37 WILLIAM T. G. MORTON

1819-1868

The name of William Thomas Green Morton may not ring a bell in the minds of most readers. He was, however, a far more influential person than many more famous men, for Morton was the man principally responsible for the introduction of the use of anesthesia in surgery.

Few inventions in all of history are so highly valued by individual human beings as anesthetics, and few have made as profound a difference in the human condition. The grimness of surgery in the days when a patient had to be awake while a surgeon sawed through his bones is frightful to contemplate. The ability to put an end to this kind of pain is certainly one of the greatest gifts that any man ever gave to his fellows.

Morton was born in 1819, in Charlton, Massachusetts. As a young man, he studied at the Baltimore College of Dental Surgery. In 1842, he began the practice of dentistry. For a while, in 1842 and 1843, he was the partner of Horace Wells, a slightly older dentist who was himself interested in anesthesia. It seems, however, that their partnership was not profitable, and it ended in late 1843.

A year later, Wells began experimenting with nitrous oxide ("laughing gas") as an anesthetic. He was able to use it effectively in his dental practice in Hartford, Connecticut. Unfortunately, however, a public demonstration that he attempted in Boston was unsuccessful.

In his own dental practice, Morton specialized in fitting people for artificial teeth. To do this properly, it was necessary to extract the roots of the old teeth first. Such extraction, in the days before anesthesia, was extremely painful, and the desirability of some means of anesthesia was apparent. Morton correctly judged that nitrous oxide would not be sufficiently effective for his purposes, and he searched for a more powerful agent.

Charles T. Jackson, a learned doctor and scientist whom Morton knew, suggested that he try using ether. That ether had anesthetic properties had been discovered more than three hundred years earlier by Paracelsus, a famous Swiss physician and alchemist; one or two similar reports had also been printed during the first part of the nineteenth century. But neither Jackson, nor any of the persons who had written about ether, had ever used the chemical in a surgical operation.

Ether sounded like a promising possibility to Morton, and he experimented with it, first on animals (including his pet dog) and then on himself. Finally, on September 30, 1846, a perfect opportunity arose for testing ether on a patient. A man named Eben Frost walked into Morton's office with a terrible toothache and a willingness to try anything which might relieve the pain of the necessary extraction. Morton administered ether to him and then pulled his tooth. When Frost regained consciousness, he reported that he had felt no pain. A better result could hardly

have been hoped for, and Morton could see success, fame, and fortune in front of him.

Although the operation had been witnessed, and was reported in Boston newspapers the next day, it did not attract widespread attention. Clearly, a more dramatic demonstration was needed. Morton therefore asked Dr. John C. Warren, senior surgeon at Massachusetts General Hospital in Boston, for an opportunity to give a practical demonstration—before a group of doctors—of his method of preventing pain. Dr. Warren agreed, and a demonstration was scheduled at the hospital. There, on October 16, 1846, before a considerable audience of doctors and medical students, Morton administered ether to a surgical patient, Gilbert Abbott; Dr. Warren then removed a tumor from Abbott's neck. The anesthetic proved completely effective, and the demonstration was an overwhelming success. That demonstration, which was promptly reported in many newspapers, was directly responsible for the widespread use of anesthetics in surgical operations over the course of the next few years.

Several days after the operation on Abbott, an application for a patent was filed by Morton and Jackson. Although a patent was granted to them the following month, it did not prevent a series of priority fights from arising. Morton's claim that he was entitled to most of the credit for the introduction of anesthesia was contested by a few other persons, particularly by Jackson. Furthermore, Morton's expectation that his innovation would make him rich was not fulfilled. Most doctors and hospitals who made use of ether did not bother to pay any royalties. The costs of litigation and of his struggle for priority soon exceeded the money that Morton received for his invention. Frustrated and impoverished, he died in 1868, in New York City. He was not quite forty-nine years old.

The usefulness of anesthesia in dentistry and in major surgery is obvious. In estimating Morton's overall importance, therefore, the main difficulty is in deciding to what extent credit for the introduction of anesthesia should be divided between

Morton and the various other men involved. The principal other persons to be considered are: Horace Wells, Charles Jackson, and Crawford W. Long, a Georgia doctor. On considering the facts, it appears to me that Morton's contribution was far more important that any of the others', and I have ranked him accordingly.

It is true enough that Horace Wells had started using anesthesia in his dental practice almost two years before Morton's successful use of ether. But the anesthetic that Wells used, nitrous oxide, did not and could not have revolutionized surgery. Despite some desirable qualities, nitrous oxide is simply not a powerful enough anesthetic to be used alone in major surgery. (It is useful today when employed in a sophisticated combination with other drugs, and also in some dental work.) Ether, on the other hand, is an amazingly effective and versatile chemical, and its use revolutionized surgery. In most individual cases today, a

Morton anesthetizes a patient.

more desirable drug, or combination of drugs, than ether can be found; but for roughly a century after its introduction, ether was the anesthetic most usually employed. Despite its disadvantages (it is inflammable, and nausea is a common after-effect of its use), it is still perhaps the most versatile single anesthetic ever discovered. It is easy to transport and to administer; and, most important of all, combines safety and potency.

Crawford W. Long (born 1815, died 1878) was a Georgian doctor who had used ether in surgical operations as early as 1842, which was four years before Morton's demonstration. However, Long did not publish his results until 1849, which was long after Morton's demonstration had made the usefulness of ether in surgery well known to the medical world. As a result, Long's work benefited only a handful of patients, whereas Morton's work benefited the world at large.

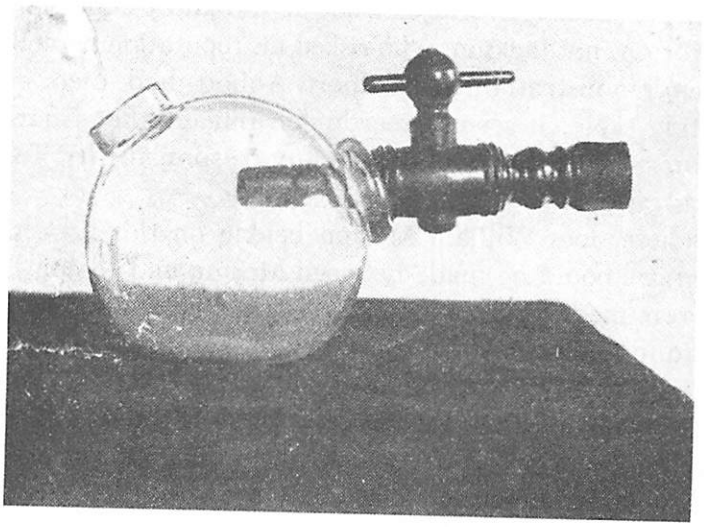
Charles Jackson suggested the use of ether to Morton, and he also gave Morton helpful advice on how to administer ether to patients. On the other hand, Jackson himself never made any significant use of ether in a surgical operation; nor, prior to Morton's successful demonstration, did Jackson make any attempt to inform the medical world of what he did know about ether. It was Morton, not Jackson, who risked his reputation by making a public demonstration. If Gilbert Abbott had died on the operating table, it seems exceedingly unlikely that Charles T. Jackson would have claimed any responsibility for the demonstration.

Where does William Morton belong on this list? An apt comparison could be made between Morton and Joseph Lister. Both were medical men; both are famous for introducing a new technique or procedure that revolutionized surgery and childbearing; both of the innovations seem, in hindsight, to have been fairly obvious; neither man was actually the first to employ the technique or procedure which was publicized and popularized through his efforts; and each must share the credit for his innovation with others. I have ranked Morton higher than Lister principally because I believe that in the long run the introduction

of anesthesia was a more important development than the introduction of antiseptic surgery. After all, to some extent, modern antibiotics can substitute for the lack of antiseptic measures during surgery. Without anesthesia, delicate or prolonged operations were not feasible, and even simple operations were often avoided until it was too late for them to be of help.

The public demonstration of a practical means of anesthesia that Morton gave on that October morning in 1846 is one of the great dividing points in human history. Perhaps nothing sums up Morton's achievement better than the inscription on his monument:

William T. G. Morton
Inventor and revealer of anesthetic inhalation,
By whom pain in surgery was averted and annulled;
Before whom surgery was at all times agony,
Since whom science has control of pain.



With this glass container, Morton first administered sulphuric ether to a patient in 1846.