The First Anesthetizers at the Mayo Clinic

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Anesthetizer is the term Alice Magaw used in 1905 to describe the nurse who gave an anesthetic to a patient, thereby contributing much to the care that the surgical patient received at the Mayo Clinic. I prefer the term Anesthetist.

The story of nurse anesthetists in Rochester is so closely entwined with the early careers of Drs. William J. and Charles H. Mayo that this history will of necessity involve numerous references to these men. It was actually their father, Dr. William Worrall Mayo, who made the decision to "train" nurses to give the anesthetic. In fact, Dr. W. W. Mayo taught someone other than a doctor to give an anesthetic as early as 1877. While he was performing an ovariotomy, the doctor administering the anesthetic fainted, and Dr. Mayo had to call on his 12-year-old son Charlie to climb onto a cracker box and give the anesthetic. Dr. William J. Mayo said, "... he (Charlie) did so well that from that time on he was the family anesthetist."\(^1\) Probably the anesthetic agent was the then popular ACE mixture, containing 1 part alcohol, 2 parts chloroform, and 3 parts ether.

Although the techniques actually used then by the Mayos are unknown, some early methods of inducing anesthesia with ether and chloroform involved giving large quantities of the agent rapidly. This was accomplished by saturating a folded piece of material and applying it firmly over the patient's nose and mouth. Since little air could pass through the folded material the patient struggled violently to avoid suffocation. When chloroform was administered in such a way the sleep often became permanent.

In 1885, Dr. James E. Moore of Minneapolis visited the surgical clinics in Berlin for 1 year to study the German method of slow administration of chloroform and ether, involving the use of a wire frame covered with gauze and placed over the patient's nose and mouth. Impressed by this method, Dr. Moore brought a German anesthetist back with him to teach his surgical friends the German technique. Dr. W. W. Mayo and his sons learned this method from the German anesthetist and subsequently taught it to their nurse anesthetists in Rochester.\(^2\)

Until St. Marys Hospital opened in the fall of 1889, Dr. W. W. Mayo and his sons operated in their patients' homes. The first operation in the new hospital, an enucleation of an eye, was performed by Dr. Charles Mayo
with Dr. William Mayo assisting and their father, Dr. W. W. Mayo, administering the anesthetic.

Because Rochester was a Middle Western rural town opening its first hospital, the Doctors Mayo had a free hand in planning, with the Sisters of St. Francis, just how they could best use the facilities for patient care. They did not have established precedent to complicate their efficient use of the new facilities.

Rochester then had the only hospital in southern Minnesota, and it was located on a railroad line that could bring patients to the city. These facts, plus the increasing fame the Doctors Mayo were acquiring in the diagnosis and care of patients, brought hundreds of patients to Rochester and made the Mayos' medical practice a very busy one.

When the Doctors Mayo began to use St. Marys Hospital, they did not seem to feel a need for seeking doctors or nurses from elsewhere, even though the famous doctors of the United States during the 1880's were practicing in large cities where the latest medical facilities of the time were available. The Sisters of St. Francis were caring for the Mayo patients very well, and the doctors themselves were about to provide Edith Graham with sufficient instruction and training to be their anesthetist. Dr. William W. Mayo was her instructor and would remain by her side in the operating room while she gave the anesthetic. By this time he was 70 years old and wanted to have his sons carry on without him so that he could be free to travel.

When the Doctors Mayo decided to train a nurse to give anesthetics for them, they must have considered many facets of medicine and surgery that were pertinent to the time (1880's) and the locale. After they accepted the work of Pasteur and Lister of the 1870's and applied the principles of asepsis and antisepsis in surgery, they could perform a great many more operations than formerly, especially in the internal cavities of the abdomen, chest, and skull. Also application of these principles increased the time and effort required to prepare the operating room for surgery. A nurse indeed could be of great assistance.

Thus, in the fall of 1889, after St. Marys Hospital had been open for only a few weeks, the Doctors Mayo employed Edith Graham as their anesthetist, office nurse, general bookkeeper, and secretary.

EDITH GRAHAM

The first anesthetist and the first paramedical employee of the Doctors Mayo, Edith Graham was born February 12, 1871, the 11th of 13 children. Her mother was a midwife in the Rochester community and had 240 deliveries to her credit. Miss Graham studied nursing at Women's Hospital in Chicago for 18 months and was graduated March 7, 1889. When she returned to Rochester, she was the only trained nurse in the community. As such, when St. Marys Hospital opened in the fall of 1889, she taught nursing care to the Sisters of St. Francis who comprised the staff for the hospital. This she did in informal, small classes.

In the hospital Miss Graham was more than an anesthetist. She saw to it that everything was ready for surgery in the operating room, she administered the anesthetics to all surgical patients, and she remained with
new surgical patients for part of the day. As mentioned earlier, she was also office nurse, bookkeeper, and secretary to the Doctors Mayo.

By January 1, 1893, of the 655 surgical operations performed at St. Marys Hospital, 98.3% had been successful in that the patients had left the hospital alive. This was a great tribute to the only “anesthetizer,” Edith Graham, the two surgeons she worked for, Drs. William J. and Charles H. Mayo, and the small number of Sisters of St. Francis (probably six) who maintained the hospital.

Miss Graham continued as the anesthetist for the Doctors Mayo until 1893, when she married Dr. Charles Mayo. Before her marriage, the doctors chose her friend Alice Magaw to be her replacement.

ALICE MAGAW

As did Edith Graham, Alice Magaw had a course in nursing at Women’s Hospital in Chicago. The Doctors Mayo sent her to Chicago to take a special course in the use of the microscope before having her start her period of employment in Rochester. In addition to serving as an anesthetist, Alice Magaw assisted in the doctors’ office until March 1901, when Mr. William Graham took charge of the business office. The duties of the office nurse were assigned to Dinah Graham, a sister of Edith.

The open-drop method of administering ether was preferred by Miss Magaw, and this is the method she discussed in her address at a meeting of the Missouri State Medical Society in St. Louis in 1906. In her speech, “A Review of Over Fourteen Thousand Surgical Anaesthesias,” Miss Magaw stressed the proper technique for administering ether slowly, and described the many ways to hold the jaw in maintaining a good airway. She gave detailed information on the induction of ether anesthesia, as follows:

_Suggestion is a great aid in producing a comfortable narcosis. The anesthetist must be able to inspire confidence in the patient, and a great deal depends on the manner of approach. One must be quick to notice the temperament, and decide which mode of suggestion will be the most effective in the particular case: the abrupt, crude, and very firm, or the reasonable, sensible, and natural. The latter mode is far the best in the majority of cases. The subconscious or secondary self is particularly susceptible to suggestive influence; therefore, during the administration, the anaesthe-}_
tist should make those suggestions that will be most pleasing to this particular subject. Patients should be prepared for each stage of the anaesthesia with an explanation of just how the anaesthetic is expected to affect him; "talk him to sleep," with the addition of as little ether as possible. We have one rule: patients are not allowed to talk, as by talking or counting patients are more apt to become noisy and boisterous. Never bid a patient to "breathe deep," for in so doing a feeling of suffocation is sure to follow, and the patient is also apt to struggle."

Also, she mentioned that respiration, color, and quality of the pulse were the signs most carefully watched.

Miss Magaw went on to discuss the adjustment of the anesthetic to different operations and conditions. She discussed the administration of chloroform also, but it is readily seen that she much preferred ether. Previously, she had said, "... ether kills slowly, giving plenty of warning, but with chloroform there is not even time to say good-bye.""

Around the turn of the century, when the use of surgery was increasing rapidly and the incidence of deaths after operation was decreasing markedly, in association with the use of asepsis and antisepsis, doctors turned their attention to deaths resulting from anesthesia. In the words of Helen Clapesattle,

"Because surgeons were awakening to an intense interest in the problem of anaesthesia, the work of Alice Magaw won more widespread notice than that of any other member of the Rochester group apart from the brothers.""

In St. Marys Hospital and later in other Rochester hospitals, patients to be operated on were always anesthetized in the operating room after the patient had spoken to his surgeon. This procedure was criticized by surgeons from other hospitals who wanted their patients to be anesthetized beforehand and brought into the operating room on carts only after they were soundly asleep. The Mayo method had a good psychologic effect on the patient, since he could actually see the operating room and talk to his surgeon. Miss Magaw said,

Another important reason for anaesthetizing the patient on the operating-table is, that in lifting and shifting a patient about, he is apt to regain consciousness. . . . Experience has taught us that preparation of the patient while going under the anaesthetic is one of the important factors in producing a rapid surgical narcosis; for it diverts his attention, and much less anaesthetic is required.""

Miss Magaw mentioned having used nitrous oxide as a preliminary to ether in 1,000 cases, but she did not indicate the machine or method used. She subsequently abandoned even this ancillary use of nitrous oxide, relying again on ether which remained almost the sole agent for general anesthesia at the Mayo Clinic until 1920.

HERB, HENDERSON, AND HINES

Miss Magaw was the only anesthetist working for the Doctors Mayo until November 1899 when Dr. Isabella Herb came to be Dr. Charles Mayo's anesthetist and to take over the work in pathology. Dr. Herb left Rochester in the autumn of 1904. (She subsequently worked with Dr. John S. Lundy while he was a med-
ical student at Rush Medical College of the University of Chicago, supervising his administration of anesthesia at Presbyterian Hospital. She also contributed to the discovery of ethylene.) Miss Florence Henderson came into training in 1904 to assume Dr. Herb's duties as an anesthetist. Miss Mary Hines came in June 1905 (Table).

In 1905, Dr. Charles H. Mayo presented a paper on operations on the thyroid gland in which he paid tribute to his anesthetists, as follows:

"The question of anaesthesia is a most important one. I have reported thirteen cases in which operations were done under local anaesthesia; but I have not used local anaesthesia in any of my last 100 cases. We have regular anaesthetists, three upon whom we can depend, so that I can devote my entire attention to the surgical work."

In New York, in 1911, Dr. Charles Mayo had an acute attack of cholecystitis (misdiagnosed as appendicitis) and was operated on by Dr. Joseph Blake. A few days later it was apparent that he had gallstones and that he had to have another operation. When Dr. William J. Mayo was notified of this, he immediately left for New York, taking with him Dr. Charles Mayo's anesthetist, Florence Henderson. The Chicago North Western Railroad provided a private car for Dr. W. J. Mayo and Miss Henderson.

Two more anesthetists, Mary Shortner and Ann Powderly, joined the staff in 1909, bringing the number of anesthetists to five.

Ann Powderly was available for an interview in October 1968, and it was truly a delightful and rewarding experience to hear her recall her years of work as an anesthetist at the Mayo Clinic from 1909 through 1950.

She received her anesthesia training in Dr. C. H. Mayo's operating room with Miss Florence Henderson as her teacher. The training period was approximately 3 months and the salary was $75.00 a month. The surgical day began at 7:00 a.m., Dr. C. H. Mayo always arriving at the surgery before the nurses.

When administering ether — either by the open-drop method or, later, by machine, Miss Powderly "talked them over the excitement stage." She claims that the excitement stage with ether was never a problem, if she kept talking to the patient. The first airways she used were metal, but later she used black rubber airways and rubber intratracheal tubes.

Miss Powderly recalls her work as being stimulating and enjoyable. The
surgeons for whom the anesthetists worked provided them with current pamphlets and literature on medical and surgical developments, and these matters would be discussed and studied by the group. The Doctors Mayo also arranged for the anesthetists to be sent on “study” trips to visit other medical centers. These trips were so arranged that they were as much for pleasure and relaxation as study. Miss Powderly recalls an especially pleasant “study” trip to Toronto.

The anesthetists also accompanied the surgeons to many state medical meetings in the Midwest. Communication was very important to the Doctors Mayo. They felt committed to share their knowledge with others in their profession and they traveled and studied extensively to increase their own knowledge.

The Doctors Mayo would frequently invite the anesthetists to spend weekends with them and their families on their boat on the Mississippi. These were always enjoyable and relaxing events.

During Miss Powderly’s early days with this clinic, she recalls that if their surgery schedule was finished early in the day, the anesthetists would go to the clinic and work the remainder of the day. At the clinic, she worked in the X-ray room or in the surgical records office. Mary Shortner, who was Dr. Beckman’s anesthetist in the morning, worked in the hospital assignment office in the afternoon.

Miss Powderly has an outstanding scrapbook filled with notices of events pertaining to this clinic and to Rochester. Of her many excellent photographs, one is her prized possession. This one is of Dr. C. W. Mayo, son of Dr. C. H. Mayo, and it bears this message—“To Ann Powderly who kept them relaxed for Chuck Mayo.”

### Anesthetists and Surgeons to Whom They Were Assigned, 1889 Through 1910, With Year of Termination

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<th>Surgeons</th>
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<tr>
<td>Dr. Isabella Herb</td>
<td>1899-1904</td>
<td>2</td>
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<tr>
<td>Florence Henderson</td>
<td>1904-1917</td>
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<td>Mary Hines</td>
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<tr>
<td>Mary Shortner</td>
<td>1909-1949</td>
<td>4</td>
<td>Dr. Emil Beckman</td>
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<tr>
<td>Ann Powderly</td>
<td>1909-1950</td>
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<td>Dr. C. H. Mayo</td>
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CONCLUSION

In meeting the demands for increased patient care, the decision of the Doctors Mayo to train nurses to be their anesthetists was a logical one. At a meeting of the Section of Anesthesiology of the Mayo Clinic on October 28, 1967, Dr. John S. Lundy said,

... recent emphasis upon the necessity of using paramedical personnel as much as possible in the practice of clinical medicine as a means of enhancing the effectiveness of the physician only points up the wisdom of our use of nurse anesthetists in years gone by.7

Helen Clapesattle wrote,

In employing a permanent, full-time anesthetist, and that a nurse, the Mayos were very unusual if not unique in the United States. In other hospitals anesthetizing was one of the duties of the interns. . . . The Mayos had given the job to Miss Graham and then to Miss Magaw in the first place through necessity; they had no interns. And when the interns came, the brothers decided that a nurse was better suited to the task because she was more likely to keep her mind strictly on it, whereas the intern was naturally more interested in what the surgeon was doing.2

ACKNOWLEDGEMENTS

Miss Powderly suggested that I go to the Archives section for further information on the early history of the nurse anesthetist at this clinic. On my initial visit to the Archives office, Mr. Clark Nelson referred me to the Sketch of the History of the Mayo Clinic and the Mayo Foundation which proved a valuable source of information.

REFERENCES