

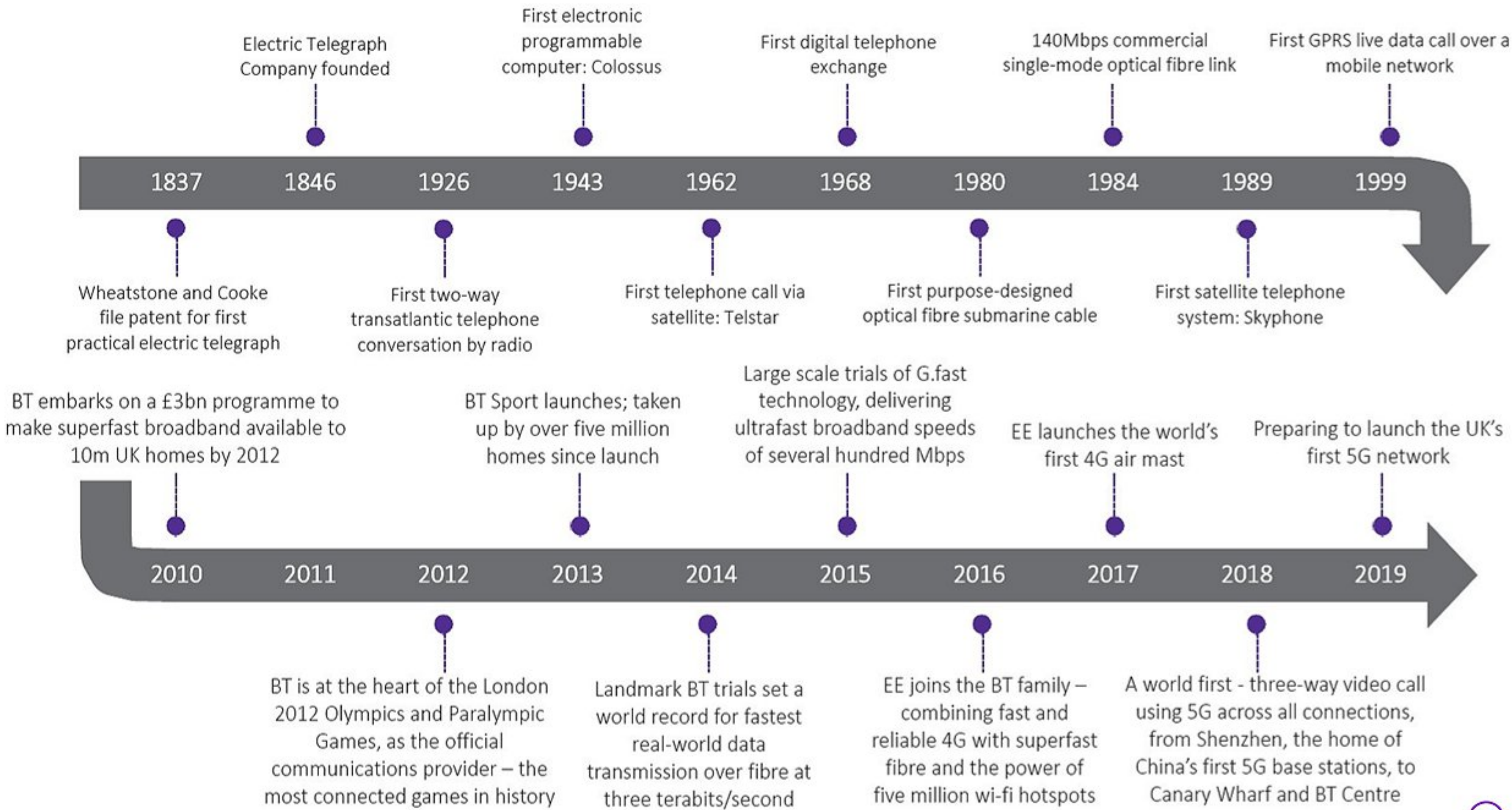
An architectural rendering of the restored Teleprinter Hall at Bletchley Park Museum. The building is a long, single-story structure with a grey facade and a dark, gabled roof. Large glass windows and doors are visible along the side. A tall flagpole stands to the left of the building, flying the Union Jack. In the foreground, a wide, light-colored gravel path leads towards the building, where several people, including adults and children, are walking. To the left of the path, there is a small green lawn area with a white informational sign. The sky is bright blue with large, fluffy white clouds. The overall scene depicts a sunny day at a museum.

# Restoration of the Teleprinter Hall at Bletchley Park Museum

David Hay  
BT Archives

BT









BT Chairman Jan du Plessis holds the Cooke and Wheatstone 1837 electric telegraph patent at BT Archives



# Our archives collections

- **Early telegraph and telephone company records**

We are responsible for the archives of the pioneering private companies that provided telecommunications services in the UK prior to nationalisation in the 19<sup>th</sup> and early 20<sup>th</sup> centuries.

- **Post Office telecommunications collections**

We keep records chronicling the history of the Post Office telegraph and telephone services – from nationalisation of the telegraph network to the demerger of telecommunications in 1981. Including film & image.

- **Records of BT plc**

We select and preserve documents created by BT since privatisation in 1984, making sure that the sources for future history are properly cared for.

More at [www.bt.com/history](http://www.bt.com/history)  
and [www.btplc.com/innovation](http://www.btplc.com/innovation)

Online catalogue at [www.bt.com/btdigitalarchives](http://www.bt.com/btdigitalarchives)



United Nations  
Educational, Scientific and  
Cultural Organization

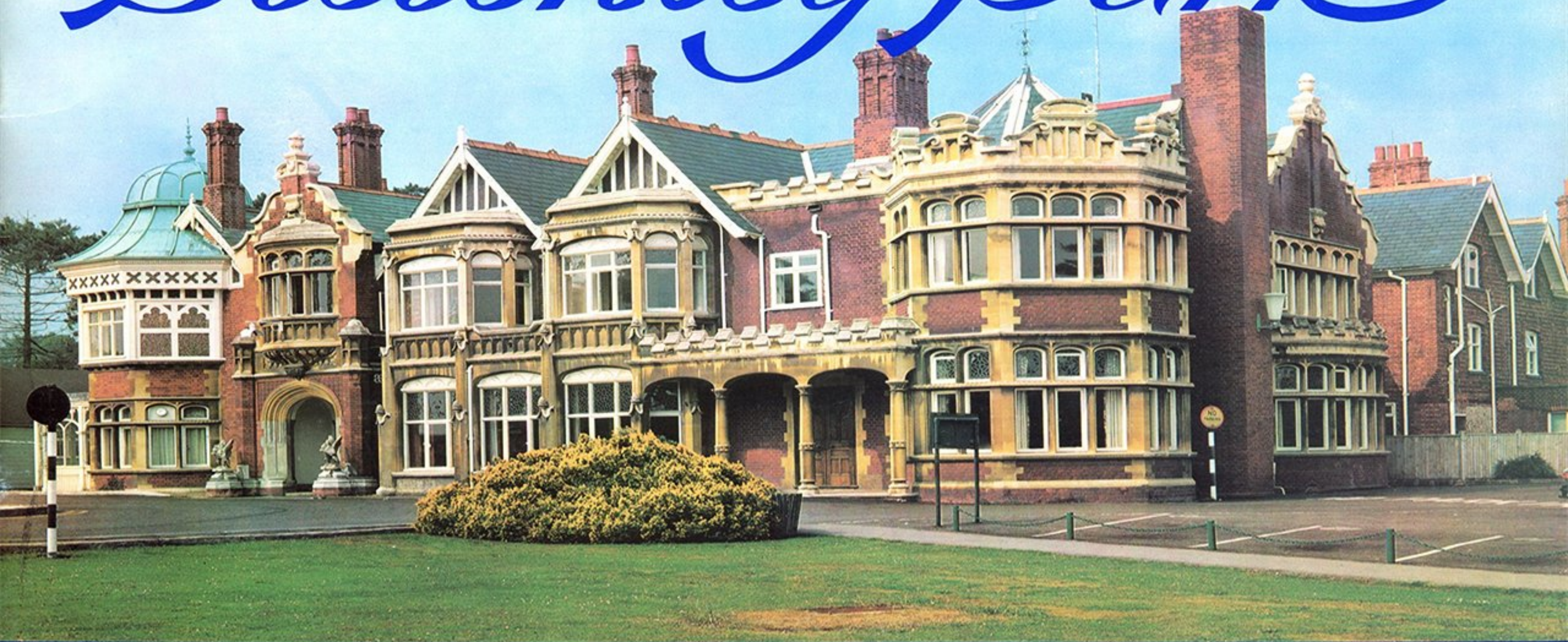


BT Research Centre collection, 1879-1995  
Inscribed on the National Register in 2011  
Memory of the World





# Bletchley Park



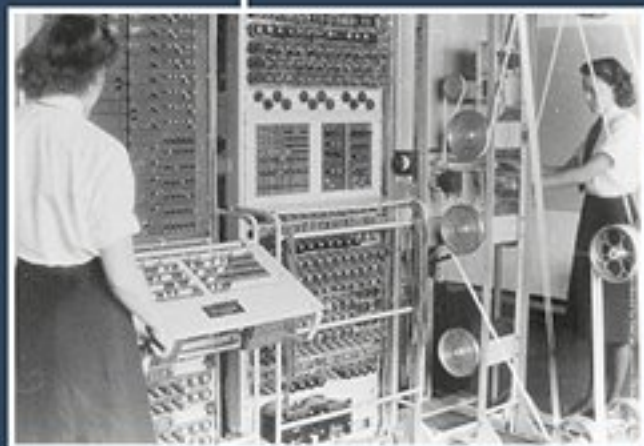
**POST OFFICE REGIONAL TRAINING CENTRE BLETCHLEY BUCKINGHAMSHIRE**

After the war Bletchley Park was a regional training college for the GPO and BT from 1948 until 1993





# BT AND BLETCHLEY PARK: A SHARED HERITAGE



A Colossus machine, built by the GPO and operated by members of the Women's Royal Naval Service

Codebreaking operations at Bletchley Park (BP) depended on secure communications and new technologies.

Both before and during World War Two, telecommunications in the UK were the responsibility of the General Post Office (GPO) – now British Telecommunications plc (BT).

The GPO had been vital to the war effort during World War One, intercepting and sabotaging enemy transmissions and maintaining the national communications infrastructure which was at the heart of the UK's national air defence system, the world's first. Communications were just as fundamental to the Allies' military and defence activities in WW2.

Alongside BP's Codebreakers stood the GPO's engineers and research establishment, delivering innovative information technology such as Colossus, the world's first large-scale electronic digital computer, and managing BP's communications network. GPO staff were even based on site at BP during the war.

## A VITAL NETWORK

Bletchley Park relied on its communications network – as intercepted messages flowed in, intelligence was sent out.

The Bletchley Park estate was chosen in 1938 to be the home of the Government Code and Cypher School (GC&CS). Close to London, Oxford and Cambridge, its transport connections were an obvious advantage. Perhaps more important was its proximity to the GPO's main trunk telephone lines from London to the north of England, which passed just over a mile away. This provided the ability to send and receive information quickly and securely across the UK and worldwide.

The GPO was present from the earliest days of GC&CS, installing the first cable to connect BP to that crucial trunk telephone line in 1938. This was expanded in 1939, adding a critical telecommunications hub at nearby RAF Leighton Buzzard where one of its 19 teleprinters was dedicated to traffic for Bletchley Park.



WAAF personnel in B Watch, RAF Leighton Buzzard, 1945



Wartime poster by F. H. K. Harrison, 'We're in it together', 1945

The GPO was essential in ensuring the secure supply of information to BP 24 hours a day.

BP's growing telecommunications links soon became part of the Defence Teleprinter Network (DTN). This secure communications network underpinned the delivery and distribution of Ultra intelligence, BP's most significant product.

Established by the GPO in 1938, the DTN transmitted voice and telegram communications between military and government establishments around Britain, independent of the civilian services. The initial aim was that the DTN should have equivalent capacity to the civil network. By 1944 it had trebled in size, at a time of acute staff shortages due to military enlistment.

The GPO also provided personnel and equipment for the Radio Security Service (RSS) which intercepted messages from the German intelligence service throughout the war, and passed them to BP. Reading these messages provided vital intelligence prior to D-day.

## SECURE COMMUNICATIONS

## POST-WAR AT BP

The Government Code and Cypher School left Bletchley Park immediately after World War Two, but Bletchley Park's relationship with the GPO continued.

In 1948 Bletchley Park became a Regional Training Centre for new GPO engineers, postal workers, telegraphists and clerical staff. The GPO telecommunications function became BT in 1981, and courses continued here until 1993. Conditions were spartan, and most had no idea of the momentous secret history of the rooms and buildings they occupied.

Once the secret of Bletchley Park's wartime operation had come to light, BT was one of the earliest organisations to support the fledgling Bletchley Park Trust in the 1990s. The historic wartime site was rescued and restored, and opened its doors as a heritage attraction.

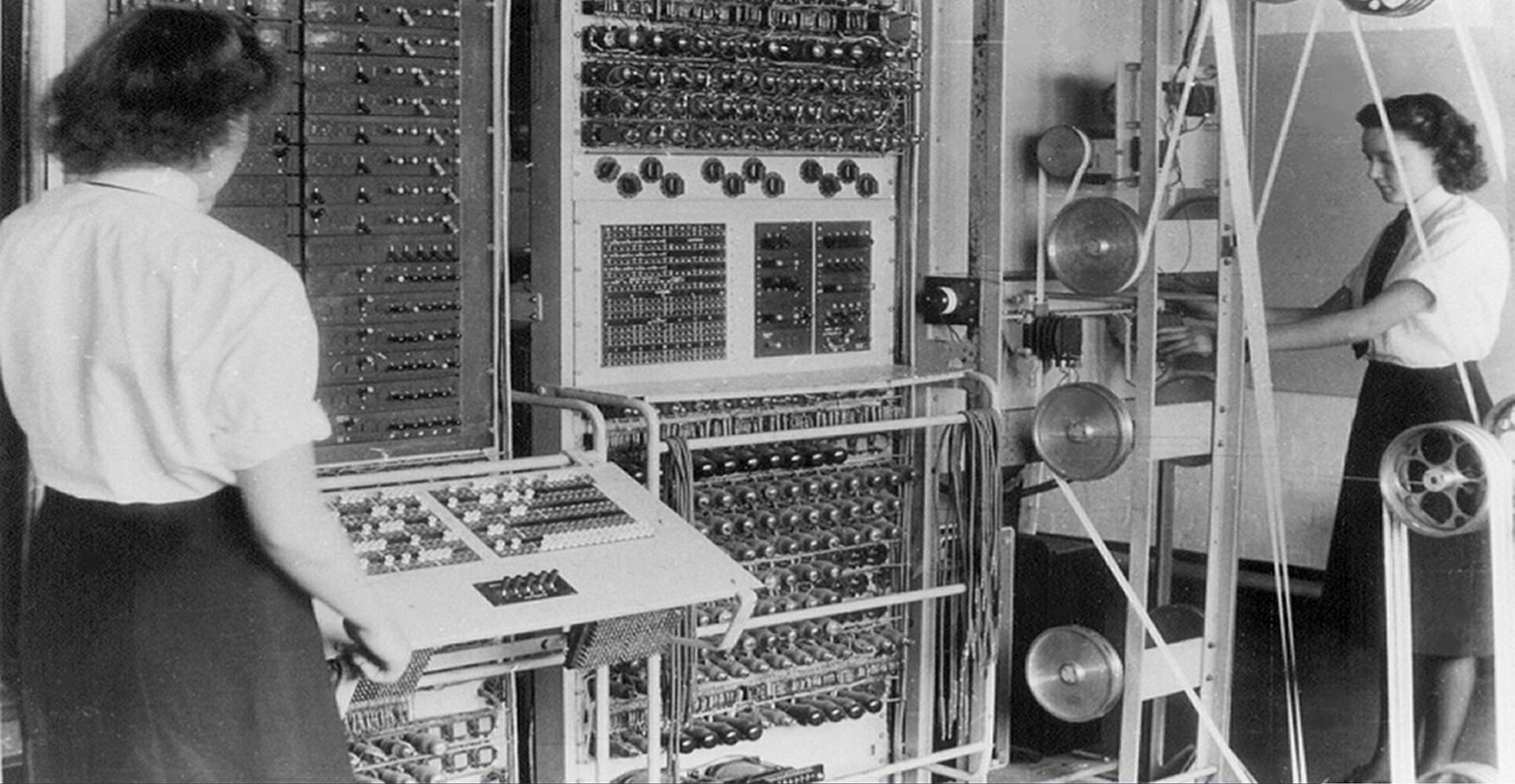


GPO personnel in the Mansion Library, 1950

But BT and Bletchley Park go back much further, GPO engineers had a critical role there from 1938 and during WWII

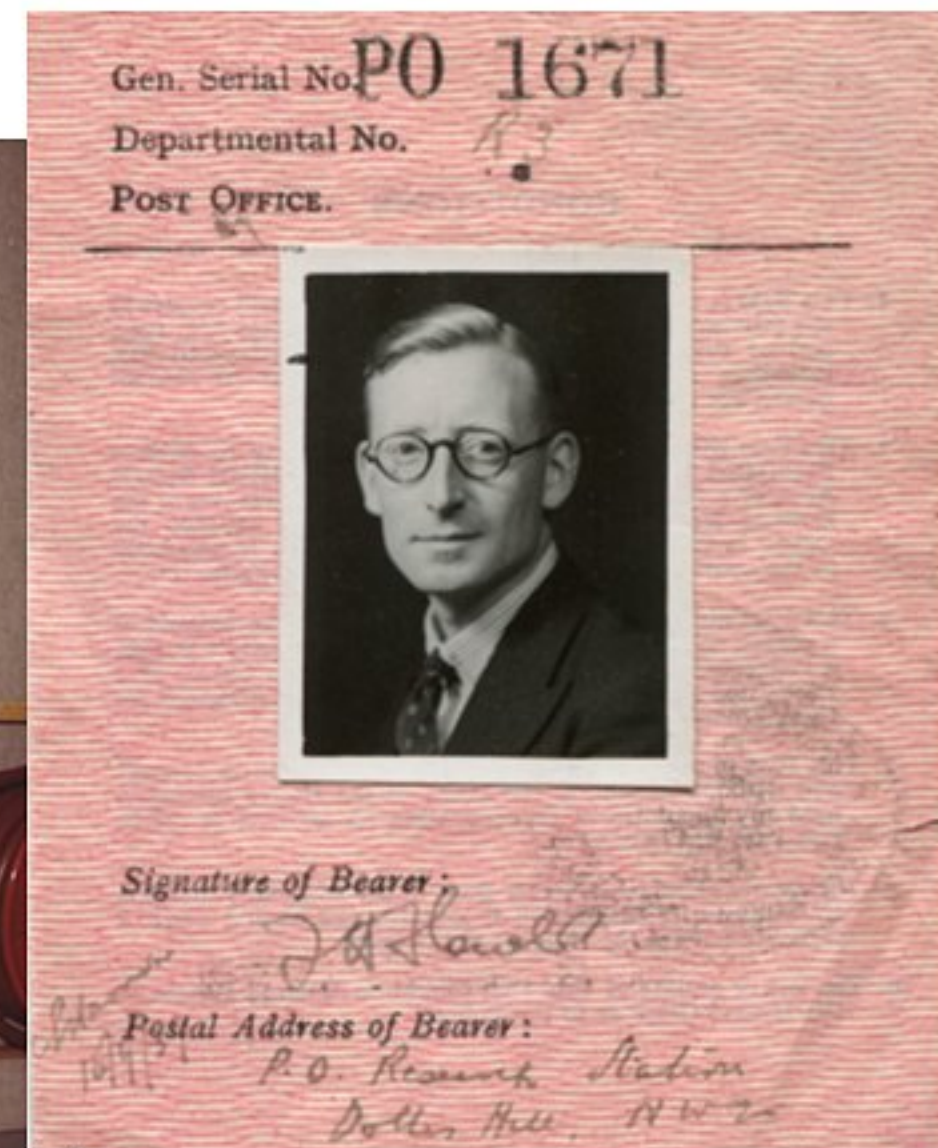






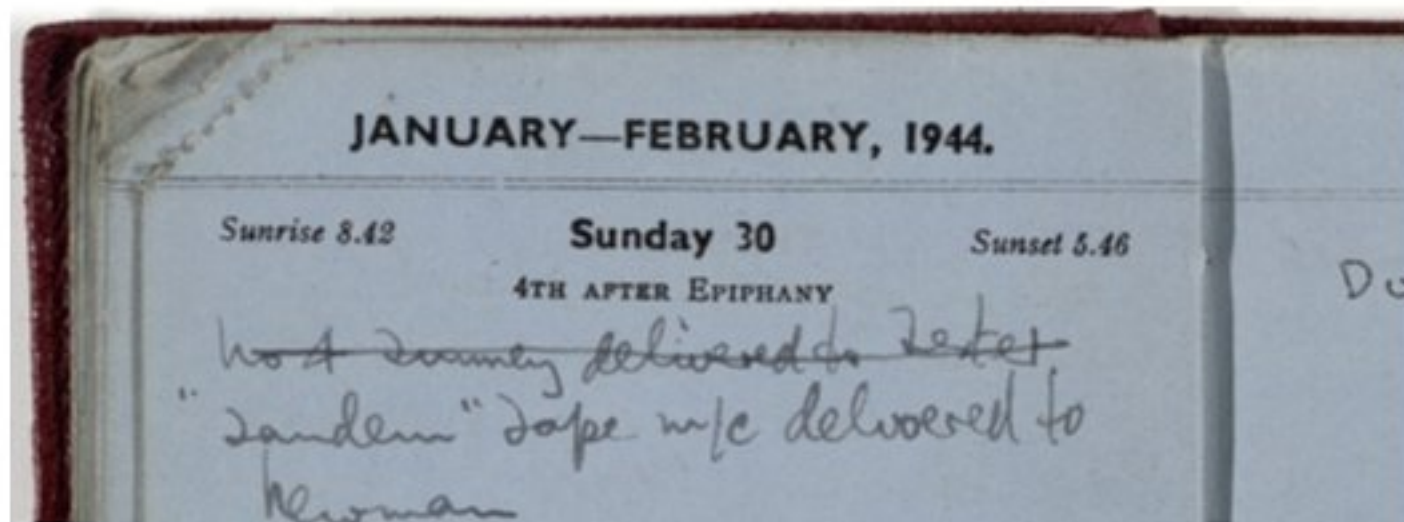
Colossus, the world's first electronic digital computer, designed and built by the GPO for Bletchley Park





Colossus was built by GPO research engineer Tommy Flowers and his team





**Saturday 5**  
 to B.P. with A.W.C., S.W.B., W.W.C., O.G.T.B.,  
 F.A.W. in Prefect  
 Colossus did its first job.  
 Car broke down on way home.  
 picked up by father in radio car. Home Jan.



“Bletchley Park is the origin of modern computing in Britain. Our own scientists and engineers, including the great Tommy Flowers, played a pivotal role in Bletchley’s history, and we’re proud to be able to support the creation of this exciting new visitor experience that will hopefully inspire a new generation of brilliant thinkers.”

Howard Watson, BT Group Chief Technology and Information Officer



# TELEPRINTER BUILDING RESTORATION

**BLETCHLEY**PARK

Sole Partner



The Teleprinter Building was a comms hub for Bletchley Park, many encrypted messages first arrived here





Work begins on the restoration of the Teleprinter building, 2018



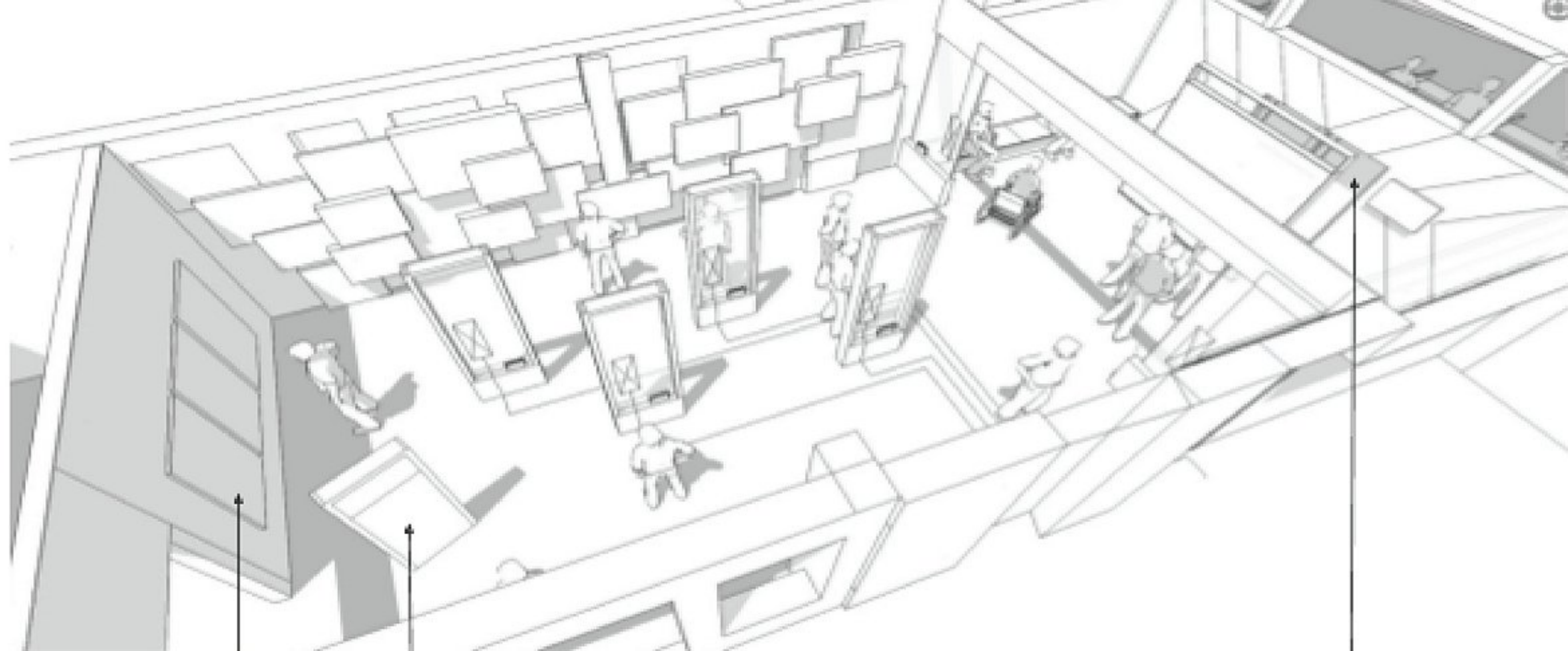


The Teleprinter Building when restoration was completed, May 2019









Exhibition  
Plaque and  
Teleprinter Hall  
Plaque

Exhibition  
Introduction  
panel

Exhibition  
main  
entrance

Entrance  
to film



# BT AND BLETCHLEY PARK: A SHARED HERITAGE

Bletchley Park's part in planning the D-Day invasion relied on the support of the General Post Office (GPO) in two key areas: communications and codebreaking machines.



General Eisenhower thanked the GPO staff for their help in the run-up to D-Day. © BT Heritage and Archives

Sole Partner of the D-Day:  
Interception, Intelligence, Invasion exhibition



RAF and WAAF teleprinter operators during WWII.  
© RAF Museum PCN/9/101

## TELEPRINTER BUILDING

The Teleprinter Building was Bletchley Park's main communications hub.

Built in 1941 to meet the growing demands of the codebreaking operation, it housed the latest GPO technology. Engineers worked around the clock to maintain and improve the system. Bletchley Park could now receive more intercepted messages, and send out more vital intelligence, quickly and securely.

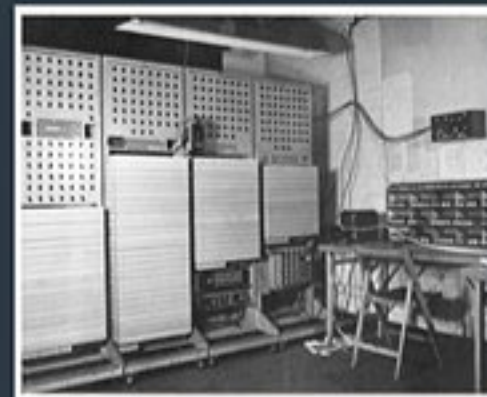
In this building, WAAF personnel operated teleprinter machines, designed to receive and transmit typed messages across telephone lines. In this room, the GPO's Voice Frequency telegraphy system allowed each telephone line to carry many signals simultaneously.

## CODEBREAKING MACHINES

The faster the Codebreakers could break enemy messages, the more intelligence they could generate.

Mechanisation greatly sped up the codebreaking process. Bletchley Park sought innovative partners, such as the GPO's Research Station at Dollis Hill, to develop codebreaking machines to tackle new ciphers.

GPO engineers, like Tommy Flowers, used experimental technologies to build these machines. Their greatest challenge, to help break the Lorenz cipher used by German High Command, gave rise to a series of machines. Tunny, Dragon and Robinson culminated in Colossus – the world's first programmable electronic computer.



Dragon 1 codebreaking machine in the Testery, Block F, Bletchley Park, c. 1945.

GPO engineers provided and maintained the comms links for Bletchley Park during WWII







The new exhibition features the work of GPO engineers in the build up to the D Day landings in 1944







## AGENTS IN FRANCE

Intelligence operations carried out by the French Resistance and Allied intelligence agencies, including SIS, SOE and the American OSS, provided highly accurate information including eyewitness detail.



senior commanders were busy for invasion by the Allies. Communicated using the Lorenz machine, ideally suited to the coded messages that strategic operations demand. Bletchley ability to read these high-level messages was of crucial importance.

From these sources was codenamed 'Fish' communication link using a cipher machine (known as Bletchley Park) was given its related name. Berlin's traffic was codenamed 'Bream', with Paris was called 'Jellyfish'.

These communications, the Allies used equipment and manpower German armoured divisions of the SS Panzer Divisions. It is important, they extracted strategic information about what was expected of, and intended for, the coming invasion.

### Tommy Flowers



Flowers was an engineer with the General Post Office's Research Station at Dollis Hill in London. He specialised in developing telephone exchanges using, unusually for the time, thermionic valves. Bletchley Park's Max Newman asked him to use this electronic expertise to develop faster, machine-based systems to help break Lorenz-encoded traffic codenamed 'Fish'. Flowers and his colleagues produced a series of complex, innovative machines, leading to the first large-scale electronic digital computer, Colossus.

These machines made it possible to break 'Fish' messages quickly enough for them to play a vital role in creating the intelligence picture before and after D-Day.





The core of the new exhibition is an immersive cinematic on the crucial role of Bletchley Park in D Day succeeding







The cinematic experience again covers the contribution of Tommy Flowers and Dollis Hill to that victory





## CREED MODEL 7B TELEPRINTER

Thousands of these machines were used in the Defence Teleprinter Network (DTN) which was key to the delivery of intercepted messages to Bletchley Park and the distribution of *Ultra* intelligence.

A teleprinter transmitted messages when an Operator typed on the keyboard. Incoming messages printed out automatically on the paper roll. This machine would have had a metal cover to protect the mechanism and to reduce noise.





The main visitor reception building at Bletchley Park Museum has more on GPO support for the allies in WWII overall



## WINNING THE COMMUNICATIONS WAR

Sole Partner of the D-Day:  
Interception, Intelligence, Invasion  
Exhibition



As well as the great battles of air, sea and land, World War Two was a fierce communications technology battleground. The General Post Office (BT's forerunner) was central to Britain's electronic war effort and played a vital role in Allied victory.

Their most celebrated contribution was Colossus, the revolutionary machine that helped Bletchley Park's Codebreakers decrypt German High Command's extraordinarily complex Lorenz cipher.

The Colossus machines were the world's first ever large-scale electronic digital computers. They were designed and built by Senior Engineer Tommy Flowers and his team at the Post Office Research Station in Dollis Hill, London.

Their use of thermionic valves in place of all mechanical switches was a technological breakthrough based on Tommy's belief that the telephone exchanges of the future would be fully electronic.

"I was not myself interested so much in computers as in telephone exchanges."  
Tommy Flowers,  
Annals of the History of Computing, 1983

The part the General Post Office (GPO) played in World War Two reached far beyond Bletchley Park.

They built the nationwide Defence Teleprinter Network, improved the nation's radar technology and invented a host of new radio systems and other ground-breaking equipment. A huge number of their men and women also served in the armed forces or on the home front. Many sacrificed their lives in the name of freedom.

When codebreaking operations at Bletchley Park came to an end in 1946, two of the ten Colossus machines were moved to their new home at GCHQ where they continued to serve in the Cold War. In 1947 parts of Bletchley Park were taken over by the GPO as a training centre and Tommy Flowers returned to his first love, telephone exchanges.

The groundbreaking research and innovation that took place at Dollis Hill during the war stretched the boundaries of communications technology. That work continues today in BT at our research laboratories at Adastral Park in Suffolk. We're still connecting people, businesses and communities in new and revolutionary ways that we never thought possible.



and our GPO engineers worked tirelessly



"Winning the Communications War", a short BT film on all the support by GPO engineers during WWII







Under-recognised giants of British telecommunications engineering Roy Harris, Tommy Flowers, Sid Broadhurst in 1980 (L-R)





