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# The Secret Empire of Signals Intelligence:

GCHQ and the persistence of the colonial presence

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## **ABSTRACT**

Why did Britain remove the population of an idyllic Indian Ocean archipelago? Why has Britain resisted granting citizenship to the inhabitants of another small island in the mid-Atlantic? Why does Britain still 'own' 90 square miles of Cyprus? The answer, we suggest, lies in part with the heritage of Bletchley Park, an obsession with informational dominance in world politics that demands the control of key nodes in international telecommunications around the globe. We also argue that intelligence studies has focused unduly on the human agent or the secret policeman and as a result, the issue of electronic imperialism has been a neglected aspect of intelligence collection across the Global South. Here we focus on Britain's Government Communications Headquarters (GCHQ) and suggest that computers, colonies and ocean cables enjoy strange and unexpected connections that can alter the fate of small nations. We conclude that perhaps geographers, rather than historians or political scientists, deploy the most advanced conceptual tools for examining this phenomenon.

#### **KEYWORDS**

Empire, geography, information, intelligence, oceans, power, telecommunications.

#### Introduction

In February 2019, the UK was ordered to hand back the Chagos Islands to Mauritius. The highest court of the United Nations ruled that continued British occupation of this remote Indian Ocean archipelago was illegal. It dwelled on the unhappy fate of the population of Diego Garcia, the largest of the islands. It is widely understood that at the time this island was separated from Mauritius, Britain was dishonest about the status of the indigenous population. In November 1965, the Secretary of State for the Colonies assured Parliament that the islands chosen had virtually no permanent inhabitants and were well placed for communications in the Indian Ocean Area. Parliament was further misled over the nature of the base agreements reached with the United States. No mention was made of the key driver for this arrangement, the worldwide requirement by Britain and America for land bases to collect signals intelligence. Recognising this changes our understanding of the secret struggle for the Global South, offering a different view of the impact of espionage – one that focuses on boundaries, borders and the fate of territories – even entire populations.

The history of the secret state in the Global South is increasingly well known. Extensively analysed by historians including David Anderson, Christopher Andrew, David Dilks, Bernard Porter, Priya Satia and Martin Thomas, connections between the intelligence and security services of Europe and their empires are recognized as important and complex. In many ways, the very origins of intelligence studies as a subject lies in the study of the Global South, with many of the founders of the discipline trained in commonwealth, colonial or imperial history. In that sense, the activities of empire enjoyed a welcome and early incorporation into the history of British intelligence and security agencies.<sup>3</sup>

Traditionally focused on human intelligence, a romantic image accompanied the first accounts of clandestine activities in an imperial setting. Framed by wider ideas of irregular warfare and plucky amateurs, wistful figures like Evelyn Waugh, Orde Wingate and Lawrence of Arabia were never far away.<sup>4</sup> Early intelligence activities lacked professionalism, reliant instead on an army of amateur geographers, tourists, consuls and adventurers to gather vitally important information for their customers.<sup>5</sup> This trend continued long after the end of World War Two, with intelligence professionalism arguably growing only as the Empire plunged into retreat.<sup>6</sup> Even in imperial decline, a romantic image persisted of enterprising amateurs and 'unpaid men... doing it for the love of the thing.'<sup>7</sup>

The 'Ripping Yarns' school of colonial intelligence history, bolstered by breathless trade press books, has been revised over the last ten years. Since 2005, the portrayal of imperial spies has taken on a more somber tone with volumes like *The History of the Hanged* and *Britain's Gulag* revealing disturbing oppression during Britain's post-war colonial counter-insurgencies such as Kenya. Here, Caroline Elkins used oral history while David Anderson pursued the documents trail, but both told the same story of barbed-wire villages and brutality. Most dramatically, this new wave was illuminated by fresh documents. The intelligence aspects of British imperialism are littered throughout the once-secret archive at Hanslope Park, only recently uncovered by the intrepid research of David Anderson. In 2011, British officials admitted that they had illegally held a vast archive of documents, removed from former colonies at the point of independence. This

included files taken from thirty-seven countries between the late 1940s and the 1970s. <sup>10</sup> The Kenya story has been paralleled by a re-examination of other episodes such as the Malayan Emergency in which the Special Branch are portrayed either as kind and crafty, or cunning and cruel. <sup>11</sup>

Technological developments also impacted the fate of these remote colonial territories. As improvements in high frequency radio and satellites gained pace throughout the Cold War, intelligence collection was possible in different ways. Armed with more powerful, agile collection techniques, smaller numbers of traditional satellite farms could maintain the same levels of interception capability. Saving money, this new technical reality impacted the status and importance of these remote lands. Islands that were once central to the Anglo-American signals intelligence agenda became less important. Pelton writes extensively on this, drawing historians' attention to the intersection between technology, Government and space. Hais article builds on these ideas, demonstrating the enduring importance of geography and technology to American and British security interests.

Undoubtedly, over the last ten years we have achieved a real step forward in terms of our understanding of imperial intelligence and security. Yet serious distortions remain - the most important of which is the absence of much consideration of signals intelligence. A few historians have commented on the role of signals intelligence in post-imperial conflicts like Suez, Yemen or Vietnam. Others have pointed out the role of signals intelligence bases in America's rise to globalism. As America rose to prominence, the remnants of the British Empire were attractive selling points within the trans-Atlantic partnership, allowing Britain to maintain an elevated international status far above her station. Overall, however, the imperial signals intelligence story is ignored in favour of a narrative composed of human agents. <sup>16</sup>

This imbalance weakens our understanding of the secret state and its relationship with the Global South in at least three ways. First, we ignore a vast colonial presence that had a technological texture. Whether we look at the hundreds of British listeners based in Cyprus in the 1960s, the Americans based at Kagnew in Ethiopia in the 1970s, or Russians based at Lourdes in Cuba in the 1980s, a hidden world of colonial existed with their own footprints and cultures that we need to consider. Cecond, because of an American-led scheme that began in the 1950s to weaken the Swiss cypher machines bought by countries across the Global South, signals intelligence was much more effective in places like the Middle East, Africa and Asia than in Europe. The West struggled to read Soviet codes and vice versa, but across much of the rest of the world, communications were largely an open book. Organisations like GCHQ and its American equivalent, the National Security Agency (NSA) read more than half the communications they collected. While most of this material is as yet unavailable, in years to come we will be able to see everything sent by Colonel Gadaffi and transcripts of all the phone calls made by Yasser Arafat - this will change international history significantly. 18

But there is a third sense in which signals intelligence shifts our view of the relationship between secret service and the Global South. The wider significance of intelligence within empire has often been seen through the prism of 'declinism' and the slow imperial retreat. Intelligence is interpreted as a force multiplier, enabling countries like Britain to conduct a game of delayed decolonization, sustaining some of the outworks of empire for longer than many thought

possible. Historians like Rory Cormac and Calder Walton have seen intelligence as an answer to imperial over-stretch by allowing more efficient action and have portrayed covert action as a sort of Houdini-like trick for prime ministers attempting to escape colonial problems.<sup>19</sup> While these arguments are compelling, they can sometimes reduce intelligence to a sub-set of the 'fancy footwork' school of imperial retreat. Historians like John Darwin and Wm. Roger Louis have argued that, as late as the 1970s, British officials had not given up the struggle to sustain empire and that it was instead recast as collaborations, condominiums, mandates and informal relationships. In other words, it is often argued that intelligence was a fixer employed to prolong the existence of empire.<sup>20</sup>

Cold War historians have long ignored the 'imperial effects' of the Anglo-American alliance.<sup>21</sup> Roger Louis and Robinson were first to identify this deficit, arguing that the history of the British Empire throughout the Cold War was closely connected to the Anglo-American strategic interests. Fearing her decline, Britain's geo-strategists eagerly pursued 'new sources of power overseas to redress the balance of the Old World.'<sup>22</sup> Building on Roger Louis and Robinson's 'Imperialism of Decolonization,' this article highlights examples of Britain's geopolitical repositioning throughout the Cold War. Understood as military bases, the history of these remote islands is critically misunderstood.

Here we seek to argue that in some cases the relationship was reversed: empire was often sustained in the service of intelligence. Once we take into account the vast physical complexes owned by signals intelligence in the Global South, it is clear that the value of these listening stations did much to motivate a persistent presence in places from which European colonists would otherwise have vanished. In the British case, which we explore here, close collaboration between diplomats and the military allowed GCHQ to run its own overseas empire throughout the Cold War. Some of this was an empire of occupation in places like Berlin where the Germans paid the costs of baroque constructions such as Teufelsberg or 'Devils Mountain'.<sup>23</sup> However, some of GCHQ's largest facilities were scattered across the Middle East and Asia, not only helping to prolong Britain's presence there, but also giving important additional reasons for Britain to remain in some vestigial form. In the 1950s and 1960s, a vast network of intercept stations ringed the globe, often disguised as military communications stations. The largest British examples were at locations such as Pergamos in Cyprus, or Perkar in Ceylon. Panic over the possible loss of these imperial footholds triggered extraordinary responses during the 1960s. GCHQ experimented with a possible fleet of nuclear-powered ships that would replace its bases on Cyprus - with the newly independent states of Africa as their main targets. Britain also sought to create a curious colony without subjects in the British Indian Overseas Territories or 'BIOT' and the ramifications of this toxic experiment continue to reverberate in international courts half a century later.<sup>24</sup>

Meanwhile in Asia, signals intelligence was part of multiple over-lapping empires. Some British signals intelligence facilities were run jointly with Australia's listeners, the Defence Signals Directorate (DSD), including Singapore and Hong Kong. Although there were combined GCHQ-DSD operations, in the 1950s and 1960s, Britain behaved as a colonial hegemon managed DSD.<sup>25</sup> Like Cyprus, signals intelligence was an important reason to stay on in Hong Kong. The large RAF radar site at Tai Mo Shan in the New Territories provided strategically important information on the burgeoning Chinese Air Force for American Pacific Command, while other stations there gave important product to the growing American effort in Vietnam.<sup>26</sup> The Anglo-Australian signals

intelligence sites in Hong Kong were co-ordinated with another neo-colonial presence, the complex of NSA listening stations in Okinawa.<sup>27</sup>

A reconsideration of GCHQ's secret signals intelligence empire also allows us to ask some questions about methods. Intelligence studies is no longer the atheoretical desert that it once was.<sup>28</sup> Nevertheless, as we move the analytical lens towards intelligence and security agencies in the Global South, do we need new concepts and new methods? Despite the fact that historians working in intelligence studies are found as frequently in social science departments as they are in history departments, they have been slow to draw on some of the more exciting literature of IR, political geography and sociology around bases and borders that would arguably enhance our conceptual interpretation of intelligence. Geographers, rather than historians, have been active in asking the most pertinent questions about the prolonged pause in decolonization for small islands. The material answer can range from detention centers, to low-tax regimes, to military bases. Here we add one more item to the list - signals intelligence.<sup>29</sup> We begin to explore some of these geographical ideas in the context of the secret empire of GCHQ.<sup>30</sup>

#### Sri Lanka and Suez

Real and visible empire sometimes collided with GCHQ's secret empire. In 1956, the Suez Crisis, perpetrated by dyspeptic and increasingly dysfunctional Anthony Eden, caused unexpected turbulence for British signals intelligence. It led directly to the eviction of GCHQ from some of its more valuable real estate in the Middle East and the Indian Ocean. This was the first of a number of signals intelligence territorial crises which in turn caused waves of interception refugees to head for what remained of GCHQ's outstations. Meanwhile, across the world, nationalist politicians protested and vented their anger against Britain's chain of imperial bases.<sup>31</sup>

By December 1956, GCHQ was just opening a large and well equipped 'secret sigint station' covering the Indian Ocean at Perkar on Ceylon, which had been recently been constructed at the cost of close to £2 million (£35 million at 2019 prices). The Ceylonese government had wanted to free up access to the old signals intelligence site at HMS Anderson for urban re-development. The purpose of the new GCHQ site at Perkar was hidden from the Ceylonese, requiring Britain to generate a 'cover story'. Much debate had taken place in London over whether to let the Ceylonese Prime Minister in on 'the real function of Perkar'. GCHQ decided against candour, fearing 'leakage'. British officials were convinced that even at the new site 'the real purpose could be easily disguised'. 33

Endless effort had gone into the Perkar site. As early as October 1951, Dr John Burrough from GCHQ was having regular meetings at the Admiralty to discuss the technical problems. It was hard to find a location which was not too remote and yet did not suffer from interference from urban transmissions. Even the ignition systems of cars on a busy highway up to 500 yards away could cause unacceptable interference. Because the British had persuaded Prime Minister Bandaranaike to allow Britain what were politely called 'certain facilities for communications' in perpetuity, there was a lot of investment. By 1955, with more money, the station had been upgraded to monitor signals traffic from 'all bearings' and boasted a vast aerial farm that covered more than 400 acres.<sup>34</sup>

Yet the Suez operation effectively destroyed this expensive new facility soon after it was completed. In 1956, the Ceylonese were incensed at Eden's imperial escapade and believed the British had refuelled ships in Ceylon *en route* to the invasion of Egypt. They now demanded a schedule for the removal of all foreign bases without exception. The paint was barely dry on GCHQ's vast new station at Perkar. The Treasury were aghast, adding that even a brief visit to Ceylon 'brings home the complexity of these installations' and 'their vital importance'. The sums of money invested in them were 'substantial'. Officials came up with preposterous idea of using service personnel 'wearing civilian clothes' in the hope of assuaging the Ceylonese.<sup>35</sup> But Bandaranaike stamped her foot, insisting that all the British, however attired, had to go. A compromise was agreed: 'The GCHQ station can be given up entirely, but we should like to keep it in operation for five years.' Accordingly, the new GCHQ site at Perkar, completed in late 1956, operated only until 1962, whereupon it was closed.<sup>36</sup> GCHQ had been evicted from its premier site in the Indian Ocean and was already looking for a new home in the region.<sup>37</sup>

GCHQ also felt the reverberations of Suez elsewhere. In Iraq, Britain enjoyed a good relationship with the ruler King Faisal. As a result, the British had been allowed to retain a number of bases. One of these was RAF Habbaniya, not far from Baghdad. Superficially this looked like so many military aerodromes in the Middle East, but in fact it housed 123 Signals Squadron, which ran a large signals intelligence monitoring station. Airborne signals intelligence flights from Habbaniya crossed into Iran, and then loitered over the Caspian Sea, collecting signals from Soviet missile testing sites. However, as a result of Suez, Faisal's political situation deteriorated rapidly with pro-Nasser uprisings in the cities of Najaf and Hayy. Iraq's membership of the Baghdad Pact, a Britishmanaged military alliance, only exacerbated popular hatred of the regime. Then, in the summer of 1958, King Faisal's ally, King Hussein of Jordan, asked for military assistance during a growing crisis in the Lebanon. The Iragi army put together an expeditionary force to help, but in the early hours of 14 July 1958, the assembled Iraqi column turned against its own supreme commander, marched right into Bagdad and carried out a coup in which the king was killed.<sup>38</sup> Fortunately for Jordan, GCHQ intercepts of Egyptian diplomatic traffic gave precise information about Nasser's parallel plots against the neighbouring King of Jordan a few days later, prompting timely British support for the beleaguered monarch. Harold Macmillan recorded the importance of GCHQ's 'intercepts' to the unfolding story in his diary.<sup>39</sup>

## **Cyprus**

In 1958, signals intelligence specialists evicted from Iraq were busy retreating to Cyprus, which was now GCHQ's refugee camp. There had been several waves of GCHQ resettlement. Immediately after the Second World War, Britain had enjoyed numerous interception stations in the Middle East. The most important was at Heliopolis in Egypt which boasted many civilian operators, serving as the main MI6 communications centre, absorbing much of the region's diplomatic traffic. The Army ran its own intercept station at Sarafand in Palestine, while the RAF, as we have seen, boasted a large intercept station at RAF Habbaniya in Iraq. There were undercover listening stations buried within consulates in places such as Istanbul. By the 1950s, Britain had also developed covert sites in northern Iran that were focused on Russia. However, the British Empire in the Middle East consisted of very few formal colonies and had long been an agglomeration of mandates, shaky treaty

relationships and uncertain base rights granted by royalist regimes. Accordingly, British signals intelligence gradually fell back towards its last proper colonial foothold, the island of Cyprus.

As a result, by the late 1950s, Cyprus was increasingly the home for every kind of secret radio activity in the Middle East. This included not only a growing monopoly of Britain's monitoring assets but also the collection sites of the US Foreign Broadcast Information Service which listened into overt news broadcasts around the world. In addition, Cyprus offered a safe haven for Britain's overt and covert propaganda broadcasting in the region. These mushroomed during the premiership of Anthony Eden who nurtured a special hatred of Egypt's nationalist leader, General Gamel Abdul Nasser, and who urged a reduction of British radio propaganda directed at the Russians in favour of targeting Nasser.<sup>40</sup> As early as 1954, Eden insisted that a new broadcasting station in Aden covering Iraq and Syria was to receive 'first priority', since Nasser's own radio station, 'The Voice of Egypt', was busily pouring out its own vitriolic message.<sup>41</sup> Britain's main radio weapon against Nasser was the SIS-owned station in Cyprus, Sharq el-Adna.<sup>42</sup>

The signals intelligence intercepts from the 1950s remain classified, however we have a general idea of their value. After the Suez Crisis, Selwyn Lloyd, Eden's Foreign Secretary, wrote to Eric Jones, the Director of GCHQ, congratulating him on the volume of Middle East intelligence that signals intelligence had provided during Suez, particularly subsequent to the seizure of the canal. 'I have observed the volume of material which has been produced by G.C.H.Q. relating to all the countries in the Middle East area', suggesting that the traffic of many countries was being read. Lloyd added 'I am writing to let you know how valuable we have found this material and how much I appreciate the hard work and skill involved in its production'.<sup>43</sup> GCHQ read much of Cairo's diplomatic traffic with key embassies in the region during the mid-1950s, including Amman and Damascus. It also read traffic between Cairo and Egypt's London Embassy.<sup>44</sup>

But by 1958, in the backwash of Suez, over a thousand listeners found themselves in the tented encampment at RAF Pergamos in Cyprus.<sup>45</sup> A special signals unit was already there and the forty-three acre site was already dominated by aerials, but the refugees from Habbaniya represented a further unscheduled expansion.<sup>46</sup> Together with the Army station run by what would become 9 Signals Regiment at Ayios Nikolaos, these now constituted the key signals intelligence stations in the region. Further west, there was a British signals intelligence station at Dingli in Malta with 230 staff, together with a few dozen souls at Ascension Island and Gibraltar. However, Cyprus was the leviathan.<sup>47</sup> Negotiations over the exact extent of the Sovereign Base Areas on Cyprus were ongoing, but here, at least for the time being, relations with the authorities in Cyprus were relatively cordial. Negotiations over the Cyprus Sovereign Base Areas came to climax in 1959. The British delegation, led by Julian Amery, Under-Secretary of State for the Colonies, and also an old covert action stager, started with an extravagant bid for some 400 square miles of territory, but Amery eventually settled for 99 square miles.<sup>48</sup>

By the early 1960s, the main problem on Cyprus was an ongoing insurgency by the EOKA guerrillas who wanted unification with Greece. Matters were made worse by the intense divisions between the Greek and Turkish communities. As a result, 'the special problem of the security of the two SIGINT stations' dictated a minimum land force garrison including a heavy RAF Regiment presence. GCHQ's aerial farms were also extensive and vulnerable to sabotage. Once the Chiefs of Staff had accepted that the two major bases at Episkopi and Dhekelia 'must be retained because of the SIGINT facilities', then other things surely followed. Typically, the RAF decided to keep its main regional stockpile of nuclear weapons, codenamed 'Tuxedo' at Dhekelia. In other words, while the

Cyprus garrison was not there solely for signals intelligence, the signals intelligence facilities tended to be the driver, since they alone were irreplaceable. The periodic outbreaks of inter-communal strife led to questions from the Prime Minister, Sir Alec Douglas Home, who served briefly after Harold Macmillan. In December 1963, he asked whether Britain really still needed bases in Cyprus? Peter Thorneycroft, the Defence Secretary, responded with an unqualified 'yes'. He explained that Cyprus 'houses most important SIGINT stations and it also provided a base from which special reconnaissance flights are carried out'. Thorneycroft explained that while most of these activities could be re-located, intelligence was the sticking point, since it was 'not considered that SIGINT facilities could be adequately replaced elsewhere'. The arrival of a UN peacekeeping force on Cyprus in 1964 eventually stabilised the situation. The importance of GCHQ's work in the Middle East was re-affirmed by the Yemen Civil War between 1962 and 1965 in which Nasser intervened.

GCHQ did not take their bases in Cyprus for granted. The war against the EOKA guerrillas had prompted them to look for alternatives. <sup>52</sup> In the early 1960s, partly as a result of conversations with the Americans, GCHQ decided that it would spread the risk by creating a dedicated 'Sigint Ship'. The American had enjoyed success by repurposing old cargo vessels which they anchored off Cuba to listen in during the Cuban Missile Crisis. But GCHQ planned to go one better with a vessel that was purpose built with 'special technical facilities', in contrast to the American's elderly converted transports. The cover-name chosen for this exciting new project was the 'Communications Trials Ship'. The Permanent Secretaries Committee on the Intelligence Services (PSIS) approved the construction of the first ship on 19 July 1965 and wanted a fully fitted out ship by the summer of 1969, allowing time for trials in the autumn. The ship was to enter service in early 1970. There were hopes for two further atomic-powered ships in the same class. But budget restraints and calamities with the American ships eventually terminated the British project.<sup>53</sup>

Surprisingly, by 1974, the main threat to the Cyprus signals intelligence sites came from London. During July 1974, officials agonised over what to do about Cyprus in the long-term. Two problems now converged. First, the 'sprawling' nature of the signals intelligence sites on Cyprus needed vast aerial farms, making them hard to defend during periodic inter-communal violence. Second, the increasing troop requirements generated by the growing troubles in Northern Ireland meant that strategic reserve earmarked to reinforce Cyprus in a crisis was depleted. In short, there was no longer a 'fire brigade' to come to the rescue in a future crisis.<sup>54</sup> All this coincided with a major Defence Review in 1974, begun by Harold Wilson, reflecting the dire state of the British economy. Cabinet ministers decided that British forces should be withdrawn completely from Cyprus as soon as the political situation permitted. Harold Wilson's objective was to withdraw from Cyprus by 31 March 1976, saving some £60 million. However, senior officials, including the Cabinet Secretary John Hunt, knew that the Americans would be upset. They warned that Washington 'will press us hard not to withdraw from Cyprus' adding that the 'American Intelligence Community is a powerful lobby in Washington' and that 'our eventual decisions on Cyprus may affect not only the continuance of the present valuable Anglo-American intelligence relationship but also the general American reaction to our overall Defence Review proposals.'55

Harold Wilson pressed on with his decision to leave Cyprus and so Sir John Hunt, the Cabinet Secretary, travelled to Washington to break the bad news as gently as possible. On 12 November 1974, Hunt met privately with Henry Kissinger, James Schlesinger and William Colby. The meeting did not go well and Kissinger's reaction was explosive, evoking a remarkable stream of expletives.<sup>56</sup>

Indeed the Americans 'reacted so strongly' that the British decision was put on hold.<sup>57</sup> Kissinger was worried about the loss of the intelligence bases, and also thought British withdrawal would have a destabilising effect on the region. Kissinger emphasised that he was determined that the British 'continue to occupy this square on the world chess board'. London insisted that their own preferred policy was 'complete British military withdrawal from Cyprus' but eventually accepted a subsidy, 'given the global importance of working closely with the Americans'.<sup>58</sup> In 1977, Jim Callaghan, Wilson's successor, formally assured the Americans that 'we shall not in the present circumstances proceed with our preferred policy of withdrawing from the Sovereign Base Area altogether'.<sup>59</sup> It is not unlikely that GCHQ and the Cabinet Secretary were involved in an audacious game of poker with the Americans – all along the objective being to persuade the Americans to pay for Cyprus.<sup>60</sup>

The American willingness to pay towards the costs of bases on Cyprus was connected to the steep deterioration of America's relations with Turkey during the invasion. Turkey represented NSA's own signals intelligence empire in the Middle East. In 1974, Ankara had expected Washington to put pressure on Athens to stop the coup attempt against Makarios. Kissinger had not done this and instead, once the Turkish invasion of Cyprus began, the United States suspended military assistance to Turkey. Ankara already nurtured some resentment over previous American efforts to deter a Turkish invasion of Cyprus some ten years earlier. The Turks now retaliated by closing down the vast complex of American bases that sprawled across the country. At a stroke, the United States lost the use of numerous intelligence-gathering facilities which had costs tens of millions of dollars to create and which had been staffed by literally thousands of operatives. This was an earthquake in the signals intelligence world and the net result was that NSA was now more dependent on Cyprus. Signals intelligence world and the net result was that NSA was now more dependent on Cyprus. Signals intelligence world and the loss of the Turkish bases as nothing short of 'a disaster'.

## **Hong Kong**

GCHQ's most important outpost in Asia was Hong Kong - the Cyprus of the east. The British colony of Hong Kong was of special value to the United States. This reflected the fact that, from the end of the Chinese Civil War that brought Mao Tse-tung to power in 1949, the United States did not even have an embassy in mainland China or in North Vietnam.<sup>63</sup> 'Hong Kong became an American watchtower on China' recalls Jack Smith, who superintended the Far East in the CIA's Office of National Estimates.<sup>64</sup> GCHQ joined with the Americans and the equivalent Australian organisation, Defence Signals Directorate (DSD), to develop the facilities in Hong Kong. Washington received the full intercept output of Hong Kong which did 'not duplicate US effort', but with the onset of the Korean War, demands for intelligence went up sharply and Washington considered that combined US-UK intercept facilities in Far East were 'far short of requirements'.<sup>65</sup> In July 1952, the US Communications Intelligence Board, persuaded its British opposite numbers of the 'urgent need' to send a large US Air Force signals intelligence unit to Hong Kong to join the hard-pressed British and Australians. However, their arrival was thwarted by the Governor of Hong Kong, Sir Alexander Grantham, who detested the way in which his territory had become host to a myriad of espionage activities.<sup>66</sup>

Even in 1955, the United States was still negotiating for new sites in Asia. These were not small or discreet, requiring vast acres of antennae known as 'aerial farms', to capture signals. In Taiwan, American officials had run into trouble securing a desired 335-acre site near Nan-Szu-Pu airfield where they had plans to locate 300 personnel from the Army Security Agency.<sup>67</sup> With repeated clashes over the Taiwan Straits in the late 1950s, the British government reviewed the future of Hong Kong. The lease on the New Territories was due to expire in 1997 and clearly, they noted, Hong Kong could not survive as a colony beyond that date. Meanwhile, officials pondered the short-term value of the continued British presence in Hong Kong: 'The sole military advantage that we derive from Hong Kong is that of intelligence: from the colony close observation of events in the Chinese People's Republic is possible. Hong Kong is probably indefensible against an all-out attack: the possibility of its defence using nuclear weapons is at present the subject of a special study. Such action could easily extend conflict and lead to general war: the West might well decide that danger to Hong Kong was not worth this risk.' Clearly, much turned on the quid pro quo involved in Anglo-American-Commonwealth axis of signals intelligence.<sup>68</sup>

Alongside GCHQ activities sat vast British and American programmes in Hong Kong, running agents and 'wringing out' defectors. During the 1950s and 1960s, both the State Department and the Pentagon considered Hong Kong to be the single most important British overseas territory from the point of view of intelligence gathering.<sup>69</sup> In order to stimulate more defectors from China to Hong Kong, Britain launched 'Operation Debenture' in 1954. This was a covert radio project and constituted 'the first UK operations of any magnitude for the penetration of Mainland China'. The aim was to provide a black broadcasting station that would increase the desire for contacts with the West amongst the Chinese middle classes and would also increase defections across the border into Hong Kong.<sup>70</sup> Alongside this, SIS ran a significant operation designed to recruit Russian merchant seaman arriving in the port.<sup>71</sup>

During the Cold War, British diplomats often complained that Britain was collecting more intelligence about China than it could possibly need, and had asked why this target was so important? The underlying rationale was exchange with the Americans. Hong Kong was the single most valuable British collection station to NSA, providing offset in an otherwise unbalanced Anglo–American intelligence relationship. Notwithstanding the fact that NSA knew the British would have to leave in 1997, it had poured huge investment into British signals intelligence at Hong Kong. In 1982 the GCHQ station at Little Sai Wan, which had depended on listeners with headphones, had been closed down and replaced by a new operation at Chum Hom Kok, on the south side of the island, which monitored satellite activity. This new station was initially given the code name 'Demos-1'. The problem with the location was accommodating the massive dishes – there were eventually five – on what was a narrow shelf of rock overlooking the South China Sea. A further programme codenamed 'Demos-4' provided yet more enormous dishes to capture civil traffic from China's growing network of communications satellites, and also telemetry from missile tests.<sup>72</sup>

When the Chum Hom Kok station was finished, John Adye, who became Director of GCHQ in 1989, wrote to the site engineers praising their efforts. He conveyed GCHQ's sincere thanks to all who had contributed to a project on which 'a great deal depended'. The investment was repaid with excellent intercepts of Chinese military traffic that revealed, for instance, Beijing's thinking around the time of the Tiananmen Square massacre in June 1989. Yet even while this new station was being completed, the British were reminding NSA that their time on Hong Kong was running

out. NSA had suggested that Britain should try to keep control of the Commander British Forces HQ building in Hong Kong even after handover, because it was by far the best medium-wave signals intelligence collection site in the territory. However, despite concerted pressure from the Americans, the British were 'unenthusiastic' about this idea. NSA and GCHQ had already begun to ponder future alternative sites. William Odom, Director of NSA in the late 1980s, noted in his ever-present daily logbook: 'Hong Kong – where to move our gear?'<sup>73</sup>

At midnight on 1 July 1997 the colony of Hong Kong was finally returned to China, signalling the end of Britain's ninety-nine year lease on the New Territories. All the intercept equipment had already been moved to Geraldton, a DSD site in Western Australia. It was hoped that the loss of interception from Hong Kong would be partly offset by a sophisticated monitoring operation against the new Chinese Embassy in Canberra. The West had devoted enormous attention to state-of-the-art signals intelligence collection of this new diplomatic complex, and the resulting intelligence 'take' was so great that there were often thirty transcribers in the Australian capital processing it, a miniature version of the team recruited to translate the Berlin tunnel material in the 1950s. Secret collection from the Chinese Embassy included not only sound, but even video. This opened a priceless window on Chinese communications, which had always been hard to break. However, the duration of this operation was short, and to the fury of GCHQ and its allies the operation was blown by the Australian press in 1995.

# **Diego Garcia**

Foreign bases were symbols of ugly foreign imperialism, even in countries with no recent colonial past. During the late 1960s, dramatic events across the Global South showed the British and the Americans that they were likely to continue to lose key bases. Whether owned by the British or the Americans, overseas bases were easy targets for nationalist politicians. As early as May 1964, the US National Security Council had reviewed the problem of 'politically unstable or unreliable countries' in which the Americans had 'intelligence installations'. The list was long and included Cyprus, Greece, Turkey, Ethiopia, Libya, Kenya, Morocco, India and Pakistan. However, in the Indian Ocean, the British seemed to have come up with a novel plan to sidestep these problems. Here they sought to create an Anglo-American base in a country without any indigenous people. Britain persuaded Mauritius and the Seychelles to detach a string of small islands in the Indian Ocean known as the Chagos in order to create a new sovereign area to be called the British Indian Ocean Territories or 'BIOT'. The fly in the ointment was that, in reality, there was a small indigenous population and so the plan called for their enforced removal to Mauritius. What had seemed like a good idea slowly turned into a source of grave embarrassment.

The tiny island of Diego Garcia was the focus. In August 1963, the Americans made a request to the British for 'permission to look into the possibilities of setting up a rather large communications facility on the island of Diego Garcia.'<sup>76</sup> While military and navy facilities were also mentioned, the urgent priority was for a communications base, requiring 3,000 acres and accommodation for 300 men. The British noted that Washington's 'immediate interest' was 'the development of a communications facility, for which they already have fiscal approval.'<sup>77</sup> They added that 'if Gan were to be denied to us, Diego Garcia would be the best location for strategic

communications relay facilities... it is also suitable for the possible for the re-provision of our strategic wireless station at present working in Mauritius. In addition, Diego Garcia has been earmarked as a possible site for one of a chain of three radio navigational aids in the Indian Ocean.'78 This is an important document since it underlines how signals intelligence and communications drove the initial the acquisition and maintenance of Diego Garcia and the British Indian Overseas Territories (BIOTs). While broader military and navy facilities came later, archives reveal that intelligence capabilities were driving events.

In December 1966, an agreement was finally reached and a 'communication station' was built at Diego Garcia in late 1970. The original intention was that Britain would meet the cost of 'resettling the inhabitants' and 'buying the agreement of Mauritius and the Seychelles'. Meanwhile the Americans would pay for the installations. However, as time went on it became clear that 'the sweetener' demanded by Mauritius and Seychelles to give up the islands was larger than expected, in the region of £10 million. British Ministers decided that Washington should contribute to this and American defence officials reluctantly agreed, only on condition that its neo-colonial activity could be hidden. This was done secretly by deducting the sum from money that Britain owed America for the cost of buying Polaris missiles.<sup>79</sup> By the following year a full financial agreement had been drawn up stating that the United States would 'forego the R&D surcharge to the extent of \$14 million'.<sup>80</sup>

Diego Garcia also represents a fascinating case of empire by proxy. American defence officials knew that Congress would not approve of America subsidising the 'separation of the Chagos archipelago' to create a new British colony. Indeed, British Treasury officials seemed to enjoy the discomfort of their allies at imperial entanglement and noted 'there is plenty of reason for embarrassment'.<sup>81</sup> If anyone asked whether there had been any American financial contribution they were to say that 'no payment had been made by the US Government'.<sup>82</sup> In April 1967, Robert Sykes in the Foreign Office noted that 'in view of the extreme delicacy of this subject' the circulation of papers was being 'kept to the absolute minimum'. Nevertheless, he reported that the Americans were increasingly nervous about telling what was 'frankly an outright lie'.<sup>83</sup>

The Americans were soon requesting further expansion. This was partly about basing conventional military forces for possible intervention in the Gulf but it was also linked to another signals intelligence episode in East Africa. During the Second World War, the British had given the Americans permission to build a signals intelligence station at Kagnew in Ethiopia. By March 1951 there were over 1,312 staff at Kagnew providing what Ralph Canine, the Director of NSA, described as 'unique and profitable intercept coverage'.84 Some of the work at Kagnew was focused on the Soviets, but it also collected manual morse from much of Africa and the Middle East. This was especially valuable during the Congo crisis of 1960 when the different factions fought for control over the province of Katanga. During its height, Kagnew sprawled over some 3,400 acres and boasted some 5,000 personnel with the facilities of a small town including tennis courts and swimming pools. However, by 1969 this ideal spot for signals intelligence collection was threatened by growing fighting between the Ethiopian military who were supported by the Americans, and the rebel Eritrean Liberation Front, who were backed by Damascus and the Soviets.<sup>85</sup> By 1972 there were only 900 personnel and by 1974 there was simply a relay station for nuclear submarine communications with a little over a hundred people. Two kidnapping episodes in 1975 helped accelerate final closure in 1977.86

Diego Garcia's vast base helped to replace the vital Kagnew signals intelligence station. In June 1973, American officials in London explained to the British that they had been forced 'to reduce certain activities conducted by the US Army at Kagnew Station, Asmara' and the 'most practical solution' would be the 'enlargement of the Diego Garcia facility'. This would restore 'coverage in Gulf of Oman, Arabian Sea and Western Indian Ocean, where Kagnew phase-out would have caused temporary degradation' to signals intelligence operations. <sup>87</sup> The cost of Diego Garcia now doubled. Part of this increased cost was a signals intelligence system designed to track Soviet submarines. The British were taken aback at this 'very considerable' expansion of the facilities. <sup>88</sup> The American trump card was ongoing American support for the Britain's own nuclear strategic submarines. <sup>89</sup>

Confrontation over intelligence and bases between Heath and Kissinger in late 1973 almost destroyed the deal. The hot question was whether the Americans would be given what they called 'unrestricted access' to the base at Diego Garcia in a crisis. 90 Having seen Heath limit American access to bases in both Cyprus and Britain during the Yom Kippur War of October 1973, Washington was wary. Yet Heath wanted precisely these sorts of restrictions on Diego Garcia. On 10 January 1974, the Cabinet Secretary, John Hunt, warned Heath that: 'This will not be easy'. 91 Three weeks later it was a hapless John Hunt who was sent on a special mission to the White House to find an agreed formula. The solution was a remarkable one. Publicly, the position would be 'joint decision' on use of the bases in a crisis, seemingly retaining the British veto. However, behind the scenes, there would also be a highly secret exchange of letters between Heath and Nixon that effectively changed this to mere consultation. Sure enough, on 5 February, Heath wrote a carefully crafted letter to Nixon assuring him of this 'on a very personal basis'. 'These understandings are agreeable to me' replied Nixon. 92 The exchange of letters was intensely secret. The British Embassy assured London that it was being handled 'very restrictively indeed in the White House'. 93

The deals over Diego Garcia shows how a ruthless requirement for bases has impacted on the wider fabric of the international system. However, in Diego Garcia the effect was especially stark, translating into a Canute-like resistance to the end of empire and the cruel deportation of a small island population. This was surely one of the more dismal episodes in recent British history. Many of the deportees were second or third generation islanders, for whom Diego Garcia was their rightful home. Ahead lay years of legal battles as the indigenous islanders attempted – unsuccessfully – to escape forced resettlement and achieve the right to return. <sup>94</sup>

In February 2019, the International Court of Justice declared Britain's decolonization of the Chagos Islands unlawful. Doing so, the decision focused light on one of the most controversial and significant aspects of Western policies towards the Global South during the Cold War. Once more, detail of the British Indian Overseas Territories appeared on the front pages and Britain's hidden secret state was laid bare. They are often presented as military installations but above all they are intelligence outposts. Information dominance and signals intelligence collection were the core drivers of US power through military bases across Latin America, Europe and the Global South.

## Ascension – another BIOT?

Ascension Island is an isolated volcanic island in the equatorial waters of the South Atlantic Ocean, around 1,000 miles off the coast of Africa and 1,400 miles from Brazil. In short, it is about midway between South America and Africa. Sustained inhabitation of Ascension Island started in 1815, when British garrisoned the island while Napoleon was imprisoned on neighbouring Saint Helena. In 1836, Charles Darwin visited Ascension during his famous voyage on HMS Beagle. During the Second World War, the United States operated a large airbase there called 'Wideawake'. The island rose briefly to public notice once more during the Falklands campaign when it formed the staging post for the extended operations of the UK Task Force.<sup>99</sup>

In 1960, the British Navy was operating a listening station on Ascension Island as part of its contribution to GCHQ's intercept arm, the Composite Signals Organisation. Like all these stations, it was administratively controlled by the Admiralty's Signals Division, but in reality, it was 'operationally tasked by Government Communications Headquarters'. However, by late 1963, the Navy had run into serious problems with personnel shortages. GCHQ directed that the station should be taken over by a detachment from 399 Signals Unit at RAF Digby. This was a short term stop-gap since GCHQ had built and established 'a permanent civilian manned station' at Ascension Island by 1966. Operational communications were provided by Cable and Wireless who allowed their terminal at Ascension to be 'patched' to GCHQ for six hours daily to allow the signals intelligence 'take' of the previous twenty-four hours to be sent in to Cheltenham.<sup>100</sup> New facilities were constructed for both GCHQ and the BBC World Service, and for a while officials even considered going in with the Americans on an experimental nuclear power station there which would have powered all the defence facilities on the island.<sup>101</sup>

In mid-1968, the Americans approached the British for broader operating rights at their airbase on Ascension Island. American officials were cautious since, they were already pushing the British for a larger base at Diego Garcia. Nevertheless, in 'the intelligence area' they noted 'the increased activities of the Soviet fleet in the South Atlantic was likely to require more and more intelligence collection flights and Ascension looked like a good place from which to obtain telemetry intelligence on missiles. Furthermore, there was the issue of monitoring increased communications by satellite. 'All in all' they continued 'it would be nice if we could consider Ascension island as being unconditionally available for our use – in effect another BIOT'. These plans were eventually given the improbable local cover of a NASA space operation. During the 1970s, in parallel with GCHQ's successful site at Bude in Cornwall, Ascension covered the Atlantic Intelsat's Southern Hemisphere communications.

The analogy that the Americans made to 'BIOT' or Diego Garcia was uncannily accurate. Ascension nurtured a small but plucky long-term population that was repeatedly asking for citizenship rights and representation. In 2003, Robin Cook, Labour's long-serving Foreign Secretary, promised a new deal for the residents of Ascension, including plans for democratic institutions, a legal right of abode and to own property. The idea was that Ascension would become a viable community focused on eco-tourism. However, in 2006, his successor Jack Straw, abandoned the idea of self-rule and the assumption is that Ascension is now destined to become another BIOT. Permanent residents are discouraged and the inhabitants are increasingly contract workers. GCHQ still operates a signals interception facility on Ascension while NASA continues to

list Ascension Island as a "down range site" used for range safety instrumentation. Remarkably, in 2008, British diplomats approached the United Nations Commission on the Limits of the Continental Shelf and requested sovereignty over 77,220 square miles of submarine territory around the island. As John Darwin has suggested, perhaps idea that the British empire is always retreating is misplaced.<sup>104</sup>

#### Conclusion

In the second decade of the twenty-first century, Britain's commitment to signals intelligence collection remains as strong as ever. In June 2013, many details of Britain's electronic surveillance programme were leaked by Edward Snowden to *The Guardian*. The newspaper published some of Snowden's documents but held back others, including reports that the UK tapped into a mammoth web of underwater fibre-optic cables in the Gulf from three secret bases in Oman. Although initially suppressed, these details were eventually published by the investigative journalist and long-term GCHQ watcher Duncan Campbell in the computer magazine, *The Register*.

Part of an operation codenamed 'CIRCUIT,' these three overseas processing centres act as vast data collection hubs. The three GCHQ sites in Oman are codenamed 'Timpani', 'Guitar' and 'Clarinet'. Located on the northern coast of Oman at Seeb, undersea cables are exploited, spanning the Strait of Hormuz into the Arabian Gulf, these carry much of the traffic from locations such as Iraq, Iran, Afghanistan and even India. The bases are not British territory but are located in a sovereign state. Nevertheless, Oman's ruler, Sultan Qaboos is somewhat indebted to Britain. One of the longest serving autocrats, he gained power as the result of a British-managed coup in 1970. British military advisers in Oman, including the SAS, planned the removal of his father. <sup>105</sup>

Arguably, the revelations about bases on the coast of Oman point us towards something else beyond specific colonial outposts. The pursuit of ever-greater intelligence capabilities by GCHQ has resulted in a shift away from perpetual empire towards the exploitation of the world's oceans. Offering almost unlimited points of access, tapping into fibre-optic cables overcomes potentially problematic areas of 'boundaries' and 'sovereignty.' Simultaneously this evokes a nineteenth century past, when submarine telegraph cables were important, dominated by Cable and Wireless, and a future wherein oceans may be more important than the land for intelligence collection and information dominance.

Trevor Paglen is perhaps the most famous researcher to identify the strategic importance of underwater cables. His 2016 'Deep Web Dive' project argues the internet has become 'the greatest instrument of mass surveillance in human history'. Obscured by romantic metaphors of 'clouds' and cyber's 'dark space,' Paglen draws attention to the tapestry of industrial infrastructure that monitor and control 21st Century societies. For Paglen, such 'infrastructures of power' are deliberately coded and concealed by intelligence agencies through romantic metaphors, seldom recognised by their subjects as material things inhabiting the earth, oceans and skies. The Cloud is buildings with servers in them.' Ultimately, the internet of 2018 is comprised of fibre-optic cables, both on land and increasingly under the sea. Tapping into these cables in the pursuit of information, knowledge and power is a strategic priority for the major

intelligence agencies. Laying the blame firmly at the feet of GCHQ and NSA, Paglen explores how surveillance and a commitment to intelligence collection is geographically 'everywhere and nowhere at the same time.'  $^{108}$ 

Much has been written in the last five years on the impact of the internet on the tension between an individual's right to privacy and the state's defense of national security, but there has been little reflections on its meaning for the global south. Countries in Africa and Latin America are arguably even more dependent on mobiles phones and the internet for their infrastructure. Typically, banking has leapt several generations of technology and now resides increasingly on the Internet in developing countries. These countries are benefiting from advances in telecommunications but equally they are especially vulnerable to large-scale intelligence collection and subversion by the north. Signals intelligence has become an extension of an unequal world information order. Castells comments connectivity spawns 'unevenly connected networks, typically benefiting the wealthy at the expensive of marginalised social groups. 110

There are continuities between the geographies of old empire of GCHQ and the new. Both are barely visible. Starosielski notes that undersea cables worldwide rarely enter public discourses, <sup>111</sup> and when they do, they only add to narratives that obscure the significance of the infrastructure. She argues that these common narratives support the hidden nature of the networks, because they present cables as isolated, lost in both public spaces, and media narratives. <sup>112</sup> Historically, undersea cable networks carrying global communications have been deliberately hidden from public view, insulated against both physical and intelligence-based threats, since they are so crucial to the operation of society. <sup>113</sup> She focuses on the critical connection between the physical media infrastructure of New Zealand's Southern Cross Cable, and its social, political and local environment. The cable has significance in the global political environment, and becomes a symbol (physical and metaphorical) of how power is linked with visibility. As Starosielski notes, these undersea communication cables are critical infrastructures which underpin our entire global society.

Political geographers emphasise the strategic importance of these obscure gears of statecraft. Barney Warf describes fibre optics as the 'nervous system of the global economy.' Delivering vast volumes of information across the world at light speed, Warf explores how fibre optics represent the most significant way human beings have 'engineered the Earth's surface' for our advantage. Reimagining global spatiality, cables and infrastructure reinforce dependences between the globe's inhabitants. Military bases, remote islands and signals intelligence facilities are prime examples, extending tentacles of Western Imperial influence tentacles throughout the Global South.

Practitioners are increasingly open about the importance of ocean networks. Former British diplomat John Sheldon is one example, arguing that geopolitics and geography remain central pillars of cyber power, which requires real footholds in real space to gain traction. Intelligence historians about the importance of cyber. In the importance of the US Government on undersea cables. Encircling the earth with copper and now fibre, these cables display one of the most distinct physical manifestations of cyber. Both of these interventions are significant, written by former senior practitioners on both sides of the Transatlantic. Intelligence historians should perhaps pay more attention to the observations of

both technologists and geographers, benefitting from a greater understanding of how a confluence of cables and colonies have influenced their historical subjects.

Seeking to rule rocks rather than people, Britain and America extended their imperial legacies well beyond the Cold War. Roberts, Secor and Zook argue that this is even more apparent in the American case, speaking of the 'leaky plumbing' of global hegemony.' Composed of shipping ports, minerals and industrial sites, global communications infrastructure dominates, their analysis with 'over 70 communications-related locations (landfall for undersea cables, satellite ground stations).' Cold War collection stations with aerial farms and antennae are gradually being replaced by a wider electronic imperialism as communications shift to fibre optic cables, running through coral reefs and the deep oceans. But land access on remote islands will still be required, suggesting that a technological empire will persist in remote places until this physical infrastructure is not longer required.

<sup>&</sup>lt;sup>1</sup> Zamira Rahim, 'Chagos Islands: Britain's decolonization 'unlawful' and it should get out immediately.' *The Independent* 25<sup>th</sup> February 2019. <a href="https://www.independent.co.uk/news/world/europe/chagos-islands-britain-uk-hague-diego-garcia-un-court-unlawful-ruling-international-justice-a8796196.html">https://www.independent.co.uk/news/world/europe/chagos-islands-britain-uk-hague-diego-garcia-un-court-unlawful-ruling-international-justice-a8796196.html</a>

<sup>&</sup>lt;sup>2</sup> Advisory opinion of the International Court of Justice on the legal consequences of the separation of the Chagos Archipelago from Mauritius in 1965, UN, Seventy-third session, Agenda item 88, 5 March 2019.

<sup>&</sup>lt;sup>3</sup> C.M. Andrew and D. Dilks, (eds.) *The Missing Dimension: Governments and Intelligence Communities in the Twentieth Century* (London, 1982). Their shared background was the history of empire and commonwealth.

<sup>&</sup>lt;sup>4</sup> Jon Diamond, *Orde Wingate* (London, 2012); Scott Anderson, *Lawrence in Arabia: War, deceit, imperial folly and the making of the modern Middle East* (London: 2014).

<sup>&</sup>lt;sup>5</sup> Tobias Richter, 'Espionage and near Eastern archaeology: A historiographical survey,' *Public archaeology* 7 (2008), 212-40.

<sup>&</sup>lt;sup>6</sup> M. Thomas, Empires of Intelligence: security services and colonial disorder after 1914 (Berkeley, 2008); Priya Satia, Spies in Arabia: The Great War and the Cultural Foundations of Britain's Covert Empire in the Middle East (Oxford, 2008); David Anderson, Histories of the hanged: The dirty war in Kenya and the end of empire. (New York, 2005).

<sup>7</sup> Andrew and Dilks, (eds.) The Missing Dimension, 8.

<sup>&</sup>lt;sup>8</sup> Patrick French, Younghusband: The last great imperial adventurer (London, 2016); Peter Hopkirk, Trespassers on the Roof of the World: The Race for Lhasa (Oxford, 2001); Robert Johnson, Spying for empire: the great game in Central and South Asia, 1757-1947 (London, 2006).

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<sup>&</sup>lt;sup>10</sup> David Anderson, 'Guilty secrets: Deceit, denial, and the discovery of Kenya's 'migrated archive' *History Workshop Journal*, 80 (2015), 142-60; David Anderson, 'Mau Mau in the high court and the 'lost' British empire archives: Colonial conspiracy or bureaucratic bungle?' *Journal of Imperial and Commonwealth History* 39 (2011): 699-716.

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<sup>&</sup>lt;sup>13</sup> David Arnold 'Spying from Space: Constructing America's Satellite Command and Control Systems.' Texas A&M University Press (2008)

<sup>&</sup>lt;sup>14</sup> Joseph Pelton, 'History of Satellite Communications.' (1-41) In 'Handbook of Satellite Applications.' Springer Press, (New York: 2015)

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