Australian Army
Land Forces 2024

Keynote

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People. Ideas. Hardware. In that order. That was John Boyd's direction for how military should deliberately transform to remain competitive. And when armies have successfully transformed, they have usually followed that process. In the US Army's case, the formation of TRADOC (Training and Doctrine Command), the empowering of a team under General Donn A. Starry, enabled the emergence of ideas which started with the extended battlefield and moved into what became AirLand Battle, which the US Army started to adopt and train and execute long before it received the outputs of its five modernization priorities in terms of equipment.

But when that equipment arrived, the US Army knew how to employ it and was ready to execute that concept, and the effects were made evident in 1991. And yet, the way that we approach the future of war within militaries, bureaucratically, usually follows the opposite course. An interesting technology emerges. Someone discovers something. People think it might have military potential. They start tinkering with the ideas around how it might be employed. That becomes a conceptual force, then a future force, then it becomes a funded force. And that's usually the point at which we start looking at how we train and what doctrine might be involved. And very often we go down the bureaucratically easiest route in determining who's going to receive that equipment. Rather than thinking about how it might transform our structures or how we operate.

The reason I highlight that is that it's a real privilege to have been invited by General Stuart to be able to discuss the future of the profession, and to discuss the future of war in the context of its practitioners, because that is where we need to begin.

It is foundational, as we just heard. Now I'm going to try and cover four things. Firstly, I'm going to try and address what is the relationship between technology and professionalism. Secondly, I'm going to suggest some aspects of the human face of battle which are changing and which we need to confront and be prepared for. Thirdly, I want to address what that means for professionalism. And fourthly, I want to put that in the context of great power war, which is very different from the kinds of conflicts that the professional community has faced in the current generation so far.

So to begin with, the relationship between technology and professionalism, between, I would say, around 1100 and 1600 AD in Europe, there was a fairly consistent dynamic. There was a professional military cadre, who conducted most war fighting, and the characteristics of that profession were grounded in a moral code defined by chivalry, in their bravery, in their personal willingness to face danger and in their mastery of their arms. And they were followed and respected by their colleagues through the mastery of their arms. Now, from about 1600 onwards, those professional qualities changed in terms of what people thought made a good soldier.

And I would say there’s not one reason for that. There are several. One of them was the maturation of firearms. Firearms have been around for a while, but they were becoming much more effective, much more reliable. The other was the emergence of printing and a progressive increase in literacy, because those two things firstly meant that you could impart professional knowledge beyond your own experience.

You could discuss concepts in a way that were accessible to people about how they could conduct military operations and movements, how you could train people. And so a steady rollout of concepts and ideas about command and control, the coordination of formations became accessible across Europe. And because of that ability to coordinate large bodies of people and the fact that the muskets did not require the same level of mastery to be able to apply lethal effect, the definition of a military professional became somebody who understood logistics, who could command and coordinate and direct others.

And in fact, by the end of the 19th century, this had reached such a point to which it was seen as somewhat of a failing if an officer actually had to use that weapon. Officers in some cases didn't even carry them. Most weren't quite that confident in their skills, and carried a sidearm or a sword, often a small sword. So a dueling weapon may be appropriate for self-defense, certainly not for offensive action. And so the definition of professionalism was transformed.

There's a really interesting and important point about this, which is to take the longbow as an example. The longbow arguably remained a more effective weapon than the muskets right up until about 1840. If you had a unit of long bowmen, you could shoot faster with more accuracy, it had similar lethal effect and it had more effective range. And you didn't blind yourself when everyone fired. So then why was it superseded? And the simple answer is that it took years to even be able to draw the weapon at, you know, 120 to 180 pounds draw weight of a full war bow. And so the loss of that individual was a hard to replace resource, whereas you could train a pikemen or you could train a musketeer in a few weeks. Now, why is it that I'm talking about the medieval era and the Renaissance, when we're supposed to be talking about the future? Partly it's an act of cowardice.

I'm talking about bows and arrows and muskets because I presume that no one in this audience is professionally threatened by the idea that a bow and arrow might be obsolete on the modern battlefield, but they do go through sandbags, which is quite interesting. However, hopefully, having convinced you that your skills as professional soldiers do change in relation to technology, I'm now going to turn to the modern period and look perhaps forward into the future.

And I'll give you one example of why it's really important that we consider what skills and characteristics we train and develop in the next generation of soldiers. For the last, arguably 30 years, the military has been controlling the battlespace and bounding it. You have set the tempo of operations, and you have been facing adversaries who cannot overmatch you with firepower.

And so being a good soldier has, to a large extent, been about perfecting the execution of very clearly defined battle drills. It has been in personal bravery and that willingness to go through the door first and mastery of your arms. And we've seen that in how special forces, for example, have arguably shifted from being the

unconventional forces that they were in the Cold War to being hyper conventional forces.

And we get obsessed about tier one, tier two, tier three, and so on, which is largely based on range time, the amount of experience, the ability to execute complex military tasks. And yet, if you think about the years it would take to train a proficient sniper, for example. I can assure you that I can take somebody who has never handled a weapon before, and with three weeks training, I can enable that person to apply lethal effect with more accuracy at four times the range, with much greater consistency than the best sniper in any of your armies.

Now, you will probably argue that the FPV drone has lots of weaknesses and vulnerabilities, there are limitations to it and I've written about them extensively. I would agree with you. But just as the bow and arrow remained a more effective weapon, technically that did not mean that when scaled and used operationally, that was an operationally effective way of fighting. And so the ability to fly UAVs precisely, through electronic warfare, which can be done, although it's difficult, is a skill set which is easy to learn and delivers precision at range in a way that is transforming how you apply lethal effects and the disposition of your forces on the battlefield. So there is a clear relationship between technology and professionalism and the skills you need. And we need to identify what those new skills are if we are to remain competitive.

I'm going to suggest that there are three really important changes to the face of battle that we need to be prepared for, that emerge from the changes in technology. The first is driven by those characteristics that General Stuart highlighted - increased ability to detect; to communicate those detections; to strike those detections at reach; to do BDA [Battle Damage Assessment] and the ability to do so rapidly and precisely.

Those changes mean that a modern force is much more dispersed across the battlefield. And what that means for the individual, you know, John Keegan in *The Face of Battle*. The reason why it's such a powerful book is because it drills down from the descriptions of mass movements of formations into the experience of the individual soldier and the challenges that that soldier has had to overcome.

If you look on the modern battlefield, a company is often spread across up to three kilometers of frontage. And in that context, what is held together Western armies, from the Second World War in terms of how we've understood unit cohesion, has been the bond with the person next to you. Small squad dynamics, the relationships between individuals, your determination to do the best you can in order to preserve the person that you care about that's serving alongside you.

But as forces are dispersed, more and more, you might have somebody next to you. You often don't. Your friends might be in line of sight. They often aren't - because you can't actually concentrate large numbers of people in one place. And if you do, they won't be alive for very long.

And so that fundamentally changes the moral challenge that the individual confronts. It is not uncommon, if we think about engagements in the First World War, generally speaking, the enemy was difficult to see. You caught glimpses of them. They were at

maybe 100m, maybe 40m. Occasionally you got into very close combat, but very often engagements were out to 300m.

In Afghanistan it was going up to 600m very often. The point being, the soldier could probably see more friends than enemy. Whereas on the modern battlefield, it is entirely plausible that you might be looking up and they might be UAVs rather than enemy soldiers. That very often you can see more enemies than friends.

And that is a very isolating experience that we need to prepare soldiers for - the ability to think and to overcome fear, to help others. What they do as individuals will determine the effectiveness of the unit, but help others in a way when they can't necessarily see the person they're helping. That requires a different kind of preparation I would suggest.

There is another element to modern warfare that I think we have to confront, and it's ugly and it's visceral, which is it's personalisation. Now, one of the things we do, of course, is we take large bodies of video from conflict, and we observe them to try and identify lessons. And I've spent a lot of time going through footage from Ukraine, and you see some pretty ugly things. You see soldiers confronting an enemy reconnaissance vehicle or strike UAV pointing out someone else's position.

You say, go and strike them, not me, because they are looking death in the face. You see, soldiers commit suicide, kill themselves rather than continue. Now, that has happened historically, that's not a new phenomenon. But it is new that the person killing them, (a) induced it through fear, and (b) watches it happen. And there's another aspect to this, which is that the pervasive element of ISR with high definition video scraping the battlefield continually means that the faces of the dead are not anonymous. They are people with names and families. And very, very quickly, when you take that video and you plug it into facial recognition because people have large digital footprints, that person comes alive again to a certain extent for the killer.

Now, there's been interesting psychological studies done on the impact on drone operators of essentially the removal of fairness from the fights. The fact that they are killing from a distance, and what that does to their, mental resilience. That's something that was being dealt with in specialized units, flying UAVs over hundreds of kilometers - it's now something that is being confronted at tactical echelons. A lot of people are deliberately killed rather than incidentally killed. It's not returning fire in the direction. It's picking out enemy positions. And very often they will find out exactly who they killed and what they left behind.

And that's another consideration when it comes to professionalism and identity. How do you prepare someone to be able to do that without sustained moral injury? There is a third element to this, General Rainey is in the room. And he's talked before about the idea of constant contact. I think that's a really interesting idea. And it encapsulates what something that has changed about the face of battle. You know, a platoon now can engage in lethal effects against moving targets up to eight kilometers, against static targets out to 20km. But they can call for effects that even at brigade level, you could generate, though you probably won't hold them there - it's more likely a divisional asset. Nevertheless, it's cheap and can have 450 to 600 to 1000km range. And of course, soldiers rotate and they leave the front.

Now, when it comes to the definition of professionalism and the following of battle drills and good discipline, I'm pretty confident that lots of you have one of these. [Holds up a mobile phone] And I'm also fairly confident that as professionals, you know how to use it safely. You want to buy them locally in cash. You want to put an operating system on them that detaches the activity from the identifying features of the device. You want to use a prepaid card, which you load with cash to pay for a SIM, which you acquire locally. It doesn't attach to your name or your banking information. You keep it off most of the time. You only turn it on in crowded places, in places where there's not an inherent geographic relationship with anything that you particularly do or anyone you particularly know. And otherwise, you keep it well away. That is the professional tradecraft of how to safely operate a mobile phone.

I also have really high confidence that if we did an advertising ID scrape off this building right now, pretty much all of you would get captured by it, including me. And within a week, the adversary would know where you live, what time you wake up, which route you take to work. And within a month, they'd probably know exactly who your family is, where your children go to school, who their friends are and where they hang out. And they would know that using commercially available data, there's no sensitive collection required to do that. You just need to buy the advertising information and do some analysis.

And so the interesting point there is that the result of constant contact is that drills that work for a limited period of time, when you are in a specific context and will keep you safe, can't be kept up continuously when you are in constant contact and in conflict, constantly targetable.

You know, most Western militaries are struggling with recruitment. If we impose that comms discipline throughout our operational depths in peace and war, I think we'd struggle a lot more with recruitment, noting connectivity’s role in being a functional member of modern society. And so what that means, I mean, even in Ukraine, where people are very aware of the threat, only two weeks ago, the military signal school in Poltava was struck in operational depth and a large number of its new personnel and some experienced personnel were killed and many more were wounded. Precisely because people didn't follow discipline even though they understood the threat.

And that changes how we think about professionalism, because you can't keep up your best efforts all the time. So I'm going to briefly outline, I think, some of the characteristics of the professional, that I think are relevant and then what that means in the context of great power rule.

The first is, as I highlighted, you're not able to solve the problem with the best drills available for two reasons. Firstly, because you can't keep it up continuously. Secondly, because the battlefield has just become an awful lot more complex and there are too many variables that you don't know and therefore it is extremely hard to understand what the best thing to do is.

But what professionals have is they have a body of historical knowledge. They have had the time as professionals to think about emerging capabilities and to test them. And they have experience and through that experience, professionals are able to make contextual judgments about risk. Much better contextual judgments than those individuals who have not had the time to think through these problems. Because while theoretically, as I just highlighted, you could pick out the entire lay down of the

Australian Army, through mobile phones, through sustained ISR, it's actually very difficult to translate that into something that is operationally useful. But especially if you are dealing with a professional body who knows when to apply the procedures and when not, and can make its contextual judgment about where they do and do not adopt the control measures.

The other thing that experience gives you, and being a professional organisation gives you a profession of people with a shared mission is that even though warfare is becoming drastically more complicated, you are exposed to the other members of that profession on a routine basis. And so an infanteer here may not be an expert signaller or EW operator. They might not understand the mechanics of the quantum technology, the quantum sensing that was being demonstrated in the foyer, yesterday, but they've probably had conversations with people who do, and they can probably learn and force themselves to learn the principles of what that offers and what it doesn't, what those fellow professionals need in order to be able to do their jobs. And therefore, through that knowledge, you are able to effectively make contextual judgments. That's really important.

It's not about following the drill. It is about being able to work with a diverse team, who can draw skills that you don't understand in detail, but you have the experience and the relationships to be able to make that team as effective as it can be.

I'll give you an example. From applied military context. If I am going to conduct a company attack, there will be a point on the modern battlefield where my electronic protection will run out. I will move beyond the range at which the jammers are disrupting the enemy kill chain, and that will be an invisible line. And as an infanteer, or a company commander, I probably have no idea where that line is, but someone in my organisation will be responsible for telling me. And so I will prioritise maintaining communication with that person so that they can tell me to stop when I need to stop. And if I fail to maintain that relationship, I will be potentially very successful in my company attack and then catastrophically unsuccessful very, very quickly, because the level of precision effects against my formation will go through the roof.

And so that is a shift in professionalism in terms of how we think about combined arms capability and how you draw that team together.

There are other aspects of professionalism that I would like to highlight. And this actually builds on what General Stuart highlighted in terms of adaptation. There are a huge number of bright ideas that you can generate, when you're confronted with a problem. Making bright ideas practically executable requires the ability to think through all of their dependencies and their tactical applications, and the permutations of how they will interact with an adversary. And in low intensity conflict you can make a lot of mistakes. In high intensity conflict you can't, you can't because you will suffer the consequences. And so there are critical elements in adaptation is using that professional experience, using your contacts with your colleagues to be able to look at proposed adaptations, to judge which ones will work and which ones will not. And then to take the bet on scaling them, because it's not just about being fast, it's can you apply it at the scale of relevance to deliver an operational effect?

And that is something that comes from your professional expertise, the ability to make the right bets. If you make the wrong bets, you will waste resources, you will

waste time, and ultimately you will waste people - which is the one thing you can't afford to lose.

So I'm going to transition to the relationship between great power war, and professionalism and the role of professionals in great power war. I think there are four things that are most important, there are more, but four I am going to highlight. The first is that when war breaks out, you are the ones that have the highest level of readiness, capability, and you have a plan. And in war, after war, what we observe is that the people who start wars think they're going to be short. It is the professionals on the defending side that set the conditions for the terms that develop in that conflict. If they fail, the war may well end short. If they succeed, the war will likely be long. But the question is on what terms? What are the dynamics? What's the terrain that's actually being contested and fought over. That will be determined by the fighting power and capacity of the professional cadre of a force. Task number one.

The problem is you will be heavily attrited in that fight, because you're also facing an adversary who probably has first mover advantage. When their magazine depths are greatest, when they are executing their plan and you are facing their professionals who have trained and prepared. And so it's an extremely bloody fight. Not everyone will be killed, but most of your units will be broken up largely from wounded. And therefore the need to replace personnel. And very, very quickly, when we think about a longer conflict, the role of personnel changes and the role of your experience and professionalism changes.

In Ukraine, I observed three things. Firstly, the rate of casualties meant that the Ukrainians did not have enough time to train replacements. They still don't. The result is there is a qualitative decline in the capacity of the fighting force over time. Now it will get to a floor and it hopefully won't drop below that. But the point is, you have less time to train. Because you have less time to train, you have to focus on the key things that are most relevant. Who determines what is most relevant? You. And so your experience enables the generation of the next echelon.

But the next echelon is not a static target. You're not trying to replicate what you were. Both because the adaptation cycles mean that the skills and the tools at the front are changing, but also because the reduction in time for generating new forces means that what you were is an impossible aiming mark. And so you then need to manage that adaptation cycle so that the forces being generated have the skills that are relevant to the next stage of the fight. That adaptation needs to work back through the training system.

The third element, and this is an area that experience can enable even as you take casualties, because most people will be wounded rather than killed and can still contribute to this, is that your expertise in logistics and command and control and planning will enable the force to continue to operate at scale.

What new recruits will have is a lot of enthusiasm, they may be pretty confident and up for a fight, and they may have aptitude for the task that they've been given. In fact, there are a huge number of extremely talented professionals in the civilian world who will really quickly master things that you took a long time to work out, because you will have PhDs, and you will have engineers surging into the force from the civilian fields, and they will learn quickly because there will be similarities with their civilian jobs.

But what they will not have done is try and coordinate at scale in a contested environment. And scale really matters both in terms of your ability to appreciate what is operationally significant and which plays are worth making and which are not. But also, because the scale at which you operate will determine your competitiveness against the adversary. How much combat power can you bring to bear in an operation?

The third element is your leadership. So what happens when a military grows many times its original size is that its culture dilutes. You have a clear professional culture, if we go through mobilisation, your culture will be the minority in the force. But many of you will know what you're doing and others won't and therefore they will look up to you and how you exercised command which may be being exercised a couple of ranks higher than you are currently, by virtue of the need to fill out the positions in those new units will determine how effective those units are and what the culture is.

The interesting thing about that is that because they will be less capable and because they will not have been indoctrinated into the military profession, they're probably going to be quite disobedient. I've seen this in quite a lot of like levied troops. They're quite good at consent and evade, quite good at slow rolling orders if they do not trust the commander. And so your ability to exercise control will likely diminish [and] the importance of your ability to inspire through command will increase. And those people, when we think about a long fight, will want to trust that you are trying to preserve the force, that you are trying to keep them alive and get them home, because they're not professional soldiers and first and foremost, they want to return to what was.

I'm going to conclude, noting that I've been speaking for some time, with a final point which is that you are the guardian of ethics within that mobilised structure. War is brutal, traumatic, and it imparts moral injury on those who conduct it. And when people are scared and fearful, they are not their best in terms of their decision making and in terms of their moral judgment. To give you an example, I know of plenty of instances in which conscript or mobilised forces have executed prisoners. And usually they do it because they are terrified of those individuals and the threat that is still beyond them. They do it because they are extremely angry at what those prisoners had done prior to surrendering and they do it because they don't have a procedure that they understand to deal with the situation. The presence of professionals who do know what the procedure is, who can hold them to a moral standard and can imbue through command and leadership that organisation with the sense of purpose, to retain that ethical standard is critical I would suggest not only to making sure that the force upholds its values, and that the force is not just fighting, but is fighting for something that's worth defending. But it is also critical, so that when the nonprofessional community goes home at the end of that conflict, they can look at themselves in the mirror and be proud and that's an extremely important thing.

So I'm going to conclude there and simply say that I think the study of professionalism and its role as you adopt new technologies and new capabilities and prepare for a new period of great power competition is foundational, is critical, and is a conversation that is worth your time and energy. And I'm very grateful for the opportunity to have spoken with you today.

Thank you.