

Henry Hill Hickman, M.R.C.S. : an English pioneer of anæsthesia.

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HENRY HILL HICKMAN, M.R.C.S.,
AN ENGLISH PIONEER OF ANÆSTHESIA.

BY

C. J. S. THOMPSON,

Curator of the Wellcome Historical Medical Museum.

IN the year 1820 a young surgeon, Henry Hill Hickman, commenced practice in the Strand, London. He had barely reached his majority when on January 27th, 1820, when he became a Member of the Royal College of Surgeons, and began his career as a country practitioner. Increased by the growing knowledge of those on whom he was called to operate, he resolved to seek some method of alleviating their pain by rendering them unconscious before the operation. With this object he commenced a series of experiments on animals, first by poisoning them with opium, and by the exclusion of atmospheric air, then by clamping them

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IN the year 1820 a young surgeon named Henry Hill Hickman commenced practice in the little town of Ludlow in Shropshire. He had barely reached his majority—being born on January 27th, 1800—when he became a Member of the Royal College of Surgeons, and began his career as a country practitioner. Impressed by the agonising sufferings of those on whom he was called to operate, he resolved to seek some method of alleviating their pain by rendering them unconscious before the operation. With this object he commenced a series of experiments on animals, first, by producing semi-asphyxiation by the exclusion of atmospheric air; then by causing them

to inhale small quantities of carbonic dioxide, and later, nitrous oxide gas. After rendering the animals unconscious, he excised the ears, amputated their legs, made incisions, then dressed the wounds, noted the time they took to heal, and the period of their complete recovery. He carried on these experiments for some time, and at last met with considerable success. This convinced him that, could he but carry out his experiments on the human subject, his methods would become of the greatest value to mankind in making painless the performance of major surgical operations.

His notes on some of these interesting investigations are still preserved in his own handwriting, of which the following is an extract :

Experiment I. March 20th.

"I took a puppy a month old and placed it on a piece of wood surrounded by water, over which I put a glass cover so as to prevent the access of atmospheric air; in ten minutes he showed great marks of uneasiness, in twelve respiration became difficult, and in seventeen minutes ceased altogether; at eighteen minutes I took off one of the ears, which was not followed by hæmorrhage; respiration soon returned, and the animal did not appear to be the least sensible of pain; in three days the ear was perfectly healed."

Experiment II.

"Four days after the same puppy was exposed to a decomposition of the carbonate of lime by sulphuric acid. In one minute respiration ceased; I cut off the other ear, which was followed by very trifling hæmorrhage, and as before did not appear to suffer any pain; in four days the wound healed. The day after the operation he seemed to require an additional quantity of food, which induced me to weigh him, and I found he gained 9 oz. 1 drachm and 24 grains in nine days."

Experiment III. April 6th.

"I took the same puppy and proceeded as in Experiment I, and respiration was acted on in much the same manner. I cut off the tail, and made an incision over the muscles of the loins through which I passed a ligature and made it tight. No appearance of uneasiness until the day following, when inflammation came on and subsequent suppuration. The ligature came away on the seventh day, and wound healed on twelfth, and the dog is remarkably increased in size and now perfectly well."

Experiment IV.

"A mouse was confined under a glass surrounded by water. By means of a small tube a foot long I passed carbonic acid gas very slowly prepared into the glass; respiration ceased in three minutes. I cut all its legs off at the first joint and plunged it into a basin of cold water; the animal immediately recovered and ran about the table apparently without pain. The stumps soon healed, and I kept it a fortnight, after which I gave it liberty."

Experiment V.

"I took an adult dog and exposed him to carbonic acid gas quickly prepared and in large quantity. Life appeared to be extinct in about twelve seconds. Animation was suspended for seventeen minutes, allowing respiration occasionally to intervene by the application of inflating instruments. I amputated a leg without the slightest appearance of pain to the animal. There was no hæmorrhage from the smaller vessels. The ligature that secured the main artery came away on the fourth day, and the dog recovered without expressing any material uneasiness."

Experiment VI.

"I exposed a rabbit to the same gas as Experiment V, and cut off both ears, and I experienced a similar result."

Experiment VII.

"I filled a glass globe with the gas exhaled from my own lungs. Into it I put a kitten. In twenty seconds I took off its ears and tail; there was very little hæmorrhage and no appearance of pain to the animal."

In 1825 Hickman removed to Shifnal, and endeavoured to demonstrate the results of his experiments before his professional brethren, but everywhere his views were received with scepticism, and the methods he advocated were derided and condemned as dangerous and useless. He had one sympathiser however, in Mr. T. A. Knight, a layman, who resided at Downton Castle, near Ludlow, who was much interested in his experiments. Unable to get publicity through the medical press of the period, Hickman at length published an account of his investigations and his methods of inhalation to produce unconsciousness, in the form of a letter, which he addressed to Mr. Knight. The text is as follows:

"Dear Sir,

The object of the operating Surgeon is generally considered to be the relief of his patient by cutting some portion of the human body whereby parts are severed from each other altogether or relieving cavities of the aggravating cause of disease.

There is not an individual who does not shudder at the idea of an operation, however skilful the Surgeon or urgent the case, knowing the great pain that the patient must endure, and I have frequently lamented, when performing my own duties as a Surgeon, that something has not been thought of whereby the fear may be tranquillized and suffering relieved. Above all, from the many experiments on suspended animation, I have wondered that some hint has not been thrown out, of its probable utility, and noticed by Surgeons, and consequently I have been induced to make experiments on Animals endeavouring to ascertain the practicability of such treatment on the human subject, and by particular attention to each individual experiment, I have witnessed results which show that it may be applied to the animal world and ultimately I think will be found used with perfect safety and success in Surgical operations. I have never known a case of a person dying after inhaling Carbonic Acid Gas, if proper means were taken to restore the animal powers, and I have no hesitation in saying that suspended animation may be continued a sufficient time for any surgical operation providing the Surgeon acts with skill and promptitude; and I think it would be found particularly advisable in cases where Hæmorrhage would be dangerous or the Surgeon is apprehensive of Gangrene taking place after the operation, as it is well known that carbon has a most powerful antiputrescent quality. It will be found, if the means for

suspending animation are slow and gradual, the return of life is equally so, and I think it very probable if the Galvanic Fluid could have been applied in Cases that have proved fatal the persons may have been saved.

From a number of others I have selected the experiments now sent, each is correctly noted in as few words as possible, and which I think will prove a vast object.

With great respect,

I am, Dear Sir,

Your Obedient Servant,

(Signed) H. H. Hickman.

Ludlow,

February 21st, 1824.

T. A. Knight, Esq."

Disheartened by his continued failures to secure a hearing from the profession in his own country, Hickman at length resolved to lay the matter before the Royal Academy of Medicine in Paris, and drew up the following memorial to King Charles X., praying for permission to perform his experiments before the leading medical men of that city :

"TO HIS MOST CHRISTIAN MAJESTY CHARLES X.,
KING OF FRANCE.

Sire,

In addressing Your Majesty upon a scientific subject of great importance to mankind, I feel a properly humble but a firm confidence in Your Majesty's universally known disposition to countenance valuable discoveries : this relieves me from all apprehension of being considered presumptuous.

Permit me, Sire, to state that I am a British Physician, Member of the Royal College of Surgeons, London, who has visited Paris in part for the purpose of bringing to completion a discovery to which I have been led by a course of observations and experiments on suspended animation.

This object has engaged my practical attention during several years : It appears demonstrable that the hitherto most agonizing, dangerous, and delicate surgical operations may now be performed, with perfect safety and exemption from pain, on brute animals in a state of suspended animation. Hence it is to be strongly inferred, by analogy, that the same salutary effects may be produced on the human frame, when rendered insensible by means of the introduction of *certain gases* into the lungs : I have discovered a number of facts connected with this important subject, and I wish to bestow them on society.

Paris, the great Metropolis of Continental Europe, is the place above all others where the profound studies of Humanity are, with the utmost facility, carried to their highest extent and perfection : and, Sire, I feel confident that I do not say too much, with due regard for the scientific distinctions of my own Country, in avowing that these facilities, no where else to be found, and their most admirable results, have deservedly conferred on Your Majesty's Chief City and its illustrious schools of practical Philosophy, the eminent title of the Centre of Science to the Civilized World.

Presuming thus, Sire, to attract Your Majesty's thoughts to this interesting subject, I have resorted to the French Capital for the completion of my discovery, hoping to have the honour of placing it under Your Majesty's Royal and gracious auspices. In this manner I would pay to Your Majesty's Kingly and paternal Zeal in the

promotion of every branch of useful knowledge that tributary homage which I am sure, Sire, it would be unjust, on a suitable occasion, to withhold from an Exemplary Monarch, who is surrounded by the wise and the Learned, the philanthropic and celebrated in all the Arts and Sciences, which benefit, ameliorate, ornament, and dignify the condition of mankind.

It is upon purposes of this nature, Sire, that Your Majesty daily deigns and delights to smile with enlightened, constant and the most effectual and condescending encouragement. Your Majesty invites the Philosophical from all Lands, and they are certain of protection.

It must have occurred to Your Majesty's magnanimous mind, that our species rise in the scale of moral and intellectual greatness, in proportion as our efforts are directed to the diminution of the sum of human misery, and physical evil: This was the elevated and virtuous aim of the Sages, and the best of Kings of Antiquity: and this grand purpose is yet more conspicuous in modern times.

Under this grave and powerful impression, I have ventured on the liberty of praying Your Majesty to be pleased, by an express intimation, or command, on the subject, to permit me to develop my ideas on operations in a state of suspended animation, in the presence of Your Majesty's Medical and Surgical Schools, that I may have the benefit of their eminent and assembled talent, and emulous co-operation.

It is also my desire, at a fit opportunity, to solicit the honour of presenting to Your Majesty, in person, if Your Majesty will condescend to receive it, a Book containing an account of my discovery which as far as I know or can learn, has entirely originated with myself; and should my labours meet with the approbation of Charles the Tenth, I shall ever enjoy the grateful satisfaction of believing that I have devoted myself to my profession to a distinguished and to a happy end.

With the hope that Providence may continue Your Majesty's invaluable Health, and prosper Your Illustrious Reign, I have the Honour to be, Sire, with profound Respect Your Majesty's

Most Obedient and Most Humble Servant,

(Signed) H. Hickman.

1828.

Paris. Hôtel des Ambassadeurs,
11, Rue Notre Dame des Victoires."

The receipt of this letter is recorded as follows in the National Archives of France, in the Register of the Direction des Établissements d'utilité publique at the Ministère de l'Intérieur, under the date of August 7th, 1828:

"Hickman, Henry Hill, English physician, wishes to submit to the judgment of the Academy of Medicine a discovery on life-suspension. This letter, received at the Second Office of the Direction, had been sent to the Academy of Medicine on August 31st, and at the same time, Hickman had been notified."

In the hope of at last realizing the dearest wish of his life, to publicly demonstrate his discovery before an influential scientific body, he left his home in Shifnal and journeyed to Paris to be ready to demonstrate his discoveries. The petition was referred by the King to the Royal Academy of Medicine in the autumn of 1828, and the Academy appointed a representative, M. Gérardin, to report upon it. In the official record of the meeting on October 21st, 1828, before which Hickman's memorial was brought, it is stated:

"This report relates to a letter addressed to Charles X. by Mr. Hickman, a London surgeon, which states that he has discovered a means of producing unconsciousness in individuals who must submit to major surgical operations. The method consists in methodically introducing certain vapours into the lungs. Mr. Hickman has already tried the method on animals, and he wishes to carry out the experiment before the celebrated surgeons of the capital. The bureau nominates Messrs. Dubois, Richerand, Mérat, Segallas, and Ribes."

This record is confirmed by an account of the meeting in the *Archives Générales*, Paris, vol. xviii., first series, page 453, which reads as follows :

"Moyen de faire les opérations sans douleur.—M. Gérardin rend compte d'une lettre écrite à Sa Majesté Charles X., par M. Hickman, chirurgien de Londres, dans laquelle ce chirurgien annonce un moyen de pratiquer les opérations les plus délicates et les plus dangereuses sans développer de douleurs chez les individus forcés de les subir. Ce moyen consiste à suspendre la faculté de sentir par l'introduction méthodique de certains gaz dans le poumon. M. Hickman en a fait l'épreuve multipliée sur des animaux vivans, et désire la coopération des grands médecins et chirurgiens de Paris pour en faire l'essai sur l'homme. Cette lettre sera communiquée à l'Académie réunie."

Translation :

"Painless Operations.—M. Gérardin reported on a letter written to His Majesty Charles X., by Mr. Hickman, a London surgeon, in which that gentleman asserted he had discovered a means of performing the most troublesome and dangerous operations without pain. The method consisted in producing temporary insensibility by the methodical introduction of certain vapours into the lungs. Mr. Hickman had made numerous experiments on animals, and was desirous of obtaining the co-operation of the leading physicians and surgeons of Paris, in order to make the same experiments on the human subject."

The reading of the letter before the meeting caused a sensation, but Hickman's discovery was received by the majority of the members with derision and contempt, the only defender of it being the famous Baron Larrey, who offered himself to be experimented upon, and although a committee, as recorded above, was formed to go further into the matter, the demonstration was apparently allowed to drop.

Larrey, the distinguished military surgeon, Hickman's one supporter, was a man of wide knowledge and generous sympathies. Himself a pioneer in the antiseptic treatment of wounds, and the inventor of the *ambulances volantes*, he was commissioned by Buonaparte to organize the ambulance service for the army of Italy. Renowned for his undaunted courage and humanity, he was eventually appointed by Napoleon to be Surgeon-General of the Grande Armée, and was described by the great Emperor in his will as "the most virtuous man I ever met."

One can picture the young surgeon's bitter disappointment and despair at the reception which his Memorial met at the hands of the Royal Academy of Medicine, and the extinction of what he thought his last hope of demonstrating his discovery. Thus, discouraged and well-nigh broken-hearted, he returned to England to die a few months afterwards at the early age of 29. He was buried at Bromfield, Shropshire, in the year 1829.

In this tragic manner the curtain fell on the life of Henry Hill Hickman, who practically gave his life in the attempt to demonstrate his

methods of producing anæsthesia for the purpose of alleviating human suffering while undergoing severe surgical operations.

Nothing more was heard of Hickman, his experiments, or his discovery until 1846, that memorable year in the history of anæsthesia, when the first surgical operation was performed on a patient under the influence of ether in the Massachusetts General Hospital on October 16th, 1846, the anæsthetic being administered by W. T. G. Morton. This was speedily followed by the use of ether as an anæsthetic in an operation performed by Robert Liston on December 21st of the same year in University College Hospital, London.

During the fierce controversy that followed in the medical press at that time, as to who was the first to suggest inhalation as a method of producing anæsthesia for the purpose of surgical operations, no mention was made of Hickman until his friend, Dr. Thomas Dudley, of Kingswinford, wrote a letter to the *Lancet* on February 6th, 1847, in which he called attention to Hickman's discovery and his endeavours to place it on record.¹

Dr. Dudley, writing to Mr. Hickman's widow on January 24th, 1847, with reference to the claims put forward from America in regard to the discovery of anæsthesia by inhalation, says :

"I remember a similar system was proposed many years ago by your late husband. I think it more than probable that the parties now claiming the discovery may have found the publication and made the invention their own. I consider he was very ill-used, because his system was condemned without examination."

In a further letter to Mrs. Hickman on March 11th, 1847, Dr. Dudley writes :

"I consider that Dr. Hickman is clearly entitled to the claim of having originated the idea, and, had his work been published in these more liberal times, the idea would have been followed up and probably the results of investigation would have been successful, instead of the system being crushed as it was by unjust criticism without due enquiry."

Again, writing on August 20th, 1847, he states :

"It is clear the *principle* is his."

The next allusion to Hickman's discovery appears to be in the report of a meeting of the Royal Academy of Medicine in Paris on February 23rd, 1847, when it is recorded that :

"A letter was read from Dr. H. Wells, of Connecticut, U.S.A.,² claiming the merit of the first application of the system to surgical operations. The protoxide of azote Mr. Wells now prefers to ether. M. Orfila states that Vauquelin and himself had successfully endeavoured to inspire the nitrous oxide gas. Davy had asserted that it produced considerable exhilaration, but M. Orfila experienced nothing of the kind. M. Gérardin then said that *fifteen or eighteen years since a letter had been received from an English physician who asserted that by inhalation of laughing gas he could render patients insensible to pain during surgical operations.* This letter caused a certain sensation in the Academy, some members treating it with contempt. But Baron Larrey defended it, and offered to try the experiment. M. Gérardin would look in the Archives of the Academy for the letter."

In another account of this meeting, published in the *Bulletin de l'Académie Royale de Médecine* (vol. xii., Année 11ème, Paris, 1847-48, page 396), it is stated that during a discussion among the members of the

¹ "Lancet," vol. i, New Series, February 6th, 1847, p. 163.

² Horace Wells, a dentist of Hartford, Connecticut, U.S.A., had a tooth extracted by Dr. Riggs while under the influence of Nitrous Oxide Gas on December 12th, 1844.

Academy on the priority of the discoverers of anæsthetics, among others, there is the following statement by M. Gérardin :

"Some seventeen or eighteen years ago, when the Academy was subdivided into three sections, the Minister of the Royal Palace addressed to the Academy the letter of an English physician, in which various methods of suspending sensibility during the performance of surgical operations; among other mediums, *protoxide of nitrogen* was quoted. The section named according to the custom a commission, of which I had the honour of being the reporter. One single member, Baron Larrey, said that it deserved the attention of the surgeons. This matter went no further; the traces may be found among the proceedings."

At the next meeting of the Academy, on March 2nd, 1847, M. Begin in the chair, it is recorded that :

"M. Gérardin stated that he had found the letter addressed to the late King Charles X. by a Dr. Hickman, and dated September 26th, 1828. In that letter the author recommended the inhalation of *several vapours* for the purpose of producing unconsciousness during surgical operations."

On March 27th, 1847, Dr. Dudley again wrote to the *Lancet*, concerning Hickman's discovery, on behalf of his widow. In this letter² he claims for Hickman that he was the discoverer and originator of the idea of producing insensibility in patients about to undergo surgical operations. He states :

"The modern introduction of sulphuretted ether is at least but an improvement of that idea, or, in other words, it is carrying out the original views of one party by means of a new agent suggested by another. It was known that Hickman was pursuing his experiments in 1828, that is, four years after the date of the letter referred to, and it is more than probable that subsequent experiments and improvements may have been made and published at a later date."

The *Medical Times*, July 31st, 1847, commenting on the various claimants to the discovery of anæsthesia by inhalation, states: "We think, however, we can set these various claims at rest by the extract from the printed reports of the Academy of Medicine of Paris" (quoted above).

"This passage is *sufficiently explicit*; no doubt can be entertained; the principle was discovered by Mr. Hickman, and it is in the principle that the invention resides. Mr. Hickman took, in our opinion, the safest and best measures for the carrying out of *his* invention; they failed, but not by his fault. A scientific body was, by him, put in possession of the facts; the communication was made generously and freely; no patent was taken out, no attempt made to confine its pecuniary profits to himself—it was the gift of a man of science to the world. In all probability, Mr. Hickman is no more, or he would, doubtless, have arisen to defend what we must, in justice, consider as *his* property—the discovery of the method of performing operations by the inhalation of medicated vapours."

Although eighty-four years have passed away since Hickman placed his methods of producing anæsthesia by inhalation before the Royal Academy of Medicine of Paris, it is not too late to do honour to the memory of this young English surgeon, now forgotten, who practically sacrificed his career and gave his life in his attempts to gain recognition for his discovery of a method of producing anæsthesia by inhalation, and so rendering patients unconscious to pain during severe surgical operations.

SEVERAL PERSONAL RELICS AND DOCUMENTS
CONCERNING HENRY HILL HICKMAN ARE NOW
DEPOSITED IN THE WELLCOME HISTORICAL
MEDICAL MUSEUM, 54a, WIGMORE STREET,
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