

Is remote control effective in solving security problems?¹

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Abstract:

Drones manifest both the concept and operation of remote control. As more states acquire and use drones to perform tasks previously performed by manned aircraft the effect that this transition of control will have upon wider state security will become clear. However as yet it is not. As such it is important to not only to think about how effective drones may be in solving security problems but also the wider impact this may have. The argument presented here is that the effectiveness of drones in solving state security problems will not be determined by the technology that allows them to be controlled remotely but in how states utilise that technology without impacting upon the security of other states. While drones can increase a state's security by performing sorties that manned aircraft cannot, offering unparalleled persistence over borders and maritime interests, in areas where relations between states are strained such employment may be misperceived and create a security dilemma. Although drones enable states to conduct dangerous reconnaissance flights remotely without any risk to a pilot, epitomizing the concept of post-heroic warfare, this risks states becoming more inclined to conduct more politically precarious operations, potentially eroding security.

Introduction

Drones represent the perfect manifestation of both the concept and operation of remote control in technological form. The growing ubiquity and employment of drones represents one of the most salient technological developments to impact upon state security in recent times. Both the number of states acquiring drones as well as the number and variety they are acquiring is growing; with over ninety states now operating them, and a further twenty actively developing them.² Commonly referred to as unmanned aerial vehicles (UAVs), or more accurately remotely piloted aircraft (RPA), drones allow states to exercise many of the same operations performed by manned aircraft through systems of remote control, sometimes at greater efficiency or at lower risk. Although certain elements of some drones operations are automated, such as take-off and landing, they are often confused as being

¹ An earlier version of this essay was submitted in partial requirement for the postgraduate module "Current Issues in Science and Security", at the Department of War Studies, King's College London, on the 25th March 2015.

² Kelley Saylor (2015), *A World of Proliferated Drones: A Technology Primer*, (Washington, D.C.: Center for a New American Security), p. 8

autonomous systems; ones that can perform a task or function without human input once activated.³ While drones are being increasingly used to perform security tasks instead of manned aircraft, the effect that this transition to remote control will have upon state security is not yet clear.

The current U.S. exceptional use of armed UAVs to conduct targeted killings of suspected terrorists and insurgents outside of traditional battlefields, such as in Pakistan, Somalia and Yemen, by President Obama's administration has raised both the profile and controversy surrounding drones.⁴ Despite this, even before the first armed General Atomics MQ-1 Predator was tested in 2001 the use of drones was a growing feature of state security activity in non-lethal intelligence, surveillance and reconnaissance (ISR) roles; such as the American use of such systems in the Gulf War and operations in Bosnia and Kosovo, as well as frequent Israeli deployment of drones since the 1980's.⁵ Historically drones have been operated as such intelligence gathering platforms, most notably by the U.S. National Reconnaissance Office (NRO) throughout the Cold War.⁶ Outside of military and intelligence applications, drones are now also being used for a variety of non-lethal ISR roles by both state and non-state actors, including counter-trafficking surveillance, border patrols, search and rescue operations, and environmental monitoring, while it is as widely considered that drones have the potential to be used in almost 'endless' commercial applications.⁷ Many also view the limited use of UAVs by Hezbollah as the possible prelude to their widespread use by other terrorist groups.⁸ Given their proliferation, it is

³ Paul Scharre (2015), *Between a Roomba and a Terminator: What is Autonomy?*, *War On The Rocks*, <http://warontherocks.com/2015/02/between-a-roomba-and-a-terminator-what-is-autonomy/>, 18/02/2015

⁴ Kenneth Anderson (2010), *Rise of the Drones: Unmanned Systems and the Future of War*, testimony submitted to the U.S. House of Representatives Subcommittee on National Security and Foreign Affairs, Committee on Oversight and Government Reform, (23rd March 2010), p. 1

⁵ Air Chief Marshall Sir Brian Burridge (2003), UAVs and the dawn of post-modern warfare: A perspective on recent operations, *The RUSI Journal*, (148:5, pp. 18-23), p. 18

⁶ Thomas P. Ehrhard (2010), *Air Force UAVs: The Secret History*, (Washington, D.C.: Mitchell Institute Press), pp. 2-5

⁷ Medea Benjamin (2013), *Drone Warfare: Killing By Remote Control*, (London: Verso), p. 15

⁸ Brian A. Jackson & David R. Frelinger (2009), *Emerging Threats and Security Planning: How Should We Decide What Hypothetical Threats to Worry About?*, (Santa Monica: RAND Corporation), p. 7

important to understand how effective the use of remotely controlled drones will be in solving a state's security problems but also to consider the wider impact this may have upon their security.

The impact that drones will have upon security will not be determined by the technology behind making an aircraft unmanned but on how states utilise the remote control that drones offer and how other states will react to this in turn. In order to evaluate how effective remote control is in solving security problems this essay will explore the employment of drones by states to perform security functions associated with ISR applications. It will argue that while the uses drones in such roles may increase a state's security in a number of ways by performing onerous functions that manned aircraft cannot, the perceived low risk to their employment may potentially erode security however by increasing the inclination of states to undertake more intrusive operations against others, both politically and physically, which they would not do with manned aircraft. In order to illustrate this, this essay will consider both the 'dull' surveillance and 'dangerous' reconnaissance tasks that drones are commonly conceived as being especially suited for, as reflected in both British and American doctrines on RPA.⁹ The first section will consider how by performing surveillance flights previously considered too dull for manned aircraft the remote control offered by drones can effectively increase a state's security by enabling persistent loitering over borders, waters and other national interests, and then consider the potential impact this may have in creating a security dilemma. The second section will explore the issue of greater concern and the use of drones to conduct dangerous reconnaissance and intelligence gathering missions over an adversaries territory, and how this risks creating insecurity between states through this post-heroic use of airpower.

Dull Surveillance

It is often the limits of human endurance that constitutes the weak link in the time that an aircraft can remain airborne. Occasionally exceptional efforts have been made to overcome these limitations, such

⁹ Office of the Secretary of Defense (2005), *Unmanned Aircraft Systems Roadmap 2005-2030*, (Washington, D.C.: Department of Defense), p. 1; and, Joint Doctrine Note 2/11(2011), *The UK Approach to Unmanned Aircraft Systems*, (Shivernham: Ministry of Defence), p. 3-4

as during the Kosovo intervention when American Northrop Grumman B-2 Spirit bombers flew with two crews on-board during their thirty hour roundtrip missions from their base in the continental U.S. to Serbia.¹⁰ However pilot fatigue has mainly been the constraining factor of flight-times and not aeronautical engineering. By removing the manned element in the aircraft drones ameliorate this issue through remote control and allow for missions requiring significant endurance that have been previously classified as either too dull or difficult to be flown. For example, the Northrop Grumman RQ-4 Global Hawk, often suggested in the U.S. as a replacement for their Lockheed U-2 spy plane, nicknamed the 'Dragon Lady', is able remain airborne in excess of thirty hours over long ranges but can operate either through automation on preprogramed flight paths or by pilots working in shifts through remote control, negating the constraint of fatigue.¹¹ Drones then, as put by former Royal Air Force Air Chief Marshal Sir Brian Burridge, enable the 'holy grail of air power: persistence' which in turn opens up new ways in which such aircraft can be utilised to increase state security enabled through remote control.¹²

It is through this persistence that drones offer states which confers upon them the ability to improve their security situation by increasing the protection of previously vulnerable areas or assets through extended surveillance. RPA are commonly referenced by many as a suitable solution to protecting and monitoring 'vulnerable targets at sea', such as merchant shipping, tankers, oil rigs and pipelines, through the exploitation of the persistence offered by remote control.¹³ The British vision for drones primarily involves them undertaking many maritime security tasks, that are either not suited to naval assets or that are currently performed by manned aircraft but require multiple sorties; such tasks include littoral monitoring, anti-submarine patrols, counter-piracy tasks, fisheries protection and ocean scanning.¹⁴ Both the U.S. Coast Guard and Navy already employ a number of UAVs to conduct these

¹⁰ Office of the Secretary of Defense (2005), *Unmanned Aircraft Systems Roadmap 2005-2030*, p. 2

¹¹ Richard A. Best Jr. & Christopher Bolkcom (2000), *Airborne Intelligence, Surveillance & Reconnaissance (ISR): The U-2 Aircraft and Global Hawk UAV Programs*, (Washington, D.C.: Congressional Research Service), p. 2

¹² Air Chief Marshall Sir Brian Burridge (2005), Post-Modern Warfighting with Unmanned Vehicle Systems: Esoteric Chimera or Essential Capability?, *The RUSI Journal*, (150:5, pp. 20-23), p. 20

¹³ Peter W. Singer (2009), *Wired For War: The Robotics Revolution and Conflict in the Twenty-first Century*, (London: Penguin), p. 227

¹⁴ Joint Doctrine Note 2/11(2011), *The UK Approach to Unmanned Aircraft Systems*, p. 3-4

tasks.¹⁵ Drones can also increase a state's terrestrial security by performing dull flights. In 2005, the U.S. Congress authorized its Customs and Border Protection to purchase unarmed Predators to conduct its border patrols and surveillance more effectively and easily.¹⁶ Since then a number of other federal agencies including the Missile Defense Agency, Drug Enforcement Administration and Department of Transport, as well as growing number of local sheriff and police departments, have acquired a multitude of drones for the purpose of increasing U.S. national security.¹⁷

By offering the ability to perform flights previously considered too dull, laborious or costly drones can effectively increase a state's security. The persistent ISR capability that drones offer through remote control at decreased manpower and aircraft fatigue means that previously vulnerable assets or exploitable areas can now be protected. For example, during initial operations in Afghanistan the U.S. Air Force was able to operate twenty four separate Predator missions to provide 'coverage round the clock' in supporting troops; a task that would have proven extremely demanding on both aircraft and personnel if attempted with manned assets.¹⁸ This capability can be easily adapted to increase national security or protect national interests. It should be noted that such operations do come at a high cost however, meaning that not all states could afford to mount such operations and most could not do so over multiple areas at once. A single Predator for example costs a little under \$4.5 million, of which a quarter accounts for just the surveillance package, while it requires 168 people working across multiple areas to operate one for, and maintain it after, just twenty four hours of flight.¹⁹ As developments in UAV technology continue to advance and market dynamics ensue it is likely that more advanced drones will become widely available. It should be noted that not every state will require expensive high altitude, long endurance UAVs such as the Global Hawk or Predator, and will be able to adapt the wide variety of cheaper commercially available drones to meet their own unique security needs. The growing

¹⁵ Jeremiah Gertler (2012), *U.S. Unmanned Aerial Systems*, (Washington, D.C.: Congressional Research Service), p. 23

¹⁶ Benjamin (2013), *Drone Warfare*, p. 75

¹⁷ Gertler (2012), *U.S. Unmanned Aerial Systems*, p. 23

¹⁸ John D. Blom (2010), *Unmanned Aerial Systems: A Historical Perspective*, (Fort Leavenworth: Combat Studies Institute Press), p. 108; and, Singer (2009), *Wired For War*, p. 33

sophistication of drones costing even hundreds of dollars means that they have the potential capacity to produce significant security effects if sophisticatedly deployed.²⁰

The use of RPA in such dull surveillance roles may have unforeseen consequences however. Widespread state use of drones on interstate borders and over common waters may invoke a 'security dilemma'; where steps taken by one state to increase their security undermines the security of other states.²¹ When outlining the dilemma in 1978, Robert Jervis noted that 'inspection devices can ameliorate the security dilemma' by providing states with a 'warning of coming dangers' over their border and waters, but warned that; 'attempts to establish buffer zones can alarm others who have stakes there, who fear that undesirable precedents will be set, or who believe that their own vulnerability will be increased.'²² It is through such employment that drones have the potential to create security problems for states. Although the widespread use of drones by various U.S. federal agencies over its shared borders has not concerned either Mexico or Canada this is jointly due to the historical norms of friendly relations between the U.S. and its neighbours and the bi-lateral security benefits of their border protection, ballistic missile defence and counter-narcotics missions.²³ In regions where there are contested territorial disputes, such as the South China Sea, or where relationships between neighbours are particularly strained or actively hostile, then the introduction of similar practices with drones may increase tension between states. For example, despite repeated calls to do so the U.S. has refused to provide even unarmed UAVs to Ukraine to perform ISR roles, fearing that it might antagonise Russia further and prompt an escalation in the use of force.²⁴

²⁰ Saylor (2015), *A World of Proliferated Drones*, p. 29

²¹ Robert Jervis (1978), Cooperation Under The Security Dilemma, *World Politics*, (30:2, pp. 167-214), p. 169

²² Ibid, pp. 169-181

²³ Benjamin (2013), *Drone Warfare*, p. 75

²⁴ Adam Rawnsley (2015), Ukraine Scrambles For UAVs, But Russian Drones Own The Sky, *War Is Boring*, <https://medium.com/war-is-boring/ukraine-scrambles-for-uavs-but-russian-drones-own-the-skies-74f5007183a2>, 20/02/2015

A way of evaluating this potential effect of such security operations with drones is through the lens of the offense-defence balance. This theory suggests that when it is technologically easier for a state to mount offensive action there is a greater probability of conflict, but when defence has the advantage the reverse is true.²⁵ Therefore if drones are seen as an enabler of territorial conquest and annexation then their widespread use over international boundaries and waters may induce friction between states, however if they are perceived as performing a security function then they could reduce the potential for conflict.²⁶ While it is difficult to classify technology as either offensive or defensive, Jack Levy has argued that some characteristics such as mobility will inherently offer greater offensive potential than others, such as armament, protection, endurance or even striking power.²⁷ On a similar vein, recently Peter Singer has noted how emerging technologies such as drones and robotics 'are perceived as helping the offensive side in a war more than defence' due to their ability to be operated remotely.²⁸ Although a fierce critic of the use of drones to conduct targeted killing operations, General Stanley McChrystal has reported how RPA employed in ISR roles were an effective force multiplier for the U.S. Joint Special Operations Command when he led them in Iraq, in that they provided unparalleled situational awareness and improved command and control which enabled his forces to conduct multiple commando raids per night.²⁹ Therefore there is the potential that drones could produce friction between states when performing surveillance security tasks over shared areas or borders, regardless of their armament, due to the inherent quality of some of their traits, including remote control, in enabling states to conduct offensive operations.

²⁵ Sean M. Lynn-Jones (1995), Offense-Defense Theory And Its Critics, *Security Studies*, (4:4, pp. 660-691), p. 661

²⁶ Jack S. Levy (1984), The Offensive/Defensive Balance Theory of Military Technology: A Theoretical and Historical Analysis, *International Studies Quarterly*, (28:2, pp. 219-238), p. 223

²⁷ Ibid, p. 225

²⁸ Singer (2009), *Wired For War*, pp. 321-332

²⁹ Gideon Rose (2013), Generation Kill: A Conversation with Stanley McChrystal, *Foreign Affairs*, (92:2, pp.2-8), pp. 4-5

Dangerous Reconnaissance

Reconnaissance flights over an adversary's territory have historically been the most dangerous mission undertaken by aircraft.³⁰ The recent downing and subsequent execution of Jordanian pilot Lieutenant Muadh al-Kasasbeh at the hands of Islamic State and Iraq and the Levant over Syria on the 24th December 2014 illustrates the danger that ISR sorties over an enemy's territory can entail.³¹ In addition to the risk to a pilot's life reconnaissance flights have also carried the most political risk. On the 1st May 1960 the Soviet Union shot down an American U-2 flying over its territory, captured its pilot Major Gary Powers, and then proceeded to arrest him for spying and paraded him on television, causing 'a devastating blow to the U.S.'s international prestige'.³² The ensuing political fallout meant that American manned reconnaissance flights over the Soviet Union ceased; 'What had been an acceptable risk on 1 May became unacceptable politically and militarily on 2 May.'³³ It was these very risks that drones helped to eliminate through remote control. As previously noted, it has been in the ISR role over hostile territory that drones have historically been employed. For example, drones were extensively employed to monitor China's nuclear program and throughout the Cold War the NRO flew numerous drone reconnaissance sorties over the Chinese nuclear test site at Lop Nor to gain details of their nuclear testing and arsenal.³⁴ On the 15th November 1964 China shot down a U.S. Ryan AQM-34 Firebee in an event which 'made the front page of *The New York Times*, but created little controversy.'³⁵ The loss of seven more drones over China between 1965 and 1975 'went virtually unnoticed' with these events creating almost no political fallout despite conducting essentially the same activity that Powers had been over the Soviet Union.³⁶ It is due to this record that Ann Rogers and John Hill argue that drones solve what they term the 'Gary Powers problem' simply by being unmanned and remotely

³⁰ Office of the Secretary of Defense (2005), *Unmanned Aircraft Systems Roadmap 2005-2030*, p. 2

³¹ Martin Chulov & Shiv Malik (2015), Isis video shows Jordanian hostage being burned to death, *The Guardian*, <http://www.theguardian.com/world/2015/feb/03/isis-video-jordanian-hostage-burdning-death-muadh-al-kasabeh>, 04/02/2015

³² Major Christopher A. James (1997), *Unmanned Aerial Vehicles (UAVs): An Assessment of Historical Operations and Future Possibilities*, (Montgomery: Air Command and Staff College), p. 3

³³ Office of the Secretary of Defense (2005), *Unmanned Aircraft Systems Roadmap 2005-2030*, p. 2

³⁴ Ehrhard (2010), *Air Force UAVs*, pp. 9-10

³⁵ Ibid.

³⁶ Office of the Secretary of Defense (2005), *Unmanned Aircraft Systems Roadmap 2005-2030*, p. 2

controlled, appearing to 'manifest a less obvious trespass than a manned incursion'.³⁷ It is this perception of drone reconnaissance flights that may potentially carry with it the greatest risks to state security.

The fact that drones are piloted remotely means that the calculation of risk concerning their employment for dangerous flights such as reconnaissance sorties is altered. In other words, drones allow leaders to 'take risks' that they would 'hesitate to do with manned aircraft'.³⁸ The legacy of RPA use throughout the Cold War as well as their current employment stands testament to this. David Dunn argues that because they are controlled remotely and therefore disembodied, drones 'disrupt the calculus of risk' in those who employ them by convincing them that their use in sensitive mission can be conducted with 'domestic political impunity, minimal international response and low political risk'.³⁹ Peter Singer terms this the 'dark irony' of drones, in that by removing the potential risk of the loss of life related to dangerous missions through remote control drones 'may seduce us into more wars' by making it more likely that leaders would employ them.⁴⁰ The recent Birmingham Policy Commission report on drones stated that it found such arguments of drones 'lowering the threshold to the use of force', as they are unmanned and controlled remotely, unconvincing based on the evidence they heard.⁴¹ It should be noted that this was only in a British context however, and this perception of drones may indeed invoke such reckless use by other states. In a 2011 doctrine publication on drones the U.K.'s Ministry of Defence stated that; 'an opponent that succeeds in shooting down an unmanned aircraft has little to show for it but some wreckage – which they can easily be accused of fabricating, or for which ownership

³⁷ Ann Rogers & John Hill (2014), *Unmanned: Drone Warfare and Global Security*, (London: Pluto Press), p. 2

³⁸ Lynn E. Davis, Michael J. McNemey, James Chow, James, Thomas Hamilton, Sarah Harding & Daniel Byman (2014), *Armed and Dangerous? UAVs and U.S. Security*, (Santa Monica: RAND Corporation), p. 11

³⁹ David H. Dunn (2013), Drones: disembodied aerial warfare and the unarticulated threat, *International Affairs*, (89:5, pp. 1237-1246), p. 1238

⁴⁰ Singer (2009), *Wired For War*, p. 322

⁴¹ Birmingham Policy Commission Report (2014), *The Security Impact of Drones: Challenges and Opportunities for the UK*, (Birmingham: University of Birmingham), p. 59

can simply be denied'.⁴² This illustrates that, contrary to the Birmingham Policy Commission's findings, there may be some within British policy making circles that disregard the risk of drone employment on sensitive reconnaissance missions.

The view that drones may increase the risk of confrontation between states by presenting no risk to a pilot's life is tied to the idea of post-heroic warfare. Coined by Edward Luttwak, post-heroic warfare describes a condition where force may be employed easily and without restraint by states provided that doing so carries no risk of casualties, enabled by the full exploitation of technologies which remove humans from harm.⁴³ It is frequently noted that for many states; 'It is becoming harder to envision sending manned reconnaissance assets into denied, hostile airspace', due to the casualty aversion of their societies.⁴⁴ Drones solve this issue through remote control by offering leaders the 'seductive' ability to conduct dangerous missions without risking the sacrifice or political blowback entailed with manned aircraft.⁴⁵ In this way drones therefore embody the concept of post-heroic warfare. Peter Singer notes that; 'By removing warriors completely from risk and fear, unmanned systems create the first complete break in the ancient connection that defines warriors and their soldierly values.'⁴⁶ The effects of this separation are not yet clear, but the wider employment of drones by many states would appear to clarify that it has changed the perception of risk in conducting dangerous or politically sensitive missions. Examples of this have already been seen with Israel's extensive use of drones to gather targeting information and intelligence over Syria, or more recently Russia's use of unarmed UAVs over Ukraine to support the separatists with artillery observation.⁴⁷

⁴² Joint Doctrine Note 2/11 (2011), *The UK Approach to Unmanned Aircraft Systems*, p. 3-7

⁴³ Edward N. Luttwak (1995), *Toward Post-Heroic Warfare*, *Foreign Affairs*, (74:3, pp. 109-122), p.112

⁴⁴ James (1997), *Unmanned Aerial Vehicles (UAVs)*, p. 55

⁴⁵ Singer (2009), *Wired For War*, p. 321

⁴⁶ *Ibid*, p. 332

⁴⁷ Patrick Tucker (2015), *In Ukraine, Tomorrow's Drone War Is Alive Today*, *Defense One*, <http://www.defenseone.com/technology/2015/03/ukraine-tomorrows-drone-war-alive-today/107085/>, 09/03/2015

Although there is some suggestion that states currently appear to view drone reconnaissance sorties as unobtrusive events politically, as these systems become more widely utilised by a greater number of actors this norm could become eroded. The Birmingham Policy Commission noted that many states are beginning to recognise that their air defence posture is unsuitable for drones and are already pursuing research and development projects into anti-drone defences in order to remedy this, indicating that this shift in norms may already be taking place.⁴⁸ For example, while current U.S. air defences can defeat a wide range of aerial threats a significant gap exists in that low flying, small UAVs cannot be detected by their ground based radar arrays, meaning that such drones could easily penetrate their airspace.⁴⁹ This is related to the offense-defence balance. Although the characteristics of drone technology may make it inherently suited to offense, the balance is also about the relative resources that a state must invest in their own defences in order to counter an opponent's offensive capabilities; 'When a technological innovation changes the relative costs of offensive and defensive capabilities, the offense-defense balance shifts.'⁵⁰ As most states do not possess the necessary means to counter the wide array of RPA that exist the continued proliferation of drones and their use in the air space of other sovereign state may upset the offense-defence balance. This issue may become more prominent as technical developments continue to make stealth technology cheaper and more widely available.⁵¹ If this occurs then drones flying dangerous reconnaissance missions could destabilise relations between states, potentially leading to a security dilemma. This could be particularly perilous during periods of increased tension between states. A prominent example of this was on the 27th October 1962 when an American U-2 was shot down conducting reconnaissance over Cuba at the height of the Missile Crisis in an event that heightened tensions between the U.S. and the Soviet Union, and almost induced miscalculation at a period when the potential of a nuclear exchange was very real.⁵²

⁴⁸ Birmingham Policy Commission Report (2014), *The Security Impact of Drones*, p. 29

⁴⁹ Davis et al. (2014), *Armed and Dangerous?*, pp. 4-6

⁵⁰ Lynn-Jones (1995), *Offense-Defense Theory And Its Critics*, p. 667

⁵¹ Davis et al. (2014), *Armed and Dangerous?*, p. 4

⁵² Rogers & Hill (2014), *Unmanned*, p. 21

Conclusion

In conclusion, while drones may be effective in solving some state security problems this may come at considerable political cost that will have a profound impact on wider state security, the effects of which are not yet clear. Drones can increase state security by performing surveillance sorties that manned aircraft cannot by offering the persistence needed to protect national borders, waters and other national security interests through remote control. In areas where relations between states are strained however such employment may be misperceived under the security dilemma. By enabling states to conduct dangerous reconnaissance flights remotely without any risk to a pilot, epitomizing the concept of post-heroic warfare, drones create a perception of low risk to their employment which may potentially increase the inclination of leaders to take risks. This carries with it the risk that states will be more inclined to conduct more politically and physically intrusive operations that will erode relations between states impacting security. The effectiveness of drones in solving security problems will not be determined by the technology that allows an unmanned aircraft to be controlled remotely but upon how norms of use are developed over time as to how states can utilise that technology to solve their security problems without impacting upon the security of another state.

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