Tyra Mariani: Good morning. Our first conversation is helping us think about the challenges that the Navy will face in 2030 and beyond. To help us envision that topic and idea we have the pleasure of being joined by Admiral John Richardson who is serving as the 31st Chief of Naval Operations. He’s been doing that since 2015.

CNO graduated from the U.S. Naval Academy in 1982 with a Bachelor’s of Science in Physics. He holds Master’s degrees in Electrical Engineering from MIT and Woods Hole Oceanographic Institution and National Security Strategy from the National War College. He has served as both Commodore and Commander several times, as well as Chief of Staff to the U.S. Naval Forces Europe and U.S. Naval Forces Africa. His staff assignments have included duty in the Attack Submarine Division of the Chief of Naval Operations Staff; Naval Aide to the President; and Director of Strategy and Policy at U.S. Joint Forces Command.

The conversation will be moderated by our very own CEO extraordinaire Anne-Marie Slaughter whom you’ve met already. But a little about Anne-Marie’s background is that prior to becoming CEO of New America, she served as the Director of Policy and Planning for the U.S. Department of State and was the first woman to hold that position. And before then she was Dean of Princeton’s Woodrow Wilson School of Public and International Affairs from 2002 to 2009. And before then, Professor International Foreign and Comparative Law at Harvard Law School.

So our very distinguished leaders for this morning, please join me in thanking them for the conversation.

Dr. Slaughter: Good morning again. We have lots of things to cover. I’m not sure who set that up that the Army managed to get its Imagining the Future in on the video before the Navy got here, but -- [Laughter].

CNO: I can’t compete with the ghost brigade.

Dr. Slaughter: Although Ghost Fleet is Peter Singer’s wonderful novel. If any of you have not read it, you absolutely should.
I’ve been reading some of your testimony and some of your speeches, and I can’t help noticing that you have, the Navy gets a big boost from our first President. George Washington said, and I’m not sure if I can quote it exactly, but he essentially seems to have said without a Navy we can’t do anything. With a Navy we can do everything that is honorable and glorious.

CNO: Right.

Dr. Slaughter: A pretty good way to start anything. We’re talking about the future of war. We’re talking about the future of the Navy, and I’ve got a lot of specific questions. But one of the things I’m most interested in is when George Washington was talking, he was talking about the Navy as ships. There were ships and there were Sailors and they sailed to different places, and of course they had naval combat. They still do that.

But when you talk about ships and actually when you talk about ships and planes and all the different parts of the Navy you talk about them as platforms. So I’m going to start by asking you just to reflect on that big change, that you now think of a ship or a plane as a platform.

CNO: Maybe if I could just back up a little bit and talk about why we start with that quote, and the quote talks about without a Navy we can do nothing decisive, and with it everything honorable and glorious. So your question really goes to the idea of what makes a Navy decisive. And we spend a lot of time thinking about that. That’s really what our strategy goes towards. And then whether we call them platforms or ships or whatever, we go towards putting together the right mix of those things to deliver a Navy to the nation that is decisive.

But the other reason that we start with that more and more is that we are taking every opportunity that we can to go back to what I would say is first principles. I think it’s very much a theme that we have in common, that this honorable and glorious part is as important as the decisive part. George Washington, our first President, has a lot of street cred in the Founding Father group. If we think about what the Navy can do for the nation, certainly we contribute to the military dimension of national power and we’ll talk a lot about that.

But in addition, a quick scan of our history shows that the Navy is deeply involved in the diplomatic element of national power.
So if we think about the role of the Navy in diplomacy, very very important. Up to this day. A navy ship visits a foreign port, the U.S. Ambassador to that country will host a reception on U.S. sovereign territory, that Navy ship.

Then just like George Washington did, and particularly Thomas Jefferson, one of the very first missions the Navy undertook was to go overseas to the Strait of Gibraltar to protect our trade against the Barbary Pirates at the time. And we still do a lot of that. That’s why we are deployed around the world, to make sure that the navy continues to meet its responsibilities to contribute to the economic dimension of national power.

Then all in the service of the value proposition that the United States presents to the world, so this idea of life, liberty and the pursuit of happiness. It’s so important for us to center up on that. So we begin a lot of our discussions, both internally in the Navy and externally, reminding ourselves of those founding principles. So that when somebody meets a U.S. Navy Sailor, that might be the first actual manifestation of the United States that they meet. So it’s important that all of our folks understand that we certainly are part of the military dimension of power but also diplomatic, also economic, all in the service of these values. So that’s really why we start with that.

To your question, I think that as we start to appreciate anything that can contribute. Certainly platforms. The only thing that George Washington was thinking about was ships. Sailing ships. Then as you track the progress of technology through, well, we’ve introduced more things that can deliver naval power over time. It’s just become more complicated. You have to stop thinking about these things almost as individual things, but also how they can contribute in a combined way. So you start to generalize them to this idea of platforms. Some thing that can deliver naval power.

Dr. Slaughter: So whether that’s a submarine or a satellite or a plane, it’s integrated and, distributed but networked vehicle for delivering naval power.

CNO: Right. So that it operates together with everything else. And then we can’t forget the human dimension of naval power as well.

Dr. Slaughter: That’s what I was going to come to.
With that overview, and I do think I remember reading the strategy that you all put out in like 2007 where really these integrated military, economic, diplomatic and really value-based missions. But right now in some ways we are going back to the future. The National Security Strategy, the National Defense Strategy, talk about a return to great power conflict. A return in many ways to 19th century views of the world. And I was struck, those of you who were at dinner last night know I’m a Game of Thrones fan, and I hope, spoiler alert but sorry, if you didn’t see it last night you had to be prepared, the end of the war against the Night King and back to great power conflict. We’re back to conflict among the nations.

When we talk about that now, we talk about China and Russia. And I wanted to ask you how you think about China and Russia and how alike. They’re both powers that are adversarial to us in some ways. Not in all ways. But they’re also very different. So how you think about that specific part of great power conflict.

CNO: There’s certainly a great deal of difference between those two powers. Particularly over time, I think that China’s growing very fast, becoming more and more global with tremendous ambitious. Russia trying to regain a near-abroad security and using a little bit different approach to maintain their security. More asymmetric, I would say.

They require a little bit different approaches, but in general I think the approach is the same. One is that there are certainly areas where we have a lot of differences in the discussions that I have at least with my peers in China. It’s really about how do we mitigate and manage risk as we resolve these differences? It’s going to be important to the future of the whole world how China and the United States resolve their differences in a way that hopefully avoids conflict to the point that the President of Arizona State made in his opening remarks. Then with respect to Russia, how do we just try and anticipate these moves that Russia is making?

But as we are starting to think about it, it really exists along a spectrum of competition. We want to try to move things to the lower kinetic end of that spectrum with every move that we make. There’s a lot that goes into that. One, that we have to be able to control the high end of the spectrum so that we can deescalate on our terms. And then just really do the hard analysis to deconstruct each one based on its own merits.
Dr. Slaughter: I’m interested, when you talk about mitigating risk, and I think about, I know you have regular dialogue with your Chinese counterpart and we learned those lessons over the last great power conflict. There’s great power conflict you can avoid, but of course World War I, much more where people are a rising power as with China now, where with the security dilemma the risk of a mistake, of misinterpretation is as great as anything else. So you can’t stop the head-on, we want this territory, no you can’t have it. But you can stop the, I’m not sure what you mean and I’m going to make decisions --

CNO: I think you’re exactly right. So we spend a lot of time, we’re obviously focused on things that happen at sea and near the sea. So what are those operational arrangements that are going to do everything we can to minimize the risk of miscalculation? So we have this Code for Unplanned Encounters at Sea, which is a communications protocol so that when U.S. ships and foreign ships, and this is spreading to more and more navies as they adopt it. Okay, let’s talk to one another. Let’s arrange a passing that’s going to be predictable and safe and not confrontational so that we minimize the risk of any kind of a miscalculation. Because it will go, the most tactical miscalculation will go strategic very, very fast.

Then to the point of responsive communications if something like that should happen, one, by virtue of our time together we can understand each other’s thinking. And then we can get each other on the phone real quick and say okay, this just happened. Let’s not let this thing escalate beyond where it’s helpful for either one of us. Deescalate it and keep it in perspective

Dr. Slaughter: A quick test.

CNO: Exactly.

Dr. Slaughter: Let’s turn to technology. It’s inevitable in all our lives, and particularly we think about the future of conflict and the future of security. I was very interested, looking at your testimony presenting the most recent budget and Senator Inhofe I think basically said to you you’re taking the Harry S. Truman out, why are you doing that? And you said look, we need to use those funds for new technologies. I want to invite you to talk about some of the specific technologies that the Navy’s investing in and that you think about.

CNO: Dr. Singer’s up here. He just wrote a piece that I read this morning about this thing. So one thing that characterizes
success and failure I think is our ability to just move. The most mortal sin we can have right now is to stay stable or stagnant. So we’re trying to move, and that’s exactly the decision dynamic with respect to what’s more relevant for the future? Is it going to be the Harry S. Truman and its air wing where there’s a lot of innovation taking place; or is it going to be something else? Those technologies are really right around the corner.

I note that it was a science fiction war that we started with, and if you think about the time horizon for science fiction for readers, it’s steadily moved in. Whereas science fiction writers used to write about 100 years in the future, 150 years in the future, now it’s like 25-30 years in the future. It’s an indication that things are moving fast.

The Navy’s also trying to move fast in these directions. Things like unmanned and autonomy, artificial intelligence, things like directed energy which I think are going to really be very decisive. Directed energy, energies that make a difference.

Dr. Slaughter: You’re going to have to explain to me a little more. Directed energy?

CNO: Think lasers, high power microwave, electromagnetic energy in a focused way. It can deliver either kinetic or non-kinetic effects.

I would say additive manufacturing and the ability to create things from printers, from raw material. Very decisive, particularly for the Navy because we’re always making these hard decisions. What parts do I have to carry? And we only have very limited space. If I can make whatever part I need, then it’s a much different logistics thing for us.

These are the types of technologies that I think are going to have a very decisive impact on the future. Then the information systems I need to support it, the artificial intelligence and machine learning. Then how do we team all of that technology with people which I think are really, that’s the competitive edge of the future.

The technology field, if we can maintain pace, is going to be relatively even. So then it comes down to how we team with that technology as people to be more innovative, creative, et cetera.
Dr. Slaughter: I want to come to your people, how you’re training them, what you’re offering them. But when you talk about these different technologies, one of course is they will all be connected. So even if you think about a 3D printer and all the things it has to be connected to. So that’s part of how we’re going to fight, but it’s also part of our economic mission. So if we think about the internet of things and everything being connected, those connections go through underwater cables. So when you now think about protecting our economy, it used to be protecting ships from the Barbary Pirates. It’s now protecting cables. How do you think about that?

CNO: And cables just being one part of a national infrastructure that’s all very, very vulnerable because it’s all being run by some network which is getting increasingly interconnected.

Therefore, if you want to talk about an attack surface, it’s a term of art, lots of ways to get into that. So how do you manage all that? Both the physical infrastructure, and I will tell you that it’s not just undersea cables, but the technology has given us the ability to get to resources in deeper and deeper water. So there’s a lot of energy resources, a lot of infrastructure at the sea. It’s one of the most dynamic parts of being in the maritime domain right now. And then how do you protect all that? Sort of a sea bed approach to our thinking is one way that we’re getting after it.

So now to get down to that, well think about a network of unmanned vehicles, remotely operated vehicles that can go down and hopefully be effective at securing all of that infrastructure.

Dr. Slaughter: That economic mission is so much bigger than protecting ships. Even though protecting ships is still --

CNO: It’s still a pretty big mission.

Dr. Slaughter: So from undersea to outer space, because you also talk about cyberspace and space as the two domains. We talk about mixed reality right there. How do you think about protecting our assets in space? And to what extent do you think about that? A layman would say well surely that’s the Air Force, but I know it’s --
CNO: We’ve got tremendous equities in space. If you think about trying to maintain awareness and stay connected over the vast distances, particularly in the Pacific and the Atlantic, space is very, very important to us. So we’re teaming very closely with all the other services. The Army has a tremendous investment and equities in space as well.

Then the idea of this interconnectiveness starts with the space architecture but it really goes all the way down to each individual system as well. So thinking about the communication standards that are going to be required to really truly connect this thing. So that as the internet of things comes real and gets more and more ubiquitous, we don’t want to be left behind as the only kind of network of stuff that’s not too networked, so we’ve got to think about all that.

Dr. Slaughter: I promised I’d ask you to talk about people. Again, the size of your work force, the range of things they have to do. I was fascinated, you have something called Sailor 2025.

CNO: Right.

Dr. Slaughter: This idea also of offering your work force flexible career options. As the head of a think tank and an action platform I think about that all the time. I’ve got 60 percent millennials. Their careers are changing in all sorts of different ways. And so we think about how to offer that. But you’ve got a much, much bigger task. So I wanted to ask you, when you look forward at the future of the Navy, and also the need to have a very diverse work force. Because many of the things that you’re thinking about, if you don’t have a reflective work force, you’re not going to be able to do the AI the right way, you’re not going to be able to really think about, use the technology in the full way that we need to. So how do you, talk to us about Sailor 2025 and how you think about the future of your work force.

CNO: Sailor 2025 is really a suite of things that we’re doing to really move our human resources into the 21st century. So we had, and a lot of it starts with very mundane things like we’ve got to refresh the information technology. So there’s been a number of events in the past two or three years that have honored Admiral Grace Hopper. A great pioneer in computer science. I think some of our personnel databases were actually written by Admiral Grace Hopper. They’re that old. They don’t
talk to one another. And we were the masters of small data. Right?

So we’ve got all that moving up into the cloud now with modern software, which allows us now to get down to the individual Sailor and understand what that Sailor’s priorities are. Their professional priorities, what they want to do; their personal priorities; and everything about that person.

Then we’ve got a proposition that we can make. Consistent with meeting the needs of the Navy. If, let’s say, a Sailor just wants to run from one operational assignment to the next and just move, move, move, I’ve got a lot of jobs like that. I can help that person. If, on the other hand, maybe a Sailor and their family want to stabilize because they have children going through school, listen, depending upon where you want to live, I can make you some pretty good offers in that way. If you want to get educated yourself, we’ve got options there. So what is the compensation package that we can meet up? And then how can we eliminate all of the bureaucratic inefficiencies to make this literally all done on your smart phone?

That’s what we want to do is deliver all of that flexibility, transparency, control of a Sailor’s career to their smart phone. So that’s just the human resources.

Then there’s the training part. As we think about technology, another thing in the past 20-25 years, we’ve learned a tremendous amount about how people learn. We’re bringing all of that knowledge, technology, assists, but also just the techniques through which information is presented. All of that being brought to bear. Then again, we’re networking our training venues as well. So you put on the goggles. You’re sitting in Norfolk. You’re in the simulated cockpit of an F/A-18. Another Sailor’s sitting in San Diego or Fallon, Nevada, and they’re all networked together, all fighting the same thing. The training systems are networked together.

You go to sea right now on a ship and you are presented a very complicated problem with the rest of your strike group and fleet. Half of that problem is real, so you look out on the horizon and there’s the ship. Half of that problem is completely simulated. So there’s live and virtual mix in terms of training opportunities, gives us a chance to really ramp up the complexity of the scenarios and make us much better.
I’ll tell you also, kind of going back to where we started. Knock on wood, the Navy’s met its recruiting goals for the past 12.5 years, every month. It’s been a challenging thing. You have to ask yourself why is that? I mean I can’t compete on salary. We have the most talented Navy by every measure of performance that we’ve ever had. And I think it goes back to that value proposition, Dr. Slaughter. Hey, they joined the Navy to do something noble, and we need to make sure that when they join and they become part of that organization that our walk is consistent with our talk and that our behavior is consistent with our values.

Dr. Slaughter: Honorable and glorious.

CNO: Honorable and glorious.

Dr. Slaughter: I think we have a few minutes for questions. It’s hard for me to see who’s got the microphone. And I’m just going to say whoever’s controlling the clock, somebody needs to give me a hand sign when we’re done because the clock is not telling me what I need to know. So the floor is open.

Audience: Thank you, Admiral, for your service and for joining us here today. Candace [Rondeau]. I’m a Fellow with New America and a Professor at ASU.

CNO: Congratulations.

Audience: Thank you. I feel very lucky.

My question for you is actually I recently took a trip to Ukraine where we’ve seen a lot of challenges on the Sea of Azov and also in the Black Sea. I’m wondering what lessons you and the Navy have taken away from this last period of confrontation in that part of the world. I know that the USS Ross is flowing now; the Donald Cook there as well. What should we expect? What lessons should we take away? And also, what does this mean for interoperability for NATO going forward, as well as for the Ukrainian Navy?

CNO: That’s a heavy question. There’s not enough time left to answer that. [Laughter].

But I think some of the big lessons from that episode and many others like it are that one, I think it’s easy but a mistake to think of this in terms of a bilateral approach. What are we going to do as the United States to be more resilient to things
like that? And this happens I think both in the Atlantic, Mediterranean context, the NATO context. Also in the Pacific as well where it’s really a regional approach that we have to take.

So one aspect of this is to make all of our allies and partners in that region more resilient and resistant to those types of actions going forward. So how do we all team together to respond as an alliance or a team rather than just make this a bilateral thing? I think that’s a vulnerability we really want to try and avoid. Both, as I said, in the Atlantic and the Pacific.

Then it goes to this idea of response time as well. So we’ve got to be able to respond, or even better, anticipate these types of behaviors. In fact, in the ideal we would want our competitors responding to our first move rather than always being in the response mode ourselves.

If you think about that full spectrum of competition, we would want to be making plenty of first moves of our own so that we can force the competitor to respond, and then the decision cycle. When we do have to respond we’ve got to be able to do so on a time scale that’s relevant so that we can’t let one actor go in, potentially establish a new normal, and then move on to the next thing before we’ve had a response to the first move. So we’ve got to both think about this as making the region more resilient to these types of things so that one would give a great deal of thought before trying something like that; and then when they happen, be a little more responsive.

Dr. Slaughter: I think the building resilience point is, again, whether you’re talking about climate or -- but it’s such a core part of how we think about the future of our security. It’s really a key point.

Audience: Sir, George Nicholson with the Global Special Operations Forces Foundation.

A little over a year ago at the Atlantic Council General Miller said our biggest threat in the future for the Marine Corps is our dependence upon JPS and SATCOM. He talked about being in Afghanistan the month before, asking one of his Marines where was something on the map? He said they looked at me like I was a dinosaur and said we don’t use maps. I think about two or three weeks later you made the comment that you had the same problem in the Navy. I think you said you asked the question
about can we use sextants and were told we stopped using sextants years ago.

How do you see this problem being resolved?

**CNO:** The problem I think comes under a group of problems that we call, I think it’s positioning navigation and timing. PNT. The other thing is we’ve just got to make an acronym for it. [Laughter].

The challenge of positioning, navigation and timing, we’re making good progress there. This is an area where technology is helping us. There’s a lot of these positioning systems up in space and in GEO types of approaches to this. I think that all of our systems should be able to use all of them so it makes it more robust. If we’re going to use kind of those electronic navigation types of systems.

Then we have returned to celestial navigation and some of those things which technology here, we can do better than a sextant right now in terms of getting a star fix. So it’s the combination of all of those things that will make us be more resilient.

Your question though elicits a broader matter which we’ve talked a lot about the network today. That network, of course, is going to be the first point of attack I think when conflict starts to move to the higher end of that spectrum. Ours is not going to be 100 percent resilient. We can expect ours to degrade. But our hope and our goal is that while ours degrades, it won’t degrade as much as theirs, and at the lowest point of connectivity, performance, we’ll be better than our adversaries, and then we’ll heal faster. So it’s really thinking about that information space. Whether it’s navigation, whether it’s communication, that’s contested battlespace right now. And thinking about some of those fundamental ideas of contested space. Those principles will do us well in this space as well.

**Audience:** Pete Monsour, I’m a Professor of Military History at the Ohio State University.

What are your concerns that the Navy hasn’t engaged in a major blue water conflict since the Battle of Leyte Gulf in 1944? I’m thinking the parallel here would be the Royal Navy between Trafalgar and Jutland didn’t see a lot of blue water conflict, and then at Jutland it doesn’t do very well because its culture had ossified.
How do you prevent that from happening in the United States Navy?

CNO: It’s a real challenge. There’s a great book, Rules of the Game, that talks exactly about that problem for the Royal Navy and has tremendous lessons for us in terms of the culture of command and freedom of action, the ability to innovate.

I was just up at Newport last night and talked to the course that we teach to Future Joint Force Maritime Component Commanders. We talked exactly about this. Then we went to dinner with a bunch of the prospective commanding officers that are going to go out and command ships and we talked exactly about this.

So it’s a matter of how are you training? That’s the best that we can do, Pete, is just make our training as challenging and prototypic as we possibly can. Including the decision structures and the challenges that are going to poke right at that problem that you just talked about. Then what is the response? And what is the ability of each of our commanders at every level to think on their own, innovatively, creatively, use their initiative, exercise the full scope of the authorities that we have given because I think what happens in these long periods without exercising those muscles, just like an athlete, we get out of shape. So we’re trying to push out and exercise.

But I’m mindful, you know, you mentioned Leyte Gulf. At the beginning of World War II, even after Pearl Harbor, even after Guadalcanal, we were still learning on the fly at great cost in combat. So I’m mindful that every opportunity we can to make that training more representative of the complexity of the challenge we face will get us closer. Then we’ve got to build in that resilience and toughness and I guess humility to understand that we’re not going to get it all perfect and we’re still going to have to fight through that transition.

Audience: Chris [Inaudible] with BBC.

I’m sure you’re not going to be any Admiral Jellicoe, sir, but we talked a little bit about great power competition, but a lot of smart people have been talking about, John Bolton for example, pushing towards a confrontation with Iran. I was wondering what your advice might be when that issue comes up.
CNO: The United States is a global power. One of the lessons we have learned we have to internalize, is that every time we try and focus on one thing too much without maintaining a balanced perspective, that well, there’s vulnerabilities associated with that. People will steal a march on us in our blind spots.

Then I think particularly with the Middle East and other areas, the importance of allies and partners is even made more manifest. So building those meaningful networks where we’re sharing not only military capability but every time we get together with our allies and partners in any kind of an international contest, it’s really like hey, how much more information can we share, so that we can get out in front of this, start to be in the anticipatory phase of things rather than the reactionary phase of things. So I think that’s a big part of the solution.

Then as we think about those adversaries identified in the National Defense Strategy, we’ve got to watch out for any kind of alliances between them. So China-Iran, Russia-Iran, those types of alliances only complicate our problem as well.


You began your comments about communication on the high seas between navies and over the weekend two U.S. ships again went through the Taiwan Strait. There have been an increased number of Freedom of Navigation operations in the South China Sea. Of course you know of the incident last fall where it appeared a Chinese vessel was going to ram a U.S. vessel.

Can you talk a little bit about the South China Sea in regard to the communication aspects that you mentioned at the beginning of your remarks, and how to avoid an accident ramming or something like that?

CNO: I think I was pretty complete when I talked about it. It’s really just an operational construct that in the vast, vast majority of encounters that we see in the South China Sea and everywhere else that you mentioned, both parties behave, all parties really, because it’s bigger than just the two of us, behave consistently with those arrangements. In fact, that’s one of the things that we stressed quite a bit when I last visited China was this responsibility that we have to make sure that we train our commanding officers who have so much
responsibility on their shoulders, to make sure that hey, if we don’t consider ourselves enemies, let’s not treat ourselves like enemies. Let’s pass peacefully in the South China Sea or wherever, and let’s not make it hard to abide by these constructs and pass peacefully. So let’s not try and drive erratically in front of one another. Let’s try and not throw obstacles in front of each other, et cetera. It’s the responsibility of those commanding officers to make sure that they make a very measured approach in this.

Then it’s the responsibility of higher echelon commanders to teach that and hold the commanding officers responsible.

I think that’s about all that’s said there.

The South China Sea, a very important body of water for a lot of reasons. The United States as well. About a third of the world’s trade flows through that body of water, and so it’s extremely important that as we advocate for continued freedom of navigation through there and other international waters, like the Taiwan Strait, that we’re mindful that we’ve got a tremendous economic interest in that as a maritime nation.

**Dr. Slaughter:** For all our talk about mixed reality and virtual reality, you go to Singapore, you look out your hotel room, you see all those ships lined up about to go through the strait. It just reminds you how physical it is and how much we do rely on these very narrow passageways.

**CNO:** And you can map them out through the world. There’s the Malacca Strait where you were talking about; there’s Hormuz; there’s Bab-al-Mandeb; there’s Gibraltar; there’s Suez; Panama. You must take a look at them. Geography is still --

**Dr. Slaughter:** You can’t simulate that away.

**Audience:** Peter Singer, New America. Thanks again for joining us.

I’m going to ask you a question maybe less likely to get you in trouble than on Bolton and Iran policy. [Laughter].

**CNO:** I thought I finessed it. If I’m still the CNO at the end of the day -- [Laughter].

**Audience:** It actually goes back to the prior question about naval warfare 100 years ago. One of the challenges of that
period that you face now is that there were a set of technologies, a set of platforms, some of which had been dominant, were still believed to be dominant. That was the last great dreadnought battle. And yet wasn’t, moving forward. You had other technologies that were not yet realized to be as powerful as they would be -- aircraft carrier, submarine. And then you had a third category of ones akin to like the blimp aircraft carrier that seemed like it was the future and yet it was like a false alley.

So as you’re planning the Navy of 2030, how are you navigating these questions of which kind of investments to make, how are you testing them? How are you envisioning this?

**CNO:** That’s a great question. It’s very central to our approach right now. I’ll just tell you a story, and I apologize if I’m repeating myself. But there’s this number 10,000 that’s out there and gets a lot of play. I was out in Whidbey Island just last week where we have a lot of our electronic attack squadrons. So this is a new area that’s proving more and more valuable. They had this quote on the wall of their building that talked about, it’s a Thomas Edison quote. I didn’t make 10,000 mistakes, I just learned 10,000 ways not to make a light bulb. So there’s 10,000 in that context, in terms of experimentation.

If you read Malcolm Gladwell, he talks about the 10,000 hours that it takes to become an expert.

I feel like oftentimes I’m trapped in a world of 10,000 briefs. Right? [Laughter]. It takes 10,000 briefs to get the consensus and the group of fellow travelers to come together with a unity of effort.

That’s the way it’s not going to work.

As we think about all of these technologies and in the context of the Navy as a learning engine, a global learning engine, I would say that as always we want to move forward on an evidence-based approach. So the more we can get out and test these concepts in every possible way. Some we test by analyzing them a little bit more; some we test by wargaming them up in Newport or wherever; some we test by going out and doing a fleet experiment. We actually get on the water and check it out.

But we’ve got to make sure that when the nation’s security is involved, that we’re not making a leap of faith. So some people
use this battleship to aircraft carrier example as a pivotal moment for the Navy, and I suppose it was. But there was 20 years of experimentation with naval aviation that prepared us for that time. So it wasn’t like we just invented it on the fly. We had a lot of evidence and tactical development and technological development.

So as we move forward we’ve got to make sure that we continue those experiments, those prototypes, that refining. And we have to be mindful that hey, this exponential pace of change is getting more and more rapid. Also our pace of experimentation needs to get more and more rapid so that we don’t fall behind.

I’d much rather be in the 10,000 experiments realm than the 10,000 briefs realm.

Dr. Slaughter: Well that is the perfect note on which to end. We thank you. It’s the perfect kickoff to a day of discussion about the future of security. Thank you very much.

CNO: Thanks for having me. It’s great to be together again.

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