical of the way in which they were treated by Professor Harry Lee. **Mr Stephen Roberts** found him very condescending. Others, like **Mr Noel Baker** described his attitude as being *"there are no problems with vaccination .....there are no problems at all"*

**41. Mr Stephen Roberts** told us that he was within 15km of the explosions at Khamisiyah. At first he was told there had been no exposure to nerve gas agents. Subsequently he was told that if he had any problem with sarin poisoning he should take it up with the American Government *“because they were the ones that had caused the explosion”*. In a letter dated 19 July 2000 to **Mr Geoffrey Brown’s** psychiatrist, Professor Lee said

*“let me assure you at the outset there is no such thing as ‘Gulf War Syndrome’ although there are some Gulf related illnesses, largely of a psychiatric nature, but a small number related to skin and respiratory problems”*.

**42.** When **Trevor Calvert** visited the MAP in 1999 the Sister in charge told him:

*“you do understand that this has got nothing to do with the Gulf War”*

before he had even seen the doctor.

**43. Mr Adrian Wilson**, told us that he was surprised to read in the third issue of *Gulf News* that 95% of those attending the MAP had expressed satisfaction. At a meeting of the NGVFA attended by over 100 veterans in 2003, none of them had ever received copies of *Gulf News*. On a vote being taken as to whether they were satisfied or dissatisfied with the MAP, 100% were dissatisfied. It appeared to Mr Wilson that *Gulf News* was nothing but Government propaganda.

**44.** Many complained of the time and effort it had taken to get to their present level of pension. Thus it took **Mr Richard Sharpe** four years to get to 40%. It took Mr Stephen Roberts five years to get from 20% to 60%. **Mr Richard Turnbull** started at 10% in 1995. He then went to 20%, 30%, 50% and finally reached 90% in 2003. **Mr Andrew Hazard** took 4 ½ years and two tribunals to get from 14% to 30%.

**45.** Many, like **Mr Russell Walker** disliked being told that their illnesses were *“all in the mind”*. **Ms Anwen Humphreys**, who had represented the RAF at hockey and netball said:-

*“I think the biggest problem that we have is that the Government are trying to persuade the medical people that we are all mad, we all have depression, we all have PTSD and we all have psychological problems. The biggest reason for my ill health before 2001 was not having an understanding of it and I was going mad because I was being told ‘this is all in your mind, don’t worry about it. Once we get you on to the anti-depressants’ (which I was on for over seven years at a very high daily rate) ‘you will be OK taking those anti-depressants’. I was not OK”*

**46. Dr Derek Hall** was an interesting and important witness because he not only suffers from Gulf War illness himself (he is one of those who was vaccinated but never deployed), but he also, as a member of the RAF Medical Branch, saw many other veterans after their return from the Gulf. **Dr Derek Hall** told us that at first he refused to have the pertussis vaccine as he was already immune to whooping

cough. But he was nevertheless required to have it. He described his difficulty in walking and other symptoms:-

*“The way I view it is that, yes, I have mood swings, I am frustrated, I am angry and I am bitter. I am all those things because I am physically ill and I want to be better. I do not think my physical symptoms are caused by a primary psychiatric disorder. I do not think I have PTSD although I have facets of it”*

47. He thought that the root cause of the majority of the problem was the combination of vaccines, because there were people like himself who had been vaccinated but not deployed.

*“I think the deployment while it may introduce other factors into the equation is not necessarily the prime cause of the illness. I am sure it is the combination of pertussis and anthrax”.*

48. But when he tried to explain this to the Veterans Agency he came up against *“an absolute wall of refusal to acknowledge it”*.

49. Many witnesses told us that what was needed above all was recognition that they are ill as a result of having served in the Gulf, or as in the case of **Dr Derek Hall** and **Ms Humphreys**, having been prepared for service in the Gulf. **Mr Michael Capps, Mr Mark McGreevy, Mr Jason Bosworth, Mr Geoffrey Brown, Mr Gerard Davey** and **Mr Alvin Pritchard** all gave evidence to that effect.

50. **Mr Jason Alcorn** wanted Gulf War Syndrome recognised as a label and accepted as a medical condition. So did **Mrs Deborah Capps**. **Mr Mike Lingard** said:

*“Only when Gulf War Syndrome is recognised as a defined illness will it be possible to achieve some form of closure on past events”.*

Many, like **Mr Terence Walker** and **Mr Stephen Roberts** were concerned that unless Gulf War Syndrome was recognised as an illness their widows would get no pension.

51. Many were disappointed that the Government decided not to take part in this Inquiry.

52. Underlying almost all the veterans’ evidence was the feeling that they had been fighting an uphill battle against the MOD. The Government was not on their side. When we asked them what they wanted to come out of the Inquiry, they almost all said that they wanted the Government to acknowledge that they were ill, and that their illnesses were due to their service in the Gulf.

53. To all these veterans who gave evidence, some at the cost of great personal effort and inconvenience, we wish to express our deep gratitude. They told us not only about their health, but about their lives. They told us about their treatment by the MOD. Much of what we heard required courage in the telling. Much of it we found moving. They were not, of course, subject to cross-examination. But they

answered our questions without prevarication. In our view they were witnesses of truth.

**54.** We mention this because another witness, **Dr Tony Hall**, who was briefly employed by the MOD as a Consultant, told us that he had examined 460 Gulf veterans. He estimated that most, perhaps 90%, were malingering. He accused some of the veterans of lying, including one of those who gave evidence before us.

**55.** Of the 6,000 who have made claims, we would expect at least some to have exaggerated and some to have misrepresented their symptoms. But it is absurd to suggest that 90% were malingering. If this were true the same would also have to be true of 100,000 US veterans who have reported ill health. We cannot accept Dr Tony Hall's evidence in that connection, and we emphatically reject any suggestion that any of the witnesses appearing before us were lying.

**56.** Another witness, **Major General Peter Craig**, a Consultant Surgeon, and member of the Pension Appeals Tribunal, said that there would seem to have been a "*sub-conscious process of education going on*" which, if so, would have done the cause of the veterans a great disservice. Later he said that he had not been "*absolutely convinced of the veracity*" of some of the evidence, which he had heard at the Pensions Appeal Tribunal.

**57.** We would expect veterans to have discussed their symptoms among themselves at meetings of the GWVA and NGVFA. This would be quite normal and natural. In that sense there may have been a process of education going on. But that is all. A few of them may have been exaggerating but the great majority were not. They were, as we have said, witnesses of truth.

**58.** We end this Chapter with a longer extract from the evidence of one of the witnesses which may be regarded as representative of them all.

**59.** **Major Christine Lloyd** went out to the Gulf on 17 January 1991 as a medical volunteer. She was 100% fit at the time. She received her first anthrax and pertussis vaccinations on 3 January 1991, before deployment. She received further anthrax, pertussis and plague vaccinations on 24 January and 25 February 2001. She was demobilised on 16 March 2001. After three weeks leave, she returned to work. But she could not concentrate. She was always exhausted. She fell asleep at work. She described her symptoms as follows:-

*"My conditions and symptoms are chronic fatigue, headache, muscle pain and muscle weakness, joint pains, loss of balance, loss of feeling and touch sensation. I cannot pick up coins or small objects. Even staff in shops have to give me the coins in my hand because I cannot pick them up. Lack of concentration, loss of concentration .... My friend and carer has described my symptoms as 'having an old body with a much younger face'. It would seem that my body and brain is deteriorating like an elderly person".*

**60.** By October 1992 she was unfit for work. She was one of the first to see Wing Commander Coker in October 1993. Dr Coker tried to obtain funds for research into her condition. But the funding never materialised, and the research came to an

abrupt halt. She attributed her illness to a combination of triggers during her service in the Gulf.

*"I firmly believe that it started on 3 January 1991 when I received a cocktail of vaccinations. I then started taking the NAPS tablets. We were surrounded by organophosphates. We were in a stressful situation, not only stressful because of the scud attacks or stressful because of the possibility of chemical weapons, we were in a stressful situation because of the state of the equipment and the hospital that we had".*

**61.** On the question of her pension she asked us to find a way of making veterans lives easier so that they were not having to fight the War Pensions Agency. When we asked her to expand on this she said:-

*"I had to fight for my War Pension. In actual fact if it had not been for Dr Coker I still do not think I would have received my War Pension because we have to prove symptoms and conditions. And they will say 'well that could have happened afterwards' or 'that would have happened before'. I had to fight for my War Pension and I have had to fight for every increase since".*

**62.** She had to fight to obtain her Mobility Allowance from the War Pensions Agency. When she gave her evidence on 12 July 2004 she was still fighting for her Reservist Attributable Disability Pension. She had been told no. She had appealed and still been told no. Then, happily, on 1 September 2004 Lord Bach, Minister for Defence Procurement, wrote to Lord Morris in answer to his letter of 18 December 2003 that Major Christine Lloyd's appeal would be allowed. In this particular instance Major Lloyd's fight was successful. But should she have had to fight so long? And what about others who do not have the stomach for the fight?



## CHAPTER 3

**63.** We were exceptionally fortunate in being able to hear from Marshal of the Royal Air Force, Lord Craig of Radley, who was Chief of the Defence Staff throughout the Gulf War, and from General Sir Peter de la Billière, who was in command of all British Forces in the Gulf from October 1990.

### MARSHAL OF THE ROYAL AIR FORCE LORD CRAIG

**64.** Lord Craig dealt first with two questions which are basic to our Inquiry, namely, (i) whether Iraq was in possession of chemical and biological weapons in 1990 and (ii) whether they were likely to be used against British and American Forces. Lord Craig was able to draw on the very recently published report of Lord Butler of Brockwell's Committee in that connection. The Joint Intelligence Committee (JIC) Assessment, based on the most recent intelligence report received in November 1990, was that Iraq had a stock pile of chemical and biological agents, including plague and anthrax, which had been weaponised ready for immediate use. We now know that this intelligence was accurate. Iraq did indeed have such weapons, but did not use them. If they had been used, then the estimate was that casualties (which in the event were extremely light) would have increased by about 5%. In the face of these assessments, it was decided to take all necessary steps to protect our Forces by procuring the necessary vaccines. We do not see how anybody could question that basic judgement.

**65.** Lord Craig went on to describe the search for the cause or causes of the illnesses from which veterans are suffering as being like the search for some holy grail. He quoted from a question he had asked in the House of Lords on 22 May 2003, when he wondered whether the time had not come for the Government to make an ex gratia payment in settlement without further commitment, rather than drag out endlessly expensive litigation and inconclusive clinical trials.

*"Surely a little magnanimity would not only be cost effective, but would also serve to relieve the continuing anguish of veteran sufferers and their families".*

**66.** Lord Craig referred to the veterans' feelings of rejection, and added that it was time for the Government to accept that the MOD had not been able to prove that veterans' illnesses were not due to their service in the Gulf, and to compensate and apologise to those who had been kept waiting far too long for satisfaction. He found the present situation highly unsatisfactory. There is no sign of closure, or completion, and after so many years that was now indefensible. Some imaginative one-off approach was called for.

### GENERAL SIR PETER DE LA BILLIÈRE

**67.** Sir Peter told us of the level of tension that had built up among the troops by the end of 1990, some of whom had been deployed for as long as six months. It was Sir Peter who told us the figure of 5% estimated increase in casualties, if chemical and biological weapons had been used.

*“It would have been a very unwise Commander who did not seek every precaution to protect his servicemen against chemical and biological warfare”.*

68. He was outspoken in his praise of the support which they had received from the United Kingdom in that connection. Sir Peter had nine injections himself. So far as he was aware they were voluntary. But he did not think people were encouraged not to accept them. He repeated

*“You would be a very unwise Commander not to do you level best to see that all your troops took whatever the medical authorities recommended”.*

69. Returning to the question of stress, he said that this was an inevitable part of any war, at all levels. Here the stress was tremendous, due to the very long period of waiting and the apprehension that chemical and biological weapons would be used as land battle commenced, that is to say, as the troops prepared to make their way through paths cleared in the minefields. There was no shortage of medical facilities in the Gulf, due to Territorial Army (TA) and civilian backup. They had done a brilliant job. But he agreed with Lord Craig that after-care and treatment of veterans returning home was a different matter. At the very end of his evidence Sir Peter was asked what he would like to see coming out of the Inquiry. He replied

*“Clarity for the families”.*

## FIELD MARSHAL LORD BRAMALL

70. We were equally fortunate to hear from Lord Bramall, who was formerly Chief of the General Staff and then Chief of the Defence Staff, between 1979 and 1985. Like Sir Peter de la Billière he drew attention to the stress which is always present in combat. However he did not think that stress alone could account for the illnesses suffered by some 6,000 veterans. A ready-made explanation was the *“cocktail of inoculations”*.

71. But if it could not be proved that there was a direct connection between the vaccinations and the illnesses it equally and just as emphatically could not be proved that there was not. He drew attention *“in all fairness”* to the considerable number of attributable War Pensions being paid by the MOD. He hoped that this would continue.

*“But we all realise it is not only money, welcome as I am sure that is. The sufferers would also like sympathy, understanding and recognition that there may well have been reasons for their suffering connected with their service to their country, so I hope that somehow that could be got across to them as well”.*

72. Dr Norman Jones wondered whether the words “respect” and “gratitude” might be appropriate. Lord Bramall agreed that they were excellent words to describe what he had in mind. Finally Lord Bramall hoped that we could get away from the term Gulf War “Syndrome”, although he was well aware of the importance

which some of the veterans attached to that word. It should, he thought, be sunk without trace.

## THE COUNTESS OF MAR

**73.** The Countess of Mar has played a very important part in the gradual uncovering of events, especially in relation to OP pesticides. She first started asking Parliamentary Questions (PQs) in April 1994. In October 1995 she drew attention to the overlap between symptoms reported by Gulf veterans and those reported by farmers who had been exposed to sheep dip. In her evidence before us she told us that she had been in contact with well over 500 farmers. She gave a vivid description of the symptoms from which she herself had suffered, having been exposed to sheep dip.

*“It is not just ordinary tiredness, it is overwhelming muscular fatigue. When you take exercise you get this awful fatigue. Muscle pains, joint pains, even bone pains at excruciating levels. Childbirth has got nothing on this, I can tell you, and I have done both”.*

**74.** Lady Mar was ill for 5 or 6 years, but happily is better now, as she has found the right treatment. She stressed the importance of clinical studies to go side by side with epidemiological studies. She referred, in that connection, to the work of Dr Haley in the US. He had found significant changes in the brain among those who had reported illnesses after serving in the Gulf. She thought that multiple vaccinations might also have a great deal to answer for. Like Lord Bramall, she did not like the term “syndrome” because, in her view, there was a cluster of different illnesses, caused by different factors, all associated with the Gulf War. Finally, when asked what she would like to see done, she said

*“I would like to see acknowledgement that these guys are genuinely ill. To say that it is all due to the fact that they talk to each other or read the Internet is manifest nonsense”.*

## PAUL TYLER MP

**75.** Like the Countess of Mar, Paul Tyler MP has been involved with OP pesticides for many years. Like her he was struck by the similarity of symptoms reported by veterans and by farmers exposed to sheep dip. On 3 November 1994 he asked the question in answer to which Nicholas Soames MP, Minister of State for the Armed Forces, replied that only ten British soldiers had been involved with OP pesticides. According to Mr Soames they had been part of a medical team delousing 50 Iraqi prisoners. This remained the standard line throughout 1995 and most of 1996, until it emerged that OP pesticides had been used on a much more extensive scale. We return to this episode in Chapter 8 below.

**76.** We are particularly grateful to Mr Tyler for referring us to the 6<sup>th</sup> Report (session 1996/7) of the House of Commons Defence Committee. He strongly endorsed the recommendation in that report that ex gratia compensation payments

be made to those who could show that they had been exposed to OP pesticides. More recently he had asked about the explosion at Khamisiyah on 10 March 1991. On 20 May 2002 he was told that no British service personnel had been in the area concerned. Since then there has come evidence from the United States that 100,000 troops were potentially exposed. Mr Tyler said it was unbelievable that no British troops were exposed. He also drew our attention to the very recent report of the group under the chairmanship of Dr Doyle on infertility problems, about which he had questioned the Prime Minister.

77. Overall he told us that in his view, and in the view of many MPs, irrespective of party, the treatment of the more seriously ill British veterans *“remains a scandal”*.

78. When asked what could be done to restore the confidence of the veterans, he said that they have got to be reassured that the MOD is on their side. To that end it was extremely important that the Secretary of State, or one of his ministerial colleagues, should be prepared to come to discuss with us what might be done:

*“The symbolism would be very powerful indeed in restoring some confidence”*.

79. We are very grateful to Mr Tyler for giving us his views. Because of his strong involvement in these matters, his evidence is clearly entitled to great weight.

#### THE HON NICHOLAS SOAMES MP

80. Mr Soames took over from Mr Jeremy Hanley MP as Minister of State for the Armed Forces in 1994. He remained in that office until the change of Government in 1997 and is now Shadow Secretary of State for Defence. When he took over in 1994 Mr Soames was aware that a problem had already come to light. The Royal British Legion were already making a great many representations. **It was clear that something was wrong. A number of people had come back from the Gulf who were ill. At that stage it was not clear, statistically, whether this was in the normal run of events, or whether there was some illness caused by their specific service in the Gulf.**

81. He said he was very anxious to liaise with the Department of Veteran Affairs in the United States, but not to duplicate work which they were carrying out. He had come to no firm conclusion by the time he had left office, because the work was still continuing. He was angered by the constant assertion that the MOD were hiding things from the veterans and the Royal British Legion.

82. He then explained the circumstances in which he had inadvertently misled Parliament *“in a very minor way”*, and had subsequently apologised in the House of Commons. He thought that the dosage which the veterans would have received, from the spraying of tents, would be very, very minimal. The MOD had considered whether the explosion at Khamisiyah could have affected any of the veterans. They had come to the conclusion that it could not have affected many people, and anyway it would be impossible to track them down. It was not a major question. When the criticism that the MOD was holding things back had become intolerable he arranged for literally everything to be put in the library of the House of Commons.

83. Mr Soames was pessimistic about the outcome of the present Inquiry. In his view whatever we said would not be good enough for either side. He understood that the veterans wanted “closure”.

*“But they will not get closure from a Public Inquiry because there is no closure to be had if you are very, very ill and you believe that your illness was caused by service in the Gulf”*

84. He did not see how the Government could pay compensation in a meaningful way if the medical science is not there to back it up. He ended as he had begun by saying it was not a political issue. The Labour Government had commissioned a lot of very valuable work, and took these cases very seriously.

### MICHAEL MATES MP

85. Mr Mates is an honorary Parliamentary Adviser to the Royal British Legion, and was invited to join the Inter-Parliamentary Gulf War Illness Group in 1998. He rejoiced that the problems of the Gulf War veterans had been almost entirely free from party politics, but had not been entirely free from “*the juggernaut of the Government machine*”.

86. There came a time, he said, when it was quite clear that something had gone wrong, but no one was quite sure what. Nevertheless something needed to be done. He understood why governments, Conservative and Labour, had been reluctant to move. It was partly a fear of creating a precedent, and “*opening the floodgates*” and partly a concern for the taxpayer.

*“But what this actually needs now is a political act of will. A Minister has to say ‘this will be done’ and then it is done. That is our system”*

87. Mr Mates gave a number of examples to illustrate his point. When asked what might be done, he mentioned a without prejudice payment

*“as an act of goodwill which the Government is performing for those who went and put themselves in harm’s way (although it was their profession) and who have suffered as a consequence”.*

87. But Mr Mates also mentioned the need for an acknowledgement that the sole cause for the various disabilities has to be the fact that they went to war for their country. That is “*a very, very severe running sore*”. That is what “*rankles with the families*”.

88. Mr Mates thought that now was the right time to say “*let us draw a line under this and solve it*”.

## DR HARCOURT CONCANNON

90. Dr Concannon has been President of the Pensions Appeal Tribunal since 1998. We give an account of his evidence in Chapter 6.

## COLONEL TERENCE ENGLISH

91. Colonel English was appointed in August 1993 as the Controller of Welfare for the Royal British Legion. He was closely associated with the plight of Gulf War veterans complaining of ill health until his retirement on 31 August 2004.

92. What had been a trickle of complaints in 1993, became a stream in 1994 and 1995. But little was done to help the veterans during the early days by way of establishing appropriate research programmes;

*“Had the MOD ... established the correct research programme together with the appropriate support agencies then many of the problems that continue today could have been resolved.”*

93. Nor was there any explanation or recognition of what had happened to the veterans and their families, apart from “*glib statements*” by public officials that they continued to keep an open mind.

*“The Legion has found the delay in achieving this on behalf of those who fought for us in the Gulf almost unforgivable”*

94. Colonel English criticised the procrastination in establishing a full time medical assessment programme, the readiness of officials to condemn veterans’ complaints in the media, and above all the unwillingness of the Government to make all medical records available to individuals leaving the Services, a point which had first been raised long ago with Mr Soames, and which continues to be a problem to this day.

95. Colonel English favoured the idea of establishing a fund, which could be distributed among sick veterans on an ex gratia basis in proportion to their disabilities. That, together with a public acknowledgement that they are ill due to their service in the Gulf, would represent a “*two-pronged approach*” which would bring comfort to a great many and might produce closure on something that otherwise would rumble on for years.

96. Finally he was disappointed at the refusal of Government Ministers to appear before the Inquiry.

*“It would be easy to understand that Gulf War veterans and their families could see this official non-appearance as the compounding of a long running insult”*

## CHAPTER 4

**97.** In this Chapter we summarise the evidence given by the United Kingdom experts and that of Professor Schott of Berlin. We include in this Chapter Professor Simon Wessely, although it was the US Department of Defense, which commissioned his initial research published in January 1999. Likewise we include Dr Jack Melling, who has, since 1998, been working for the Government Accountability Office (GAO) in the United States. The GAO is the investigating arm of Congress. Its job is to hold the executive branch of Government to account. It responds directly to Congress.

### PROFESSOR SIMON WESSELY

**98.** Professor Wessely is Professor of Epidemiological & Liaison Psychiatry at King's College, London. He had been running a research unit specialising in chronic fatigue for ten years when he first heard about Gulf War Syndrome in 1994. The following year he suggested to the MOD that what was needed was an epidemiological approach. But the MOD thought otherwise. So he turned to the United States, and received funding which enabled him and his group to carry out the first epidemiological study of Gulf veterans in the United Kingdom.

**99.** He took a random sample of 4,250 Gulf War veterans, the same number of veterans from Bosnia and the same number of servicemen who had remained in the United Kingdom. He listed 50 of the commonest symptoms reported by Gulf veterans. He found that whereas the pattern of symptoms reported by all three groups was the same, the number and intensity of symptoms reported by Gulf veterans was much greater. In simple terms a Gulf veteran was twice as likely to report symptoms as servicemen in the other two groups. Clearly something had been going on: *"there is a big Gulf health effect"*.

**100.** Since the pattern of symptoms was the same in all three groups there was no unique Gulf War Syndrome. But there was an unequivocal change in subjective symptomatic health.

**101.** Professor Wessely went on to discuss the possible causes of ill health among the veterans. Medical counter measures were an obvious possibility, since nearly everybody had been vaccinated. He carried out a study among those (about a third) who had kept their medical records. Those who had received anthrax and pertussis vaccine were 40% more likely to report symptoms, and the more vaccines a veteran received the more likely he was to report ill health later on. There was nothing wrong with multiple vaccines *per se*.

*"It is the very specific unique interaction of multiple vaccines on going to the Gulf which we think is probably a proxy for stress. So each of these on their own is OK. It is when they interact together that you have a problem"*.

**102.** He found evidence of activation of the immune system but no evidence of peripheral nerve dysfunction, such as you would expect to find if the cause of the ill

health had been exposure to OP pesticides. He also discounted exposure to the Khamisiyah plume: see Dr Rhodes Chapter 5 and Medical Appendix para 85 & 86.

*“We are not talking about low doses but we are talking about homeopathic doses, even if that event happened as described. The chances of that as responsible for ill health in the UK Armed Forces, many of whom had already left the Gulf, are very, very slender”.*

**103.** He also rejected exposure to DU as a cause *“The epidemiology and the toxicology is wrong for that”*.

**104.** Finally, he pointed out that although the first Gulf War was undoubtedly very stressful, not least because of the fear of chemical and biological weapons, it was not traumatic. You would not expect a massive Post Traumatic Stress Disorder (PTSD) problem, nor was there. There was an increase in psychiatric disorder, but not sufficient to account for all the Gulf health effects. *“Stress is important but it is not the solution”*.

**105.** It will be apparent that in certain important respects Professor Wessely disagrees with Dr Haley’s work, to which we come in Chapter 5. He is critical of Dr Haley’s survey of 249 veterans, because there was no control; and you cannot extrapolate from 23 sick veterans who were given brain scans to  $\frac{3}{4}$  million US Armed Forces. He does not accept that there is a Gulf War “Syndrome”, but regards the question as being only of academic importance; he does not accept low-level exposure to sarin as a possible cause, and he does not accept that there is any evidence of brain damage.

**106.** We discuss a possible resolution of these differences in the Medical Appendix.

## PROFESSOR NICOLA CHERRY

**107.** Professor Cherry is Chair of the Department of Public Health Sciences at the University of Alberta in Canada. She was formerly Director of the Centre for Occupational & Environmental Health at the University of Manchester. In 1997 she was invited to carry out a two-stage project into the health of Gulf War veterans. The first stage was to find out how the veterans themselves perceived their problems. The second stage was to conduct an objective assessment of their health. In the event the Ministry of Defence said that they had *“no interest”* in funding the second stage of the research.

**108.** For the first stage Professor Cherry took 10,000 servicemen who had been to the Gulf and 5,000 who had not. She divided the 10,000 into two cohorts of 5,000, so there were three equal cohorts altogether. She invited answers in respect of a list of 95 different symptoms. The results were then grouped into “clusters”. In the “well” cluster there were 90% of those who had not been to the Gulf, but only 76% of those who had. In the “sick” cluster there were 24% of those who had been to the Gulf but only 10% of those who had not. This gives an excess of ill health among



those who went to the Gulf of 14%, equivalent to 7,500 servicemen, rather more than in the event made claims. Professor Cherry commented:-

*"I will go to my death bed swearing that there is a problem amongst this group of people".*

**109.** On other matters she found, like Professor Wessely, that the more vaccines the troops were given the more likely they were to be ill. She also found that those who actually handled pesticides (as opposed to those who were the passive recipients of pesticides) were more likely to complain of symptoms typical of OP poisoning. A Canadian study came up with very similar results.

**110.** Professor Cherry was asked whether low level exposure to sarin over a period of two or three days could be a cause. She thought it *"biologically implausible"*. Since the signs and symptoms were not specific to those who served in the Gulf (although there were more of them and they were more intense) there was nothing that could be called a Gulf War Syndrome.

## DR PAT DOYLE

**111.** Dr Doyle is Head of the Department of Epidemiology & Population Health at the London School of Hygiene & Tropical Medicine. Like Professor Wessely and Professor Cherry she regretted that the epidemiological studies started so late.

*"For epidemiologists it was a very difficult situation asking about people's lives seven years or more ago".*

**112.** Dr Doyle published three papers on the reproductive health of Gulf War veterans. Her group was the only one to send questionnaires to all 53,000 Gulf War veterans. The response was disappointing. But this did not throw doubt on her results. She found that among Gulf War veterans 18% of pregnancies ended in a miscarriage, compared with only 14% among the control group. She calculated the odds ratio at 1.4, equivalent to 40% excess in the case of Gulf veterans. There was a similar excess in the case of infertility and congenital malformation. The most likely explanation of the increase in miscarriages was OP pesticides *"because that is what has been reported in the literature"*.

**113.** But she could not, as a scientist, conclude that the connection was causal, because she could not exclude the effect of bias.

**114.** As a sideline she asked the veterans to report any new medical symptoms since the Gulf War. This was, of course, the converse of the approach adopted by Professor Wessely and Professor Cherry. But the result, published on 13 July 2004, was very similar. 61% of the Gulf veterans reported at least one new symptom compared with only 36.7% in the control group. After making the necessary statistical adjustments, the Gulf veterans were twice as likely to report at least one new symptom compared with the others.

## DR JACK MELLING

**115.** Dr Melling has been involved in the research and development of vaccines for the last 30 years, first at Porton Down then at the Salk Institute in the US and finally with the GAO. For the last two years he has served on the Research Advisory Committee set up by the Department of Veterans Affairs in the US.

**116.** Dr Melling explained how, when a new vaccine is being introduced, it is tested in three phases. In phase (1) the vaccine is tested on animals. In phase (2) it is tested on a small number of people, normally in the low hundreds. In phase (3) it is tested on many thousands of people. Prior to 1990 anthrax vaccine had been used in a very limited way. It was given to laboratory workers and those working in certain industries where there was a potential exposure to anthrax. For reasons which he explained there had been no possibility of carrying out a phase (3) study either in the United Kingdom or the United States. So when the vaccine was given to the troops in 1990 it was, "*something new*". In particular Dr Melling was unaware of any case in which a phase (3) study had been carried out on a new vaccine in combination with other vaccines.

**117.** Dr Melling told us that the anthrax vaccine works by stimulating the immune system. But nerve agents such as sarin, OP pesticides and NAPS tablets may also indirectly affect the immune system, by inhibiting to a greater or lesser extent, the activity of acetylcholinesterase. There was thus a risk of what Dr Melling called a double insult operating on the immune system, leading to an imbalance in the cytokine system, which could, in turn, bring about physiological changes. Moreover it seems that the effect of the double insult may well have been "*synergistic*", in other words the insults would have had a potentiating effect on each other. The problem was that it was now impossible to recreate the conditions to which the troops were exposed in 1990/1991.

**118.** This led Dr Melling to express a personal view that, while research will continue for decades "*we are reaching a point of diminishing returns*".

*"To think that in one year or two we will cross a watershed and suddenly all will be clear, sadly I do not think is realistic".*

## MRS ELIZABETH SIGMUND

**119.** Mrs Sigmund has had a lifelong interest in chemical and biological weapons. In 1967 she became secretary to a group of doctors specialising in that field, with the object of procuring our signature to the Chemical Weapons Convention. In 1990 she formed with Mr Paul Tyler MP and others, the OP Information Network. Although she has published work on the subject, she emphasised that she is not an academic. But her work in the field is well recognised, and she is the holder of an honorary Doctorate in Science.

**120.** Mrs Sigmund gave her evidence through a telephone link-up. She was critical of the haphazard way in which OP pesticides were sprayed over tents in the Gulf without any idea of what effect they might have in exposing people to different levels

of OP pesticides. Secondly she was critical of the way the problem had been handled on the return of the veterans to the UK. The army medical authorities had no understanding of the toxicology, nor had the GPs. As a result veterans went from doctor to doctor, sometimes ending up with a psychiatrist. The consequence was that the illnesses were attributed to mental stress more than anything. She accepted that the troops must have been subject to great stress. But it was not the only issue.

*“I am absolutely convinced, myself, that a combination of all these chemicals has produced a series of severe illnesses among these people”.*

**121.** She had never believed that OP pesticides was the sole cause of Gulf War illnesses but she added *“We think they may well have been a strong contributory factor”* in conjunction with NAPS tablets. She referred in that connection to the work of Professor Abou-Donia (see Medical Appendix page 84). She also referred to Dr Goran Jamal who did research on a very large number of sheep farmers when at Glasgow. He did also look at a group of Gulf War veterans. In Dr Jamal’s opinion the veterans had autonomic nervous system damage which could affect major organs of the body. He had applied for funding from the Medical Research Council for further research. But at that stage, it appears, *“there was no intent to fund causal research”*.

**122.** We end with a lengthy quotation from Mrs Sigmund’s evidence, which speaks for itself:-

*“Finally, I would like to say that I have been very shocked by the treatment of these Gulf veterans because these are people who often join the services feeling that this was an extended family, and I know this is true. They felt they were being protected and would be looked after. They feel bitter and let down and very lost. I feel that this is a tragedy because these were young, healthy people who went to war on our behalf and under the rules of war and did the right thing all the time but now have ended up without any real decent standard of living at all. What we must do ..... I think the words ‘gratitude and respect’ were used the other day and I think that was a very important phrase to use. This is what they want, not to feel that they have lied or that they are mad but that they have been treated badly by a series of unfortunate and sometimes very cruel circumstances”*

## **DR DAFYDD ALUN JONES**

**123.** Dr Dafydd Alun Jones is a Consultant Psychiatrist who, since 1980, has been working with veterans of various campaigns going back to the Second World War. He has a database of over 2,500 patients. In 1990 he set up a therapeutic unit at Ty Gwyn in North Wales. He saw his first Gulf War veteran in 1991, and the number has built up steadily since then. He has now seen 440 Gulf War veterans in all. We have seen copies of the reports which he has made on some of the veterans who have appeared before us. He told us that by the mid-1990s he was becoming very, very uneasy. Forty-two of the Gulf War patients were cases of severe classical post-traumatic stress disorder. The others were obviously ill, but PTSD was not the explanation. They were ill in a way which was clinically different from the veterans of

previous campaigns. He found a whole range of “*enigmatic ... physical things*” which were not characteristic of other ex-servicemen that he has seen. He said

*“I describe this only as I find it – but I have found it and there is no denying, as a clinician, that I have found it”.*

## PROFESSOR MALCOLM HOOPER

**124.** Professor Hooper is Emeritus Professor of Medicinal Chemistry at the University of Sunderland and Chief Scientific Adviser to the National Gulf War Veterans & Families Association. He has been involved with the affairs of the Gulf War veterans since 1997.

**125.** Professor Hooper was very strongly critical of the research efforts of the Ministry of Defence in the early years after the Gulf War. He quoted from the report of the Burton Committee in the United States, which described the attitude of the US Government as being characterised by “*a tin ear, cold heart and closed mind*”. In Professor Hooper’s view that description applied also in the United Kingdom.

*“I have come to view the whole issue of Gulf War Syndrome/Illness as representing an orchestrated, coherent and comprehensive attempt to construct an understanding of Gulf War Syndrome as a psychiatric and psychological dysfunction commonly found in soldiers returning from the battlefield. This is what the Americans use shorthand to say ‘The Stress Theory’”*

**126.** With one or two very honourable exceptions there had been very little hands-on clinical examination of sick veterans. GPs could only carry out routine tests. They accepted too readily that there was nothing wrong with the veterans, and drew the conclusion, encouraged in official circles, that it was “*all in the mind*”. Veterans found this a source of great distress.

**127.** Nor was it an answer for the MOD to say “*There is no single cause*”. For nobody had ever suggested that there was. In Professor Hooper’s view multiple factors had played a part, in what he described as “*the most toxic war in western military history*”.

**128.** He was critical of Professor Wessely’s paper published in January 1999 because it failed to mention the earlier work of Dr Haley and Professor Abou-Donia, and for indulging in what Professor Hooper called “*psychobabble*”. He attached importance to the early work of Dr Goran Jamal in 1996, which had never been followed up by the MOD, and to the study of 147 veterans by Dr Michael Mackness of Manchester, who found severe depression of enzyme paraoxonase in the blood. More work should, he thought, be done on chromosomal aberrations in the context of exposure to Depleted Uranium. Above all he regarded the work of Dr Haley of being of the highest importance.

*“The thing that I feel most strongly about is that there should be careful clinical investigations of sick Gulf War veterans. That is not being done to anything*

*like the correct extent. Where it has been done, new things have always emerged which have been very enlightening in helping people to understand both the syndrome and the possible ways of treating it”.*

## PROFESSOR DAVID COGGON

**129.** Professor Coggon is a medically qualified epidemiologist and currently Chairman of the Depleted Uranium Oversight Board set up in 2001. He told us that some three or four years ago the Government announced a screening programme for veterans who were concerned about possible exposure to DU. It soon emerged that screening was not sensible or practicable in the way that women are screened for breast cancer. So instead it was decided to devise, if possible, a test which would show whether veterans were exposed to DU in 1990/1991 by analysing the amount of Depleted Uranium in their urine. This is achieved by determining the ratio between Ur 235 and Ur 238 (see Medical Appendix para 451). Thirty-two volunteers were tested in a pilot scheme and all thirty-two proved negative, that is to say the proportion of DU in their urine was less than would have been expected if their exposure thirteen years ago had been sufficient to cause damage to their health. But there is a difference in opinion on the Oversight Board as to whether very low exposure (which could not now be detected) may nevertheless cause damage to health.

**130.** The results of the pilot study were announced on the day that Professor Coggon gave evidence on 23 September 2004. The programme will now be advertised. It will be available to all Gulf veterans whether they are ill or not. The prime purpose of the programme is to provide information to individual veterans who want to know about their exposure. It has not been set up as a research project, although some of the information that emerges may be useful for research purposes.

**131.** It is not known how many veterans will come forward. But there are four or five clinics for the collection of urine samples, two laboratories for analysis, a co-ordinator and a medical adviser. There is capacity to carry out 500 tests in the first year. The cost is estimated at between £½ -1million.

**132.** The immediate reaction of the veterans was that the programme was too little and too late.

## PROFESSOR ALBRECHT SCHOTT

**133.** Professor Schott of Berlin has spent his life teaching medicine and is now Head of a small research unit known as the World Depleted Uranium Centre. He became interested in the illnesses of veterans returning from the Gulf. It occurred to him that the inhalation of DU dust might prove to be a contributory cause. He had close contacts with many of the Gulf War veterans, including Kenny Duncan, Ray Bristow and Alex Izett. They took part in a study designed to establish the extent of chromosomal damage among the Gulf veterans. He found that the group had average damage 5.2 x the norm, and the maximum was 14 x the norm. The MOD “*rubbished*” these tests as being “*badly thought out and badly performed*”

**134.** The results were subsequently published in a peer-reviewed paper. One of the MOD's criticisms was that the controls used by Professor Schott were German rather than British. He offered to repeat the tests. He asked the MOD for five millilitres of blood from eight to fifteen British soldiers who had not been to the Gulf, but it got nowhere.

**135.** He agreed with Professor Coggon that it is possible to get information about what happened fifteen years ago by testing the urine, but he described the testing of urine as being only *"a very, very basic step... for you it was interesting; for me it was very basic"*. He said if you want to get real insight into what happened, you must look for the effect of DU on the living cell, by carrying out chromosome aberration tests.

**136.** We are grateful to Professor Schott for attending the hearing of the Inquiry day by day. With one exception he found the level of scientific evidence extraordinarily high. His main message was that we should not overlook DU as a contributory cause. He did not suggest that it was the only cause.

*"You cannot look only to the vaccinations or only to DU, it is one matter because it takes place in one person".*

## **PROFESSOR JENGHU BANATVALA & PROFESSOR DONALD DAVIES**

**137.** Professor Davies is Professor of Biochemical Pharmacology at Imperial College. He has been chairman of the Independent Panel for Research on Vaccines Interactions since January 1999. Professor Banatvala is Emeritus Professor of Clinical Virology at St Thomas' Hospital Medical School. The independent panel was set up to monitor progress into research on the effect of vaccines both with and without NAPS tablets.

**138.** Professor Davies referred to a study on mice done by the National Institute of Biological Standards & Control. This was the study which showed that anthrax and pertussis vaccine in combination produced *"a severe loss of condition and weight loss"* in mice.

**139.** Professor Banatvala pointed out that the dose used in the study on mice was huge, about 300 times as much as you would give to a human being. Preliminary results of further tests carried out at Porton Down showed no apparent adverse effect on guinea pigs or marmosets after eighteen months. Unfortunately the published results of these studies will not be available for about six months. Professor Davies pointed out that the studies do not attempt to reproduce the conditions experienced by personnel in the Gulf. The animals were not subject to stress. Professor Banatvala said that this was the one major difference. When asked whether the results might be different for human beings under stress, he said *"we do not know. That is the big question mark"*.

**140.** We are grateful to Professor Banatvala and Professor Davies for giving us this preview of the long awaited research at Porton Down.

## CHAPTER 5

**141.** We come now to an important Chapter in which we give an account of the evidence of a group of witnesses from the United States. Their evidence occupied the best part of two days. At the outset we would like to record our deep gratitude to them for taking part in the Inquiry and for giving us the benefit of their views.

### CONGRESSMAN CHRISTOPHER SHAYS & CONGRESSMAN BERNIE SANDERS

**142.** Congressmen Shays and Sanders have championed the interest of veterans since the end of the Gulf War. We suspect that they have done more than any other individuals to secure for the US veterans the recognition and treatment which is their due. Of the 697,000 US troops who served in the Gulf War, about 100,000 have reported sick with symptoms associated with Gulf War illness. Initially those who reported sick were told that they were malingering. But as more and more veterans came forward, the Veterans Administration admitted that there was a problem. But they insisted that the problem was due to stress. Congressmen Shays and Sanders did not accept this. They had had meetings with hundreds of veterans and they could see with their own eyes *“that there was a lot more than stress going on”*.

**143.** They continued to put pressure on the Administration. They met resistance at every turn. Eventually, after many hearings, they persuaded Congress to appropriate money for research. Recently they secured \$5million for further research into the affect of low level exposure to sarin, following on the work of Dr Robert Haley at the University of Texas Southwestern.

**144.** Congressman Sanders made three important points, which are relevant to our Inquiry. First he said that the right to compensation should not depend on understanding the illness.

*“If you have got a bullet wound, we understand that, yes; if you lose your arm, we understand that; but if you are totally debilitated because of Gulf War illness, just because we do not understand, it does not, in my view, mean that we should not compensate you”*.

**145.** Secondly, he said that after years of frustration and *“whitewashing the issue”* he has recently detected a distinct change in the attitude of the US Government. Thirdly, he agreed that after fourteen years it was time to reach some kind of finality.

**146.** The written evidence of Congressman Shays echoed the points made by Congressman Sanders in oral evidence. He referred to the determination of the veterans, which had overcome the *“indifference and bureaucratic inertia”* of the Veterans Administration, now the Department of Veterans Affairs. He told us about USAF Major Donnelly who was diagnosed with Motor Neurone Disease, triggered or accelerated by exposure to OP. The unusual number of young men suffering from Motor Neurone Disease had led the Department of Veterans Affairs, in 2001, to acknowledge a presumptive connection between Motor Neurone Disease and Gulf War exposure.

## MR H ROSS PEROT

**147.** Mr Perot told us that he had been concerned with the US Forces for over 40 years. His evidence is important because he described the change of attitude towards the US veterans since 1991. He explained how when the veterans first came home to the United States from the Gulf the Government was in *“total denial”*. Everything was put down to stress. But in Mr Perot’s view stress was not the answer.

*“These people were wounded by chemical and biological agents, and the evidence is now out”*.

**148.** He was referring in particular to the work of Dr Robert Haley, who carried on, despite the efforts of the Department of Defense to close down his research. Mr Perot thought that the change in attitude came about in 2001, when Mr Bush became President. There is now, he thought, a genuine concern on the part of the Department of Defense.

## MR JAMES TUIE III

**149.** Mr Tuite is an independent Consultant who was asked to conduct an investigation into Gulf War illnesses by the US Senate Committee on Banking, Housing & Urban Affairs. We value his evidence for two reasons. First, like Mr Perot, he detected a recent change in attitude on the part of the Department of Veterans Affairs. Initially, any suggestion that the veterans were suffering from illness due to exposure to sarin or OP compounds was rejected out of hand. There was no such exposure. This attitude has now changed.

**150.** Secondly, he drew attention to the bombing of Iraqi chemical facilities during the air bombardment between 17 January and 24 February 1991, and the subsequent detection of sarin in the atmosphere by the chemical detectors. The United States had 14,000 such detectors which sounded, on average, two or three times a day during the air bombardment. These were all put down to false alarms. But the French authorities confirmed that low levels of chemical fallout, probably Neurotoxin, had been detected *“a little bit everywhere”*; and the Czech detection specialists also discovered sarin in the atmosphere. The Czech evidence is important because they used more sophisticated detection equipment, operated, not by soldiers, but by scientists.

**151.** The Department of Veterans Affairs rejected all this evidence on the grounds that nobody had reported sick from acute poisoning, their argument being that if they had not reported sick at once then there could be no long term adverse effects. It was only in June 1996 that the Department of Defense finally admitted that a small number of troops might have been exposed to chemical agents as a result of the explosions at Khamisiyah on 4 and 10 March 1991. Mr Tuite explained, by reference to satellite photographs, the phenomenon of atmospheric inversion, and how the chemical fallout could be carried 450-500 kilometres down-wind within 24 hours. He did not rule out multiple vaccines or NAPS tablets as a contributory cause. But trying



to identify causes in relation to a particular individual is one of the things that had “dragged things out”.

*“We are dealing with an environment in which individuals who had varying susceptibilities to these different compounds were exposed at varying levels”*

**152.** It was impossible to stratify what he described as a “dynamic situation”.

*“That is what too many people are trying to do, to stratify it rather than just point to the mixture of the environment and the individual elements of it. The veterans, in a certain way, are guilty of that in their search for answers. I think the researchers are guilty of that and I think the Governments are guilty of that... They were in a hazardous environment; they got sick as a result of their presence in that hazardous environment. Their presence in that hazardous environment was associated with their service to their country and the country has a responsibility to now step up and take responsibility for their care, disabilities and so forth”*

**153.** That expresses a sentiment with which many veterans and no doubt many others would agree.

## **DR KEITH RHODES**

**154.** Dr Rhodes is Chief Technologist Director, Center for Technology Engineering at the US Government Accountability Office (GAO). As part of his duties, Dr Rhodes carried out a comparison between the experience of US and UK Forces on the one hand and French Forces on the other. Symptoms reported by US and UK veterans were “*strikingly similar*” and there was consistency in the pattern of illness. Thus, those deployed to the Gulf from the US and UK showed 25/30% excess of illness over those who were not deployed.

**155.** By contrast there had been only 300 requests for compensation from the 25,000 French troops who served in the Gulf, of which only 120 claims had been granted. Possible explanations for the different experience of the French were that they were not inoculated against anthrax, they did not use OP pesticides, and they made only limited use of NAPS tablets. He thought it would be extremely difficult to find a single root cause for the illnesses among the veterans. He preferred the view that they were serving in an extremely hazardous location. They had, in the words of Dr Jack Melling, been subjected to “multiple insults”.

**156.** Like Mr Tuite, Dr Rhodes also dealt with the Khamisiyah explosions. It was important to note that Khamisiyah was not the only site for the storage of chemical weapons. Dr Rhodes told us that there were an estimated 21 sites in all, of which 16 had been destroyed. Three of these were estimated to have held over 33 tons of sarin and cyclosarin. Then on 4 March 1991, after the cease-fire, US troops carried out their first demolition at Khamisiyah itself, including Bunker 73. On 9 March an open pit adjacent to the Khamisiyah complex was found to contain stacks of 122mm rockets, mistakenly thought to have conventional warheads. At 1600hrs on 10 March they were destroyed. On 27 October 1991, UNSCOM found an intact 122mm

rocket in the same area. It contained sarin. In 1996 UNSCOM confirmed that chemical weapons had been stored in Bunker 73.

**157.** The destruction of Khamisiyah created a huge cloud or “plume”. In 1996 the Department of Defense estimated that only 300/400 US troops had been exposed to the plume. Their estimate increased, first to 5000, then to 20,000 and finally in July 1997 to 100,000. These figures were based on “modelling” of the atmospheric conditions prevailing on 10 and 11 March 1991. But Dr Rhodes showed that there were five major methodological flaws in the modelling process used by the Department of Defense. In particular, by way of example, plume heights were grossly underestimated. The Department of Veterans Affairs seemed to have accepted the criticisms contained in the GAO report, but nevertheless are continuing their studies on the basis of the old models. Dr Rhodes conclusion was stated as follows:-

*“No amount of grinding this wheat is going to give us any better data. If we continue to persist in modelling, based on flawed data, all we get is the wrong answer, faster, to a greater degree of precision. Therefore our point is; presume exposure because we cannot tell you that anybody was not exposed. Everybody may have been exposed and we have to accept that”.*

#### **MR LAURENCE HALLORAN**

**158.** Mr Halloran is Staff Director and Counsel to the Sub-Committee on National Security. It was Mr Halloran who took us through Congressman Shay’s written testimony. He thought that the prime motivation of the sub-committee was to fulfil a debt of honour. The change in approach by the DOD was due to pressure from Congress.

*“I think there remains resistance in the Department of Defense to acknowledge delayed casualties of what was portrayed initially as a quick and easy war, but you used the keyword ‘acknowledgement’. It would go a long way if there were a simple statement by a suitably august official that said ‘yes we acknowledge that the battlefield is a dangerous workplace and those we send there manifest immediate wounds and delayed wounds determined by loss of their health, and that we have an obligation to attend to those delayed casualties as well”*

**159.** At a later stage of his evidence he summarised the lessons which had been learned by his sub-committee as follows:-

- (1) The burden of proof should be borne by the Government, not by those affected [this is already the case in the United Kingdom for those claiming within seven years, but not otherwise].
- (2) The effect of low level exposure had not been studied as it should have been but had been denied and ignored.

- (3) Research into the effect of low level exposure must be broadened since two of the DOD's arguments (no credible detection of sarin in the atmosphere and no exposure to the Khamisiyah plume) had been falsified.
- (4) There must be better collaboration in medical intelligence among the coalition partners. One reason why closure in this field is so difficult is because the records do not exist.

**160.** Later still Mr Halloran told us that the sub-committee had not ruled out anthrax vaccination as a contributory factor in some cases, where the veterans in question had not been deployed to the Gulf, and could not therefore have been within the plume.

*"It might be the vaccine; it might be walking through a plume; it might be, as it was in the case of Michael Donnelly, jogging through a lawn being sprayed with Organophosphate pesticides. So each person brings that last straw with them which is why there is no one syndrome....that has led to Gulf War illnesses. It is the susceptibility you bring and accumulative insults you gather along the way that tip you over into a diseased state that you cannot quite explain..."*

**161.** He agreed with Dr Melling that there is unlikely to be a great breakthrough in the foreseeable future.

*"Starting from the absence of records originally, the trail is getting very cold"*

## **DR NANCY KINGSBURY**

**162.** Dr Kingsbury is Managing Director of Applied Research & Methods at the US GAO. She dealt primarily with the short-term effect of inhaling anthrax, on which she had carried out a survey. So far as the veterans are concerned, she too deplored the inadequacy in record keeping, so it was impossible to tell who had had what. She confirmed that squalene was used as an adjuvant, at least in the case of some batches.

**163.** On more general matters, she told us that when the veterans came home there was at first a huge resistance. The basic message from research in the mid-1990s was that *"it was all in their heads"*.

**164.** In the scientific world things began to change in about 1997. It was the hearings initiated by Congressman Shays that brought about a shift in the politics. As an objective social scientist she was "pretty persuaded" by the work of Dr Haley.

*"The huge and important message that we think we have made, thanks to Chris Shays and others is to get away from it is all in your head and acknowledge that for some of them, maybe many of them, there is in fact a physical, damage-based, insult-based cause"*

That was, in her view the turning point.

## DR MERYL NASS

**165.** Dr Nass has been in general practice as a doctor for 24 years. Like Professor Wessely, she had a special interest in Chronic Fatigue Syndrome and Fibromyalgia. This led her into investigating the role of vaccines, and in particular anthrax vaccine as a cause of chronic illness. It led her also to seeing a large number of Gulf War veterans. She told us that starting in 1999 she had done evaluations on 600/700 patients, and been in touch with at least another 2000 people claiming to have suffered as a result of anthrax vaccination. She emphasised that she was not an academic but a clinician.

**166.** She told us that from her perspective, the issue of whether anthrax vaccine or vaccines in general had contributed to Gulf War Syndrome had already been established. Those veterans who had received anthrax vaccine were twice as likely to report symptoms as those who had not. In her view the anthrax vaccine on its own was capable of causing Gulf War Syndrome in a susceptible recipient, even without squalene as an adjuvant. She thought it might affect 10/20% of those receiving the vaccine but she readily accepted that her evidence for this percentage was anecdotal. We are very grateful to Dr Nass for crossing the Atlantic to give us the benefit of her evidence.

## DR ROBERT W HALEY

**167.** The evidence of all the other witnesses from the United States was, in a sense, a preparation for the evidence of Dr Haley. This lent support to the view that low level exposure to sarin could result in damage to the basal ganglia in the brain. This would explain the symptoms reported by the veterans. But it is important to note that the scientists did not exclude other possible factors, including OP pesticides, NAPS tablets and anthrax vaccine.

**168.** Dr Haley's own evidence fell into two halves. In the first half he described the typical symptoms of Gulf War illness, chronic fatigue, constant body pain, inability to concentrate and so on. At first the US Government explained these symptoms as being due to psychological stress and PTSD because that was their expectation from previous conflicts, and in particular Vietnam. But by about 1995 it became clear that PTSD could not be the explanation for more than about 20% of those claiming to be ill. There must be some other explanation. So Dr Haley carried out a survey of 249 Gulf veterans from a particular unit. The survey showed that 60 of the 249 reported symptoms which could be grouped into three clusters or syndromes. These syndromes could be regarded as one illness with three variants or three separate illnesses. Those with syndrome 2 were the most severely affected. Only 50% were employed, compared to 82% and 85% in syndromes 1 and 3. Dr Haley was then able to show that those in syndrome 2 group were eight times more likely to have experienced low level exposure to sarin at the time when the Czech chemical detectors were detecting sarin in the atmosphere. His results were published in the January 1997 issue of the Journal of American Medical Association (JAMA). The results were not well received in the Pentagon. However, Dr Haley carried on with the financial assistance of Mr Ross Perot.

**169.** In the second half of his **evidence**, he described how he took 23 sick veterans and 20 controls. Of the sick veterans, five had syndrome 1, thirteen had syndrome 2 and five had syndrome 3. By means of magnetic resonance spectroscopy he was able to show the presence of brain cell abnormalities. The veterans with syndrome 2 had an abnormally low level of paraoxonase type Q in their bloodstream, thus making them more susceptible to damage from low level exposure to sarin. Dr Haley accepted that his survey was on a small scale. But he told us that it had been replicated. We discuss Dr Haley's pioneering research at greater length in the Medical Appendix. Here we can end with a quotation:-

*"We now know that low level sarin in some susceptible individuals will produce a delayed onset of brain cell damage to the deep brain structures and this is a crippling disease".*

**170.** Before concluding this Chapter we should make two points about the US evidence, which are particularly relevant to our Inquiry. We have seen how, in the early days, the Department of Defense was extremely resistant to any suggestion of a new Gulf War illness. Gradually towards the end of the 1990s the attitude changed. It may be that the early resistance in the United States explains the very similar resistance in the United Kingdom, to which we shall come in Chapter 8. Until Professor Wessely's paper was published in 1999 we were riding on the back of American research. It is easy to see how the attitude of MOD may have reflected US attitudes.

**171.** Secondly, we were impressed and encouraged by the evidence that a change of attitude in the United States had been brought about by the efforts of the Congressional sub-committee under the vigorous leadership of Congressmen Shays and Sanders and by the GAO. **It may be that pressure from the public, the press and above all in Parliament, could bring about the same result in the United Kingdom. If we are to do justice to the veterans, there is need for a political act of will. A Minister has to say, in Mr Michael Mates' words "this will be done" and then it is done.**

## CHAPTER 6

**172.** In this Chapter we explain the statutory scheme for the payment of War Pensions and deal with related matters. Much of the detail is taken from a statement prepared by **Dr Harcourt Concannon**. Dr Concannon has been President of the Pensions Appeal Tribunal since 1998. We are especially grateful to him, not only for producing the statement but also for his oral evidence, in which he filled in the background in a way we could understand, and answered all our questions.

**173.** The legal framework for the payment of War Pensions is to be found in the Naval Military & Airforces Etc, (Disablement & Death) Service Pensions Order 1983 ("SPO").

### ARTICLE 3

*"Under this Order awards may be made where the disablement or death of a member of the Armed Forces is due to service"*

Article 3 refers to "may" not "shall". It might thus suggest that the payment of War Pensions is discretionary. But this is not so. Article 3 confers the power to make awards. The right (or entitlement) to an award is governed by the following articles of the Order.

Article 3A requires a claim to be made in a form prescribed by the Secretary of State, and makes the existence of such a written claim a condition precedent to the making of an award.

### ARTICLE 4(1) provides

*"Where, not later than seven years after the termination of the service of a member of the Armed Forces, a claim is made in respect of a disablement of that member... such disablement... shall be accepted as due to service for the purposes of this Order provided it is certified that:-*

- (a) *the disablement is due to any injury which*
  - (i) *is attributable to service".*

**174.** For simplicity and clarity we have omitted any reference to death, as distinct from disablement. We have also omitted any reference to injuries being aggravated by, as distinct from being attributable to, service.

### ARTICLE 4(2) provides

*"Subject to the following provision of this Article in no case shall there be any onus on any Claimant under this Article to prove the fulfilment of the conditions set out in paragraph 1 (and the benefit of any reasonable doubts shall be given to the Claimant)".*

“Disablement” is defined in paragraph 22 of Schedule 4.

*“Physical or mental injury or damage, or loss of physical or mental capacity, and ‘disabled’ shall be construed accordingly”.*

“Injury” is defined by paragraph 27 of Schedule 4: “Includes wound or disease...”

**175.** So where a claim for disablement is made within seven years of the termination of service the Claimant must prove that he is disabled on the balance of probabilities; see Royston v Minister of Pensions 3WPLR1593. If he does so (or if it is conceded) the disablement is to be accepted as being due to an injury attributable to service unless the contrary is proved beyond reasonable doubt.

**176.** For veterans who made a claim within seven years of leaving service the burden of proof is thus very favourable to the Claimant. If there is any reasonable doubt as to whether the disablement is due to an attributable injury, the benefit of the doubt must be given to the Claimant.

**177.** It is to be noted that the definition of disablement is very wide. It includes mental injury or loss of mental capacity, and it includes disease. Thus there is no distinction between physical and psychological injury.

**178.** If the veteran was medically discharged there is a compelling presumption in his favour. But it appears that very few Gulf War veterans were medically discharged.

**179.** If the claim for disablement is not made within seven years: (See Annex B (ii)) then the burden of proof is less favourable to the veteran. It is for the veteran to show, on the balance of probabilities, that his disablement is due to an attributable injury. All but 355 of the Gulf War Claimants made their claims within seven years.

**180.** When a claim is made it will be referred by the Veterans Agency to one of the medical advisers appointed by the Secretary of State and employed by the Veterans Agency. If the adviser is persuaded by the veteran that the veteran is disabled, and if he considers that the disablement was due to an attributable injury (i.e. an injury attributable to service) or if he is left in doubt, then he is bound to give a Certificate of Entitlement to that effect. He will then assess the degree of disability by comparing the veteran with a normal healthy person of the same age and sex. He will also state in his Medical Opinion whether the assessment is interim or final.

**181.** If, on the other hand, the medical adviser is not persuaded that the veteran is disabled, or if he is satisfied, beyond reasonable doubt, that the disablement is not due to an attributable injury, he will so state in his Medical Opinion and will refuse a Certificate. In such a case the Secretary of State must reject the claim. Having done so, he must inform the Claimant in writing, and give the reasons for his decision. The Claimant then has a right of appeal under Section 1 of the Pension Appeals Tribunal Act 1943.

Section 1 of that Act provides:-

*“Where any claim in respect of the disablement of any person ... is rejected by the Minister on the grounds that the injury on which the claim is based*

- (a) is not attributable to any relevant service; and*
- (b) ....*

*the Minister shall notify the Claimant of his decision specifying that it is made on that ground, and thereupon an Appeal shall lie to a Pensions Appeal Tribunal constituted under this Act.... on the issue whether the claim was rightly rejected on that ground”*

**182.** If the veteran gives notice of his intention to appeal, the Veterans Agency will prepare a Statement of Case explaining why the claim has been rejected, and include a copy of the Medical Opinion. The veteran may then answer anything contained in the Statement of Case.

**183.** There is no legal requirement that the claim must be expressed in medical language, or as a recognised diagnosis. In the case of a physical injury such as a gunshot wound, the description of the injury will present no difficulty. But in the case of a disease, or loss of mental capacity, the diagnosis may be more difficult. Thus it is common, in practice, for claims to be made in terms of symptoms. There is nothing wrong with this.

**184.** But the symptoms of a disease are not the disease itself. It is the function of the medical adviser to identify, if he can, the disease or “injurious process” which explains the symptoms described in the claim. The reason for giving the symptoms a “diagnostic label” is that otherwise, in the case of very common symptoms, such as backache, it will be difficult or impossible to say how much of the disablement is due to an attributable cause and how much to other causes. The labelling of the symptoms is thus part of the process of assessment, and is important for that purpose. It is a means of understanding the claim in the context of disablement. In other words it is a means to an end, not an end in itself.

**185.** It should be noticed that the Pensions Appeal Tribunal, when hearing an appeal, is not bound by the label that may have been attached to the claim by the medical adviser.

## **GULF WAR SYNDROME**

**186.** This brings us to the much disputed “label” known as Gulf War Syndrome. Giving the correct diagnostic label to a collection of symptoms is, as we have said, not always easy, but it is never more difficult than when one is, or may be, on the threshold of a new disease. Very often the new disease is called by the Greek word for the symptoms themselves, e.g. asthma and many others. Sometimes the name is a combination of Greek and Latin. In the case of veterans returning from the Gulf, the existence of the symptoms was, as Dr Concannon explained, and as everybody now accepts, undisputed. But the symptoms did not fit into any recognised category of war injury. They might have been due to OP pesticides. They might have been



due to exposure to DU. They might have been due to the cocktail of vaccines. They might have been due to any number of other causes related to service in the Gulf. The difficulty was to find the underlying aetiology.

**187.** Dr Concannon then went on to describe what he called the political context in which any system of disablement compensation operates in this or any other country. It would have been impossible for the Pensions Appeal Tribunal to say

*“yes, the symptoms exist but we cannot identify the pathology, so we are going to refuse your claim”.*

**188.** There would have been an outcry. They had to do something. Dr Concannon explained it very clearly in a passage of crucial importance:-

*“You have to react in some way or other. You can react to it in a number of ways, I suppose. You can stretch existing labels beyond boundaries that they really justify or you can find another label such as ‘symptoms and signs of ill defined conditions’ which is what the Veterans Agency did, or you can identify something, I suppose, as Gulf War Syndrome. I think you have to do something, albeit that it may not rest on a consensus of medical opinion at the time because there is a need to react”*

**189.** Whichever you call it, whether Gulf War Syndrome or “Symptoms and Signs of Ill Defined Conditions” the label is, he said, no more than a wrapper for accepting a set of symptoms.

**190.** Dr Concannon acknowledged that there are problems in this approach. In the first place you must not stray too far beyond the margins of medical legitimacy.

*“You could not simply invent a label out of thin air which has no support whatever in the medical community”.*

**191.** Secondly the label Gulf War Syndrome, as favoured by the veterans, or “Symptoms and Signs of Ill Defined Conditions” (SSIDC), as favoured by the Government, are both “umbrella” labels. They encompass a whole array of separate symptoms. So the symptoms have to be defined before you go on to the second stage of the process, as already explained, in assessing, in a particular case, which symptoms have been included in the accepted condition of disablement.

*“It starts”* said Dr Concannon *“being almost a play on words”.*

**192.** Whether that be so or not, the important point for us to notice is that exactly the same problems arise whether you label the symptoms “Gulf War Syndrome” or “SSIDC”.

## THE RUSLING CASE

### SECRETARY OF STATE FOR DEFENCE V RUSLING 2003 EWHC1359

**193.** On 7 December 1993 Sergeant Rusling made a claim for a condition, which he described as Gulf War Syndrome. On 6 June 1994 the claim was rejected on the grounds that Gulf War Syndrome was not a condition caused by his service in the Gulf. It is important to note that the claim was not rejected on the ground that Gulf War Syndrome did not exist. Notwithstanding the rejection of his claim, on the basis of Gulf War Syndrome, the War Pensions Agency made an interim assessment of 40% disablement for Post Traumatic Stress Disorder and major depression as being attributable to his service. Mr Rusling gave Notice of Appeal against that assessment. On 26 March 1997 the War Pensions Agency informed Mr Rusling that they had accepted the condition Symptoms and Signs of Ill Defined Conditions (“SSIDC”) as having been caused by Mr Rusling’s service, and accordingly increased his assessment to 80% from December 1995. This was apparently due to a change of policy. The War Pensions Agency added, optimistically, “This disposes of your Appeal”.

**194.** However, on 20 May 2002, the Appeal came on before the Pensions Appeal Tribunal, who found that the injury or disease on which the claim was based, namely Gulf War Syndrome, was attributable to service. The Secretary of State then appealed against the decision of the Tribunal to the High Court. The Appeal came before Mr Justice Newman in June 2003, and was dismissed.

**195.** The central question, as defined by Mr Justice Newman, was whether the Tribunal had jurisdiction to entertain the Appeal once the Ministry of Defence had accepted Mr Rusling’s entitlement to 80% pension based on SSIDC. According to the Secretary of State, the only disagreement between the parties thereafter was as to the diagnostic label. That issue could not survive, as a separate issue, once the Secretary of State had accepted Mr Rusling’s entitlement. Since his claim had not been “rejected”, it followed that the Pension Appeals Tribunal had no jurisdiction.

**196.** Mr Justice Newman had little difficulty in dismissing that argument. The Manual is replete with references to the importance attached to the correct diagnostic label in identifying the basic injurious process. It was obvious that the label selected by the Secretary of State on the advice of the medical adviser in accepting or rejecting a claim must be capable of being the subject of an Appeal to the Pensions Appeal Tribunal. Accordingly the Pensions Appeal Tribunal had jurisdiction to consider Mr Rusling’s Appeal.

**197.** A further argument turned on the interpretation of Section 1(1) of the 1943 Act. Mr Rusling’s claim was rejected on the grounds that Gulf War Syndrome was not a condition caused by his service. Section 1(1), in plain language, gave Mr Rusling a right of Appeal on the issue whether the claim was rightly rejected “*on that ground*”. The section thus plainly provided for an Appeal against the decision itself, and the ground on which it was based. The Secretary of State could not escape the words of the subsection.

**198.** As we have said, the decision of the Pensions Appeal Tribunal on 20 May 2002 was that the injury or disease on which Mr Rusling's claim was based, namely, Gulf War Syndrome, was attributable to his service. This was because the MOD had failed to produce any evidence that his disablement was not attributable to his service. Instead the MOD argued that Gulf War Syndrome did not exist. But this, was not the ground, and indeed was inconsistent with the ground, on which Mr Rusling's claim had been rejected in 1994. It was not open to the Secretary of State to change the ground on which he had rejected the claim halfway through the Appeal process. Accordingly the question, whether Gulf War Syndrome exists or not, was not an issue to be decided in the case. The Tribunal's conclusion, as Newman J put it, arose by default, not as a result of any consideration on the merits.

**199.** We have dealt with the Rusling case at some length because it is important, not only for what it decided, but also for what it did not decide. The Judgment is very long, and the issues were complicated because of the Secretary of State's change of policy in 1997. So the actual decision upholding the decision of the Tribunal in May 2002 is liable to be misunderstood, despite the conspicuous clarity of the reasoning.

**200.** For our purposes, the decision is important because it raises two questions;

- (i) Since Gulf War Syndrome and SSIDC are both (in Dr Concannon's expression) "umbrella" labels, and since Gulf War Syndrome was, by inference, accepted in 1994 as a condition capable of giving rise to disablement (as the Tribunal decided) what was the reason for changing the labels in 1997? It cannot merely be because SSIDC is referred to in Chapter XVIII of International Statistical Classification of Diseases and Related Health Problems 1992. The whole point of Chapter XVIII is that it refers to symptoms and signs for which there is no classifiable diagnosis. SSIDC is therefore just as vague as (or no more specific than) Gulf War Syndrome, which does at least appear in *Black's Medical Dictionary*. In any event SSIDC has since been dropped from the International Classification of Diseases. When Margaret Ronson, a representative of the MOD, attended the hearing of the Tribunal in 2002 she said that the Secretary of State regarded SSIDC as being more in accordance with contemporary medical understanding. But she did not explain why.
- (ii) Whatever may have been the reason for changing labels in 1997, was the MOD justified in putting Mr Rusling to the worry and expense of resisting an Appeal against the 2002 decision in his favour, which in the event proved unsuccessful on every count?

## CONCLUSION

**201.** We have not forgotten the advice of Lord Bramall and others that: -

*“Gulf War Syndrome is a term which should be sunk without trace”.*

We would agree with him if the term ‘syndrome’ implied a single cause, or was otherwise misleading or inaccurate. It is not. The Oxford Medical Companion 1994 (edited by Lord Walton of Detchant) defines syndrome as:-

*“A collection of symptoms and signs which tend to occur together, and form a characteristic pattern, but which may not necessarily always be due to the same pathological cause“*

**202.** Thus some syndromes have a limited number of symptoms and other medical features, but a large number of recognised causes, e.g. the Nephrotic Syndrome. Other syndromes, have one major clear cut symptom, but uncertain causation, e.g. Chronic Fatigue Syndrome. Yet others have a limited range of symptoms with no comprehensive cause that explains the whole range, e.g. Irritable Bowel Syndrome. The range of such variations in the features of medical conditions covered by the umbrella term “syndrome” is large.

**203.** We repeat that a single cause is not a prerequisite for the use of the term. There is thus no medical contra-indication to using the word syndrome to cover the multiple symptoms reported by veterans, the unifying feature being service in the Gulf War, whether or not deployed.

**204.** Seeing that the use of the word ‘syndrome’ is not ruled out on medical grounds, indeed is entirely appropriate, the question is whether it has other advantages. The answer must surely be “yes”. It is the name by which the illnesses are known to the public. It is the name under which the veterans have made 1,388 claims for War Pension: (see Annex E 21 May 2004). It is a name which suits what Professor Wessely described as the *“very specific unique interaction of multiple vaccines on going to the Gulf”*

**205.** There is a further point. If as Dr Concannon explained so clearly, Gulf War Syndrome (as favoured by the veterans) and Symptoms and Signs of Ill Defined Condition (as favoured by the MOD) are only labels, it is surely sensible to choose a label which has some resonance. As Dr Thomas Stuttford has said (*The Times*, 8 October 2004) and as many doctors have said before him, patients like to have a name for their illnesses. If a child asks what is wrong with his father or why he died, it would not mean much to tell him that he had died of Symptoms and Signs of Ill Defined Conditions. It is surely better in every way that he should be told that he died of Gulf War Syndrome.

**206.** Always we bear in mind Sir Peter de la Billière’s plea that what is needed now is *“clarity – for the families”*. If the MOD were to accept Gulf War Syndrome as the name or label of the illness or illnesses from which they admit that many veterans are suffering, it would, without loss to themselves, go a long way to restore the trust and confidence of the veterans.

## CHAPTER 7

### CAUSATION

**207.** In this Chapter we consider the question of causation in the broad sense. Are the illnesses from which veterans are suffering due to their service in the Gulf (see issue (ii) in Chapter 1)? We discuss causation in the narrower sense (see issue (iii) in Chapter 1) in the Medical Appendix.

**208.** As we mentioned in the Introduction, the Government accept that some of the veterans are ill.

*“The issue is whether this ill health is unusual and related to their service in the Gulf”.*

On 10 December 1996 Nicholas Soames MP put the issue in similar terms when making his statement on OP pesticides in the House of Commons

*“are British Gulf veterans suffering more ill health than they would have done had they not served in the Gulf”*

He used similar language in his oral evidence to the Inquiry. Speaking of 1994 he said:-

*“It was clear that there was something wrong, that there were a number of people who had come from their service in the Gulf who had clearly become ill. What was not clear was whether or not, at that stage, this was the normal run of events, statistically, and ultimately we have to look at these things in statistical terms, or whether there was some illness caused by their specific service in the Gulf...”.*

**209.** It was because of the importance which the Government attached to the statistical approach in proving or disproving causation that they eventually commissioned the two epidemiological studies under Professor Nicola Cherry and Dr Pat Doyle in December 1996. By then the King’s College Group was already in the field. Professor Simon Wessely told us that he had approached the MOD in 1995 with the suggestion that what was needed was an epidemiological approach. *“But the MOD, in their wisdom, disagreed”*. Fortunately he received funding from the Department of Defense in the US, and in due course, published his first results in the *Lancet* in January 1999.

**210.** But before we come to his results, and the subsequent papers published by Professor Cherry and Dr Doyle, it is helpful to set these pieces of research into the statutory scheme for War Pensions discussed in Chapter 6.

**211.** It has long been accepted, as we have said, that “some” of the veterans are ill. We can be a little more precise than that. 4,975 awards have been made to Gulf War veterans or their widows, comprising 2,740 pensions and 2,235 lump sums known as gratuities. In addition there have been 575 nil awards. Only 272 claims have been rejected. We do not know on what grounds. But we do know that in

respect of 5,550 awards (including nil awards) the MOD must have accepted that the claimants are or were disabled. Otherwise the MOD would have had no jurisdiction to make the awards. They would have been bound to reject the claims for the reasons explained in *Royston*.

**212.** So it follows from the fact that the MOD have made 5,550 awards that there are 5,550 veterans who are accepted as being or having been disabled. But that is all that follows. It does not, of course, follow that the MOD has accepted that those disabilities are due to a disease or injury attributable to their service in the Gulf. In so far as claims have been made within seven years, all it shows is that the MOD have not been able to prove, beyond reasonable doubt, that the disease or injury was not due to service in the Gulf.

**213.** So if pensions and gratuities are already being paid in all but 272 cases in which claims have been made it might be asked what was the real point of carrying out all this epidemiological research? It was not going to affect the money in the veterans' pockets, since the vast majority are already receiving the pensions or gratuities to which they are entitled.

**214.** There are, we think, three answers to this question. In the first place, it might help those Claimants who did not make their claim within seven years to prove their case. Secondly, it might help the MOD to prove beyond reasonable doubt that the veterans' disabilities were not due to service in the Gulf. Thirdly, it might lead to the truth. **For it is the truth, above all, which the veterans want to be told. They want to know that the ill health from which they suffer is not due to "something in the mind". It is due to the fact that they served their country in Iraq in 1991. If the MOD could bring itself to acknowledge that simple fact, as the result of the epidemiological studies which have been carried out at its request, then that would be another major step towards restoring trust and confidence between the veterans and the MOD.**

**215.** We now return to Professor Wessely and the paper, which he and others published in 1999. It showed, as we have seen, that the random sample of 4,250 Gulf veterans, covered by the survey, were twice as likely to report symptoms as the 4,250 Bosnia veterans and the controlled sample of 4,250 servicemen who were never deployed. We found Professor Wessely's evidence convincing. If it needed confirmation Professor Cherry and Dr Doyle provided it. It will be remembered that Professor Cherry took 10,000 men who had served in the Gulf (divided into two groups of 5,000) and 5,000 who had not been deployed. The excess morbidity amongst those who went to the Gulf was 14%, or the equivalent of 7,500 servicemen, rather more than in the event have made claims. The results among the two groups who went to the Gulf were identical. The results in the other group were very different. Professor Cherry's findings were published in two papers in *Occupational & Environmental Medicine* in May 2001.

**216.** Finally Dr Doyle and her group carried out a study of all Gulf veterans. She found that whereas only 37% of non-Gulf veterans reported one or more new symptom since 1990, the figure for Gulf veterans was 60.7%. Her results were thus very similar to the results obtained by the other two groups.

**217.** These three studies, by leading investigators in the field, showing that the Gulf veterans were twice as likely to report ill health, should be enough, we think, to satisfy the MOD. But the evidence becomes overwhelming when we find that very similar results have been reached, not only in the United States, but also in Canada, Australia and Denmark. France is the only exception. In France only about 300 servicemen have sought War Pensions out of some 25,000 who served in the Gulf. What is the explanation for this? It could be explained on the grounds that in France they did not vaccinate their troops against anthrax. They relied less on vaccines to protect against biological weapons, they did not use OP pesticides and they did not take NAPS tablets on a regular basis, but only during an alert. At first sight this might appear to provide strong circumstantial evidence in favour of the veterans on causation. But there now appears to be some doubt about the facts that were given to the Government Accountability Office (GAO) when it was carrying out its investigation. So while the evidence from France remains important, it is in no way conclusive.

**218.** It may be argued that the fact that those deployed to the Gulf were twice as likely to become ill as those who remained behind proves nothing. It does not prove, in respect of any one given individual, that he might not have become ill anyway, whether deployed to the Gulf or not; and therefore it does not prove that his particular illness was caused by his service in the Gulf. Yes, he was subject to increased risk. But that is all.

**219.** This is an argument that we would have to take seriously if we were concerned with causation in law, that is to say causation sufficient to found legal proceedings against the MOD for negligence or breach of duty. We should then have to consider the extent to which the more liberal approach sanctioned by Lord Reid in McGhee v National Coal Board 1972 3AER1008 has been affected by the subsequent decision of the House of Lords in Fairchild v Glenhaven Funeral Services Limited & Others 2002 UKHL22.

**220.** But we are not in that field here. The opinion of Stephen Irwin QC and Christopher Hough, dated 26 March 2003, has brought the curtain down on legal proceedings against the MOD. We are in a different field altogether. We are concerned with what is fair and just in the context of the War Pensions Scheme, established by Parliament. In that context we consider that the epidemiological surveys to which we have referred, combined with the evidence from overseas, is conclusive.

**221.** **We started this Chapter with a reference to Mr Soames' statement in 1996, that what was needed was a statistical approach. That was the question which he repeated in his evidence before us. It seems, to us, that that question has now received a conclusive answer.**

**222.** It will be noticed that in the above account we have not referred to any of the clinical evidence. Of course it is better that clinical and epidemiological research should go hand in hand. This is what Professor Cherry suggested in 1997. Indeed this is what was originally agreed. But subsequently the MRC and the Ministry of Defence went back on that agreement. They felt it was "*not sensible*".

**223.** So we do not have the advantage of Professor Cherry's clinical investigation into the health of the veterans. What we have instead are the clinical impressions of Dr Dafydd Alun Jones, which we considered in Chapter 4, and the important work of Dr Haley in the United States.

**224.** We have already described Dr Haley's findings in Chapter 5 and they are set out in greater detail in the Medical Appendix. We were, as we have said, greatly impressed by his presentation. It may well be that Dr Haley has made a breakthrough. But the picture is already sufficiently clear to enable the MOD to acknowledge forthwith that the illnesses of the Gulf War veterans, who have had their claims accepted, are attributable to their service in the Gulf. To wait for further research into the pathology would, after fourteen years, be a denial of justice to the veterans.



## CHAPTER 8

**225.** In Chapter 2 we noted that underlying almost all the veterans' evidence was the feeling that they had been fighting an uphill battle against the MOD. They have not been looked after as they should have been. The Government was not on their side. This dissatisfaction is not, we think, confined to the thirty-five veterans from whom we heard. They told us that the feeling of rejection, to use Lord Craig's expression, is widespread. In any event our impressions are confirmed by much other evidence, in particular the reports published from time to time by the House of Commons Defence Committee. In this Chapter we summarise in no particular order what may be the main causes of the sense of rejection.

### MEDICAL COUNTER-MEASURES

**226.** There were, as was to be expected, the usual complaints about the way in which the injections were administered and the absence of any explanation of what the vaccines were for. No doubt the injections had to be done in a hurry, and in difficult circumstances. We understand this. What concerns us more are the explanations which were given after the war. It was repeatedly said that the troops had given their informed consent. Many of them must have known that this was not true. In particular it will be remembered that Dr Derek Hall objected to having the pertussis vaccination on the ground that he was already immune to whooping cough, but in vain. Subsequently it was said that secrecy was necessary to prevent the enemy learning about the nature of the medical counter-measures. Neither of these explanations can have carried much conviction with the veterans. It was the implausible assertion that the troops had given their informed consent, which may have started to undermine the veterans' trust in the MOD.

### MEDICAL RECORDS

**227.** Medical records were kept in two forms, the F Med 4 and the B Med 27. The F Med 4 provides the most complete picture of an individual's medical history during service. The B Med 27 is a summary. Except in the case of the Navy, the F Med 4 forms were kept in the United Kingdom. B Med 27 forms should have been taken to the Gulf if they existed. In the case of reservists, they did not exist. Even when they did exist, the vaccinations were not always recorded on the B Med 27 forms; and even when they were recorded, they were not always transferred to the F Med 4 forms. As a result many veterans have found that there are no records in existence of what vaccinations they were given. These shortcomings are all set out in the House of Commons Defence Committee 11<sup>th</sup> Report, session 1994/5, paragraph 58. After initial pleas that the system was adequate but not properly implemented, the MOD has freely acknowledged that the system of keeping medical records in the Gulf was not all it should have been.

**228.** But, as with the medical counter-measures, our concern is not so much with the initial shortcomings as with the difficulties which veterans have experienced after the war in obtaining access to such records as there are. This is covered in the House of Commons Defence Committee 6<sup>th</sup> Report, session 1996/7, paragraph 24.

When pressed by the Defence Committee, the MOD agreed to provide all medical documents to GPs on request. But this is not what happened in practice. One veteran, **Adrian Wilson**, told us that he only obtained his medical records after a letter had been written by a Solicitor on his behalf, and even then he had to wait for more than a year until they arrived. Another veteran received the following letter sent by the Army Medical Services Directorate:-

*"I have to remind you that certain injections and medication were administered during the Gulf War campaign which were classified secret. Any such substances would not be listed on your medical documents, and in view of the classification I do not have access to them and I am not authorised to possess this information. Until there is an amendment in the Official Secrets Act I can go no further in this matter"*

**229.** The substance of that letter was wrong, and the tone deplorable. The House of Commons Defence Committee commented:-

*"On access to medical records ... the Ministry of Defence was not implementing its stated public policy and advice to ministers was not enabling them to tell Parliament what was really happening"*

## THE MISSING FAX

**230.** At 1605hrs on 21 December 1990 Dr Jeremy Metters in the Department of Health sent a fax to the Ministry of Defence expressing concern about the simultaneous administration of anthrax and pertussis vaccinations. The fax incorporated a letter from the National Institute for Biological Standards & Control, also dated 21 December, reporting that a recent study on animals had shown that where the two vaccines were combined (but not where they were administered separately) there was a severe loss of condition and weight. It is not known what, if any, action was taken by the Ministry of Defence on receiving this fax. The Ministry of Defence only admitted the existence of the fax in 1997, after it had been lost for many years. It was said not to be known who had sent it or who had received it. We have a copy of the fax in our possession, from which it is clear that it was sent by Dr Metters.

## MEDICAL ASSESSMENT PROGRAMME

**231.** In October 1993 the Ministry of Defence set up a part time Medical Assessment Programme under Wing Commander Coker at RAF Wroughton. This is a good example of how the Ministry of Defence was capable of acting expeditiously in the interests of veterans, and without outside prompting. Dr Coker was employed for two days a week with the intention that he should see up to ten veterans a week. At first this was sufficient to meet the demand. The only point made is that at the early stages more should have been done to make the facility known among the veterans.

**232.** But by December 1994 there was already a serious backlog. By February 1995 there was a waiting list of six or seven months. When it was suggested that Wing Commander Coker should be joined by another consultant and that a second centre for assessment should be opened in the North of England, where many of the veterans are based, Surgeon General Rear Admiral Revell's answer was that for the sake of consistency it was better to have all the assessments carried out *"under a single roof and by only one physician"*.

**233.** This policy was strongly criticised in the House of Commons Defence Committee 11<sup>th</sup> Report, paragraphs 12 – 20.

*"The initial allocation of a single consultant for two days per week was hopelessly inadequate. We gained the distinct impression that, without our questioning, little or no effort would have been made to improve the unacceptably slow rate of examinations"*

**234.** By the time the House of Commons Defence Committee published its 6<sup>th</sup> Report, the number of consultants had been increased to two but Wing Commander Coker had by then been posted elsewhere "after three years of extremely valuable work".

## THE RESEARCH PROGRAMME

**235.** The main complaint here is that whereas the MOD were commendably quick in setting up the Medical Assessment Programme on a part time basis, they were much too slow in acknowledging the existence of any problem and in commissioning the necessary research. The line taken in the early days appears sufficiently from the Memorandum dated 12 October 1993 which the Ministry of Defence submitted to the House of Commons Defence Committee.

*"Based on the available information to date, the Surgeon General's opinion is that there is no evidence to support the allegations of a new separate medical condition or syndrome which UK service personnel are suffering as a result of service in the Gulf"*

**236.** In a further Memorandum dated 4 November 1993, paragraph 15, the MOD said:-

*"There is no evidence to support the suggestion that the vaccines administered for Operation Granby, either singly or in combination, can cause any of the various delayed symptoms popularly labelled 'Desert Storm Syndrome'"*

**237.** In a letter to the *British Medical Journal* published on 11 June 1994 the Surgeon General, General Peter Beale, denied the existence of a Gulf War syndrome and added:-

*"We have no evidence to support the claim that a medical condition exists that is peculiar to those who served in the Gulf conflict. Medical statistics that we*

*have compiled also indicate that the incidence of the diverse symptoms alleged to make up the syndrome has not increased. There is no doubt that the symptoms reported are real; what is in doubt is whether the non-specific symptoms of Gulf illness have a higher prevalence in Gulf veterans than in the general population. American work indicates that they do not"*

**238.** After a TV programme "Quick War - Slow Death" the MOD submitted a Memorandum which contained the following paragraph:-

*"A common feature of the media coverage has been its alarmist nature and there is concern that this could cause unnecessary anxiety to those who have served in the successful Gulf operation. Investigations of the allegations have revealed them to be a mixture of unsubstantiated rumour, incorrect information or a repetition of earlier allegations which have been fully investigated and found to be unsupported by the facts. A number of individual Gulf UK veterans have featured in the media coverage and their stories of ill health are undoubtedly both convincing and touching. However, there has been a lack of objective scientific evidence in these programmes and articles to justify the quantum jump which is made linking their ill health to their service in the Gulf"*

**239.** These are some of the reports, which must have given veterans the impression that the MOD was not on their side. If these reports had themselves been based on epidemiological studies they would have been understandable. But they were not. When the Gulf War Veterans Association was formed in 1994 one of its first actions was to call for an epidemiological survey. But they were told that there were no grounds for such an inquiry in the absence of any confirmed scientific evidence that there is a health problem resulting from Gulf service.

**240.** When Professor Wessely suggested the need for an epidemiological approach in 1995, the MOD disagreed. It was only in December 1996 that the MOD finally agreed to commission the two studies by Professor Cherry and Dr Doyle to which we referred in Chapter 4. The experts all agreed that the work should have been started much earlier. The House of Commons Defence Committee commented in 1995 (11<sup>th</sup> Report, paragraph 28)

*"We are appalled that it has taken two years since the establishment of the Medical Assessment Programme, over four years since the end of the Gulf War for MOD even to contemplate compiling the data necessary to facilitate a full epidemiological study. We recommend that sufficient resources are allocated to DASA to enable the preliminary work to be completed swiftly, that a subsequent epidemiological study is carried out or overseen by an appropriate independent body and the results are published in full as early as possible".*

**241.** In their conclusion they say:-

*"In responding to the allegations of a Gulf War syndrome, MOD has been quick to deny but slow to investigate. The lack of evidence supporting a link*

*between service in the Gulf and the reported illnesses so frequently cited by Ministers clearly reflects the absence of thorough research or statistical analysis ... It was only after considerably more public and parliamentary pressure that the Department began to contemplate conducting the type of epidemiological study needed to establish whether the incidence of Gulf War Syndrome related symptoms is in any way unusual. This study is not part of a co-ordinated, long term inquiry but seems more to stem from an acceptance that further inaction will not be defensible. In the Committee's view the MOD's response had been reactive rather than proactive and characterised throughout by scepticism and defensiveness and general torpor".*

## KHAMISIYAH

**242.** Khamisiyah was the site of a large storage depot for chemical weapons situated about 200km north west of Kuwait City. It is important to note that it was not the only such site. Dr Keith Rhodes told us that there were an estimated twenty-one sites in all, of which sixteen had been destroyed. But for various reasons attention has focused on Khamisiyah.

**243.** The cease-fire came into effect on 28 February. Thereafter the troops started to withdraw. They were no longer required to take protective measures, except to carry respirators. Alarms were switched off. This is not the subject of any criticism. However, on 4 March 1991 US troops carried out their first demolition at Khamisiyah, including Bunker 73. On 9 March an open pit adjacent to the Khamisiyah complex was found to contain stacks of 122mm rockets, mistakenly thought to have conventional warheads. At 1600hrs on 10 March they were destroyed. On 27 October 1991 UNSCOM found an intact 122mm rocket in the same area. It was found to contain sarin. In 1996 UNSCOM confirmed that chemical weapons had been stored in Bunker 73.

**244.** The destruction of Khamisiyah created a cloud of dust which became known as "the plume". In 1996 the Department of Defense in the US estimated that only 300/400 US troops had been exposed to the plume. The estimate increased first to 5,000 then to 20,000 and finally in July 1997 to 100,000. These figures were based on "modelling" of the atmospheric conditions prevailing on 10 and 11 March 1991. In October 1997 the Countess of Mar asked two parliamentary questions as a result of which the MOD produced a Report in 1999 called "*Review of Events Concerning 32 Field Hospital...*".

**245.** At first it was thought that only one United Kingdom serviceman had been in the vicinity, having been attached as a liaison officer to the US Forces. But on the basis of the work carried out in the United States the Report estimated that 3,800 British troops were definitely exposed and 9,000 potentially exposed on the worst case. Even so there was, according to the Report, no conclusive evidence that exposure to nerve agent ever occurred at any given time or place beyond the immediate environs of Khamisiyah itself; and the Report added that exposure at very low levels could not have affected the long term health of the troops. Since exposure to low levels of sarin was "*neither an observed nor an inherently plausible*" explanation of the ill health, it was not intended to carry out any further research.

246. Since 1999 there have been two important developments. First the United States GAO, under the direction of Dr Rhodes, has published a report claiming that the “the plume-modelling” used by the Department of Defense was flawed. Secondly evidence from animal experiments has suggested that low level exposure to sarin can cause neurological damage (see Medical Appendix page 83).

247. It is right to say that the House of Commons Defence Committee, in their 7<sup>th</sup> Report, were impressed by the level of detail contained in the MOD’s Report, and its clarity; and so are we. In the Committee’s view the Government had gone a considerable way towards meeting “*the debt of honour*” owed to those who have served in the Armed Forces by its efforts to explore possible exposures. But the refusal to carry out any further research in 1999 on the grounds that there was no “*conclusive evidence*” of exposure, and the studies that low-level exposure to sarin were “neither an observed nor inherently plausible explanation” must have added to the feeling of veterans that the MOD was not on their side.

## ORGANOPHOSPHATES

248. The gradual unfolding of the OP saga owes much to the persistent questioning of Ministers by the Countess of Mar, Mr Llewellyn Smith MP, Mr Paul Tyler MP and others during 1994 and thereafter. Ministers did not deny the similarity of the symptoms suffered by veterans and farmers who had been using OP sheep dip. They simply denied that any OP sprays had been used at all on British troops; in answer to Mr Smith MP, Mr Jeremy Hanley MP, Minister of State for the Armed Forces, said on 11 July 1994:

*“One United Kingdom tented camp in Al Jubayl was sprayed with Ficam, a non-Organophosphate residual insecticide.... No Organophosphate insecticide or pesticide sprays were used by British Forces”*

249. On 21 July 1994, Lord Henley, Parliamentary Under Secretary of State for Defence, repeated Mr Hanley’s answer in reply to a question from the Countess of Mar. On 29 October 1994 David Fairhall wrote an article in the *Guardian* saying that Malathion (an Organophosphate, which at that date had not been licensed for public health use) had been used extensively to delouse hundreds of Iraqi prisoners. In answer to the Countess of Mar, Lord Henley replied that Malathion powder had been used to treat some 50 Iraqi prisoners. It subsequently emerged that this was wrong. The number of prisoners treated was in the hundreds. On 3 November 1994, in answer to Mr Paul Tyler MP, Mr Nicholas Soames MP said that only ten British service personnel had been involved with OP pesticides. They were members of a medical team engaged in delousing some 50 Iraqi prisoners. He added that there was no clinical evidence indicative of exposure to OPs among the veterans who had complained of ill health. There was therefore no need for specific research into OP poisoning. This remained the standard line from November 1994 until late 1996, despite repeated requests by the Countess of Mar, Mrs Elizabeth Sigmund and others that the similarity of symptoms be investigated.

**250.** On 30 October 1995, in answer to the Countess of Mar, Earl Howe, Parliamentary Under Secretary of State for Defence, conceded that there was some similarity in the symptoms but said that there was no evidence of any increased incidence of symptoms among the veterans, when compared with the population at large. In June 1996 staff in the Ministry of Defence became aware that OPs had been used more extensively than had been represented, but took no immediate action. On 25 September 1996 Mr Soames MP was informed. On 4 October he announced that there would be an internal investigation. On 10 December he made a statement in which he apologised for having inadvertently misled the House. In his evidence before us he said that there had been no intention “to mislead, cover-up or obfuscate”. We of course accept this. But the fact remains that both Houses had been misled over a period of 2 ½ years.

**251.** The paper published on 6 December 1996 shows that there was a routine use of Fenitrothion (an OP compound) during late 1990. When the stocks of Fenitrothion ran out in November, supplies of Alfacron were purchased locally. Alfacron is a formulation containing 10% Azamethiphos, which is an OP. One of the problems with Alfacron was that the instructions were in Arabic, a fact confirmed by Sir Peter de la Billière. Mr Terence Walker, among others, told us that while they were at the transit camp at Al Jubayl they were exposed to OP three or four times a day. When we asked him what he meant, he said that the MOD employed local people from Al Jubayl who came round the camp areas

*“stuck the gun inside the tent and just literally sprayed the whole place, especially the wash down areas where we went to have showers”*

Mr Bristow said

*“Whilst at Blackadder Camp there was constant spraying of the tented area with liquid around the doorways and window area and in the latrines and dining areas by civilian employees with plastic canisters. Civilians were, what I believe, to be called ‘Saudi guest workers’. They did not wear any protection equipment other than a rag over their faces and nobody thought anything about it at the time. We did not know that the product being used, Diazanon, was harmful to man, a sheep-dip pesticide, which I believe is banned in the UK”.*

**252.** The investigating team were unable to reach any conclusion on the use of Diazanon. One of their problems was that they could not find any records at all indicating what pesticides had been used in what quantities and where. The House of Commons Defence Committee commented:-

*“We find it incredible that the Services did not apparently know what quantities of which pesticides were taken to the Gulf, let alone used there, and that it has proved so difficult to establish these basic facts subsequently”.*

**253.** In commenting on the misleading of Parliament the House of Commons Defence Committee referred to

*“the culture of resistance that pervades much of the Ministry of Defence. There seems to be a deep-seated reluctance to respond positively to external stimuli ..... despite all the outside signals, parliamentary questions, press articles, letters from veterans etc, the MOD continued to assume blithely that everyone else was wrong”.*

## OTHER CONCERNS

**254.** We have dealt with the above topics, not to reopen old sores, still less to suggest that they could found a cause of action against the MOD. That chapter is closed. Our purpose has been only to list, so far as we can, some of the causes of the veterans’ present discontents.

**255.** There are however two more general matters which we should mention. Almost all the veterans have complained of the time and effort it has taken to get to their present level of pension. Thus Mr Hazard said it took 4 ½ years to move from 14% to 30%, including two tribunal hearings. Mr Turnbull started at 10% in 1995, then 20%, 30%, 50% and finally 90% in 2003. One does not expect the MOD to have an open hand; but neither should they be too zealous in resisting justified claims.

**256.** The second matter is the refusal of MOD to hold a public inquiry. The Royal British Legion has been pressing for an inquiry since 1997. Major Hill’s widow told us that Tony Blair promised an inquiry if he won the 1997 election. After Stephen Irwin QC and Christopher Hough published their opinion bringing the Gulf War litigation to an end, they wrote a letter to Lord Morris of Manchester urging the Government to consider instituting a full public review of the position of the veterans, and to instigate a process of conciliation with the veteran groups. Lord Morris and others have pressed for a public inquiry in Parliament. But always there has been the same resistance. The time is not ripe. We must wait for further research. When the present inquiry was set up veterans hoped that the Government would take part. But they have not. The Secretary of State for Defence, when asked if the Government would take part replied:-

*“While we have not ruled out such an inquiry, for the present, we remain of the view that the only way we are likely to establish the causes of ill health in some Gulf veterans is through scientific and medical research”*

**257.** When we had completed hearing the evidence, and our report was in draft, we offered the MOD the opportunity to deal with some of our concerns. Mr Paul Tyler MP told us that nothing could do more to restore the confidence of the veterans than that the Minister for Veterans should appear before us. *“The symbolism”* he said *“would be very powerful indeed in restoring some confidence”.*

**258.** Yet still there was resistance. It is not surprising that in those circumstances the veterans continue to feel rejected.



## CHAPTER 9

259. In this Chapter we set out our conclusions and recommendations.

### CONCLUSIONS

260. The 5,550 veterans who are in receipt of pensions or gratuities from the Veterans Agency are undoubtedly ill. Most of them believe that they have not been properly treated by their country. They have, as Lord Craig put it, “*a feeling of rejection*”.

261. No doubt the reasons differ from case to case. But in general, they are not so much concerned about the amount of their pension, but the uphill struggle they have had to get it. Even more than the money, they want what Lord Bramall called “*recognition*”.

262. They want the Government to acknowledge publicly, and without reservation, that they are ill because they served in the first Gulf War, and in the case of those few who were not deployed, because they underwent preparation for service in the Gulf War.

263. The Government admits, as we have said, that the veterans are ill. But they have not, so far, admitted that their illnesses are due to service in the Gulf; and they have never made any admission as to the cause or causes of the illnesses. We will take these points in turn.

264. But first we must repeat what we said in Chapter 6. The reasons why pensions and gratuities are being paid in the case of those who made their claims within seven years, is not because the Government has admitted that their illnesses are due to service in the Gulf; it is because the Government has been unable to prove the contrary. Parliament has provided that in those circumstances pensions and gratuities must be paid. The pensions and gratuities are not being paid *ex gratia* but pursuant to a legal obligation.

#### (i) *Are the illnesses due to service in the Gulf?*

265. There was a time, as we have seen, when the MOD would have answered this question in the affirmative, if it could be shown that there was an increased risk of illness. In other words the Government was looking for a statistical or epidemiological approach. The work of Professor Wessely and his colleagues has shown that the veterans who were deployed were twice as likely to become ill as those who were not deployed. Professor Cherry and Dr Doyle and their colleagues have confirmed this work. In addition Dr Doyle has shown that there is a 40% excess of miscarriages among Gulf veterans. It follows that the Government has now had the answer to the questions it asked. **Since the Gulf veterans were twice as likely to become ill as if they had stayed in the United Kingdom the Government, ought now, in fairness, and not before time, to accept that the**

**illnesses of those who were deployed to the Gulf were caused by their deployment.**

**(ii) *The cause or causes of the illnesses***

**266.** It is of the highest importance to discover the cause or causes of the illnesses from which the veterans are suffering, because only if the causes can be discovered is there any prospect of finding effective treatment. We agree that on this question, even after fourteen years, the jury is still out. Research must go on. But there are the discoveries recently made by Dr Haley and his team in Dallas. If Dr Haley's hypothesis proves to be correct, then the cause of some Gulf War illnesses will have been explained.

**267.** Another strong candidate must be OP poisoning since there is a striking similarity between the symptoms reported by Gulf veterans and farmers exposed to OP sheep dip.

**268.** A third strong candidate must be the multiple vaccinations, especially the combination of anthrax and pertussis. This would be the best explanation for those few who received the vaccines but were never deployed to the Gulf.

**269.** A fourth possibility is the inhalation of Depleted Uranium dust. Perhaps most likely of all would be a combination of factors in what was, as one witness put it, the most toxic war ever fought, coming as it did after a long period of waiting, accompanied by a very high level of stress, as the ground war started.

**270.** But whichever of these explanations proves to be correct, and whether there was one or more causes, they are all directly connected to service in the Gulf. Nobody has yet suggested any other cause which would explain why Gulf veterans should be twice as likely to become ill as those who remained behind. According to Dr Concannon it was simply "not on" for the Pensions Appeal Tribunal to say

*"yes, your symptoms exist, but as we cannot identify a single pathology we are going to refuse the claim".*

There would have been an outcry.

**271.** The same applies here. It simply is "not on" for the Government to say "yes, we accept that on the epidemiological evidence, your illness is due to your service in the Gulf, but because we have not yet identified a pathology, or because medical opinion is still divided on the point, we are not going to admit it". If that were to be the approach of the Government, there would surely be an outcry. Further research is important if we are going to find the right treatment. But after fourteen years it is time for the Government to act on the basis of the existing research, and acknowledge that the veterans' illnesses are due to their service in the Gulf.

**272.** One can test the matter this way. Suppose for the sake of argument that there were only two possible causes, namely the multiple vaccination theory and the theory that the illnesses were caused by low level exposure to sarin. It would surely be intolerable for the government to say to the veterans

*“we will not admit that your illness is due to your service in the Gulf, despite all the epidemiological evidence, because we do not yet know which of the two possible causes was responsible. We must wait for further scientific and medical research”.*

**273.** Yet this is exactly the line which the Government has taken on many occasions in the past. It is the line still to be taken; see the Minister’s letter to us of 12 July 2004.

**(iii) What should the disease be called?**

**274.** As we explained in Chapter 6, paragraph 201, the name of the injury or disease from which the veterans are suffering is a matter of significance to the veterans. From the start they have called it “Desert Storm Syndrome” or “Gulf War Syndrome”. This is the name under which 1,388 claims have been made.

**275.** The MOD originally accepted the name while denying the existence of the disease. Then in about 1997 there was a change of policy. Instead of Gulf War Syndrome they called it “Symptoms and Signs of Ill Defined Conditions” or “SSIDC”. It was under that name that they paid Mr Rusling his 80% disablement pension. Such was the importance which the MOD, apparently, attached to the name, that they appealed, unsuccessfully, against the Tribunal decision in favour of Mr Rusling in 2002. But as Dr Concannon explained so clearly, the name or label under which the claim is made, is nothing but a wrapper for accepting a set of symptoms.

**276. We agree that the symptoms are not the disease. But if the MOD is willing to accept SSIDC as the label, we can see no good reason why they should not accept Gulf War Syndrome. It does not imply a single disease with a single cause. It will not expose them to any new claims. It will make no practical difference. But for the reasons which we explained, it will make a great difference to the veterans and their families, if only for symbolic reasons.**

## COMPENSATION

**277.** We come last to the question of compensation about which we have so far said nothing. The bringing to an end of any legal proceedings against the Government for negligence or breach of duty makes this a good moment to consider what else might be done. As long ago as December 1996 the Ministry of Defence were considering the establishment of a special fund, similar to that set up for Haemophilic HIV victims. The conclusion then was that the lack of evidence of causation in relation to the Gulf War veterans, and the variety of their illnesses meant that such an approach was “inappropriate”. Now that causation has been established (see Chapter 6 and paragraphs 266 - 273 above) we suggest that the Government gives the matter further consideration.

**278.** Mr Paul Tyler MP strongly supported the recommendation of the House of Commons Defence Committee’s 6<sup>th</sup> Report that ex gratia payments be made to those exposed to OP pesticides.

**279.** In their letter of 5 February 2003, Stephen Irwin QC and Christopher Hough

advocated the making good by ex gratia payments of the deficiencies of the War Pensions Scheme. The same point was powerfully made by Lord Craig in the House of Lords on 22 May 2003 when he wondered whether the time had not come for ex gratia payments to be made.

**280.** The point was taken up by **Major General Craig**. In his written submission he spoke of the need “*to close the subject down forthwith*”. In his oral evidence he said that after fourteen years there are unlikely to be any new cases of Gulf War illness. He therefore suggested a cut-off date now, subject only to any wholly exceptional case, such as a long delayed onset of cancer. Once there is a cut-off date then a fund could be established to make ex gratia payments to existing Claimants on a pro-rata basis. Thus the 40 veterans who are on 100% pension would each receive twice as much as the 230 veterans on 50% disablement pension, and so on. The details in respect of those who received one off gratuities would have to be worked out between the Ministry of Defence and the veterans’ organisations or perhaps the Royal British Legion.

**281.** There remains the question whether the setting-up of such a fund can be justified as a proper use of taxpayer’s money. In our view it can. What is needed now above all is a process of reconciliation between the MOD and the veterans. We have said enough to explain why the veterans have this feeling of rejection. If the process of reconciliation is to get anywhere, then as Lord Craig pointed out, what is required is a little ‘magnanimity’. It need not be hugely expensive. It may not be appreciated that the total cost of paying war pensions to the Gulf War veterans is only £5-6million a year. A fund of half this would go a long way to repay the “debt of honour” to which the Government rightly referred when it came into office in 1997.

**282.** We now give our answers to the questions which we asked in Chapter 1.

- (i) Are the 5,550 veterans who are receiving War Pensions or Gratuities ill? Yes.**
- (ii) Are their illnesses due to their service in the Gulf? Yes.**
- (iii) Are their illnesses due to one or more of the causes set out in Chapter 1? On the evidence as it stands, yes. It may never be possible to identify a single cause. The illnesses are most probably due to a combination of the causes there set out against a background of stress.**
- (iv) May their illnesses be described as a syndrome? Yes. The symptoms are not unique. They are not even very unusual. What is unusual is the extent and intensity of the symptoms. As explained in paragraph 202 they were twice as likely to occur among those who went to the Gulf when compared with those that remained behind. There is therefore every reason to call the illnesses by the label “Gulf War Syndrome”.**

- (v) **What is the experience in other countries? The experience in other countries is very similar, except in France.**
- (vi) **Are the sick veterans satisfied with the way they have been treated? No. Some of the causes of their present discontents are set out in Chapter 8.**
- (vii) **What can be done? If the Government accepts our recommendations it will go far to restore trust and confidence among the veterans.**

## RECOMMENDATIONS

**283.** It seems to us that with the termination of any legal proceedings against the MOD, and with the results of the three epidemiological surveys to hand, now is the time to reach agreement with the veterans. This was the strong thrust of Lord Craig's evidence. The MOD could initiate the process by taking the following steps:-

- (1) The MOD should acknowledge publicly that the veterans who have made claims (other than the 272 who have had their claims rejected) are indeed suffering injury or disease as a result of their service in the Gulf.
- (2) Since the name of the injury or disease is only a label for wrapping the symptoms from which the veterans are undoubtedly suffering, the Ministry of Defence should accept the name favoured by the veterans, i.e. Gulf War Syndrome, as the most convenient label.
- (3) The MOD should set up a fund out of which ex gratia payments should be made on a pro-rata basis to all those who have made successful claims.
- (4) The 272 Claimants who have had their claims rejected should have those claims reviewed in the light of this report.

## MEDICAL APPENDIX

### HISTORICAL INTRODUCTION

**284.** In August 1990 Iraq invaded Kuwait. From autumn 1990 to summer 1991 approximately 53,000 UK service personnel were deployed to the theatre of operations in the first Gulf War that followed this invasion. They joined almost 700,000 US personnel similarly deployed, together with smaller contingents from several other countries. In January 1991 a ferocious air war was launched against Iraq. In February of that year a land offensive against Iraq was initiated, but lasted only 4 days. Battle casualties were far less than expected.

**285.** As war loomed it was widely believed in the UK and the US that the Iraqi Forces possessed chemical and biological weapons (CBW) and were prepared to use them. The Iraqis had, after all, already used chemical weapons with devilish effect against the Kurdish people. This conviction concerning Iraqi offensive capabilities, held by the relevant authorities in London and Washington, played an important part in decisions taken about vaccination programmes and other measures designed to protect UK Forces from attacks with CBW. The vaccination protocols and the use of the Nerve Agent Pre-treatment Sets (NAPS) that resulted from these concerns are considered below.

**286.** Participation in a war is necessarily a stressful experience, but there are differing levels of stress and we have reason to believe that, brief as the land war was, stress for the troops on the ground, during the build-up to actual warfare, was considerable. The evidence given to the Inquiry by Sir Peter de la Billière on 21 July 2004 is important in this context. Sir Peter was Commander of British Forces in the Gulf throughout the period of this war. He drew attention to the changing circumstances experienced by the troops deployed during the five or six months before the onset of hostilities. At first UK Forces were deployed to support

*“local and American Forces in defending the borders of Saudi Arabia....”.*

**287.** At this stage relatively small Forces were involved and it was hoped that Saddam Hussein would yield to political and international pressure. As it became clear that he would not, so the military scenario changed from containment to the probability of offensive action. This led to significant increases in the Forces deployed and also to a growth in the belief that conflict was unavoidable. As the expectations of troops on the ground changed from a defensive operation to an all-out offensive one, so the stress factor, understandably increased.

**288.** To quote Sir Peter,

*“I painted the picture of everybody waiting, digging in the sand, nothing to do, knowing that a war might be likely, fully realising all these threats because not only had they had injections, they had been briefed because they needed to know what the possibilities were, so they could take the right action if they came up against it, and this was extremely stressful for the forward troops”.*

**289.** In the light of this evidence it would be inadvisable to underestimate the level of stress to which a significant number of UK Forces were subjected.

**290.** The last two months before the war started saw the deployment of more and more personnel and the growing belief that a major conflict, possibly with the use of CBW, was imminent. It was during this period of frenetic activity that the programme of multiple vaccinations was largely carried out. This will be discussed in detail, later, but it may be noted, at this stage, that the circumstances in which these vaccinations were performed may well have contributed to the poor level of medical records keeping which later became apparent.

**291.** Within a few months of the end of hostilities some veterans started to complain of ill health. At first no connection was made between such illness and previous service in the Gulf. The trickle of complaints expanded into a stream and suspicion grew that deployment in the operational theatre of the Gulf War might be causally related to subsequent illness. Recognition that a real problem was developing in this area was slow within the military establishments on both sides of the Atlantic. Acceptance that investigation into this issue was needed was slow in the US, slower in the UK and slower still in some other countries, notably France.

**292.** In 1993 the Ministry of Defence (MOD) set up the Medical Assessment Programme (MAP) to assess and support ill veterans, and to liaise with the civilian doctors caring for those who had left the Armed Forces. The MAP was at first directed by Group Captain W Coker at RAF, Wroughton. It is still ongoing and is now sited in St Thomas' Hospital, London, under the direction of Professor H A Lee. To date over 3,000 veterans have attended this programme and the findings in the first 3,000 to attend have been reported in three medical publications. Unfortunately, both Group Captain (now Air Vice Marshal) Coker and Professor H A Lee were advised by the MOD not to appear before the Inquiry. Our comments on the MAP are therefore necessarily based on the publications referred to, together with the views expressed by veterans we interviewed who had personal experience of this programme.

**293.** In 1995 the Interparliamentary Gulf War Group was formed. This arose from discussions between concerned Parliamentarians, notably the Countess of Mar, Lord Morris of Manchester and Edwina Curry MP with the Royal British Legion (RBL), in particular with Col T English, the RBL's Director of Welfare at the time. This group has subsequently been hosted and organised by the RBL and remains active.

**294.** In 1996 the first formal research project into the medical problems of UK Gulf War veterans was commissioned. This work was performed by Professor Simon Wessely and his colleagues at the Guys, King's, St Thomas' School of Medicine (GKST) in London. Although this research was carried out in the UK the American Department of Defense funded it. In 1997 the MOD set up an Independent Panel to oversee Government funded research into possible interactions between some vaccines and NAPS (Pyridostigmine Bromide).

**295.** In 2001 the Depleted Uranium Oversight Board was established by the MOD to consider the threat to health posed by depleted uranium, chiefly in the Gulf and Balkans spheres of military action.

**296.** The MOD requested the help of the Medical Research Council (MRC) in overseeing research into Gulf War related illnesses. In 2003 the MRC produced a report entitled “*MRC – Review of Research into UK Gulf Veterans’ Illnesses*”. The Inquiry found this valuable.

**297.** Research projects in this field were also commissioned by the MOD from personnel in the University of Manchester and the London School of Hygiene & Tropical Diseases.

**298.** Despite these several initiatives the MOD has been criticised for spending relatively little on research into the ill health reported by the Gulf War veterans. On 12 July 2004 the Inquiry interviewed Flt Lt John Nichol, President of the Gulf Veterans branch of the Royal British Legion. The following quotation is taken from his evidence:

*“I understand that the Ministry of Defence has spent some £8.5million on research into Gulf War Illness or Syndrome since 1997. That averages out at a sum of about £1.2million per year ..... I think the most telling comparison is this: every single year the Ministry of Defence spends nearly £8million on an entertainment budget”*

**299.** Certainly expenditure on research in this field in the UK has been small compared with the resources deployed in the US.

**300.** Apart from the multiple vaccinations, use of NAPS tablets and stress already referred to as possible factors in the illnesses experienced by the veterans, other potential culprits suggested include the use of pesticides (especially those containing organophosphates), exposure to chemical or biological weapons (notably the nerve gases sarin and cyclosarin), exposure to depleted uranium, fumes from burning oil wells, together with media and social pressures on veterans. These factors are considered later in this appendix. It is against this background of events in the Gulf War that the complaints of ill health made by veterans of that conflict must be assessed.



## PART I

### REVIEW OF ILL HEALTH IN GULF WAR VETERANS

**301.** Two to three years after the Gulf War newspaper and television features started to focus public attention on the health concerns voiced by some veterans of that conflict. At first there was considerable scepticism among people in authority about any causal relationship between such reports of ill health and prior service in the Gulf. Amongst papers supplied to the Inquiry by the MOD was a letter to the *British Medical Journal* in 1994 by the then Surgeon General, Lt Gen Peter Beale. In it he concludes:

*“In summary, we have no evidence to support the claim that a medical condition exists that is peculiar to those who served in the Gulf conflict”.*

**302.** We believe that this fairly reflects the views held by the military and Government establishments at that time.

### EPIDEMIOLOGY

**303.** An important tool in the investigation of any relationship between service in the Gulf War and subsequent ill health is epidemiology. In the UK Professor Simon Wessely and his co-workers at King’s College, London, first explored this avenue. They were followed by important contributions from research groups led by Professor Cherry and Dr Doyle.

**304.** We heard evidence from Professor Wessely on 10 August 2004. In 1995 he applied to the MOD for funding to study the ill health reported by Gulf War veterans. He was unsuccessful. In 1996 he obtained funding from the American Department of Defense (DOD) and this led to publications on this issue in 1999. Referring to this work in his submission to the Inquiry Professor Wessely drew attention to the

*“... Three UK studies that have taken place”<sup>1,2,3</sup>.*

**305.** In the first of these studies 4,248 Gulf War veterans were compared with 4,250 servicemen deployed in the Bosnia conflict and comparable in age and rank, together with 4,246 Era controls who were serving during the time of the Gulf War, but not deployed in the theatre of operations.

*“The Gulf War cohort reported symptoms and disorders significantly more frequently than those in the Bosnia and Era cohorts, which were similar”.*

**306.** Those in the Gulf War cohort reported all symptoms two to three times more frequently than those in the control cohorts. No cluster of symptoms occurred with particular frequency. Professor Wessely stressed the importance of the fact that the

---

<sup>1</sup> Unwin et al, *Lancet* 1999, 353, 169

<sup>2</sup> Cherry et al, *Occupational & Environmental Medicines*, 2001, 58(5) 291

<sup>3</sup> Simmons et al, *BMC Public Health*, 2004, 4, 27

Gulf War veterans were a random sample, pointing out that, as in the other two UK studies cited<sup>2,3</sup> this allowed extrapolation of the results,

*“to all UK Gulf vets. There is no other design that allows you to do that. A small case study of a few here and a few there does not allow you to say anything other than we have a few people here who are sick”.*

**307.** On 10 August 2004 the Inquiry interviewed Dr Pat Doyle, the author of several important publications in this field. During the period in which the Inquiry took place the most recent of Dr Doyle’s contributions was published<sup>3</sup>. This differed in two important respects from previous UK epidemiological studies. These aspects are revealed in the following quotation from page 4 of the paper referred to in footnote 3.

*“This is the largest UK study of post-Gulf War morbidity to date, and the first to approach all veterans of the Gulf War (rather than a sample), including both serving and discharged personnel. The questionnaire focused on reproduction and child health; we reasoned that selection bias relating to the ill health of the veterans themselves might therefore be reduced. Previous studies have included tick-boxes or grading scales with a list of possible symptoms for respondents to mark and GWVs have tended to report increased frequencies of almost all symptoms included in questionnaires<sup>1,2,4</sup>. In contrast we asked participants to respond to an open-ended question about ‘any new medical problems or changes in general health since 1990’. By allowing veterans to report on a full and non-specific range of symptoms using free text it was hoped that they would report only those symptoms which they felt were most important to them”.*

**308.** In essence this was the most all-embracing such study of UK Gulf War veterans, while its somewhat tangential approach to symptomatology might reduce the risk of bias unavoidable in previous questionnaire studies. In no way does this negate the value of such earlier studies; rather it adds a further dimension to the overall study of this problem.

**309.** In this study from Dr Doyle’s group, reported by Simmons et al<sup>3</sup>, 24,379 male Gulf War veterans (GWV) and 18,439 control service males (NGWV) responded to the questionnaire. 61% of GWV reported at least one new medical symptom since 1990, compared with 37% of NGWV.

**310.** On 2 & 3 August 2004 a number of American witnesses gave evidence to the Inquiry. With regard to the epidemiology of symptomatic ill health in the US GWVs a broadly similar picture emerged to that found in the UK. In a statement submitted to the Inquiry Congressman Bernie Sanders stated:

*“From 100,000 to 125,000 US service members are affected out of a total sum of 700,000 that served in theatre. That’s a casualty rate of 15 to 17% from this cause alone”.*

---

<sup>4</sup> The Iowa Persian Gulf Study Group, JAMA, 1997 277(3), 238)

**311.** Another document submitted to us was a “*Summary of Presentation to the Research Advisory Committee on Gulf War Veterans’ Illnesses, US Department of Veterans Affairs, April 11, 2002*”. In Appendix A of this document the epidemiologist, Lea Steele, concluded:

*“Gulf War veterans are ill. They experience significantly more symptoms, illnesses and diagnosed conditions than veterans who did not serve in the Gulf War”.*

**312.** Steele reached these conclusions after reviewing eleven published peer-reviewed epidemiological studies of which seven were on US veterans.

**313.** These observations led the Inquiry to conclude that individuals who served in the Gulf War operational theatre later reported symptomatic ill health at least twice as frequently as matched service personnel not deployed in the Gulf, or deployed in the Bosnian field of conflict.

## SYMPTOMOLOGY

**314.** The symptoms reported by veterans cover a broad range, whether these were obtained in studies using symptom-listing questionnaires, e.g. that by Unwin et al, 1999<sup>1</sup> or in studies providing free text opportunities to report symptoms, e.g. Simmons et al 2004<sup>3</sup>. The Inquiry was made aware of the multiplicity of symptoms reported by some veterans on the first day of its hearings, 12 July. Of the fourteen veterans or their dependants interviewed on that day five complained of seven to fourteen symptoms (Thomas Johnson 11, Terence Walker 14, Jason Alcorn 13, Stephen Roberts 7 and Russell Walker 7). The questionnaire used in the first major epidemiological survey of GWVs in the UK listed fifty symptoms and thirty-nine medical disorders<sup>1</sup>. This paper reported:

*“The Gulf War cohort reported all symptoms and disorders ..... more frequently than the comparison cohorts”.*

**315.** The most frequent self-reported symptoms were sleep disorders, irritability and anger, headaches, fatigue, forgetfulness, joint stiffness, loss of concentration, flatulence, pain without swelling or redness in several joints, feeling cut off from others, avoiding certain things or situations, chest pain, tingling in fingers and arms, night sweats. Using a somewhat different approach the most recent UK study<sup>3</sup>.

*“.... Confirmed that veterans were more likely to report higher numbers of symptoms/diseases. These typically included skeletal and other muscular symptoms, general fatigue, memory loss/lack of concentration, skin allergies, mood swings/aggression and headache. This pattern of symptoms reported is similar to that found in other studies of UK GWV”.*

**316.** Another source of information about the symptoms reported by GWVs is found in the publications of the Medical Assessment Programme. As mentioned in the introduction to this Appendix, the Inquiry did not have an opportunity of interviewing representatives of this programme, but their publications are in the

public domain. In the most recent publication<sup>5</sup> the findings in the first 3,000 veterans examined in this programme are reviewed. The pattern of symptoms that emerges is broadly comparable to that found by Unwin et al, 1999 and Simmons et al, 2004<sup>1,3</sup>. The interpretation of those symptoms is rather different in the study by Lee et al<sup>5</sup>.

**317.** Professor Malcolm Hooper, President of the National Gulf Veterans and Families Association, gave evidence to the Inquiry on 28 July. He commented on many aspects of research into the illnesses reported by GWVs, but here we are concerned with his reference to the findings by Dr J Compston and her colleagues in Cambridge of osteoporosis in some GWVs. This is highly unusual in relatively young men and warrants further investigation.

**318.** On 3 August, Dr Robert Haley gave evidence to the Inquiry for almost two hours. Dr Haley has been prominent as a researcher in the field of Gulf War associated illness for almost ten years. In essence he has produced a body of research work, varying from epidemiology to neurobiochemistry, which claims to have identified three “Gulf War Syndromes”, one being much more serious than the other two. In a slide shown to the Inquiry Dr Haley listed “*Typical Symptoms of Gulf War Syndrome*” as cognitive problems, constant body pain (without arthritis), balance disturbances, vertigo attacks, hot flushes and night sweats, unrefreshing sleep and insomnia, chronic fatigue, watery diarrhoea, personality change. It is noteworthy that at least six of these symptoms have their origin in nervous system dysfunction (seven if the diarrhoea is caused by autonomic nervous system dysfunction). This compares with eight of fourteen chief symptoms listed by Unwin et al, 1999<sup>1</sup>. The importance of neurology in the symptomatology of sick GWVs is thus emphasised, particularly in the work of Dr Haley.

**319.** In his evidence Dr Haley stressed the importance attached in the first 3 or 4 years after the Gulf War to visceral Leishmaniasis and Post-Traumatic Stress Disorder (PTSD) as possible causes of sickness in GWVs. Interest in Leishmaniasis soon evaporated, while the role of PTSD is considered later.

**320.** Dr Haley indicated that his first sorties into this research field were epidemiological, but his approach differed from the classical large-scale surveys, usually involving questionnaires, employed both in the UK and US. Rather, Dr Haley concentrated on the creation of a ‘Case Definition’. His arguments for this approach are set out on pages 18–22\* of the transcript of his evidence. He identified a target population of veterans and:

*“picked a construction unit ... because they were a reserve unit we did not need to have military approval to speak to them, they were ..... back in civilian life. Secondly they were a construction battalion, so some of their members were all over the theatre, ....”*

**321.** This unit numbered 249 veterans and the small size of this sample has led to some criticism of Dr Haley’s findings, or rather of the justification for extrapolating the findings to the entire population of veterans (see below). This unit was approached with carefully constructed questionnaires, and here Dr Haley compared these

---

<sup>5</sup>. Lee et al, 2002, Journal of the Royal Society of Medicine, 95, 491

\* Reference to the witness transcripts can be found on our Website: [www.Lloyd-qwii.com](http://www.Lloyd-qwii.com).

favourably with those used in some other epidemiological surveys (see p 22 of the transcript of Dr Haley's evidence). The results were analysed using factor analysis and pointed to the existence of three "Gulf War Syndromes":

- (1) impaired cognition
- (2) confusion-ataxia
- (3) central pain

**322.** Of these syndrome (2) was much the most serious. For instance employment rates in the three syndromes were respectively 82%, 50% and 85%.

## NEUROLOGY

**323.** From this group twenty-three ill veterans were then selected for highly sophisticated brain imaging investigation:

- 5 with syndrome 1
- 13 with syndrome 2
- 5 with syndrome 3

**324.** The basis of this selection was not given in Dr Haley's evidence. Twenty well controls were also studied. In the findings on MR spectroscopy Dr Haley focussed attention on a significant reduction in the ratio of N acetylaspartate to creatine in the right basal ganglion in veterans with syndrome 2, a finding he attributed to 'brain cell abnormalities', i.e. brain cell damage. Dr Haley stated that this finding had been replicated in two studies on other veteran groups at different neurological centres<sup>6,7</sup>. The second of these studies found comparable abnormalities in the hippocampus, which is anatomically closely related to the basal ganglia.

**325.** Summarising his findings from this and other neuro-imaging techniques Dr Haley stated:

*".... Syndromes 1, 2 and 3 .... Have different patterns of abnormality in brain cell damage. Syndrome 2 is damaged in both basal ganglia and the brainstem. Syndrome 1 is borderline ..... Syndrome 3 is completely normal in the basal ganglia but very abnormal in the brainstem"*

**326.** The Inquiry was impressed both by Dr Haley's perseverance in the face of considerable professional scepticism and by his persuasive presentation of these findings, obtained by highly sophisticated methodology. It noted, however, the doubts expressed by other authorities (see the evidence presented by Professor Wessely later) of the meaningfulness of results obtained in such a small number of veterans, with particular reference to the justifiability of extrapolating these results to the whole body of sick veterans. The Inquiry would also wish to be reassured that these results were unique to sick GWVs, and were not found in other conditions known to damage the nervous system, e.g. alcoholism and recreational substance

<sup>6</sup> Weiner et al, 2001, Proc. Intl.Soc.Mag.Reson.Med, 9, 994

<sup>7</sup> Menon et al, 2004, Brain Research, 1009, 189

abuse. If such concerns are addressed in a way that satisfies his critics then Dr Haley will have performed a remarkable feat of medical detection.

**327.** In his submission Dr Haley referred to evidence of both peripheral and autonomic neuropathy. He referred to the research published by Jamal et al, 1996<sup>8</sup>, in which impairment of temperature change perception was found in a small group of GWVs. Dr Haley and his co-workers have confirmed these findings, but again the number studied was small. Wessely's group were unable to find evidence of peripheral nerve dysfunction in a larger study of GWVs<sup>9</sup>. Dr Haley observed of this latter finding:

*"I think their case definition was their problem".*

**328.** The most recent contribution to research in this field has been submitted to the Inquiry<sup>10</sup>. This is a very large study by Kang and Associates of distal peripheral nerve function in 1,061 deployed GWVs, compared with 1,128 non-deployed veterans. Groups of spouses in the two groups were also examined. The conclusion reached was:

*"Neither veterans during the Gulf War era nor their spouses had a higher prevalence of distal symmetric polyneuropathy (DSP) compared to non-deployed veterans and spouses".*

**329.** Faced with these apparently contradictory findings regarding peripheral neuropathy in the veterans the Inquiry thought it unwise to formulate a definitive opinion of its own; but, given the negative findings in the two largest studies, the Inquiry is puzzled by the clear-cut abnormalities reported by Jamal and by Dr Haley. The position is further complicated by an even more recent study by Dr Haley and his colleagues in the October 2004 issue of the *American Journal of Medicine*<sup>11</sup>. This study was performed on 40 veterans from the construction unit that Dr Haley had been studying since 1994. It presents evidence of damage to the parasympathetic nervous system, which, if confirmed and reproduced in more veterans, would provide an explanation for several of the symptoms reported most frequently by GWVs.

**330.** Another claim requiring consideration is the finding, described by Dr Haley in his evidence, of an increased incidence of Motor Neurone Disease, known in America as Amyotrophic Lateral Sclerosis (ALS) or Lou Gehrig's disease. Dr Haley claimed that five to eight years after the war the incidence of ALS started to rise in the GWVs above that expected in the general population. The number of new cases reported in 1998 was

*"3.2 times greater than expected".*

**331.** The possibility was suggested by Dr Haley that genetically predisposed individuals acquired this disease at an earlier age than they would have done without

---

<sup>8</sup> Jamal et al, 1996, Journal of Neurology, Neurosurgery & Psychiatry, 60, 499

<sup>9</sup> Sharief et al, 2002, Neurology, 59, 1518

<sup>10</sup> Davis et al, 2004, Neurology, 63, 1070

<sup>11</sup> R W Haley, 2004, The American Journal of Medicine, 117, (7), 469

service in the Gulf. Professor Wessely was unconvinced by these findings, stating in his evidence:

*“.... Tragically Motor Neurone Disease is fatal and the one unbiased source of information is death certificates. If there was a two or three fold increase in ALS you would see it in mortality and Han Kang sits in the VA and people here sit and monitor mortality of Gulf veterans and you would see a change. If you look at that paper you will see that what has happened in what we call ‘an over-ascertainment bias’. They took the Gulf veterans and they looked very, very hard for evidence of ALS .... They had websites, they had newspaper articles, etc, so that they got very good ascertainment, but the real problem is the controls because they had got 250,000 controls and the controls do not know they are controls, so all you have got then is registries really and case notes and things like that, so they did not look equally hard in the two groups”.*

**332.** Despite such reservations, which certainly seem to urge caution, the Department of Veterans Affairs in the US have accepted ALS as a service-connected disease in GWVs. In the most recent review of mortality data in UK GWVs by the Defence Analytical Services Agency (DASA)<sup>12</sup> it is stated:-

*“There were four deaths from Motor Neurone Disease in the Gulf group compared to three in the Era comparison group. There have been no reported deaths from Motor Neurone Disease in either cohort since 2002”*

**333.** Both Haley in the US and Wessely in the UK have made notable contributions to a number of aspects of this problem. Unfortunately they disagree on some issues. It seemed to the Inquiry that their disagreement arose in large measure from differences in epidemiological methodology. When questioned, both experts broadly agreed with this view. The Inquiry hopes that the approaches of these two authorities will eventually be seen as complementary, rather than as alternatives.

## GENETIC FACTORS

**334.** Relevant to the issue of possible neurological damage and dysfunction in GWVs are reports of reduced serum paraoxonase (PON 1) activity in veterans. Dr Haley and associates (1999)<sup>13</sup> reported findings in 25 GWVs with neurological symptoms, compared with 10 asymptomatic GWVs and 10 military controls. The GWVs with symptoms had significantly reduced serum activity of PON 1 Q enzyme. Mackness and colleagues<sup>14</sup> studied 152 ill British GWVs and 152 civilian controls. The GWVs had reduced PON 1 serum activity compared with controls. A further study on British veterans examined 115 GWVs with symptoms, 95 GWVs without symptoms, 52 symptomatic veterans of Bosnia and 85 symptomatic non-deployed military controls.<sup>15</sup>

<sup>12</sup> DASA National Statistics 14<sup>th</sup> July 2004

<sup>13</sup> Hayley et al, *Toxicol Appli Pharm*, 199,157,227

<sup>14</sup> Mackness et al, *Biochem Biophys Res Commun*, 200, 276,729

<sup>15</sup> Hotopf et al, *J Occup Environ Med*, 2003, 45(7), 668

**335.** These workers found,

*“... although the Gulf groups did not differ in PON1 activity, those deployed to the Gulf had significantly lower PON1 activity compared with the non-PGW (Persian Gulf War) groups”.*

**336.** Serum paraoxonase metabolises organophosphates in serum and reduced enzyme activity would increase vulnerability to such agents as organophosphate-containing pesticides. Hotopf and co-workers argue that their findings were the result of deployment to the Gulf rather than illness status

*“We suspect that those who served in the Gulf were exposed to a specific hazard that led to a long-term decrease in PON1 activity. Possible candidates are the insect repellent DEET; pyridostigmine bromide (NAPS) used as an antidote to threatened chemical weapon attack; and organophosphate pesticides”.*

**337.** These workers found no connection between PON1 activity and illness among the veterans. This is at odds with the findings by Dr Haley of a correlation between reduced serum PON1 activity and neurological symptoms.

**338.** The Inquiry concluded that, while the studies of paraoxonase opened fascinating possibilities of variations in genetic susceptibility to toxic agents encountered in the Gulf War, no firm conclusions are yet justified about the importance of this factor in illness amongst the veterans.

## STRESS AND PSYCHIATRY

**339.** Psychiatric abnormalities and Post Traumatic Stress Disorder (PTSD) have been widely discussed in the context of illness reported by GWVs. In his evidence Haley drew attention to the preoccupation with PTSD in the early years after the war. He pointed out that in the US

*“the reason for this was that our previous war had been in Vietnam and we did have a lot of PTSD because there was hand-to-hand fighting and a year’s worth of very gruelling combat”.*

**340.** This was quite different from the experience of veterans of the Gulf War. He was critical of widely used screening tests for PTSD, which led the US Presidential Advisory Committee to comment in 1996:

*“This is what the problem is, it is psychological stress and PTSD”*  
(see pages 18 & 19 of the transcript of Haley’s evidence)

The situation has changed significantly since that statement was made.

**341.** In his evidence Wessely stated:



*“... if you look at PTSD, which is the quintessential post traumatic stress disorder, the rate has gone up by threefold, but only from 1 to 3%, so it is not sufficient to account for ill health in the Gulf group”.*

Similarly, in his evidence Haley stated:

*“the confirmed PTSD rate by the SCID (Structured Clinical Interview for DSM-IV), by the real test, was what you would expect in a group of people who had a mild battle experience, it was five per cent”.*

**342.** On 27 July 2004 the Inquiry interviewed Dr Dafydd Alun Jones, a Consultant Psychiatrist of the Ty Gwyn Ex-Service Treatment Unit, who has long been involved in the mental health of ex-servicemen. He stated that he had treated 2,500 veterans of various military conflicts, including some 440 veterans of the Gulf War, the first as early as December 1991. He stated that he had found PTSD to be far more important in veterans of Bosnia and Northern Ireland than in GWVs. He stated in his written submission that

*“... PTSD explains only a small proportion of the ill health of these Gulf veterans”.*

**343.** In his oral evidence Dr D A Jones expressed his opinion that most GWVs who suffered from PTSD did not have severe forms of this condition. The Inquiry was impressed by the extensive clinical experience of Dr Jones, but regretted that his work had not been published in peer-review journals.

**344.** The Inquiry accepted that PTSD, while contributing to illness reported by GWVs, came nowhere near explaining the total burden of ill health reported by the veterans.

**345.** Turning now to psychiatric aspects of health in the veterans the Inquiry heard from Professor Wessely in his submission about a study by his group of 100 Gulf ill, 100 Gulf well, over 100 Bosnia sick, all of whom were assessed by psychiatric interview. Referring to a slide showing the results Wessely said:

*“... you could see that there has been a doubling in the risk of psychiatric disorder from 12 to 24% ...and that is the same finding as everyone else. The Australians ....have just published a study finding exactly the same. Therefore, yes, there is an increase in psychiatric disorder ....but no, it is not sufficient to account for all the Gulf health effects, so stress is important, but it is not the solution”.*

**346.** Commenting on this work in his submission Dr Haley stated:

*“Professor Wessely wrote a definitive paper showing that whatever psychiatric diseases you propose do not account for even half of the ill veterans”.*

**347.** Later, in responding to a question, Dr Haley commented,

*“I think one of the most courageous studies of all was their (i.e. Wessely’s group) publication showing that psychological factors could not account for the Gulf War illness”.*

**348.** In another study referred to by Wessely<sup>16</sup> David and co-workers studied 341 UK servicemen who had either served in the Gulf War, or in Bosnia, or were non-deployed military controls. He concluded,

*“Disturbances of mood are more prominent than quantifiable cognitive deficits in Gulf War veterans..... Task performance deficits can themselves be explained by depressed mood ..... Reduced constructional ability cannot be explained in this way and could be an effect of Gulf-specific exposure”.*

**349.** This study also pointed, with references, to the similar profiles of psychiatric symptoms reported in the UK, US and Danish servicemen. It is of interest to note that Danish Forces were deployed as peacekeepers, only after the end of the conflict.

**350.** The Inquiry concluded that psychiatric disorders and the effects of stress do not provide an explanation for the whole range of illness experienced by the veterans.

## **MORTALITY STUDIES**

**351.** Those interviewed by the Inquiry made very few references to mortality rates among GWVs, but we had sight of various relevant documents submitted to the Inquiry.

**352.** The most recent review of mortality statistics published by The Defence Analytical Services Agency in National Statistics<sup>12</sup> is, “1990/1991 Gulf Conflict – UK Gulf Veterans Mortality data: Causes of Death”. It reviewed mortality statistics in the UK veterans between 1 April 1991 and 30 June 2004. 53,409 UK veterans were analysed and compared with an Era cohort of 53,143. The latter, comparison group comprised UK armed forces personnel, matched for age, gender, service, regular/reservist status and rank who were in Service at the time of the Gulf War, but who were not deployed in the Gulf. Both those who died while still serving and those who died after leaving the Services were included.

**353.** During the period referred to above there were 663 deaths among the Gulf veterans, compared to 675 deaths in the Era comparison group. This publication estimates that over the same period:

*“1,032 deaths .... would have been expected in a similar sized cohort taken from the general population of the UK with the same age and gender profile”.*

---

<sup>16</sup> David et al, Psychological Medicine, 2002, 3, 1357

**354.** Other relevant publications to which the Inquiry had access have shown, both in UK and US veterans, a small increase in deaths amongst veterans due to accidents, but no increase due to disease.<sup>17-20</sup>

**355.** Professor Nicola Cherry referred to footnote 15 in her evidence to the Inquiry on 10 August 2004. Professor Cherry stated that the excess in accidental deaths, but not in deaths from disease, amongst the veterans had been found in UK, US and Canadian studies.

**356.** It therefore appears that service in the Gulf War has not, to date, increased the risk of death, with the exception of a small increase in the chance of death from accidents. The words “to date” are important, because it is too early to conclude that service in the Gulf has not increased the risk of malignant disease. This caveat is necessary because of the time that may elapse before a carcinogenic effect manifests itself.

## REPRODUCTIVE ISSUES

**357.** In the period 1995-6 a number of reports appeared in the media of alleged clusters of birth defects among the children born in families where one or other parent had served in the Gulf War. These reports chiefly appeared in US publications, but referred to both US and UK veterans. Naturally they aroused concern in the veteran population.

**358.** On 10 August the Inquiry interviewed Dr Pat Doyle of the London School of Hygiene and Tropical Medicine. Dr Doyle has made an important contribution to research into reproductive health issues in UK veterans, and her submission included copies of her two most recent publications<sup>21-22</sup>.

**359.** In the first of these<sup>21</sup> she summarises earlier relevant published work, including studies of US, UK, Canadian, Danish and Australian veterans (for details see footnote 21). Several of these studies found no evidence of an excess of congenital abnormalities in children born to “veteran families”, but all were open to criticism, e.g. small numbers studied, exclusion of infants born in non-military hospitals. A study of the offspring of veterans from six US states found a higher prevalence of specific heart defects in infants conceived post-war by GWV fathers, and of hypospadias in infants conceived by GWV mothers, compared with infants conceived by NGWV parents<sup>23</sup>. A higher prevalence of aortic stenosis and renal agenesis or hypoplasia was also found in infants conceived by GWV fathers after the war, compared with that in infants conceived by GWV fathers before the war<sup>23</sup>.

**360.** The authors of this study noted that the methodology used could not rule out the operation of chance.

---

<sup>17</sup> Kang H.K et al, N Engl J Med 1996, 335, 1498

<sup>18</sup> Kang H.K et al, Am J Epidemiol 1998, 148, 324

<sup>19</sup> Kang H.K et al, Am J Epidemiol 2001, 154, 399

<sup>20</sup> Macfarlane G J et al, Lancet 200, 356, 17

<sup>21</sup> Doyle P et al, International Journal of Epidemiol, 2004, 33, 74

<sup>22</sup> Maconochie N., BMJ, doi:10.1136/bmj.38 1 63.620972.AE 14 July 2004

<sup>23</sup> Aranenta MR et al, Birth Defects Research (Part A) 2003, 67, 246

**361.** Another large survey in the US reported higher rates of miscarriage in the first pregnancies conceived after the Gulf War by both male and female veterans<sup>19</sup>. This study also reported higher rates of congenital malformations in liveborn children of GWVs, but the authors noted that in this self-reporting study reporting bias could not be excluded<sup>24</sup>.

**362.** Dr Doyle referred to her most recent survey of UK veterans<sup>21</sup>. The conclusions of this large survey were:

*“We found no evidence for a link between paternal deployment to the Gulf War and increased risk of stillbirth, chromosomal malformations, or congenital syndromes. Associations were found between fathers’ service in the Gulf War and increased risk of miscarriage and less well-defined malformations, but these findings need to be interpreted with caution as such outcomes are susceptible to recall bias. The finding of a possible relationship with renal anomalies requires further investigation. There was no evidence of an association between risk of miscarriage and mothers’ service in the Gulf”<sup>21</sup>.*

**363.** In her oral evidence Dr Doyle was at pains to emphasise the numerous pitfalls that bedevil such epidemiological studies, but her interpretation of her own work showed great awareness of such problems. The Inquiry accepted her view that the finding of a 40% excess risk of miscarriage in Gulf War families was important and warranted further study if possible.

**364.** The same study by Dr Doyle’s group also addressed the issue of infertility in male UK veterans<sup>22</sup>. It referred to previous studies in which Australian veterans had a 40% increased risk of fertility problems, whereas a study of Danish veterans (deployed in the Gulf after the war) revealed no evidence of such an effect of service in the Gulf. The study by Maconochie and colleagues<sup>22</sup> found a small increased risk of infertility among GWVs.

**365.** Moreover, there was also evidence that pregnancies fathered by veterans who did not report fertility problems took longer to conceive. Again the authors urge caution in the interpretation of these findings and point out that it is premature to conclude that these associations imply causal relationships.

## SUMMARY OF PART I

**366.** This section of the Medical Appendix has reviewed evidence given to the Inquiry concerning the ill health reported by Gulf War veterans. The following conclusions were reached:-

**367.** Veterans who served in the operational theatre of the Gulf War later reported symptomatic ill health at least twice as frequently as suitably structured control groups.

---

<sup>24</sup> Kang H.K et al, Am Epidemiology 2001, 11, 504

**368.** Differences in epidemiological methodology used in studies of veterans are considered elsewhere in this Appendix.

**369.** Of the many symptoms complained of by veterans those with a possible basis in nervous system dysfunction are especially prominent.

**370.** Neurological disorders in the veterans remain a source of debate and controversy. Given the conflicting claims of evidence of peripheral neuropathy in some veterans the Inquiry took the view that, further work was needed to resolve these differences (see para 329).

**371.** The claim by Dr Haley to have found brain abnormalities in a (as yet) small number of veterans poses a fascinating challenge. Further work replicating and extending his findings is required before a final judgement can be made.

**372.** Possible variations between individuals in their genetic susceptibility to the harmful effects of some agents present in the Gulf operational theatre require further study. Such study certainly seems warranted.

**373.** The Inquiry concluded that, while stress and other psychiatric factors contributed to the ill health reported by some veterans, they do not explain the whole range of illness experienced by the veteran population.

**374.** It has not yet been proven that service in the Gulf War increased subsequent mortality rates from disease, as opposed to accidents. Such a conclusion about Motor Neurone Disease should probably be deferred at present, although no evidence has yet appeared of increased mortality from this disease in UK veterans, as opposed to those in the US.

**375.** It is too soon to assess any effect of Gulf War service on the chances of the later development of malignant disease.

**376.** An effect of Gulf War service on subsequent reproductive health remains possible and further research in this field is certainly justified.

## PART II

### REVIEW OF POSSIBLE CAUSES OF ILLNESS IN GULF WAR VETERANS

**377.** This section considers the several agents that have come under suspicion as possible causes of subsequent illness in those serving in the Gulf War theatre.

Those reviewed are:-

- 1 Vaccines.
- 2 Pesticides.
- 3 NAPS tablets.
- 4 Exposure to chemical weapons, notably sarin and cyclosarin.
- 5 Depleted Uranium.
- 6 Exposure to fumes from burning oil wells.
- 7 Infections.
- 8 Stress and psychological factors.
- 9 Media and social pressures.

### VACCINES

**378.** As mentioned previously in this Report, during the months leading up to the Gulf War the view was prevalent amongst both UK and US authorities that Saddam Hussein possessed chemical and biological weapons. He had already shown his readiness to use them. In a document, available to the Inquiry, issued by the MOD in October 1997,<sup>25</sup> it is stated:-

*“The initial UK assessment in August 1990 was that Iraq had a biological warfare (BW) capability, which included the ability to use anthrax and botulinum toxin in a variety of potential delivery systems. In November 1990 a revised assessment judged that Iraq had probably also developed plague as a BW agent. These assessments were broadly shared by the US Government, although initially the US authorities did not share the UK assessment concerning plague”.*

**379.** On page 5 of this document<sup>25</sup> it is stated, “British Service personnel could also have received a number of other routine vaccinations at about the same time”. These include yellow fever, tetanus, typhoid, poliomyelitis, cholera, and hepatitis B. It also acknowledges that some troops may have received meningitis and hepatitis A

---

<sup>25</sup> Background to the use of medical countermeasures to protect British Forces during the Gulf War (Operation Granby) –MOD Oct 1997)

vaccines. In addition pertussis was used as an adjuvant to anthrax, that is as an agent aimed at augmenting the immunological response to the anthrax vaccine. This was considered necessary because of the short time available before the onset of hostilities.

**380.** This MOD paper<sup>25</sup> also freely acknowledges that some of the vaccines used were unlicensed in the UK at the time, but justifies this action on the basis of the balance of risks involved. The Inquiry could understand the pressures on the MOD at that time which led to this decision. Nevertheless warnings had been given; for instance Ft Lt John Nichol, amongst others, referred to a fax sent to the MOD on 21 December 1990 by a senior officer of the Department of Health, Dr Jeremy Metters. This referred to concerns about the simultaneous use of anthrax and pertussis vaccines, and was prompted by a warning emanating from the National Institute for Biological Standards and Control.

**381.** The vaccination programme adopted was extensive. The Inquiry was left in no doubt about the impression made on the recipients of this intensive, and usually crash, programme. For example, of the fourteen veterans interviewed by the Inquiry on its first day of hearings, no fewer than eleven referred prominently to the number of vaccinations they had received, usually in a very short time.

**382.** We turn now to the question, is there evidence that the multiple vaccinations performed were related to subsequent ill health?

**383.** In his evidence to the Inquiry Professor Wessely stated:-

*"I am just going to show you one piece of evidence because it is significant and that is the epidemiological studies we have done on vaccination".*

Here he was referring to a paper published in 2000<sup>26</sup>. Wessely further stated:-

*"... if you received the anthrax vaccine then you are 1.4 or 40% more likely to complain of symptoms when we followed you up six or seven years later".*

He also stated:-

*"The more vaccines you received the more likely you were to report ill health later on".*

**384.** This finding contrasted with the results of a similar study made by this group of veterans of the conflict in Bosnia. Here there was no association between the number of vaccines received and subsequent ill health. Professor Cherry, in her oral evidence, also referred to a correlation between the number of vaccines received and the likelihood of subsequent ill health.

**385.** Wessely observed of these findings that ill health resulted from

---

<sup>26</sup> Hotopf M et al, British Medical Journal. 2000, 320, 1363

*“a very specific unique interaction of multiple vaccines and going to the Gulf which we think is probably a proxy for stress”.*

It should be noted that this study<sup>26</sup> was limited to military personnel

*“who still had their vaccine records”.*

This amounted to 923 out of 3284 veterans approached. This selective approach was justified,

*“Because recall bias is a major problem in studies of Gulf War illness”*

**386.** An important obstacle in the study of the vaccination programme used in the Gulf War is the paucity of accurate records. Some have been destroyed. The Inquiry heard from veterans about other personal medical records that were not completed at the time of vaccination. On 19 July we heard from the veteran Andrew Hazard of an instance where a batch of vaccines was administered by personnel who had no record of another batch of vaccines given shortly before. The Inquiry regarded this as a highly undesirable practice.

**387.** In his evidence to the Inquiry Professor Hooper drew attention to other studies from both the UK and the US, claiming to identify a relationship between multiple vaccination and subsequent symptomatic ill health<sup>2, 27, 28</sup>.

**388.** Haley, on the other hand, showed the Inquiry a slide headed,

*“Conclusions regarding the cause of Gulf War Syndrome”.*

This contained no reference to vaccines. When questioned about this omission Haley responded,

*“Epidemiologically there is some evidence, but there are other studies that looked at it and did not find it. Epidemiologically it is a question mark, but it is an important hypothesis”.*

**389.** Much of the attention paid to vaccines as a possible factor in the causation of Gulf War related illnesses has centred on anthrax vaccine, with or without pertussis as an adjuvant. It is instructive to look at differences between the vaccination programmes used by different countries for their Forces in the Gulf War. The following Table is taken from the written submission made by Dr Keith Rhodes, Chief Technologist Applied Research and Methods, US Government Accountability Office:-

---

<sup>27</sup> Steele L. Am J. Epidemiol. 2000, 152, 406

<sup>28</sup> Steele L. Am J. Epidemiol. 2001, 154, 406



	ANTHRAX	BOTULINUM TOXIN	PLAGUE
FRANCE	No	No	No
UK	Yes	No	Yes
US	Yes	Yes	No

**390.** The differences between vaccine load in the French Forces on the one hand and the UK and US Forces on the other are apparent. As mentioned earlier, for several years there were no reports of unexpected illness among the French GWVs, but recently this picture is changing. Deductions made from the above Table about the role of vaccines in Gulf War related illnesses should be viewed with caution. The exposures and experience of the French Forces differed from the UK and US Forces in a number of other ways, including exposure to pesticides and the sophistication of protection against chemical weapon attack.

**391.** The Inquiry heard evidence about the anthrax vaccines from Dr Keith Rhodes (from whose submission the above Table is taken), Dr Nancy Kingsbury, Dr Jack Melling, and Dr Meryl Nass. The safety, side effects and efficacy of the US anthrax vaccines were described in detail by Dr Nancy Kingsbury. Dr Nass described her extensive experience of individuals who believed they had become ill as a result of receiving anthrax vaccines. She also gave a most helpful summary of the safety and side effects of this vaccine.

**392.** In his written submission Dr Jack Melling made some telling observations about the differences in anthrax vaccination programmes between UK and US veterans. Firstly, a problem of supply led to only some 20% of US veterans receiving anthrax vaccine. Dr Nass expressed some doubt about the precise percentage, but it seems established that nowhere near 100% of US veterans were vaccinated against anthrax. Yet the incidence of illness reported by US GWVs is at least as high as in UK GWVs, possibly higher. Dr Melling also pointed out that pertussis was not used as an adjuvant in the US. Dr Kingsbury told the Inquiry that some batches of the US anthrax vaccine contained squalene as an adjuvant. Dr Melling concluded

*“... the wide difference between the anthrax vaccine immunisation rates of UK and US Forces is a major obstacle to proposing a pivotal role for anthrax vaccine in causing Gulf War Illness”*

**393.** The Inquiry accepted this argument but considered that a role for anthrax vaccine, with either adjuvant, cannot be ruled out.

**394.** On balance, the Inquiry concluded that the immunological impact of the multiple vaccinations administered was unusual, possibly unprecedented. The consequences for health of this vaccination programme remain uncertain.

**395.** One further aspect of the vaccines issue requires attention. The Inquiry was made aware of a number of veterans who received multiple vaccinations in anticipation of their deployment to the Gulf, but who were never deployed to this theatre of operations. Nevertheless, some of these veterans developed symptoms

of illness comparable to those reported by deployed veterans . For instance we interviewed veteran Richard Sharpe on 12 July. In January 1991 he received multiple vaccinations ahead of deployment, but was never sent to the Gulf. Soon after the vaccinations he became ill and in March 1991 received a medical discharge. He developed many symptoms common in deployed veterans.

**396.** On the same day the Inquiry interviewed Russell Walker who was deployed to Bahrain in August 1990 after receiving twelve to fourteen vaccinations over 48 hours. He was also given NAPS tablets. In December 1990 he was posted home to the UK before the commencement of hostilities. He developed symptoms soon after the vaccinations, but managed to remain in the RAF until 1996.

**397.** Also on 12 July we interviewed Alexander Izett. In 1990 he was serving in the Army in Germany when he was given 9 vaccinations prior to deployment to the Gulf. This deployment did not materialise, but he soon became ill and resigned from the Army in May 1991. Severe osteoporosis was then diagnosed when he was only 25 years old. A German specialist has labelled the osteoporosis, extremely uncommon in a male of this age, as auto-immune in origin.

**398.** These are personal case reports but similar reports have come from America. The Inquiry took the view that they should be considered when a final view on the role of vaccines in post Gulf War illness is thought to be sustainable.

## **PESTICIDES**

**399.** Considerable concern has been expressed about possible toxicity arising from the use of pesticides, especially those containing organophosphates, in the environment of the Forces serving in the Gulf War. The Inquiry heard relevant evidence, notably from the Countess of Mar, Elizabeth Sigmund and Dr Nancy Kingsbury, but other witnesses also referred to this issue. At first, 1991 – 1996, the official line was that such pesticides had only been used to a very limited extent. Growing evidence to the contrary eventually caused the then Armed Forces Minister, Nicholas Soames MP, to acknowledge publicly in 1996 in the House of Commons that pesticide use had been far more widespread than previously believed.

**400.** One of the first people to query the role of pesticides in illness amongst GWVs was the Countess of Mar, interviewed on 21 July 2004. Her Parliamentary Questions tabled in the mid 1990s were prompted by her belief that some symptoms reported by the veterans were similar to those experienced by farm workers, suffering from organophosphate poisoning, acquired through exposure to commercial sheep dips. Similar observations kindled the interest of Elizabeth Sigmund, co-ordinator of the UK based Organophosphate Information Network, with whom the Inquiry held a telephone conference on 28 July. Mrs Sigmund helpfully drew our attention to several relevant scientific publications which are referred to below.

**401.** Several veterans interviewed by the Inquiry described their experiences of pesticide spraying. These included the spraying of tents or other accommodation while personnel were sleeping inside them, spraying of areas where food was being

consumed and spraying of wash areas. Those performing the spraying were sometimes thought to be non-service personnel whose 'protective clothing' was confined to a face mask. There appears to be good evidence that when supplies of pesticides were exhausted new supplies were acquired from local sources in the Gulf. The instructions for the administration of these pesticides was often in Arabic only.

**402.** Recognition that pesticide use had been much more prevalent than at first thought came only in 1996. The MOD papers supplied to the Inquiry contained evidence of how it responded to the concerns then expressed.

**403.** A report by the Laboratory of The Government Chemist in August 1997 (LGC Report AS33/R57/97) gave details of tests carried out on tent materials from the Gulf War theatre, aimed at detecting pesticide residues. Of twelve samples analysed one was found to contain residues of the pesticide fenitrothion in low concentrations. The authors point out, however, that greater contamination could have been present six years before. These findings were scrutinised by the Pesticides Safety Directorate, who concluded in September 1997

*"... any likely human exposure would be well within acceptable limits for this compound and that the possible physical health effects of this level of residue are not a cause for concern"*

(from a letter to the Gulf Veterans Illnesses Unit of the MOD dated 11 September 1997).

**404.** Despite such reassurance concern persisted and it is pertinent here to consider in more detail some possible consequences of exposure to organophosphates by some veterans. Before doing so it should be observed that in US veterans similar concerns centred on DEET (N, N-diethyl-m-toluamide), an insect repellent present in the flea collars worn by some US veterans, and the insecticide chlorpyrifos. As already mentioned both US and UK Forces in the Gulf were given NAPS tablets containing pyridostigmine bromide (PB) to protect against organophosphorus-containing nerve gases, known to be in the possession of Iraq. The prophylactic action of PB in this context is based on its reversible inhibition of part of the acetylcholinesterase (AChE) activity in the nervous system. This would shield AChE from long-lasting inactivation by nerve gas. The theoretical possibility therefore exists that PB reduces the body's ability to inactivate agents based on organophosphates. Add to this scene possible exposure to small amounts of nerve gas released into the atmosphere of the Gulf (see later , pp ...) and a potentially damaging combination of these agents would be created.

**405.** Experimental evidence of possible additive toxic effects from these agents in combination is considered later in this section.

**406.** The Inquiry concluded that it was not possible to determine with any precision the extent of the exposure to pesticides experienced by GWVs, and this probably cannot now ever be established. The use of these agents therefore remains a factor in the cause of Gulf War ill health, especially in view of evidence that they might harmfully interact with other toxic factors present in the Gulf environment.

## NERVE AGENT PRETREATMENT SETS (NAPS)

**407.** As already mentioned in this Appendix, during the build-up to the Gulf War there was concern, both in the UK and in the US, that Iraq possessed nerve gas agents and might well use them. In anticipation of such attacks British and American deployed Forces were issued with NAPS tablets, to be self-administered on command.

**408.** Nerve gas agents are organophosphorus compounds which act by binding to, and inactivating, acetylcholinesterase (AChE). The latter enzyme plays an essential part in transmission of nervous signals by acetylcholine within the nervous system and to innervated body organs. Its inactivation leads to the disruption of nervous activity and, eventually, to death from respiratory failure.

**409.** NAPS tablets contain pyridostigmine bromide (PB) which also binds to AChE, but, as opposed to nerve gases, does so in a temporary and reversible fashion. PB thus protects a moiety of AChE, allowing time for the nerve gas to be broken down, a process that normally occurs within minutes. The AChE temporarily blocked by PB is then able to continue its essential role in nervous system function.

**410.** NAPS was provided in packets containing twenty-one tablets, each containing 30mg of PB. It was to be taken every eight hours until orders were issued to stop it. From evidence provided by the veterans interviewed the Inquiry formed the opinion that individual variation in the consumption of NAPS was considerable. Nevertheless it is clear that large numbers of UK and US personnel received this drug. In his evidence Sir Peter de la Billière observed,

*“I wonder whether they had ever been taken on as wide a scale as that numerically or for consistently as long as we took them”*

**411.** PB was first introduced in 1955 for the treatment of myasthenia gravis. Patients with this disease usually take 360 to 600mg daily, compared with 180mg used in the NAPS schedule of administration. Moreover, those taking PB for myasthenia gravis take the drug for years, compared with a maximum of a few weeks of usage by personnel in the Gulf War. NAPS had been accepted for use in the Services in 1981.

**412.** Some veterans complained of side effects while taking NAPS. Major Christine Lloyd (interviewed on 12 July) complained of disorientation, diarrhoea and headache while taking this drug. Larry Cammock (interviewed on 12 July) developed swelling of his left leg while taking NAPS. A Medical Officer told him he was taking too many NAPS tablets and should stop taking them. He did so and his leg soon returned to normal. Stephen Roberts (interviewed 12 July) felt very unwell while taking NAPS, but improved markedly after stopping these tablets.

**413.** Despite these reports of short-term side effects ascribed to NAPS most concern subsequently about possible harmful effects of PB has centred on alleged interactions with other agents to which personnel in the Gulf War were exposed.

414. Studies in which soldiers had been given PB alone for up to 4 weeks had been carried out in CBD Porton Down from 1972 onwards and had given no cause for concern (MOD document, *Background to the use of medical counter measures to protect British Forces during the Gulf War [Operation Granby] published October 1977*). It was, however, concern about possible harmful interactions between PB and multiple vaccines, other organophosphorus compounds such as pesticides and nerve gas in small quantities, and stress that have received most attention. In the UK attention has focussed chiefly on the simultaneous administration of PB with multiple vaccines.

415. In 1997 the MOD set up an Independent Panel of medical scientists to oversee experiments into vaccines/PB interactions. Papers supplied to the Inquiry by the MOD referred to early work at CBD Porton Down to determine appropriate vaccine doses for use in subsequent research<sup>30</sup>. This study found no evidence of harmful interactions between vaccines and PB over a 28-day period. Following this up a more definitive study by Griffiths et al from Porton Down<sup>31</sup> studied guinea pigs given 10 vaccines with PB. Apart from minor changes in weight and temperature responses to vaccination

*“no remarkable findings” were observed. “Animals in all groups remained generally healthy and active without visible adverse signs throughout the study”*

416. Subsequently studies were performed at Porton Down using the marmoset as a primate experimental model. These animals received multiple vaccines with or without PB. Although the final version of these studies has yet to be published the Inquiry heard a preliminary account of the findings from Professor D Davies and Professor J Banatvala on 3 August. Both Professors are members of the Independent Panel already referred to. To quote from Professor Davies’ written submission:-

*“The dose levels and panel of vaccines used in the guinea pig study did not cause acute effects in marmosets”*

417. Professor Davies also commented on studies using mice performed at the National Institute for Biological Standards and Control.

*“The specific combination of anthrax and pertussis vaccines and PB was .... investigated ... “*

418. It emerged that some of the six strains of mice used showed worrying adverse effects, but not all strains. The doses used were very high, but comparable to *those used in* routine safety tests of vaccines. This study has been submitted for publication.

419. The Inquiry noted that in his written submission, Professor Hooper, also a member of the Independent Panel, expressed serious reservations about the

---

<sup>30</sup>. Consequences of multiple vaccination with pyridostigmine pre-treatment in the Guinea Pig-A multiparameter study. June 1999. Presented to a Conference on Gulf Veterans Illnesses. Washington DC 1999.

<sup>31</sup>. Griffiths et al. J Appl. Toxicol. 2001, 21, 59

marmoset studies, and offered some criticism of the mouse experiment. It seems unwise to make a final evaluation of this work until the definitive publications are available.

**420.** Apart from vaccines attention has been focussed on possible interactions between PB and other agents to which veterans might have been exposed. Dr Haley, Dr Jack Melling and Mrs Elizabeth Sigmund all drew attention to the potential effects of simultaneous exposure to PB and other inhibitors of acetylcholinesterase, namely organophosphate-based pesticides and nerve gas agents. In his oral evidence Dr Haley stated concerning the cause of “Gulf War Syndrome”,

*“There appears to be a complex web of causes ..... The theory with the most current support is that low level sarin, possibly in combination with organophosphate pesticides, were being used because they had a similar mode of action and the NAPS tablets, pesticides, DEET, all of this together somehow caused damage to these deep brain cells, particularly in soldiers with low PON1 Type Q activity in their blood”*

**421.** Exposure of troops to low doses of nerve gas agents is an important part of the thesis put together by Haley. Dr Haley referred the Inquiry to the work of Dr Rogene Henderson, Senior Scientist at the Lovelace Respiratory Research Institute, Albuquerque, New Mexico. Dr Henderson exposed rats to sub-symptomatic levels of sarin by inhalation and found no immediate adverse effects

*“Thirty days later, however, there was evidence of damage to cholinergic brain cell receptors ... in basal ganglia. Further testing showed autonomic nervous system dysfunction and immunologic defects”*

**422.** The question of exposure to “low level sarin” is considered in the next section of this Appendix.

**423.** Dr Melling in his testimony stated,

*“I think it is very clear that troops who served in the 1990/91 Gulf War had a number of exposures to a range of materials. There was exposure to anticholinesterases. These included nerve agents, organophosphate pesticides and pyridostigimine bromide ... NAPS”*

*“It is known ....that inhibition of acetylcholinesterase can result in an impact on a number of systems, including the immune system. That is important when we consider the role of vaccines”*

In a written submission Dr Melling said:-

*“The cause(s) of Gulf War illnesses remains unknown, although ....the lead candidates are (1) exposure to chemicals (nerve agents, pesticides, NAPS tablets) that inhibit inter alia the enzyme acetylcholinesterase, and (2) multiple vaccinations over a short period of time. Other exposures include smoke from burning oil wells, DU (Depleted Uranium), mustard gas and inhalation of fine*

*silicate particles. Individual susceptibility/resistance and the stress element are further complicating factors”.*

424. In her evidence Mrs Elizabeth Sigmund noted,

*“I do not believe that the use of organophosphates or the possible exposure of soldiers ....to nerve gas could be the sole cause of all the symptoms experienced by Gulf War veterans. I do, however, think that exposure to organophosphates could be the cause of some of the illness reported by veterans....”*

425. Among papers supplied to the Inquiry by Mrs Sigmund was a report by Dr Abou-Donia and colleagues from Duke University, North Carolina<sup>32</sup>. Using hens as the experimental animals these workers studied the effects of PB, the insect repellent DEET and the insecticide chlorpyrifos, given separately and in combination. All three of these substances were used by troops in the Gulf War. Concurrent exposure to these agents was found to cause increased neurotoxicity. Enzymes inhibited by concurrent exposure included plasma butyrylcholinesterase, brain acetylcholinesterase and brain neurotoxicity target esterase. The authors hypothesised,

*“... that test compounds may compete for xenobiotic metabolising enzymes in the liver and blood, and may also compromise the integrity of the blood-brain barrier, leading to any increase in their ‘effective concentrations’ in the nervous system....”*

426. This was not the first time that increased permeability of the blood-brain barrier had been linked to the effects of PB. As early as 1991 Sharabi and co-workers reported a threefold increase in the frequency of various central nervous system symptoms in Israeli soldiers given PB<sup>33</sup>. In 1996 Friedman et al<sup>34</sup> reported that when PB was administered to mice under stress, produced by forced swimming, it caused enhanced neuronal excitability and induced early immediate transcriptional response. PB is thought not to cross the blood-brain barrier in normal circumstances, but these workers interpreted their findings to indicate that stress increased the permeability of this barrier, allowing PB to penetrate into the brain. Stress then becomes another factor to be considered as interacting with PB to produce harmful consequences.

427. In 1999 the RAND Corporation published an exhaustive survey of literature about PB entitled,

*“A Review of the Scientific Literature as Pertains to Gulf War Illnesses, Volume II: Pyridostigmine Bromide”.*

428. The author of this report was Dr Beatrice Golomb. The Inquiry had sight of a subsequent submission by Dr Golomb as part of an interim report by the Research Advisory Committee on Gulf War Veterans Illnesses to the Secretary for Veteran

---

<sup>32</sup> Abou-Donia et al, Fund. & Appl. Toxicology, 1996, 34, 201

<sup>33</sup> Sharabi Y. et al Isr. J. Med Sci 1991, 27, 656

<sup>34</sup> Friedman A et al Nature Med. 1996, 2, 1382

Affairs in the US. The RAND report by Dr Golomb was severely criticised in an MOD 'Appraisal' by the Gulf Veterans' Illnesses Unit, published in April 2000. The Inquiry was supplied with this appraisal and accepted some of the criticisms made. Several criticisms, however, were concerned with points of detail, which, while not unimportant, were insufficient to deflect the spotlight away from PB. In the opinion of the Inquiry the finger of suspicion pointing to a role for PB (NAPS) in the pathogenesis of illness in GWVs remains in place.

## EXPOSURE TO CHEMICAL WEAPONS, NOTABLY SARIN AND CYCLOSARIN

**430.** It is apparent from the evidence presented to the Inquiry, and reviewed in the Appendix so far, that an important requirement of Dr Haley's explanation for the neurological damage he has found in some veterans is that they were exposed, inter alia, to low levels of nerve gas agents in the atmosphere. This section considers the evidence presented relevant to this possibility. We will refer principally to the testimony of three Americans, James Tuite III, Lawrence Halloran and Dr Keith Rhodes, given on 2 and 3 August 2004.

**431.** Suspicion of atmospheric pollution by chemical weapons may have arisen from two sources. Firstly, many have testified that, from the early days of the war, the chemical weapon detection kits used by combat personnel of all the major countries in the coalition were activated frequently. In his evidence James Tuite stated,

*"US Department of Defense witnesses admitted that during the air war, the approximately fourteen thousand chemical agent alarms that the US Forces had deployed in theatre sounded, on average 2-3 times per day, for a total of approximately forty two thousand alarms per day for forty two days (up to 1.76 million alarms during the period). But all alarms, the DOD witnesses asserted, were false alarms".*

**432.** This assertion is hard to reconcile with the statement later in Mr Tuite's submission:-

*"... that chemical agent detectors used by US Forces during the Gulf War were not sufficiently sensitive to detect sustained low (sub-acute) levels of chemical agent ....".*

**433.** Particular interest later arose in the alarms used by a Czech unit near the Saudi – Iraqi boarder where many US troops were massed. In July 1993, the Czech Minister of Defence confirmed that this unit had detected the chemical nerve agent sarin in the air during the early stages of the Gulf War. At first the Czech findings were regarded as suspect, but later it was recognised that the Czech equipment used was sophisticated. Moreover it was used by scientific personnel, as opposed to the relatively untrained personnel used by other countries.

**434.** If some of these alarms were genuine the atmospheric contamination could have arisen from the bombardment of Iraqi storage bunkers or production plants. Possibly a small contribution was made by the few SCUD missile attacks reported in



the early days of the war. The Inquiry heard evidence about these from several witnesses. In his submission Tuite comments,

*“...the widespread soundings of these devices – particularly during early morning hours when the atmosphere’s mixing layer returned or after events that would create atmospheric turbulence – is highly suggestive of sub-acute levels of chemical warfare agent fallout”.*

**435.** In his submission to the Inquiry Lawrence Halloran reported from the hearings of the subcommittee to which he is counsel, that the DOD have admitted *“the Czech detections were valid”*. He also stated that the Pentagon had to acknowledge *“a watershed event”*

**436.** In the probable exposure of US troops to chemical weapons fallout at Khamisiyah (see below), estimates of the number of US troops exposed as a result of this later incident *“grew from 400 to 100,000”*

**437.** This leads us to the incident at Khamisiyah, and here the Inquiry will refer particularly to the evidence of Dr Keith Rhodes, Chief Technologist Director at the US GAO. On 4 and 10 March 1991 US Forces

*“destroyed an Iraqi chemical warfare agent munitions stockpile at Khamisiyah, a forward-deployed site in Iraq”*

**438.** This caused a large plume of contaminated air, visible for miles. Much subsequent effort and finance has been devoted to plotting the course of this plume, and estimating the number of troops who would have been exposed to it.

**439.** In 1996 and 1997 the US DOD and CIA field-tested and modelled Khamisiyah’s demolition trying to answer the questions raised above.

**440.** The Lawrence Livermore National Laboratory (LLNL) was also commissioned to perform the same task. The results of these two studies came to conflicting results with regard to the direction taken by the plume. This whole issue was then re-examined by the Government Accountability Office (GAO), in which Dr Rhodes works. The title of their final report indicates its conclusions,

*“DOD’s and MOD’s conclusions about US and British troops’ exposure cannot be supported”*

**441.** In essence they found serious flaws in the DOD/CIA modelling assumptions. The MOD analysis of this situation relied on that of the DOD. The GAO report also usefully draws attention to the limitations of such retrospective, meteorological techniques. It should be noted that Khamisiyah was not the only such site destroyed by bombing. Others included Al Mulhanna, Muhammadiyat and Ukhaydir. To quote Dr Rhodes,

*“In 2000 DOD revised its modelling estimates for the destruction of chemical warfare agents at Khamisiyah, estimating that 101,752 US troops had potentially been exposed”.*

442. The GAO report concluded

*“...DOD combined the results of individual models that showed smaller plume size while ignoring LLNL’s results showing much larger plume size and divergent plume path. Given the uncertainties in source term data and divergences in model results, DOD cannot determine, or estimate with any degree of certainty, plume size and path or who was or was not exposed”.*

443. The Inquiry agreed with the above view expressed by the GAO. It seems reasonable to conclude that an unknown, but large, number of coalition Forces were exposed to an atmosphere polluted by nerve gas agents. This might therefore be another factor in the later development of ill health.

444. The Inquiry also noted that a small, but finite, number of veterans who received multiple vaccines, without subsequent deployment to the Gulf, later developed an array of symptoms comparable to those reported by deployed veterans. Clearly these non-deployed sick veterans were not exposed to nerve gas agents.

## DEPLETED URANIUM

445. The 1991 Gulf War was the first conflict in which weapons containing Depleted Uranium (DU) were used. Their use arose from concerns that munitions previously available would be ineffective at penetrating the heavy armour used in the Russian-built T72 tanks used by the Iraqi army. It was known that missiles containing the very dense DU had greater penetrative ability. Moreover, when such a penetrative missile hit a tank it generated a cloud of DU dust within the vehicle which spontaneously ignited causing a fire.

446. When veterans of the Gulf War became ill in unexplained ways one finger of suspicion pointed to DU, which had never before been used in warfare. More general concerns were also raised about the effects on health of using such a radioactive and chemically toxic material in weaponry. In response to this public concern the Royal Society set up,

*“an independent and expert working group to review the present state of knowledge of the hazards to health from DU, with particular emphasis on its use in munitions.....”*

447. In Appendix 26 of his written submissions to the Inquiry Professor Hooper states,

*“It is undeniable that this (the Royal Society) report has arisen from the repeated concerns of the Gulf War Veterans and the Balkan veterans .....”*

448. The Inquiry was able to accept this assertion, but this line of thought later led to some unreasonable criticism of the Royal Society working party (see below).

**449.** This Royal Society Working Party, which included a broad spectrum of distinguished experts, published its findings in 2001 as, “The health hazards of depleted uranium munitions.” Their findings are considered later.

**450.** Ministry of Defence concern about DU is evidenced by the fact that of the 82 documents provided for the Inquiry by the MOD nine dealt with DU. The earliest of these is dated 1999. In 2001 the MOD set up the Depleted Uranium Oversight Board (DUOB). On 23 September the Inquiry interviewed Professor David Coggon, who is chairman of this Board. He explained that the Board was charged,

*“.....with overseeing the development of the retrospective testing programme for exposure to depleted uranium in the Gulf War and the Balkans.”*

**451.** At this stage it may be helpful to consider briefly the nature of DU and the reasons for concern about its use. Uranium is an integral component of the earth's crust and exists in 3 isotopic forms : Ur.238 (99.27%), Ur.235(0.72%) and Ur.234 (0.0055%). Nuclear power plants use uranium as fuel and most reactors need fuel enriched in Ur.235. The process for ‘enriching’ uranium to this end increases the percentage of Ur.235 from 0.72% to around 3%. DU is a by-product of this process and consequently contains less Ur.235 and Ur.234 than naturally occurring uranium. It is this change in the ratio of Ur.235 to Ur.238, which is the basis of urinary analytical tests aimed at detecting exposure to DU. All uranium isotopes carry the same risk of chemical toxicity. The risk to health from the radiobiological properties of DU is slightly less than that of natural uranium, but nevertheless it exists.

**452.** To quote from the Royal Society publication,

*“.... There are significant differences in ..... the modes of intakes of DU on the battlefield, compared with natural intakes of uranium and those that occur in industrial settings.”*

**453.** Chief amongst the understandable concerns surrounding the use of DU in munitions are the long-term effects on (a) those involved in the conflict and neighbouring civilian populations, and (b) the environment.

**454.** Throughout the two volumes of its report the Working Party of the Royal Society is at pains to stress the deficiencies in the database on which it must found its conclusions.

**455.** This is particularly true concerning information on likely exposure to DU of troops in differing situations. Although the Royal Society report considers a wide range of potential toxic effects of DU on a variety of body systems it is most concerned with a possible increased risk of malignant disease and with harmful effects on the kidney. In the ‘Conclusions’ section of its ‘Summary’ document the Working Party state, “(a) Except in extreme circumstances any extra risks of developing fatal cancers as a result of radiation from internal exposure to DU arising from battlefield conditions are likely to be undetectable above the general risk of dying from cancer over a normal lifetime. This remains true even if our estimates are one hundred times too low.”

456. The Inquiry inferred that this last sentence revealed the degree of uncertainty still surrounding the exposure patterns experienced by veterans of the conflict, a reality that is freely acknowledged in this report.

457. The report continues, “(b) The extreme circumstances (see (a) above) will apply only to a very small fraction of the soldiers in a theatre of war, for example those who survive in a vehicle struck by a DU penetrator, or those involved in cleaning up struck vehicles.

458. In such circumstances, and assuming the most unfavourable conditions, the lifetime risk of death from lung cancer could be about twice that in the general population.”

459. Later, the report concludes,

*“..... there are uncertainties in the level of exposure that could occur under unfavourable conditions, and for small numbers of soldiers there could be circumstances in which the excess risks of lung cancer are substantial.*

*(c) Any extra risks of death from leukaemia, or other cancers, as a result of exposure to DU are estimated to be substantially lower than the risk of deaths from lung cancer.”*

460. Concerning damage to the kidney the report concludes that estimated DU intake for most soldiers on the battlefield is not expected to produce DU concentrations in the kidney exceeding 0.1 microgram per gram of kidney tissue, which would not be expected to produce adverse effects.

461. The Royal Society report also recommends, amongst other things,

*“Long-term epidemiological studies of soldiers exposed to DU aerosols, or with retained DU shrapnel, should be undertaken to detect any increased incidence of cancers, non-malignant lung disease and kidney disease, in later life.”*

462. The Inquiry understood and accepted this recommendation.

463. Following publication of Part 1 of its report the Royal Society convened a public meeting to discuss it. Amongst those present was Dr. Doug Rokke, who submitted a long letter to this Inquiry. Dr. Rokke was part of a US unit involved in damage assessment and clean up of vehicles struck by DU munitions. Quoting from the Royal Society report,

*“..... Dr Rokke claimed that 20% of the men in his unit have died, mainly from lung cancer..... and that the others all are sick.”* The Royal Society report concludes, *“..... the anecdotal reports of the mortality and morbidity in Dr. Rokke’s unit, warrant an independent evaluation .....*”

464. The Inquiry considered this suggestion to be well founded, but the results of any such evaluation have not been made available to the Inquiry.

**465.** Also present at this public meeting was Professor Hooper, who submitted to this Inquiry a 9-page critique of the Royal Society report. Professor Hooper opens by referring to the role of GWVs in generating sufficient concern about DU to stimulate creation of the Royal Society Working Party. As expressed above the Inquiry accepts the role of GWVs in this context. Professor Hooper proceeds,

*“..... But immediately the investigation side-steps the issue of the GWVs and moves the agenda to a general consideration of the health hazards of DU which involves only calculations for increased risks of cancer.”*

**466.** Concerning the latter assertion the Inquiry noted that volume 2 of the Royal Society report is largely concerned with “Non-radiological health effects from exposure to DU munitions”, and addresses, inter alia, kidney disease, bone effects, immunological effects, neurocognitive effects, respiratory disease and reproductive health.

**467.** Concerning the first criticism by Professor Hooper, namely the apparent change in the agenda, the Inquiry understands the disappointment of veterans and their advisers, on reading in the Introduction to the Royal Society report,

*“Our focus has been exclusively on reviewing the science ..... Nor have we sought to assess any possible links between DU and the illness of Gulf War veterans .....*”

**468.** While disappointment was not surprising, the Working Party can surely not be criticised for sticking to its brief, which was,

*“ ..... to review the present state of knowledge of the hazards to health from DU, with particular emphasis on its use in munitions .....*”

**469.** The Inquiry heard evidence from Professor Albrecht Schott, Head of the World Depleted Uranium Centre in Berlin. In his evidence, both oral and written, Professor Schott stressed two issues of particular importance in his view. Firstly, he believed that DU dust created on the battlefield could be disseminated by the wind for considerable distances, thus possibly contaminating many more personnel than those on the battlefield itself. The Inquiry noted that this belief was based on reasonable suppositions, but lacked foundation in directly observed measurements.

**470.** Secondly, Professor Schott was most concerned about studies of chromosomal aberrations found in some veterans, thirteen veterans of the Gulf War, two of the Balkans War and one of both wars. These results have been published<sup>38</sup>. The authors attribute their findings to, *“..... previous exposure to ionising radiations.”* In his evidence Major General Craig expressed reservations about the significance of these findings on the grounds that sources of radiation other than DU might have been involved. Professor Schott responded in writing that this possibility had been excluded by a questionnaire completed before veterans were chosen for

---

<sup>38</sup> Schroder Hetal, Radiat Prot Dosimetry 2003, 103(3), 211

the test. In Part II of the Royal Society report, *“The health hazards of depleted uranium munitions”*, the Working Party urge caution in considering such reports as,

*“..... some chromosome aberrations are normally present in samples of lymphocytes, and their frequency could be increased by a number of factors, including age and smoking, ..... chemotherapy, exposure to medical x-rays and radiation from other forms of medical imaging.”*

**471.** Professor Schott appears to have gone some way to answering these concerns, but the number tested is small and the Inquiry considered that much more research was needed before a definitive evaluation could be made.

**472.** On 23 September the Inquiry heard evidence from Professor David Coggon, Chairman of the Depleted Uranium Oversight Board (DUOB), created by the MOD in 2001. Professor Coggon explained that this Board was charged, (see para 459)

*“ ..... with overseeing the development of the retrospective testing programme for exposure to depleted uranium in the Gulf War and the Balkans.”* Professor Coggon went on to say, *“ ..... I think the Royal Society reports are of the highest scientific quality and they represent ..... the state of the art in terms of reviewing the potential risks from depleted uranium through its military use.”*

**473.** He conceded that this report identified the uncertainties about the level of exposure which soldiers and others might have incurred. The DUOB was to establish a screening programme for veterans aimed at detecting previous exposure to DU. As previously mentioned the best method available was to determine the ratio of Ur. 235 to Ur. 238 in urine. First, the DUOB had

*“..... to see whether a test could be developed that was sufficiently sensitive and sufficiently accurate to detect perturbation of the isotope ratio in urine from meaningful exposures to DU that might have occurred 14 or 15 years ago.”*

**474.** Professor Coggon stated that a satisfactory test method had now been established and three laboratories capable of performing the test had been identified. Contracts had been made with two of these laboratories. Tests had already been performed on thirty-two veterans, but none had tested positive. When questioned the Professor explained that these thirty-two had volunteered themselves and Major General Craig observed that most were members for the Gulf Veterans Association branch of the RBL. Professor Coggon emphasised that,

*“The prime purpose (of the DUOB programme) is to provide information to individual veterans who want to know about their exposure.”*

**475.** During his evidence Professor Coggon stated,

*“There are some scientists, including some members of our Board, who do not accept the consensus opinions on the relationship of the health risk to given exposures to uranium. They suggest that the risks may be higher even*

*from very, very low exposures, and we have to acknowledge that as an uncertainty.”*

**476.** When questioned he stated that he understood that this view revolved around the fact that Ur.235 emitted alpha radiation, and from the nature of tissue damage caused by this form of radiation. The Inquiry noted that in his written submission Professor Hooper had addressed the same issue. He referred to,

*“..... the commitment to the high exposure-soluble-high excretion model that reflects MOD thinking. This is the exact opposite of the model for exposure to insoluble, inhaled DU dust i.e. low exposure-insoluble-immobilised-low excretion rates. .... The low dose-slow dose exposure fits very precisely the expected situation faced by GWVs, Busby 1995<sup>39</sup>”.*

**477.** The Inquiry concluded that the extent of the risk from low dose radiation after exposure to DU remains an area of uncertainty.

**478.** Measurement of the ratio between isotopes of uranium in urine appears to be an accepted method of detecting exposure to DU in the past. Such measurements have already been reported in GWVs by Durakovic and colleagues<sup>40</sup> using Thermal Ionisation Mass Spectrometry (TIMS). These results were presented to the Royal Society Working Party. This group expressed serious reservations about the significance of the findings reported by Horan and co-workers on two grounds :-

- (a) the urinary uranium levels reported were low, “... (similar to that typically found in the general population);
- (b) the difficulties of, “.. obtaining reliable estimates of uranium isotope ratios in such urine samples using TIMS .....”;
- (c) the absence of any control group.

**479.** Having assessed the evidence available to it the Inquiry formed the following opinions:

- 1 Although the number of personnel exposed to recognised high exposure risk situations, e.g. presence in a vehicle hit by DU containing munitions, was small, the number potentially exposed to the air-borne dispersal of DU dust, and the consequence of DU contamination of the battlefield soil may be much larger. The emphasis placed on such uncertainty in the assessment of exposure to DU by the Royal Society report supports this view.
2. The Royal Society report’s conclusions on the magnitude of any increased risk of cancer and of kidney damage arising from DU exposure of veterans are broadly reassuring, as far as they go. Nevertheless the Inquiry endorsed the report’s view that long-term follow-up of exposed veterans was needed to detect any increased incidences of malignancies, non-malignant lung disease and kidney disease later in life.

---

<sup>39</sup> Busby C, Wings of Death, Green Audit Books, 1995

<sup>40</sup> Horan et al., Military Medicine, 2002, 167, 620

3. The Inquiry accepted the evidence favouring urinary analysis of uranium isotope ratios as the best available method for the detection of the past exposure to DU. It commends the DUOB programme for offering such analysis to veterans on demand, and hopes that the take-up rate of this offer will be substantial. It noted with some concern in this context the findings by Cherry et al<sup>35</sup>, that, *“Few veterans thought they had been exposed to .....depleted uranium.”*

480. Apart from the acknowledged difficulties in the assessment of exposure risk there looms the problem of the possible harmful consequences of low dose radiation from uranium that has gained access to the body.

481. We conclude by quoting the Royal Society report, *“A good deal is known scientifically about DU; it is also clear that a good deal remains to be learned.”*

## EXPOSURE TO FUMES FROM BURNING OIL WELLS

482. Compared with most of the other potentially toxic factors considered in this section relatively little evidence was presented to the Inquiry about the effects of fumes from burning Kuwaiti oil wells. Clearly not all personnel deployed in the Gulf War were exposed to this agent. The MOD stated in a document published in July 1993 (Annex A to D/SG (HLTH) 2/3/2/9,

*“Only a small number of UK Service personnel, those ‘garrisoned’ in Kuwait during the post-war clean up were potentially at risk from oil well fire smoke. The personnel concerned belonged to 21 EOD Sqn RE and the 2R ANGLIAN BG with a few attached personnel”*

483. The Inquiry noted, however, that smoke exposure was reported by a greater number of personnel in the survey conducted by Cherry et al in their paper,

*“Health and exposures of United Kingdom Gulf War Veterans Part 1: The Relation of Health to Exposure”<sup>35</sup>*

484. Whatever the explanation of this apparent discrepancy, post-war ill health has been reported from personnel deployed in all parts of the operational theatre, as stressed by Wessely, including many who were not exposed to burning oil well fumes.

485. The MOD document cited above goes on to observe that, because of the very high temperatures involved with an abundant supply of oxygen, combustion was complete. As a result,

*“little carbon monoxide was produced and hydrogen sulphide was converted to sulphur dioxide then sulphur trioxide. The monitoring of these chemical species was carried out regularly by both US and UK military authorities. The results showed that, where detected, they were present only at low levels”.*

---

<sup>35</sup> Cherry et al, Occupational & Environmental Medicine, 2001, 58(5), 299



486. Respiratory function tests, performed before, during and after exposure were performed,

*“... in a selected group potentially most at risk”.*

487. No change in respiratory function was seen. No details are provided.

488. In their study of health and exposures in GWVs Cherry and co-workers found that,

*“... the days exposed to smoke from oil fires, were consistently and independently related to severity”* (of symptoms).

489. The epidemiological methodological pitfalls inherent in a study such as this were discussed by K Ismail in an editorial in the same issue of the same journal,<sup>36</sup> who acknowledged that,

*“The authors consider the limitations of their study thoroughly”.*

490. Ismail also points out,

*“There were no valid objective measures of exposures at the time of the Gulf conflict and still there are none”.*

491. During her oral evidence to the Inquiry in August Professor Cherry was questioned about the possible importance for health of the burning oil wells and replied,

*“I mentioned those but I am not personally convinced that that is going to be an important factor. People who have been exposed to or reported being exposed to oil well smoke had more severe symptoms, but they did not have specific symptoms”.*

492. Professor Cherry also stated,

*“We did in fact do a study of children ....who had been in Kuwait at the time of the oil wells to ask whether they were more likely to have asthma as a result and we did not find any excess. We did find that boys who had had asthma before the Gulf War ....were more symptomatic”*

493. The Inquiry concluded that inhalation of fumes from burning oil wells might well have contributed to ill health in some exposed veterans, particularly in the short term. This fact, however, could not explain the whole range of illness expressed by veterans of this war.

---

<sup>36</sup> Ismail K. Occupational and Environmental Medicine, 2001, 58(5), 289

## INFECTIONS

**494.** Two infections have received particular attention as possible major causes of illness in veterans of the Gulf War: leishmaniasis and mycoplasma. We have already quoted Dr Haley when he drew attention to the pre-occupation soon after the war with leishmaniasis as an important cause of illness in the veterans. In his oral evidence to the Inquiry he referred to the,

*“... large numbers of sick veterans lining up in long lines before their medical facilities both in the Gulf and when they came home..... medical military people thought it was a big epidemic such as leishmaniasis”.*

**495.** In his written submission to the Inquiry on 2 August Lawrence Halloran stated,

*“...based on a small number of diagnosed cases, VA and DOD concluded that the likelihood of leishmania tropica (a parasite) as an important risk factor for widely reported illness has diminished. As a result, the (Presidential Advisory) Committee found it unlikely to be ‘responsible for long term health effects in Gulf War veterans’”.*

**496.** Mr Halloran went on,

*“However, the extent of asymptomatic leishmania infection is unknown, and the possibility of prolonged latency and apparent clinical dormancy (up to 20 years) of an infection that may re-emerge in the presence of immune deficiency underscore the need to retain leishmania among the potential risk factors”.*

**497.** In the UK the MOD took the view (expressed in document ‘Annex A to D/SG (HLTH) 2/3/2/9 – July 1993 – already referred to in the section on oil well fires) that,

*“No cases of leishmaniasis occurred in UK Service personnel who served in the Gulf”*

**498.** Despite some evidence of immune system abnormalities in GWVs, which in theory might allow the expression of dormant leishmaniasis, the Inquiry concluded that this disease was an unlikely cause of the widespread and polysymptomatic ill health reported by veterans.

**499.** Infection with mycoplasma has also been implicated as a possible cause of illness in GWVs. On 21 July the Inquiry interviewed the veteran Jason Bosworth. Both he and his wife suffer from Chronic Fatigue Syndrome. Having read an article by Dr Garth Nicholson both he and his wife were tested for mycoplasma infection and found to be positive. In his evidence Professor Wessely referred to a trial of doxycycline in sick GWVs by Dr S T Donta<sup>37</sup>. The absence of any beneficial effect on health after one year was taken to be evidence against the presence of

---

<sup>37</sup> Donta S.T. Am Intern Med 2004, 141, 85

mycoplasma infection. On 1 September Dr Meryl Nass, in her written submission expressed grave misgivings about this trial. She stated,

*“At three months (of treatment) there was a treatment benefit, but by twelve months there had been a high number of dropouts, and so no benefit was demonstrated statistically. Instead of enrolling more veterans.... In order to achieve a valid sample size, the authors instead concluded, ....’doxycycline did not improve outcomes of GWVs at one year’”*

**500.** The inquiry was uncertain whether the alternative course of action proposed by Dr Nass would have been feasible in the circumstances.

**501.** Nevertheless the firmness with which this study rules out mycoplasma infection in GWVs seems open to question.

**502.** On balance it did not seem to the Inquiry that a strong case had been made for either of these infectious agents being a prime factor in the causation of the illnesses reported by veterans.

## **STRESS & PSYCHOLOGICAL FACTORS**

**503.** Both the impact of stress and the later development of psychiatric illness have been extensively discussed in the context of ill health amongst veterans. These factors have already been considered in Part 1 of this Appendix and the Inquiry stands by the conclusions reached there. Attention should be drawn, however, to the evidence that stress may be an important co-factor with other toxic agents, in producing nervous system dysfunction. This is reviewed in the subsection on NAPS earlier in this section.

## **THE SOCIAL MILIEU OF GULF WAR VETERANS**

**504.** When trying to draw together all the relevant facts and theories Professor Wessely in his oral testimony stated,

*“What is it that everyone was exposed to regardless of what they did and who they were? (He might have added – ‘where they were’) Most of them ..... had CBW prophylaxis, so that is a possibility. I would suggest that nearly all of them had anxiety about the CW threat and that for all of them war is stressful. Finally, all of them were exposed to media and social pressures on their return. I would suggest that it is a complicated mixture of these three things .....*”

**505.** This section primarily addresses the third of these factors.

**506.** In a series of papers Wessely and his co-workers have examined the ‘uniqueness’ of Gulf War-associated illness and have found large areas of overlap with illness following previous conflicts, from the Crimean War to Vietnam. Much of

this research is to be found in two publications cited below<sup>41,42</sup>. The second of these is still to be published, in January 2005, but is cited here as perhaps the most thorough exploration of this particular line of thought.

**507.** The attention paid by Wessely and colleagues to this subject, the communality of post war 'syndromes', together with the associated attention to anxiety, stress, depression and other psychiatric problems, has been vehemently attacked. Two of the most vociferous critics heard by the Inquiry were the Countess of Mar and Professor Hooper. In her oral evidence the Countess expressed the opinion,

*"We want to get away from the psycho-social behavioural model that because Gulf veterans talk to each other and or because they read the Internet they are ill. This is manifest nonsense."*

**508.** Commenting, in his written submission, on footnote 41 Professor Hooper wrote about this paper,

*it " .... attempts to show that GWVs are no different from other war veterans and are only suffering from the same kinds of illness."*

**509.** The Inquiry noted that the first factor identified by Wessely in his attempt at formulating a causal amalgam of factors to explain illness in GWVs, was, "CBW prophylaxis.". It further noted that publications by Wessely and his co-workers had, (a) epidemiologically convinced the authorities for the first time that there was an unexplained excess of ill health amongst GWVs; (b) drawn attention to a link with multiple vaccinations, and (c) established that stress and psychiatric illness could not explain the totality of ill health expressed by GWVs. These three findings seemed to the Inquiry no mean contribution to the study of this difficult problem. It recalled the praise for (c) in particular, offered by Dr. Haley in his testimony. This is not to deny the possibility that stress contributed to the ill health when it clearly has played a role in other wars.

**510.** To deny that sick veterans had been exposed to media coverage of their problems would be completely unrealistic. The effect of such coverage is another matter. One editorial writer observed,

*"The activity of completing questionnaires and social-cultural factors – such as media interest and peer group social networks – could endorse symptoms that were of minor importance or cause distress to the veteran. Gulf veterans may differentially recall exposures compared with non-Gulf veterans because of the continued interest in 'Gulf war syndrome'"<sup>36,43</sup>.*

**511.** The Inquiry considered that media 'pressure' was as likely to uncover reticent veterans who had not previously reported their symptoms, as to stimulate the occasional opportunist who spotted a bandwagon to join. With such a large body of sick veterans it would be most surprising if a few did not belong to this latter

---

<sup>41</sup> Jones.E. et al., Brit Med J. 2002, 324, 1.

<sup>42</sup> Jones E. and Wessely S. War Syndromes: the impact of Culture on medically unexplained symptoms. To be published in Medical History, Jan 2005

<sup>43</sup> McCauley et al, Anrion.Res.1999, 81, 195

category. Major General Craig, in his testimony, provided an instance of a veteran making claims, which could not possibly be correct. In his testimony Dr. Tony Hall, who had worked for a time in the MAP, went much further and stated, in response to a question, that he considered some 90% of the veterans he examined in the MAP were malingerers.

**512.** The Inquiry accepted that a few veterans might have exaggerated, or even invented, their symptoms for some perceived gain. Given the complexity of human nature and the large numbers involved it would be remarkable if this was not so. It also accepted that discussions with other sick veterans, for instance in the veteran organisations, might sometimes affect a veteran's perception of his own illness.

**513.** Despite these considerations the Inquiry found it inconceivable that the totality of the illness reported by 6,000 to 15,000 veterans (according to different estimates) could have been produced in these ways. The Inquiry further considered that it would be iniquitous if the genuine distress of the many were to be compromised by the regrettable behaviour of a few.

## SUMMARY AND CONCLUSIONS

**514.** The Inquiry concluded that it has been established beyond reasonable doubt that veterans of the Gulf War later developed an excess of symptomatic ill health, over and above that to be expected in the normal course of events. This requires an explanation.

**515.** The precise cause of these symptoms remains debatable. Part II of this Appendix reviews the evidence heard by the Inquiry for nine factors, each of which has been proposed as a possible cause for ill health in the veterans. Of these Depleted Uranium, fumes from burning oil wells, infections, stress and psychological factors may all have had adverse effects on some individuals, but, in the opinion of the Inquiry, do not explain the whole spectrum of ill health involved. Social and media pressures may have influenced the expression of ill health voiced by veterans, but do not on their own provide a credible explanation for the problem.

**516.** The roles of multiple vaccines, pyridostigmine bromide (NAPS) and organophosphate-based pesticides require serious consideration as possible causal agents, particularly in combination. A multi-factorial explanation appears to be likely. The possibility of stress-induced changes in the blood brain barrier, allowing access to the brain of substances normally excluded, warrants further investigation.

**517.** Exposure to low levels of nerve gases produced by pollution of the atmosphere is difficult to evaluate. The Inquiry considered it inadvisable to exclude this possibility, given the uncertainties that still surround the plume arising from the destruction of weapon stores at Khamisiyah and other sites. It agrees with the US General Accountability Office view that precise documentation of the characteristics of this atmospheric contamination is now unlikely to be achieved.

**518.** Further attention is desirable to those veterans who, having received multiple vaccinations, often with NAPS, were not deployed to the Gulf, but who subsequently reported patterns of ill health similar to those experienced by deployed veterans. Evidence about this group of veterans is still anecdotal, but the potential implications of their experience appears to be important. Proper scientific investigation of this group, if possible, might provide valuable information.

**519.** The use of the word “syndrome” in the term Gulf War Syndrome is contentious. After full consideration the Inquiry decided to advise retention of this term, recognising that this decision may be criticised in some quarters. The reasons for this decision are set out in Chapter 6, paragraphs 201–206.

## ANNEX A

### CHRONOLOGY

#### 1990

- 2 August Iraqi troops invaded Kuwait
- September Troops deployed to the Gulf region. By the end of the war there were 53,500 United Kingdom and 697,000 United States troops deployed to the Gulf region, together with smaller contingents from France, Canada, and Australia.
- 21 December A fax from the Department of Health to the MOD expressing the anxiety of experts about the simultaneous administration of anthrax and pertussis vaccine.

#### 1990 - 1991

- Troops were vaccinated against a variety of diseases including plague and anthrax
- 17 January Start of air bombardment of Iraqi positions, including storage sites of chemical and biological weapons.
- 24 February Ground Offensive
- 28 February Cease-fire
- 4 – 10 March Demolition of Khamisiyah storage facility by US troops.

#### 1993

- March First reports in the press referring to mysterious illness said to be due to the use of Depleted Uranium (DU).
- 7 June Programme on *Newsnight* created widespread interest.
- 5 July Mr Jeremy Hanley MP, Minister of State for the Armed Forces, appeared on *Newsnight* with Gulf veterans. He invited veterans to write to him.
- 12 October Memorandum from MOD to House of Commons Defence Committee denied existence of new or separate medical condition or syndrome.

October MOD established part-time Medical Assessment Programme (“MAP”) at RAF Wroughton to carry out clinical assessments under Wing Commander Bill Coker.

4 November Further memorandum from the MOD – no evidence that vaccines can cause symptoms popularly labelled “Desert Storm Syndrome”.

## 1994

Gulf War Veterans Association was formed. It called for epidemiological research.

11 June Surgeon General Lieutenant General Peter Beale denied existence of Gulf War Syndrome in letter to *British Medical Journal*.

15 June In an article in the *Guardian* Mr David Fairhall drew attention to a new United States theory that a combination of a pesticide (DEET) and PB might be responsible for Gulf War illness.

In a letter to the *British Medical Journal* Mrs Elizabeth Sigmund noted that the symptoms reported by veterans were typical of low level exposure to OP compounds.

28 June A follow-up article in the *Guardian* referred to Mrs Sigmund’s letter.

11 July Mr Llewelyn Smith MP asked a Parliamentary Question (PQ) on OP pesticide. Mr Jeremy Hanley MP, replied that no OP insecticide or pesticide sprays had been used on British Forces.

21 July The Countess of Mar asked PQ on OPs. Lord Henley, Parliamentary Secretary, MOD, replied in the same terms.

9 August In an article in the *Guardian* Mr Fairhall stated that the MOD had conceded that British troops had stocks of OP pesticides, which were intended for use on Iraqi prisoners, but that they had never been used.

29 October In an article in *The Guardian* Mr Fairhall stated that Malathion (an OP) had been used to delouse hundreds of Iraqi prisoners. The Countess of Mar asked PQ on the use of Malathion powder. Lord Henley replied that it had been used to delouse 50 Iraqi prisoners.



3 November	Mr Paul Tyler MP asked PQ about OP. Mr Nicholas Soames MP, Minister of State for the Armed Forces, replied that about ten British service personnel had been involved in delousing prisoners. No other exposure to OPs.
November	Eleventh report of House of Commons Defence Committee critical of MOD. Called for epidemiological study. MOD replied that in absence of scientific evidence no ground for epidemiological study.
20 December	TV programme <i>“Quick War – Slow death”</i> .  MOD deplore <i>“alarmist”</i> nature of press reports based on <i>“unsubstantiated rumour, incorrect information, and rejection of earlier allegations which had been fully investigated and found to be unsupported by the facts”</i>
<b>1995</b>	
January	MAP increased throughput from ten to twenty patients a week. Waiting list of six to seven months. MOD declined to add further Consultants to assist Dr Coker, so as to ensure <i>“consistency”</i>
March	Number of Consultants at MAP increased from one to two. Throughput increased to fifty a week.
October	Eleventh report of the House of Commons Defence Committee critical of MOD.  Government’s reply to eleventh report – Committee’s criticisms unjustified and unsupported by the facts.
30 October	The Countess of Mar asked the MOD to commission a study in view of the overlap of symptoms reported by the Gulf War veterans and those exposed to agricultural OPs.  Earl Howe, Parliamentary Secretary, MOD, conceded that there were some similarities, but said that there was no evidence of any increased incidences of symptoms among the veterans when compared with the population at large.  Professor Simon Wessely approached MOD with a suggestion that what was needed was an epidemiological study. MOD disagreed. Thereafter Professor Wessely received funding from the US Department of Defense.

## 1996

- June MOD staff became aware that OPs had been used more extensively than had been represented, but take no action.
- 25 September Mr Soames was informed.
- 4 October Announcement of internal investigation.
- 10 December Mr Soames made statement as to the result of the investigation, and apologised to the House. He announces independent epidemiological surveys by Professor Nicola Cherry and Dr Pat Doyle.

## 1997

- January Dr Haley published his first results in the *Journal of the American Medical Association (JAMA)*
- 24 March Mr Alf Morris MP (now The Rt Hon Lord Morris of Manchester) asks PQ about the explosion at Khamisiyah on 10 March 1991. Mr Soames MP replies that only one British serviceman had been within 50km.
- 29 May Meeting between Dr John Reid Minister for the Armed Forces and representatives of the Gulf veterans.
- 14 July Labour Government announced a new beginning.
- Sixth report (Session 1996-97) of House of Commons Defence Committee critical of MOD "Government has not been dogged in pursuance of the facts"

## 1999

- 16 January Article in *Lancet* by Unwin, Coker, Hotopf, Wessely and others reporting the result of first epidemiological survey. Gulf veterans twice as likely to suffer typical symptoms compared with (i) soldiers who served in Bosnia and (ii) soldiers who were not deployed.
- 30 January Article in *British Medical Journal* by Coker and others reporting on first 1,000 Gulf War veterans taking part in the MAP. No evidence of single illness, psychological or physical, to explain the pattern of symptoms.

## 2000

- 11 May Seventh report of House of Commons Defence Committee.
- 3 August Government response to seventh report.

## 2001

Depleted Uranium Oversight Board established.

## 2003

- 26 March Opinion of Stephen Irwin QC and Christopher Hough, bringing to an end legal proceedings.

## 2004

- 5 February Letter from Stephen Irwin QC and Christopher Hough and Patrick Allen to Lord Morris of Manchester informing him that a claim by the veterans against the Government based on negligence could not succeed in law, but urging the Government to consider instituting a full public review, and to instigate a process of reconciliation with the veterans groups.
- 14 June Lord Morris announced this Inquiry.
- 29 June Letter to Secretary of State for Defence inviting the Government to take part in the Inquiry.
- 6 July Inquiry opened. Royal British Legion welcomed Inquiry.
- 12 July Letter from Minister for Veterans declining to take part but offering all relevant documents.

**ANNEX B**  
**STATISTICS**

- (1) As at 31 March 2004 2,690 Gulf Veterans were in receipt of a War Pension, as follows:-

<b>PERCENTAGE DISABILITY</b>											
<b>AWARD TYPE</b>	20%	30%	40%	50%	60%	70%	80%	90%	100 %	Unknown	<b>TOTAL</b>
Indeterminate	890	680	470	230	175	90	45	20	40	-	<b>2,640</b>
Unknown	-	-	-	-	-	-	-	-	-	50	<b>50</b>
<b>TOTAL</b>	<b>890</b>	<b>680</b>	<b>470</b>	<b>230</b>	<b>175</b>	<b>90</b>	<b>45</b>	<b>20</b>	<b>40</b>	<b>50</b>	<b>2,690</b>

As at 31 March 2004, 2,235 Gulf Veterans were in receipt of a Gratuity as follows:-

<b>PERCENTAGE DISABILITY</b>				
<b>AWARD TYPE</b>	01% - 05%	06% - 14%	15% - 19%	<b>TOTAL</b>
Indeterminate	630	1,295	305	<b>2,230</b>
Temporary – More than a year	-	-	-	-
Specific minor injury	-	5	-	<b>5</b>
<b>TOTAL</b>	<b>630</b>	<b>1,300</b>	<b>305</b>	<b>2,235</b>

As at 31 March 2004, 575 Gulf Veterans were in receipt of a nil award

- (2) Of the 5,505 who made claims 4,630 claimed within 7 years of leaving the service is as follows:-

<b>TIME BETWEEN DISCHARGE AND FIRST VALID CLAIM</b>				
<b>STATUS</b>	Within 7 years	More than 7 years	Unknown	<b>TOTAL</b>
Entitled Ongoing	2,230	120	340	<b>2,690</b>
Entitled Nil	455	65	55	<b>575</b>
Entitled Gratuity	1,940	170	125	<b>2,235</b>
<b>TOTAL</b>	<b>4,630</b>	<b>355</b>	<b>520</b>	<b>5,505</b>

- (3) The number of claims cleared and awarded in the year 2000-2004 were as follows:-

<b>FINANCIAL YEAR</b>				
	<b>2000/2001</b>	<b>2001/2002</b>	<b>2002/2003</b>	<b>2003/2004</b>
First claims cleared	715	740	560	470
First claims awarded	650	650	505	405
% of first claims awarded	91%	88%	90%	86%

(4) The rates of War Pensions and Gratuities are as follows:-

### WAR DISABLEMENT PENSION

<b>Other ranks</b>		
<b>Assessment</b>		<b>Weekly rate</b>
100%	.....	£123.90
90%	.....	£111.51
80%	.....	£99.12
70%	.....	£86.73
60%	.....	£74.34
50%	.....	£61.95
40%	.....	£49.56
30%	.....	£37.17
20%	.....	£24.78

<b>Officers</b>		
<b>Assessment</b>		<b>Year rate</b>
100%	.....	£6,465
90%	.....	£5,819
80%	.....	£5,172
70%	.....	£4,526
60%	.....	£3,879
50%	.....	£3,233
40%	.....	£2,586
30%	.....	£1,940
20%	.....	£1,293

### GRATUITIES

#### **All Ranks** **Assessment (less than 20%)**

Temporary – less than a year		
1-5%	.....	£326
6-14%	.....	£731
15-19%	.....	£1,279
Temporary – more than a year		
1-5%	.....	£657
6-14%	.....	£1,457
15-19%	.....	£2,552
Indeterminate		
1-5%	.....	£1,970
6-14%	.....	£4,377
15-19%	.....	£7,660

## ANNEX C

### LIST OF WITNESSES

Surname	Forename	Page
Alcorn	Jason	11, 64
Avison	Carole	9
Baker	Noel	9
Banatvala	Professor Jenghu	27, 82, 124
Barber	Mike	
Bosworth	Jason	11, 95
Bramall	Lord Bramall	15, 16, 41, 54
Bristow	Raymond	6, 7, 26, 54
Brown	Geoffrey	10, 11
Calvert	Janet	9
Cammock	Larry	6, 8, 81
Capps	Deborah	9, 11
Capps	Michael	11
Cherry	Professor Nicola	21, 22, 42, 43, 44, 45, 49, 54, 62, 72, 76, 93, 94, 103
Coggon	Professor David	26, 27, 88, 91, 124
Concannon	Dr Harcourt	19, 35, 37, 38, 40, 41, 55, 56
Craig	Major General Peter (RTD)	12, 57, 90, 91, 97, 124
Craig	Lord Craig of Radley	14, 15, 46, 54, 56, 57, 58
Crump	Richard	
Davey	Gerard	11
Davies	Professor Donald	27, 82, 124
De la Billière	General Sir Peter	14, 15, 41, 52, 59, 81
Doyle	Dr Pat	17, 22, 42, 43, 49, 54, 62, 63, 72, 73, 103
English	Colonel Terry H OBE	19, 60, 124
Garnet	Brigadier Dr Robin	124
Graham	Louisa	9
Graveston	Dr Nigel	6, 7
Haley	Dr Robert	7, 16, 21, 25, 28, 29, 32, 32, 34, 45, 55, 65, 66, 67, 68, 69, 70, 74, 77, 83, 85, 95, 97, 103
Hall	Dr Derek	10, 11, 46, 124
Hall	Dr Tony	12, 97
Halloran	Lawrence	31, 32, 85, 86, 95
Hazard	Andrew	10, 53, 77
Hooper	Professor Malcolm	25, 65, 77, 82, 87, 90, 92, 97, 124
Humphreys	Anwan	10, 11
Izett	Alexander	9, 26, 79

Jones	Dr Dafydd Alun	24, 45, 70
Lingard	Mike	11
Lloyd	Major Christine	12, 13, 81
Mar	The Countess of Mar	16, 51, 60, 79, 97, 101, 102
Mason	Andrew Simon	
Mates	Lisa	9
Mates	The Rt Hon Michael (MP)	18, 33
McGreevy	Mark	11
Melling	Dr Jack	20, 23, 30, 32, 78, 83
Nass	Dr Meryl	33, 78, 96
Nichol	Flt Lt John	6, 61, 76
Paul	Keith	
Perot	H Ross	29, 34
Pritchard	Alvin	11
Rhodes	Dr Keith	21, 30, 31, 50, 77, 78, 85, 86
Roberts	Stephen	9, 10, 11, 64, 81
Rusling	Sergeant Shaun	5, 6, 7, 39, 50, 56
Sanders	Congressman Bernie	29, 34, 63
Schott	Professor Albrecht	8, 20, 26, 27, 90, 92
Sharpe	Richard	10, 79
Sigmund	Elizabeth	23, 24, 51, 79, 83, 84, 101
Soames	The Hon Nicholas (MP)	16, 17, 18, 19, 42, 44, 51, 52, 79, 102, 103
Tella	Hakim	
Thompson	Samantha	8
Tuite III	James	29, 30, 85, 86
Turnbull	Richard	10, 53
Tyler	Paul (MP)	16, 17, 23, 51, 53, 56, 102
Walker	Russell	10, 64, 79
Walker	Terence	11, 52, 64
Warriner	Vicky	
Wessely	Professor Simon	20, 21, 22, 25, 33, 34, 41, 42, 43, 49, 54, 60, 62, 66, 67, 68, 69, 70, 71, 76, 93, 95, 96, 97, 102, 103, 123
Wilson	Adrian	10, 47

## ANNEX D

### DOCUMENTS PROVIDED BY THE MOD

#### PUBLICATIONS RELEVANT TO GULF VETERANS' ILLNESSES

*Following is a list of material which are relevant to the concerns that some veterans of the 1990/1991 Gulf Conflict have about their health.*

*The material is arranged in folders by close chronological order, with occasional deviations to simplify the reference of linked papers. Also, the Veterans Agency information leaflets are presented together in a single folder.*

*All of the material listed is publicly available. The majority is accessible on the internet and web addresses are included where relevant. Gulf veterans' illnesses is a topic which touches many areas and the amount of material potentially available is enormous. The area of research is particularly difficult because of the copyright issues associated with the publication of medical and scientific papers. For this reason, the focus here is on work that has been sponsored by or carried out with the support of the Government. Papers covering other research are well referenced and commercially available on the internet.*

VPU GVI  
Veterans Policy Unit, MOD  
July 2004

---

#### 1996 & BEFORE:

*Extracts from DH manual "Immunisation against Infectious Disease" 1998, 1990, 1992 & 1996.*

Extracts covering the vaccination against Anthrax.

*Letter to the Editor of the British Medical Journal from Lt Gen Peter Beale. 1994*  
Lieutenant General Peter Beale was Surgeon General from 1991 to 1994. His letter, published in the *British Medical Journal*, provided an early introduction to the Medical Assessment Programme and briefly outlined the findings of the earliest analysis on the first 33 veterans seen.

[http://www.mod.uk/issues/gulfwar/map/beale\\_letter.htm](http://www.mod.uk/issues/gulfwar/map/beale_letter.htm)

*Letter to the Editor of the British Medical Journal from Surgeon Vice-Admiral Tony Revell. 1995*

Surgeon Vice Admiral Tony Revell was Surgeon General from 1994 to 1997. This letter was published in the *British Medical Journal* and reviews the analysis of the first 237 veterans to pass through the Medical Assessment Programme.

[http://www.mod.uk/issues/gulfwar/map/revell\\_letter.htm](http://www.mod.uk/issues/gulfwar/map/revell_letter.htm)



*A Review of Gulf War Illness. Summer 1996*

A paper by Group Captain W.J. Coker (a former Head of the MAP), which was published in the *Journal of the Royal Naval Medical Service*, concerning the analysis of the first 284 veterans to pass through the MAP.

<http://www.mod.uk/issues/gulfwar/map/coker.htm>

*Organophosphate Pesticide Investigation Team (OPPIT) - Substantive Report. December 1996*

Following the discovery that MOD Ministers had provided false information to Parliament concerning the use of Organophosphate pesticides by UK troops during the Gulf conflict, the MOD commissioned an investigation into actual events in Saudi Arabia and into why MOD Ministers had remained unaware of the true position until late 1996. This substantive report outlines the actual use of these pesticides in Saudi Arabia.

<http://www.mod.uk/issues/gulfwar/info/pesticides/oppit.htm>

**1997:**

*Memorandum concerning the provision of advice to MOD Ministers between 1994 and 1996 on the subject of Organophosphate pesticide use during the Gulf War. February 1997*

[http://www.mod.uk/issues/gulfwar/info/pesticides/memo\\_feb97.htm](http://www.mod.uk/issues/gulfwar/info/pesticides/memo_feb97.htm)

*Gulf Veterans' Illnesses - A New Beginning. July 1997*

Following the General Election, the Government published this statement to set out the principles that would guide its approach to Gulf Veterans' Illnesses.

<http://www.mod.uk/issues/gulfwar/policy/newbegin.htm>

*Analysis of tent materials for insecticide residues. August 1997*

A report by the Laboratory of the Government Chemist on their analysis of 12 tent sections purchased by the Scout Association from the MOD and suspected of being contaminated by Organophosphate pesticides.

<http://www.mod.uk/issues/gulfwar/info/pesticides/tentanalysis.htm>

*Text of a Letter from the Pesticides Safety Directorate to GVIU concerning the analysis of tent materials for organophosphorus insecticide residues. September 1997*

The Pesticides Safety Directorate's response to the MOD's request for information on the health effects of the residue on fenitrothion found on one of the tent sections analysed by the Laboratory of the Government Chemist.

[http://www.mod.uk/issues/gulfwar/info/pesticides/letter\\_sep97.htm](http://www.mod.uk/issues/gulfwar/info/pesticides/letter_sep97.htm)

*Text of a Letter from the Assistant Private Secretary to the Minister of State for the Armed Forces to members of the House of Commons Defence Committee. October 1997*

A letter informing the House of Commons Defence Committee of the results of the analysis by the Laboratory of the Government Chemist and of the advice provided by the Pesticides Safety Directorate.

[http://www.mod.uk/issues/gulfwar/info/pesticides/letter\\_oct97.htm](http://www.mod.uk/issues/gulfwar/info/pesticides/letter_oct97.htm)

*Background to the use of medical countermeasures to protect British forces during the Gulf War. October 1997*

An outline of the Iraqi chemical and biological warfare threat as assessed at the time of the Gulf conflict, and of the overall response by the UK, including detailed sections on each of the individual medical countermeasures that were provided.

<http://www.mod.uk/issues/gulfwar/info/medical/mcm.htm>

*Further memorandum concerning the provision of advice to MOD Ministers between 1994 and 1996 on the subject of organophosphate pesticide use during the Gulf War. October 1997*

Follow on from the OPPIT Substantive Report, and the provision of advice to MOD Ministers up until 1996 and the process by which it was discovered that false advice been given.

[http://www.mod.uk/issues/gulfwar/info/pesticides/memo\\_oct97.htm](http://www.mod.uk/issues/gulfwar/info/pesticides/memo_oct97.htm)

#### **1998:**

*Iraqi CW capability during the Gulf War: Agent 15. February 1998*

An MOD statement issued after it had become clear that Iraq may have possessed large stocks of the mental incapacitant chemical 'Agent 15' at the time of the Gulf War.

[http://www.mod.uk/issues/gulfwar/info/medical/cw\\_capability.htm](http://www.mod.uk/issues/gulfwar/info/medical/cw_capability.htm)

*Gulf Veterans' Illnesses - Twenty Key Points. April 1998*

The MOD set out a review of the progress that had been made in fulfilling the promises of the previous July.

<http://www.mod.uk/issues/gulfwar/policy/20points.htm>

*Dead animals during the Gulf Conflict. April 1998*

An MOD review of available information concerning the presence of dead animals during the Gulf conflict, and considering whether or not they constituted evidence of exposure to Chemical and Biological Weapons.

<http://www.mod.uk/issues/gulfwar/info/medical/animals.htm>

*MOD Press Release announcing New Head of GVMAP. July 1998*

[http://news.mod.uk/news\\_press\\_notice.asp?newsItem\\_id=372](http://news.mod.uk/news_press_notice.asp?newsItem_id=372)

#### **1999:**

*Health of UK servicemen who served in Persian Gulf War. 1999 &*

*Is there a Gulf War Syndrome? 1999*

Two papers from the King's College Gulf War Illness Research Unit published in the *Lancet* in January 1999. Funded by the US Department of Defense.

*British Medical Journal Editorial: Gulf War Syndrome. January 1999*

The British Medical Journal's editorial on the findings of the MAP 1000 survey, published in the *British Medical Journal* on 30 January 1999.

<http://bmj.bmjournals.com/cgi/content/full/318/7179/274>

*Clinical findings for the first 1000 Gulf war veterans in the Ministry of Defence's medical assessment programme. January 1999*

The results of the MAP 1000 survey, published in the British Medical Journal.

<http://bmj.bmjournals.com/cgi/content/full/318/7179/290>

Testing for the presence of Depleted Uranium in UK veterans of the Gulf Conflict: the current position. March 1999

<http://www.mod.uk/issues/gulfwar/info/depleted/dutesting.htm>

*Current Activity Relating to Gulf Veterans' Illnesses. April 1999*

This Memorandum was prepared for the House of Commons Defence Select Committee before the Minister of State for the Armed Forces, Mr. Doug Henderson, gave evidence before them in April 1999. It was published on the day of the hearing.

<http://www.mod.uk/issues/gulfwar/policy/hcdcmemoapr.htm>

*Medical Records in the Gulf. April 1999*

An explanation of the Service medical documentation system, and of how it operated in the Gulf. This paper also provides details of how Gulf veterans may obtain copies of their medical records.

<http://www.mod.uk/issues/gulfwar/info/medical/records.htm>

Gulf Veterans' Illnesses: Information Pack. May 1999

Briefing pack is intended to provide GPs, and other health professionals, with information which they may find useful in dealing with Gulf veterans' health concerns.

Consequences of multiple vaccination with pyridostigmine pretreatment in the Guinea Pig – A multi Parameter Study. June 1999

An abstract on the work done to determine the appropriate vaccine doses for use in the subsequent phases of the Vaccines Interactions Research Programme, as presented at a conference on research into Gulf veterans' illnesses in Washington DC.

[http://www.mod.uk/issues/gulfwar/research/interact/outline\\_findings.htm](http://www.mod.uk/issues/gulfwar/research/interact/outline_findings.htm)

*An audit of the MOD's Gulf Veterans Medical Assessment Programme.*

The report by the King's Fund Health Quality Service, following a management audit of the MAP, which was carried out on 18 December 1998.

<http://www.mod.uk/issues/gulfwar/map/audit.htm>

*The MOD's Response to the recommendations arising from the audit undertaken by the King's Fund Health Quality Service. December 1999*

The Ministry of Defence's detailed response to the KFHQS' 1998 audit of the Gulf Veterans Medical Assessment Programme.

[http://www.mod.uk/linked\\_files/auditresponse.pdf](http://www.mod.uk/linked_files/auditresponse.pdf)

*British Chemical Warfare Defence During the Gulf Conflict. December 1999*

A background paper detailing how Chemical Warfare Defence was organised in the UK at the time of the Gulf War.

<http://www.mod.uk/issues/gulfwar/info/medical/ukchemical.htm>

*Review of Events concerning 32 Field Hospital and the Release of Nerve Agent Arising from US Demolition of Iraqi Munitions at the Khamisiyah Depot in March 1991. December 1999*

A review of the possible effects on UK units, in particular 32 Field Hospital, of possible exposure to very low levels of nerve agent which may have been released as a result of US demolition activity at the Khamisiyah depot in Iraq.

<http://www.mod.uk/issues/gulfwar/info/medical/khamisiyah.htm>.

*Current Activity Relating to Gulf Veterans' Illnesses. 8 December 1999*

This Memorandum was prepared for the House of Commons Defence Select Committee before Gulf veterans gave evidence before them in December 1999.

<http://www.mod.uk/issues/gulfwar/policy/hcdcmemo.htm>.

[Presented in a separate folder to 1999]

DH Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment report on Organophosphates

This report of the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment considers whether single, prolonged or repeated exposure to low doses of organophosphate compounds (OPs) can cause long-term adverse health effects.

[http://archive.food.gov.uk/dept\\_health/archive/cot/op.htm](http://archive.food.gov.uk/dept_health/archive/cot/op.htm).

**2000:**

*Implementation of the Immunisation Programme against Biological Warfare Agents for UK Forces During the Gulf Conflict 1990/91. January 2000*

A detailed overview of the UK's anti-biological warfare immunisation programme during the Gulf Conflict 1990/91.

<http://www.mod.uk/issues/gulfwar/info/medical/bwa.htm>.

*A Review of the Suggested Exposure of UK Forces to Chemical Warfare Agents in Al Jubayl During the Gulf Conflict. January 2000*

A review of the events in Al Jubayl on 19 January 1991 during the Gulf Conflict, where veterans have suggested that they were exposed to chemical warfare agents.

<http://www.mod.uk/issues/gulfwar/info/medical/jubayl.htm>.

*MOD critique of the RAND report on Pyridostigmine Bromide. April 2000*

*This is an appraisal of the US RAND report entitled "A Review of the Scientific Literature as it Pertains to Gulf War Illnesses, Volume II: Pyridostigmine Bromide"*

<http://www.mod.uk/issues/gulfwar/info/medical/rand.htm>.

British Medical Journal Editorial: Shots in the desert and Gulf War Syndrome. May 2000

The British Medical Journal's editorial on the findings of King's 'vaccination' paper.

<http://bmj.bmjournals.com/cgi/content/full/320/7246/1351>.

Role of vaccinations as risk factors for ill health in veterans of the Gulf war: cross sectional study. May 2000

A paper from the King's College Gulf War Illness Research Unit published in the BMJ. Funded by the US Department of Defense.

<http://bmj.bmjournals.com/cgi/content/short/320/7246/1363>.

*A Review of the Activities of the 1 Field Laboratory Unit and Suggested Biological Warfare Agent Detections during Operation Granby. May 2000*

A review of events during the Gulf conflict where veterans have suggested they were exposed to biological warfare agents.

<http://www.mod.uk/issues/gulfwar/info/medical/bwpaper.htm>.

Mortality among UK Gulf War veterans. July 2000

A paper by researchers from the University of Manchester published in the Lancet.

*A Review of UK Forces Chemical Warfare Agent Alerts during the 1990/1991 Gulf Conflict. July 2000*

A review of UK forces chemical warfare agent alerts from September 1990 to March 1991.

<http://www.mod.uk/issues/gulfwar/info/medical/chemical.htm>.

*Government's Response to the House of Commons Defence Select Committee's Seventh Report Session 1999-2000 Gulf Veterans' Illnesses. July/August 2000*

On 11 May 2000, the House of Commons Defence Select Committee published a report on Gulf Veterans' Illnesses. On 3 August 2000, the committee published the Government's response.

[http://www.mod.uk/issues/gulfwar/policy/gen\\_reports/hcdc7report.htm](http://www.mod.uk/issues/gulfwar/policy/gen_reports/hcdc7report.htm).

*Gulf Update. December 2000*

The first edition of the MOD's Newsletter for Gulf veterans.

[http://www.mod.uk/issues/gulfwar/gulf\\_update.htm](http://www.mod.uk/issues/gulfwar/gulf_update.htm).

## **2001:**

*Gulf Veterans' Illnesses: Information Pack. January 2001*

Briefing pack is intended to provide GPs, and other health professionals, with information which they may find useful in dealing with Gulf veterans' health concerns. [A new edition is in preparation.]

<http://www.mod.uk/issues/gulfwar/map/infopack.htm>.

Background paper to release of historical documents- Documents Explaining the Ministry of Defence Position on the Risks and Health Hazards [Depleted Uranium]. January 2001

[http://www.mod.uk/issues/depleted\\_uranium/documentation\\_html.htm](http://www.mod.uk/issues/depleted_uranium/documentation_html.htm).

Biological Consequences of Multiple Vaccine and Pyridostigmine Pretreatment in the Guinea Pig. January 2001

A detailed paper on the work done to determine the appropriate vaccine doses for use in the subsequent phases of the Vaccines Interactions Research Programme. Published in the *Journal of Applied Toxicology*.

Investigation of the effects of multiple vaccine and pyridostigmine administration in a non-human primate model. January 2001

Poster/Abstract presented at the Conference on Illnesses among Gulf War Veterans: A decade of scientific research in Washington DC in January 2001 reporting the results of the first two phases of the marmoset study, which found that the dose and panel of vaccines used in the guinea pig study did not give rise to acute health consequences.

<http://www.mod.uk/issues/gulfwar/research/interact/vaccine.htm>

The Proposed Introduction of a Voluntary Screening Programme Following Health Concerns in Respect of Depleted Uranium. February 2001

[http://www.mod.uk/linked\\_files/du\\_screen.pdf](http://www.mod.uk/linked_files/du_screen.pdf)

Responses [http://www.mod.uk/linked\\_files/du\\_responses.pdf](http://www.mod.uk/linked_files/du_responses.pdf)

Safety guidance on Depleted Uranium. March 2001

[http://www.mod.uk/linked\\_files/gulf\\_du\\_safety\\_guidance.pdf](http://www.mod.uk/linked_files/gulf_du_safety_guidance.pdf)

*Current Activity Relating to Gulf Veterans' Illnesses. April 2001*

This Memorandum was prepared for the House of Commons Defence Select Committee before the Parliamentary Under Secretary of State for Defence and Minister for Veterans' Affairs, Dr Lewis Moonie, gave evidence before them in May 2001. It was published on the day before the hearing.

<http://www.mod.uk/issues/gulfwar/policy/hcdcmemo3.htm>

Second Public Consultation paper on introduction of a retrospective screening programme for Depleted Uranium (with summary of responses). April 2001

[http://www.mod.uk/linked\\_files/dsef/du\\_consultation2.pdf](http://www.mod.uk/linked_files/dsef/du_consultation2.pdf)

Responses [http://www.mod.uk/issues/depleted\\_uranium/responses.htm](http://www.mod.uk/issues/depleted_uranium/responses.htm)

Occupational and Environmental Medicine Editorial: New challenges facing ill health in Gulf war veterans. May 2001

Editorial on the findings of University of Manchester's 'Health & Exposure' papers.

<http://oem.bmjournals.com/cgi/content/full/58/5/289>

Health and Exposures of United Kingdom Gulf war veterans.

Pt. 1 The Pattern and extent of ill health.

Pt 2 The relation of health to exposure. May 2001

Two papers from the University of Manchester published in *Occupational and Environmental Medicine*.

[http://oem.bmjournals.com/cgi/content/abstract/58/5/291?ijkey=95d48950b46b3d76843eb4515ed081cd8f7228b7&keytype2=tf\\_ipsecsha](http://oem.bmjournals.com/cgi/content/abstract/58/5/291?ijkey=95d48950b46b3d76843eb4515ed081cd8f7228b7&keytype2=tf_ipsecsha)

*Detection of Potential Squalene in Various Vaccines. June 2001*

The results of an analysis, by an independent laboratory, of the vaccines used in the Gulf conflict for the presence of squalene.

[http://www.mod.uk/linked\\_files/gviu/squalene.pdf](http://www.mod.uk/linked_files/gviu/squalene.pdf)

Clinical findings for the second 1000 Gulf veterans in the Ministry of Defence's medical assessment programme. July 2001.

The details of the review of diagnoses made in the second 1000 Gulf veterans seen at the Ministry of Defence's Gulf Veterans' Medical Assessment Programme.  
<http://www.mod.uk/issues/gulfwar/info/pesticides/clinical.htm>

*Gulf Update. August 2001*

The second edition of the MOD's Newsletter for Gulf veterans.  
[http://www.mod.uk/issues/gulfwar/gulf\\_update.htm](http://www.mod.uk/issues/gulfwar/gulf_update.htm)

Case Narrative: Kuwaiti Girls' School. September 2001

Final version of the joint UK/US investigation into the alleged discovery of chemical warfare agent at the Sabahiyah Girls' School, Kuwait, after the Gulf conflict.  
[http://www.gulfink.osd.mil/kuwaiti\\_final/](http://www.gulfink.osd.mil/kuwaiti_final/)

*Gulf Update. December 2001*

The third edition of the MOD's Newsletter for Gulf veterans.  
[http://www.mod.uk/issues/gulfwar/gulf\\_update.htm](http://www.mod.uk/issues/gulfwar/gulf_update.htm)

**2002:**

Post traumatic stress disorder following military combat or peace keeping. February 2002.

Letter published in the *British Medical Journal*.

<http://bmj.bmjournals.com/cgi/content/full/324/7333/340>

Post combat syndromes from the Boer War to the Gulf War: a cluster analysis of their nature and attribution. February 2002

Results of work carried out at Guy's, King's and St Thomas' School of Medicine and the US medical research institute. The MOD co-operated with the research team by providing access to anonymised medical data relating to UK Gulf veterans held at the Medical Assessment Programme.

<http://bmj.bmjournals.com/cgi/content/full/324/7333/321>

Proposal for a Research Programme on Depleted Uranium. March 2002

[http://www.mod.uk/issues/depleted\\_uranium/du\\_research.htm](http://www.mod.uk/issues/depleted_uranium/du_research.htm)

The Biological Consequences of Exposure to a combination of Anthrax and Pertussis Vaccine Preparations in Mice. September 2002

The specific combination of anthrax and pertussis vaccines and Pyridostigmine Bromide was investigated as part of the Vaccines Interactions Research Programme by the National Institute for Biological Standards and Control. This outline of the findings of the first phase of this work was presented at the "Conference on Dangerous Pathogens".

[http://www.mod.uk/issues/gulfwar/research/anthrax\\_pertussis.htm](http://www.mod.uk/issues/gulfwar/research/anthrax_pertussis.htm)

Gulf Veterans and Blood Donation. September/October 2002

Correspondence between MOD and the National Blood Service clarifying NBS position on blood donations from veterans of the 1990/1991 Gulf Conflict.

<http://www.mod.uk/issues/gulfwar/Blood.htm>

Health status and clinical diagnosis of 3000 UK Gulf War veterans. October 2002

The details of the review of diagnoses made for the first 3000 veterans of the Gulf conflict 1990-91 seen at the Gulf Veterans' Medical Assessment Programme, published in the *Journal of the Royal Society of Medicine*.

<http://www.jrsm.org/cgi/content/abstract/95/10/491>

Gulf Update. (Latest) November 2002

A newsletter distributed to those with a known interest in 1990/1991 Gulf Veterans Illnesses.

[http://www.mod.uk/issues/gulfwar/gulf\\_update.htm](http://www.mod.uk/issues/gulfwar/gulf_update.htm)

Neurophysiologic analysis of neuromuscular symptoms in UK Gulf War veterans (& Editorial). November 2002

Study examining if reported neurophysiological symptoms in UK Gulf veterans correspond with objective evidence of neuromuscular dysfunction.

Part 1 Published in *Neurology*.

<http://www.neurology.org/cgi/content/abstract/59/10/1518>

Part 2 findings submitted for peer review.

The Gulf Veterans' Medical Assessment Programme Factsheet. December 2002

Answers to some frequently asked questions about the MAP.

<http://www.mod.uk/issues/gulfwar/map/mapfaq.htm>

### 2003:

MOD's policy for Biological Monitoring for Depleted Uranium on Operations. January 2003

[http://www.mod.uk/issues/depleted\\_uranium/du\\_biomonitoring.htm](http://www.mod.uk/issues/depleted_uranium/du_biomonitoring.htm)

The study of reproductive outcome and the health of offspring of UK veterans of the Gulf war: methods and description of the study population. January 2003

Paper reporting the survey methods of researchers from the London School of Hygiene and Tropical Medicine studying the reproductive health of Gulf veterans. Published in the on-line journal *BioMed Central*.

<http://www.biomedcentral.com/1471-2458/3/4>

Depleted Uranium safety instructions (Op TELIC). February 2003

[http://www.mod.uk/issues/depleted\\_uranium/gulf\\_safety\\_instructions.htm](http://www.mod.uk/issues/depleted_uranium/gulf_safety_instructions.htm)

Abstract & Poster presented at the British Toxicological Society's annual conference in Edinburgh, reporting preliminary results from core study of the Vaccines Interactions Research Programme.

These preliminary results provide data on behaviour, sleep, EEG, body weight, cholinesterase inhibition and muscle function and indicate no apparent adverse health consequences 3 months following the administration of vaccine and/or PB.

[http://www.mod.uk/issues/gulfwar/research/interactions/apr\\_2003.htm](http://www.mod.uk/issues/gulfwar/research/interactions/apr_2003.htm)

Abstract & Poster presented at the 3<sup>rd</sup> international meeting of the Edward Jenner Institute on 13 April 2003, reporting further preliminary results from core study of the Vaccines Interactions Research Programme.



These further preliminary results report preliminary immunology data for the first three months post vaccination, and indicate no apparent adverse health consequences 3 months following the administration of vaccine and/or PB.

[http://www.mod.uk/issues/gulfwar/research/Immunological\\_Poster.htm](http://www.mod.uk/issues/gulfwar/research/Immunological_Poster.htm)

Psychiatric disorder in veterans of the Persian Gulf War of 1991. May 2003  
Systematic literature review of studies examining psychiatric disorders in Gulf veterans. Published in the *British Journal of Psychiatry*.

<http://bjp.rcpsych.org/cgi/content/full/182/5/391>

Medical Research Council Review of Research into UK Gulf Veterans' Illnesses. May 2003

[http://www.mod.uk/linked\\_files/gviu/MHRAG8.05.03.pdf](http://www.mod.uk/linked_files/gviu/MHRAG8.05.03.pdf)

Improving the Delivery of Cross Departmental Support and Services for Veterans. July 2003.

Cross Government funded report by Kings College London.

[http://www.mod.uk/publications/vets\\_svcs/index.html](http://www.mod.uk/publications/vets_svcs/index.html)

Operations in Iraq: First Reflections. July 2003

[http://www.mod.uk/publications/iraq\\_lessons/](http://www.mod.uk/publications/iraq_lessons/)

Anthrax Immunisation and Other Medical Countermeasures. October 2003  
Answer to a written Parliamentary Question from Lord Morris of Manchester about anthrax immunisations and other medical countermeasures intended to protect UK personnel during the 1990/1991 Gulf Conflict.

[http://www.publications.parliament.uk/pa/ld199900/ldhansrd/pdvn/lds03/text/31009w01.htm#31009w01\\_sbhd0](http://www.publications.parliament.uk/pa/ld199900/ldhansrd/pdvn/lds03/text/31009w01.htm#31009w01_sbhd0)

*Gulf war illness- better, worse, or just the same? A cohort study.* December 2003  
Paper from the King's College Gulf War Illness Research Unit published in the *British Medical Journal*. Funded by the US Department of Defense.

<http://bmj.bmjournals.com/cgi/content/full/327/7428/1370>

*Incidence of cancer among UK Gulf war veterans: cohort study.* December 2003  
Professor Gary Macfarlane of the University of Manchester's study of the incidence of cancers in Gulf veterans. Published in the *British Medical Journal*.

<http://bmj.bmjournals.com/cgi/content/full/327/7428/1373>

Operations in Iraq: Lessons for the Future. December 2003

[http://www.mod.uk/linked\\_files/publications/iraq/opsiniraq.pdf](http://www.mod.uk/linked_files/publications/iraq/opsiniraq.pdf)

## 2004:

Miscarriage, stillbirth and congenital malformation in the offspring of UK veterans of the first Gulf war. March 2004

Paper reporting reproductive outcomes from a study of the reproductive health of Gulf veterans by researchers from the London School of Hygiene and Tropical Medicine. Published in the *International Journal of Epidemiology*.

<http://ije.oupjournals.org/cgi/content/full/33/1/74>

Strategy for Veterans. (Latest version) April 2004  
<http://www.veteransagency.mod.uk/vasec/strategy.pdf>

Depleted Uranium Factsheets. (Latest version) May 2004  
DU - The Facts [http://www.mod.uk/issues/depleted\\_uranium/facts.htm](http://www.mod.uk/issues/depleted_uranium/facts.htm)  
DU - The Misconceptions  
[http://www.mod.uk/issues/depleted\\_uranium/misconceptions.htm](http://www.mod.uk/issues/depleted_uranium/misconceptions.htm)  
DU - Middle East 2003 (Op Telic)  
[http://www.mod.uk/issues/depleted\\_uranium/middle\\_east\\_2003.htm](http://www.mod.uk/issues/depleted_uranium/middle_east_2003.htm)

Self-reported ill health in male UK Gulf War veterans: a retrospective cohort study.  
July 2004  
Paper by a member of the team from the London School of Hygiene and Tropical Medicine reporting on general health as reported within their study of the reproductive health of Gulf veterans. Published in the online journal *BioMed Central*.  
<http://www.biomedcentral.com/content/pdf/1471-2458-4-27.pdf>

UK Gulf Veterans' Mortality figures. July 2004  
Figures are published every six months showing the mortality of UK Gulf veterans in comparison to an era group.  
<http://www.dasa.mod.uk/natstats/gulf/intro.html>

Infertility among male UK veterans of the 1990-1 Gulf war: reproductive cohort study.  
July 2004  
Paper reporting on male fertility from a study of the reproductive health of Gulf veterans by researchers from the London School of Hygiene and Tropical Medicine. Published in the *British Medical Journal Online First*  
<http://bmj.bmjournals.com/cgi/reprint/bmj.38163.620972.AEv1>

Friendly Fire: The construction of Gulf War Syndrome narratives. July/August 2004  
Paper reporting the early findings of a study by Ms S Kilshaw (which was jointly funded by MOD and the Economic & Social Research Council) looking at the social construction of "Gulf War Syndrome". Published in the August edition of *Anthropology & Medicine*.

## VETERANS AGENCY PUBLICATIONS & LEAFLETS

<http://www.veteransagency.mod.uk/homepages/guide.htm>

### Publicity Material

Are you ex-Service or a family member ? Do you need help?

### Leaflets

- Guidance In Bereavement - Help and Guidance for families of Servicemen or women who die whilst in Service

- Customer Notification - Information for Veterans
- Leaflet 1 (Notes About The War Disablement Pension and War Widow's Pension)
- Leaflet 2 (Notes for People Getting a War Pension Living in the United Kingdom)
- Leaflet 3 (Notes for People Getting a War Pension Living Overseas)
- Leaflet 4 (Notes for People Not Getting a War Pension Living in the United Kingdom)
- Leaflet 5 (Notes for People Not Getting a War Pension Living Overseas)
- Leaflet 6 (Notes for War Pensioners & War Widows Going Abroad)
- Leaflet 7 (Notes for Ex-Far East and Korean Prisoners of War)
- Leaflet 9 (Rates of War Pensions and Allowances 2003 - 2004)
- Leaflet 10 (Notes About War Pension Claims for Deafness)
- Leaflet 11 (How We Decide Who Receives a War Disablement Pension)
- Leaflet 12 (Notes for guidance for those wishing to claim an ex -gratia payment)
- Leaflet 13 (Complaints leaflet, If you are not happy, tell us what is wrong)
- Leaflet 14 (Direct Payment. The new way to pick up your war pension and war widow(er)s pension)
- War Pensioners' Welfare Service - Serving Those Who Served
- Notes for Appeals
- Notes for Gulf Veterans
- Service Charter
- Tri-Service Guide for Service Widows

## ANNEX E

### PUBLIC INQUIRY CORRESPONDENCE

#### LETTER FROM VETERANS AGENCY TO NGVFA

21 May 2004

#### *Gulf Conflict 1-1990/91*

By the end of April 2004 the Gulf War database held within the Business Intelligence Team told us that:

#### DISABLEMENT

- 6,086 Gulf Veterans have made a claim for War Pensions, of which, 1,573 specified that their condition/s were related to "Gulf War Illness".
- 5,585 veterans have had a disablement award made for recognised conditions. 1,388 of which are for those who had specified that their claimed condition/s were related to "Gulf War Illness"; 1 award has now been made under the specific title "Gulf War Illness".

#### WIDOWS

- 58 widows of Gulf veterans have made a claim to War Pension.
- 40 have been awarded a Widows Pension.
- 17 have had their claim rejected.

#### CHILD/ORPHAN

- 2 claims have been made for child only pensions.
- 2 awards have been made for child only pensions.

#### APPEALS

- 1,206 disablement & 3 widow appeals have been lodged.
- 340 disablement & 2 widow appeals have been successful at the Tribunal, 419 disablement & 1 widow appeals have been unsuccessful at the Tribunal.
- VA has cleared 144 appeals before reaching the Tribunal.

#### LETTER FROM LORD LLOYD TO THE SECRETARY OF STATE OF DEFENCE

29 JUNE 2004

You may have seen in the press that Lord Morris of Manchester has asked me to chair a public inquiry into the circumstances surrounding the claim by many veterans that they have suffered injury as a result of their service in the first Gulf War.

Dr Norman Jones and Sir Michael Davies have kindly agreed to help. We shall be sitting together during the inquiry.

I very much hope that the Department will be able to assist. I know, of course, that the Departmental view is that the time is not yet ripe for an inquiry, although such an inquiry has not been ruled out. We shall need to know the reasons for this, and to consider any other matters which you may wish to put before us.

I shall be opening the inquiry at 10.15am on Tuesday 6<sup>th</sup> July at No 1 Abbey Gardens with a brief statement about the purpose of the inquiry, and how we intend to proceed. This will be followed by a further short statement setting out the historical background. This is intended to be factual. The inquiry will then adjourn.

The present plan (which may change) is that we will hear evidence from the veterans themselves and their representatives on Monday 12<sup>th</sup> and Monday 19<sup>th</sup> July. We have set aside the week commencing 26<sup>th</sup> July for hearing expert evidence, including any expert evidence which you may wish to call.

In addition we have earmarked Wednesday 21<sup>st</sup> July before we get to the experts, for any evidence and submissions of a more general nature. It would be of the greatest help if you could arrange for someone from the Department to be available on that day to tell us what the Department's position has been, and is; and to inform us of any further facts of which we ought to be aware. I do hope that this will not be inconvenient.

## LETTER FROM IVOR CAPLIN MP (MINISTER FOR VETERANS) TO LORD LLOYD

12 July 2004

Thank you for your letter of 29 June to Geoff Hoon and your subsequent letter to John Reid concerning your investigation into the illnesses suffered by some veterans of the 1990/1991 Gulf Conflict. I am replying as this matter falls within my area of responsibility.

The Government has carefully considered the merits of an official inquiry and, while we have not ruled out such an inquiry, for the present, we remain of the view that the only way we are likely to establish the causes of ill health in some Gulf veterans is through scientific and medical research.

In your letter you ask for a departmental representative to attend your investigation on 21 July. I have carefully considered your request, however I do not consider it appropriate for any Government Minister, serving official or serving member of the armed forces to attend. If, however, there are individuals no longer in office, who you believe may be able to provide relevant information, then it would be entirely a matter for you if you wished to invite them to attend.

The Ministry of Defence is, nevertheless, committed to openness and we are determined that veterans should have access to whatever information we possess which might be relevant to their illnesses. A great deal of information has been made available already, both on the website ([www.mod.uk/issues/gulfwar](http://www.mod.uk/issues/gulfwar)) and in hard copy. I therefore intend to provide you by the end of July a pack of all appropriate documents, which I commend to you as necessary background to arriving at some understanding of the complex issues involved.

If you wish to have any further information from any Government department or agency, I should be grateful if you would direct your request to my office in the first instance.

## **LETTER FROM MALCOLM LINGWOOD, DIRECTOR, VETERANS POLICY UNIT MINISTRY OF DEFENCE, TO COLLEAGUES**

14 July 2004

### **GULF VETERANS' ILLNESS – LORD LLOYD INVESTIGATION**

You may be aware of the unofficial investigation that Lord Morris of Manchester has set up under the chairmanship of Lord Lloyd of Berwick to look at illnesses suffered by veterans of the 1990/1991 Gulf conflict. I am writing to you, as someone who has been involved in the independent programme of research that we have sponsored, to let you know our position on the investigation.

The Government has carefully considered the merits of an official inquiry and, while they have not ruled out such an inquiry, for the present, the view is that the only way we are likely to establish the causes of ill health in some Gulf veterans is through scientific and medical research.

It is therefore not considered appropriate for any Government Minister, serving official or serving member of the Armed Forces to attend Lord Lloyd's investigation. The Ministry of Defence is, nevertheless, committed to openness and we are determined that veterans should have access to whatever information we possess which might be relevant to their illnesses. We therefore intend to provide a pack of all appropriate documents to Lord Lloyd.

It would be inappropriate for the Ministry to try to influence your own approach to the investigation. However, I do ask you to observe the confidentiality attached to any pre-publication findings of research sponsored by the Ministry of Defence. We have no wish to withhold completed research, but I am sure you will understand that we would not want to jeopardise the scientific credibility of work still in hand by presenting material before proper peer-review.

*The above letter was sent to the following people:*

#### **RESEARCHERS:**

PROFESSOR MACFARLANE - MANCHESTER  
DR P DOYLE – LSHTM  
PROFESSOR G LEWIS – BRISTOL

#### **COPY TO:**

GAVIN MALLOCH – MRC  
DR LESLEY RUSHTON – LEICESTER  
PROFESSOR C DANDEKER – KING'S

PROFESSOR S WESSELY – KING'S  
MS S KILSHAW – UCL  
DR M CORBEL – NIBSC

**IND. PANEL ON VACCINES INTERACTIONS:**

PROFESSOR DONALD DAVIES  
PROFESSOR J E BANATVALA  
PROFESSOR PETER BEVERLEY  
DR JONATHAN BIRD  
PROFESSOR ART BOYLSTON  
DR PETER FAWCETT  
PROFESSOR IAN GILLMORE  
PROFESSOR ASHLEY GROSSMAN  
PROFESSOR MALCOLM HOOPER  
PROFESSOR IAN KIMBER  
DR CHRISTOPHER MARTYN  
DR ELIZABETH MILLER  
PROFESSOR DAVID RAY  
DR GEOFFREY SCHILD  
PROFESSOR ALAN SILMAN  
PROFESSOR E MICHAEL SEDGWICK  
PROFESSOR STAFFORD LIGHTMAN

**COPY TO:**

NEAL SMITH  
LEAH SCOTT

**DEPLETED URANIUM OVERSIGHT BOARD:**

PROFESSOR DAVID COGGON  
DR L LEVY  
DR GIDEON HENDERSON  
DR MARGARET SPITTLE  
DR J GORDON PATERSON  
PROFESSOR BRIAN G SPRATT, FRS  
MAJOR GENERAL (RTD) RP CRAIG OST  
(QHS) MD FRCS FFAEM  
PROFESSOR IAN GILMORE  
PROFESSOR M HOOPER  
DR CHRIS BUSBY  
DR IVOR CONNOLLY  
DR DEREK HALL  
DR J A MUIR GRAY CBE DSC  
DR GEORGE ETHERINGTON

**COPY TO:**

DR DAVID LEWIS  
SURG CDRE N E BALDOCK, QHP RN  
MR RON BROWN  
AIR CDRE S DOUGHERTY, RAF  
ANDREW COLVIN

**OP TELIC HEALTH REVIEW BOARD:**

PROFESSOR ALAN SILMAN  
PROFESSOR DAVID COGGON  
PROFESSOR PETER JONES  
PROFESSOR ROLAND LITTLEWOOD  
DR ROBERT WILCOX  
COL (RTD) T ENGLISH  
BRIG (RTD) ROBIN GARNETT

**COPY TO:**

SURG CAPT STUART ALLISON, RN  
NEAL SMITH  
NICK BLATCHLEY  
ANDREW COLVIN

## LETTER FROM MISS PAULA KNIGHTON OF THE VETERANS AGENCY TO TOM HOUSE, ROYAL BRITISH LEGION

15 July 2004

Thank you for your request for information regarding the first Gulf Conflict 1990/91. Please find below some information which should answer your queries.

Question 1.

- ❖ By the end of May 2004 we held a total of **6,184** claimants of which **6,126** are ex Gulf War Personnel and **58** Widows who have made a claim to Pension.

Question 2

- ❖ To date **272** ex Gulf Personnel have had their claim rejected. (In addition there have been **17** Widows rejected).

Question 3

- ❖ There have been a total of **5,619** ex Gulf Personnel have had an Award. (In addition there have been **41** Widows Awarded).

Question 4 – 5.

- ❖ As at 31<sup>st</sup> March 2004 (latest information available) there were **2,690** Disablement Pensioners in receipt of an ongoing pension, also there have been **575** Nil Awards and **2,240** had a Gratuity awarded. In addition there are **40** Widows in receipt of a war widows pension.

Please accept my apologies for the delay in replying and I hope this information answer all your queries.

## LETTER FROM LORD LLOYD TO IVOR CAPLIN MP

15 July 2004

I am grateful for your letter of 12 July, and for your offer to make all relevant documents available. We look forward to receiving them by the end of the month. I agree with you that they will provide the necessary background for the Inquiry.

If having read the documents, and heard more of the evidence from veterans and experts, we find that there are specific questions to which we need to know the answer, perhaps I could come back to you.



## LETTER FROM IVOR CAPLIN MP TO LORD LLOYD

27 July 2004

In my letter of 12 July I promised to let you have a pack of relevant documents to help inform your investigation into Gulf veterans' illnesses. I am now in a position to let you have this information which is provided in chronological order in separate folders for ease of reference. There are some key documents which I would like to draw to your attention:

- **Organophosphate Pesticide Investigation Team (OPPIT), Substantive Report, dated December 1996.**

The use of pesticides during the 1990/1991 Gulf conflict was described in the OPPIT report. This report found that in the main, Organophosphate (OP) pesticides were used properly by personnel who had been trained in the safe use of such products. Although the effects of acute exposure to OPs are well understood and undisputed, no such incidents occurred during the deployment of UK troops to the Gulf.

- **Gulf Veterans' Illnesses: A New Beginning, dated July 1997.**

This is this Government's original policy statement setting out how we proposed to address veterans' health concerns, including twenty key points on which this Government is taking specific action.

- **Background to the use of Medical Countermeasures to protect British Forces during the Gulf War (Operation Granby), dated October 1997.**

This paper describes the background to the use of medical countermeasures not only in terms of the scientific issues involved, but also of procurement and other matters which have been raised by Gulf veterans.

- **Implementation of the Immunisation Programme against Biological Warfare Agents for UK Forces during the Gulf Conflict 1990/91, dated January 2000.**

This report describes how the MOD went about the programme of Immunisation and confirms that no unusual or previously undisclosed immunisations were given during the Gulf conflict. It also demystifies the codewords which were sometimes used for the vaccines.

- **Mortality among UK Gulf War veterans, Lancet: 356; 17 – 21, dated 1 July 2000**

The Medical Research Council (MRC) provides independent advice on our Gulf Veterans' Illnesses research programme. In December 1996, the MOD announced that on the advice of the MRC it had agreed to fund an independent

epidemiological study of UK Gulf veterans' mortality to be carried out by researchers at the University of Manchester. The results of this research were published on 1 July 2000 in the Lancet. (Mortality among UK Gulf War veterans, Lancet; 356:17 – 21). This was the first occasion on which independent peer reviewed data comparing the mortality of UK Gulf veterans to an Era control group of Service personnel randomly selected to match the Gulf cohort for age, sex, Service, Regular/Reservist, office/rank, who did not deploy to the Gulf were published. We continue to publish six monthly updates and these have been included in the pack. The latest statistics published on this on 14 July show:

- There were 663 deaths among Gulf veterans up to 30 June 2004 compared to 675 in the Era comparison group; and
  - Approximately 1,032 deaths would have been expected in a similar sized group taken from the general population of the UK with the same age and gender profile.
- **Medical Research Council Review of Research into UK Gulf veterans' illnesses, dated May 2003**

MOD asked the MRC to undertake an independent scientific review of all the UK research work that has been carried out into Gulf veterans' illnesses following the 1990/1991 Conflict in an international context and to advise whether there are any areas appropriate for future research. The MRC published their report in May 2003 and we are working with the MRC to take forward their proposals.

In putting these papers into context, I stress that I fully accept, as does the Government, that some Gulf veterans are ill and that, sadly, some have died. The issue is whether this ill health and mortality is unusual or related to service in the Gulf. So far as mortality is concerned, monitoring against a similar comparison group has proven that it is not. What is less clear is the reason for some veterans' ill health. Research has shown that, as a group, Gulf veterans report more ill health than other comparable groups. Some Gulf veterans have recognised medical conditions, but a large number of non-specific, multi-system, medically unexplained symptoms have also been reported. I can assure you that, as Minister for Veterans, I want as much as anyone else to know the reason for this.

I should also record that our research programme has been described by the MRC as "... very highly regarded internationally". In addition to the research in place the MOD has a multi-track approach to Gulf veterans' health.

- We have studied and reported widely on various aspects of the 1990/1991 Gulf Conflict. Where appropriate, lessons have been learned and implemented.
- The Gulf Veterans Medical Assessment Programme was established in 1993 to help deal with the health concerns of individual veterans. It is open to all Servicemen and women, including those who have since left the UK armed forces and Ministry of Defence civilians, who served in the Gulf at any time between August 1990 and July 1991, or who believe that their health has suffered as a direct result of the Gulf conflict. As at 22 July 2004, some 3,235

Gulf veterans had been seen by the Programme. From those who responded to a questionnaire, 97% of patients overall were satisfied with the Programme.

Like all Service personnel, Gulf veterans are eligible for appropriate financial support for illnesses connected with Service. Veterans may be eligible for benefits under:

- The War Pensions Scheme, which is a no-fault compensation scheme for members of the Regular and Reserve Forces, disabled as a result of their service in the Armed Forces.
- The Armed Forces Pension Scheme (AFPS), which is an occupational pension scheme that pays benefits to members of the Regular Forces, including those recalled for duty, where the injury or condition is accepted as attributable to, or aggravated by, service. The benefits are enhanced according to the degree of disablement.
- The Reserved Forces (Attributable Benefits Etc) Regulations (RFAB), which provides members of the Reserve Forces with a minimum income guarantee in the event of disablement. The level of income guaranteed is equal to that provided for a Regular of the same rank and disablement. This scheme also provides a minimum income guarantee to the widow or widower if the death is considered due to service.
- The ex gratia scheme announced by the Government in May 2000 for members of the first Gulf conflict. Some Reservists who were not formally members of a Reserve Force (i.e. the ex-Regulars with a Long-Term Reserve commitment who were recalled for duty), would not be eligible to make a claim under the RFAB or AFPS. The Department, however, has examined claims from such individuals, and has made payments where they would otherwise be treated differently from other Reserves, solely because of their status.

All of this is in addition to the normal social security benefits veterans may be eligible for as well as the support of the National Health Service.

Finally, I am sure you will agree that it is incumbent on all those who are close to health issues and have some knowledge of them to consider very carefully the language they use when making public comment. The health of Gulf veterans is an issue which has been the subject of some unfortunate claims and reports. This can cause unnecessary anxiety among Service personnel, veterans, their families and friends, possibly threatening the wellbeing of the people the comments are intended to help. I hope that you will do all you can to avoid such problems emerging as a result of your investigations.

I trust this is of assistance.

## LETTER FROM LORD LLOYD TO IVOR CAPLIN MP

9 September 2004

In reply to your letter of 12 July I mentioned that there might be some specific questions to which we would need to know the answer. One such question has now arisen. I had hoped that it could be answered by The Veterans Agency without troubling you. But they say otherwise.

In their letter of 15 July to Mr House at the Royal British Legion they say that 2,690 veterans are in receipt of a Disablement Pension. If we are going to present a fair and complete picture we need to know how this figure is broken down, in other words, how many veterans are in receipt of a 100% disablement pension, how many 90% and so down to 20%. In their letter of 5 August 2004 they say that this information is not readily available. But I hope you will agree that this information may be provided, even if it involves some research. In my view it is important.

At the same time we would like to have a breakdown of the 2,240 gratuities that have been awarded so far. We assume that these are for those who are less than 20% disabled. How many of these gratuities are one-off? How many are continuing? And what is their level?

Inevitably the figures in answer to questions 3 and 4-5 do not quite add up. But this is a detail.

## LETTER FROM IVOR CAPLIN MP TO LORD LLOYD

22 September 2004

Thank you for your letter of 9 September requesting further information on figures previously supplied to you by the Veterans Agency (VA) on 15 July and 5 August 2004. Firstly I am surprised that you rang the Veterans Agency direct for this information. I made it absolutely clear in my letter of 12 July that **ALL** requests for any information should come to my office.

The VA does not routinely hold the level of information you have requested with regard to the percentage of Disablement Pension received by those veterans who have served in the Gulf and subsequently made a claim to the VA. The VA works in close partnership with the Defence Analytical Services Agency (DASA) who are responsible for providing this level of statistical and analytical data upon request. DASA have been asked to undertake an analysis of War Disablement claims and I can now confirm that of the 2,690 War Disablement Pensioners at 31 March 2004 in receipt of an on-going Pension having serviced in the Gulf

40 had a 100% pension  
20 had a 90% pension  
45 had a 80% pension  
90 had a 70% pension

175 had a 60% pension  
230 had a 50% pension  
470 had a 40% pension  
680 had a 30% pension  
890 had a 20% pension

You will note that there are 50 extraordinary award cases which are not reflected in these figures. This is because the details that you have requested are not readily identifiable from the computer system and could not be accurately identified without VA staff carrying out a physical examination of each of the relevant casepapers which I am sure you would agree would not be practicable.

You also asked for breakdown of the gratuities which have been awarded. It may help if I provide an explanation of when a gratuity is awarded. If disablement due to service is assessed at less than 20% a lump sum payment is normally made, which is referred to as a gratuity. The amount an individual receives is based on the level of disability they are assessed at and how long they are likely to be disabled. It is not possible to have a 'continuing gratuity'. However, if a gratuity is paid but there is a deterioration in disablement and the assessment is subsequently increased to 20% or more within six years (for example, after a successful review or appeal), the Agency will have to take part or all of the gratuity into account as an advance payment of the individuals pension.

Of the 2,235 gratuities awarded as at 31 March 2004:

305 were 15-19%  
1,300 were 6-14%  
630 were 1-5%

You will notice that the 2235 figure detailed in this response differs slightly from the figure of 2240 you have seen in correspondence between the VA and the Royal British Legion. These differences are a consequence of DASA's custom and practice of rounding all external outputs on war pensions.

You also mentioned in your letter that the figures supplied to Tom House in answer to question 3 and 4-5 do not quite add up. The data supplied at question 3 was based on data recorded for 31 May 2004 (this was the latest available). Questions 4-5 provided data recorded as at 31 March 2004 again the latest data available at the time of Mr House's request for information.

You may be aware that a number of people have asked me how your inquiry has been funded. I would not wish to mislead anyone, so can you please confirm the arrangements for the funding of this inquiry? I look forward to hearing from you on this matter.

I trust this clarifies the situation.

## LETTER FROM LORD LLOYD TO IVOR CAPLIN MP

26 September 2004

Thank you for giving me the information which I needed so promptly. With regard to the 2,235 gratuities, could you ask DASA to let me know how many are temporary and how many indeterminate with a breakdown under the three heads set out in your letter? I also forgot to ask how many of the 5,585 awards were made in respect of claims made within 7 years, and how many new claims and awards have been made in each of the four years since 2000?

As for the funding of the Inquiry, I explained the position at the Press conference on the 6 July. No doubt you can get a copy. If not, I said that we were being funded by an independent charitable trust, which wished to remain anonymous. Later I said he was somebody who had taken an interest in the affairs of ex-service people in the past, and saw this as a suitable object for his charitable trust. He had no vested interest in the result. I estimated the total cost at well under £100,000.

I hope this helps if you get any more enquiries.

## LETTER FROM LORD LLOYD TO IVOR CAPLIN MP

3 October 2004

I am sorry to trouble you again so soon. But could you ask DASA to let us know what is the total cost of paying War Pensions and Gratuities in the most recent year for which you have figures?

## LETTER FROM MR IVOR CAPLIN MP TO LORD LLOYD

14 October 2004

Thank you for your letter of 26 September in which you request further information on figures previously supplied in respect of claims to a war pension from Gulf ex-servicemen.

With regard to your first question about the 2,235 gratuities, this figure was provided from the DASA analysis and refers to the number of gratuities paid to war pensions with a Gulf flag included in the 100% extract as at 31 March 2004. Table 1 enclosed splits the 2,235 into percentages and award type as you requested. For completeness, Tables 2-3 show the other awards at 31 March, namely the Nil percentage awards and 20-100 per cent awards.

Your second question refers to the figure of 5,585 awards provided by the VA using the VA Gulf database. This figure represents the awards position for those with Gulf war service at the end of April 2004. The VA database does not hold service record information and therefore cannot provide the breakdown of awards made in respect of claims within seven years. However, DASA does hold service record information on war pensioners and, as a result of your request, they have been able to provide statistics relating to 7 year claims from those war pensioners with a Gulf flag included in the 100% extract as at the end of March 2004. This information is provided at Table 4 and you will notice that the total of 5,505 differs slightly from the end of April figures provided from the VA manual database. This is partly due to the use of different data sources at different points in time but also because the VA figures is a count of awards (i.e. an individual may have multiple awards resulting from first and subsequent claims) while the DASA figure is a count of people with an award.

Table 5 gives the number of first claims cleared and awards made to Gulf claimants over the past 4 financial years.

Finally, I must ask again whether you can confirm that the Charitable Trust you referred to is based in the UK and operates within our charity laws.

I look forward to hearing from you.

#### **LETTER FROM IVOR CAPLIN MP TO LORD LLOYD**

20 October 2004

Thank you for your letter dated 3 October requesting the total cost of paying War Pensions and Gratuities in the most recent year for which figures are available.

This information is included in the Ministry of Defence Annual Report and Accounts 2003-2004, a copy of which is available in the House of Commons library. For ease of reference I enclose the relevant extract.

#### **LETTER FROM LORD LLOYD TO IVOR CAPLIN MP**

24 October 2004

Our report is now in draft, and I am writing in the hope that you might be willing to reconsider your decision not to make an appearance at the Inquiry. You may have seen that Paul Tyler MP on 21<sup>st</sup> July said that your appearance would do more than anything to restore trust between the Veterans and the MOD. Many of the veterans have echoed the same point in their evidence. Paul Tyler asked me specifically to renew my invitation, which I now do. It seems to me that it could do no harm, and might do much good.

There are two other reasons. In the first place we would very much value your views on the recent announcement by the Research Advisory Committee in the US. Secondly we have a number of suggestions to make for the future which we would like to discuss with you, as we as some areas of criticism which you ought to have an opportunity to deal with.

#### LETTER FROM LORD LLOYD TO IVOR CAPLIN MP

27 October 2004

Thank you for your letter of 20 October, answering my letter of 3 October. I fear that I did not make my meaning clear. It was entirely my fault. What we need to know is the total cost of paying war pensions and gratuities to first Gulf War Veterans in the most recent year for which figures are available.

Secondly, we would like to know when S.S.I.D.C was first accepted as a medical condition, and how many awards have been paid under that head?

#### LETTER FROM IVOR CAPLIN MP TO LORD LLOYD

4 November 2004

Thank you for your letter of 24 October about appearing before your investigation into the illnesses suffered by some veterans of the 1990/1991 Gulf Conflict.

I have carefully considered your request but I do not feel that it would be appropriate for me to attend, as I do not agree that we need to restore trust between the Ministry of Defence and the vast majority of the 53,000 or so veterans deployed to the Gulf in 1990/1991. Our detailed policy paper on 'Gulf Veterans' Illnesses: A New Beginning', published in July 1997, set out how we propose to address veterans health concerns and our track record on delivery indicates a clear commitment to getting to understanding the causes of the health concerns of veterans. Indeed, as set out in the Medical Research Council's Scientific Review into UK Gulf Veterans' Illnesses published in 2003 we have accepted the recommendation that: "Research aimed at improving the long-term health of Gulf veterans with persistent symptoms should take priority". We are taking this forward with the Medical Research Council.

I cannot comment on the report produced by the US Research Advisory Committee as I understand that their report has not yet been published. I am aware, however, that there was a recent article in the *New York Times* that commented on the report's finding. I will be happy to consider the report further when it is published and I have had an opportunity to consider its contents.

The Ministry of Defence is today publishing a paper entitled *The 1990/91 Gulf Conflict: Health and Personnel Related Lessons Identified*. I thought you might find this document useful in helping you with your investigation and I am therefore enclosing three copies for your information. This of course supplements the large



body of papers published by the Ministry of Defence, which I sent you some months ago.

The paper focuses on health and personnel related issues resulting from the First Gulf Conflict with the key aim of learning from the problems identified. In drafting the paper we have attempted to be as open and forthright as possible in examining the health problems experienced by serving personnel and civilians since the first Gulf Conflict. The paper identifies what MOD has already done to improve procedures and assesses how these have been applied to OP TELIC. It also indicates where improvements are still required. The aim of this paper is therefore not to seek to attribute blame but to identify how the department can do better in future. It should be noted that this has also been the stated aim of organisations such as the Royal British Legion in their calls for an official inquiry into Gulf Veterans' Illnesses.

We believe that lessons have been learnt and this has meant that our procedures have improved significantly. I am sure you agree.

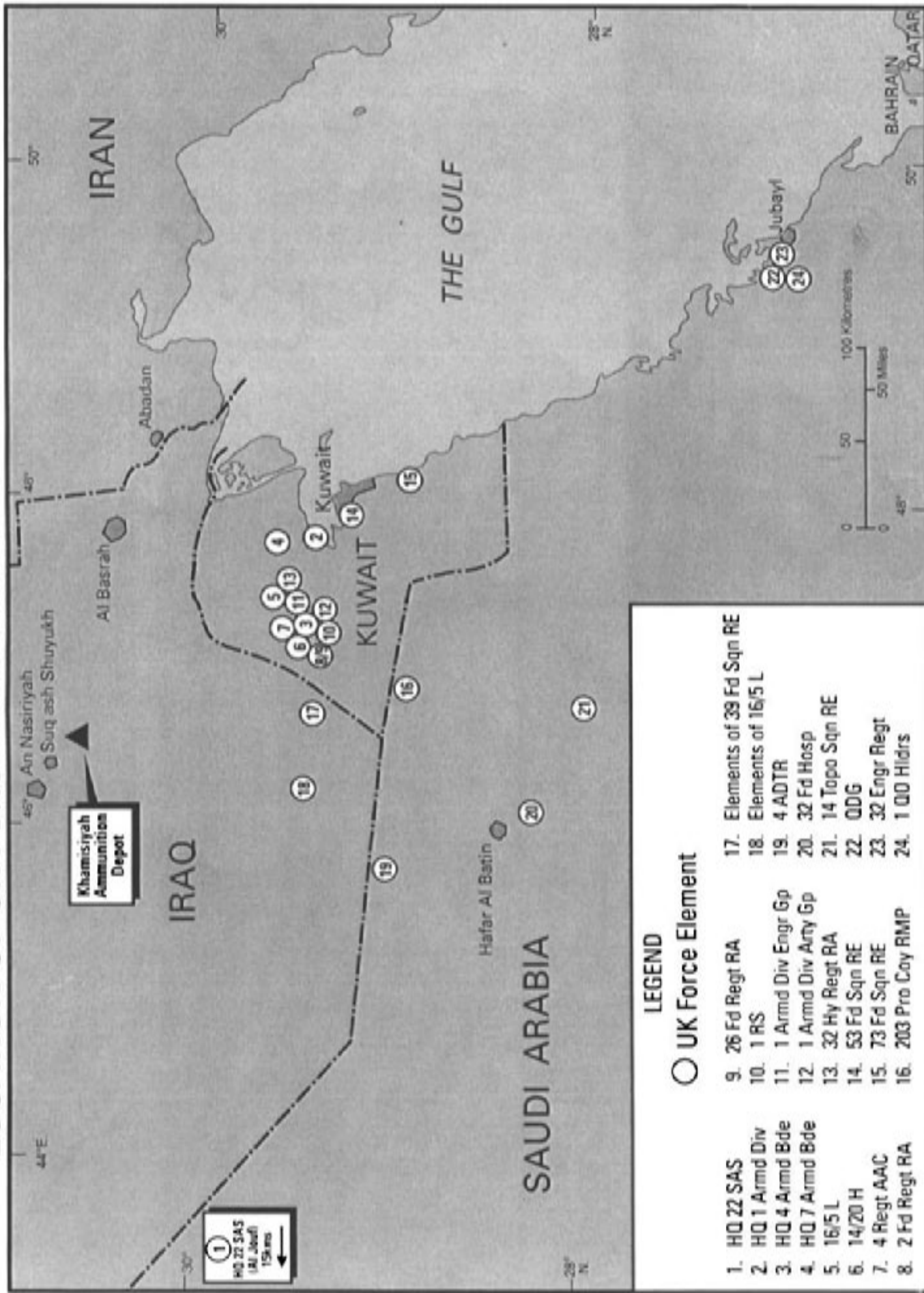
I regret to say that I do not appear to have received a reply to the question I posed in the final paragraph of my letter of 14 October. Could I ask you to respond on this point by return.

## GLOSSARY OF TERMS

AChe	Acetylcholinesterase
AFPS	The Armed Forces Pension Scheme
ALS	Anyotrophic Lateral Sclerosis or Lou Gehrig's Disease
AMJ	American Medical Journal
BMJ	British Medical Journal
BW	Biological Warfare
CBD	Chemical & Biological Defence
CBW	Chemical & Biological Weapons
CIA	Central Intelligence Agency
CW	Chemical Weapons
DASA	Defence Analytical Services Agency
DEET	N, Diethyl-M-Toluamide
DOD	Department of Defense
DSP	Distal Symmetric Polyneuropathy
DU	Depleted Uranium
DUOB	Depleted Uranium Oversight Board
GAO	Government Accountability Office
GKST	Guys, King's, St Thomas' School of Medicine
GP	General Practitioner
GWV	Gulf War Veterans
GWVA	Gulf War Veterans Association
LGC	Laboratory of the Government Chemist
LLNL	Lawrence Livermore National Laboratory
MAP	Medical Assessment Programme
MND	Motor Neurone Disease
MOD	Ministry of Defence
MP	Member of Parliament
MR	Magnetic Resonance
MRC	Medical Research Council
NAPS	Nerve Agent Pre-Treatment Sets
NGVFA	National Gulf Veterans & Families Association
OP	Organophosphates or Organophosphorus Insecticides
PB	Pyridostigmine Bromide
PQ	Parliamentary Question
PTSD	Post Traumatic Stress Disorder
QC	Queen's Counsel
RAF	Royal Air Force
RAMC	Royal Army Medical Corps
RAND	Research & Development
RBL	Royal British Legion
RFAB	Reserved Forces (Attributable

SCID	Benefits Etc) Regulations Structured Clinical Interview for DSM-IV
SPO	Service Pensions Order
SSIDC	Symptoms & Signs of Ill Defined Conditions
TA	Territorial Army
TIMS	Thermal Ionisation Mass Spectrometry
UK	United Kingdom (of Great Britain & Northern Ireland - Great Britain comprises England, Scotland & Wales)
UNSCOM	United Nations Special Commission
Ur	Uranium
US	United States of America
USAF	United States Air Force
VA	Veterans Agency

# LOCATION OF UK FORCES OPERATION GRANBY 4-10 MAR 91



Published by: The Lloyd Inquiry

Available from: Mr Vijay Mehan  
c/o Pattinson & Brewer Solicitors  
30 Great James Street  
London WC1N 3HA  
Tel: 020 7400 5117

The Website: [www.Lloyd-gwii.com](http://www.Lloyd-gwii.com)

Email: [info@Lloyd-gwii.com](mailto:info@Lloyd-gwii.com)

Printed by: Alpha Office  
The Birches Industrial Estate  
Imberhorne Lane  
East Grinstead  
RH19 1XL

£29.50 (inc VAT)