



GCHQ: 100th Anniversary 1 November 2019

Summary

On 1 November 2019, the Government Communications Headquarters, widely known as GCHQ, reaches its 100th anniversary. This briefing provides a brief overview of its history and its role today.

GCHQ came into being in 1919 following the end of the First World War. The Government had deemed the British Signals and Intelligence unit, which had intercepted German radio traffic throughout the war, so valuable that it formed a peacetime cryptanalytic unit to continue its work. Originally called the Government Code and Cypher School, the unit was formed on 1 November 1919.

In the interwar years, the Government Code and Cypher School had the overt function of protecting British Government communications and a secret mission to decrypt messages sent by foreign countries. However, a GCHQ profile of Alastair Denniston, its director between 1919 and 1942, has claimed the constraints which the Government Code and Cypher School operated under during the interwar years were “more damaging than anybody realised”.

Towards the end of the 1930s, work began to prepare the Government Code and Cypher School for the possibility of war. In August 1939, almost all the staff were moved to Bletchley Park and the Government Code and Cypher School started to call itself GCHQ, short for Government Communications Headquarters. The operation at Bletchley Park has been seen as central to the Allies’ success and credited with saving thousands of Allied lives in the war.

During the Cold War, the signals intelligence (‘sigint’) produced by GCHQ constituted most of the secret information available to political decision makers, according to author Richard J Aldrich. At the end of the Cold War, GCHQ was a potential target for funding cuts. However, conflicts in Bosnia and Kosovo demonstrated the ongoing value of sigint. In the 1990s, the Government made plans to expand GCHQ. In 2003, the organisation moved into a new headquarters, however, the events of 9/11 meant the building was already deemed too small.

Today, GCHQ describes its modern mission as much more diverse than when it was formed. It says “supporting the military is still very much part of our role but we also now tackle the most serious cyber, terrorist, criminal, and state threats”.

Nicole Winchester | 23 October 2019

A full list of Lords Library briefings is available on the research briefings page on the internet. The Library publishes briefings for all major items of business debated in the House of Lords. The Library also publishes briefings on the House of Lords itself and other subjects that may be of interest to Members. Library briefings are compiled for the benefit of Members of the House of Lords and their personal staff, to provide impartial, authoritative, politically balanced briefing on subjects likely to be of interest to Members of the Lords. Authors are available to discuss the contents of the briefings with the Members and their staff but cannot advise members of the general public.

Any comments on Library briefings should be sent to the Head of Research Services, House of Lords Library, London SW1A 0PW or emailed to purvism@parliament.uk.

Origins of GCHQ

GCHQ came into being in 1919 following the end of the First World War.¹ Its creation stemmed from the success of British Signals and Intelligence, a unit created in 1914 to intercept German radio traffic and allow the UK to anticipate enemy plans. Throughout the conflict the unit supported all aspects of the British military and diplomatic war effort. For example:²

- In 1916, the unit helped combat air raids and offered insight into German naval movements ahead of the Battle of Jutland.
- In 1917, the secrets revealed by an intercepted German diplomatic telegram to Mexico contributed to the US joining the war.
- In 1918, signals intelligence personnel operated on the front line during the major German counter-offensive.

'Sigint'

Since 1914, GCHQ and its predecessor organisations have gathered signals intelligence ('sigint'). Traditionally, sigint has been gathered through a three-step process:

- 1) An intercepted message is listened in to and recorded.
- 2) Once captured, the message is passed back to GCHQ for processing.
- 3) Finally, intelligence analysts compose the resulting material into useful summaries.

(Source: Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, p 1)

Following the war, the Government deemed the unit so valuable that it formed a peacetime cryptanalytic unit to continue its work.³

Interwar Years: Government Code and Cypher School

Formed within a year of the First World War ending, the newly named Government Code and Cypher School was created by a merger of naval and military intelligence organisations.⁴ Its overt function was to protect British Government communications. However, it also had a secret mission to decrypt messages sent by foreign countries. Led by Alastair Denniston and located in Watergate House, the organisation officially came into being on 1 November 1919.

However, GCHQ, in a profile of Denniston, has claimed the constraints which the Government Code and Cypher School operated under during the interwar years were "more damaging than anybody realised".⁵ Until the 1930s, no significant work against military targets took place, with traffic analysis abandoned after the First World War. In addition, GCHQ has argued that the change in cryptology that electromechanical encryption systems (such as Enigma) produced was underappreciated at the time.

Second World War

Towards the end of the 1930s, work began to prepare the Government Code and Cypher School for the possibility of war. In 1938, the Government bought a country house in Buckinghamshire called

¹ GCHQ, '[Our Origins and WWI](#)', accessed 26 September 2019.

² *ibid.*

³ *ibid.*

⁴ *ibid.*

⁵ GCHQ, '[Alastair Denniston](#)', accessed 8 October 2019.

Bletchley Park.⁶ The purchase was part of the plans for the Government Code and Cypher School and the Secret Intelligence Service (MI6) to be evacuated out of London to avoid the expected aerial bombardment. As a result, 180 staff moved from London to Bletchley Park on 15 August 1939.⁷ An additional 20 staff, who produced communications security materials such as cipher keys and code books, also moved from London. They moved to Mansfield College, Oxford, however, to be nearer to their main printers at the Oxford University Press.

As part of the move to Bletchley Park, the Government Code and Cypher School started to call itself GCHQ, short for Government Communications Headquarters.⁸ The new name was meant to disguise the work it was doing.⁹ Aided by discoveries already made by the French and Polish, as well as an influx of new recruits, GCHQ became an established intelligence agency.¹⁰ In addition, partnerships with the US and Commonwealth helped the organisation's reach become global. By the end of 1944, some 10,000 staff were employed at Bletchley Park itself. A larger number were engaged with the collection and dissemination of signals intelligence ('sigint') around the world.¹¹ GCHQ had also become the National Technical Authority for information by the end of the war.¹²

Work of Bletchley Park

The operation at Bletchley Park has been credited with saving thousands of allied lives in the war. Author Richard J Aldrich has argued that the German use of encrypted radio messages and the increasing speed of war (eg Blitzkrieg) meant that secrets smuggled under the coat collars of traditional spies were no longer much use.¹³

Therefore, GCHQ's ability to decrypt German communications and the genius of figures such as Alan Turing have been credited as "a central part of the story of Allied success". The information they gathered enabled "Allied prime ministers and presidents to see into the minds of their Axis enemies".¹⁴ The speed at which they processed information has also been highlighted. Examples include messages sent to Field Marshall Rommel in Africa by the German command. These were retrieved by field operators, decoded by GCHQ and delivered to Prime Minister Winston Churchill before Rommel himself read them.¹⁵

Alan Turing 1912–54

Alan Turing was a leading cryptanalyst at Bletchley Park during the Second World War. He played a key role in cracking the Enigma code used by German forces to send secure messages. Turing was also considered the founding father of theoretical computer science and artificial intelligence.

In 1952, Turing was arrested for homosexuality and found guilty of gross indecency. In 2013, Turing was given posthumous royal pardon which addressed his conviction. Chris Grayling, Justice Secretary at the time of the pardon, said that Turing was an exceptional man who had undoubtedly shortened the conflict and saved thousands of lives.

(Sources: [Imperial War Museum, Oxford](#) [Dictionary of National Biography](#) and [BBC News](#))

⁶ GCHQ, '[World War II: Bletchley Park](#)', 25 January 2019.

⁷ *ibid.*

⁸ Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, note on terminology; and GCHQ, '[Bletchley Park and WWII](#)', accessed 26 September 2019.

⁹ GCHQ, '[GCHQ Starts Its Centenary Year](#)', 1 November 2018.

¹⁰ GCHQ, '[Bletchley Park and WWII](#)', accessed 26 September 2019.

¹¹ GCHQ, '[World War II: Bletchley Park](#)', 25 January 2019.

¹² GCHQ, '[Bletchley Park and WWII](#)', accessed 26 September 2019.

¹³ Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, p 5.

¹⁴ *ibid.*, p 2.

¹⁵ Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, p 5; and Encyclopedia

Although the most famous work to take place at Bletchley Park was cracking the Enigma code, other successes that made a significant contribution to the allied victory included:¹⁶

- the decryption of Luftwaffe hand ciphers; and
- the development of Colossus, the world's first computer which solved enciphered German teleprinters.

Since 1945

In his history of GCHQ, Richard J Aldrich states the story of the organisation in peacetime is still “very much about military operations and even war”.¹⁷ Although the Second World War had ended, with the onset of the Cold War, signals intelligence was deemed equally important in the “dangerous new era of nuclear confrontation”.¹⁸ With military chiefs demanding better intelligence, it was concluded that global sigint coverage was indispensable to Western allies.

Responding to this need, the Government created a vast sigint programme. Managed by GCHQ, but run in cooperation with the armed services, the network used military bases, ships and aircraft to collect the raw signals. Therefore, sigint was not simply a feature of the First and Second World Wars. Rather, it constituted the majority of secret information available to political decision makers during the Cold War. GCHQ continually supplied intelligence to Downing Street throughout the twentieth century, discreetly delivered in what became known as the ‘Blue Book’.¹⁹

Commenting on the role of GCHQ during the Cold War, Professor Aldrich argues that intelligence services were at the forefront of the conflict.²⁰ However, he states that most accounts of international relations after 1945 “stubbornly refuse to recognise” the importance of code-breakers. Intelligence historian Christopher Andrews agrees, stating that the disappearance of sigint from the historical landscape has “seriously distorted the study of the Cold War”.²¹

Following the end of the Cold War, as an expensive technical agency, GCHQ was a target for cuts.²² However, for Professor Aldrich, Britain's role in the wars in Bosnia and Kosovo in the 1990s reminded the Government of the value of sigint. As a result, the Government provided new investment and in 1996, under the direction of Sir David Omand, GCHQ began to develop plans for a new headquarters in Cheltenham that became known as ‘the doughnut’ due to its shape.²³ The plan was to bring all staff together under one roof for the first time. However, upon its completion in 2003, the building was already deemed too small due to an expansion of the organisation following the 9/11 terrorist attacks.

Britannica, ‘[Erwin Rommel](#)’, 10 October 2019.

¹⁶ GCHQ, ‘[World War II: Bletchley Park](#)’, 25 January 2019.

¹⁷ Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, p 5.

¹⁸ *ibid.*

¹⁹ *ibid.*, p 2.

²⁰ *ibid.*

²¹ *ibid.*

²² *ibid.*, p 8.

²³ *ibid.*, p 9.

GCHQ Today

Since the Second World War, GCHQ has been the UK's "largest and yet most elusive intelligence service" according to Richard J Aldrich.²⁴ With its headquarters remaining in Cheltenham, today GCHQ also has sites across the UK, including in Bude, Scarborough and London, with plans to open a new site in Manchester in 2019.²⁵ Describing its modern mission as much more diverse than when it was formed, GCHQ states that:

Supporting the military is still very much part of our role but we also now tackle the most serious cyber, terrorist, criminal, and state threats.²⁶

Jeremy Fleming, the Director of GCHQ, has highlighted this wider role, stating that his organisation is at the heart of the UK's position as "a global cyber power".²⁷ Providing further detail on its mission, GCHQ states that it employs three capabilities—collection, analysis and effects—across five areas:

- Counter-terrorism: stopping terrorist attacks in the UK and against our interests overseas.
- Cyber Security: making the UK the safest place to live and do business online.
- Strategic Advantage: managing the threats from hostile states, promoting the UK's prosperity and shaping the international environment.
- Serious and Organised Crime: reducing the social and financial harm that serious and organised crime causes in the UK.
- Support to Defence: protecting defence personnel and assets and supporting an integrated approach to war fighting.²⁸

GCHQ is governed by legislation, which GCHQ says "balances the fundamental freedoms of our citizens with their right to be safe, secure and prosperous in the modern world".²⁹ It also operates in accordance with a set of priorities that are set by: the UK's National Security Strategy; the decisions of the National Security Council (chaired by the Prime Minister); and the Joint Intelligence Committee.³⁰

Modern Challenges

Journalist David Bond has argued that as the centenary of its creation approaches, GCHQ is faced with sweeping technological change and a rapidly evolving security threat.³¹ Likewise, journalist Sanjana Varghese has written that the contemporary security environment poses unprecedented difficulties for the organisation.³² Focusing on these challenges, she highlights that today, the average laptop or smartphone's computing power vastly outstrips the computing power of a machine like Colossus. She also argues that the internet of things, the ability to connect everyday items and

²⁴ Richard J Aldrich, *GCHQ: The Uncensored Story of Britain's Most Secret Intelligence Agency*, 2010, p 1.

²⁵ GCHQ, '[GCHQ Starts Its Centenary Year](#)', 1 November 2018.

²⁶ *ibid.*

²⁷ GCHQ, '[The UK is a Global Cyber Power, Says Director GCHQ](#)', 25 February 2019.

²⁸ GCHQ, '[Mission](#)', accessed 16 October 2019.

²⁹ GCHQ, '[Legal Framework](#)', accessed 26 September 2019.

³⁰ GCHQ, '[Overview](#)', accessed 26 September 2019.

³¹ David Bond, '[Inside GCHQ: The Art of Spying in the Digital Age](#)', *Financial Times* (£), 23 May 2019.

³² Sanjana Varghese, '[GCHQ's Centenary: The Art of Espionage in a Digital Age](#)', *New Statesman*, 16 October 2019.

household appliances to the internet, and government-sponsored hacking groups targeting elections are some of these new challenges GCHQ faces. Varghese quotes Daniel Lomas—who teaches a course on intelligence and security studies at the University of Salford—who has summed up some of the issues faced by GCHQ:

It used to be that you knew who the enemy was, but now, it could be criminal networks, extremism overseas, domestic terrorism—and the sophistication of the technology that people are using has increased as well.³³

In addition, GCHQ Director Jeremy Fleming has highlighted the challenges presented by a new technological age.³⁴ Arguing that while a new digital landscape will bring huge benefits, he contends that “if unchecked, [it] could make us more vulnerable to terrorists, hostile states and serious criminals”.

Yet GCHQ remains the home of the government’s technical expertise around cyber security and encryption, with Richard J Aldrich stating that it still leads on most of the technical issues which will affect our society over the next decade.³⁵ Jeremy Fleming has said that GCHQ will “continue to build on our world-class understanding of technology to inform government policy and protect the UK”.³⁶

Another challenge facing GCHQ according to Sanjana Varghese is a more informed and cautious public.³⁷ She has said that when the Edward Snowden leaks in 2013 revealed numerous surveillance programmes run by governments with the cooperation of telecoms companies, a far-reaching public discussion about privacy began. The leaks, along with the agency’s growing powers and higher profile, also brought GCHQ into conflict with privacy campaigners, according to David Bond.³⁸ Such campaigners have argued that the bulk collection of computer data and communications is a potential breach of human rights. This has led to legal challenges through the UK and European courts which have challenged the agency’s mass monitoring of public communications.³⁹

To respond to these issues, Sanjana Varghese claims that GCHQ began “a charm offensive” releasing puzzle books and partnering with universities to recruit young people into science, technology, engineering and mathematics (STEM) subjects.⁴⁰ Writing about GCHQ’s anniversary, journalist Nick Smith, also states that today, the organisation appears to welcome positive media attention and “has in place a coordinated PR charm offensive”.⁴¹

For Nick Bond, the Government’s response to the privacy debate took the form of the Investigatory Powers Act 2016.⁴² The Act requires agencies such as GCHQ to seek ministerial and judicial approval before targeting someone’s data. Privacy campaigners, however, have criticised the legislation arguing that the state is still able to “hack computers, phones and tablets on an industrial scale”.⁴³

³³ Sanjana Varghese, ‘[GCHQ’s Centenary: The Art of Espionage in a Digital Age](#)’, *New Statesman*, 16 October 2019.

³⁴ GCHQ, ‘[Director GCHQ Writes About the Importance of Securing the Next Generation of Technology](#)’, August 2018.

³⁵ Sanjana Varghese, ‘[GCHQ’s Centenary: The Art of Espionage in a Digital Age](#)’, *New Statesman*, 16 October 2019.

³⁶ GCHQ, ‘[Director GCHQ Writes About the Importance of Securing the Next Generation of Technology](#)’, August 2018.

³⁷ Sanjana Varghese, ‘[GCHQ’s Centenary: The Art of Espionage in a Digital Age](#)’, *New Statesman*, 16 October 2019.

³⁸ David Bond, ‘[Inside GCHQ: The Art of Spying in the Digital Age](#)’, *Financial Times* (£), 23 May 2019.

³⁹ Hannah Boland, ‘[UK Spy Tribunal Not Immune to Legal Probes, Supreme Court Rules](#)’, *Telegraph* (£), 15 May 2019.

⁴⁰ Sanjana Varghese, ‘[GCHQ’s Centenary: The Art of Espionage in a Digital Age](#)’, *New Statesman*, 16 October 2019.

⁴¹ Nick Smith, ‘[GCHQ: A Century of Ciphers](#)’, *Engineering and Technology*, 19 April 2019.

⁴² David Bond, ‘[Inside GCHQ: the Art of Spying in the Digital Age](#)’, *Financial Times* (£), 23 May 2019.

⁴³ Liberty, ‘[I. Reject Mass Surveillance](#)’, accessed 22 October 2019.

John Ferris, a professor at the University of Calgary and authorised GCHQ historian, has argued that in recent times, the organisation has reinvented itself and become far more open than it was before.⁴⁴ Ms Varghese agrees to an extent, stating that while it has become more accountable, “there are still significant grey areas”. For example, she cites recent proposals “to eavesdrop on encrypted conversations” which a coalition of civil society groups condemned.⁴⁵ Commenting on this debate, Tim Stevens, a professor at King’s College London, states that while the public has demanded more accountability, for GCHQ, espionage is a secretive business:

There may be a public facing element, but the question remains about how much can be public, and how much will have to remain private.⁴⁶

Further Reading

- David Kenyon, *Bletchley Park and D-Day: The Untold Story of How the Battle for Normandy Was Won*, 2019
- David Omand and Mark Phythian, *Principled Spying: The Ethics of Secret Intelligence*, 2018
- Sinclair McKay, *The Spies of Winter: The GCHQ Codebreakers Who Fought the Cold War*, 2016
- Asa Briggs, *Secret Days: Codebreaking in Bletchley Park*, 2011
- Michael Smith, *The Emperor’s Codes: Bletchley Park’s Role in Breaking Japan’s Secret Ciphers*, 2010
- Sinclair McKay, *The Secret Life of Bletchley Park: The History of the Wartime Codebreaking Centre by the Men and Women Who Were There*, 2010

⁴⁴ Sanjana Varghese, [‘GCHQ’s Centenary: The Art of Espionage in a Digital Age’](#), *New Statesman*, 16 October 2019.

⁴⁵ *ibid.*

⁴⁶ *ibid.*