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Episode 10: LTC Bradley Waite

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DI **Dr. Ian Anson** 0:04

Hello and welcome to Retrieving the Social Sciences, a production of the Center for Social Science Scholarship. I'm your host, Ian Anson, Associate Professor of Political Science here at UMBC. On today's show, as always, we'll be hearing from UMBC faculty, students, visiting speakers and community partners about the social science research they've been performing in recent times. Qualitative, quantitative, applied, empirical, normative. On Retrieving the Social Sciences, we bring the best of the UMBC Social Science community to you.

DI **Dr. Ian Anson** 0:41

On recent episodes of Retrieving the Social Sciences, we've talked about a variety of big, important institutions in American society. We've learned about municipal governments from Dr. Eric Stokan, universities from Nobel Laureate Dr. David Card, and agencies like the Center for Disease Control from Dr. Zoe McLaren. But today, we're turning our focus to an institution that is far larger than any of those we've previously covered. In fact, this institution employs over 1.3 million active duty personnel and spends around 3.4% of the entire GDP of the United States every year. It's the largest and most powerful

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29:04



[Download on Android, iOS](#)[Log in](#)**DI Dr. Ian Anson** 1:42

On today's program, we will hear from Lieutenant Colonel Bradley Waite, a UMBC alumnus who graduated with a degree in Political Science in 1999. Since that time, Lieutenant Colonel Waite has received master's degrees in international relations and strategic studies from Troy University and the United States Army War College, respectively, and has served in the US Army for 22 years. Lieutenant Colonel Waite works in explosive ordnance disposal, which grants him practical expertise in the realm of the biggest, scariest bombs of all: nuclear devices. In this rebroadcast of Lieutenant Colonel Waite's invited UMBC lecture from March of 2021, hosted by the Department of Political Science, we hear about the theory and practice of nuclear deterrence. It's nice to know that in addition to the UMBC students, faculty, and the visiting academic guests we've hosted on this podcast, our fantastic alumni are also working across the country and the world to advance our understanding of important social phenomena. Let's listen into what Lieutenant Colonel Waite has to tell us about the science of nuclear deterrence.

LB LTC Bradley Waite 2:54

So they require you in the military to always have an outline or agenda, so briefly this is what we're going to talk about today. The most important takeaway is any information and view that I expressed today is my own. And I do not reflect the official stance of the US Army War College, the US Army, or the Department of Defense. I will also try to avoid, at all costs, discussing any classified information. So this briefing is going to be in a fully unclassified, but we will talk about some interesting topics that you may not have heard about yet. I'm a lieutenant colonel, I've got 21 years in as of last January. And I did spend some time over in Iraq and Afghanistan, we'll get to that. I am a nuclear target analyst in addition to being an explosive ordnance disposal officer, so not only can I take apart nuclear weapons when I have to, which is super exciting, I assure you, I also have the capability to run plots to identify specific weapons, burst altitudes, burst types, to achieve specific effects on targets, as well as analyzing potential consequences such as fallout zones and

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why am I talking to you today? Like I said, before, I want to graduate too so I've got to do it. But I did want, I was given the opportunity to pick any school I wanted, I did want to talk to UMBC. Nuclear strategy is pretty complex, there's a lot of nuances that go into it, and you know, the news cycle that we have today doesn't allow those longer stories. Really very narrow. They are written mainly from a policy perspective, or from a weapons perspective, or from a cost perspective. So I'm gonna try to mix all those three together and paint a more holistic picture for you a little bit. So the information is often confusing, incomplete, or inaccurate. Inaccurate is always the frustrating ones because you can never tell are they being inaccurate because they think they're protecting secrets, or are they being inaccurate because they actually don't know anything. It's often in my experience been the latter. And I look forward to having a discussion because I am concerned by the fact that I'm a son of a military officer. Most of my peers are the children of military officers. In some cases, second and third generation. We seem to be growing our own little social caste system within the United States, and I don't think that's healthy. I really think that the military, we are your military, we should be a reflection of society at large and not become a warrior class unto our own. Historically, anytime you had that it did not work out well, for those societies. Every time that you made a giant separation between the military and the people. So now that I've gotten out the requirements to talk about me, we're going to talk about fun stuff: nuclear weapons. But it's one of the justifications often used to justify budgets, and budgets are important to you. Because right now, you know, your generation especially is staring down the line of what could end up to be on the low end, a \$1-2 trillion nuclear modernization program. Now, some of these modernizations are required. Physically the equipment is wearing out. It's becoming unsafe as far as stability. So you know, there will have to be some upgrades made, a lot of it has it having to do with platforms, really, not necessarily the warheads are pretty stable. It's the platforms that carry them the minuteman three and missiles that are at the end of their lifespan. The Ohio class submarines. There's only so many times that you can submerge and surface a submarine before metal fatigue within the hull will actually start to break. So you can't just use those submarines forever. So you do want to replace certain systems. But the question is, do we need to replace at the level that we have now? Can

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more nukes. I think we've got plenty of nukes. My personal opinion is that we could probably shave off a fair amount and still maintain that overmatch deterrence that we need. So I'm just gonna discuss very, very briefly so everybody has an understanding of you know what the triad is. So obviously, it's ground-based, sea -based, and air-based. The ground-based is currently the Minuteman Three Missile. So we've got about 450 total operational Minuteman missiles, they're spread about through Wyoming, North Dakota, and Montana. There's about 150 missiles per missile field in those three missile fields. Each Minuteman Three can carry up to three warheads. That is what they are physically capable of carrying. But due to treaty requirements, they currently only have one warhead each. So you end, up having 450 warheads for your 450 missiles. Now the treaty does not require that you modify the bus is what it's called, essentially, where the warheads are stacked. So because those did not have to be modified, we do have additional warheads in the inventory that we could rapidly mount to systems, if, for example, we withdrew from a treaty or the strategic requirements changed. Or if you wanted to decrease the physical number of missiles that you had, but maintain the same warhead capability. And as of 2010, which the last unclassified numbers I can provide you with. There were nine subs based in the Pacific and five subs based in the Atlantic. So aircraft is the final leg of the triad. So most people think in regards to bombers, so your B-52 and your B-2 Spirit, your stealth bomber, are currently your large scale bombers. The V-1B does have a nuclear capability. And the B-21, which is the newest version of the stealth bomber that's going to become active in about three years, also can carry it. And then we have a select number of small fighter aircraft that do have the capability to carry nuclear payloads, specifically gravity bombs. Your larger bombers can carry both gravity bombs as well as air-launched cruise missiles which provide them greater standoff. Now standoff's important because as countries are developing more advanced and cheaper air defense missiles, standoff is critical. We can no longer, you know, in the old days of the Soviet Union, we had the expectation that our B-52s would fly over the North Pole, and they could penetrate deep into Soviet territory and drop their payloads. I assure you if a B-52 tried to fly into Russia right now, it would not do very well. Its lifespan would be measured in minutes, if not seconds. So they do have to have a standoff. Now the air launch cruise missile, which is

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second test phase about three months ago. So they're looking at fielding a new missile, which basically increase the range and increase its capability to penetrate, you know, extensive air defense networks. So let's talk about deterrence. So all those nuclear missiles I have, you know, your 450 missiles here, your 20 missiles per submarine here, your thousands of gravity bombs. and cruise missiles. Are we effectively determine our threats? And I'll tell you that we are in regards to our peer adversaries. Clearly our ability to overmatch Russia and China is present. There is a lot of debate within the building as to whether or not you can effectively deter what are called rogue regimes. You know, when I say rogue regimes, you know, immediately things like tomorrow like North Korea or Iran. My argument would be that just because they are rogue regimes does not mean that they are irrational regimes, you know, just because they act differently than us does not mean that they don't consciously consider the manner in which they are going to provide defense of their own nation. So I do believe that you can effectively deter them. A concern when it comes to deterrence is your non-state actors, you know, your terrorist groups. I will tell you that I go to sleep every night very soundly, knowing that the likelihood of a terrorist group developing a nuclear weapon and fielding a nuclear weapon in the United States is exceptionally low. I think I'll be struck by lightning three times before I ever have a terrorist nuke inside the United States. I am very concerned about radiological weapons, or the ability to take a conventional explosive, strap it to a cesium 123, or some other type of nuclear source, and detonate that inside of a major urban center. Not because it will kill a ton of people, but it will kill that city effectively. So the areas that would be dusted by the fallout from that type of weapon system and contaminated in our culture today and our lack of trust in government, I just don't know if you could ever convince people that you had decontaminated that area enough for it to be safe to go back in. So a very small device could effectively render downtown New York, downtown San Francisco, LA, you know, Seattle, unlivable, not because of the actual safety ramifications of the radiological material that may remain. But just because people wouldn't believe it, and they wouldn't be willing to live there. And that can very effectively damage economies. So escalation dominance, the escalation ladder, ie in every single confrontation between two actors in the international role, there's the expectation that, okay, you do

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escalation ladder. That works very well, when you have a long history of interaction between those two actors, let's say the United States and Russia. It does not work as well, when you do not have that longterm developed relationship between two other actors, let's say us and Iran, because there is always the potential for signals to be misunderstood. And for escalation steps to be jumped, and eventually lead to an outcome that nobody wants, but they kind of painted themselves into a corner. So nuclear weapons, you know, they do provide that ultimate escalation dominance, but they also raise the risks when operating with actors that you don't have a good history with understanding their intent. And finally, we talk about modernization, you get into opportunity cost. So you know, \$2 trillion, a lot of money, even in the military, \$2 trillion, is a lot of money. So what is that costing us? And you know, within the military, it costs you modernization on other programs, it costs you for structure, it costs you, you know, the ability to look at other threats that are not a global thermonuclear war. But bigger than that as we look at the national debt, and how it's ballooning, and we look at, you know, there's an extreme likelihood I think, in the near term, maybe next year, certainly within five to ten years, where the US military is going to have to take a budget cut, or there's going to have to be a significant tax revenue increase. And we have to look at, are we really spending our money in the right places, you know, and this is me personally, do not tell the military, I said this, because I will be thrown out as a heretic. I'm a big believer in the United States' power is never necessarily based on its military capability. The military is the tool that we use, because it seems to be easy. And it has become unfortunately, the tool of first resort as opposed to last resort over about the last 30 years for most problems. But the US's capability has always been its information and desire of people to be free, like us across the world, and the power of our economy. And the way that you have a powerful economy that allows you A to fund a military but B to move it where it's got to go, to develop new systems for it, to to man it. That's based on education and infrastructure. And I would far rather see more money spent on education infrastructure within the United States and developing our economy to the point that we truly can once again, project power. You know, the Chinese have already passed us in purchasing power parity. They have not, you know, net exceeded our economy yet, but when you factor in a few economic

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necessarily going to help us, you know, we have to actually get after our economic and our educational requirements as well. So that's why I talk about opportunity costs. So the difference between strategic and tactical nuclear weapons is first off the size of the detonation. You know, you have your smaller weapons, you have your what you call your crowd pleasers, you know, your city killers. The intent of use, you know, whether or not you're using it in a to attack a population center or an industrial center, versus you're intending to attack discreet, military targets usually on a battlefield. Normally, when we're talking about tactical nuclear weapons we're talking about the Russians have three armored divisions moving west. We don't have a capability to defeat them in a conventional sense. So bam, attack with a nuclear weapon, we've just killed three divisions. The range of the weapon, the type of platform comes into calculus. Most of our tactical weapons, or I'm sorry, all of our tactical weapons right now in the United States are based off of air platforms. We do not have any missile or any ground-based missile, or sea-based platforms right now. We used to, but we did get rid as part of the START treaty reductions. The Russians did not do that. Alright, so the Russians did take a lot of their weapons away, but they kept a rather robust capability in the tactical side, and this comes dangerously into Russian calculus. And it comes into the fact that the Russians may be betting that in the event of a conflict between the United States and Russia, the Russians could use a tactical nuclear weapon, because our only option would then to be respond with a strategic nuclear weapon, the only ones we own. And the Russians, there is some indications that the Russians have gone down this thought process where they have basically said, we think we can get away with this limited use of tactical nuclear weapons, the Americans will not respond, because the Americans would have to respond with a strategic weapon, which they then know, we would have to respond with additional strategic weapons. And we'd be rapidly climbing that ladder, toward , you know, end of the world type criteria. We do have more states with nuclear weapons than we did during the Cold War. Significantly. Those states are increasing the size of their arsenals in many cases, and they're increasing the types, not just the number. So does mutually assured destruction still apply? And these are questions, you know, that I open to the class of you know, yes, mutually assured destruction still works, absolutely between us and Russia. Still works

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deathstroke of it be to launch? So these are things that we're worried about. Because right now, he has demonstrated that he has at least the missile capacity to reach most of the continental United States. There are still some open questions about whether or not he has a warhead that will survive reentry and still be effective. But he's getting, if he's not there already, he's getting close. So the lack of clear escalation steps, this really comes into not a nuclear exchange between us and someone else. This comes into nuclear weapons exchanges between two other nuclear armed states that are not us, ie the one that really keeps me up at night is Pakistan and India. You know, when you look at the history of animosity between the two nations, the number of conflicts they fought, the number of times they fired each other across the Kashmiri border, the incredible economic stress that their populations are under, especially as climate change starts looking at drying out both those countries as the glaciers that are in the Himalayas, you know, melt away, which is the major source of water in those two countries. Can you imagine these incredibly populous nations that are armed with nuclear weapons that suddenly are running low on water? And because they're relatively new nuclear states, they have not yet had the time, like we developed escalation steps really from 1945 onward. You know, for seven decades, we've really been developing this. The new entrants just haven't had that learning curve yet. And they're having to learn much faster in a much less stable environment than we were able to learn in. Alright, decreasing safety checks. This really comes into several nations. US nuclear weapons are exceptionally safe. It is very difficult to make them go off even when you want them to go off. It is virtually impossible to make them go off when it's not intended for them to detonate. We've had tons of accidents over the years we've had planes fall out of the sky with nuclear weapons on board. We've had bombs ejected out of nuclear weapons. We've had a missile that went off in Damascus, Arkansas while they were doing maintenance on it when they dropped a wrench and it penetrated the side of the missile and the caustic fuel inside reacted and caused that missile to go propulsive. Super exciting for everyone on the repair crew, I assure you. That warhead was found, you know, less than a quarter mile from the the hole in the ground where the missile used to be. And some EOD guys like me and went out and you know, did what we had to do and picked it up through the back of the truck and drove off

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states, especially the new entrants into the nuclear sphere, are not that robust. And there is significant concern that in an accident situation, one of those weapons could yield a nuclear detonation. And then it comes into, would that country know that it was one of their weapons that just detonated? Or would they suspect their neighbor of conducting a nuclear attack against their nuclear weapons storage facility. You know, and you can see very rapidly how these lack of escalation steps can lead to a full-on nuclear exchange between those two countries. You also have issues with command and control. So while the United States and Soviet Union have relatively robust command and control networks to prevent the launch of a nuclear weapon inadvertently, there was a rather scary situation in Russia several years ago, where we almost had World War 3 by accident. For anybody who's ever seen, you know, the movie WarGames, from the 1980s, just instead of the US, it was Russia, and basically a lieutenant colonel that stopped World War Three, because he realized that what the computer was telling him was just made no sense. So he did not do what he was supposed to do, which was turn the key. He did the right thing, and did not launch all the missiles. But that was how close we came. We also came extremely close during Cuba, because the United States did not understand that there were already active weapons on the ground in Cuba. They also did not understand that due to lack of clarity in the orders process, the Russian command on Cuba felt that it had the authorization to launch a unilateral nuclear strike against invading U.S. forces, which came as a very giant shock to the Soviet leadership later on after the crisis was over, when they figured this out as to how close. That led to some changes in how they control their nuclear weapons launch authority. But several nations don't have that right now. Several nations because of the hair-trigger nature of the conflicts that they are in have released nuclear launch authority below levels that I would say the US would be comfortable with. But we are seeing starting to see far more nations get into the cyber realm, kind of as a counterpoint, because it allows them to reach out and touch the United States or touch some of our allies without having a military that is capable of deploying for to do that. Alright, so cyber. It's getting very interesting out there. There's a reason the military came up with cyber command. You know, I know all the news is on, you know, space command, and they're cool uniform, and I think their new names, you

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beat on the Air Force again. Rest assured that the current security of our nuclear weapons, the systems are thankfully so antiquated, you can't really hack them, because, you know, it's all run on 1960s and 70s technology. So I don't think you'd find a hacker that actually speaks the language that most of those systems are on on right now. But as we do the upgrades, that's something that we'll really have to look into is the cybersecurity of the nuclear weapons systems themselves, as well as the command and control networks that control launch authority. And when you start talking about, you know, the how do we solve the nuclear problem in the future? You see a lot of stuff in the news about oh, missile defense, and you know, the United States military is gonna have this magic nuclear umbrella and it's, you know, a throwback to the Regan era Star Wars programs. I will tell you, that the United States is never, you know, take this one to the bank, is never going to deploy a missile defense system that is sufficiently robust to counter a peer adversary like Russia. Alright, Russia has so many missiles, we just couldn't afford to build enough interceptors. So missile defense in the United States is really based on those rogue actors. You know, it was one of those countries that can maybe launch 10 missiles, maybe 20. Russia has the capability to launch more than 1000 so we're not going to counter them. Missile defense gets complex too. Alright, so missile defense is often called you know, hitting a bullet with a bullet and that's what it used to be, you know, two objects moving faster than speed of the sound well, faster than bullets actually striking each other in a known space and time. Now that was relatively easy when those were ballistic missiles, which by definition, follow a single ballistic arc. They do not steer. Once they are launched. They're kind of in an arc system, and once they have engine cut off, they're coming in at a known trajectory. So it's relatively easy to intercept them once you have the radar systems that can see them, and you have an interceptor capable of reaching them at speed. You did have the capability, and when our missile systems now do have decoys on them, that will confuse interceptors that launch while the missiles are in flight to help muddy up the radar signatures and make it more difficult for a pure level adversary to counter us. But now folks are getting into what are called hypersonics, you know, that you may have seen in the news or hypersonic missiles. Steerable glide platforms are sometimes called. And these are systems that are much more problematic to intercept. A

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space and time so I can launch one of my counter interceptors into that box, as we call it, to intercept it. But now I have to launch missiles not knowing where that glide vehicle's actually going to end up, which makes it far more expensive and far more difficult, if not impossible, for me to intercept those. And then it comes down to like I said before, is missile defense and hypersonics, are they good for rogue states? Are they good for peers? Are they good for both? They are not good for peers, just based on the cost and the capability. They can be good enough for rogues at this time. As hypersonic vehicles become more prevalent, and cheaper, you could start seeing rogue nations with the capability there's already been announcement by North Korea that they're developing their own hypersonic and that would take, you know, add significant challenges to our current interception capabilities. Well, everyone have a great evening and once again, thanks for the opportunity.

CC Campus Connections 26:59

Campus Connections (6x)

DI Dr. Ian Anson 27:07

Now it's time as always for Campus Connections, a segment of the podcast in which we highlight some of the important recent work being done on UMBC's campus that connects to the subject of our episode. Today's Campus Connection examines the practical matter of nuclear security when it comes to two important rival nations. These countries might sometimes get into direct confrontations on the cricket pitch, but thankfully their national hostilities tend not to expand into actual military conflict. India and Pakistan have maintained a tenuous, ugly stability in their conflictual relationship, according to Dr. Devin Hagerty, professor of political science at UMBC. Dr. Hagerty's recent book, published by Palgrave in 2020, examines how nuclear weapons and nuclear deterrence play a major role in the two nations' ongoing, ugly stalemate. The book entitled Nuclear Weapons and Deterrence Stability in South Asia, reviews the India-Pakistan relationship from 1999 to the present, and makes the case that military moderation has occurred despite growing concerns about subconventional violence carried out in part by non-state actors. I'm sure I speak for all of us when I say that I hope these

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all for today's episode. Until next time, keep your nuclear weapons safely tucked away in their silos and as always, keep questioning.

DI **Dr. Ian Anson** 28:30

Retrieving the Social Sciences is a production of the UMBC Center for Social Science Scholarship. Our director is Dr. Christine Mallinson. Our associate director is Dr. Felipe Filomeno. And our production intern is Jefferson Rivas. Our theme music was composed and recorded by D'Juan Moreland. Find out more about CS3 at [social science.umbc.edu](https://socialscience.umbc.edu) and make sure to follow us on Twitter, Facebook, Instagram, and YouTube, where you can find full video recordings of recent UMBC events. Until next time, keep questioning.

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