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(Theme music)

Voiceover: The following is a production of the Pritzker Military Museum and Library. Bringing citizens and citizen soldiers together through the exploration of military history, topics, and current affairs, this is *Pritzker Military Presents*.

Clarke: Welcome to *Pritzker Military Presents* with Major General Robert Scales, United States Army Retired, on his book *Scales on War: The Future of America's Military at Risk*. I'm your host Ken Clarke, and this program is coming to you from the Pritzker Military Museum and Library in downtown Chicago, and it's sponsored by the US Naval Institute. This program and hundreds more are available on demand at [PritzkerMilitary.org](http://PritzkerMilitary.org). The United States is no stranger to international conflict, having entered the world stage during WWI and continuing into the 21st century. Today tensions are increasingly focused on North Korea, ISIS, and other threats worldwide. And while these threats continue to grow in number and in scale, the United States military historically relies on technological advancements for use in tactical warfare, which our enemies have adapted to time and time again. According the Major General Scales, this overreliance on technology as opposed to giving the warfighter skilled training at the small unit tactical level leaves the United States military vulnerable to defeat. Using military history and his thirty-four year career in the US army as his guide, Scales seeks to demonstrate how only a resurgent land force of army and Marine Corps small units will restore the United States fighting competence. Scales is the author of seven books including *Yellow Smoke: The Culture of Land Warfare for America's Military*, a book that then Major General James Mattis used while developing strategy to retake the Iraqi city of Fallujah. *Scales on War* is his final book, which he hopes will influence national leaders to make changes in the way the US military operates. Major General Bob Scales is one of America's most respected authorities on land power. He commanded two units in Vietnam, receiving the Silver Star for action during the Battle of Hamburger Hill. He served as a field artillery battalion commander in South Korea and completed his service as commandant at the Army War College. He graduated from West Point in 1966 and earned a Ph.D. in history from Duke University. Please join me in welcoming to the Pritzker Military Museum and Library Major General Bob Scales. Bob, welcome home.

(Applause)

Scales: Thank you, Ken. Thank you, ladies and gentlemen. What a pleasure to be at Pritzker today. I mean, this is a beautiful, beautiful installation. Ken, thank you so much for inviting me. It's such an honor to be able to address you today. I'd like to tell you a little bit about the book and how we got to where we are today. If I could do my happy dance for you tonight, I would, but I'm a seventy-three year old man and wouldn't look good. But the last few weeks have been extraordinary for me professionally and for land power in particular. And a lot of it occurred, I would argue, because of what I read. You know, there's an old--let me tell you how all this happened. I finished this book last August, and as I do with all my books I dedicate the book and write a fairly significant piece about the folks who I thought influenced me most in writing the book. In fact, *Yellow Smoke*, that Ken talked about, I dedicated to Colonel Bob Killebrew and to Lieutenant General Paul Van Riper, who many of you may know. He's the leader thinker in the Marine Corps at the time. So I came to this--and the other thing I do when I write a book is I always write the foreword last because I think a lot about this, about who I'm gonna dedicate it to. So I came up with a name, and I mentioned it to Judy Heiss, who was my editor at Naval Institute. And she said, "Oh, great, he's a friend of yours, right?" I

said, "Yeah, what do you think." I said, "He's the ideal guy for me to write a foreword to." Well, if you're an editor you like to sell books. And she said, "Yeah, but you know, he's retired. He's not in terribly good favor right now, and people don't see him much anymore. He's not in the news. Maybe you oughtta pick some of the other people who I had asked to write blurbs on the back of the book." You know, Wes Clarke, Newt Gingrich, Jack Keane, and a few others. And I said, "no, but let me talk to him." So I called him, and I said, "Jim, this is what I want to do." He said, "Well, send me the book." I sent it to him. He called me back, what, maybe a week later--was in tears. He said, "We'd been working on this almost for a lifetime, haven't we?" I said, "That's right." I said, "Would you mind if I do this?" And he said, "Sure." So I go home and I tell my wife, "I gotta do the foreword." And I worked, oh, I guess probably for two days on the foreword, spent a lot of time writing this thing. And she said, "You sure you want to do this?" I said, "Yeah." He said, "But nobody knows Jim Mattis." So there's an old saying, you know, it's always better to be lucky than good. So I dedicated it to Jim Mattis, and the rest, they say, is history. Let me tell you a little bit about our relationship, because it relates directly to this book. I first met Jim virtually in 2004. It was November 2004, and I get a call--you gotta know Mattis. I got a call about one in the morning. He says, "General, it's Jim Mattis. We don't know each other, but"--as Ken suggested--"when I commanded in Fallujah I kept your book by my beside." The book was *Yellow Smoke*. And he says, "I agree with everything you say in this book. And I said, I'm now commander of MCCDC. MCCDC is Marine Corps Combat Developments Command. It's a three-star demand at Quantico. And he says, "I am committed to doing for the Marine Corps what you suggest in the book." He said, "Will you work with me?" I said, "Sure, well, yeah." And so for the next nine--eight years, we worked together assiduously to push our theme. That December of 2004 I addressed all of the Marine Corps generals at Henderson Hall that April. I spoke to General Hagee, who was commandant at the time and his board of directors, his three and four stars. It started a long relationship that I still have to this day with the Marine Corps, and Jim was the guy who arranged it. And then later he became commander of Joint Forces Command. And the instead in the book--there were specifically five of them--when I spoke to the board of directors, they took that, and they instituted a series of reforms, some of which you probably are familiar with today because they're sort of baked into Marine Corps culture. And that was the idea of every marine a sniper, about combat identification or combat stalking, is what you would call it today I guess. The ability to use culture and recognition of human traits and habits in order to intuit what an enemy is doing rather than just shooting at an enemy, which became a problem in Iraq and Afghanistan. Extension of the Marine Corps basic course a week to study the science of small unit leadership. And the building of a thing called the tomato factory. I don't know if you've ever seen it or not. tomato factory's at Camp Pendleton in California. And it's an old tomato factory, but a lot of the ideas we had about small unit training and leadership--and I'll speak about in a moment, about the idea that intuition is the means for leadership of the small unit level rather than logic. And we baked all that into the tomato factory. And the tomato factory still exists today. It's no longer in an old tomato factory. But all of that came out of that partnership that Jim and I had. We had a thing called the National NPSUL, National Program for Small Unit Leadership, that we were beginning to start up. And then Jim left, and I no longer was a contractor working for Jim. And then Joint Forces Command folded. And all of the energy we'd built up between the two of us began to disappear. And so Jim and I kept in contact over the years, and then I decided to write this book almost as an apology to Jim. And when you read the foreword in here, it was very pessimistic. And I apologize to Mattis in my book, saying we had a great thing going, and unfortunately you and I believe in this, and some of our friends believe in this, but it's just not popular in the

military and in our national security establishment in general. I remember Joni Ernst--I testified before the Senate Armed Service Committee back in May about the rifle, and Senator Ernst says, "General, why don't--why doesn't the military agree with all the stuff you said?" And I remember saying prophetically, "Senator, Lockheed Martin doesn't have a rifle division." and sadly that's true. So when Dan Bolger, Lieutenant General Dan Bolger, who many of you know--a Ph.D., wonderful author--wrote a review of my book, it starts off like this. He said a dog chow manufacturer had just invented a new dog chow. And they were trying to sell it, so they hired one of the top advertising companies in the country to build an advertising program for it. They had cute puppies. They had very hungry dogs that would rush to the food dish. They had very happy moms and dads of the dogs that would rave about the quality of the dog chow. And it went national. And the program advertising campaign wasn't working. And so they had a big meeting with the advertiser. And they said, "We've spent millions on this, and your program isn't working. Please tell us why." And the advertising executive said, "Well, frankly, the dogs don't like it." And that really defines this book. And if it weren't for Jim Mattis as the secretary of defense, a lot of the things I write about here would have been long forgotten. But thanks to him and the programs that he has begun to initiate as SecDef, focusing on the tactical side rather than the strategic and operational side, focusing on the soldier and the marine rather than the ship and the airplane are really beginning to pay off. The reason I say happy dance, yesterday coincidentally I had a meeting with the chief of staff of the army and his senior staff where, not to give away too much, but some significant decisions were made about the future of the army small arms program. Many of the attributes of the rifle that I write about in this book are going--looks like they're going to wind up in a program. So because of this wonderful man's sponsorship and because of his passion for the soldier and marine, I'm beginning--we're beginning to see this suddenly come to fruition. And I think the breakthrough moment really happened sometime around 2005, 2006. We're trying to figure out, Jim and I--we're trying to figure out why this is so important, particularly at the moment. And I remember he sort of had the breakthrough thought, and it goes like this. Traditionally American wars are won at the grand strategic, strategic, or on occasion the operational level of war. The after-Vietnam air land battle, which became the army standard doctrine for defeating the Soviet army in Europe was based on operational maneuver and operations at the quote, operational level of war, a term we take from the Russians. And it became obsessive as we fought the Cold War and as the Cold War ended, and it continued in the 90s. Desert Storm, the great wheel, and the March to Baghdad were both operational maneuver tenants. But in 2004, 2005 all that to Jim and I seemed stale. And I remember he turned to me one day, and he said, "I think I got it." He said, "I think this isn't about us. It's about the enemy. I think what we see is a compression between the strategic and the tactical. Not driven by us. We'd prefer to do it our way. And what we see by compression is we see a closing in of those two bookends of the spectrum of warfare so that they become one. So that success or achieving your national ends is no longer dependent on the big arrow or the great wheel, but increasingly it's dependent on tactical successes built over time. Stacking, if you will, tactical engagements, the sum of which is a strategic outcome." Holy smokes. Blew me away. And ever since then that has sort of been spinning around in my brain. And Jim and I have had discussions about this over the years. So then I said, "Gosh, I'm gonna write a book about that." About what we later termed strategic tactical compression. It's unique, and it's un-American, but it's the way we fight. Well, when I started writing this book I always look for a totem. And my totem is an odd guy. It's a gentleman by the name of Hiromichi Yahara, colonel, Japanese army. Any of you ever heard of the gentleman? He was assistant chief of staff of the Japanese 32nd army sent to Okinawa to help General Cho, the commander of the 32nd army, to

defeat the Americans who were about to invade. An interesting guy. So un-samurai. Tall, thin, **accolin (16:30)** elitist in a way, brilliant intellect. He was the president commandant of the Japanese Imperial War College, which of course endeared him to my heart. And he was a strategist. And he was the one who convinced General Cho to take the 32nd army off the beaches of Okinawa and put them in the Shuri Castle mountains to defend against us. And it was the first battle fought in American history where the American casualties were greater than the enemy casualties--72,000 versus 71,000. So it came time when the battle was over in June 1945 to commit ritual seppuku in the caves, just as the American army or American military were closing in on them. And General Cho said as they prepared to open their stomachs, he said, "No, wait." He says, "Your instructions are not to die with us, but to go home. And we know the Americans are coming after the home islands. And you are to take what you learn here back to Japan, and use those lessons learned to oppose the American invasion of the home islands." So they dressed him up as a fisherman and put him in a boat, and started paddling him around Okinawa to break free to be picked up by a Japanese submarine, and after three days he was captured by the Americans and put in a prisoner of war camp in Okinawa. And to the end of his days he was ashamed of the fact that he never got back to the home islands to tell Japan about how to do on the home islands what he did so brilliantly on Okinawa. But he also had time to reflect as he sat there in that cage and he looked up and saw the B-29s flying overhead. As he looked out on that beautiful **Accolin Bay** and see the thousands of American ships arrayed out and the tens of--or the thousands of artillery pieces arrayed. And he began to think. He writes a book--actually two books--and he becomes a lecturer, and eventually he dies in 1972, which is so interesting. What was '72? Well, it was the last year of American combat involvement in Vietnam. You talk about bookends. And I was fascinated by his book and his thoughts. And he then became the theme of this book. And let me just go down them very quickly. First of all he said the dropping of the atom bomb signified the end of the European era of warfare, an era of warfare that began, as you know if you're historians, with the invention of the large gun sailing ship in the 16th century. The conquest of the world by European armies whose technology, gunpowder in particular, dominated the rest of the world. And that dominance lasted until WWII. But with the bombing of Japan in 1945, he says, "The European era is over, and we see now the beginning of the American era of war." And he said that the Americans expect to take the technologies that they use to defeat us, Japan and Germany, and apply it to their dominance of the war, of the world of war--in the future's not gonna happen. Now this doesn't mean that the American hero of warfare is the world every--that America is going to fight every war, he said. But what he did say was just as the Europeans influence both European and non-European armies for five hundred years, he said the American style of war is going to dominate military thought from now on. Fascinating. And here's what I found so interesting. He said, "But it's not gonna be what they think." He says, "They're gonna discover that actually fighting in the American era is going to be essentially a tactical, not a strategic, enterprise." Woh. Because that's how we learned to confront the Americans. And the pacing item for how this art of war is going to evolve is not gonna come from them and their schools and their technology and all that. It's gonna come from the rest of the world. He said, "Therefore, when we fight, when you fight, or when they fight America in the future, the lesson is consider it a tactical enterprise. Don't try to meet them ship for ship, plane for plane, tank for tank. Spot them, dominance of the air and the sea and, of course now, space. Because you can't compete with the Americans in those domains. Let them keep those domains." He said, "Defeat them on the ground where the fight becomes more and more even and their technology becomes less and less dominant." And then he said, "The strategic center of gravity for defeating the Americans in war is public opinion."

Remember he wrote this in 1948. It's public opinion. And a sure as--how does he know that? 'Cause he's sitting in a POW cage reading American newspapers and realizing that the assault, some of which came from the Chicago Tribune back in those days--that the assault on MacArthur in the Pacific and his handling of the Pacific raised all sorts of doubts in the American people at the end of the war, particularly after the bombing of Hiroshima. And he picked up on that. And he said, "Therefore the only assailable center of gravity the Americans have is public opinion. The surest way to touch public opinion is by killing Americans." This is interesting. "The object is--of war in the future is not to kill as a means to an end," Yahara said, "but killing as an end in itself." Great quote from Ho Chi Minh. A journalist in 1964 asked Ho Chi Minh, "How in the world can you ever expect to defeat the world's greatest superpower?" You may recall the quote. Ho Chi Minh said, "They will kill a hundred of us, we will kill one of them, and they will tire of it first." And so this is all Yahara's idea. So simply kill Americans, don't get fancy, and for Pete's sake don't try to fight war their way. Fight war your way. He said one of the things that was so interesting about Okinawa was Americans are just very hard to kill. He had fought in the China campaign in the 1930s, and he said in his book, "The Chinese are easy to kill. Americans are really hard." And so you have to work at it. And the reason was because of their technology, to some degree. But then he said, "You know what's interesting is that Americans get easier to kill the closer you are to them. So if you can get close to them within fifty meters or less, the fight essentially becomes even. And you can stack the bodies up far more efficiently if you can get close." But it's all about killing Americans. Here's the other thing he said--so fascinating. He said, "The American dominance in fire power, which we all experienced in Okinawa, is not quite what you think." He said, "What we've learned is that fire power has a very limited killing effect. All the bombs and the 16-inch shells and the machine guns and mortars and all that don't kill many of us. And," he said, "as you begin to add more and more firepower to the battle, the enemy becomes more and more inured to it. And so over time a force confronting the United States is shocked and awed, if you will, by the firepower initially, but over time that fear begins to dissipate." So as he writes in the book, the Americans are left with two unacceptable alternatives once the fire effect begins to dissipate. One is to keep adding more and more firepower. You remember in Korea they had the old phrase van fleet load. But as you add more and more firepower, bad things happen. You kill your own soldiers, you kill innocent civilians, you destroy and devastate enormous swaths of cities and towns and civilization. And pretty soon, what? Public opinion will intervene and reduce the amount of firepower politically that they are able to expend. Any of this sound familiar? And then he said, "How do you--the key is during this critical period when the shock effect of firepower is so great, how do you survive it?" He said, "Well, you use very primitive means. You hide in cities among the people. You dig in. You camouflage. You disperse. You go to ground. You reduce the exposure to nodes like supply depots and so forth. You bury your communications. You decentralize your chain of command." All of those things that we've learned painfully in our wars, Yahara wrote about in 1948. Oh, here's another thing that's so interesting. "The Americans have all of this technology," Yahara said, "but we've learned the best weapons to use against the Americans are simple weapons used with imagination and bravery." Do you know what the number one killer of Americans is in the war in the American era? It's the mortar. A sixty-dollar piece of wrought iron firing a four-dollar grenade out to a range of about 800 meters has killed more Americans in the American era of warfare than any other weapon. A mortar. Not a cruise missile, but a mortar. Next of course are small arms, and after that, booby-traps. I'd include IEDs in that figure. Simple weapons used creatively. The Israelis sure learned that lesson in 2006 in Lebanon where Hezbollah used hand-me-down antitank guided missiles with such deadly effect against the very

sophisticated Israeli military. Here's the other thing. What he says is that this approach to warfare will work regardless of where it fits on the spectrum of warfare, from low-intensity war in the Philippines all the way up to relatively high-intensity warfare in places like Korea and Vietnam. Why? Because the principles don't change. And you know what, he's been proven right. When was the last time in the American era of warfare-- when was the last time in the American era of warfare that we fought a major sea engagement? The year I was born. April of 1944, the Battle of Leyte Gulf. When was the last time the United States had to contest control the air? 1972, the Christmas bombing offensive over Hanoi. When was the last time an infantry soldier and marine dies in combat? Well, what time is it? So we've been proven right again and again and again. So in wars against former colonial supplicants over the last seventy years, when the enemy fights us our way, he's 0 and 6. That would be the four Israeli wars, the march to Baghdad, and the great Wheel. If the enemy fights us his way or Yahara's way, depending on how you do the math in your politics, it's either 5, 0, and 2, or 5, 2, and 0. So if you're a football coach, and you go to the Super Bowl with a ground game, why in the world in future warfare would you voluntarily shift to an air campaign, to a passing game? Of course you won't. And neither is the enemy. So there's good news and bad news here. I'm shifting away from Yahara. Here's the bad news. Let me start with that. Okay, look. You invited me here. You knew I was a historian. The doors are closed, and you gotta listen to a little bit of history. Let me try this out on you. This is the entire world of war in four minutes. This is so good. The first epoch of warfare was an infantryman's battle, whether it's the Egyptians, the Assyrians, the Greeks' phalanx, the Roman legion. For the first two or three thousand years of warfare, victory was determined by muscle power. The push of a pike. Logistics was born on the feet of infantry, and weapons were essentially thrust or throw. And victory was won through a clash of infantry formations. Then in 427 AD all that changed at the Battle of Adrianople, where the cream of the Roman army was defeated by a hoard. And that happened for the invention of three things. Number one, the invention of the stirrup, which allowed the horseman to use his lower extremities to put leverage on his weapon and therefore dominate the infantry because he was more stable on the back of the horse. Second was the perfection of the warhorse. You're familiar with those, you know, the Sarasin Arabian horse, the Mongrel pony, and the large dray horse that carried mounted knights in the battle. And the third was the invention of the compound bow. You're all familiar with the compound bow made out of wood and sinew that bows in the opposite direction, and what that allowed a Mongrel horseman to do is fire from the back of a horse and actually fire or shoot his bow and arrow from a gallop. Total dominance of the firepower battle. And that started the age of the dominance of the mounted warrior, second epoch. That ended at the Battle of Pabio in 1523 where Spanish--uneducated Spanish peasants defeated the cream of the French nobility because they were firing an instrument called a harquebus that fired a three-quarter ounce lead ball, and it would penetrate the most expensive body armor of the most elegant French knight, and it completely turned the epochal shift of warfare of dominance of cavalry back to dominance of infantry. And that lasted another 500 years until 1914, where the application of the industrial revolution to the battlefield increased the lethality of the battlefield by a factor of seven, increased the depth of the close fight by a factor of ten, and after the death of something like eight million infantrymen, then the dominance of the infantry soldier fell to the machine gun quick firing artillery, mines, booby traps, barbed wire. And this began the era of mechanization. And lucky for us, the United States, that we all fought this ascendancy of the mechanized battlefield air, land, and sea. Machine--you know, the radio and the internal combustion engine applied to war machines occurred just as the United States became dominant in the art of war. Too bad, 'cause as I argue in the book, all that

started to change in 1945. That the dominance of big machine warfare began to lose its luster in places like Israel, Korea, Vietnam, Indochina, Algeria, fill in the battlefield. So that as the enemy adapted to take on big machine warfare, and suddenly the dominance of the big machines began to decline. So now we're in, I believe, another epochal shift. The Russian army in the last twenty-five years has shed 80,000 armored vehicle, seventy-two percent of all the soldiers in Western armies are infantrymen, mostly light infantrymen. Seventy-two percent. Most people don't know that. What does that mean? Well, that means there's a Darwinian hidden hand at work here where militaries begin to adopt their systems and their material to fit the reality of the battlefield. And so while we may want to continue to fight in the mechanized era, what we're beginning to find out is the mechanized era is either gone or it's fading. But there's good news. And the good news has to do with technology. You have a cell phone presumably in your pocket. That cell phone really represents how the technological shift on the battlefield is pushing increasingly towards smaller, lighter, and miniature. During my age in the military it was the big box stuff that determined your ascendancy in warfare--big ships, big planes, big tanks, big rockets. And now what we're beginning to determine or to see is that those days are gone. That the massive electronic fields of arrays that used to be necessary to control troops in combat are now begin done by cell phone. That the days of having to shoot down airplanes with these massive aerial batteries are now being done by shoulder-fired antiaircraft. As the Israelis learned in 2006 that a seventy-ton tanks is now easily a victim of an uneducated peasant firing a hand-me-down antitank guided missile that they borrowed from the Russians and the Chinese. So the process of miniaturization is taking capabilities that once could only be held in ships, and now they're increasingly being drawn down to devices that could be carried on the backs of soldiers. So that no longer do you have to have a huge industrial complex to be able to field a large effective fighting force on the ground. You can literally now buy it off the shelf. That's good news for us, because what do we do better than anyone else on the planet? Well, software, hardware, and our ability to integrate systems. So I would argue then that we are beyond all this boloney that you hear from the DOD about the third offset and about this great sweep of technology that's going to change the battlefield. At the end of the day the guy who knew what he was talking about was Colonel Yahara, which gets me to the whole point of the book. And it can be summarized in three numbers: eighty-one, four, and one. Eighty-one, four, and one. In wars in the American era, eighty-one percent of every American who dies at the hand of the enemy, not through disease or through accidents, but who dies at the hands of the enemy, eighty-one percent have been infantrymen. Not soldiers or marines, but infantrymen. Eighty-one--four out of five combat deaths are infantrymen. Four--the infantry force in the United States makes up less than four percent of the total uniformed population of duty. The exact number is 43,000 soldiers, marines, Special Forces. So the--when people say, "Well, we're just going to commit another 4,000 to Afghanistan. What's the big deal?" The 4,000 are not coming from the 1.2 million; they're coming from the 42,000. You see the difference? One. By the way, it's not one. To be precise it's 0.89. Army and marine and special operation small units receive 0.89 percent of the DOD budget to sustain them for training and for equipment. 0.89. I was successful back in May to--after my testimony to get the senate to set aside a hundred million dollars to help the services develop a new rifle, and I'll talk about that in a minute. Hundred million dollars sounds like a lot of money. The F-35 fighter is a hundred and five million a piece, and it took me years to get that done. So if Yahara was right, if the center of gravity of the United States is dead American, if most of the Americans who die are infantrymen, wouldn't it make sense to give more resources to those who are most likely to die? So let's forget the humanity for a moment. Let's forget the images of dead soldiers lying on the ground. Approach it purely from a strategic,

cold, hard strategic standpoint. The fewer infantrymen to die, the less of a stress on an administration to prosecute a war. Because when the cost of blood goes up, the pressure to leave mounts. Remember Ho Chi Minh? So wouldn't it make sense just from a cold, hard standpoint of national security policy to spend more on those who are more likely to die? Well, thankfully the one guy who believes in what I've just said is Secretary Mattis. Well, I used to end this talk lamenting about that and then offering to you, which I'm going to do, a shopping list of what we can do to make this better. I would argue in front of you tonight that the greatest single return on investment for a dollar spent on defense is to make the individual close-combat soldier better. But there are problems with it. Let me talk about those. When you fight at the strategic and operational level, the technological far exceeds the human side of warfare by a factor of ten. But as you progressively march down the scale of war and move to the tactical side of warfare, then suddenly what's in the soldier is more important than what's on the soldier. And as I say in the book, it's the human dimension that determines dominance in the close fight. It's the ability, it's leadership and training and selection, education, all those things that are intangibles--in the book I call it the human dimension--that often times are the things that determine whether or not a soldier lives or dies on the battlefield. Let me just talk about leadership for instance. We're all taught in business school how to make decisions. They used to call it in my day the Goldilocks process. You know, you pick an operation that's too hard, that's too easy, and you always take the bowl of soup in the middle. And then you put the plan together, you come up with courses of action, and so forth. That's the way they do it at the operational and strategic level. Is that what happens when a squad leader leading a patrol through some God-forsaken place in the Middle East takes a bullet over their heads and goes to ground? Do they have an orders committee where they assemble for a little bit of a dialogue, perhaps a written order brilliantly executed? Of course not. So the difference between leadership and decision-making at the squad level versus the higher level is that increasingly at that level it becomes intuitive. Now, years ago we used to think intuition was something that was sort of made up. You know, the sixth sense, gut feel, or whatever you want to call it. What we've learned since then through legitimate science through the study of EMTs and fire and police and others is that there's a real science to intuition. Professors like, oh, golly, Gary Kline who you may be familiar with, Marty Seligman from the University of Pennsylvania, and others have done some remarkable work in determining that there's real science here. And in fact what we've learned is that there are three elements for driving intuition into the brains of small unit leaders and soldiers. Number one is repetition. Everybody hates repetition. But go watch an NFL practices, and you tell me that repetition isn't important. The second is variation. If you repeat something over and over again and do it the same way every time in the same conditions, you will always induce negative rather than positive training because you don't allow your intuition to drive your decision making. And the third is stress. If you make a decision in the quiet of a room, that's not the same as making decisions in extremes or at the point of death. So as I say in the book, the secret for the future is the tomato factory. So I was at Twentynine Palms back in November talking to the first marine division officers, and I said, "Okay, repetition, stress, and variation." I said, "How many times do your marines get that experience in a training year?" And one of the battalion commanders said, "Four times." And the division commander said, "No. You're lucky if it's one." So if you think of intuition as something that's built into your amygdala--not your prefrontal cortex but your amygdala--your primitive part of your brain. It's not based on your logic cells, but it's based on a more primal sort of thing. And the more images that you can impress in the primitive part of your brain when you're faced with situations as I've just described you, go to ground, the richer your experiential level is, the more likely you are to make the right decision. But if



you only do it twice a year, how good is that? So the bottom line is that while the navy and the air force may go through top gun and red flag and get hundreds and hundreds and hundreds of exposures and air-to-air combat that are observed and that are recorded and that are played back with minute detail, sadly today in most cases, soldiers--infantry soldiers learn to fight by fighting. And they select themselves out generally by who lives. So let's say instead of having two a year, we have two thousand. Let's say that every month you have a hundred immersions or more. Who knows? Five hundred. That's not that hard to do. Hell, your kids do it or your grandkids, I can see by my audience--your grandkids do it when they play video games because the screen varies the circumstances, forcing your kids to be creative and intuitive when they play the video game. Well, why can't we do that with soldiers and marines? Why can't you have a virtual immersion? A cognitive gem is what I write about in the book, where soldiers are immersed hundreds and hundreds of times. Oh, by the way, with modern telecommunications, there's no reason why you can't take a theater of war and replicate it virtually on a device. You don't have to build a village out in the desert. You can build it on a screen. Shooting: the essence of being an infantryman. You know, pilots don't get in a simulator to practice takeoffs and landings between BWI and O'Hare. They go in the simulator to be exposed to those things that you can't replicate in real flight. An engine goes out, a bird strike, a severe hailstorm. That's what they practice because they're probably gonna do that once and have only one chance in their lives to get it right. Well, it should be the same for simulations in close combat. Why can't we do that? A very interesting thing. Okay, one more piece of history. This may be the last. I don't know. After the Battle of Loos in April 1915 the British Expeditionary Force was dead. Virtually all the leadership had been victims of the German machine guns and artillery, principally machine guns. And the British army had a symposium, if you will, at Salisbury Plain as they began to build Kitchener's army, this new model army that they were going to put in the field in the spring of 1960. And you know, they're so donnish, the British. I love them to death. But they have this thing. You know how they are--said, "Resolved. The apportionment of a machine gun to the regiment"--a Vickers gun, they called it--"to the regiment is twelve. Should it be increased to sixteen, eighteen, or twenty-four?" I just thought that was so quaint. The answer of course as we've learned is two thousand. But you see what I'm trying to tell you is that a new device like a machine gun--it's not something you can acculturate and apply, in theory at least, to the battlefield quickly, because of all of our conservative prejudices and biases. Well, the same thing is true today with drones. How many drones does a unit need? Oh, there's a huge fight going on now in DOD. The air force wants to control the air power and all the drones. There's this antibodies out there. You have too many drones. Or the drones don't talk to each other or they're not interneted or we all need to type class them all so we can save money. What a bunch of baloney. They went through that with the machine gun over a hundred years ago. And I would argue that in future warfare the new machine gun is the drone. The marines last November at Twentynine Palms were buying quad copters at Walmart so they could practice shooting at drones and using drones. Last year the air force academy, the naval academy at West Point had a swarming competition at Camp Roberts in California where the kids went out and bought their drones on the internet. So here we are, the world's most sophisticated technological power, and all--your grandkids may have gotten a drone for Christmas. And here we are, ten, twelve--no, more than that--almost twenty-five years into the drone business, and we still send a soldier out of the wire every day in places like Iraq and Afghanistan without the ability to see what's over the next hill. Well, as you can tell, I get pretty passionate about this, and I've enjoyed your company tonight and your engagement with me. But keep the faith. I'm gonna fight this battle 'til the day I die. And I'm convinced because we have a man like

Jim Mattis at the helm, that the day is coming when we're gonna win this fight. Thank you all very much.

(Applause)

-You said that you need to improve small unit leadership and improve tactics in order to counter threat for example like Hezbollah. So how does doing those things, counter threat like Hezbollah? Take for example in Fallujah we obviously defeat them, then a couple months later they come back into the city. Imagine southern Beirut, we defeat them with great tactics, great unit leadership, very low casualties, and then a couple months later they come back in or they find another city. I don't--maybe I missed that in your book, but--

Scales: (Chuckles) No, because I didn't address it. I never--I didn't get into strategy on this book, and I didn't get into--well, actually I did. I made a couple of swipes at politicians, which is another reason the dogs don't like it. The first answer to your question--two parts. Number one, we have a tendency to get into wars that we think we're going to win with technologies. So one of the lessons we've learned, I think, over the last seventeen years is we ought to do a better job of picking our wars. We fight two types of wars. We fight wars of annihilation and wars of attrition. America fights short wars well and long wars badly. And our bosses ought to have enough wisdom to know that when you commit the nation to war and you unleash the dogs of war, the results are one hundred percent completely unpredictable. That's what makes war so insidious in our history. What army do you know of--what president, what leader do you know of has told his people at the beginning of a war that it's going to be anything other than short, sharp, cheap, and glorious? You ever saw him come along and say, "Boy, we're gonna lose this, and we're gonna lose a lot of people." And it's like, that's not the way--but just remember August 1914 when all this mess started over a hundred years ago. All of the contestants were fully assured they had God on their side and they were gonna win. So I hear what you're saying, and the frustrations of war particularly at the level I write about where violence really occurs is insidious, but for whatever reason the president rolls out of bed one morning--pick your party, pick your decade, hell, pick your century--and picks up the phone and said, "We've just gotta stop this." And the next thing you know we find ourselves--the nation finds ourselves embroiled in a major conflict. But here's the other thing. Sometimes I get a little emotional when one comes up to me in an airport, they recognize me from television or something, and they say, "Thank you for your service." And for an old cynic like me who's written a book like this, I can't help thinking what they're really saying is, "Thank you for serving so my son can go to graduate school." So there's an--I share much of the same cynicism that you share. All I'm saying is if we're going to do this for whatever reason, ill-advised or well advised, we oughtta go prepared fully with our eyes open expecting an enemy to do all he can to win. And--or don't go. All I'm saying is all too often our society, the United States--because maybe it is the American era of warfare--that we just tend to march off too quickly to do the things as you just said.

Clarke: General Scales, we're gonna wrap this.

(Applause)

Clarke: Thank you to Major General Bob Scales for an outstanding discussion and to the US Naval Institute for sponsoring this program. The book is *Scales on War: The Future of America's Military at Risk*, published by the Naval Institute Press. For more information about the US Naval Institute visit [USNI.org](http://USNI.org). To learn more about the Pritzker Military Museum and Library, visit in person or online at [PritzkerMilitary.org](http://PritzkerMilitary.org). Thank you, and please join us next time on *Pritzker Military Presents*.

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(Theme music)

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