

# Discover More...



## Cranwell Aviation Heritage Museum

# Rebuilding Heroes



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FOR ALL OUR VISITORS TO ENJOY. THANK YOU.

discovernk  
*in the heart of Lincolnshire*

# Introduction

This file contains material and images which are intended to complement the displays and presentations in Cranwell Aviation Heritage Museum's exhibition areas.

This is the temporary exhibition staged in 2021 by Cranwell Aviation Heritage Museum to mark the 80th anniversary of the formation of the Guinea Pig Club. The exhibition focuses on the innovative plastic surgery undertaken during World War 2 (WWII), by Archibald McIndoe and his teams at Queen Victoria Hospital, East Grinstead and No 4 Hospital, North Rauceby. We also look at the stories of some of the men that were rebuilt after suffering horrifying burns injuries.

The original members of the Guinea Pig Club had suffered serious burns generally to the face or hands and served with the Royal Air Force (RAF) as aircrew. Most were British but there were significant numbers who were Canadian, Australian and New Zealanders. By the end of WWII, Americans, French, Russians, Czechs and Poles had also joined the Club.

Many of the aircrew suffering from burns were treated at the specialist burns unit at Queen Victoria Hospital, East Grinstead, which was led by Sir Archibald McIndoe.

During the Battle of Britain, most of the patients at East Grinstead were fighter pilots, but by end of the war around 80% of the members of the club were from bomber crews of RAF Bomber Command. East Grinstead Museum archives detail aircrew with burn injuries that were treated in Lincolnshire at No4 Hospital, North Rauceby.

Cranwell Aviation Heritage Museum could not have produced 'Rebuilding Hero's without the help of the Curator at East Grinstead Museum – Jonathan Parrett, Libby Gavin from The Collection of The British Association of Plastic, Aesthetic and Reconstructive Surgery, Mr Mike Credland and the RAF Benevolent Fund. We are enormously grateful to them all. This file is the property of Cranwell Aviation Heritage Museum, a North Kesteven District Council service. The contents are not to be reproduced or further disseminated in any format, without written permission from North Kesteven District Council.

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# The Father of Plastic Surgery

The First World War (WWI) saw a sudden rise in facial injuries, compared to earlier conflicts. During 1917, the surgeon Harold Gillies worked on an innovative method of facial reconstructive surgery. His work marked the dawn of plastic surgery as we know it today.

Prior to 1914, the majority of battle injuries were caused by small arms fire or swords. The more advanced weapons used during WWI, such as heavy artillery, machine guns and poison gas caused injuries of a severity and scale not seen before. In trench warfare, soldiers peering over the parapet, caused a rise in the number of facial injuries sustained. Shells filled with shrapnel were to blame for many of injuries, as they were specifically designed to inflict maximum damage. Facial injuries were difficult to treat on the front line. Wounds were often stitched together, not taking in to account the flesh that may have been lost. As scars healed, the patients flesh tightened contracting their face into grimaces.

## The Pioneer

Harold Delf Gillies was born on 17 June 1882 in Dunedin, New Zealand and died on 10 September 1960 in England. He attended Wanganui College School and studied medicine at Gonville and Caius College, Cambridge.

At the outbreak of WWI, Gillies joined the Royal Army Medical Corps and was posted to France in 1915 where he witnessed the devastation caused by the new style of warfare. On his return to England he set up a ward for facial injuries at the Cambridge Military Hospital, Aldershot. By 1916, Gillies had persuaded his medical chiefs that a dedicated hospital for facial injuries was required to meet the demand.

In June 1917, Gillies established the world's first ever hospital dedicated to the treatment of facial injuries, the Queen's Hospital, Froggnal House, Sidcup. The hospital's aim was to reconstruct facial injuries so that the patients could go on to lead a normal life. Many of Gillies' patients lived with the fear of how their loved ones would react to their disfiguring injuries.



Convalescing servicemen in a classroom at the Queen's Hospital for Facial Injuries, Sidcup – WW1. Image - © IWM Art. IWM ART 3767

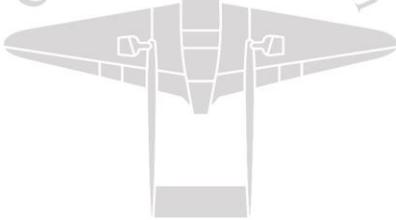
The Queen's Hospital had over 1,000 beds including its convalescent units. There Gillies and his colleagues developed many techniques of plastic surgery. More than 11,000 operations were performed on over 5,000 men. One of the most successful skin grafting techniques used by Gillies was the tube pedicle.

### **His Legacy**

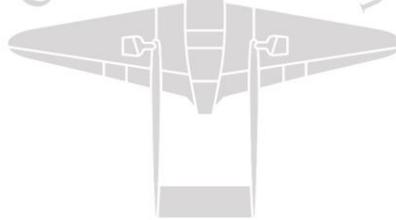
Gillies realised that the men he treated would be disadvantaged in the job market. To counteract this he introduced training schemes to give the men interests and new skills.

His patients responded to their injuries in different ways. Some went home, grateful for and happy with the work done for them, others never left The Queen's Hospital, unwilling to return to life outside.

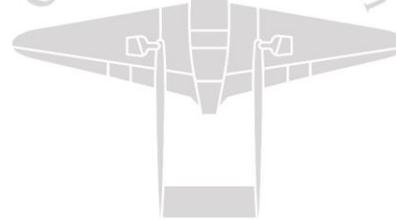
Gillies is often referred to as the 'father of plastic surgery'. Many of the techniques he developed during WWI are still used in modern reconstructive surgeries.



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# Why the burns happened

Many of the pilots who joined up at the start of World War Two (WWII) had grown up with the daring exploits of the flying aces of WWI. The men were drawn to the excitement of flying and did not consider the possible risks and dangers.



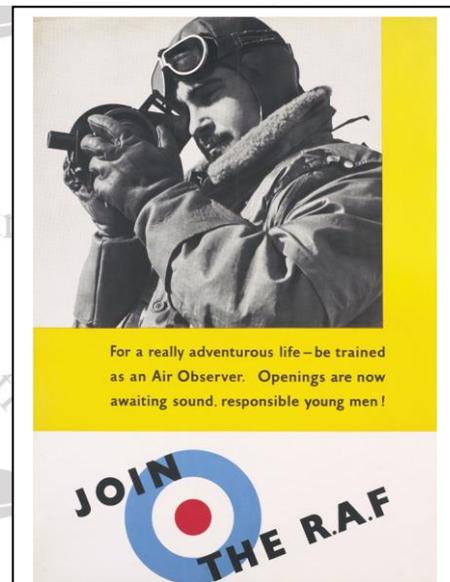
Baron von Richtofen - German First World War fighter ace.  
Image - CAHM archive



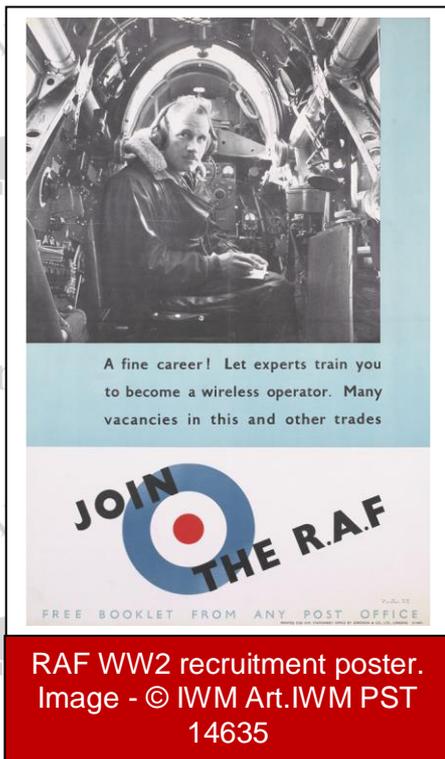
Many were recruited from the privileged families of Britain who had attended either public school and or university. At the onset of WWII, Oxford University accounted for nearly 500 RAF officers.



RAF WW2 recruitment poster.  
Image - © IWM Art.IWM PST  
14630



RAF WW2 recruitment poster.  
Image - © IWM Art.IWM PST  
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RAF WW2 recruitment poster.  
Image - © IWM Art.IWM PST 14635



Potential WW2 RAF recruit stood in front of a recruitment poster  
Image - © IWM CH 1645

During WWII, 4,500 burned aircrew survived their crashes, and more than 80% of those had what were called 'Airman's Burns', which were deep tissue burns effecting the face and or hands.

### Leather gloves issued to Aircrew



Leather flying gloves.  
Image - CAHM collection

A large number of fighter pilots chose not to wear the gloves they had been issued with to protect their hands. They thought that the gloves prevented them from operating their plane's controls with the skill that was required in battle.

## The risk of fire

Their aircraft were fuelled by highly flammable high octane fuel. The fuel systems were in close proximity to the cockpit. When enemy fire hit an aircraft, the fuel might ignite and the pilot's face and hands could be exposed to flames. A high number of 'Airman's Burns' were caused in such a manner.



Fire crew practice dealing with a crashed aircraft – RAF Cranwell.  
Image - CAHM collection



German aircraft shot down in flames 1943.  
Image - © IWM C 3799

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# Burns treatment up to 1940

Prior to WWII, serious burn injuries often proved to be fatal. The chain of events which resulted in these fatal injuries was difficult to prevent: massive fluid loss, severe shock followed by multiple organ failure.

However at the end of the 1930's, treatment for shock was improved and patients surviving longer became more apparent. This gave surgeons like Archibald McIndoe the chance to review existing treatments and implement new procedures.

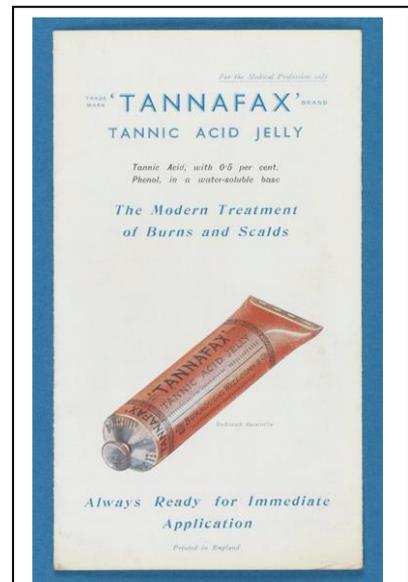


Archibald McIndoe with a staff of seven operating on a patient at East Grinstead.  
Image - © IWM Art.IWM ART LD 6001

## Tannic Acid

At the start of WWII, the widespread treatment for burns was tannic acid which was applied in gel form known as 'Tannafax'.

Tannafax was used to prevent excessive fluid loss and infection. The treatment did this by forming a hard protective shell over the injury. The hard shell needed to be removed prior to surgery and McIndoe observed this was incredibly painful for the patient.



Tannafax - Tannic Acid Jelly  
Image – by kind permission of the Wellcome Collection



Treatment of Burns  
Image – by kind permission of the Wellcome Collection

When Tannafax was used on delicate parts of the body such eyelids and fingers it caused the skin to contract, which delayed successful reconstructive surgery. Based on these observations, McIndoe crusaded against the use of tannic acid to treat burn injuries. It took until the end of 1940 before he persuaded the RAF and the Ministry of Defence to order its use to be stopped.

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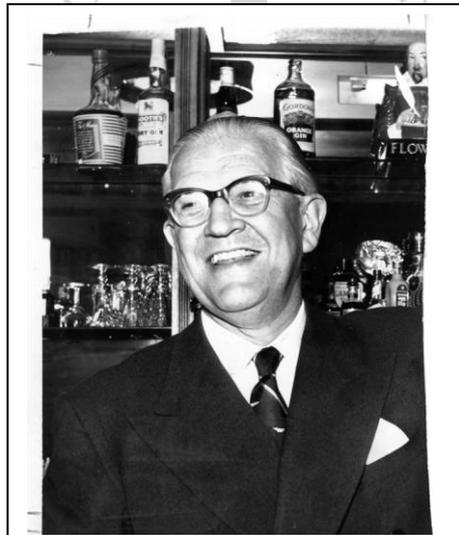


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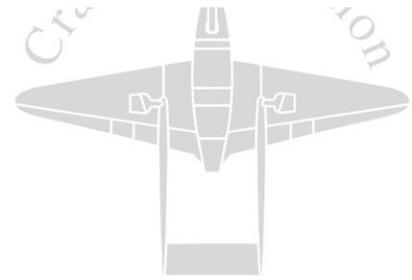
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# McIndoe the man



Sir Archibald McIndoe.  
Image – Queen Victoria  
Hospital/East Grinstead  
Museum



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Archibald McIndoe was a native of Dunedin, New Zealand and was born on 4 May 1900. He was the son of John McIndoe, a printer and Mabel McIndoe an artist. McIndoe studied at Otago Boys' High School followed in 1918, by the University of Otago Medical School, Dunedin where he studied medicine. After his graduation he became a house surgeon at Waikato Hospital.

In 1924, McIndoe was awarded the first New Zealand Fellowship at the Mayo Clinic in the USA to study pathological anatomy. The post was for an unmarried doctor which was difficult for McIndoe who was newly married. This began a period of 12 months separation from his new wife Adonia Aitkin, during which time McIndoe had to keep his marriage a secret. When it became too difficult to maintain the secret, Adonia joined him.

After working from 1925 to 1927, as First Assistant in Pathological Anatomy and publishing several papers on Chronic Liver disease. McIndoe so impressed the eminent surgeon Lord Moynihan with his skill that he suggested a career in Britain which McIndoe undertook, moving to London in 1930.

When McIndoe arrived in Britain, he was unemployed until his cousin Sir Harold Gillies, who specialised in plastic surgery, asked him to join a private practice that he ran. Gillies also offered McIndoe a job at St Bartholomew's Hospital, where he became a clinical assistant. McIndoe had to wait until 1932 before he received a permanent appointment as a General Surgeon and Lecturer at the Hospital for Tropical Diseases and the London School of Hygiene and Tropical Medicine. This was followed in 1934, by the award of the Fellowship of the American College of Surgeons.

In 1938, McIndoe began his association with the Royal Air Force when he was appointed Civilian Consultant in Plastic Surgery to the RAF. The same year also began his remarkable connection with Queen Victoria Hospital, East Grinstead, where he founded the Centre for Plastic and Jaw surgery.

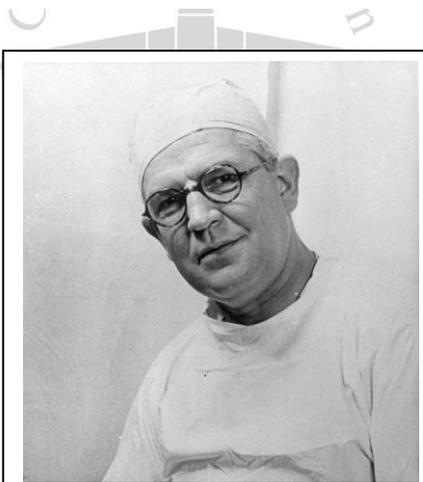
McIndoe and his team treated thousands of people who suffered burns and similar injuries and his pioneering medical techniques were to underpin the future treatment of burns both in this country and across the world. His treatment also recognised the importance of social rehabilitation and a holistic approach for the recovery of those battling burns injuries.



Sir Archibald McIndoe in 'The Guinea Pig' pulling the first pint at the opening in 1957  
Image – Queen Victoria Hospital/East Grinstead Museum

In 1947, Archibald McIndoe received a knighthood, and in the same year started farming on Kilimanjaro, Africa.

McIndoe and his wife divorced in 1953 and the following year, he married his second wife, Constance Belcham.



Sir Archibald McIndoe  
Image – Queen Victoria Hospital/East Grinstead Museum

Archibald McIndoe died on 11 April 1960, aged 59. He was cremated and his ashes were buried in the Royal Air Force church St. Clement Danes in London.

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# McIndoe's pioneering techniques

In 1958, McIndoe recounted how unprepared he was for the challenges that he had to face:

*'Historically there was little to guide one in this field [of the total reconstruction of the burned face] apart from the general principals of repair perfected by British, Continental and American Surgeons. There had until then been no substantial series of cases published and none in which a rational plan of repair had been proposed. At the most, individual cases appeared in papers and text books on Reparative Surgery in which only too often the end result seemed to convert the pathetic into the ridiculous.'*

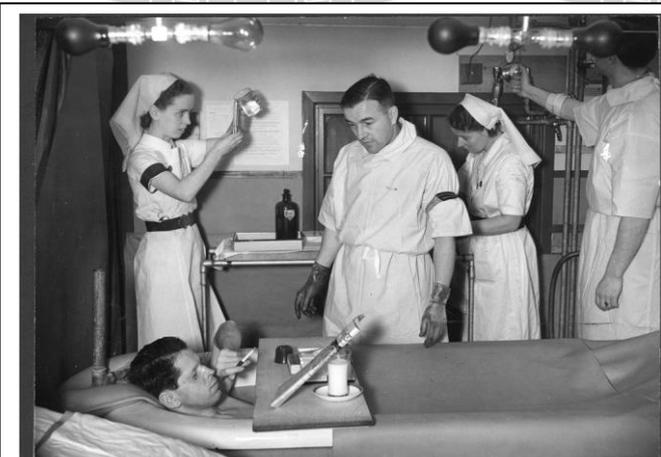
Extracted from 'The Reconstruction of Warriors' by ER Mayhew

## Introducing saline treatments

Instead of covering burns injuries using the traditional tannic acid treatment, McIndoe used basic first aid techniques to treat the injuries. He kept wounds open and washed the wounds with saline. Any dressing were loose and changed regularly. Dressings were kept moist by being soaked in a Vaseline type jelly. This allowed for their easy removal when the wounds required cleaning or if the patient was to undergo surgery. This was a very labour intensive process which resulted in the Queen Victoria Hospital having one of the highest ratios of nursing staff to patients in the country at the time.

McIndoe's saline bath process was important to the patient's recovery. Staff needed to be strong enough to lift the men from their beds into the baths, have the training to monitor the bathing process and finally return the patient to their beds. All of this required the upmost care so as to cause the minimum discomfort for the patient.

The baths were specially designed for the task. Some had wheels allowing them to be moved around. The baths were made of Ebonite which was saline proof and had electronic controls to



Chief Flight Sergeant Salmon (senior saline bath technician) treating a patient in a saline bath. Image – Queen Victoria Hospital/East Grinstead Museum



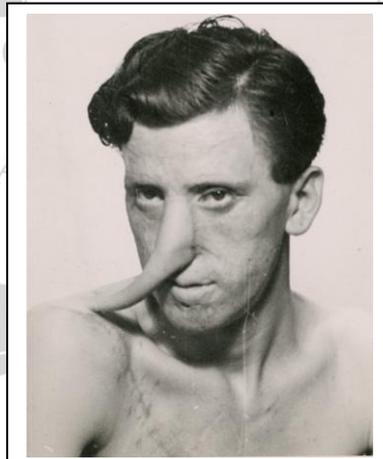
An image of a saline bath, Jan 1942. Chief Flight Sergeant Adams. Image – Queen Victoria Hospital/East Grinstead Museum

make sure the temperatures and saline levels were correct. Saline being highly conductive

required the need for the baths to be earthed to make sure none of patients suffered from electric shocks during their treatment.

### Tube pedicles

McIndoe had observed and learnt the tube pedicle technique from his cousin Harold Gillies. However, McIndoe went on to refine the procedure making it a more effective skin grafting procedure for facial and hand reconstruction.



Black and white head and shoulders photograph of Joseph John "Jack" Allaway with pedicle. Image – Queen Victoria Hospital/East Grinstead Museum



Black and white head and shoulders photograph of Joseph John "Jack" Allaway with pedicle. Image – Queen Victoria Hospital/East Grinstead Museum

During WWI, Gillies discovered that if a flap of skin was cut from the chest or leg it could be formed and stitched into a tube. The surgeon would over a period of weeks, detach one end of the tube and move it up the body, to finally reach the site of the burn injury. By creating this tube, the blood supply to the body's tissues was maintained, keeping the tissues alive and healthy until the grafting operation took place. The tube pedicles used the patient's own skin to protect the live tissue inside from infection.

This was a lengthy process after each move and subsequent graft of the tube pedicle it took three weeks for the blood supply to re-establish. It also meant that the patient had to submit to lengthy periods of holding themselves in awkward positions with restricted movement, to protect the pedicle.



An image of 4 patients with pedicles. Far right: Steven Molivadas (the only Greek Guinea Pig, died August 2010), signed by J Wright.  
Image – Queen Victoria Hospital/East Grinstead Museum

After the introduction of these techniques McIndoe began noticing that successful progress was being made using his techniques:

***“ ... we have now arrived at a time when ... we can within reasonable time create order out of chaos and make a face which does not excite pity or horror. By doing so we can restore a lost soul to normal living.”***

Extracted from ‘The Reconstruction of Warriors’ by ER Mayhew

# Holistic approach

In the early years of burns plastic surgery little effort was spent on the re-integration of patients back into their previous lives following treatment.

To help with the rehabilitation of the aircrews, McIndoe appealed to the people of East Grinstead to welcome the scarred Guinea Pigs into their lives.

He encouraged the men to go into town and they soon became a regular sight in the local shops and pubs. As people got to know the Guinea Pigs, it changed the long held belief that disfigured people should be hidden away.

## Convalescent Blues

During WWI, wounded servicemen in military hospitals wore a blue uniform which was known as 'Convalescent Blues'. These uniforms were made of blue flannel with a white lining and were worn with a white shirt and red tie. They were loose and didn't fit very well. Men often arrived at the hospital from the front lines in filthy lice-infested army uniforms and the Convalescent Blues were a way of preventing infection and disease. They also identified the wounded as a returning hero. Contemporary postcards featured soldiers in hospital blues as a boost to patriotism and the war effort.



Convalescent servicemen and their nurses with the orchestra of the North Eastern Railway Literary Institute at Gateshead – WW1.  
Image – © IWM Q 108587

However during WWII, McIndoe considered 'Convalescent Blues' to be unsuitable for his patients. The jackets buttoned up making them impractical for those with burned hands and he felt that the uniform made the airmen look like criminals and instilled unhappiness in them. He forbade the Guinea Pigs to wear them and burnt the supply of blues sent to East Grinstead.

His alternative was to allow the men to choose what they wore and more often than not they chose to wear their RAF uniform with pride.

# Ward 3 Queen Victoria Hospital, East Grinstead 1942

Ward 3 was a total contrast to the rest of the hospital at East Grinstead. McIndoe had asked that it be painted in

**'cheerful greens and pinks and have homely chintz curtains'.**

McIndoe was determined to make life in the hospital ward comfortable and non-medical in appearance. But more importantly he wanted to psychologically rebuild the patients in preparation for life after the hospital. The men were expected to be in hospital for several years and undergo many operations to rebuild their bodies. So he tried to make the hospital ward a relaxed and socially productive place. The ward was said to echo with raucous laughter, swearing and the constant hum of the radio. Flight Engineer Alan Morgan said:

***'It sounded like a nuthouse'***

This spirited environment created by McIndoe and his staff was a crucial part of the patients' emotional and physical rehabilitation and came as a surprise to all those who visited it. Unlike other wards, Ward 3 had its own piano which encouraged socialising and singing amongst the patients.



McIndoe seated at the piano with a group of Guinea Pigs (burned patients on whom he has operated) standing round.

The text on the back of the image notes that the Club were singing their anthem.

Image – Queen Victoria Hospital/East Grinstead Museum

Most importantly from the point of view of those on Ward 3 McIndoe allowed a barrel of beer on the ward, turning a blind eye to practical jokes, and encouraged flirting with the nurses.



Photograph of the annual darts match; Bill Foxley throws the dart, Derek Crane is on the right. Image – Queen Victoria Hospital/East Grinstead Museum

It is believed that McIndoe particularly chose pretty nurses for Ward 3, but this aside they also needed to have a strong constitution that would allow them to cope with the constant exposure to the extreme nature of the men's injuries.

They also needed to be able handle their patient's advances as one Ward 3 nurse described:

***“some women were coerced into things they didn't want to do. But it was probably what saved those young men's lives, made them want to live. It's an interesting moral dilemma isn't it?”***



Guinea Pigs with nurses in the grounds of the hospital. Image – Queen Victoria Hospital/East Grinstead Museum

In the 1940's, McIndoe and his patients enjoyed a drink on occasion at the Whitehall restaurant, East Grinstead. As a consequence the Whitehall became the unofficial social club for the Guinea Pigs due in no small part to the welcoming attitude of the manager and waitresses.



Archibald McIndoe with Guinea Pigs, Jackie Mann is in the centre.  
Image – Queen Victoria Hospital/East Grinstead Museum



Archibald McIndoe toasting his Guinea Pigs.  
Image – Queen Victoria Hospital/East Grinstead Museum

McIndoe also invited families from East Grinstead to treat his patients as guests, and for others in the community to accept the patients as they would anyone else. This initiative was why East Grinstead became known as "the town that did not stare".

The attitude of the residents of East Grinstead made it possible for many of the men to return to service in the RAF. Undertaking positions in operations control rooms and occasionally as pilots between surgeries. Those who could not serve in any capacity received full pay until their last surgical operation and only then were invalided out of the service. At this point McIndoe had been known to financially assist some of his patient's subsequent re-entry into civilian life.



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# No 4 Hospital - Rauceby

A Lincolnshire hospital at Rauceby was used temporarily during WWII as an RAF hospital where pioneering plastic surgery was delivered to burns victims.

Rauceby Hospital opened in 1902 and today is largely derelict. However during WWII and with the amount of RAF stations throughout Lincolnshire, Rauceby hospital was an ideal site to create a hospital dedicated to treating RAF personnel.

As the scale of the impact of WWII for the RAF in Lincolnshire became evident, RAF Hospital Nocton Hall and the existing RAF Hospital at Cranwell were deemed too small to cope with the number of patients and Kesteven Mental Hospital was purchased as No 4 Hospital Rauceby, opening in 1940.



No 4 Hospital Rauceby crest  
Image – CAHM Archive



RAF Sisters/nurses carol singing – Rauceby.  
Image – CAHM Archive

It was at this time that McIndoe began his pioneering reconstructive surgery in Lincolnshire, when Rauceby - one of his four burns units, opened in October 1941. Under the command of Sqn Ldr Fenton Braithwaite, the two plastic surgeons began treating victims of crashes and burns at No. 4 Hospital Rauceby. During 1942 the facilities at the hospital were upgraded to allow advanced plastic surgery techniques to be performed by mobile teams of surgeons. McIndoe treated the very worst cases at East Grinstead but he made fortnightly visits to Rauceby from August 1941 until the end of WWII. As he explained to the Director of RAF Medical services:

***“I think it most desirable that I should keep in close personal touch with what is going on. [...] For this purpose I would propose a fortnightly round of these Units myself in a purely advisory capacity”***

Extract from 'The Reconstruction of Warriors' by ER Mayhew

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The main building at Rauceby was used for general purposes and the Admissions Hospital was used to accommodate the Orthopaedic Units. The Crash and Burns Unit which was located in Orchard House, immediately to the north of the conservation area, was where the work of Sqn Ldr Fenton Braithwaite and Archibald McIndoe was undertaken.



**Main Theatre Staff – 1943**  
Image – The British Association of Plastic, Reconstructive, and Aesthetic Surgery



**Orthopaedic Staff**  
Image – The British Association of Plastic, Reconstructive, and Aesthetic Surgery



**No 4 Hospital Staff.**  
Image – The British Association of Plastic, Reconstructive, and Aesthetic Surgery

There were a thousand beds in use in the hospital with another thousand in store ready for an invasion or bombardment. The hospital also accepted patients suffering from tuberculosis, cases of which were rising in number at the time.

The burned aircrew were photographed on arrival by the clinical photographer Bill Howlett. As their treatments progressed, more photographs were taken, allowing the surgeons and the patient to see the progress that was being made in their recovery.

Like the Queen Victoria Hospital, East Grinstead the burns unit had a bathroom dedicated to Saline treatment. It contained three large deep baths, where the burned patients were submerged in a

saline solution. Nurses had been known to kneel on the stone floor, sometimes for hours, gently easing away burnt flesh from the patients who were in excruciating pain.



Saline bath – No 4 Hospital Rauceby.  
Image – CAHM archive



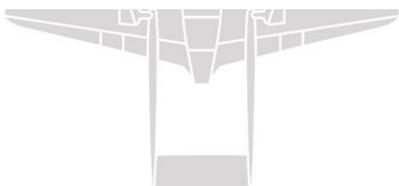
After WWII, the hospital returned to its original use as a mental hospital.



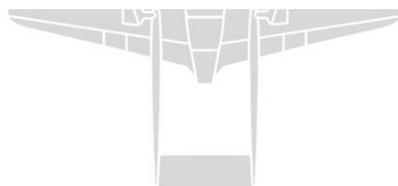
Rauceby Hospital today  
Image – CAHM archive



Rauceby Hospital today  
Image – CAHM archive



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Commemorative plaque unveiled at Orchard House, Rauceby 1995.  
Image – CAHM archive

# McIndoe's Staff

McIndoe was supported by an able medical and nursing team. On his arrival at East Grinstead in 1939 he brought with him key members of operating theatre staff. The other members of "The Immortal Trio" or the "Firm of Three" as they became known were John Hunter and Jill Mullins.

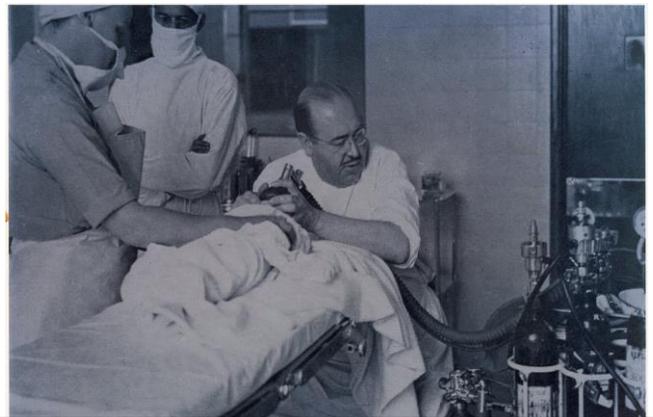
## John Hunter, Chief Anaesthetist

Hunter, had some unusual quirks - he refused to wear a surgical mask or cap to prevent him looking like a 'continental chef'. He is also immortalised in the Guinea Pig Club's anthem as 'running the gasworks' and prior to each operation the jovial Hunter would take to having a wager with the patient. If the patient was sick after coming round then Hunter would buy him a beer.



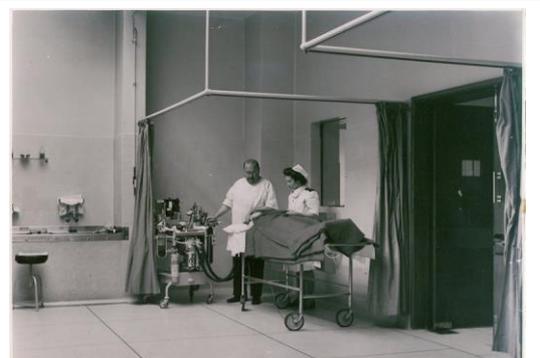
An image of Dr John Hunter listening to 'Jock' Morris.

Image – Queen Victoria Hospital/East Grinstead Museum



A black and white photograph of John Hunter at work. He can be seen using gas on a patient under a blanket while two nurses stand behind him.

Image – Queen Victoria Hospital/East Grinstead Museum



A black and white photograph of John Hunter at work. He can be seen with a nurse standing next to a patient on a table under a blanket.

Image – Queen Victoria Hospital/East Grinstead Museum

## Sister Jill Mullins

McIndoe and Sister Mullins' relationship was very close. A hospital co-worker at the time remembered,

***“She could anticipate every move that her boss would make in the theatre, so close was their teamwork - words were not needed - it was amazing to watch.”***



McIndoe, Jill Mullins, Aggie Grant Operating  
Image – Queen Victoria Hospital/East  
Grinstead Museum

She regularly accompanied him to social events and often stayed with him at his house, where she also acted as hostess for dinners and drinks with selected Guinea Pigs.

In October 1959, Jill Mullins aged 49, died after suffering a stroke.

Following her death, McIndoe said:

***“She was more than a friend. ....We can be glad that she lived when she did. She was a real woman, and we will not see her like again.”***

As well as these key members of the McIndoe team, throughout the hospital he needed an understanding staff to carry out his ground breaking holistic approach to recovery and care:

## Matron Hall

Matron Hall was in charge of the Queen Victoria Hospital nursing staff. The patients held her in high esteem particularly as she *‘has a talent for turning a blind eye’* to their exploits.

Nevertheless Matron Hall and her nurses had the respect of their patients, Richard Hillary recounted:

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***‘there was no difference in their care of the privileged Battle of Britain pilots and the less well turned out Bomber Command aircrew’.***



Black and white informal photograph of Matron Caroline Hall  
Image – Queen Victoria Hospital/East Grinstead Museum



Matron Hall's leaving Party, 1951  
Image – Queen Victoria Hospital/East Grinstead Museum

### **Sister Meally, Ward Sister on Ward 3**

The Guinea Pig Ward officially named Ward 3 was the domain of Sister Meally throughout WWII. She was recognised as a gentle skilful carer. Sister Meally's character traits were appreciated by the patients who had just come from the operating theatre. Her sense of humour allowed the Guinea Pigs to feel that,

***“returning to Ward 3 is a little like returning home.”***



Sister Meally.  
Image – Queen Victoria Hospital/East Grinstead Museum



Gp Capt Tilley with Matron Jackson.  
Image – Queen Victoria  
Hospital/East Grinstead Museum

### **Group Captain Ross Tilley, Principal Medical Officer with the Royal Canadian Air Force**

Tilley began his work with Canadian plastic surgeons but he completed his surgical skills by observing McIndoe. As with all of McIndoe's team, Tilley had a strong working relationship with the surgeon. Tilley also was tasked with the building and running of the new Canadian Wing at East Grinstead which opened in 1944.

### **Matron Jackson, Head Nurse on Canadian Wing**

Captain Tilley's right hand person in the Canadian Wing was Matron Jackson whose caring and generous nature was important for the care of the Canadian Guinea Pigs. Matron Jackson extended her work beyond medical care as she remembered,

***"... we went out socially with them and got them out as soon as we could, going down to the pub, going into town. We worked very hard on the psychological aspects."***

### **Fenton Braithwaite, OIC the Surgical Division at the RAF Hospital, Rauceby**

Fenton Braithwaite was educated at Baines Grammar School and read mathematics at Manchester University. Before the age of 21, Braithwaite was awarded the MSc. Following this he went to Cambridge on a scholarship reading biochemistry with a subsidiary in anatomy and physiology, in which he obtained a first.

Realising that a career in biochemistry would require a medical qualification, he joined St Bartholomew's Hospital Medical College, where he took a MRCS, LRCP in 1935.

Braithwaite then held several surgical appointments, gaining experience in neurosurgery, ENT and thoracic surgery. Having now become fascinated by surgery he abandoned his original specialism of biochemistry. Braithwaite began to work as first assistant to Harold Wilson who was influenced by the work of Sir Harold Gillies, who in turn aroused an interest in Braithwaite for plastic and reconstructive surgery.

He took his FRCS in 1939 after which he joined the RAF for the duration of WWII. He rose to become Officer in Charge of the Surgical Division at the No 4 RAF Hospital, Rauceby with the rank of Wing Commander.

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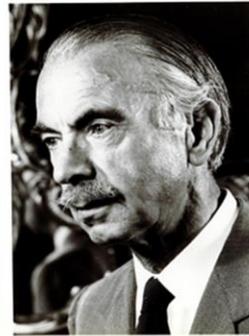
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After the war, Archibald McIndoe, invited Braithwaite to join the East Grinstead unit and as a result of his experience there and at Rauceby he wrote a classic paper demonstrating for the first time the importance of blood transfusion in the management of severely burned patients.

In 1944, Braithwaite married Nan Hunter, his theatre sister at Rauceby, who survived him when he died on 25 August 1985, aged 77.



Fenton Braithwaite OBE  
FRCS  
Image – The British  
Association of Plastic,  
Reconstructive, and  
Aesthetic Surgery



Fenton Braithwaite OBE  
FRCS  
Image – The British  
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Aesthetic Surgery

# The Guinea Pig Club

On 20 July 1941, whilst enjoying a Sunday afternoon glass of sherry, a group of airmen, all recovering from burns surgery, talked about forming a drinking club. Membership of the club would be open to:

- **The Guinea Pigs** - any member of Allied Aircrew who had undergone at least two operations at the Queen Victoria hospital for burns or other crash injuries.
- **The Scientists** – doctors, surgeons and members of medical staff.
- **The Royal Society for the Prevention of Cruelty to Guinea Pigs** – friends and benefactors who made the life of a Guinea Pig a happy one.



The Guinea Pig Club logo.  
Image by Kind Permission of the Guinea Pig Club

All members were to pay an annual subscription of 2/6d. Women could not be members of the club, but could attend some special 'ladies' evenings.

Of McIndoe's patients, 649 Allied Aircrew who went through his operating theatre went on to become members of the Guinea Pig Club.

It was originally intended to disband the club at the end of the war, but the Guinea Pig Club went from strength to strength, marking its 80th anniversary in 2021.

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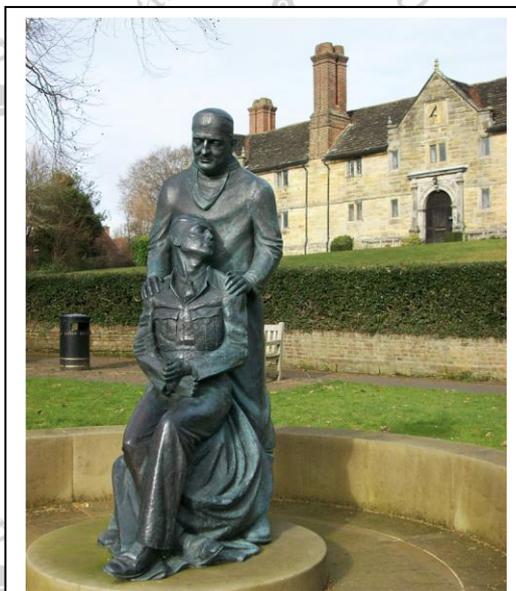


# McIndoe's Legacy

In March 1961, the then Minister of Health opened the Blond McIndoe Centre named in honour of Archibald McIndoe at the Queen Victoria Hospital, East Grinstead.

The Blond McIndoe Centre, now named the Blond McIndoe Research Foundation, continues to research pioneering treatments to improve wound healing.

A bronze monument in honour of McIndoe sculpted by Martin Jennings is situated in the High Street at East Grinstead. The statue which was unveiled in 2014 shows 'a seated airman, his burned hands clawed together, his scarred face turned to one side. Standing behind him, resting a reassuring hand on each shoulder is the figure of McIndoe'. The sculpture is framed by a stone bench. The sculptor's father was one of McIndoe's patients and a member of the Guinea Pig Club.



The McIndoe statue, East Grinstead.  
Image – Wikimedia Commons –  
Poliphilo

Another legacy to McIndoe is a major medical research centre in Wellington, New Zealand, the Gillies McIndoe Research Institute which is named in honour of McIndoe and his cousin Sir Harold Gillies.

## Case History

# Group Captain Thomas 'Tom' Percy Gleave CBE.



Thomas Gleave.  
Image – Queen Victoria  
Hospital/East Grinstead  
Museum

Thomas Gleave was commissioned in to the RAF in 1928. By 1933, he was a member of the RAF aerobatic team.

As a Hurricane fighter pilot during the Battle of Britain, he shot down five German Messerschmitt 109s in a single day.

On 31 August 1940, during an engagement with a German aircraft, Thomas suffered serious burn injuries to his face, hands and legs when his plane was hit by incendiary ammunition.

Thomas remembered the struggle he had to open the canopy of his plane and then an explosion and a flash of flames. He was taken to Orpington Hospital by car and wheeled into the hospital on a barrow. When asked by his wife what had happened to him, the heavily bandaged Thomas replied:

**"I had a row with a German".**

He was transferred to East Grinstead where McIndoe rebuilt his nose.

Within a year, Thomas returned to operational duties. He went on to have a distinguished career in the RAF which included working with the USA air force on the Operation Overlord air plan for the

invasion of Normandy in 1944. Thomas later became Head of Air Plans with General Eisenhower at Supreme HQ Allied Expeditionary Force.

Thomas returned to East Grinstead during the 1940's and 50's to undergo further plastic surgery (eight operations in total). He was eventually invalided out of the RAF in 1953.



A photograph of the formation of the Guinea Pig Club July 20th 1941, Thomas Gleave far left, McIndoe far right.

Image – Queen Victoria Hospital/East Grinstead Museum



Hawker Hurricane.

Image – Reproduced by kind permission of Flightglobal

After he left the RAF, Thomas joined the Historical Section of the Cabinet Office and worked on the official histories of WWII.

Thomas was one of the founding members of the Guinea Pig Club and continued as Chief Guinea Pig until his death, aged 84 in 1993.



Messerschmitt Bf 109.

Image – CAHM archive

## Case History

# Sergeant Alan 'Fingers' Morgan



Alan Morgan.  
Image – Queen Victoria  
Hospital/East Grinstead  
Museum

On his 21<sup>st</sup> birthday, Alan a Flight Engineer in a Lancaster bomber was flying a mission over Germany, when he was injured.

Hit by enemy fire, the aircraft's main door was blown open, causing the temperature and air pressure to drop. Alan managed to close the door. The aircraft's Wireless Operator had lost consciousness and Alan realised that the Wireless Operators oxygen bottle was faulty. Alan removed his gloves to fix the fault. The external temperature was minus 45 degrees and Alan suffered severe frostbite to his fingers.



Avro Lancaster.  
Image – Crown Copyright 03 May 2012

After his arrival at East Grinstead, McIndoe tried to save Alan's hands but tragically eight fingers had to be amputated, although McIndoe did managed to create stumps which allowed Alan some movement.

After 5 operations and completing his recovery Alan returned to operational duty as a Flight Engineer and trained advanced Navigators. However after the war, Alan found it difficult to get work. But after an interview where he kept his hands in his pockets he found work as a highly skilled toolmaker.

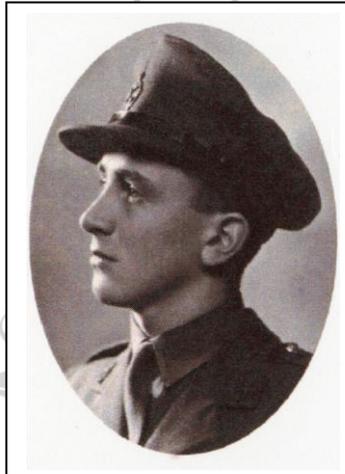
Alan and his girlfriend Ella married and had a son.

In a 2016 interview with the RAF Benevolent Fund, Alan recalled that whilst at East Grinstead

**“they christened me ‘Fingers Morgan’ because I had none.”**

## Case History

# Doctor Arthur 'Sandy' Courtney Saunders



Arthur Saunders.  
Image – Queen  
Victoria Hospital/East  
Grinstead Museum

Arthur joined the Army as an officer and subsequently volunteered to join the Glider Pilot Regiment. In September 1945, whilst undertaking a training flight in a Tiger Moth, Arthur got into difficulties. Strong crosswinds prevented him from landing three times until he stalled and crash landed. Arthur received 40% burns to his face, hands and legs, later admitting that the most difficult thing he had to come to terms with was the death of his Navigator in the crash.

Initially, Arthur was treated at Birmingham until he heard of McIndoe's work. After contacting the surgeon, Arthur began treatment at East Grinstead. During his time on Ward 3 Sandy had work performed on his eyelids, a nose graft and other operations on his face.

In a 2016 interview with the RAF Benevolent Fund, Arthur recalled the first time he saw his injuries.

**"There was a mirror on the wall over the wash basin and I was just horrified by what I saw."**

Arthur underwent seven operations at East Grinstead.

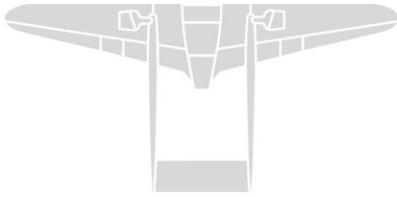
McIndoe and the East Grinstead team inspired Arthur to become a General Practitioner and he practised for 40 years. He felt it was his way of repaying a debt.



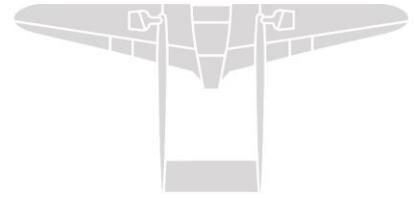
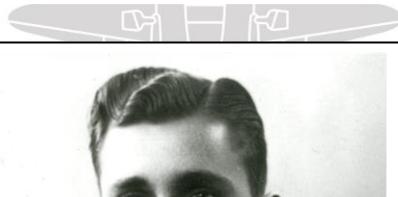
de Havilland Tiger Moth.  
Image – Reproduced by kind permission of  
Flightglobal

## Case History

# Sergeant Joseph 'Jack' John Allaway



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Joseph Allaway..  
Image – Queen Victoria  
Hospital/East Grinstead  
Museum



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Joseph was a 21 year old Wireless Operator and Air Gunner on Handley Page Hampden bombers. In 1943, a German Junkers 88 bomber shot Joseph's plane down on its return trip from the Norwegian coast. Three of his crew mates died and Joseph received burns to his hands and face.

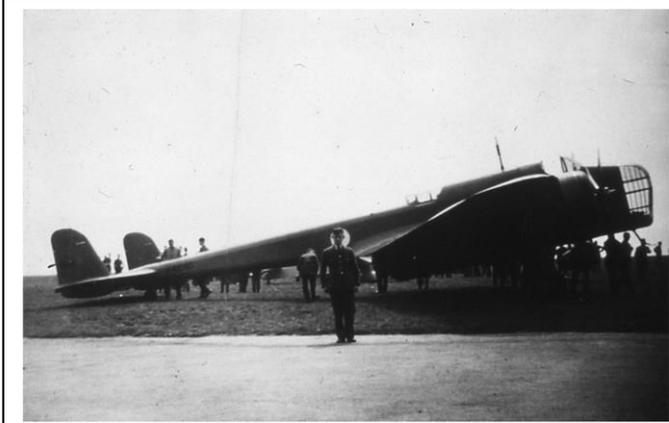
Initially Joseph was taken to a RAF hospital in Ely but he was later transferred into the care of McIndoe. Joseph underwent 31 operations at East Grinstead to reconstruct his eyelids, lips, chin, nose and burnt hands.

Joseph got married to Joan in 1949 and went on to have two daughters. In 1950, the family moved to Birmingham where Joseph ran a Post Office and store. Although Joseph worked hard he admitted his

**'hobby was having a good time'.**

There were a number of Guinea Pigs around Birmingham and Joseph would organise 'The Birmingham Dummy Run' a weekend of drinking and social activities which was a prelude to the annual Guinea Pig 'Lost Weekend'. Joseph also starred in the film *'New Faces for Old'* playing the part of a burnt Canadian airman returning home.

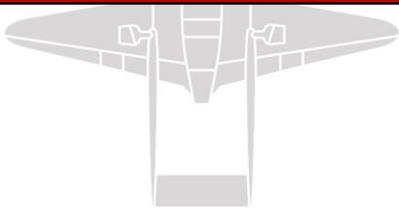
In later life, Joseph sold his business and moved to Crawley West Sussex where he spent much time with his friend and fellow Guinea Pig club member Bill Foxley.



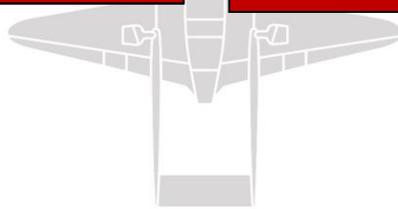
Handley Page Hampden bomber.  
Image – CAHM archive



Junkers JU 88.  
Image – Reproduced by kind permission of  
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