The New Strategist Journal

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Drones and the RAF: An Interview with Squn Ldr Keith Dear

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Squadron Leader Keith Dear is a serving officer in the Royal Air Force, intelligence officer with 10 years experience in the field. He is also the author of Beheading the Hydra? Does Killing Terrorist or Insurgent Leaders Work? (Defence Studies Volume 13, Issue 3, 2013) and is working with Oxford University to apply the insights of modern psychology and behavioural sciences to full spectrum targeting. The views expressed in this piece are Keith's alone and do not represent the views of the RAF.

JFR: Given the RAF's recent commitment to expand the number of drones, how significant do you feel this for the future direction of the RAF, especially with the forthcoming SDSR?

KD: The biggest problem the Royal Air Force might face would be a major state on state conflict, perhaps in Europe, in which our involvement was considered truly non-discretionary after years of focusing on the non-state adversary. The challenge in this eventuality would be the speed with which we could expand our current force to meet a peer competitor. If we recall that the biggest challenge in the Battle of Britain was not the loss of aircraft, but the loss of pilots, the increasing use of drones may in time come to mitigate this risk, keeping 'drone' pilots in the rear and away from immediate danger to enable us to grow more rapidly by reducing the loss of pilots to enemy action. Drones may also help to offset the rising unit cost of aircraft. In his Trenchard address ACM Pulford challenged industry to reverse what has become known as Augustine's Law the exponential rise in the Unit cost of aircraft. Drones might perhaps offer some of the savings sought — they remove the need for the messy compromises in aerodynamics, weight and g–limitations that putting a person in the aircraft brings. If this is the case they could again help us to grow rapidly to meet a future state adversary.

I think in the long-term drones will play a greater role because of their manoeuvrability and the growth of passive detection measures. In the future it will be increasingly difficult to hide aircraft and they will therefore have to get smaller to be effective. In addition to this, as missile technologies improve, the g limitations of human beings will mean that the advantage in end-game manoeuvre is increasingly with air-to-air and surface to air missiles. Smaller aircraft will be harder to find with surveillance techniques, harder to target due to their lower radar cross section and emissions and able to manoeuvre harder in the end game if they are targeted. I think therefore that in time unmanned aircraft will have a higher survivability rate.

The expansion of our drone force under these circumstances seems certain.

That said, we are a long, long way from replacing our manned aircraft with drones just yet. The RAF's commitment to expand the number of drones it operates acknowledges that remotely piloted aircraft are going to make up a growing proportion of our force, but it does not commit us to an arbitrary percentage. I also think there will always be a need for a number of manned aircraft for flexibility. It is possible that a future ECM environment could render all remotely piloted aircraft ineffective. In this eventuality we would need pilots to fly machines that were entirely self-contained in order to operate.

JFR: Although drones, in the public imagination, are strongly identified with missile strikes and counter-terrorism operations, how important to you consider this in relation to their role in ISR?

KD: Drones do so much more than the public and much of the military credits them with. Their association with missile strikes and counter-terrorism operations is justified, they have played a huge role in US operations around the world. They have also allowed the US to operate in the air space of countries that wouldn't have been prepared to allow manned aircraft to operate. This is both fascinating and unique and I think accounts for their close association with counter-terrorism operations — the public understands that this capability is allowing the US to operate against terrorist cells across borders in a way it could not have previously done. Quite why unmanned aircraft should be more acceptable than manned aircraft to states such as Yemen and Pakistan is a subject worthy of greater study. I suspect that psychologically the use of unmanned drones feels less of a violation than giving up you airspace to pilots from another country. Illogical though this is, the unique freedom to operate that has been granted to drones is new and accounts for the strong identification of drones with counter-terrorism in the public imagination.

However drones are much more than just strike platforms with unique freedom to operate. Their endurance makes them first and foremost ISR platforms able to provide continuous video feeds of activity on the ground for many hours at a time, which in turn provides us far more information on potential targets than ever previously available helping to target more precisely and reduce unintended damage or deaths. But drones are not just cameras in the sky either, a common misconception within the military. They can carry a range of collection capabilities, which can sometimes be more important than the video feed they are providing or the bombs they can drop. Indeed, as I described in *Beheading the Hydra* the missile strikes themselves can, under certain circumstances, be counter-productive. Far more important is the building of the intelligence picture, the help they can provide in enabling us to locate and understand our adversary in order to interdict attacks and understand how he operates and future intent.

JFR: Elsewhere you've discussed the possibility that the simple knowledge of being observed by a drone can affect how someone acts. Could you expand on this idea?

KD: That the feeling of being watched can change behaviour has been shown beyond

doubt. A picture of human eyes placed above a university coffee bar honesty box increased donations to the fund threefold. (M. Bateson, D. Nettle, and G. Roberts 2006) Adding eye images to a university cafeteria reduced littering in the cafeteria by half; (Ernest–Jones, Daniel Nettle, and Melissa Bateson 2011) eye images had the same effect on littering campus wide; (M. Bateson, Callow, et al. 2013) adding them to charity donation buckets in supermarkets increased donations by 48% (Powell, Gilbert Roberts, and Daniel Nettle 2012) and they reduced bicycle theft by 62% when displayed at bike sheds. (D. Nettle, Nott, and M. Bateson 2012) Placing eye images by bus stop rubbish and recycle bins increased the correct use of the bins and the volume being recycled. (Francey and Bergm'uller 2012) People issued stronger moral condemnation of immoral actions in the presence of eye cues than in their absence. (Bourrat, Baumard, and McKay 2011)

Feeling observed can increase altruism even when it comes at a personal cost. Eye images increased generosity in an anonymous 'Dictator Game' where a person is given an allocation of $ 10 on a computer screen and then has 20 seconds to allocate an amount (or nothing) to another player, keeping the rest for himself. After the experiment the subjects are paid anonymously. When subtle eye cues were present on the screen, allocations rose by an average of 31.4%, when the eye images were clearer, allocations rose by an average of 55%. (Haley and Fessler 2005) A similar experiment at Harvard University showed the presence of eyes, increased altruistic contributions in an economic simulation by 29%. (Burnham and Hare 2007) It has been comprehensively proven that feeling watched directly or by 'eye cues' changes behaviour. It is equally clear that this response is subconscious, since subjects cannot be responding rationally — the presence of stylised eye images is no greater reason to refrain from stealing a bike or to give away more money. This is fascinating but not surprising. Neuroscience shows that human and non-human primates have over 30 regions of the brain dedicated to visual processing, 'including areas that contain neurons responsive to visual social signals'. Many primates rely on gaze perception and gaze detection to gain valuable social clues as to how to behave. (Emery 2000, p. 582) It may be the amygdala that is responsible for this sensitivity to gaze. The amygdala is associated with emotion and social behaviour, creating a response to perceived threat or embarrassment. (Emery 2000, pp. 596–597) Being (or feeling) observed is often a critical component or precursor to both embarrassment and/or threat, explaining perhaps the amygdala's involvement and providing further evidence to suggest there is an uncontrolled emotional response to being or feeling watched which may alter behaviour subconsciously.

We might therefore suggest that when drones (or other ISR assets) are used to 'stare' at people they behaviour will change. There is both science and a real-world experiment to support this hypothesis. The feeling of being watched can be induced indirectly and still reduce cheating, an insight that suggests surveillance via technology may have similar effects on behaviour to direct gaze and eye cues. This has been shown in children who thought an imaginary friend was present when playing games, in adults when the 10 Commandments are displayed (invoking the idea of an all-seeing God), and in lab students when they believed the ghost of a former student may be present. (Zak 2012, Piazza, Bering, and Ingram 2011, Shariff and Norenzayan 2007) In each example the belief or feeling that someone was watching changed behaviour. George Clooney and the human rights activist John Prendergast established a project with Harvard University paying commercial satellites to 'stare' at Southern Sudan with the aim of reducing human rights abuses. This Satellite

Sentinel Project is putting the assumption that surveillance can change behaviour to work in the real world, but the number of confounding variables make it impossible to know if it is working on not. I believe there is enough science to show that surveillance might change behaviour, and that if it does, we must understand how and to what extent it does so. Proving the hypothesis that surveillance changes behaviour could directly affect how we employ our drones and ISR technologies. It would also provide a powerful argument for the the procurement of more such assets — if we demonstrate that ISR can do far more than just allow us to 'see over the hill', that it can have a behavioural effect in the battle space, then we have a whole new way of looking at what we do with drones and how we use them.

JFR: How closely do you think any effect on behaviour is linked to the idea of deterrence?

KD: Do you mean deterrence in the sense of deterrence theory, or deterrence in the more general sense? In the former example I think it depends on the situation. Effective surveillance in a peace-keeping scenario helps to reduce information asymmetries which allows combatants/participants to understand the position of the other. I think this can aid deterrence in the sense that it allows the other party, and the international system, to respond and react thus deterring further activity. A good example from my own experience is Abkhazia, Georgia. Prior to the 2008 conflict we were in the process of buying UAVs as well as air and maritime surveillance radar to better understand the movements of Georgian and Russian military forces in the ceasefire area. Without this both were, we thought, exploiting a mountainous area between the two areas patrolled by UN. Had we been able to expose any of the movements we believed may have been occurring I think both sides would have drawn back, which would reduce the risk of conflict and miscalculation.

There are other obvious examples where surveillance can be linked to deterrence: when surveillance is often followed by attack, as with the use of drones in Northern Pakistan and Afghanistan, or with the threat of prosecution of war crimes, as in the Satellite Sentinel Project's stare at Sudan. However I think most interesting is the effect that has little to do with the conscious cost-benefit equations we are dealing with when we discuss deterrence. It's the pre-conscious effect, that which reduces cycle theft when pictures of eyes are placed in a bike shed, or increases the collection of litter in canteens when eye images are placed on the walls. It's fascinating, and potentially powerful, but it owes little to the conscious weighing of possible positive and negative outcomes. It's a very neat example of why our common-sense employment and understanding of Rational Choice Theory is not sufficient for understanding behaviours and therefore is not a sound foundation for planning military operations.

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