

Detailed points from PONI interviews

FUTURE WARHEADS AND RRW

Amendment of MDA to allow for exchange of RRW information

“we have recently taken steps to amend the MDA to allow – to amend it – not only to extend it but to amend it – to allow for a broader range of cooperations than in the past and this has to do with the RRW effort, ... there were some aspects, and I am trying to remember this, there were some aspects involving how we secure warheads against the possible unauthorised use that we have not been as cooperative in sharing ... we believe that RRW will take that level of technology to the next step and because that level of technology has not been explicitly stated as a cooperative area and is such an integral part of our RRW effort we will need to have the Brits involved in that if we are going to have them involved in RRW.

Q – Are we ?

Yes, Yes, I mean there is no secret that is held more closely than the types of things that we do to protect our warheads against unauthorised use. OK. So, we have special clearance categories for that. OK. And in order for the Brits to be – because these types of things are so inherent to the design of the RRW we will need to have, if we are to have meaningful cooperation with the Brits in RRW we will need to have cooperation in these sorts of technologies that we use to secure our systems against unauthorised use. “¹

President Bush issued a statement to Congress which said that the amendment “revises text, principally in the Security Annex, to be consistent with current policies and practices relating to personnel and physical security.”² However this annex was not made public and the link to RRW was concealed from Congress and the House of Commons.

UK programme for a new warhead

“They [UK] will need a Reliable Replacement Warhead of their own. In fact they are working on one. It has a different name. It’s got a different acronym. But they are working on the same kind of a thing for their W76 variant” - Frank Miller ³

“They will have to take a look, some time in the future, as to how do they maintain the nuclear weapon itself. We have commitments from the US to the UK, we have an obligation to share information and to help into the cognitive process of deciding what kind of nuclear deterrent do we need in the future, given the uncertainty of how the world situation could potentially change.”⁴

¹ PONI interview with John Harvey, Director, Policy Planning Unit, National Nuclear Security Administration; 40.30

² Message from President Bush to Congress 14 June 2004.

<http://www.basicint.org/nuclear/MDAamend.htm>

³ PONI interview with Franklin Miller KGB, Special Advisor to President George W Bush & Senior Director for Defense Policy and Arms Control. 10.02

⁴ Steven Henry 21.50

“And the Brits, we have to make this decision sometime in the next few years to move forward on this and the Brits have a little bit more space in which to make a decision on modernizing their warhead since their warhead is newer than ours. And so the Brits are going to be, over the next several years, watching us very closely as we explore this new path because it could have major implications for them. They are involved in our studies examining the Reliable Replacement Warhead approach and so if we move along that path they will have to make a decision about whether they want to move along that path and that will be very interesting and they have several years in which to make that decision in which we do and so their decision will lag ours but it will be informed by ours.”⁵

UK involvement in RRW

“They [UK scientists] are participants in the working groups .. in fact they are observers on some of the working activities that are chaired by the Navy for the Reliable Replacement Warhead” - John Harvey ⁶

Des Browne replied to a question on RRW on 19 November 2007 – “ there is no programme to develop a new UK nuclear warhead .. work currently being undertaken to inform decisions, likely to be taken in the next Parliament ... Some of this work is being undertaken with the United States ... and includes reference to the proposed US Reliable Replacement Warhead (RRW) .. The RRW remains a US-only programme.”⁷

US envy at way UK has pushed through modernisation

“What they did was they put money into that [AWE] on the grounds of the need to maintain the existing deterrent. They were very careful to separate that from decisions that had not yet been made, they were clearly thinking about them but they hadn't been made, to replace Trident and decisions that they have not yet made about whether or not there should be a new warhead. The British have a quite different political system in that Parliament is controlled by the Government of the day, that's how you get to be the Government of the day, and particularly since the British Conservative Party happens to be pro defence modernisation and nuclear weapons, there was never any serious question that a Labour revolt could cause them on this issue to have the Government fall. So they were able to move forward in a way that our system makes it harder here because the Congress is independent and it's particularly independent in this area.”⁸

“In the world today when there is so much contention over the role of nuclear weapons the UK program is moving along in a much more controlled way than the US program and it's getting ahead in terms of approvals, money being committed, and their planning. Now at the end of the day I imagine that the US program will catch up again because it can move faster and there'll be more money available and

⁵ John Harvey

⁶ John Harvey, 40.25

⁷ Hansard 19 November 2007 Column 483W

⁸ PONI interview with Linton Brooks, former Administrator of the National Nuclear Security Administration; 47.00

eventually it will happen. But right now the US programme is in a mess and the UK program is moving right along”.⁹

“Right now .. the US is in the midst of this mini agony about what is the role of our nuclear weapons in the future and nuclear weapons in general and we seem to be kind of paralysed by our lack of consensus on that. ... Over the last 2 or 3 years the Brits have worked out this position about the future of their deterrent, and I believe Gordon Brown is committed to following on fundamentally the line that Tony Blair did, they are going to have a nuclear deterrent for the foreseeable future and it seems to me that these kinds of discussions in the US tend to be ideological and therefore sort of polarised and in Britain I think their history leads them to not work problems as much as we do as matters of principle more as pragmatic things where finding a consensus is a pragmatic way to get to a British position. And they’ve done that in their recent decisions and policies about the future of their deterrent and frankly I think we could emulate that”.¹⁰

Effect of US RRW decision on UK policy

“If the US decides to stay with the legacy stockpile.. it is much more difficult for the UK to embark on a transformed stockpile, ie to go it alone, because there are so many inter-dependencies, just on the evolution of your nuclear deterrent stockpile .. in a large part I would expect the UK in many regards to follow the US”. - Glen Mara ¹¹

Reasons for new warhead projects

“We haven’t designed or developed a new warhead for 20 years and if this country wants to retain a nuclear weapons capability it’s going to have to exercise its young people by giving them the challenge of having to go out and develop and field a nuclear warhead system and that’s what our RRW program was going to do is provide a challenge for young people to go off, be mentored by the folks who did this during the Cold War, but the folks during the Cold War aren’t doing this, they’re either retired or starting to die. So we need our folks to be mentored by those who are remaining who have had this experience of putting a warhead in the stockpile and then to be able to get that and to be able to exercise that from time to time, that’s very critical if the US is to maintain a nuclear weapons capability. I also believe it’s critical if the UK is to maintain a nuclear weapons capability and that’s why RRW or some variant for their system is important. And if we don’t exercise this capability we will lose it and I worry about that. I think that’s one of the primary reasons we need to move forward now with this RRW system. I’m not sure if the Brits see it the same way as I do on this, but I think they do. I think that they’re bringing young people in, they’re investing in some of the scientific aspects of stockpile stewardship. But if we’re going to need nuclear weapons for the foreseeable future, we’re going to need people to be able to understand them. These things are not like building tanks. They’re very very complex. You build a tank and you can operate it, you can see if it works, but you can’t do that with nuclear weapons. We are trying to build these things and sustain them without doing the system test. So that’s a real challenge and if

⁹ Everest Beckner 22.00

¹⁰ Richard Wagner 54.41

¹¹ PONI interview with Glen Mara, Principal Associate Director for Weapons Programs, Los Alamos National Laboratory; 39.50

we are going to keep that capability we are going to have to exercise it from time to time and that means doing a development program for a new warhead and I believe that the UK sees this personnel retention, I mean so far so good in terms of keeping the young folks engaged but we've got to move out and do more than just the science stuff if we are going to retain capabilities.”¹²

Effect of US RRW decision on degree of collaboration

“How has the character of that cooperation changed over the last 50 years ? ... There has generally been an increasing slope through all of the international agreements to enhance and expand collaboration. .. as we approach this 50th anniversary and discuss enhanced collaboration I think it is just going to accelerate. The only thing that will change will be what will be the scope of it. If the US embarks on an aggressive transformation of the stockpile to smaller, safer, more reliable then that will increase and accelerate. If the US adopts a posture of legacy Cold War stockpile, to maintain that, that will not be so aggressive but will be equally coordinated. .. We need a greater transparency with regard to some of our data and experiments so that they can validate their calculations and predictions and better peer review ours – this is one area where we need further breaking down of the ease with which we can mobilise data transferring across the alliance and we hope we can facilitate that” - Glen Mara ¹³

“Given where we are with the tools of stewardship .. the value of this cooperation can only increase and so we put a real premium on that. It's going to be borne with some challenges. They are going to be examining their future of their nuclear deterrent capability and how they will be extending or modernising – they've got decisions – they closely watch what the US policy will be – will we transform the stockpile with something akin to RRW design and approach that works – that would clearly be determined by future policy discussions – they independently will want to make their own decisions on their own systems – regardless of that future, regardless of the policy decisions, given the independence that each affords in what is technologically achievable and possible – that benefit and that value increases. What are the pressures that might limit ? In general what we have found is that the pressures to either limit the nuclear expertise space are .. them having access to a broader range of experimental data. It appears that both countries .. assuming we can remove some of those barriers, the value of these collaborations will increase dramatically .. all of the signs point in that direction ... as we downsize our nuclear deterrent, as we make it safer, more secure and more reliable, as we downsize the complex there can be nothing but an upsize in the work that we do. Are there other pressures that would keep ? It has always been somewhat cumbersome the rate of exchange of classified information to go through all of the appropriate approvals. There are attempts now to speed up the process. There are also attempts to streamline the ability to share experimental parts and configurations .. but today, or at least in the past there have been impediments to the rates of progress. And so those pressures I see starting to lessen. We will see if we can do the transparency ... transmit information as well as transmit material experiments.”¹⁴

¹² John Harvey

¹³ Glen Mara 12.00

¹⁴ Glen Mara 8.14 f

“We get criticised from Congress – “is this just a make-work program for people at the labs ?” And so I neglected to tell you what the two even more important reasons are for RRW. The first one of them is that we have an extraordinarily large fraction of our nuclear deterrent tied up in one warhead, we call that the W76 which is the Trident SLBM warhead and as we move towards 2012 as our operational force becomes smaller the W76 will comprise an even larger fraction than it does today. If we had a problem with the W76 we would be in trouble. One of the purposes of RRW is to provide a replacement warhead for the W76, it wouldn’t replace every one of them, but we would have a diverse design in the stockpile that we would know would provide a backup if the W76 failed. The second reason is the W76 was built, developed and produced in the 1970s. It uses 1970s technology for safety and security. We’re beyond that now and we think we can strengthen the security of our warheads by modernising them, by building replacement warheads and that’s particularly important to do that in this world in which we run the risks of terrorist acquisition of nuclear weapons. So those are the two reasons I would put before exercise of the folks, but I think that’s an essential part, also this third reason is giving our young people the opportunity to succeed or fail in developing a new warhead system”¹⁵

Expansion of cooperation and Enhanced Collaboration

“When I came to the Pentagon [1981] I was actively involved with the MDA management itself, some of that was dealing with the expansion of the scope of what could be discussed.”¹⁶

“The general trend was to continually expand the scope of what could be talked about ... the technical people from both sides would propose expansion, this was discussed at policy level – sometimes the policy dimension wouldn’t allow full expansion as requested from the technical level – but generally it did.”¹⁷

“One of the things that was on the table during the 80s .. was that we were putting in place in our weapons a stockpile wide upgrade of safety features and security features and it was in our interest also for UK weapons to be safe and secure. I believe that we were working the expansion of the scope to include broader scope on safety and security measures. Safety in particular. Security, use-control features, were extremely closely held and still are, with special access categories, and I think we did not share much there with the UK, but safety features, in particular Insensitive High Explosive, which was just beginning to be incorporated in our stockpile, were things that we felt were probably important for the UK to know about and they thought so too. That probably was one of the features that was addressed in the 1984 revision [of the MDA] ”¹⁸

“My main memory is of a continual expansion. The expansion was punctuated by revisions of the Agreement, but the general sense was of continual expansion. When the Agreement would get modified it would take some years to exploit that modification”¹⁹

¹⁵ John Harvey

¹⁶ Richard Wagner 3.20

¹⁷ Richard Wagner 18.44

¹⁸ Richard Wagner 27.17

¹⁹ Richard Wagner 29.15

“When they got rid of some of the other systems that they had, such as the air-delivered systems, and decided to rely strictly on the submarine system again that increased their overall interdependence with the US. In terms of the issue of peer review that becomes significantly more important in the world without nuclear testing because to a large extent nuclear testing always provided the ground truth to any of the fancy calculations that we might make or any of the experiments short of nuclear yield and now that we can't do those nuclear yield tests any more we rely even more on the computations, the modelling, the smaller experiments and the more we can have these reviewed the more we can look at other organisations way of dealing with this problem from no testing the more important so from that standpoint technical interdependence will increase.”²⁰

“the amount of cooperation has increased over the last decade” – Malcolm Jones.²¹

“One of the greatest changes was associated with the end of the testing program. For example since the Brits did all their tests at the Nevada test site since 1992 when we finished testing that certainly changed the nature of the relationship. In 1992 when we had negotiated with the Bush the elder administration we had negotiated for a moratorium on nuclear testing for a Comprehensive Test Ban Treaty for 15 tests, that 3 of those tests would have been British tests. But no more tests were allowed at all.”²²

Q – how has relationship changed since the end of the Cold War and recently ?

“Changes from the 80s to today, from my perception they [US/UK nuclear relationships] have strengthened. There's one where you leverage each's experiences and resources and such but you really have a sense of independence. Both are partners for the operational aspect. With the cessation of testing I think that has made the cooperation much more needed. ... Now you are having to create the Science Based Stockpile Stewardship Program that allows you to look at all these material science issues that goes into certification without underground testing. It is always good to have another party doing calculations and verifying, confirming or raising questions about what you have done when you go to try to certify without underground nuclear testing. ... They're in the same dilemma as we are – how do you prove a weapon will work without testing it. So I think these ties have strengthened.”²³

In the mid 1990s when the US DOE were developing Life Extension Programs (LEP) for various warheads – “As part of that exchange we also did exchanges with the UK to find out what kind of information did they know through their surveillance program and what kind of concerns did they have with their own unique weapons systems that would help us learn and to make decisions as to what kind of components would we replace and at what time would we replace those components. So we entered into a cooperation with the UK looking at Life Extension itself for the different warheads. We entered into a program of sharing information for the Enhanced Surveillance program and we also looked at more innovative ways of being able to do production so that we could gain efficiencies. So I think that was a critical piece of exchange and

²⁰ Seigfried Hecker 23.25

²¹ US-UK nuclear cooperation after 50 years, CSIS/Chatham House 2008, page 336

²² Seigfried Hecker 20.00

²³ Steven Henry 27.15

continues to do that particularly in the need for us to be able to certify our stockpile without underground nuclear testing.”²⁴

There is a perception that the relationship with the US was less strong in the Carter era.²⁵

“The last one [Nuclear Posture Review] was in 2002 and born out of the last one we are on the precipice of this Enhanced Collaboration. It is clear that the last formal Posture Review resulted in a richer and more extensive set of collaborations. I believe that it going to be robustly continued whether we tend to the old stockpile or whether we transform it to a more modern, safer and secure stockpile. One can provide those enhanced collaborations that are valuable for each of those. With an upcoming Nuclear Posture Review .. when I look at all these international agreements are we likely to move in a direction that puts this 50 year long collaboration at risk, is it likely to be status quo or will it likely move in the direction of enhanced collaboration ? And for essentially any future I seen that enhanced collaboration .. All of us on a technical level advise the policy makers, we don’t make the policy – but I would be really surprised if any of these kind of agreements or Posture Reviews would change the fundamental value of the relationship. I think it would be more likely to increase.”²⁶

“Enhanced Collaboration is the latest chapter”. - Glen Mara ²⁷

The term “Enhanced Collaboration” has been seen in technical papers, but its significance and its origin in the US Nuclear Posture Review were not known.

“It takes a lot of, not necessarily arm twisting but talk and sitting around and looking at the program priorities of the two countries to convince people that there’s good reason to have this interaction succeed but it’s never easy because each side pays there own way and you’ve got one guy at the table who’s got a much smaller programme than the other guy. So people sitting over here from Los Alamos or Livermore or Sandia are saying to themselves, you know we’re doing most of the work and they’re getting all the benefit – if you’re not careful this is the way they’ll react in which case you’re relationship doesn’t work – so you have to look for areas where the UK can clearly contribute to a problem in a way that the US side clearly will benefit. Then it’s two way. Then it works.”²⁸

US cooperation too close

“One of the disadvantages of the cooperation is we become more alike and we don’t get as much benefit, because we start thinking more alike as opposed to thinking differently about problems. In a certain sense you could say there is a downside. Oftentimes I would argue that our relationship with the French is less fulsome than that we have with the UK and that may provide us the benefit of having some

²⁴ Steven Henry 6.00

²⁵ Linton Brooks 27.20

²⁶ Glen Mara 36.08f

²⁷ PONI interview with Glen Mara 2008 36.04 & 7.35

²⁸ Everest Beckner 11.40

separation in programs that enable you to still benefit from the other guy thinking differently about he or her design or whoever the designers are, approach problems.”²⁹

“But the tension is that as you strengthen cooperation and as there is more and more transparency as to how each does business you run the risk that – you put in jeopardy that independent capability, you become too reliant on the US and that’s more of a one-way thing. The Brits have to be a little bit sensitive to being so intimately connected with us that they lose their independent set of capabilities.”³⁰

RRW as a job creation scheme

“The minute you stop making new warheads you no longer draw in this pool of new scientists, you’ve got nothing new for them to work on. Both sides have suffered from that loss. There are new things coming into Lawrence Livermore and Los Alamos - this is why RRW was conceived. But if there isn’t some progress on it you start to lose that pool and what is more dangerous is the existing pool are getting older and slipping off the other end.”³¹

“RRW is something everyone will take a different part of and say it was important ... To me the fundamental was it also exercises the skills of people and keeps the most important resource which was the skilled people that could continue to sustain warheads because without them, without the designers with the calculational and scientific skills the enterprise was doomed.”³²

The problem of the future, for all nuclear weapon states, is the lack of anyone who has taken part in a nuclear test.³³

TECHNICAL ISSUES

UK nuclear warhead model codes

“It’s witnessed by the fact that they want their own nuclear warhead codes and we totally support the concept that they do not just borrow US intellectual products”.³⁴

Procedure for sharing information

There is a statutory determination that particular information can be shared with the UK.³⁵

Similarity of UK and US warheads

“their W76 variant” - Frank Miller³⁶

²⁹ John Harvey

³⁰ John Harvey

³¹ Stan Orman 1.18.20

³² Peter Nanos 50.20f

³³ Everest Beckett 25.30

³⁴ Glen Mara 7.45

³⁵ Linton Brooks 1.10.28

³⁶ PONI interview with Franklin Miller KGB, Special Advisor to President George W Bush & Senior Director for Defense Policy and Arms Control. 10.02

“I’m not sure their warhead is dependent on ours. It is similar to one of our designs but it is a UK design”.³⁷

“we brought different problems to the table because the design was always in words, simple terminology, Anglicised, it was never a direct copy. So there was an Anglicisation and you learned something from that”³⁸

“their warhead has to meet certain of the same specifications that our warheads have to meet to be on Trident in terms of weight and size and things like that. So our designs are not dissimilar, in terms of putting a certain amount of yield in a certain sized package etc etc. If we had a problem with our warhead it wouldn’t necessarily mean that that same problem would propagate to their warhead but there would be a huge degree of concern among the UK about that, and how would we deal with that ?”³⁹

With regard to devices tested in Nevada -“We did our own design but this always had to be disclosed to the US side in full detail because after all we were bringing a device over and sinking it in the ground here”⁴⁰

US Hydrodynamic experiments at Aldermaston

Charlie Martin had an innovative idea of how to build flash x-ray machines. There were many meetings on this in 1973/74. His ideas led to increased development of accelerated electron technology. This led to the big machines produced in the 1980s and 1990s and to DAHRT. In this the UK made a valuable contribution in a tool to develop designs, rather than to warhead design itself.⁴¹

“the UK has a relatively small organisation, it doesn’t have some of the sets of capabilities that we have – there are some capabilities that it has that we don’t have and that we borrow. One of them is what you call this dual-axis hydrodynamic – we have DARHT in Los Alamos, but DARHT’s not working yet, the way we want it to work - and so we have been I believe, I can’t tell you but I mean the UK does have this unique two axis facility that I believe we have been able to exploit. That’s been very valuable – and I think that’s been valuable to us.”⁴²

“Peer review means a lot. It is not just review but also collaboration. So in some cases we conducted joint experiments. They had specific facilities that we did not have. They had different approaches to certain problems .. There was a British capability called core-punching which turned out to be a significantly different approach to doing things than what we had in Los Alamos .. It was that different approach to looking at problems and being able to collaborate field experiments together that was of enormous benefit in both directions.”⁴³

³⁷ Frank Miller II 13.39

³⁸ Stan Orman 28.15

³⁹ John Harvey

⁴⁰ Stan Orman 28.40

⁴¹ Richard Wagner 9.00

⁴² John Harvey 45.00

⁴³ Siegfried Hecker 17.15

Stanley Orman also referred to UK hydrodynamic expertise as a unique UK contribution to nuclear warhead development.

This is consistent with what is known about UK expertise with hydrodynamics. But there have been no earlier references to the US using AWE facilities. It is reasonable to suggest that hydrodynamic facilities at AWE may have been used to support RRW.

NIF

“I think they provide some benefits to us in connection with the tools of stockpile stewardship, like DARHT, like NIF, like other things, I think they they’ve been involved in the National Ignition Facility activities, at one point there was going to be a fairly big role for them but I’m not sure that’s played out.”⁴⁴

US detonates plutonium at Aldermaston

“we also devised a technique, again through Charlie Martin, of imploding a non-fissile plutonium isotope. Now because it was plutonium the laws in the States would not allow you to implode this even though it was non-fissile, because it was plutonium. So again the American scientists would come across and use our laboratories because they couldn’t use theirs.” -Stanley Orman ⁴⁵

UK supplied Tritium to the US

“At one time you [US] ran out of tritium and we were providing you with the trit” - Stanley Orman ⁴⁶

Some previous exchanges of nuclear material between the US and UK have been disclosed, but these have not included the UK supplying tritium to the US.

A90 and TA55

“We shared with them the entirety of our experience with the TA55 .. The Brits took the essence of our blueprints and our experience and improved on that with their A90 facility .. in the late 1990s as Los Alamos was trying to re-establish a plutonium production capabilities at least on a limited scale then we had direct help from the British in doing that at TA55 and we sent Los Alamos people to A90 in order to learn from their experience particularly in the production arena and we had two AWE officials who spent a significant time at Los Alamos at TA55 helping us to establish our limited production capability”⁴⁷

“There was a period of time when the Brits did very little plutonium metallurgy because they had in essence finished up with the old plutonium facility and were

⁴⁴ John Harvey

⁴⁵ PONI interview with Stanley Orman, former Deputy Director, Atomic Weapons Establishment, Aldermaston; 31.00

⁴⁶ Stan Orman 1.31.25

⁴⁷ Siegfried Hecker 11.40

putting all of their efforts into A90 and then particularly in A90 their principle focus was on re-establishing plutonium production and so for a long time they had very little plutonium metallurgy and we were concerned on the American side that there wasn't much in terms of peer review or cooperation. But then they came back just in time as we were scaling back on plutonium research and focusing on our production activities.”⁴⁸

Uranium – water reaction

“minute quantities of oxygen, parts per thousand, inhibited the uranium/water reaction and slowed it by a factor of 50 fold. .. once the oxygen is consumed you get a different reaction, hydrogen is produced from the uranium/water reaction and the rate goes up about 50 fold. The importance of this was that if you filled your warhead with nitrogen gas you got a much faster uranium/water reaction than if you filled it with oxygen or air. ... If you've got no oxygen present you get hydrogen produced. That hydrogen could go into other components and in some cases it could actually diffuse in and stop them functioning in the way they were designed to function. Now since these components were absolutely essential to the nuclear weapon to behave as a true nuclear weapon it meant there were devices there which could actually stop them functioning and it was this research that I did that so interested the US and we found that had we filled ours with nitrogen as the American design did within a few weeks the weapon would have ceased to function as a nuclear warhead”.⁴⁹

Stan Orman's work on this was published in 1966

Submarine reactor cooperation

“We had an initial exchange, the US then effectively stood to one side, we developed a capability, they moved on and then we came back together after a period of time. We have a fairly robust technical exchange currently”.⁵⁰

POLICY ISSUES

Benefit to US of British nuclear weapons – sharing the burden

“From our standpoint, particularly at times when the anti-nuclear sentiment is higher than normal, it is very helpful to have another country that is NATO's second or first nuclear power, because we don't have to bear the sole burden ourselves, we don't have to bear the burden of thinking about it and talking about it and carrying the public water on it.”⁵¹

“Carrying the burden of being NATO's nuclear deterrent – it's an intellectual burden, it's a policy burden, it's an international burden, it's being the only guy at the CD with a nuclear deterrent because the Chinese and the Russians sit their with the Third World and say what a terrible thing nuclear weapons are and what a terrible thing space arms are, and so who's in the dock ? – It's always useful to have someone else

⁴⁸ “Peer review means a lot. It is not just review but also collaboration”⁴⁸ 18.10

⁴⁹ Stan Orman 22.40

⁵⁰ Steve Dearden 5.50

⁵¹ Frank Miller I 39.16

in the dock with you. The question of the burden is about much more than target coverage, it is about the intellectual, moral and political burden that we are better of sharing. Could we do it ourselves? – yes sure. Is life easier as a policy maker? – you bet. If I had an issue with the CD and I was dealing with it I'd call my British counterpart and we would talk about how to do it together and what could London do to help out or what could we do to help out. It's enormously useful and helpful to someone operating in the field of government to have a friend."⁵²

Benefit to US of British nuclear weapons – support within NATO

US can find it difficult to deal with NATO partners and the UK helps, for example in the nuclear planning forum.⁵³

Over time the Nuclear Planning Group has declined and the High Level Group has increased in importance.⁵⁴

“There was never any daylight between me and my British counterpart”⁵⁵

“It would be very difficult for the US to manage that relationship - the nuclear guarantee they were offering to Europe in return for allowing US nuclear weapons to be based in Europe as part of NATO's triad of forces, the flexible response strategy to deter the Soviet Union – the management of that problem was eased enormously by having the UK as another nuclear power. It meant that there were two independent nuclear powers in NATO able to manage the discussion with the rest of the alliance and the dilemma which every other country in NATO, other than France, faced which was the needed nuclear cover but they couldn't bear the consequences associated with having it. And so the nuclear planning group devised a balanced set of risks and responsibilities associated with nuclear weapons, the so called dual-key arrangements and all of that, it helped Germany feel secure in circumstances which would otherwise be very difficult. And the UK's role in that was very important. So just looking from a US perspective, we eased America's problems of managing their relations in NATO, and sustaining Western security enormously by also being there.”⁵⁶

Benefit to US of British nuclear weapons – Second Centre

Second centre of decision making.⁵⁷

“Two centres of decision making doesn't exist now because there is not nuclear weapon state threat to the existence of the US or UK”⁵⁸ - if there were it would come back into play.

Benefits to US - Diego Garcia & wider UK support for US

“You look back to the Trident sales decision and around that time there were some British stuff, like the use of Diego Garcia that are hugely important in different contexts to the United States. Obviously if you look at the last 5 years its fairly

⁵² Frank Miller II 1.4.58

⁵³ Tim Hare

⁵⁴ Frank Miller I 44.50

⁵⁵ Frank Miller I 46.05

⁵⁶ Kevin Tebbit 3.50

⁵⁷ Tim Hare

⁵⁸ Frank Miller I 40.53

obvious that our strongest supporter in the war on Iraq has been the British. It's a natural thing to ask who got the most out of this narrow part but that is not how strategic relationships work. Both benefit from the strategic relationship".⁵⁹

"There was a kind of a quid pro quo that probably the net benefit of the technical interchanges accrued to the UK side and the US would hope that the UK would support US policy desires broadly writ in deterrence policy as a whole with regard to Cold War policy".⁶⁰

Other interviewees denied a link between the MDA and broad UK support for US policy.

Importance of relationship between PM and President

The nature of the relationship is determined by the people involved, particularly on the US side. Examples of Reagan/Thatcher and Bush/Blair. The relationship filters down to affect the ebb and flow of nuclear information. The volume of flow depends on the nature of the political relationship.⁶¹

Differences in nuclear policy

There is a different scale. Differences over declaratory policy and on disarmament, eg CTBT. Differences in how to get to disarmament and how to deal with proliferation and in use of nuclear weapons. The differences are subtle.⁶²

The UK doesn't include extended deterrence (assurance), or dissuasion and is more convinced that deterrence will work

"The British view of the purpose of nuclear weapons is narrower. They focus on deterrence as the only thing that weapons do they don't feel the need to emphasise extended deterrence or assurance. They don't think it is they're role to work on discouraging others from an arms race, what we call dissuasion. And they tend to be a little more convinced that deterrence will work so they don't get into the issues about the role of defences that we've gotten into. So it's easier to write the British White Paper than a comparable one – but we won't know because we didn't try."⁶³

Current UK nuclear policy

The main way that policy has changed since the Cold War is proliferation - there are now a large and increasing number of countries with nuclear weapons.⁶⁴

NATO Nuclear policy

⁵⁹ Linton Brooks 7.20

⁶⁰ Richard Wagner 20.50

⁶¹ Tim Hare

⁶² Tim Hare

⁶³ Linton Brooks 49.10

⁶⁴ Tim Hare

The future role of nuclear weapons in NATO is harder to answer. There would be a nuclear capability, but how large, as the stockpile comes down.⁶⁵

Future of NATO nuclear weapons ? “there could be one but I can’t see what it is”⁶⁶.
- The use of nuclear weapons against possible WMD is incredibly difficult, given the media response to civilian casualties in wars today.

Nuclear weapons for NATO Dual-Capable Aircraft – “What you’ve got here is a bunch of bunkers which everyone with a Michelin guide could tell where they are. There are some real security issues. There have been some real security issues from time to time. They’re modestly expensive. If the F16s which carry them are not going to last for ever. If the Europeans are going to replace the F16s they would have to equip them to carry nuclear weapons which is complicated. Most of the pilots are not actually nuclear qualified. I think they are an anachronism. They were sort of an anachronism from the day they were put in which was the idea that countries that would nominally not have nuclear weapons their airforces would have airplanes that would carry American nuclear weapons. If the countries in question really think it is important, I wouldn’t break a whole lot of crockery getting rid of them, but I don’t know that the countries in question really think it’s that important and I find it paradoxical that if they think it’s so important why are they afraid to tell their publics they are doing it”⁶⁷

UK talk of disarmament

“The speech on which it is based [Des Browne’s speech at CD] was the one by the Foreign Secretary, Margaret Beckett, a year ago said we the UK strongly, deeply and passionately believe in the ultimate abolition of nuclear weapons - but oh by the way - as a temporary way-station we’re buying new SSBNs and new missiles and we’ll have them out till 2050 or 2060. So you’ve got to look at the context carefully. You didn’t see the Bush administration come out of the box and criticise Des Browne’s comments. So unless there is a radical turn, unless the British government decides to cancel Trident, which it is perfectly independently capable of doing. But I don’t see the two sides moving apart on nuclear issues, and even if they did life would go on, we would still need the United Kingdom and the United Kingdom would still need us, .. it’s watch what I do, not what I say kind of routine.”⁶⁸

“Tony Blair getting the Labour Party to go along with the continuation of the UK national deterrent for the foreseeable future was a heavy lift. There are folks who resented that and part of I believe some of this dialogue recently about elimination was as a mechanism to mollify those folks who basically got brought along on the Trident decision”⁶⁹

Cost of British nuclear weapons

⁶⁵ Glen Mara 15.37

⁶⁶ Stan Orman 1.19.50

⁶⁷ Walter Slocombe 29.32

⁶⁸ Frank Miller II 55.14

⁶⁹ John Harvey

The MDA & PSA have made it more affordable for Britain to have nuclear weapons. Without them it is questionable whether Britain would still be a nuclear power. Chevaline showed that the UK could do it, but at a cost.⁷⁰

Rationale for British nuclear weapons is hedge/insurance against uncertainty, the difficult question is – is it worth the cost? “The thing I found very unconvincing is the argument that says this is all very special, so if there is pressure on the defence budget we have to make sure that it is protected, it mustn’t cut across our conventional forces etc – those arguments I found very, very unconvincing. We should have a view about how much money we are willing to spend on defence and then we should say – is this a key component? If it is a key component then OK it is an opportunity cost which is we could have more of something else, more of our conventional defence or more of whatever. So that bit of the rationale I found weak to the point of non-existence. But then there is a deeper political issue. Which government is going to give this up? So to make a blindingly obvious point, once you are in this game, getting out of it is a very, very big statement. And getting out of it in circumstances – unilaterally getting out of it – is difficult. And getting out of it when there is another power in Europe which is a nuclear power might also be quite a big ask for any government. So you can put that the other way round and say in the world of 2008 if you had a blank sheet of paper would there be a compelling strategic rationale for a UK nuclear deterrent – I think that is an interesting question – I think that is a question that you can legitimately raise – but we are where we are. We have this 50 years of cooperation, we have this perception of ourselves as a country”⁷¹
Q – do you think it gives Britain bigger clout on the scene, having a deterrent? “No ..It’s not an argument I would like to deploy anyway. But I don’t think it does. However giving it up would be a statement of course and that would be a very difficult statement for any government to make”⁷²

UK Trident Replacement Decision

“The British kept us informed through this channel [Linton Brooks contact with the MoD Chief Scientific Adviser] of a good deal of their internal thinking as they were working forward the Trident decision that meant when it came time for the formal approach to the United States Government that led to the exchange of letters between the Presidents it was very clear that they were pushing at an open door. They sort of knew what the US attitude would be and it is very clear that we understood what they were trying to do. So in that sense I think that it has been a very smooth functioning partnership. Most of the work for this gets done through Joint Working Groups [JOWOGs].”⁷³

“When there are major policy decisions, like the recent British decision, there is an exchange of letters in the public domain and some other dialogue that is not in the public domain in order to make sure that we will shape our program in a way that doesn’t invalidate the way that they would do a replacement for Trident.”⁷⁴ For

⁷⁰ Tim Hare

⁷¹ Richard Mottram 38.20

⁷² Richard Mottram 40.50

⁷³ Linton Brooks 11.00

⁷⁴ Linton Brooks 1.11.10

example if the new missile is too big for the British submarine that would be a problem so there is a dialogue.⁷⁵

Nuclear terrorism

There is technical co-operation on nuclear terrorism, but won't talk about details.⁷⁶

NUCLEAR TARGETTING

The NATO targeting cell helped out with the targeting of UK Polaris in the 1980s.⁷⁷ Question on how integrated were UK and US nuclear forces in NATO, for example which targets US and UK would cover? – “In the 80s .. that was fully integrated into the target packages that NATO was developing in case of war and the UK dedicated some number of weapon systems to the NATO war plans and all of that had to be deconflicted with what the UK would do and what the US would do in support of NATO. So all those did go into the target planning considerations and deconfliction.”⁷⁸

“At the tactical and operational level I think we did that as a partnership, not just the US and UK but NATO as a whole. There were NATO targets that were being developed and looked at and a determination on how you would engage those and the analysis of those targets basically went into what weapon system could best engage those targets .. in the 80s you had a lot of folks who understood the intricacies of target planning, deconfliction, integration with conventional forces. That was more a teamwork than it was of one side bleeding the other or a sense of independence.”⁷⁹ The UK system provided longer range than other nuclear weapon systems available to NATO, a greater stand off.⁸⁰

The second centre of decision-making argument meant “threatening where the key players in Soviet Government operate from”.⁸¹

“Deterrence means threatening elements of state power. The UK looked at things a little different to what we did and so we had excellent dialogue about the nature of the Soviet system, what the leadership in Moscow happened to value or not, why we thought that and they thought this, so there was good dialogue about deterrent principles and what to hold at risk.”⁸²

The question of the configuration requirements for Trident 2 led to wider policy discussions. In the mid 1980s Frank Miller encouraged wider US/UK liaison on the SIOP and independent nuclear war plans. Twice yearly meetings were set up which continue to this day.⁸³

“How do the Brits get to handle the Trident 2 footprinting model which they had bought and how do you work the interests of up to 16 missiles that can carry up to 12

⁷⁵ Linton Brooks 1.11.50

⁷⁶ Linton Brooks 34.00

⁷⁷ Steven Henry 8.30

⁷⁸ Steven Henry 9.16

⁷⁹ Steven Henry 10.50

⁸⁰ Steven Henry 11.46

⁸¹ Richard Mottram 15.40

⁸² Frank Miller II 16.57

⁸³ Frank Miller I 19.45

warheads. We decided that one of the ways to do that was to establish the post of UK liaison officer at US Strategic Command, at the time SAC and the Joint Strategic Target Planning Staff at Omaha. In the mid 80s as the SHAPE targeting Centre at SHAPE headquarters drew down because of manpower constraints from the other allies, it stood up again in the new form out in Omaha with the UK Liaison Officer who also, because he was being integrated with the folks at Joint Strategic Target Planning Staff, who were doing all of our strategic planning, began to understand the vagaries and the routines of multiple warhead targeting.”⁸⁴ So instead of just technical cooperation there was also policy and operational cooperation – a three-legged stool where there had been a one-legged stool.

In addition to two meetings a year there were phone contacts. They talked about hypotheticals and nuclear exercises. The number taking part in the biennial meetings increased - “We had more and more people involved in the nuclear dialogue .. and then we got into even further things talking about hypotheticals and nuclear exercises and a variety of nuclear cooperations”⁸⁵

“While we talked about what the British national plan was and what the SIOP was, we never really talked about specific aim points, so we never knew what they were shooting at, as far as the specific locations, the specific unique target, what is in the parlance Desired Ground Zero. So while we exchanged ideas there was never any discussion which in any way would have given either side an insight that would have infringed on the independence of their deterrent or ours.”⁸⁶

“When I was in Dept of Defence, 1995 – 2000, each year we would have “home and home” visits with the Brits. It was between nuclear planning staffs. In the summer time we would typically host a meeting in June or July in the US and we would have meetings to discuss programs and this was a very very intimate and close connection, moreso than most people realise between nuclear planners on the US and nuclear planners in the UK. We would have a one week / 4-5 day meeting, which would include sessions in which we would brief each other on activities since our last meeting and then we would also have 2 or 3 days when we would host them for tours at our facilities and they would host us for tours at their facilities. ... Basically the folks who get together are the folks who plan the war plan – what needs to be held at risk in countries, during the Cold War it was Russia, China etc – and with what facilities and with what level of cooperation was there between the two countries in this area. We would talk about these things, but we would also get into the details of the operational aspects in terms of - typically accompanying each delegation - typically we went to the UK in the November/December timeframe and they would come and see us in the June/July timeframe. The delegations were led by the policy folks, I typically led, or Frank Miller led for the policy organisation, for the Department of Defence overseeing nuclear forces and they would have their nuclear planning staffs, nuclear policy planning staffs.”⁸⁷

Communications

⁸⁴ Frank Miller I 24.50

⁸⁵ Frank Miller I 26.40

⁸⁶ Frank Miller I 30.40

⁸⁷ John Harvey

“helping the Brits out at one point when they needed to lease some frequency ranges on our naval communications stations when they had to shut some of theirs down for repair.”⁸⁸

AWE as the third lab

UK is third lab⁸⁹

Q – Pete Nanos says AWE is third lab - “very true”⁹⁰

France

Royal Navy could not see the value of working with France, where they could work with US. Cooperation with US seen as lower risk.⁹¹

“France could never replace the US”.⁹²

⁸⁸ Frank Miller I 27.30

⁸⁹ US-UK nuclear cooperation after 50 years, CSIS/Chatham House 2008, p 283

⁹⁰ Stan Orman 28.00

⁹¹ Richard Mottram 22.52

⁹² Kevin Tebbit 7.22