

A philatelic history of anesthesiology

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Abstract

Thematic or topical philately deals with stamp collection based on a particular topic or theme. This article deals with a thematic depiction of the history of anesthesia from ancient to modern times using stamps, postal stationery and cancellations.

Key words: Anesthesia, history, philately

When Charles Darwin was asked what he considered the most important discovery of the nineteenth century, he had replied “painless surgery.” He thought this invention more beneficial in its effects on human affairs than either the steam-engine or the telegraph.

Mandrake or Mandragora

Mandragora caulescens (Syn: Love plant, djinn’s eggs, luffah) is a perennial herb of the Solanaceae (nightshade) family that thrives in the open moorlands and grassy slopes of southwest Asia and the Sino-Himalayan region.^[1,2] The plant’s blossoms are purplish black and bell shaped. The shrub bears round, green berries and has a sturdy taproot that is elongated and branched, closely resembling human extremities [Figure 1]. These roots contain the tropane alkaloids hyoscyne, scopolamine and anisodamine that have found use in herbal medicines for hundreds of years. The Greek army surgeon Pedanius Dioscorides (40-90 A.D.) and Sina/Avicenna (980-1037 A.D.) employed extracts of mandragora (mandrake) to render patients unconscious prior to limb amputations.^[3]

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Hypnos

Hypnos was the personification of sleep in Greek mythology and believed to reside in Erebus, the land of eternal darkness, beyond the gates of the rising sun. His mother was Nyx (Night), and Thanatos (Peaceful Death), his twin brother. Hypnos was depicted as a young man with wings on his temples [Figures 2 and 3]. His attributes included a poppy-stem dripping water from the river Lethe (Forgetfulness) or an inverted torch. His Roman equivalent was Somnus or Sopor. Hypnos was the name given to the first official journal of anesthesia from the Academy of Medical Sciences of Barcelona, Spain in 1953.^[4]

Opium

Opium is the dried latex that oozes out from the scored, unripe, seed pods of the opium poppy (*Papaver*



Figure 1: 1986, Austrian first day cover depicting the Mandragora or Mandrake plant details

somniferum) [Figures 4 and 5]. It contains varying amounts of alkaloids, such as morphine, codeine, thebaine and papaverine. The medicinal properties of opium have been known from the earliest times, and its use as a narcotic in cultures such as the Sumerians, date back to 4000BC. The drug was introduced into India by the Muslims and its use spread to China. British merchants began smuggling opium into China in the 19th century in order to balance their purchases of tea for export to Britain, an act that set the stage for the Opium Wars. Large quantities of opium are harvested from poppy farms in Afghanistan, Columbia and the “Golden Triangle” in Myanmar. Despite laws and agreements to control its use, a worldwide illicit traffic in opium-based narcotics persists.^[5] However, the opiates remain a very important and effective pain reliever and few drugs can match their analgesic effect without also duplicating much of its addictive potential^[6] [Figure 6].

Joseph Priestley (1733-1804)

Priestley was born in Yorkshire, UK and formally instructed in logic and metaphysics [Figure 7]. Completing his studies, Priestley went to preach, first at Needham Market, Suffolk, and then at Nantwich, Cheshire, but was handicapped by an inherited speech impediment. In 1764, guided by eminent scientists like Benjamin Franklin, John Canton, Richard Price, and William Watson, he wrote a classic treatise titled ‘*History of Electricity*’ and was nominated and elected a Fellow of the Royal Society in 1766. While at Leeds, he transformed household utensils, like laundry tubs, beer and wine glasses and clay tobacco pipes into chemical apparatus to conduct experiments in

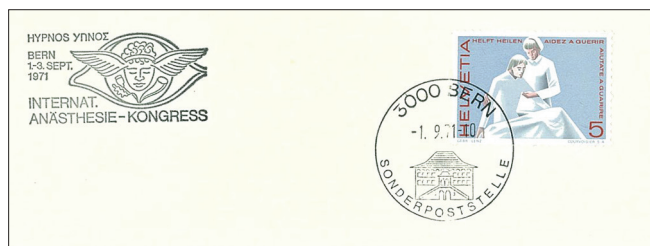


Figure 2: 1979 Greece first day cover with cancellation showing Hypnos and opium bearing poppy pods



Figure 4: Croatian triangle stamp depicting the poppy flower and pod

pneumatic chemistry. Priestley isolated and characterized eight gases, including dephlogisticated air (oxygen)—a record not equaled before or since. Focusing the sun’s rays on a sample of mercuric oxide inside a glass jar, he observed that mice enclosed within survived much longer while breathing the gas generated [Figures 7 and 8]. In addition, he contributed to the understanding of photosynthesis and respiration.^[7-9]

Antoine-Laurent de Lavoisier (1743-1794)

On the basis of his earliest scientific works in geology, Lavoisier was elected in 1768, when just 25, to the Academy of Sciences, France’s most elite scientific society.^[10] In 1775, he equipped a fine laboratory to produce better gunpowder and is considered today as the father of modern chemistry. Lavoisier’s systematic determination of the weights of reagents and products changed chemistry from a qualitative to a quantitative science [Figure 9]. His experiments clarified



Figure 3: 1971, Switzerland special cancellation depicting Hypnos with wings on his head



Figure 5: 2003 Afghanistan miniature sheet showing a scored poppy pod oozing opium and destruction of poppy cultivation by a tractor to prevent addiction to the drug

the distinction between elements and compounds and led to an understanding of combustion and respiration, as caused by chemical reactions. He also discovered the composition of water and renamed Priestley's 'dephlogisticated air' as oxygen (Greek for acid-former). He proved that expired air contained carbon dioxide and established the metric system of weights and measures. Lavoisier took an active part in the French Revolution and was guillotined in 1794.^[11]

William TG Morton (1819-1868)

Controlling the pain caused by surgery had been a major stumbling block for humankind, and many chemical agents with pain relieving properties had been tried, but there were none to blot out pain without seriously compromising patient safety. It was left to the Boston dentist Morton to conduct systematic studies on the anesthetic effects of ether. Through his first successful public demonstration of ether Anesthesia at the Massachusetts General Hospital, Boston, USA on October 16, 1846, he

convinced the medical world of the importance of painless operations [Figures 10-12]. The new specialization emerged and the "Century of Surgeons" gave way to the "Century of Anesthesiologists". Morton succumbed to influenza on 15th July, 1868 at St. Luke's Hospital, New York City.^[12-14]

Crawford W. Long

After receiving his medical degree from the University of Pennsylvania in 1839, Long observed participants in "ether frolics" being oblivious to pain from cuts and bruises sustained during their 'high' state. This led him to experiment with sulfuric ether. On 30th March, 1842, he painlessly removed a cyst from a patient rendered unconscious under the Anesthetic [Figures 13-15]. Over the course of the next four years, Long performed numerous surgeries using sulfuric ether, but he did not bother to document his interventions. Only after reading Morton's claim in various newspapers of the first successful use of ether for surgery did Long publish his series, and he was eventually recognized as a true pioneer of surgical anesthesia.^[15-17]



Figure 6: United Nations stamp to highlight the fatal attraction of heroin addicts

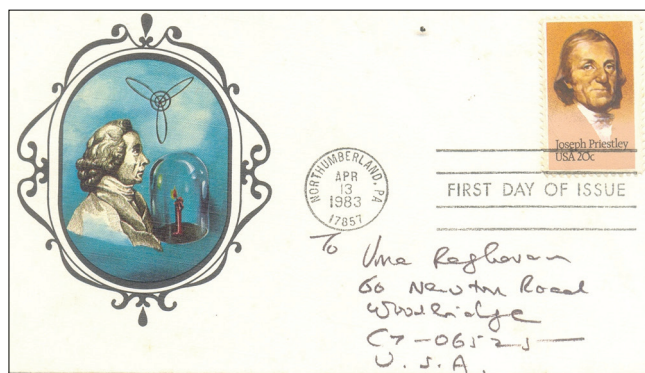


Figure 7: U.S. Post first day cover depicting Joseph Priestley's experiments with dephlogisticated air



Figure 8: Republic of Maldives issue honoring Joseph Priestley's discovery of oxygen



Figure 9: Republic of Mali (French Sudan) stamp depicting Lavoisier's experiment proving that water is not an element

James Young Simpson (1811-1870)

As a professor of Medicine and Midwifery at Edinburgh in 1839, at the remarkable age of twenty-eight, Simpson turned distraught after witnessing the practice of surgery and obstetrics without Anesthesia. After

initially trying mesmerism (hypnotism) and diethyl ether, Simpson championed chloroform for alleviating labour pains [Figure 15]. He had to face stiff objections from various religious groups that branded Anesthesia “a decoy of Satan”. A timely announcement by Queen Victoria of



Figure 10: India Post first day cover depicting Diethyl Ether induction by face mask



Figure 11: India Post commemoration of 150 years of anesthesia. Dr WTG Morton administering ether at Massachusetts General Hospital On 16 Oct 1846

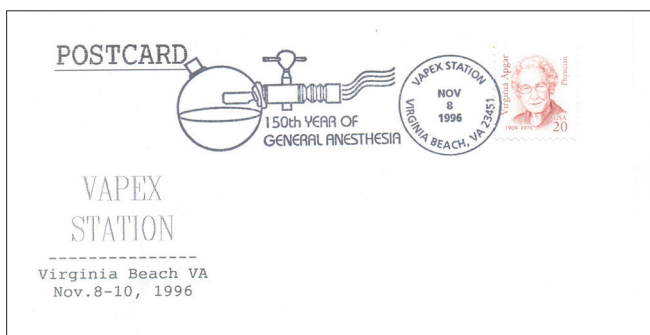


Figure 12: 1996 U.S. Post, Virginia Beach cancellation featuring details of the original draw over ether inhaler used by Morton

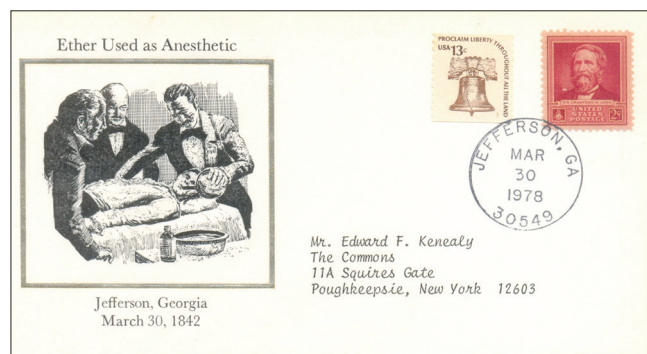


Figure 13: 1978 U.S. Post first day cover featuring Crawford Long administering ether in Jefferson, Georgia on 30 Mar 1842



Figure 14: Republic of Palau (Palauan: Beluu and a Belau), island nation, Pacific Ocean, millenium issue depicting Dr Crawford Long administering ether using a handkerchief in 1842



Figure 15: 1992 Transkei (Bantustan, South Africa) depicting Sir James Simpson administering chloroform for a difficult delivery in the labour room

her satisfaction with her eight pain-free, chloroform assisted deliveries lent royal patronage and all opposition was silenced. Simpson went on to develop the uterine sound, long obstetric forceps and wire sutures. He pioneered the use of compression to stem hemorrhage and endorsed statistical analysis of operative outcomes.^[18-21]

William S. Halsted (1852-1922)

After being awarded an M.D. in 1877 by the Columbia University College of Physicians and Surgeons, USA, William S. Halsted went abroad to study modern European practices in medicine, anatomy, embryology and surgery for three years [Figure 16]. In 1885, Halsted developed conduction anesthesia by injecting his own nerve trunks with cocaine, a substance to which he subsequently became addicted (though later cured). He was the first to advocate strict aseptic technique, the use of rubber gloves, silk suture material and complete closure of wounds, whenever



Figure 16: 1985 Transkei stamp featuring William Halsted, surgeon and pioneer of local Anesthesia and his invention - the Halsted vascular clamp

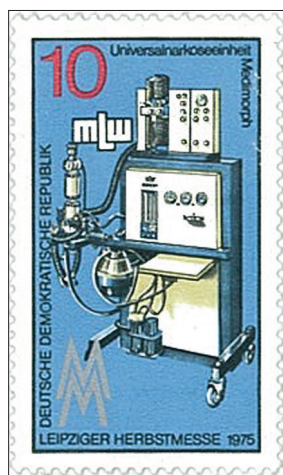


Figure 18: 1975 German Democratic Republic issue featuring the Boyle's Anesthetic apparatus

possible. He also originated the practice of hospital surgical residencies.^[22-24]

August Karl Gustav Bier (1861-1949)

Bier was a versatile, innovative and extremely unorthodox German surgeon. Influenced by the introduction of the lumbar puncture as a diagnostic and therapeutic technique by his colleague Heinrich Irenaeus Quincke (1842-1922) at Kiel, Bier introduced spinal Anesthesia in 1898 [Figure 17]. In 1908, Bier pioneered the use of intravenous procaine analgesia using a double tourniquet- a technique still called the Bier's block. He also introduced the "tin helmet" into the German Army in World War One that earned the soldiers the nickname "squareheads".^[25,26]

Dr. Henry Edmund Gaskin Boyle

Born in Barbados, Boyle qualified from St. Bartholomew's Hospital, London and developed the earliest continuous flow Anesthetic machines, which included cylinders for medical oxygen, nitrous oxide and a "Boyle's Bottle" to vaporize diethyl ether [Figure 18]. Anesthetic machines all over the world are still designed with controls and switches meant for left-handed use- that Boyle was! His other contribution was the

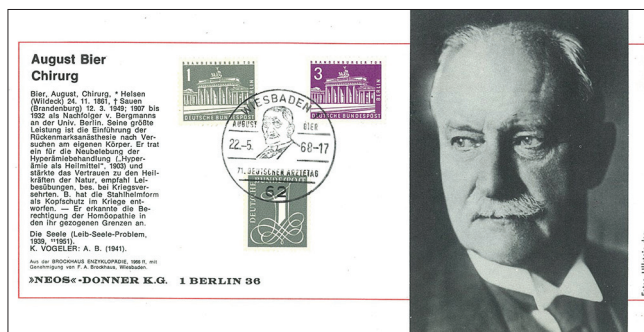


Figure 17: 1968 Germany first day cover and special cancellation of August Bier surgeon and pioneer of spinal Anesthesia



Figure 19: 2004 Canada first day cover on modern cardiac surgery featuring a modern Anesthetic workstation

Boyle-Davis gag used during tonsillectomy operations.^[27-29] The Boyle's apparatus has undergone a sea change since, and modern anesthesia workstations are infinitely more complex and precise [Figure 19].

Dr Harold Randall Griffith (1894-1985)

Born in Montreal, Griffith graduated from McGill University in 1922 and went on to earn a doctorate in Homeopathic Medicine from Hahnemann Medical College of Philadelphia the very next year [Figure 20]. He and his resident, Dr Enid Johnson, used curare for the first time during anesthesia on January 23, 1942 to produce muscle relaxation. This technique revolutionized the practice of anesthesia, as muscle relaxants reduced anesthetic requirements, increased the scope of surgery, improved operating conditions and decreased morbidity and mortality. Dr. Griffith was convinced that research and education could make great improvements in the specialty and he spelt out guidelines for the safe practice of anesthesia by observing and charting vital signs and assisting respiration if it appeared to be inadequate. He established the first recovery room in Canada in 1943 and an intensive care unit in 1961. Griffith was Vice-President of the American Society of Anesthesiologists in 1946,



Figure 20: Canadian stamp honoring local anesthesiologist Dr Harold Randall Griffith, the first to use the South American arrow poison and muscle relaxant curare in 1952 during surgery

President of the International Anesthesia Research Society in 1948 and founded the World Federation of Societies of Anesthesiologists. He was a member of the Editorial Board of Anesthesia and Analgesia from 1952 to 1961.^[30-32]

Dr. Virginia Apgar (1909-1974)

Virginia Apgar, M.D., was the first woman to become a full professor in Anesthesiology at Columbia University College of Physicians and Surgeons. She pioneered the specialty of perinatology and designed the first standardized method for evaluating the newborn's transition to life outside the womb—the Apgar Score. In 1959, Apgar earned a master's degree in public health from the Johns Hopkins University and devoted herself to the prevention of birth defects through public education and fund raising for research. She played the violin at concerts and started taking flying lessons in her fifties, stating that her goal was to someday fly under New York's George Washington Bridge! Throughout her career, Apgar maintained that “women are liberated from the time they leave the womb.”^[33-37] She was honored with a commemorative U.S. postage stamp in 1994, and inducted into the National Women's Hall of Fame in 1995 [Figure 21].

Dr. Henry Jay Heimlich (1920)

Heimlich received his M.D. degree in 1943 from Cornell's medical school and became a household name after describing the 'Heimlich maneuver', a lifesaving sub-diaphragmatic thrust that replaced the backslap as a remedy for choking and saved thousands of lives [Figure 22]. This was first published in the journal of Emergency Medicine in 1974. He also innovated a simple emergency chest drainage device for victims of chest wounds, and a long-lasting portable oxygen tank to enhance mobility for victims of chronic lung disease. He is a popular television speaker, has produced many instructional videos on medical topics and also an award-winning television series, in which an animated version of Dr. Heimlich teaches first aid to children. Heimlich directs the Heimlich Research

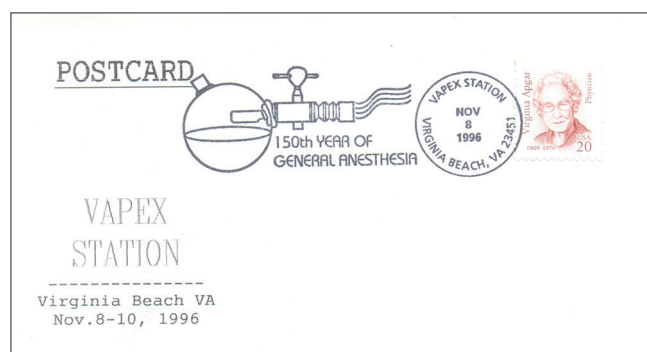


Figure 21: 1996 U.S. Post stamps honoring Dr Virginia Apgar, Americas' first lady professor of anesthesia and pioneering perinatologist

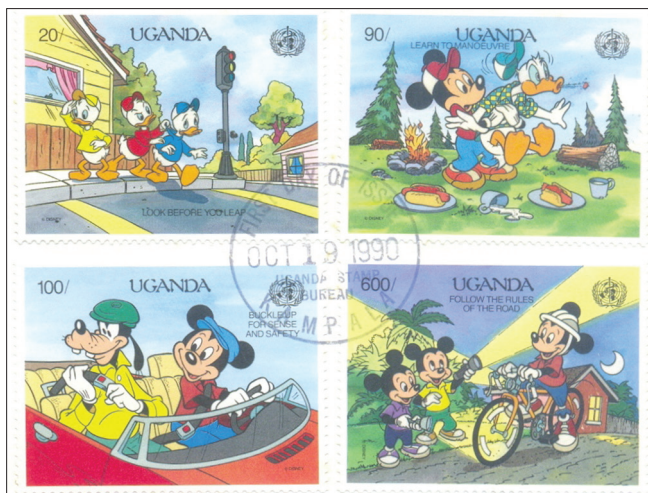


Figure 22: Uganda stamp featuring Mickey Mouse performing Heimlich maneuver on Donald Duck

Institute in Cincinnati, Ohio that promotes Computers for Peace, an international program aimed at preventing war, and malariotherapy-induced fever to cure cancer.^[38,39]

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