WEBVTT

00:00:04.360 --> 00:00:14.220
<v SPEAKER_2>In this episode of Defence Deconstructed recorded June 13th, I'm sitting down with United States Coast Guard Captain William Woityra to discuss his new paper, ICE Pact Lurches to Life.

00:00:14.220 --> 00:00:30.880
<v SPEAKER_2>This underscores the ICE Pact as a trilateral agreement in working relationship between Canada, Finland and the United States on Coast Guard ice breaking capability, as well as collaboration around workforce and research development and potential further commercial sales.

00:00:30.880 --> 00:00:45.240
<v SPEAKER_2>This podcast and Bill's research was supported with his fellowship from the Council on Foreign Relations, as well as a recently co-hosted event that The Canadian Global Affairs Institute undertook with the Government of Canada June 11th.

00:00:47.660 --> 00:00:50.420
<v SPEAKER_2>Bill, welcome back to Defence Deconstructed.

00:00:50.420 --> 00:00:51.460
<v SPEAKER_1>Hey, thanks Dave.

00:00:51.460 --> 00:00:53.240
<v SPEAKER_1>Glad to be here.

00:00:53.240 --> 00:00:55.880
<v SPEAKER_2>Bill, you've been with us for almost six months now.

00:00:56.460 --> 00:01:04.000
<v SPEAKER_2>As a Council on Foreign Relations Fellow, we've been looking at Arctic security and extensive research around the ICE Pact.

00:01:05.000 --> 00:01:09.580
<v SPEAKER_2>We're just actually recording this after a couple of days of ICE Pact discussions.

00:01:09.580 --> 00:01:18.440
<v SPEAKER_2>So could you give us a start by talking about how you see, from your vantage point, the ICE Pact and how it came together?

00:01:18.440 --> 00:01:22.300
<v SPEAKER_2>And then we'll get into some of the things you touched on in the paper.

00:01:22.300 --> 00:01:23.420
<v SPEAKER_1>Yeah, absolutely.

00:01:23.420 --> 00:01:25.120
<v SPEAKER_1>Glad to talk about this, Dave.

00:01:25.160 --> 00:01:29.600
<v SPEAKER_1>This is obviously something I'm really interested in and passionate about.

00:01:29.600 --> 00:01:46.700
<v SPEAKER_1>And I'm really thankful for the time that I've had with CFR and embedded here at CGAI to really dig deep and spend some time exploring the different elements of the partnership and see it kind of come to life.

00:01:47.160 --> 00:01:50.700
<v SPEAKER_1>The meeting this week was really exciting.

00:01:50.700 --> 00:01:54.800
<v SPEAKER_1>One of the highlights obviously was the roundtable event with industry and academia.

00:01:55.320 --> 00:02:10.880
<v SPEAKER_1>On Wednesday afternoon and it was excellent to kind of start to see those threads connecting the different parts and partners that are going to be important to the success of this endeavor.

00:02:10.880 --> 00:02:13.920
<v SPEAKER_1>ICE Pact obviously started a few years ago.

00:02:13.920 --> 00:02:18.940
<v SPEAKER_1>Really the enabling factor to that was Finland's membership in NATO.

00:02:19.080 --> 00:02:28.180
<v SPEAKER_1>And once Finland became a member of NATO, it opened the door to some conversations that happened on the sideline of the summit last summer.

00:02:28.180 --> 00:02:36.940
<v SPEAKER_1>Where the leaders of the US, Canada and Finland decided that there was an opportunity here that could benefit all three countries directly.

00:02:36.940 --> 00:02:46.780
<v SPEAKER_1>Finland obviously brings a tremendous amount of icebreaker technology and design expertise and experience to the alliance.

00:02:46.780 --> 00:02:53.060
<v SPEAKER_1>And Canada and Finland both have had experience building

icebreakers in recent years.

00:02:53.740 --> 00:03:03.240
<v SPEAKER_1>The US has not built any icebreakers for the Coast Guard or for the military in more than 25 years, despite having identified a crucial need for that.

00:03:03.240 --> 00:03:21.560
<v SPEAKER_1>So this is a chance for the three allies to come together and really take advantage of each other's strengths and bring icebreakers to the field sooner and at a really lower risk production capability than any one of the three of us would be able to do alone.

00:03:23.760 --> 00:03:42.340
<v SPEAKER_2>Just give a little bit more detail about where the United States is in terms of its current icebreaking fleet, what has been articulated as the future requirement, well I guess current and future requirement, and then what some of the efforts to date have been to get the US Coast Guard more icebreaking capability.

00:03:42.340 --> 00:03:43.680
<v SPEAKER_1>Yeah, absolutely.

00:03:44.000 --> 00:03:59.540
<v SPEAKER_1>The Coast Guard currently operates two polar class icebreakers, the polar star, which I commanded for two years from 2020 until 2022, is a heavy icebreaker in modern parlance, we'd call it a PC2.

00:03:59.540 --> 00:04:06.860
<v SPEAKER_1>It's 75,000 horsepower and capable of going just about anywhere on the planet any time of year.

00:04:06.860 --> 00:04:14.300
<v SPEAKER_1>It was, however, designed in the late 1960s and built in the 70s, first going to sea in 1976.

00:04:14.720 --> 00:04:19.440
<v SPEAKER_1>That ship is now 50 years old and well past its design service life.

00:04:20.240 --> 00:04:26.600
<v SPEAKER_1>The other icebreaker that the Coast Guard currently operates is the Healy, which is a medium icebreaker.

00:04:26.600 --> 00:04:30.400
<v SPEAKER_1>It's slightly larger, but it has less horsepower.

00:04:30.400 --> 00:04:33.160
<v SPEAKER_1>It's only about 30,000 horsepower.

00:04:33.160 --> 00:04:38.440
<v SPEAKER_1>It operates primarily in the Arctic in the summer and is used as a research platform.

00:04:38.440 --> 00:04:43.940
<v SPEAKER_1>It's a fully equipped oceanographic research vessel.

00:04:43.940 --> 00:05:04.560
<v SPEAKER_1>The Healy was built in 2000, so it is now 25 years old and approaching the end of its service life, leaving the US in an unenviable position of having arctic territory and sovereign concerns that they'd like to defend up there, but not necessarily having the platforms to do so.

00:05:04.560 --> 00:05:24.420
<v SPEAKER_1>It was the urgency of that and the delays in the polar security cutter program that led the US to buy the commercially available icebreaker IVEC, which has been repainted in Coast Guard Red and will be commissioned later this summer as the Coast Guard Cutter Storys.

00:05:27.000 --> 00:05:28.340
<v SPEAKER_2>Is it the case in the United States?

00:05:28.340 --> 00:05:37.480
<v SPEAKER_2>Can you just talk a little bit about what the policy and legislative legal construct is in the United States about how shipbuilding for the US Coast Guard is done?

00:05:37.480 --> 00:05:55.260
<v SPEAKER_2>And for Canadian listeners to be familiar, Canada for a long time has had what's now called the bi-Canadian policy, but it was previously called a building Canada policy where there's a formal government of Canada policy that says that ships produced for the federal government must be constructed in Canada.

00:05:55.260 --> 00:05:58.180
<v SPEAKER_2>What's the environment like in the US?

00:05:58.600 --> 00:06:00.000
<v SPEAKER_1>It's almost exactly the same.

00:06:00.000 --> 00:06:14.960
<v SPEAKER_1>In Title 14 of US Code, there's a specific provision that says that the Coast Guard may not construct ships overseas.

00:06:15.160 --> 00:06:18.760
<v SPEAKER_1>That's Title 14, Section 1151.

00:06:19.060 --> 00:06:31.080
<v SPEAKER_1>There is a caveat there though that says that the president may authorize construction of ships in foreign shipyards if doing so is in the interest of national security.

00:06:31.720 --> 00:06:55.740
<v SPEAKER_1>And so a lot of the conversations at ICE Pact and a lot of the U.S.'s research and the Coast Guard's endeavors to look at the global availability of shipyards and icebreaker designs has really been informed by an assumption that a waiver under 14 USC 1151 may be forthcoming.

00:06:57.360 --> 00:06:58.140
<v SPEAKER_2>Okay.

00:06:58.140 --> 00:07:14.560
<v SPEAKER_2>And so just as a bit more context, can you just elaborate a little bit about why Finland becoming a NATO ally is important in terms of a conversation about what the United States might do in terms of how it goes about obtaining icebreaking capability for the United States Coast Guard?

00:07:14.560 --> 00:07:15.360
<v SPEAKER_1>Absolutely.

00:07:15.360 --> 00:07:22.760
<v SPEAKER_1>Finland is by far the global leader in terms of icebreaker design and construction.

00:07:22.760 --> 00:07:34.920
<v SPEAKER_1>Somewhere between 60% and 80% of the current icebreaking fleet globally across all countries and flag states were either designed or built in Finnish shipyards.

00:07:34.920 --> 00:07:55.280
<v SPEAKER_1>So having their background and the strength that they bring in that area added to the NATO alliance really gives the US and I think Canada the opportunity to broaden our view in terms of what the available technology and options for construction are.

00:07:55.680 --> 00:08:05.260
<v SPEAKER_1>The US and in particular the Coast Guard lack the benefits of a national shipbuilding strategy like Canada has been able to put into place.

00:08:05.260 --> 00:08:16.460
<v SPEAKER_1>And as a result, there's just a lack of alignment and coordination and managed expectations on the side of the US shipbuilding industry.

00:08:16.460 --> 00:08:47.460
<v SPEAKER_1>What we heard at the event on Wednesday and what we continue to hear from our engagements with industry is that any degree of predictability and guaranteed long term investment and knowing that there's going to be upcoming contracts and capital to support the technology and the expansion of these shipyards and the development of facilities that will be able to serve the national defense base in the coming decades would be helpful.

00:08:47.920 --> 00:09:07.220
<v SPEAKER_1>And so by working through ICE Pact, what we're trying to do from a US perspective is start to draw the lines and set left and right bounds for what we need in terms of icebreakers and what the possibilities may be for building them in the US, in Canada or in Finland.

00:09:08.540 --> 00:09:13.600
<v SPEAKER_2>In terms of that requirement piece, this is something that came up in the discussion on Wednesday.

00:09:13.600 --> 00:09:26.540
<v SPEAKER_2>I guess from your vantage point, what range of different kinds of requirements are there for icebreakers, for people like myself that might not be all that familiar with what the differences would be?

00:09:26.540 --> 00:09:32.740
<v SPEAKER_2>Is it just in terms of what thickness of ice you want it to do, other capabilities?

00:09:32.740 --> 00:09:41.980
<v SPEAKER_2>As people are talking about the potential to get some alignment across requirements, you were touching on the US Coast Guard specific requirements.

00:09:42.140 --> 00:09:46.980
<v SPEAKER_2>In Canada, we're building both program icebreakers as well as heavy icebreakers.

00:09:47.380 --> 00:09:52.280
<v SPEAKER_2>What do those different range of options look like for something that can go out and break ice?

00:09:52.280 --> 00:09:55.980
<v SPEAKER_1>Well, I think there's a number of reasons to break ice.

00:09:56.120 --> 00:10:00.680
<v SPEAKER_1>And what you have to think about is kind of why you're going to be there.

00:10:00.840 --> 00:10:06.320
<v SPEAKER_1>And one of the motivations for breaking ice is in support of commercial activity.

00:10:06.320 --> 00:10:09.400
<v SPEAKER_1>And this is what we see quite a bit in the Baltic.

00:10:09.400 --> 00:10:14.100
<v SPEAKER_1>This is what the Russians are investing in, heavily in the Northern Sea Route.

00:10:14.100 --> 00:10:31.960
<v SPEAKER_1>And these are icebreakers that are capable of opening a channel through very heavy ice conditions and escorting commercial ships, be those tankers or container ships or cargo ships behind them, to get through the icebound channels from one port to another.

00:10:32.000 --> 00:10:44.400
<v SPEAKER_1>But as Arctic States, the Canada is in Russia's and Finland's and United States' of the world also have to consider other purposes for icebreakers.

00:10:44.540 --> 00:10:53.780
<v SPEAKER_1>And a lot of those are national purposes, whether that's asserting sovereignty or defending those waters in a naval context.

00:10:53.780 --> 00:10:55.920
<v SPEAKER_1>There's also a need for scientific research.

00:10:55.920 --> 00:10:59.360
<v SPEAKER_1>These are areas that are very hard to access and get to.

00:11:00.420 --> 00:11:11.100
<v SPEAKER_1>And so the samples and the water and the ice and the environmental data that can be collected there is very valuable to scientists who would otherwise be unable to get there.

00:11:11.100 --> 00:11:22.740
<v SPEAKER_1>And as human maritime activity begins to increase in the Arctic, whether it's the North American Arctic or the European Arctic, there's going to be more traffic.

00:11:22.860 --> 00:11:26.080
<v SPEAKER_1>And that might come in the form of shipping and commercial activity.

00:11:26.160 --> 00:11:31.620
<v SPEAKER_1>They might come in the form of ecotourism or cruise ships.

00:11:31.620 --> 00:11:34.100
<v SPEAKER_1>Regardless of the source, there are going to be more ships up there.

00:11:34.100 --> 00:11:41.440
<v SPEAKER_1>And any time you have ships and activity happening in a maritime environment, there are going to be accidents, there are going to be problems.

00:11:41.440 --> 00:11:52.260
<v SPEAKER_1>And so the US Coast Guard needs to be prepared to respond to those oil spills and search and rescue cases in the same way we would on the Great Lakes or off the East or West Coast of the US.

00:11:54.760 --> 00:12:00.700
<v SPEAKER_2>This episode of Defence Deconstructed is brought to you by Irving Shipbuilding, Canada's national shipbuilder is currently hiring.

00:12:00.700 --> 00:12:09.120
<v SPEAKER_2>For more information on the many jobs and opportunities currently available, please visit www.shipsforcanada.ca slash careers.

00:12:10.760 --> 00:12:21.940
<v SPEAKER_2>Okay, so to build off that, we've got already program projects on the books in the United States and in Canada for a range of different capability.

00:12:22.480 --> 00:12:26.840
<v SPEAKER_2>We also talked about the shipyard capabilities that Finland has.

00:12:26.840 --> 00:12:38.060
<v SPEAKER_2>That shipyard is now owned by the Canadian Davie Shipyard, which is one of the two Canadian shipyards that are building icebreakers to the Government of Canada.

00:12:38.060 --> 00:12:44.740
<v SPEAKER_2>And they also just announced this week that they are acquiring a facility in Texas, or I guess, facilities in Texas.

00:12:44.740 --> 00:12:59.780
<v SPEAKER_2>So you've now got an interesting juxtaposition of aggregated icebreaking demand in more than one of the nations, and you've now got the industrial capability coming together in a complementary way.

00:13:00.420 --> 00:13:08.100
<v SPEAKER_2>What are some of the other considerations, if you could just sort of flesh out, what is the actual icebreaker collaboration

effort?

00:13:08.100 --> 00:13:10.480
<v SPEAKER_2>What are the mechanics of what it's doing?

00:13:10.480 --> 00:13:14.900
<v SPEAKER_2>It's organized around working groups, because you just spelled that out a little bit for listeners.

00:13:15.340 --> 00:13:16.880
<v SPEAKER_1>I'd be glad to.

00:13:17.380 --> 00:13:26.160
<v SPEAKER_1>The three countries have identified national coordinators who have pledged to come together and meet in person quarterly.

00:13:26.160 --> 00:13:29.920
<v SPEAKER_1>We just had the second national coordinator meeting this week.

00:13:29.920 --> 00:13:36.920
<v SPEAKER_1>In addition, there's four working groups that are staffed by various elements of the three national governments.

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<v SPEAKER_1>The first working group is really a forum for design collaboration and technical exchange.

00:13:45.680 --> 00:13:48.700
<v SPEAKER_1>This is the biggest and most active of the working groups.

00:13:48.700 --> 00:14:03.980
<v SPEAKER_1>The folks in there are actually talking about what it would take to build icebreakers across borders and what some of the mechanisms are for technology transfer regarding icebreakers.

00:14:04.440 --> 00:14:14.640
<v SPEAKER_1>And also trying to identify what the possible limitations and barriers to that technology transfer or to that offshore construction might be.

00:14:14.640 --> 00:14:18.720
<v SPEAKER_1>The second working group is talking about joint workforce development.

00:14:18.880 --> 00:14:36.420
<v SPEAKER_1>And this is looking at the different ways that the three countries go about training the folks that are working in the shipyards, the folks that are designing the ships, the folks that are

building the ships, and the folks that are, in fact, operating the ships.

00:14:36.420 --> 00:14:51.260
<v SPEAKER_1>We found really three very different approaches to the tradespeople that are working and are so necessary in the shipyard environment to bring these ships to construction.

00:14:51.300 --> 00:15:07.220
<v SPEAKER_1>Specifically, in Finland, it feels like there's a large labor pool in the trades, whether those are welders or pipe fitters, who are kind of reserved in advance by the shipyards when they anticipate the highest demand.

00:15:07.220 --> 00:15:16.140
<v SPEAKER_1>And so the workforce ebbs and flows in and out of the shipyards accordingly, depending on the work level.

00:15:16.500 --> 00:15:18.640
<v SPEAKER_1>The experience in Canada seems to be a little bit different.

00:15:19.500 --> 00:15:20.120
<v SPEAKER_1>The US.

00:15:20.120 --> 00:15:45.660
<v SPEAKER_1>Coast Guard sent a team up to Halifax and has looked at the shipyard there at Irving and was very impressed by the incredibly high level of retention in the trades that would really put some of our shipyards in the US to shame by the really well-trained, well-equipped and long-standing workforce.

00:15:46.620 --> 00:16:13.380
<v SPEAKER_1>The folks in Halifax attributed that to an engagement and training program that starts during the school years where folks are kind of recruited and identified and groomed from a school-age time to actually go into the trades and explore those professions so that by the time their expertise is needed as master welders in the shipyard, they've already been part of that pipeline for more than a decade.

00:16:15.180 --> 00:16:44.040
<v SPEAKER_1>And we compare this to the US system where it's very much market-driven and the only identified way that we think in the short term we're going to be able to increase the number of qualified and experienced tradespeople is through economic incentives, bonuses and higher pay, which is less desirable because it ends up resulting in a higher cost for the vessel when it's delivered.

00:16:44.040 --> 00:17:02.480
<v SPEAKER_1>So really that work group is taking the opportunity to

really compare and contrast the different approaches that the three countries are taking and trying to see if some of those might be transferable or transportable into the US or Canadian or Finnish environments.

00:17:02.480 --> 00:17:06.920
<v SPEAKER_1>The third working group is really a supply partnership for allies.

00:17:07.220 --> 00:17:11.060
<v SPEAKER_1>This is almost a commercial element to ICE Pact.

00:17:11.440 --> 00:17:40.600
<v SPEAKER_1>We're looking at our shared industrial base between the US and Canada and Finland, and seeing if once full production begins to happen on ICE Pact-informed vessels, if there might be a market for these vessels outside of the ICE Pact group, if other Arctic countries might be interested in buying these vessels from us, what that process might look like.

00:17:40.600 --> 00:17:44.400
<v SPEAKER_1>And then lastly, Working Group 4 is looking at research and development.

00:17:45.280 --> 00:18:02.180
<v SPEAKER_1>This is truly fundamental research into ice breaking, ice breaker technology, as well as other elements of Arctic operations that support ice breaking, including remote sensors or potentially autonomous vessels.

00:18:04.420 --> 00:18:29.220
<v SPEAKER_2>So across this holistically, there's a big element of, I guess, maybe you would say, capability generation collaboration across R&D, some of the human inputs, as well as some of the design specification efforts, and then also a potential commercial opportunity for the three countries to work in a collaborative fashion to go to the wider market.

00:18:30.840 --> 00:19:11.520
<v SPEAKER_1>Exactly right, and a lot of the conversation at the meeting this week kind of started to delve into some of the more detailed consideration of what intellectual property elements might have to be considered and how that would be handled, and it's great to hear a lot of focus is happening during these early phases with a view down the road of when this is implemented in a commercial sense, how the three countries will be able to continue working together while protecting their individual rights.

00:19:11.520 --> 00:19:24.380
<v SPEAKER_2>Okay, so having just come out of this set of meetings,

what would be yours, what the next series of steps might look like as this initiative moves forward?

00:19:25.720 --> 00:19:32.660
<v SPEAKER_1>Well, it was really inspiring to see how much more productive the group was this week.

00:19:32.880 --> 00:19:46.840
<v SPEAKER_1>I think it's understandable that the first meeting back in Finland was really kind of a preliminary session and folks were getting to know each other and we started to set some goals.

00:19:46.840 --> 00:20:09.760
<v SPEAKER_1>But the meeting this week was great because the working groups all had significant accomplishments to report and kind of fill in the rest of the members of the group on, and really set an ambitious agenda for what their individual goals and objectives are going forward.

00:20:09.760 --> 00:20:18.040
<v SPEAKER_1>The US will host the next quarterly meeting sometime later this year, and well, the date for that has not been set yet.

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<v SPEAKER_1>There's also a requirement under the Memorandum of Understanding for there to be a ministerial level meeting as well, and so it's possible that those two events will be combined yet to be seen depending on how calendars shape up.

00:20:33.380 --> 00:20:59.740
<v SPEAKER_1>But ideally, that would be a venue where there would be a chance for very senior government officials to make some announcements and really take the chance to really show the benefits of ICE Pact out to the broader community and explain what we've accomplished in the first year of this partnership and what to expect for the future.

00:21:01.280 --> 00:21:19.300
<v SPEAKER_2>So in your personal capacity, but as somebody that has experience actually operating these vessels and you're coming to this through an American land specifically, I guess, how would you think of what potential success of this initiative might look like through your own personal vantage point?

00:21:21.980 --> 00:21:45.520
<v SPEAKER_1>What's most exciting for me is the amount of attention and really positive energy, the ICE Pact and the interest of the United States in to building and new ICE breakers has kind of injected into the environment.

00:21:45.520 --> 00:21:55.420

<v SPEAKER_1>Everybody is now talking about this and looking for different ways to accelerate timelines, reduce risk and reduce cost.

00:21:55.420 --> 00:22:02.600
<v SPEAKER_1>ICE breakers by their very nature are very specialized, bespoke vessels.

00:22:03.440 --> 00:22:33.360
<v SPEAKER_1>But by bringing the US and Canada and Finland together and by creating a potentially larger market for these vessels, I think it's a chance that we're going to collectively create a center of gravity of mass that's going to drive the cost down and make it possible to put more of these vessels in the field, which is only going to contribute to our collective security.

00:22:35.100 --> 00:22:44.680
<v SPEAKER_2>Well, Bill, thanks very much for coming on to talk about this research effort, as well as your time with us over the last six months.

00:22:44.680 --> 00:22:50.260
<v SPEAKER_2>Thank you to the Council on Foreign Relations for sending you our way.

00:22:50.260 --> 00:22:54.700
<v SPEAKER_2>Wish you all the best as you move on to the next phase of your career.

00:22:55.400 --> 00:23:03.980
<v SPEAKER_2>I think probably with a bit of a ramp up time through this effort and opportunity to engage in some of these discussions with us.

00:23:03.980 --> 00:23:06.360
<v SPEAKER_2>So, appreciate you doing that.

00:23:06.360 --> 00:23:09.280
<v SPEAKER_1>Hey, I really appreciate it, Dave.

00:23:09.280 --> 00:23:18.520
<v SPEAKER_1>My six months here have been incredibly informative and really, I think, opened my eyes to a lot of things I wasn't considering before.

00:23:18.520 --> 00:23:22.260
<v SPEAKER_1>So, thank you for your support and leadership and I appreciate it.

00:23:23.900 --> 00:23:24.260
<v SPEAKER_2>Okay.

00:23:24.260 --> 00:23:33.080
<v SPEAKER_2>And so, the last question that we always ask us, Bill, that you're about to transition off to your new role.

00:23:33.080 --> 00:23:39.180
<v SPEAKER_2>I don't know if you've had a chance to read anything not related to the ICE, but if not, what are you reading these days?

00:23:39.180 --> 00:23:44.000
<v SPEAKER_1>Yeah, the current book I'm in is a book called Proof by Adam Kucharski.

00:23:44.000 --> 00:23:57.560
<v SPEAKER_1>And it's kind of a history of logical thought and the use of mathematical tools to really assess how certain we can be in any given decision.

00:23:57.560 --> 00:24:04.660
<v SPEAKER_2>Okay, that's an interesting issue, an interesting subject area.

00:24:04.660 --> 00:24:11.760
<v SPEAKER_2>Bill, thanks again for joining us both today on the podcast and for being with us over the last six months.

00:24:11.760 --> 00:24:13.860
<v SPEAKER_1>Thanks, David.

00:24:13.860 --> 00:24:16.080
<v SPEAKER_2>Thanks for listening to Defence Deconstructed.

00:24:16.080 --> 00:24:21.540
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00:24:21.540 --> 00:24:28.120
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00:24:28.120 --> 00:24:30.740
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00:24:30.740 --> 00:24:34.380
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