

# *Anesthesiology*

A Neglected Aqualumnus and His Department:  
Ivan Benjamin Taylor and Detroit's Wayne State University

*Harold Michael Marsh & Emily Tennyson*

Physician anesthesia in the United States began in earnest after the Second World War, almost a century after the demonstration of ether by WTC Morton in the ether dome of Massachusetts General Hospital in Boston in October 1846. Prior to this time anesthesia was provided by the surgeon alone, by a student doctor or by a nurse directed and trained by the surgeon in the USA. Detroit was an early beneficiary of this new growth in physician dedicated involvement to anesthesia and perioperative medicine in the USA.

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**Replica**

**WM TG Morton**

**Ether Inhaler**

*The 1846 demonstration of ether in Boston by WTG Morton, as well as the subsequent public acceptance of general anesthesia, the development of antiseptics and introduction of cocaine to eye surgery in 1884, have only relatively recently revolutionized the scope of surgery and made safe surgical anesthesia obligatory.*

# Introduction

Physician anesthesia in the United States was not widespread until after World War II, nearly one hundred years after William T.G. Morton had debuted ether in public demonstration at Massachusetts General Hospital in October 1846. Anesthesia for surgical procedures had long been a concern for mankind. Though ether had been discovered in the 13<sup>th</sup> century, its anesthetic properties were not recognized nor utilized. Partially because of this lack of effective anesthesia, non-emergency surgery was rarely performed. Rather, surgery was the last resort.

The 1846 demonstration of ether in Boston by WTG Morton, as well as the subsequent public acceptance of general anesthesia, the development of antiseptics and introduction of cocaine to eye surgery in 1884, have only relatively recently revolutionized the scope of surgery and made safe surgical anesthesia obligatory. Physicians and surgeons in the United States were initially reluctant to recognize the potential contributions of anesthesia to medical practice, as were the medical schools to include even the basic principles of anesthesia within the curriculum for medical students. For the first part of the 20<sup>th</sup> century, anesthesia was neglected both in education and practice, and the administration of anesthesia was considered a task for technicians rather than doctors. However, due to the relative brevity and limited scope of surgical procedures, fatalities were few.

In the United States, widespread use of anesthesia by surgeons demanded their training in these techniques, because they were the accountable physicians. In the United States, nurses were used for general anesthesia by surgeons since the nurses were consistently available and safer and cheaper than medical students or trainees. Physician anesthesiologists only began to be recruited to the field in the second half of the 20<sup>th</sup> century, significantly just after the Second World War.

Increasing recognition for anesthesia as a legitimate academic pursuit for physicians and adequate payment for services to physician anesthesiologists were still somewhat delayed. At that early time, anesthesia was thus not a separate department in either medical school or hospital, but rather fell under the umbrella of surgery. Though anesthesia had been utilized as early as the mid 1840's, the surgeon himself, who either performed the blocks on his own or trained others in the delivery of anesthesia, generally administered it and collected and distributed all fees. Members of bronchology departments inserted tracheal tubes, for example, and physician anesthesiologists were a rare commodity.



## Academic Medicine in Michigan

*In 1955, Children's Hospital of Michigan, Grace, Harper and Hutzel Hospitals, later joined by the Rehabilitation Institute, formed the Medical Center Citizen's Committee, providing the first vehicle for coordinated action by the hospitals and Wayne State University School of Medicine.*

*The mid-1960's brought the formation of the Medical Center Development Corporation, which served as a planning and coordinating body, although without the legal authority to enforce agreements. Entering the 1980's, it became increasingly apparent it would be advantageous to form a Detroit Medical Center holding company to provide joint strategic planning, budgeting, financing and other responsibilities.*

*In September 1985, the Detroit Medical Center officially was formed, motivated by two key factors: the common mission to be a cohesive, preeminent academic health center built upon an interdependent relationship with Wayne State University and the need for a strong, unified holding company to improve each hospital's responsiveness to the changing environment while fulfilling its individual mission.*

In 1846, Detroit was already 145 years old, yet had neither major hospitals nor a medical school. The State of Michigan was now eight years old and, thirty miles away from Detroit, in Ann Arbor, the University of Michigan had already become established. Their medical school opened in 1850 and later that same year, St. Vincent's Hospital, the first hospital in urban Detroit, also opened. It subsequently became St. Mary's Hospital. Like many hospitals of that era, it grew out of a specific need: the local cholera epidemic of 1849. This was the only major hospital in Detroit itself until the 1860's. Harper Hospital was not founded until May 1863 on land donated by Walter Harper, who earned his fortune through real estate investment. The hospital did not receive its first patients, Civil War soldiers, until its designation as a military hospital in 1864. In January 1866, Harper Hospital opened as a general hospital.

At the time of the Civil War, Detroit was a quite pleasant town. Nestled into the corner of southeast Michigan, it boasted a population of about 125,000 residents, without an inclination of the industrial metropolis it would become.

During the Civil War, the care of the injured soldiers was largely left to volunteers from local medical stations as well as others who simply learned on the job. Immediately following the War, several young men saw a need for an institution dedicated to physician training in the heart of downtown Detroit. Their previous work with wounded soldiers during the War had left them eager to improve the quality of medical education. Thus, they founded the Detroit Medical College, the city's first such school. In 1868, Detroit Medical College was one of several new businesses that started during the years following the Civil War. Like nearby Harper Hospital, it occupied the barracks-type buildings of a former military hospital.

Of the five new doctors who first staffed and founded this school, Theodore McGraw, Samuel P. Duffield, and David Farrand, were native Detroiters, while George Andres and Edward Jenks had only moved to the area recently. Of these, four had received medical degrees in the East, and all were connected to Harper Hospital or St. Mary's. Since the young men were both successful and ambitious, they believed that training in Detroit would provide a sharp practical contrast to the largely theoretical education at the University of Michigan.

At this time the city was experiencing abundant economic and industrial development. While the University of Michigan already had a medical school in a small rural town setting, the new Detroit school's founders believed strongly that a school based in a larger city would provide a wider variety of patient population, thus providing more diverse and extensive learning opportunities. The academic department of surgery at Detroit Medical College was thus founded and led by Dr. McGraw until his retirement in 1915.



*Wayne University became Wayne State in 1956. Founded in 1868, the Wayne State University School of Medicine is the largest single-campus medical school and the fourth largest school by enrollment in the nation with more than 1,000 medical students. In addition to undergraduate medical education, the school offers master's degree, Ph.D. and M.D.-Ph.D. programs in 14 areas of basic science to about 400 students annually. WSU's School of Medicine is affiliated with the hospitals of the Detroit Medical Center, which include Children's Hospital of Michigan, the Rehabilitation Institute of Michigan, Hutzel Women's Hospital, Detroit Receiving Hospital, Harper University Hospital, Sinai-Grace Hospital, Huron Valley-Sinai Hospital and the Michigan Orthopedic Hospital. It maintains a research and education partnership with Henry Ford Health System in Detroit, and coordinates teaching experiences with 14 community hospitals through the Southeast Michigan Center for Medical Education.*

Harper Hospital's land and buildings provided the campus, as well as the founding donation of 30,000 dollars that were required to incorporate and award degrees. The school opened in 1868 with 48 students and 12 faculty, most from the surrounding states as well as the neighboring Canadian province of Ontario. At the time, the school was actually less a medical college than an instructional location that offered training in basic first aid. It was not until 1869 that the medical college evolved into an actual academic institution.

At that time, medical education consisted simply of two years of study. Once established, the college lengthened its terms and encouraged students to devote an optional third year to clinical work. In the decade after the college's foundation, more changes occurred. Admission test became obligatory, and students were expected to take three years of a graded curriculum, along with final examinations. The advent of these standards proved to be nearly disastrous for the school as enrollment plummeted.

The 1880's also offered other challenges. The Michigan College of Medicine, located only a few blocks away, opened in 1880, taking a large number of Detroit Medical College students away. Next, a faculty dispute resulted in the resignation of several members, who then defected to the Michigan College of Medicine.

When the Detroit Medical College was forced to relocate to another facility in 1885, it became evident that two medical schools could not coexist in Detroit. Unwillingly, the two colleges merged and became the Detroit College of Medicine, which became well known for the variety and quality of its clinical instruction. When the school was very new, it did much of its clinical training at Harper Hospital, and then expanded to St. Mary's. The merging of the two schools did not end further upheaval, however. New requirements for medical students caused additional complications, and again many potential students opted to attend school elsewhere. In addition, a poor rating by a national report further indicated that new leadership for the school was needed immediately. Soon, teaching arrangements expanded with the other hospitals that were emerging in the area, including Women's Hospital, Grace Hospital and Children's Hospital. These hospitals, along with Detroit Receiving, would be collectively known as The Detroit Medical Center (DMC).

The American Medical Association then decided to start rating medical schools. In 1914, the College won the rating of "A," or superior, and has never been rated lower since. Receiving Hospital, founded in 1915, was a city-owned hospital, dedicated to caring for everyone, regardless of ability to pay, and would initially house much of the combined school's clinical training. As enrollment continued to dwindle, the school decided to incorporate itself, thus becoming the Detroit College of Medicine and Surgery in 1918. In 1933, a number of institutions, including the College of Medicine and Surgery, were united by the Board of Education into a university organization, temporarily called the Colleges of the City of Detroit. In 1934, the schools were renamed Wayne University after Anthony Wayne, an 18<sup>th</sup> century war hero, and then Wayne State University (WSU) in 1956. Affiliation of the medical school with the university, though less than popular with the university due to the financial demands it made on the institution, helped secure a firm position for this school of medicine in the medical academic community nationally.



**Ivan B. Taylor, MD**

*“The greatest need throughout the country is good teaching in clinical anesthesia, and many of us are not equipped and do not have time and help enough to do both good clinical teaching and research that amounts to a great deal.”*

## Anesthesia Training in Detroit

The first anesthesiology resident training program in Michigan was the Wayne State University program, begun by Dr. Ivan Benjamin Taylor in 1946. Dr. Taylor had been trained by Drs. Ralph Waters and Emery Rovenstine before he became the first Chief of Anesthesiology at the University of Pennsylvania prior to moving to Detroit in 1941. In 1906, Ivan Taylor was born into a farming family living near Jackson, a small town in Southern Michigan, and graduated from the University of Michigan in 1932. Two years later, he began training in anesthesiology with Dr. Ralph Waters at the University of Wisconsin in Madison. During this training, Taylor worked in New York as an exchange student for eight months from April to December 1935 at Bellevue Hospital, under the guidance of Dr. Emery Rovenstine, who had come there from Madison and is considered one of the major figures in the establishment of anesthesiology as a medical specialty. Taylor was the first of Dr. Rovenstine’s fellows from Wisconsin.

While still studying with Waters, Taylor traveled to Europe. In England, at Waters’ behest, he met with numerous British anesthesiologists whose advances in the field were well known and this proved influential in his training and subsequent practice. These visits helped strengthen his resolution to follow Waters’ lead, seeing anesthesia as a separate medical specialty rather than under the umbrella of surgical training and supervision, thus demanding a separate department.

Following Dr. Taylor’s continental tour, he returned in 1938 to the United States to become the first Chief of Anesthesiology appointed at the University of Pennsylvania, directly from his residency. There, he spent three years. Prior to his appointment at the University of Pennsylvania, nurses had administered general anesthetics while surgeons administered all spinal anesthetics. In fact, his first title was simply Instructor in Surgery and Surgical Assistant at the University Hospital in Philadelphia. At the hospital, Dr. Taylor’s specific duties included responsibility for the organization and conduct of his department. Hence, he would examine a patient only upon the specific request of a surgeon. In addition, he would determine the correct type of anesthesia that should be utilized. Dr. Taylor also administered gas therapy in the hospital.

Shortly after he arrived at Penn, Taylor located four nurse anesthetists who were supervised by a head nurse anesthetist, who reported to both the operating room supervisor and the attending surgeon. After Taylor arrived, the chief nurse anesthetist left the hospital. While surgeons administered spinals adequately, they did not, in his opinion, adequately care for the patient during the duration of surgery. Taylor established an elective course in anesthesia for medical students, but attendance was poor, and the students refused clinical instruction from nurses. He was discouraged by his inability to do research or to attract residents, and he was daunted by a workload that he felt was an overwhelming job for one person.



**Emery A. Rovenstine, MD**

*Dr. Taylor had been trained by Drs. Ralph Waters and Emery Rovenstine before he became the first Chief of Anesthesiology at the University of Pennsylvania prior to moving to Detroit in 1941.*

In 1939, Taylor wrote to Dr. Waters that Robert Dripps, a young man from the pharmacology department had come to visit him, expressing an interest in learning clinical anesthesia. While Dripps did not initially think that anesthesia could be considered a career choice for himself, it was normal practice to train in pharmacology and physiology before returning to the clinical side of medicine. Dr. Dripps had been working with Dr. I. S. Ravdin, the director of surgical research at Pennsylvania since 1927. Dr. Ravdin had referred Dripps to Taylor. Taylor advised the young man to contact Dr. Waters to see if he could spend the year with him in Wisconsin. Dripps went to Madison, where he trained with Dr. Waters, and was considered one of the most talented residents to come out of Wisconsin.

Despite his increasing frustrations at Penn, Dr. Taylor remained busy. He became active in the American Society of Anesthesiologists (ASA) and was involved in efforts to start a new journal, *Anesthesiology*. At this same time, Wayne was looking for someone to head a new anesthesiology department, and Dr. Charles G. Johnston, chairman of the department of surgery, consulted Dr. Waters and contacted Dr. Dripps. Though Dr. Dripps was initially deeply interested, citing the school's "money, new blood in the form of many younger staff men and . . . new equipment," he chose to return to Penn. "It was an extremely difficult decision to make, because Wayne is on the way up," he wrote to Waters. Dr. Johnston turned his interest elsewhere and contacted Taylor.

Two weeks later, Dr. Taylor wrote to Dr. Waters, "I have decided to go to Detroit." The decision, he explained, was difficult but largely fueled by his unhappiness at Penn, coupled with the anticipation of a new location. "During the last six months I have developed a dislike for my work here and many of the conditions under which I have labored . . . . Through an error of my own I have not maintained the respect amongst the staff that I think is an anesthetists' due. This error arose, as I see it, from trying to be a good agreeable fellow and please everyone – instead of taking a firm stand from the beginning. This has built up the idea that demands on my time and services are unlimited by most of the surgical staff. I honestly think this was largely my fault."

While Dr. Taylor blamed himself for being an ineffective leader, he hoped that the lessons he had gleaned from his tenure at Penn would be useful as he moved to Detroit. Dr. Waters, ever supportive, responded simply, "I have already telegraphed my congratulations. . . . I think you will find the atmosphere entirely different, and I think you can keep it that way." In addition, Dr. Waters pointed out that Johnston would have "a hard ten years ahead of him to build a real Department of Surgery in Detroit . . . . I also believe that you can be of the greatest help to him, and further that you will be given the opportunity to be of real help." A relieved and enthusiastic Dr. Taylor left for Detroit in August 1941.



**Robert D. Dripps, MD**

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Shortly after his move, he joined up for military service. He returned to Detroit in 1945 following demobilization. He opened an approved anesthesiology residency in Detroit Receiving Hospital in 1946, and was formally appointed the founding chair for the Academic Department of Anesthesiology at WSU, a position he held until 1953. This residency and one at Providence Hospital in Detroit directed by Dr. N. M. Bittrich were two of the first 36 approved by the ASA and listed in 1946 in their newsletter. They predated the program in Ann Arbor. While at WSU, Dr. Taylor spearheaded a training program involving an extensive lecture series. He also became active in the Michigan Society of Anesthesiologists (MSA), helping as it became a regional component of the ASA. He served as President from 1946-1949 for the MSA and as a Director of the ASA from the inauguration of the first House of Delegates in 1948 to 1951.

Despite Dr. Taylor's efforts to attract residents, he still felt regular frustration over the lack of training available to individuals who practiced anesthesia. In May 1947, he wrote, "The greatest need throughout the country is good teaching in clinical anesthesia, and many of us are not equipped and do not have time and help enough to do both good clinical teaching and research that amounts to a great deal." Later he wrote Dr. Waters, "It seems to me that there is still considerable short-sightedness on the part of the medical profession with regard to possible progress that can be made in Anesthesiology. I say this because in our own Medical School the chief is much more concerned about the possibility of some injustice being done to a few nurse technicians than he is over the outcome and progress in Anesthesiology."

Taylor's own academic interests continued throughout his years of clinical practice. After mentoring from Waters in outcomes research, he became noted for studies related to the pharmacology of cyclopropane and toxicology of chloroform. Arguing for the increased use of cyclopropane, he wrote, "The extent to which cyclopropane can be used safely in producing anesthesia depends on the training and ability of the administrator . . . the carbon dioxide absorption technique permits the use of just as much oxygen with ether as with cyclopropane." However, he noted, "The tendency of cyclopropane to depress respiration must be remembered when giving this sedation and when contemplating deep anesthesia with this agent."

While at Wayne, Dr. Taylor continued active in both the MSA and the ASA. In addition, Dr. Taylor joined Wayne County Medical Society and Michigan State Medical Society. He still wrote regularly and published a revealing article, "Anesthesia: The Weakest Link in the Surgical Procedure," in the *Wisconsin Medical Journal* in 1950. This article summarizes Dr Taylor's ongoing concern about the role of the anesthesiologist in the contemporary medical world. Here, he reiterated his belief that anesthesia still was not adequately recognized as an academic and clinical specialty, and expresses concern for the underserved populations who need proper administration of anesthesia.



“At the present time, the best trained anesthesiologists are going to the communities that offer the best working conditions. Most of them want to administer anesthesia and not just act as a troubleshooter. Physicians will choose anesthesia in greater numbers only when they see this specialty treated with the same respect as others.”

In the later 1950's, Dr Taylor moved into private practice. At the end of his career, he served as director of anesthesiology at Hutzell and Harper Hospitals, where he still taught and remained involved in medical politics.

Shortly before his death, Dr. Taylor published “Comments on Anesthesiology” in the Harper Hospital Centennial Publication. “The specialty of anesthesiology is one hundred percent consultative in nature; this is necessarily true in operative treatment and nearly always so in the administration of therapeutic and diagnostic nerve blocks,” Dr. Taylor wrote. “It differs from most specialties, however, in that the patient is rarely transferred to the consultant's care for the treatment of a specific illness. An anesthesiologist is not the patient's doctor and it is possible that this detracts from the desirability of the specialty more than any other factor . . . It is well to remember that the purpose of the medical profession is the care and treatment of fellow beings; to this end, administering anesthesia can be a challenging and satisfying specialty.” In 1966, he died in Grosse Pointe Shores, Michigan, just shy of his 60<sup>th</sup> birthday.



**Ralph M. Waters, MD**

*Dr. Waters' credo was to "teach other doctors to go out and teach." His standards were exacting: he required an anesthesiologist to excel in science, especially pharmacology, physiology and biochemistry, and also to be able to understand and treat the effects of surgical trauma and any subsequent complications.*

*His "Aqualumni," or resident trainees, made significant contributions to the growth and development of modern anesthesiology. Most have enhanced the standards of the practice of anesthesiology.*

## Ralph Waters

Considered the father of academic anesthesiology, Dr. Ralph Waters, Taylor's most significant mentor, revolutionized the practice of anesthesiology in the USA during his tenure at Madison from 1927 until 1949. Though best known for starting the first university-based residency training program, Waters' contributions are more extensive. In a time when anesthesiology was just being defined as a medical specialty, Waters worked to ensure that it was considered an equal within the university with surgery, internal medicine and pediatrics as well as radiology and pathology.

Although private practitioners of anesthesiology can raise many questions concerning their observations during the administration of anesthetics, they are limited in their effort to find answers. Dr. Waters realized that the medical school center, possessing basic scientists as well as clinical faculty, could best solve any questions as they arose.

In 1912, Dr. Waters graduated from medical school at Case Western Reserve, Western Reserve Medical School, and established a successful private practice in Sioux City, Iowa, moving later to Kansas City. There, Waters maintained an ambulatory anesthesia clinic within an outpatient surgical center. He had earlier served from 1914-1916 in the military, in 1916 as an Army U.S. First Lieutenant, in an ambulance company on the Mexican border. In his own words "... major duties overseeing enlisted personnel and intelligent government mules." Though experiencing success, Dr. Waters took time to work on some of the problems of anesthesia and enrolled at the Mayo Clinic for three months in 1926 to learn regional anesthesia from John S. Lundy, M.D. A back injury inspired Waters to pursue a less physically strenuous practice. He moved to the University of Wisconsin in Madison where he was appointed Assistant Professor of Surgery in charge of anesthesia in 1927. He was elected as the first university Professor of Anesthesia in the world at Wisconsin in 1933. At Madison, he had an opportunity to "... work toward bringing back anesthesia into the medical profession where it originally was and where it undoubtedly belongs. The only way I could see of really basically helping this movement was through the educational institutions." Here, he created academic anesthesiology.

While at Madison, one of his major interests was in the role of carbon dioxide and its absorption during anesthetic administration. He also developed an interest in resuscitation. In 1921, two written reports described attempted resuscitations of two patients with high-pressure oxygen. In both instances, peripheral oxygenation was established and, in one, both pulse and spontaneous respiration, though both patients did not survive. As a result, Dr. Waters maintained that mechanical pressure of the gas in the chest could re-establish circulation.

Dr. Waters' credo was to "teach other doctors to go out and teach." His standards were exacting: he required an anesthesiologist to excel in science, especially pharmacology, physiology and biochemistry, and also to be able to understand and treat the effects of surgical trauma and any subsequent complications. Although a self-educated specialist, Waters clearly recognized the shortcomings and inadequacies of early 20<sup>th</sup> century medicine, especially anesthesiology. Constantly, Dr. Waters raised questions about the scientific fundamentals of anesthesia practice.

His "Aqualumni," or resident trainees, made significant contributions to the growth and development of modern anesthesiology. Most have enhanced the standards of the practice of anesthesiology. Because of their leader's sense of community service, they exhibited leadership and some became internationally known in their field. Taylor, although largely ignored, should be proudly included in this list.

Throughout his life, Dr. Waters proved himself an invaluable mentor to Dr. Taylor. Their extensive correspondence, which is only available to us up to 1948, delineates a relationship of trust and professional respect. Dr. Taylor's letters preserved in the collection maintained in Madison and now at the Wood Library reveal an almost courtly tone, always referring to Dr. Waters as "Dr. Waters," while Dr. Waters more informally addresses all his correspondence to "Ivan." In these letters, Dr. Taylor confides in Dr. Waters and shares with him continuing concern over the state of anesthesiology, his professional situation at the University of Pennsylvania, and his career aspirations, in addition to intimate details of his own personal life.

# Further Developments in Detroit



**Ferdinand E.  
Greifenstein, MD**

*“When I first came, we were administering nearly 500 anesthetics yearly, and now our count is above 10,000. In addition, we have received no real support from the City in increasing the number of resident positions, nor have we been able to convince them of the necessity of hiring nurse anesthetists . . . so that they might have more time to devote to the actual learning of anesthesia.”*

In 1952, Henry Ford Hospital, first founded in 1914, formed its first department of anesthesiology. Paul Dumke was its first chairman. Dr. Dumke, who came from the University of Pennsylvania, had studied under Dr. Dripps and was considered one of his most talented protégés. Dr. Dumke coordinated the teaching program at Henry Ford, which was affiliated with WSU. He proved influential throughout every aspect of the educational climate in Southeast Michigan.

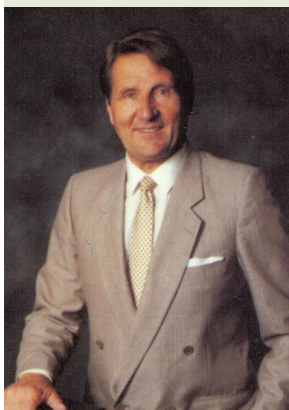
Dr. Ferdinand Greifenstein, another protégé of Dripps, followed Dr. Taylor in 1953 as chairman of anesthesiology at WSU. A graduate of St. Louis University Medical School, Dr. Greifenstein also studied anesthesiology at Penn. During his tenure at WSU, Dr. Greifenstein’s anesthesia caseloads experienced enormous growth and frustration is evident through his correspondence.

In a letter to Gordon Scott, Dean of the WSU School of Medicine, Dr. Greifenstein wrote, “When I first came, we were administering nearly 500 anesthetics yearly, and now our count is above 10,000. In addition, we have received no real support from the City in increasing the number of resident positions, nor have we been able to convince them of the necessity of hiring nurse anesthetists . . . so that they might have more time to devote to the actual learning of anesthesia.” Though Dr. Greifenstein sought desperately to allocate funds for research, but soon believed that it had become a lost cause. Additionally, Dr. Greifenstein pointed to the lack of cohesion within the departments as well as the general weakness of clinical training that he observed.

“The heart of any medical school is its clinical program. Not only is it our primary objective to train medical students, but also to assume the leadership role in the field of medical education,” Dr. Greifenstein wrote in 1958. The department’s “staggering service” load was overwhelming, and he requested the implementation of more nurse anesthetists. He outlined his discontent in lengthy missives to Scott, but there is no record of any response.

In 1960, anesthesiology was still considered a surgical specialty. However, the anesthetic students left the city regularly, due to the overwhelming work load, and poor resident teaching. Finally, Dr. Greifenstein determined that he could not maintain staff members who would not teach and provide clinical training. In particular, he emphasized the need for an increase in the number of student nurse anesthetists and nurse anesthetists. Things came to a head for him in 1963.

In 1963, the charge for the department of anesthesiology was to provide competent anesthesia services throughout the City hospital; it would be staffed by three clinical anesthesiologists along with two additional individuals. The struggle to maintain a solid residency program while teaching nurse anesthetists was obviously a huge concern, as detailed in a memo from James Lofstrom, chairman of the selection program for a new chairman of the department of anesthesiology. “There were seven department chairmanships open ‘at WSU,’ in 1963, and there was terrible difficulty filling them due to a lack of trained individuals.”



**Gianfranco  
Dal Santo, MD**

*He noted that when he took over the department, there had been a “state of chaos and notable ill feeling among the surgical staff, and no cooperation whatsoever from the surgical staff.”*

*During his tenure, Dr. Dal Santo organized the teaching of the CRNA program, coordinated a research program, started a rotation program, and attracted several anesthesia residents in the process. In one year, the program took shape, and research began on the kinetics of distribution of muscle relaxants.*

The need for CRNAs was evident. At that time, the anesthesia service was deteriorating at a record pace, and the morale at WSU was, in his words, “deplorable.” A frustrated Dr. Greifenstein left WSU in 1963 and moved to Arkansas, where he continued to practice anesthesiology before ultimately becoming a Presbyterian minister. He was replaced by Gianfranco Dal Santo, a native of Tolmezzo, Italy.

Dr. Dal Santo studied in Italy before receiving his anesthesia training at Massachusetts General Hospital in Boston. In 1964, he took over as chief of anesthesiology at WSU. At this time, he recalled, the department of anesthesiology at Receiving Hospital was practically nonexistent. Dr. Dal Santo was motivated and sought change. Initial accomplishments during his tenure included a new school of nurse anesthesia and the significant support of the then chief of surgery, Alan Thal. In 1966, Dr. Dal Santo oversaw the completely integrated residency program in anesthesiology between Harper and WSU. He noted that when he took over the department, there had been a “state of chaos and notable ill feeling among the surgical staff, and no cooperation whatsoever from the surgical staff.”

While Dr. Dal Santo extensively outlined his plans to overhaul the department he pointed to the “dualism which exists at the top of our institution and resultant conflict of goals—the City administration, interested in providing services at a minimum cost, on one side and the Medical School, on the other side. Our patient population, which consists mainly of indigent and very sick individuals, and the lack of a centralized medical institution at university level, controlled by the university.” During his tenure, Dr. Dal Santo organized the teaching of the CRNA program, coordinated a research program, started a rotation program, and attracted several anesthesia residents in the process. In one year, the program took shape, and research began on the kinetics of distribution of muscle relaxants.

Frustration still existed, however. Dr. Dal Santo noted ironically that, despite superficial great strides, “We foreign medical graduates were providing anesthesia care to poor and indigent American patients in Detroit, a job that no American graduate wanted.” There was no real academic program to speak of for medical students; Dr. Eli Brown at Sinai Hospital accepted the major responsibility of training these students.

To complicate matters, Dr. Thal was asked to resign, and a leadership change meant that the surgery department was no longer working as harmoniously with the department of anesthesiology as previously. Dr. Dal Santo and Dr. Alexander Walt, the new chair of surgery, had strained relations. To top it off, the crippling Detroit riots of 1967 cast a pall over the city and the medical center that would take years to undo. However, the school and hospitals rose to the task and cared for the victims relentlessly. In his *History of the Department of Surgery*, Dr. Alexander Walt writes, “What began quietly with a small fire ended as the ‘Detroit Riots of 1967’ with devastated buildings, death, injury, destruction, soldiers, snipers and tanks in the streets of Detroit and a huge rent in the spirit of community. Students, residents and faculty of the School of Medicine immediately rose to the occasion. At a time when recriminations were almost universal, this group received nothing but accolades.”



**Eli M. Brown, MD**

*Dr. Brown also changed the concept of education, which had previously allowed residents to administer anesthetics on their own to “obtain experience”. Instead, Dr. Brown insisted that residents be supervised more closely and directly by accountable senior staff.*

Although the suburbs surrounding Detroit prospered, by 1975 Detroit's population was in serious decline, going from close to 3 million to about or slightly less than 1 million in 2001, despite a slightly increased total population in Southeastern Michigan. In 1975, the Accreditation Council for Graduate Medical Education Residency Review Committee placed both the Henry Ford Hospital and Wayne State University anesthesiology residencies on probation and they were closed for a period of time, leaving only the Sinai program under Dr. Eli Brown and a small program at Providence Hospital in Southfield, Michigan. The residency program at Sinai was considered a Wayne State program, even though it was at Sinai, which was not at the time a Detroit Medical Center hospital. Under duress, Dr. Dal Santo also resigned and welcomed Eli Brown as the new director of the residency program. Dr. Gerhard Endler of Hutzel Women's Hospital now served as interim chair at WSU until Dr. Eli Brown from Sinai accepted this post.

Dr. Brown, a native of Maryland, graduated from the University of Maryland and practiced in Brooklyn before coming to Detroit in 1952. He joined the staff of Sinai Hospital in Detroit and developed his own residency program in parallel with the program at Providence, with that of Dr. Dumke at Henry Ford Hospital and that at WSU. He hoped, as he became chair at WSU, to form a department at WSU-DMC that would consist of the departments of anesthesiology at Receiving, Harper, Hutzel, Children's and Sinai, together with the regional VA Hospitals. This plan was not as easy to deliver as it sounded. The private anesthesia groups actively resisted him and did not want to give up their practice for academics. They also worried that the CRNAs would depart, thus severely compromising service to surgeons. The residency program at Sinai was thus considered a Wayne State program, even though it was at Sinai, which was not at the time a Detroit Medical Center hospital.

At the time that Dr. Brown took over the chairmanship of Anesthesiology at Sinai in 1954, Sinai Hospital had only been in existence for a little over a year. When he arrived, the department consisted of 10 CRNAs and no physician anesthesiologists. Dr. Brown's goal was to develop a residency program in anesthesiology that would actually necessitate him recruiting physician anesthesiologists. When CRNAs resigned, they were replaced with anesthesiologists. Eventually, Dr. Brown had a staff of 20 anesthesiologists. By the early 1970's, his department consisted of physician anesthesiologists exclusively, taking in eight new residents per year.

Dr. Brown also changed the concept of education, which had previously allowed residents to administer anesthetics on their own to “obtain experience”. Instead, Dr. Brown insisted that residents be supervised more closely and directly by accountable senior staff. In the program at Sinai, all patients were seen both by residents and an attending physician. This has now become standard practice country-wide. Though at the time, Dr. Brown felt that the cadre of qualified applicants was limited, he nonetheless attracted fine residents during the 1980's, due to the fact that Sinai Hospital was now the teaching location for WSU. Dr. Brown recalled, “Dal Santo tried hard to advance the anesthesiology department at WSU, but he was working under very difficult circumstances.” When Dr. Brown resigned from Sinai, stepping down as his son, Morris, succeeded him at that hospital, his department was not part of the DMC.



**H. Michael Marsh, MD**

*“The goals of the current Department of Anesthesiology at WSU include high quality of clinical care, education, and both basic and clinical research. We are advancing toward our vision of a department, which is a leader in academic anesthesiology, not only in this Midwestern area but nationally.”*

It later became so, Sinai merging with Grace Hospital and moving into a new set of sites. During his tenure, Dr. Eli Brown served as an American Board of Anesthesiology examiner and was also active in the ASA, ultimately serving as president in 1981. In his own words, Dr. Brown wanted to let the public know how to evaluate the quality of anesthesia care strongly believing that this equated with physician delivered care. He wrote, “The public is ill-informed about what constitutes good quality anesthesia care.”

In 1998, Dr. Brown retired emeritus from WSU and Dr. H. Michael Marsh was appointed his successor. In 1999, Sinai Hospital merged into the Detroit Medical Center. Consequently, the residency started by Dr. Brown again became the Wayne State University-Detroit Medical Center Residency and Fellowship Program. Dr. Brown’s vision could now perhaps be realized.

Dr. Marsh, a native of Sydney, Australia, received his medical degree at the University of Sydney and also did post graduate work at Mayo and in Sydney before moving to Rochester, Minnesota, to both continue this education and to practice at the Mayo Clinic. In 1989, he assumed both the Chairmanship of the Department of Anesthesiology and the Medical Directorship of the School of Nurse Anesthesia at Henry Ford Hospital and Henry Ford Health System (HFHS) in Detroit, a position he held until joining WSU in 1998. The anesthesiology residency at HFHS, started by Dr. Dumke and closed in 1975, was reopened under Dr. Marsh’s direction in 1990.

Currently, Dr. Marsh is Chairman, Department of Anesthesiology at WSU, as well as Director of the Anesthesiology Residency Program at WSU-DMC. According to Dr. Marsh, “The goals of the current Department of Anesthesiology at WSU include high quality of clinical care, education, and both basic and clinical research. We are advancing toward our vision of a department, which is a leader in academic anesthesiology, not only in this Midwestern area but nationally. Our current clinical practice is large and comprehensive, serving the seven hospitals and three ambulatory surgical centers, which are the Detroit Medical Center. We practice as a physician-directed anesthesia care team with nearly 60 senior Anesthesiologists on active staff as voluntary faculty providing medical direction and education to 40 residents and fellows. We also direct over 100 certified nurse anesthetists, 45 student nurse anesthetists, 3 clinical nurse practitioners in pain management and anesthesia technicians, among others.”

The situation at WSU-DMC in 2007 remains tenuous despite this vision. Many of the same problems faced by the preceding chairs are again rising to the surface. Currently, the Anesthesiology department at WSU is under pressure from the strained economic situation facing many large academic health centers and universities trapped within decaying U.S. urban areas. Though Dr. Taylor’s legacy may be again at risk, his eloquently espoused vision, molded by Dr. Waters through his exemplary leadership and mentorship, remains a profound inspiration to WSU-DMC anesthesiologists today.

## Commentary and Conclusion

*Dr. Taylor was a pioneer in two academic anesthesiology programs in the USA, first at Penn and then at Wayne, programs with vastly different subsequent legacies. Where the department at Penn has only continued to lead and excel in its own arena, Wayne has pursued a much more troubled and less successful path. Today, its reputation is growing but due to challenging circumstances, the department is still at a developmental stage. The tenuousness of the department was certainly not really Taylor's fault, but rather due to differing local political and economic circumstances. These included the choice of governance structures by the parent university and hospital systems, as well as the efforts and will of succeeding chairs and faculty. In short, human nature played as much a part as science.*

*Perhaps the disregard for Dr. Taylor from his peers, who have left him largely from their histories, was generated by his late defection into private medicine, but surely he was not the only aqualumnus to commit such a perceived "sin." Further, it has been speculated that Dr. Taylor suffered from substance abuse, but such a claim is uncertain. Some may have confused him with fellow aqualumnus and tortured soul Hatch Hathaway, who visited Taylor at Waters' request while in the throes of his own attempted recovery from barbiturate and alcohol dependence. In all events, Dr. Taylor's health was poor in later years, and he found it difficult to quit smoking his beloved cigarettes – a vice that may have hastened his passing. The difficulties of starting a new department and the frustrations he felt in its nascent state may have also precipitated health issues.*

*Lamentably, Taylor remains little known today. There seems to be no good reason why Dr. Taylor should be considered a "fallen leaf" from the tree of succession to Waters. Despite tremendous hardships, his department at Wayne has survived and is on the upswing.*

*Anesthesiology remains a relatively young specialty within medicine. Its acceptance as a medical subspecialty as well as its fledging independence from the service mentality has led to slow progress. However, the field of anesthesiology is now rapidly evolving. Hopefully, its increasingly respected image illuminates both its academic achievements and fine safety record. As the specialty evolves into perioperative medicine and confronts new medical frontiers, the academic ideals set by our forebears must be maintained. The dedication and perseverance of Wayne's department of anesthesiology is a steadfast monument to the memory of Waters, Rovenstine and their successors.*



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## ANNOTATED BIBLIOGRAPHY FOR I B TAYLOR

**Reference Type:** Journal Article

**Record Number:** 1

**Author:** Taylor, I B; Waters, R M

**Year:** 1935

**Title:** Leucocytosis Following Inhalation Anesthesia

**Journal:** Current Researches in Anesthesia and Analgesia

**Volume:** 14

**Issue:** 6

**Pages:** 276-281

**Short Title:** Leucocytosis Following Inhalation Anesthesia

**Research Notes:** Studies in 85 clinical patients and 5 dogs showed that white cell counts increased to 15-20 thousand at 8 hours after the exhibition of common inhaled anesthetics of the time, N<sub>2</sub>O, ethylene, cyclopropane and ether being presented. Spinal with procaine led to a lesser increase.

**Reference Type:** Journal Article

**Record Number:** 2

**Author:** Rovenstine, E A; Taylor, I B

**Year:** 1936

**Title:** Postoperative Respiratory Complications: Occurrence Following 7874 Anesthesias

**Journal:** American Journal of the Medical Sciences

**Volume:** 191

**Pages:** 807-819

**Short Title:** Postoperative Respiratory Complications: Occurrence Following 7874 Anesthesias

**Notes:** Rovenstine had recently moved to New York after setting up a new method for collecting outcome data at Wisconsin General Hospital. Taylor was his first fellow from Waters' program and they combined to write this report showing that for the years 1933-1934 inclusive there was a 6% incidence of respiratory complications after anesthesia in their patient population. Seasonal variation was prominent, and the association of poor outcome when URTI was seen before anesthesia set a policy to limit elective work on children at these times. Surgical time and depth of narcosis were noted to also markedly affect outcome.

**Reference Type:** Journal Article

**Record Number:** 3

**Author:** Rovenstine, E A; Taylor, I B; Lemmer, K E

**Year:** 1936

**Title:** Oropharyngeal Insufflation of Oxygen: Gas Tensions in the Bronchus

**Journal:** Current Researches in Anesthesia and Analgesia

**Volume:** 15

**Issue: 1**

**Pages: 10-13**

**Short Title: Oropharyngeal Insufflation of Oxygen: Gas Tensions in the Bronchus**

**Notes: Using an 8 french leaded ureteral catheter placed into the lower airway from the nose, at the conclusion of general anesthesia and with cocaine to the larynx, these authors measured O2 concentrations in the alveoli over 2-5 hours. O2 was administered by nasopharyngeal catheter positioned just above the larynx. With flow of 6-8 L/min a 50% concentration could be maintained. This was higher than could be obtained from nasal entrance catheters and was a technique favoured by Waters.**

**Reference Type: Journal Article**

**Record Number: 4**

**Author: Taylor, I B; Bennett, J H; Waters, R M**

**Year: 1937**

**Title: Anesthesia at the Wisconsin General Hospital: A Three Year Statistical Report. Part 1 Anesthetic Methods and Postoperative Respiratory Complications**

**Journal: Current Researches in Anesthesia and Analgesia**

**Volume: 16**

**Issue: 4**

**Pages: 187-192**

**Short Title: Anesthesia at the Wisconsin General Hospital: A Three Year Statistical Report. Part 1 Anesthetic Methods and Postoperative Respiratory Complications**

**Notes: This report expanded the prior data from 1933-4 with Rovenstine and allowed fuller discussion. The patient risk classification used presages the current ASA physical state system with E for emergency and A-DD as five classes of increasing preoperative risk. 12,349 cases were submitted to anesthesia over the three years of study, 1933-35 inclusive.**

**Reference Type: Journal Article**

**Record Number: 5**

**Author: Taylor, I B; Bennett, J H ; Waters, R M**

**Year: 1937**

**Title: Anesthesia at the Wisconsin General Hospital: A Three Year Statistical Report. Part II. Operative and Postoperative Complications, (Continued).**

**Journal: Current Researches in Anesthesia and Analgesia**

**Volume: 16**

**Issue: 5**

**Pages: 262-264**

**Short Title: Anesthesia at the Wisconsin General Hospital: A Three Year Statistical Report. Part II. Operative and Postoperative Complications, (Continued).**

**Notes: This follow on paper discusses the circulatory, neurologic, genitourinary, and gastrointestinal complications seen in the three years of data. This data seems remarkably modern.**

**Reference Type: Journal Article**

**Record Number: 6**

**Author: Taylor, I B**

**Year:** 1941

**Title:** Cyclopropane Anesthesia: With a Report of the Results in 41,690 Administrations

**Journal:** Anesthesiology

**Volume:** 2

**Pages:** 641-653

**Short Title:** Cyclopropane Anesthesia: With a Report of the Results in 41,690 Administrations

**Notes:** This report made to the ASA in April 1941 in New York combines data obtained from Wisconsin General and Bellevue continuing the Hollerith card IBM analytic technique first set up by Rovenstine in Madison in 1933. This very early use of outcome studies to support the introduction of a new drug to practice presages current phased trials.

**Reference Type:** Journal Article

**Record Number:** 7

**Author:** Taylor, I B

**Year:** 1941

**Title:** Present Status of Cyclopropane

**Journal:** Pennsylvania Medical Journal

**Volume:** 44

**Pages:** 472-475

**Short Title:** Present Status of Cyclopropane

**Notes:** This presentation was given to the Section on Surgery of the Medical Society of Pennsylvania in October 1940. Dr Haugen commented.

**Reference Type:** Journal Article

**Record Number:** 8

**Author:** Haugen, F P ; Ruth, H S ; Taylor, I B

**Year:** 1942

**Title:** Serial Spinal Anesthesia

**Journal:** Anesthesiology

**Volume:** 3

**Issue:** 1

**Pages:** 52-60

**Short Title:** Serial Spinal Anesthesia

**Notes:** Because of the short duration of procaine intrathecally, Lemmon had developed a "continuous" spinal technique. These authors suggested that serial spinal maybe a more accurate name for this technique which is still used today in modified form. Notably the procaine crystals were dissolved in the patients own CSF before reinfusion for the anesthesia. 50mg in 10 ml of fluid. The silver needles used are still available and used for CSF drainage by neurosurgeons who remain more traditional even than anesthesiologists.

**Reference Type:** Legal Rule or Regulation

**Record Number:** 22

**Author:** Saklad, M ; Rovenstine, E A ; Taylor, I B

**Year:** 1942

**Title:** Interpretation of the 1939 code by Committee on Records and Statistics of the American Society of Anesthesiologists inc.

**Issuing Organization:** ASA

**Publisher:** mimeographed pamphlet

**Notes:** This was the ASA-Physical Status code, still used daily, with 1- 4 levels and E emergent status added to preoperatively assign risk for anesthesia based on comorbidities.

**Reference Type:** Journal Article

**Record Number:** 9

**Author:** Taylor, I B

**Year:** 1942

**Title:** Case Report: Fatal Pulmonary Embolism During Operation

**Journal:** Anesthesiology

**Volume:** 3

**Pages:** 689-691

**Short Title:** Case Report: Fatal Pulmonary Embolism During Operation

**Notes:** Fractured hip held in traction for ten days. When male patient came for operation manipulation dislodged a clot from the femoral vein and the patient died over 25 minutes following massive pulmonary embolus. Embolectomy not attempted.

**Reference Type:** Journal Article

**Record Number:** 10

**Author:** Taylor, I B

**Year:** 1946

**Title:** Spinal Anesthesia

**Journal:** The Journal of the Michigan State Medical Society

**Volume:** 45

**Pages:** 1482-1489

**Short Title:** Spinal Anesthesia

**Notes:** Discussion of technique and aftercare for patients undergoing spinal anesthesia, presented at the Annual meeting in September 1946 in Detroit.

**Reference Type:** Journal Article

**Record Number:** 11

**Author:** Taylor, I B

**Year:** 1948

**Title:** Progress and Development of Anesthesia in the United States

**Journal:** The American Journal of the Medical Sciences

**Volume:** 216

**Pages:** 212-225

**Short Title:** Progress and Development of Anesthesia in the United States

**Notes:** This article leads the section on Progress of Medical Science, 1948, Surgery under the charge of Ravdin and Johnston, chairs of surgery respectively at Pennsylvania and Wayne State. It shows the regard they held for Taylor that he should have been asked to prepare this statement. It is an excellent summary of the history of Anesthesia

from 1846-1948 in the USA and emphasizes his own scholarship and political views, in some large part derived from Waters' mentoring.

**Reference Type:** Journal Article

**Record Number:** 12

**Author:** Taylor, I B

**Year:** 1948

**Title:** Anesthesia for Urological Surgery

**Journal:** The Urologic and Cutaneous Review

**Volume:** 52

**Pages:** 645-650

**Short Title:** Anesthesia for Urological Surgery

**Notes:** This short paper summarizes Dr Taylor's views on care for urologic patients and appeared in a group of papers by noted anesthesiologists of the time.

**Reference Type:** Journal Article

**Record Number:** 13

**Author:** Edmonds, G W ; Comer, W H ; Kennedy, J D ; Taylor, I B

**Year:** 1949

**Title:** Intravenous Use of Procaine in General Anesthesia

**Journal:** The Journal of the American Medical Association

**Volume:** 141

**Pages:** 761-765

**Short Title:** Intravenous Use of Procaine in General Anesthesia

**Notes:** The use of intravenous procaine as an adjunct to general anesthesia was in vogue at that time. This paper was read in Atlantic City at the AMA meeting in 1949, together with papers from Adriani and Graubard and Peterson. There was a panel discussion and the summary of this follows the paper.

**Reference Type:** Journal Article

**Record Number:** 23

**Author:** Marks, B. W.; Taylor, I. B.

**Year:** 1949

**Title:** Home-made anesthesia screens

**Journal:** Anesthesiology

**Volume:** 10

**Issue:** 6

**Pages:** 759-63, illust

**Date:** Nov

**Short Title:** Home-made anesthesia screens

**Alternate Journal:** Anesthesiology

**ISSN:** 0003-3022 (Print)

**Accession Number:** 15393679

**Keywords:** \*Mass Screening

**Notes:** Journal Article

Not Available

URL: [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=15393679](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15393679)

Language: eng

Reference Type: Journal Article

Record Number: 15

Author: Taylor, I B

Year: 1949

Title: Anesthesia-- The Weakest Link in the Surgical Procedure

Journal: The Journal of the Michigan State Medical Society

Volume: 48

Pages: 1144-1155

Short Title: Anesthesia-- The Weakest Link in the Surgical Procedure

Notes: Now 14 years into his career since training with Waters, Taylor is increasingly political. Here he preaches to his medical peers about the necessary steps that must be taken to advance the specialty toward parity. This would be repeated later in Wisconsin.

Reference Type: Journal Article

Record Number: 16

Author: Taylor, I B ; Marks, B W ; Edmonds, G

Year: 1949

Title: Intravenous Administration of Procaine Hydrochloride During general Anesthesia

Journal: Archives of Surgery

Volume: 59

Pages: 714-723

Short Title: Intravenous Administration of Procaine Hydrochloride During general Anesthesia

Notes: This was read at the Central Surgical Association meeting in that year to essentially a new audience. It does seem repetitive but this was the nature of the life of the time.

Reference Type: Journal Article

Record Number: 17

Author: Taylor, I B

Year: 1950

Title: Anesthesia, the Weakest Link in the Surgical Procedure

Journal: The Wisconsin Medical Journal

Volume: 49

Issue: 1

Pages: 301-304

Short Title: Anesthesia, the Weakest Link in the Surgical Procedure

Notes: This was read to the meeting in Milwaukee in 1949. Dr Taylor was coming to the end of a 2 year period as President of the Michigan State Society of Anesthesiologists, from 1947-1949 and may have been politicking here.

Reference Type: Journal Article

Record Number: 25

**Author:** Taylor, I. B.; Stearns, A. B.; Kurtz, H. C.; Henderson, J. C.; Sigler, L. E.; Nolte, E. C.

**Year:** 1950

**Title:** Intravenous procaine--an adjuvant to general anesthesia; a preliminary report

**Journal:** Anesthesiology

**Volume:** 11

**Issue:** 2

**Pages:** 185-98

**Date:** Mar

**Short Title:** Intravenous procaine--an adjuvant to general anesthesia; a preliminary report

**Alternate Journal:** Anesthesiology

**ISSN:** 0003-3022 (Print)

**Accession Number:** 15411053

**Keywords:** \*Anesthesia

**Notes:** Journal Article

Not Available

**Research Notes:** his was the real paper submitted in May 1949 after presentation in 1948 at the ASA. 211 patient uses of 1% procaine with general for thoracic surgery largely are discussed. We still use lidocaine for some of these purposes but procaine has largely fallen out of fashion.

**URL:** [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15411053)

[cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=15411053](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=15411053)

**Language:** eng

**Reference Type:** Book Section

**Record Number:** 21

**Author:** Taylor, I B

**Year:** 1954

**Title:** Cyclopropane

**Editor:** Donald E Hale, AB, MD, MS, FACS, FACA (Cleveland Clinic)

**Book Title:** Anesthesiology by Forty American Authors

**City:** Philadelphia

**Publisher:** F A Davis Company

**Pages:** 304-321

**Chapter:** 10

**Short Title:** Cyclopropane

**Notes:** This very complete discussion reflects Dr Taylor's association with Dr Waters in the early phases of study of this drug. Dr Waters had retired by this time and may have declined any invitation to contribute to this book. Th eight years following this period are quiet for publication by Dr Taylor, who was possibly increasingly involved in private practice.

**Reference Type:** Journal Article

**Record Number:** 26

**Author:** Crawford, E. W.; Taylor, I. B.

**Year:** 1956

**Title:** Anesthetic management of patients in poor physical condition

**Journal:** Curr Res Anesth Analg



**Volume:** 35

**Issue:** 6

**Pages:** 600-8

**Date:** Nov-Dec

**Short Title:** Anesthetic management of patients in poor physical condition

**Alternate Journal:** Current researches in anesthesia & analgesia

**Accession Number:** 13375111

**Keywords:** \*Anesthesia

**Notes:** Journal Article

Not Available

**URL:** [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=13375111)

[cmd=Retrieve&db=PubMed&dopt=Citation&list\\_uids=13375111](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=13375111)

**Language:** eng

**Reference Type:** Journal Article

**Record Number:** 19

**Author:** Taylor, I B ; Crawford, E W

**Year:** 1956

**Title:** Anesthetic Management of Patients in Poor Physical Condition

**Journal:** Current Researches in Anesthesia and Analgesia

**Volume:** 35

**Issue:** 6

**Pages:** 600-608

**Short Title:** Anesthetic Management of Patients in Poor Physical Condition

**Notes:** This was read at the IARS meeting in Miami in April 1956. This report illustrates the type of patients that were presenting to Dr Taylor and colleagues in Detroit and the nature of the pathology seen at that time. We are still seeing some of this in this community and I would believe that the workload was constant. The ASA physical status scale was developed by committee led by Drs Saklad, Rovenstine and Taylor whose monograph is referenced in the text.

**Reference Type:** Journal Article

**Record Number:** 27

**Author:** Taylor, I. B.

**Year:** 1964

**Title:** Comments on Anesthesiology

**Journal:** Harper Hosp Bull

**Volume:** 22

**Pages:** 68-70

**Date:** Mar-Apr

**Short Title:** Comments on Anesthesiology

**Alternate Journal:** Harper Hospital bulletin

**Accession Number:** 14126181

**Keywords:** \*Anesthesiology

**Notes:** Journal Article

United states

**Research Notes:** Now stepping down as Professor and Chair in favour of Dr Greifenstein, Dr Taylor remained in place as Chief at Harper and this piece lacks some of the fire and brimstone of prior talks.

