

TRANSCRIPT

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Gen. Sir Gordon Messenger
Vice Chief, Defense Staff, UK

Stephen Lovegrove
Permanent Secretary, Ministry of Defense, UK

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DWG: We are distinctly honored to have senior leaders from the United Kingdom Defence Ministry today. Sir Gordon is the Vice Chief of the Defence Staff; Stephen Lovegrove is the Permanent Secretary of the Ministry of Defence.

I fear, because one of our colleagues told me this, that some may not have understood, some who are not in the room may not quite have understood the level at which we're going to here this morning in the British government because people don't know the differences.

Correct me if I'm wrong, General, and I'm going to say that Sir Gordon, you are sort of General Selva --

General Messenger: I am. I had an hour with him yesterday.

DWG: There we go. And Stephen, I think I probably have to put two hats on you maybe. Possibly Deputy Secretary and Comptroller. Or equivalent.

Secretary Lovegrove: That is right, and I'm seeing Deputy Secretary Shanahan later on today.

DWG: There we are. Okay, very good.

So I take the privilege of the moderator to ask the first question, and then we can go around the room and see what's on your mind. We're on the record, but it's pencil and pad. There's no recording except for transcribing. There's no streaming, there's no broadcasting, so forth. But it's a chance for the journalists that cover the Pentagon and defense issues full time to sort of have breakfast with and really converse with and understand better our guests.

I think I'd better start with the elephant in the room, if that's all right, and ask you about what happened in Salisbury. We see in the papers this morning that what I would assume the Foreign Office and the Prime Minister's office are pleased to see, which is a pretty solid response in terms of expelling Russian diplomats who are said to be intelligence officers from allied nations around the world. Twenty-two nations, I believe.

But what I'd like to ask you to talk to us about is whether these developments are having an impact on the kind of conversations that you have in your work now, and what sorts of changes either have been or will be made, do you think, in British defense policy in light of what happened?

Secretary Lovegrove: Thank you. You're right to say that it's an elephant in the room. We absolutely don't look upon this, and I think neither does the rest of the world look upon this as a bilateral national thing. It's not spy on spy. This is an egregious breach of international law and the chemical weapons convention. And the Prime Minister has been very clear that this is an unlawful use of force by the Russian Federation on British soil against a British citizen. So we think it is extremely serious and has very, very profound consequences.

We're obviously extremely pleased to see well over 100 Russian diplomats being expelled by over 20 countries. That is the most stark example of international condemnation of Russia's actions in this area.

I think what we would say, and I'll hand over to Gordon in a second, because it's slightly more in his lane. What we would say is that this is merely a grotesque and outrageous continuation of the type of behavior that Russia has been conducting against any

number of countries, and most of them Western allies -- France, Germany, Estonia, Lithuania, Ukraine, States -- have all in some form or other been victims of Russian gray war tactics.

It does, I think, raise quite profound questions about posture, force, attribution, deniability, which range much further than merely to satisfy expulsions. And we have been as a national security system in the UK, speaking very much to our Foreign Office and other security colleagues, to make sure that there is a unified, understanding that there's going to be a unified response to it.

We really do want to see this kind of Russian aggression curtailed and deterred, and I think that probably needs to happen right across a whole range of different areas.

General Messenger: I think we're in the process with allies and like-minded partners, of just sort of refreshing and reviewing what we mean by deterrence. Deterrence traditionally has been about stopping the transition between peace and war. And I think what we recognize, and Salisbury is but one example, is that there are nations in the world that are prepared to stretch, abuse, what we have long considered to be the results-based international structures which we have all prospered and stabilized from. And I think there's a recognition that deterrence needs to play into the here and now, and that we need to develop techniques and processes that deter and counter this type of activity on a steady state basis.

DWG: Is there any kind of review of the British military positioning, posture, going on since Salisbury? Have any changes been made or contemplated?

General Messenger: We're obviously doing what you'd expect us to do which is just to look at our ability as the military to contribute to a whole of government effort in the event of a CBRN incident. You'd expect us to do that. It's too early to say whether any changes will flow from that.

It's also important to say, going back to my previous point about is this a time to take a new look at deterrence. The idea that the military is the only stovepiped element for any response, it absolutely has to be a knitted together across government that starts with [focusing] intelligence, law enforcement and all other tools at our and others' disposal.

Secretary Lovegrove: We are, as you know, or I would imagine you know, doing a program in London, a modernizing defense program. And we do think that, the four things that we were worried about in FDSR-15 which whether a surge is a hostile

state activity, the morphing of violent extremism, the undermining of rules-based international order, and the rapid development of lots of different types of technologies that can be used for maligned purposes stays valid. But at least three of those -- the undermining rules-based international order, new technologies and state-based aggression, albeit that it is done in a sort of deniable type of way, and a difficult to attribute type of way, have gotten worse since even 2015 and there has been a degree of cross-contamination between them and indeed violent extremism as well, actually, which is very very troubling. The modernizing defense program is certainly going to have that back-draw as some kind of guiding complex defectively. And I think that when we come to the end of that process, you can imagine that some of the things we've been talking about will be reflected in its conclusions.

DWG: You mentioned looking at some posture changes [inaudible] situation. I think it was about 48 million pounds that were recently [inaudible]. Are there other things that you need to do to raise that kind of front-line, chemical/biological readiness capability beyond that?

General Messenger: I don't think we're alone as a military in having over the last few decades put the sort of CBRN aspect of the military response, too much on the back burner.

We had already in the weeks preceding sort of identified the fact that some form of chemical incident in the UK or involving UK interests was more likely, whether that be a non-state or a state-driven event. And we were already in the game of reviewing the possibility and the scale and the capabilities in that regard. As I say, that is underway in regard to this. So we [inaudible] broader deterioration. But the threats we face, and I wouldn't be at all surprised if we strengthened that posture.

Secretary Lovegrove: As well as in essence of putting 48 million pounds into [inaudible], actually quite the last thing I did before I left the office was to sign off the final documents which are effectively the merger of our science and technology laboratories, most of which are [inaudible] with those of the Home Office in the UK. Because, well, reflecting two things, actually. One, that a bigger, more integrated exercise is going to play much [better for the] UK. And obviously the funding then being directed in a more focused way is a good thing. And secondly, also reflects the fact that, as Gordon was saying, this very much a whole of government exercise. It's very difficult to go [inaudible] boundaries between thing, so we are really thinking about this hard at the moment.

DWG: You said that this was [inaudible] a couple of weeks before the attack, you started to think more [inaudible]. [Inaudible], understanding that it might be coming or [inaudible]?

General Messenger: It wasn't intelligence-driven, if that's your question. It was a recognition of non-state and state [inaudible], that this was an increasing prospect.

Secretary Lovegrove: It's a reflection of that point I made about cross-contamination, really, of these big four things. In [inaudible] chemical weapons technology break down into the [inaudible] order, the blurring of state and [inaudible] extremism, all that. It is just, unfortunately, a [theme] that we're dealing with.

DWG: Thank you. I wanted to ask you, especially you, General Messenger, if mil-to-mil cooperation mil-to-mil contact, bilateral contact with the Russians might help to overcome this current crisis in any way, shape or form. I know that you met a year ago probably, last February, with General [Inaudible] traveled to Moscow. Do you think it might be of any use to [inaudible]'s work? And I'm asking simply because the two countries are now rapidly moving towards personal insult, which is just crazy.

And you, sir, I would also definitely appreciate a comment.

General Messenger: I think that's a really good point. I think that particularly at times when tensions are as high as they are, maintaining channels of communication is a really important thing, and I think that mil/mil has a very special place in that. I don't think those channels should be solely mil/mil. I think it's important to keep diplomatic and leadership channels open. But we are very keen to keep senior mil/mil channels open, particularly at this difficult time.

As you say, I met with General [Inaudible]. I've spoken to him on the phone a couple of times since. He's now moved on, and we're looking to see who is the most appropriate interlocutor now that he has moved on.

It's important, because what we don't want is miscalculation or misunderstanding. We have 800 troops in Estonia as part of NATO's forward presence. We have annually either in the Baltic or in Romania Typhoons flying on air policing. We fly our [inaudible] aircrafts in Europe and the Baltic Sea, and therefore, and of course we are both involved though in different ways in the Syrian conflict.

So we think that those sorts of channels are important and should be maintained, and

there should be means of picking up a phone and talking to each other rather than misinterpret and then essentially miscalculate.

Secretary Lovegrove: On the ground militarily I obviously wouldn't disagree at all with anything General Messenger has just said. I think, though, that it's exceptionally important, more important, to make sure that the international condemnation of acts such as the one in Salisbury is clear and unequivocal, is international, that Russia is held accountable for its attempt to murder a British citizen, and that the rules-based international order and the chemical weapons convention which have kept us safe for the last 70 years is not [undermined] and those are the priorities of the UK and its allies.

DWG: I want to shift gears a little bit to acquisition issues, and then I'll ask about Afghanistan.

You wear two hats. You're the [mine] man and you're the Deputy. The Joint Strike Fighter, the largest defense program ever, your country's buying 138 of them. One of the big issues here now on this plane is [lead] development and sustainment of long term cost [to tail]. What level of concern are your procurement people voicing, and what concerns do you have about the long-term tail as per General Messenger?

The way forward in the United Kingdom in Afghanistan, [inaudible] opportunity. We obviously, the U.S. is beefing up its presence in terms of training at the [inaudible] level. Will the UK be contributing to that? Or will you be basically staying forward with the aggressive counterterrorism cooperation [inaudible]?

Secretary Lovegrove: The F-35, we're very pleased with the development of the aircraft, doing everything that we hoped it would do, and we are pleased to see the costs of acquisition coming down in line with the way that we assumed it would. I think you have identified, as it were, the next area that is of intense interest to us which is the sustainment and operational cost of the aircraft. In the UK, typically that's where we've done a less good job of containing costs. It's a very very complicated platform. And one of the, today I have, as well as my meetings with Deputy Secretary Shanahan, I've also got a meeting with the F-35 team over here who are obviously looking at this, particularly to talk about sustainment and operational cost --

DWG: Is it Admiral Winter you're going to be talking to? The program manager?

Secretary Lovegrove: No.

Voice: It's [inaudible].

DWG: Okay.

Secretary Lovegrove: Of course this is a slightly unknown territory at the moment. I mean this is a new platform and we, I am constantly being asked by parliamentarians in the UK as to what the [take home] cost is going to be, and they are all, sometimes, understandably a bit frustrated when I have to turn around and say at the moment nobody is entirely sure. But we must maintain an absolutely laser-like focus on keeping those costs down because, as I say, historically, this is the one area where we've been okay at buying stuff but we've not been necessarily good at a sustaining mission, operating it as cost effectively as we possibly can, and we need to work very, very, very hard on that, and we are doing so.

DWG: Do you find your budget projections have red flags in terms of potential dollars you're going to be needing for sustainment?

General Messenger: No.

DWG: You don't know yet.

General Messenger: They don't have red flags on it. We are well within budget on the program so far, and looking out years.

The difficulty, of course, is this is a program where, I mean this aircraft is going to be in operation what in 2048 or something, and who knows what the answer to that is.

At the moment we don't have red flags in there. We've got head room in the program. But there is a degree of uncertainty here in the States, everywhere else which is buying it, and we must, as I say, maintain absolute focus on that. It is the next area.

DWG: 138 is still the number?

Secretary Lovegrove: 138 is still the number, and we've [inaudible] of 48, 138 down the track. So yes, I haven't heard anybody else saying that that isn't the case.

General Messenger: The UK is committed to the stabilization and the increased [inaudible]. I thought that the Warsaw Summit commitment out to 2021 which we strongly [inaudible] of NATO [inaudible] was a really important moment. I think it was

the moment where you saw the government of Afghanistan gaining confidence that this wasn't a sort of year on year commitment.

I think to a degree, and I wouldn't want to overplay this, you'll recall the Taliban phrase, you've got the watches but we've got the time. In a way it's sort of reversed that a little bit. I think the pressure is on the Taliban now. The clock is ticking with the Taliban in terms of its approach to reconciliation, its approach to governance. And that the international community, with the GIROA have not got a partnership that extends out in a meaningful way to doing that.

Keep under review all the time. We're very supportive of the U.S. beefing up. There are two areas where we think we can support. The first is in backfilling of the theaters where the U.S. have committed capability to Afghanistan. We can continue to stay on with strong capabilities in the Middle East, freeing up some U.S. capacity to go to Afghanistan. And second, in Afghanistan itself is we are looking at how we can -- I wouldn't want to discourage anything, but I don't think we're looking at fundamentally different things that we're doing. At the moment our contribution is, as you say, in the CT fight in the [inaudible] in the Office of Academy and in providing the leadership for the pool security force.

If we decide that we want to put [more in it], [inaudible] under review, then my sense is it would be in one of those two areas, rather than a fundamentally different [inaudible].

DWG: The number of UK troops in Afghanistan, I don't have a clue. Do you have a feel for that?

General Messenger: Yeah, it's probably about, I was [inaudible] figures, [inaudible], so I would say about 650.

DWG: And you haven't thought about increasing that at this point.

General Messenger: So we are constantly looking at whether that's right and we're talking to our American and NATO colleagues all the time as to whether that posture is right. So I don't discount [inaudible].

DWG: One follow-up on an earlier line of discussion, then I have another question. You're very strong on the international condemnation of erosion of international rule of law. It doesn't seem to make a whole lot of difference. Most of what he's doing and the international reaction almost reinforcing his position. Of course his wonderful slam

dunk election puts him in place for six months. Years, sorry.

What can the international community really do to affect Russia's behavior given Putin's absolute power and the fact that his popularity seems to be fairly solid?

Secretary Lovegrove: First of all, no doubt Gordon will have some other views. I think the international reaction which we've seen in the last couple of days has been unprecedented in its unanimity and I would hope that that would, that must have given President Putin pause for thought. I think the difference between the reaction to this and other incidents, most notably the [Inaudible] incident, has been sharp and as I say, I would have thought that would have caused some degree of consternation.

I do think, though, that the point made earlier on about for the UK this is a whole of government effort. Many of the tools that are in the hands of the UK government and society as a whole are not purely military or diplomatic. And I have no doubt that colleagues are thinking about how to make the best use of all of the different levers at our disposal.

General Messenger: I'm sure that's correct. I think it is the international solidarity and international strength, and I'm sure that that is the one thing that will be the most effective tool in deterring and countering some of the things we're seeing from Russia.

DWG: The other question is, cyber is the big part of the Russian hybrid war is the [inaudible]. They have done dabbling in your electoral process similar to what they've done to us and other countries. What are you doing? Here in the United States we have a problem with our IT [inaudible] dispute between government and private industry. You know, it's hard to get cooperation. Do you have that problem in Great Britain? Or can you --

General Messenger: I challenge any nation in the world to be perfectly structured and organized around its approach to cyber. It's new territory, it's challenging territory, it's ubiquitous territory, and it intersects with everything that we do. So there's always going to be sort of some sort of friction around the edges.

We have attributed the [Napatia] incident to Russia and have been supported by an impressive number of other nations on the back of that attribution, so we do believe that analysis of where the attack came from and where we can attribute to its source is an important part of that, and we continue to emphasize that.

We take our cyber resilience and network security very seriously. Certainly, of course, in our department where we have higher levels of security, but also recognizing, as your question intimates, that this is about industry. This is about the whole of government and the like.

We have a national cyber security center which has been going now for probably over a year. And one of its jobs is to manage incidents when they occur. But another important one is to actively interface between key industrial partners to share best practice, to hold to account the parts of industry that matter to the United Kingdom's economy.

So I wouldn't describe it as perfect, but I would describe it as a good start at what is clearly a growing threat, and it's an area that gets a huge amount of attention, and I can only see attracting more and more resource.

DWG: [Inaudible], but that's okay.

[Inaudible]. I was curious to how things were going with the submarine development program, the Commonwealth the U.S. and the UK right now?

Secretary Lovegrove: Very well. As you know, we are in the process of a, one of those inflection points in the nuclear program. We are building a new class of deterrent submarines, SSBNs. We are finishing up a class of hunter killers. We are thinking about renewing the [inaudible] so there's an awful lot actively going on in nuclear.

All aspects of the nuclear enterprise in the UK bar very, very few are intimately interwoven with those of the American program. Both Gordon and I, we co-chair something called the Defense Nuclear Enterprise Board. We are constantly talking to our American interlocutors, making sure that they're happy with what we're doing, we're happy with what they're doing, lead to programs that are going to get [addled] step. We've got in place a new range of institutional architecture to make sure that we can do that even more effectively than we have done before. So I have working for me now a Director General of Nuclear, specifically designed to, appointed to be able to keep those kinds of interoperability issues and interchange issues and cooperation issues absolutely aligned properly. So it's going well, but we are under no illusions that this is a very, very, very complex, extremely costly part of the UK's forward program. It's a good 25 percent of the equipment program for the next ten years.

DWG: Twenty-five percent?

Secretary Lovegrove: Yeah. It is a matter of public record that we are going to spend 178 billion pounds on equipment over the next ten years, and 44 of that is going to be in the nuclear enterprise.

So it is absolutely primary effort stuff, and we know that we must have the closest possible cooperation with our American friends and colleagues.

General Messenger: Can I use that as a springboard, just to make a point as to the unique nature of the UK-U.S. defense cooperation across the board. I think it's right that the nuclear communities are highlighted as one of the historical and ongoing [inaudible] cooperation and mutual defenders. But that happens in many other parts. In cyberspace, in weapon and sensor technology, in novel weaponry. It's a remarkably deep level of cooperation between our two nations which is unique and very tailored to the sorts of future threats and the future nature of operations that we envisage.

DWG: Can I ask one follow-up then, back to the [subs]. Were you concerned that some funding issues before [inaudible] continuing resolutions and things like that, and given that, --

Secretary Lovegrove: Funding issues for your side or our side?

DWG: Our side, right. On our side. Because it's a joint program and everything like that. And if so, or not, how do you feel now that this seems to kind of, you've got a lot more guaranteed funding going forward and stuff like that. On our side, there seems to be the general idea that this program is going to be much more attractive then.

Secretary Lovegrove: We have not picked up any concerns about the prioritization of your nuclear enterprise in the States on a daily, and indeed, strategic level. We've been entirely comfortable with the way in which matters have evolved. It's obviously welcome when you are moving beyond continuing resolutions and you have a security of funding, but we haven't picked up, even when you've been in the CR world, that this has not been a very, very, very high priority for the American system, and so we're very comfortable about that.

I should just say, a small thought, that 44 million of the 178 million that we're going to spend --

DWG: [Inaudible]?

Secretary Lovegrove: [Inaudible]. In the next ten years is on -- it's [sterling], yeah. The next biggest [cash] [inaudible] is in information and network. 23 million. So that I think gives an indication of where we think that a lot of the focus for the next, the coming years is going to be. It's going to be a domination of the information space and making sure that we can operate and degrade and deny where we need to.

DWG: Going back to Russia for a moment. Do you think that the latest round of actions would have been stronger if there was more international support beyond EU and NATO partners and allies? The Russian response so far seems to be marginally, this is yet another example of what, vilifying Russia's obsession to restarting the Cold War. Would that have made a difference, do you think? More international [inaudible]?

General Messenger: I think, and again, I think it would be the national security team back in London that would be the best to gauge the mood, but my sense is that there's a great deal of sort of admiration and gratitude for the international response that has been given. And the fact that this, as Stephen said earlier, you know, about 100 expulsions from well over 20 nations in what may turn out to be an ongoing international response is a strong display of solidarity by any measure. So I think, I don't want to put words in our senior leadership's mouth. I think the sense is that our partners and allies and those that share our values have responded in the way that we would wish.

Secretary Lovegrove: And it's not just been NATO and EU. Australia has expelled diplomats, Ukraine has done the same. The New Zealand's said that they would have done if they'd been able to find any. They couldn't.

DWG: No, no. They said they were unable to find intelligence operatives posing as diplomats.

Secretary Lovegrove: Right. So I think it does go further than, it goes go further than NATO and EU.

DWG: And what do you think this means for the countries along and near, or the European countries along and near the border with Russia where there is either actual [inaudible] gray war like in Ukraine, or perhaps the greatest potential for a new simmering gray war? What should they take away from this?

General Messenger: Again, the question should be posed to those who live and feel

the proximity on a daily basis. I would also say that Ukraine is a sui generis problem. I wouldn't sort of lump that in with everything else.

But geography matters a little less, I think, in the types of activities that we've seen, and what we've seen is that cyber can reach out and touch anyone. It's very difficult to contain it, if you are either the perpetrator or the defender. And the acts like that that we saw in Salisbury could have happened anywhere in the world.

So while it's absolutely not downplaying how it feels to be on the border of those nations who are acting in this way, and the historical and geographical tensions that go with that, I think we have to recognize this is something that could be visited upon us all, and we all need to be prepared for it, regardless of where our [job] is.

Secretary Lovegrove: I was hosting my Estonian counterpart the day after the Salisbury attack, and I think the overwhelming feeling that we both had was that what touches them touches us, what touches us touches them.

DWG: When I talk to people in the Balkans, I feel like the greatest concern, sort of off the record, is they know that Article 5 exists with NATO. But [inaudible] conflict, it's unclear whether there would be a clear response from NATO partners if something amorphous were to happen in those countries. Does this action change that, do you think? The fact that all of the NATO countries rallied behind in this case [inaudible]?

Secretary Lovegrove: I don't think it crosses an Article 5 position. If it had, you would have seen a different type of response. Our view on this is it is an unlawful use of force on British territory. I pick up no sense from any of our NATO partners that the integrity of Article 5, however, is even remotely in doubt. That's something that everybody takes a great deal of comfort from.

DWG: Good morning, Mark Salinger with Defense Daily.

If I can go back on the F-35 for a second. The U.S.-led Joint Program Office has been talking about a follow-on development phase that's supposed to cost about \$16 billion, including the procurement. And the admiral who runs the program has said that the allies are expected to contribute \$2 billion towards that cost. I was wondering if you know what your share of that is going to be, and if that's something that you've been able to work into your budget so far.

Secretary Lovegrove: I'm afraid I don't have those details to hand at the moment.

The way in which the arrangements around the JPO work are that you have some kind of different commitments, different entitlements, depending on where you are in the process.

As in some areas stuff can wind down over a period of time, so we will certainly have commitments, but I'm afraid I don't know what the exact numbers are to hand.

DWG: If I can ask another question about space. The U.S. Air Force and other services have been talking about the increased vulnerability of satellites to China and Russia. I was wondering if the UK has a similar concern and how you're addressing that.

General Messenger: We do have a similar concern. We think that the resilience over our space-based assets is something that we have to take seriously, and we are absolutely factoring that into our current satellite array and our future plans.

I think you're right to highlight that as an area that's getting more and more focused. And we're working closely with U.S. colleagues on that.

DWG: Can you say how you intend to achieve that resiliency without giving away too much? And which satellite constellations in particular?

General Messenger: We've got a Skynet 5 constellation at the moment. We constantly review the resilience of that network. At the moment, given the sorts of threats that we might face we're reasonably comfortable that we're where, we have the required resilience that if both threats and capabilities increase in the sort of trajectories that they might, then we're going to have to up our game. There are plenty of ways of delivering resilience in space. One is to really look to protect the platforms themselves. The other is to build redundancy into any network that clearly has a sort of international, that can and should have an international flavor to assure services that one gets.

One needs to look at what capabilities one derives from space and potentially look at alternative ways of delivering them that aren't dependent on a single satellite.

Those sorts of things you would expect us to be doing and we are doing.

DWG: [Inaudible], National Defense Magazine.

I was wondering if you could elaborate a little bit on the information [inaudible] warfare

investment that you're making. If you could provide any [inaudible] priorities you have there.

And then a little bit related, I was wondering if you could kind of explain in the realm of cyber defense. Obviously you're making your own investment and then NATO has their NCI Agency making investments. So when it comes to cyber attacks [inaudible], things like that, how does that relationship work? Does NATO assist you in those regards or when do they come in?

General Messenger: So on information, thank you for the question, I'm of the view this is of utmost importance in sort of warfighting and operating in a future environment. That unless one is able to be an actor in the information space, unless one is able to secure a degree of advantage at the time and place of one's choosing in the information space, then frankly, your physical capability or your battlefield capability is less effective as a result and could be rendered ineffective as a result.

If you are on the backfoot and your adversary has the ability to spoof your sensors, deceive your decision-making, corrupt your networks, turn data into decision-making support information quickly, then you're going to be largely neutered on the battlefield. So therefore what we have to do is to develop capabilities that do exactly that.

In terms of the specifics of it, we think that data [analytics] and [ARNL] will be an important component to achieving better decision-making, situational awareness. We think that resilience of our networks by whatever means is a really important part of assuring you are able to achieve information advantage where and when you want it.

We think that the ability to be offensive in cyberspace is an important component of that too. Because what you want to defend against, the things that I've just outlined, you also want to be able to do that to your adversary.

So those are a very different array of capabilities than the sort of traditional submarine/anti-submarine, tank/anti-tank. I'm in no way decrying or diminishing the importance of having battlefield capability or physical capability, but without the ability to operate in that virtual space then again, their effectiveness is at best less effective and possibly even neutered.

On cyber defense and the relationship with NATO, ultimately it is a national responsibility to ensure that our networks, our systems are adequately defended. But we also recognize that A, NATO has its own systems and that we need to bring our best

practices, as all allies do, to make the NATO networks and systems as resilient as they can be.

There is also a community of nations there who share constantly best practice and experience, which they then take back into their national decision-making.

So I think it's a healthy fluidity of ideas and lessons and processes which is a benefit to all.

DWG: I want to go back to Salisbury and clarify something you said earlier. I believe, General, that you said you'd like to develop techniques to deter this type of action. What type of, how do you deter such a small level targeting type of [inaudible]?

General Messenger: I think, as I say, we need to just think through what we mean by deterrence in the modern age. Deterrence as a principle hasn't changed since the Cold War. It is about ensuring that the risks of any action by a protentional adversary outweigh the potential benefits. That is what deterrence is about.

In an era of steady state gray zone, what we have to be able to do is to be ready to respond and be ready to act. That doesn't necessarily mean that you need to respond and act in the same vector that you were attacked on. You need to be able to both escalate and deescalate. You need to be able to exploit modern technologies in a way that when the deterrence was all about the deterrence, one didn't have that sort of levels of complexity.

And we need to recognize that there are legal and policy issues associated with the state short of war. We've become quite used to a delineation in legal and policy between peace and war. Although perhaps we just need to sort of review that assumption in order to ensure that we aren't going to a boxing match with one hand tied behind our back.

Secretary Lovegrove: One of the things we've been trying to do is to refresh a more nuanced debate around deterrence. Really, to answer some of the question, a bit of the question that you asked. You can have deterrence by denial of benefit. That in this area particularly, around cyber as well, in these kinds of very targeted attacks with difficult to identify -- it's very difficult to do. I mean what are you going to do? Are you going to protect every single pizza parlor in the country from -- I mean that's not likely, but it's important in lots of ways.

There's also deterrence by imposition of cost. We need to have sufficient capabilities and techniques and public postures and alliances which allow our industries to understand that the imposition of cost will be too great for them to continue with activities of that sort.

DWG: Following on, another level of deterrence. We had our Nuclear Posture Review --

Secretary Lovegrove: Sure.

DWG: Just in general, what's your reaction to that? Too little? Too much? Just right? And one of the things that's gotten a lot of attention here is the low yield sub-launched weapon. Is that something that, I don't believe you --

General Messenger: No we don't -- our weapons are, you have a much greater range of destructive power in your weapon systems than we do. You have other ways of delivering them as well.

We obviously welcome the Nuclear Posture Review, much as we welcome your National Security Review, and indeed your National Defense Review. Many of the observations, inferences, themes, consequences we very very much share. I mean there is very little to put between the UK and the U.S. in that.

In terms of your decision to maybe go into low yield weapons, I think that is also part of a refreshed thinking about deterrence. Deterrence can certainly work at the level of the very greatest nuclear weapon, the very greatest power of nuclear weapon. So it is a sort of a fairly standard type of capability to develop if you wish to deter the kinds of conflicts that America and the rest of the world does. So I think that's a very understandable position for the Americans to take.

DWG: Is it something that the UK would want [for] submarines?

General Messenger: Not something we're considering, no.

DWG: General, can I follow up on something you just said? You talked about the need in the modern age to continue to be able to escalate and de-escalate according to this scenario. How do you see the current situation de-escalating? Are there particular things you're looking for? Things that would need to happen for that to take place?

General Messenger: Again, I'm a little uncomfortable answering that question because it's not really a question for our department or for me as a military person. I'm very content to talk about some of the generics of deterrence, like what I've said. But in terms of the specifics of how this might play out from that particular incident, I hope I don't sound like I'm ducking the question. It's just not, it doesn't feel right that that comes from the Ministry of Defence and from a military professional.

DWG: But from a strategic perspective, are there things you're looking for the Russians to do or not to do that would be in line with certain [inaudible]?

General Messenger: I think what we want is for Russia to adopt a posture which is more in line with what have been the international norms for decades. And I don't just highlight Russia. There are other nations out there that are quite content of using those rules and profiting from them. So that would be the optimal outcome.

DWG: [Inaudible]. Can you give us an example of what that would look like? Or sound like?

General Messenger: Well, being a little bit [averse] with a more responsible actor in cyberspace would be one.

Secretary Lovegrove: Adherence to the Counter-Weapons Convention.

DWG: Could I ask you about Brexit's implications for your Ministry? [Laughter]. And I'm wondering whether, for example, in your conversations here while you're on this visit you might be talking about that.

I wonder, for example, whether looking forward, as you think about your weapon systems and the needs, defense needs that Britain has, you might be thinking about some American weapon systems that might need to be purchased that wouldn't have been had Brexit not been on part of the plan.

Secretary Lovegrove: We do a great deal of thinking about Brexit in Defence, but I have to confess we don't start from that kind of position. The Prime Minister's been very clear that she wants and Britain wants, and indeed Europe should want and I think needs a very deep and special and unique relationship with the UK in the security and defense arena. That will keep the continent safe. We may be leaving the European Union, but we are self-evidently not towing the whole island of Great Britain out into the middle of the Atlantic and repositioning it. We are still part of Europe and we need to

stay very closely involved with emerging European defense architecture which may take on a different trajectory and velocity now that we are leaving. We understand that. But we certainly want to remain as closely involved in it as we possibly can.

WE want to continue to develop battle winning technologies with our European partners. Our most effective aircraft is the Typhoon, and as you know, that also goes by the name of the Euro Fighter. So that was Germany, Italy and Spain. Those are the kinds of projects that we want to see continuing.

We've got Future Combat Aircraft System projects working with France.

So there is a huge range of activity that we wish to pursue in a very profound way with our European partners.

In terms of whether or not there are American weapon systems that we will want to possibly co-develop and buy, I think we will probably, by and large, be driven by interoperability and best value for money and most effectiveness. I mean that is the place where we're going to start from.

DWG: And one more, if I may, just to stay with weapon systems and purchasing.

General, are there any particular British weapon systems that you are able to commend to your American friends while here, or whenever you're talking to them, because they are particularly good in your opinion?

General Messenger: There are plenty. There's a very vibrant missile industry in the UK which is absolutely world leading in terms of the technology that it delivers.

The one thing that is off the shelf and ready now is the dual mode seeker Brimstone system which is much in use to great precision and effect in the Middle East and has a suite of sensor capabilities that is unmatched. And we are looking to have that recognized, and we think it is.

We're also developing what we call a common family of missile systems looking into the future, recognizing that the maintenance of missile stockpiles is a challenging and expensive thing to do into the future. The more commonality that you can build between your maritime, air, ground missile suite, the more modularity you're able to get from your future missiles, the better. So we've achieved quite a lot of success by imposing a great deal of discipline in the future suite of missiles that we're developing.

And the third thing that we're doing is investing heavily in novel technology which may in due course replace certain missile functions and we think that's an exciting area of development too.

Secretary Lovegrove: The other thing to say, and Gordon knows more about this than I do, it isn't a question a lot of the time of the UK developing nationally a capability which it then seeks to sell. There is an extraordinary, profound, and rather unprecedented level of integration between our science and technology establishments and institutions which leads to the development of joint capabilities, and I suppose the F-35 is the most obvious version of that where it wouldn't work without certain bits of British capability, but there are other examples as well.

DWG: Can I ask an interoperability question? Can the Typhoon and the F-35 talk to each other? The F-22 and the F-35 cannot --

General Messenger: We're doing a lot of work on that, is all I can say.

DWG: They don't have the capability yet but you're doing a lot of work on it?

General Messenger: I don't, we'll probably stray into classifications I'm not prepared to talk about, but it's recognized as an important function.

DWG: It's an important function that you need to come to grips with or come up with a solution for?

General Messenger: Yes.

DWG: Thank you very much to our guests, and I hope the embassy and the British government will consider this again in the future as a place to talk about what we've talked about today. Military affairs, military policy, weapon systems, and the alliance between the UK and the United States. Thank you so much for coming.

Secretary Lovegrove: Thank you.

General Messenger: Thank you for your questions.

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DWG: So your projects are ten year or five year projections?

Secretary Lovegrove: The 178?

DWG: Yeah.

Secretary Lovegrove: Ten.

General Messenger: I commend to you the public document Equipment Plan.

DWG: The 2015 plan or --

General Messenger: No, every year we come out with something called the Equipment Plan. It goes out the next ten years, and we published it not too long ago. And although that often is the case, it provides an awful lot of information, much of it rather indigestible, and that is a good example of it. So I'm giving you a slight shorthand, shortcut through it.

DWG: When you said pizza parlors --

Secretary Lovegrove: Well, I mean I don't know. I'm not privy to the nature of the investigation, but of course --

DWG: -- associate --

Secretary Lovegrove: They're all run by foreigners.

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