

Harold Delf Gillies (1882–1960)

Harold Delf Gillies performed one of the first sexual reassignment surgeries, termed gender affirmation surgeries as of 2022, on record in 1946 in London, England. He also practiced modern plastic surgery and helped distinguish it as a new branch of medicine in London, England, starting in the early 1900s. Gillies's work focused initially on facial reconstructive surgery, particularly during both World War I and World War II. Gillies created newer and more efficient techniques that later became standard procedures for reconstructive and cosmetic surgeries. Gillies, along with two members in his practice, standardized over 11,000 techniques, and beginning in 1946, he performed one of the first successful phalloplasties on a transgender man, where he formed a new penis from the patient's existing skin and tissue.

Gillies was born in Dunedin, New Zealand, on 17 June 1882 to Emily Street and Robert Gillies. He was the youngest of eight children and his family spent most of his childhood in rural areas where he fished and rode horses. Gillies's father died days before his fourth birthday. Shortly after, his mother moved the family to Auckland, New Zealand. In 1888, he moved to England to attend a preparatory school for four years. He returned to Auckland briefly before attending Whanganui Collegiate School in Whanganui, New Zealand, for his secondary education from 1895 to 1900 where he competed in cricket, golf, and rowing. Selim Gebran and Arthur Nam, surgeons who wrote a biographical article about Gillies, wrote how Gillies was also an avid painter and artist and that his artistic work helped him grow as a plastic surgeon because of his eye for aesthetics.

Gillies participated in various collegiate sports and won numerous athletic awards. After he graduated from Whanganui Collegiate School in 1900, he studied at Gonville and Caius College, Cambridge University, in Cambridge, England. There, he won blue, a designation earned by university athletes for competition at the highest level, for rowing in the Boat Race 1904, an annual side-by-side rowing race between the Universities of Oxford and Cambridge along the River Thames. Gillies also won blue for golf in 1903, 1904, and 1905 and continued competing in golf at the amateur level for the first two decades of his medical career.

Gillies studied medicine at Cambridge University, starting in 1901 and graduating in 1904. He then completed his clinical training at St Bartholomew's Hospital in London, England. Once Gillies completed his training, he received his medical degree and became a practicing physician. Andrew Bamji, a consultant physician and archivist of Queen Mary's Hospital in London, England, notes that Gillies was recognized as the best surgeon who worked regularly at St Bartholomew's Hospital in his time. By 1910, Gillies became a Fellow of the Royal Colleges of Surgeons, or FRCS, a professional qualification to practice as a senior surgeon in Ireland and the UK. Gillies worked as an assistant to an ears, nose, and throat surgeon, Milsom Rees, at St Bartholomew's Hospital. On 9 November 1911 Gillies married Kathleen Margaret Jackson. The couple had four children together between 1912 and 1920.

When the World War I began in 1914, Gillies was still working alongside Rees, but by 1915, he volunteered and served with the Royal Army Medical Corps, RAMC. He was stationed in Wimereux, France, as a Surgeon General, the highest rank for a military medical officer and the most senior uniformed medical officer in the British Armed Forces. As part of the Army Medical Services, the RAMC coordinated large-scale solutions in response to the varied and numerous traumatic injuries. While posted to Wimereux, France, Gillies met Auguste Charles Valadier, a dentist of French and American origin who pioneered maxillofacial surgery, which includes operating on teeth, jawbones, and soft tissues of the face. Gillies then visited Paris, France, to meet Hippolyte Morestin, a surgeon treating injuries of the face and jaw in France. While Gillies watched, assisted, and worked

alongside Valadier and Morestin, he learned surgical techniques that he later implemented in reconstructing facial structures on patients who sustained facial injuries in trench warfare. During his time in France, Gillies noted there was no available treatment specialized enough to help the wounded soldiers seen by Valadier and Morestin, something that changed when he returned to England in the following years.

In 1915, Gillies moved, under orders, to England where he continually petitioned the War Office to have a specialized unit for reconstructive surgery. On 11 January 1916, at the Cambridge Military Hospital, Aldershot, England, he began commanding one of the first plastic surgical units. After the first day of the major battle of the Somme, 1 July 1916, it was clear that the units at the hospital did not have enough room nor beds to treat the soldiers in need. Gillies lobbied and gained support from the head of army surgery for a much larger facility to treat all facial injuries. According to Bamji, Gillies argued that if they could consolidate the treatment of these types of wounds and had specialized surgeons to treat them, they would be able to make scientific advances and treat patients more effectively because of the experience and knowledge they would gain from collaborating.

In June 1917, Gillies's vision came to life when The Queen's Hospital, called Queen Mary's Hospital as of 2022, opened with over a thousand beds available on-site and dozens of surgeons devoted to improving the techniques of reconstructive surgical practices. Gillies worked closely with two anesthetists, or physicians who administer anesthetic drugs that induce insensitivity to pain, who assisted in surgeries as well as recovery to make the process less painful for the patients. One of them, Rubens Wade, primarily worked with patients who needed to be seated during the operation, usually if there was injury to the base of the head or back of neck. The other, Ivan Magill, pioneered endotracheal anesthesia, where the insertion of a plastic tube into the trachea creates an artificial extension through which the patient can breathe and the physician can administer anesthetics. This kept the equipment used to anesthetize the patients clear of the operating table and did not interfere with surgeons' aseptic techniques.

In 1920, two years after the war ended, Gillies became a Commander of the British Empire, a British order of chivalry, rewarding contributions to the arts and sciences nationally or regionally. In the same year, Gillies also published his first book, *Plastic Surgery of the Face*, a training manual for surgeons wishing to specialize in the area. The book illustrates techniques he employed, such as skin grafts, body tubes, and prosthetics. It also reminds the reader that the intensive surgeries were only possible because of antiseptic practices and anesthesia. Gillies included successful results as well as his results that were not immediate or varied in success. Doing so provided the progression of the techniques he tested and showed why he abandoned some while others became a standard procedure. He explained that the treatment timelines could range from six months to three years and some patients sustained permanent disabilities. Gillies's first book also includes contributions from many colleagues including Wade, one of his anesthetists from The Queen's Hospital, who wrote a passage regarding anesthetics and anesthesiology.

During and after the World War I, between 1917 and 1925, Gillies and his fellow surgeons at the hospital performed over 11,000 surgeries on around 5,000 patients. In 2015, Cheka R. Spencer wrote about how Gillies saw the importance of addressing both functional and cosmetic aspects of these treatments. A soldier who regained the ability to eat on his own and speak while having the least number of missing features or scars was able to reenter society more easily. Therefore, Gillies placed a great emphasis on rehabilitation of the injured men and ensured that by creating activities and classes, akin to modern physical therapy. Gillies checked on his patients regularly and took photographs with most of his patients for them to keep as mementos. After the World War I, Gillies exclusively practiced plastic surgery, one of the first surgeons to do so. He continued to work in the units he built until they closed in early 1929. The hospital then underwent renovations to become a general hospital named Queen Mary's Hospital that opened the following year.

In early 1930, Gillies returned to St Bartholomew's and became the sole plastic surgeon handling any ear, nose, and throat cases that required his specialty. David Napier Matthews, a contemporary of Gillies and fellow plastic surgeon practicing in London, England, remarks in his article, "Gillies: Mastermind of Modern Plastic Surgery," that as Gillies practiced, some physicians and journalists criticized him for performing purely cosmetic surgeries and named him a charlatan, or someone who was a fraud and swindled others out of their money. Matthews writes how Gillies, along with some

of his associates, continuously argued back that purely cosmetic surgeries required craft and skill and that they were taking their patients' worries about their appearance seriously. Throughout that time, Gillies continued to travel, assist in hospitals without plastic surgery units, and train surgeons in the UK.

In 1930, King George V knighted Gillies, boosting his status when dealing with other leaders in hospitals and government. He continued in private practice with three colleagues who were also specialists in plastic surgery. Gillies spent his time between World War I and World War II traveling to other countries as a consultant and instructor. He gave lectures at universities and hospitals and traveled to perform surgeries, particularly where local surgeons and staff saw a case that needed additional assistance.

In 1939, at the outbreak of World War II, Gillies and his colleagues were again called into action and stationed at four of the largest plastic surgery units, training, and leading teams to treat the wounded soldiers. Gillies organized numerous trainings for him and his colleagues to teach other surgeons and nurses the necessary skills. He continued his own work at Rooksdown House, part of the Park Prewett Hospital in Basingstoke, England, where he expanded his scope because of the vast number of injuries and the small number of surgeons who had the necessary expertise to carry out the specialized techniques. Gillies led and assisted with surgeries on the pubic region and primarily saw blast wounds resulting in the need of reconstruction of penises.

In 1944, Gillies suggested forming a British Association of Plastic Surgeons, which would bring together the plastic surgeons of Great Britain so they could share results of new techniques used to better serve the public. Though it took years to create, it held its first meeting after World War II on 20 November 1946, and Gillies acted as chairman. The Association became affiliated with the Royal College of Surgeons of England and in 1948, it began to publish its own journal, *British Journal of Plastic Surgery*.

In 1946, Gillies used the knowledge he gained while operating on the genitalia of wounded soldiers and began the four-year process of one of the first sexual reassignment surgeries, called gender affirmation surgery as of 2022. He completed the phalloplasty by constructing an entirely new penis from skin and tissue with grafts. A graft is a piece of tissue a physician takes from elsewhere on a patient's body to attach somewhere else, either to reconstruct an area with damage or create a new tissue structure. The phalloplasty included thirteen surgeries that took place in five stages. Gillies started the process by creating an extension to the existing urethra with a tube of tissue, which he then surrounded by a pedicle. Gillies was one of the first surgeons to use pedicles, a skin graft that surgeons leave, often temporarily, attached to its original site on the body to keep the existing blood flow connected so that the graft tissue does not undergo damage from lack of blood flow. For his first phalloplasty, he used skin from the pelvic area and along the groin. Once Gillies wrapped the pedicle around the urethral extension, he connected the adjacent blood vessels to fully attach the new urethra to the natural urethral opening. After adjusting the base flap of the pedicle and removing the excess tissue, Gillies shaped the constructed penis to better resemble a typical penis.

The patient, Laurence Michael Dillon, was a transgender British doctor, and the procedure that Gillies performed has not changed significantly as of 2022. Dillon is considered one of the first transsexuals, called a transgender person as of 2022, who elected to have sexual reassignment surgery or gender affirmation surgery. A transgender person is someone whose gender identity differs from the sex they were assigned at birth. In 1939, Dillon sought out medical treatment from George Foss, a doctor who had been experimenting with testosterone, a male hormone, to aid in heavy menstrual bleeding. Eventually, the testosterone had changed Dillon's body to a point where those who met him assumed that he was male.

In the early 1940s, Dillon passed out from low blood sugar and, while recovering in the Bristol Royal Infirmary in Bristol, England, he met a plastic surgeon who was able to perform a double mastectomy, the removal of all breast tissue, on Dillon. He also gave Dillon a doctor's note that allowed him to change his birth certificate and legal name. The surgeon then put Dillon in contact with Gillies. The two met in Basingstoke, England, in 1943, but Gillies was unable to perform the phalloplasty surgery immediately, as he was busy with treating soldiers from World War II. However,

Brandy Schillace, a historian of medicine, wrote in *Scientific American* that Gillies took on the case with enthusiasm. Gillies gave Dillon a diagnosis of hypospadias, misplacement of the urethral opening, to cover up why Dillon was seeing him and to give a reason for recovery times. Gillies performed the phalloplasty on Dillon through multiple surgeries stretching from 1946 to 1949.

In 1957, Gillies published two books, *The Principles and Art of Plastic Surgery*, volumes I and II, in collaboration with David Ralph Millard, Jr., a plastic surgeon from the United States who studied under him. The book was an exploration of Gillies's life and time as a plastic surgeon, ranging from his beginnings to the two World Wars he worked through, and what techniques he learned, created, and taught. Other chapters of the book include approaches to and techniques used in hand surgery, as well as treatments for lymphedema, a condition where extra lymph fluid builds up in tissues and causes swelling, congenital deformities, skin tumors and genital lesions. A review of the volumes in the *Journal of the American Medical Association* explains that Gillies's books may be called textbooks but that they are engaging like fairytales when reading, while still being of historical and practical importance to the field of plastic surgery.

Gillies made many contributions to the field of plastic surgery, particularly in facial reconstructive surgery and what is called gender affirmation surgery as of 2022. His books became required reading at universities and medical programs globally, and the techniques he discovered and practiced during World War I and World War II have set the standard for many procedures in the discipline. The Danish and Norwegian governments decorated Gillies for his aid in both wars, and he became an Honorary Fellow of the Royal Australasian College of Surgeons, the American College of Surgeons, and the Royal Society of Medicine, London. In 2005, the association of plastic surgeons, which Gillies built, changed its name to the British Association of Plastic, Reconstructive and Aesthetic Surgeons, or BAPRAS. The renaming of the association brought with it an understanding that the discipline had grown and changed, continuing to advance education but adding a second emphasis on understanding the modern practice.

Gillies's wife died on 14 May 1957, and in the same year, he married Marjorie Ethel Clayton, who he had known for many years as his surgical assistant in London, England.

Gillies died at The London Clinic in London, England, on 10 September 1960 after suffering a mild stroke while performing a major operation on a damaged leg the previous month.

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