The following article is reprinted with kind permission from Acta Anaesthesiologica Scandinavica (1998; 42(Supplementum 113): 34-38). The editor received the following note from the author:

April 29, 1999

Dear Dr. Cope,

Many thanks for your kind letter of April 21 and I certainly appreciate that you will publish my paper in the Bulletin. It is (probably) my Swan Song as I am 92.

Best regards
Sincerely,
Torsten Gordh

How Anaesthesiology Came to Sweden

by Torsten Gordh, Sr., M.D., Ph.D.
Professor Emeritus, Department of Anesthesia and Intensive Care, Karolinska Hospital and Institute, Stockholm, Sweden

After Morton's demonstration of ether anaesthesia in Boston 1846, the news spread rapidly over the world. Within one year, anaesthesia was used for pain relief during surgery in major hospitals on all continents. Obviously, communication of news between medical centres worked well also at that time. Thus, there were some basis for a good development in most countries, since the basic facts of anaesthesia were known and practised all over. Anyway, during the first 100 years after Morton's demonstration, the speciality of anaesthesia advanced and matured mainly in the U.S. and in the British Commonwealth. In the rest of the world, including continental Europe and the Scandinavian countries, anaesthesia did not develop into a medical speciality of its own until much later, in the 1940s–50s.

I see two main reasons for this difference. First, the pioneers of anaesthesia were Americans or British, and the plant of anaesthesia naturally grew where the roots were. Second, giving anaesthesia was from the beginning considered mainly as a doctor's task in the Anglo-Saxon countries. In the rest of the world, anaesthesia was usually administered by more unqualified medical staff, nurses or even attendants, or by the youngest doctor, under the supervision of the surgeon. There was no continuity, and no experience accumulated. To have to give anaesthesia was for a surgeon more or less considered as a punishment command. Anaesthesia-related mortality was high and accepted. The leading surgeons in the European countries outside England were conservative and thought that anaesthesia was best governed by themselves, as a minor part of their speciality. I know some anaesthesia-pioneers from different countries, who specialized in anaesthesia abroad (in the U.K. or in the U.S.), and then came back in order to establish a new speciality. In many cases, they were not welcomed by the surgeons. This conservative attitude stopped the process. The wind did not change until the second world war, when it became more and more clear that further progress in surgery (thoracic, neurosurgery, plastic, paediatrics) really required a development of anaesthesia, with specialized doctors and nurses. In Sweden, this development actually started some years earlier than in the rest of Europe, who was at war.

In the 1930s, Swedish surgeons travelling to the United States and the United Kingdom were impressed by the "quiet and safe" anaesthesias given by specialized anaesthesiologists. They wanted that in Sweden too. In 1938, I was the youngest surgeon under Professor Gustav Soderlund at the University Clinic in Stockholm. I had to give anaesthesia in all the Professor's operations without knowing much about it. The period was 6 months, then a new man came. There was no progress or interest. As mentioned above, the situation was about the same all over continental Europe. Soderlund was far-sighted and asked me if I wanted to specialize in anaesthesia. My answer was: "I will

Continued on Page 4
Call for Abstracts: AHA 2000

Anesthesia History Association Annual Spring Meeting
March 29, 2000
Dolphin Hotel Walt Disney World
Orlando, Florida

The Anesthesia History Association invites the submission of abstracts for presentations at its 8th annual spring meeting. This meeting will be held in conjunction with the 25th annual meeting of the American Society of Regional Anesthesia.

Presentations should be 20 minutes in length and relate in some way to the history of anesthesiology, pain management or critical care medicine. Abstracts should be no longer than what can fit on one 8½” by 11” sheet of paper. If possible, abstracts should indicate the research problem, sources and methodological approach used and may contain no more than 10 references.

Abstracts may be submitted by mail, fax or e-mail. Disk submission in Word-compatible format is also permitted. All accepted abstracts will be distributed in some form to all meeting registrants. Individuals who wish to organize a paper session around a theme should contact us as soon as possible.

Abstracts must be submitted by December 15, 1999, to: A.J. Wright, MLS; AHA Annual Spring Meeting Organizing Committee; Department of Anesthesiology Library; University of Alabama at Birmingham; 619 19th Street South, JT965; Birmingham AL 35249-6810; (205) 934-4696 [voice]; (205) 975-5963 [fax]; <a.j.wright@ccc.uab.edu>

Further announcements will be made as details for the program develop.

American Society of Regional Anesthesia History Program

In celebration of its 25th anniversary, the American Society of Regional Anesthesia will offer a full day's program devoted to the history of regional anesthesia during its annual meeting March 30-April 2, 2000, at the Dolphin Hotel Walt Disney World in Orlando, Florida. A morning program will be devoted to a panel of invited speakers; an afternoon program will offer free papers on topics related to regional anesthesia history.

Deadline for the submission of abstracts for the afternoon free papers session is October 16, 1999. Accepted abstracts will appear in the ASRA abstract supplement of the journal Regional Anesthesia. To obtain the Call for Papers for the ASRA2000 meeting, contact: American Society of Regional Anesthesia; P.O. Box 11086; 1910 Byrd Avenue, Suite 100; Richmond VA 23230-1086.

Meeting organizer is Dave Mackey, M.D., at the Mayo Clinic Department of Anesthesia (904) 296-5288 [voice] or <mackey.david@mayo.edu>

Friends of the Wood Library-Museum of Anesthesiology Announces Sale Offer

The Friends of the Wood Library-Museum of Anesthesiology has announced a special Once-in-this-Century offer on the sale of its inventory. Continuing until Labor Day (September 6, 1999), if you purchase any one item from the WLM inventory, you can receive a second item of equal or lesser value absolutely free.

If you are not yet a Friend of the WLM, annual dues are $40.00 and include an invitation for you and a guest to the Friends’ Tea at the ASA Annual Meeting, this year in Dallas, Texas.

For details on becoming a Friend, or for prices on WLM products, please contact: Patrick Sim, Librarian Wood Library-Museum of Anesthesiology 520 N. Northwest Highway Park Ridge, IL 60068-2573 phone (847) 825-5586 fax (847) 825-1692.

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Manuscripts may be submitted on disk using Word for Windows or other PC text program. Please save files in RICH TEXT FORMAT (.rtf) if possible and submit a hard copy printout in addition to the disk. All illustrations/photos MUST be submitted as original hard copy, not electronically. Photographs should be original glossy prints, NOT photocopies, laser prints or slides. Photocopies of line drawings or other artwork are NOT acceptable for publication.
The Wood Library-Museum of anesthesiology announces the pre-ASA Vintage Book Sale. To order any of the following volumes, please contact: Karen Bieterman, Assistant Librarian Wood Library-Museum of Anesthesiology 520 N. Northwest Highway Park Ridge, IL 60068-2573 phone (847) 825-5586, Ext. 58 fax (847) 825-1692

Adams RC. Intravenous Anesthesia. New York: Paul B. Hoeber; 1944. $20.00
Adriani J. The Chemistry and Physics of Anesthesia. 2nd ed. Springfield: Charles C. Thomas; 1962. $15.00
Adriani J. The Pharmacology of Anesthetic Drugs. 2nd ed. Springfield: Charles C. Thomas; 1941. $15.00
Allen CW. Local and Regional Anesthesia. Philadelphia: WB Saunders; 1914. $30.00
Guedel AE. Inhalation Anesthesia: A Fundamental Guide. 2nd ed. New York: Macmillan’Co; 1951. $20.00
Hale DE. Anesthesiology. Philadelphia: FA Davis Company; 1954. $20.00
Labat G. Regional Anesthesia. Philadelphia: WB Saunders; 1922. $50.00
Lull CB, Hingson RA. Control of Pain in Childbirth. 3rd ed. Philadelphia: JB Lippincott; 1948. $20.00
Pitkin GP. Conduction Anesthesia. Philadelphia: JB Lippincott; 1946. $30.00
Robbins BH. Cyclopropane Anesthesia. 2nd ed. Baltimore: Williams & Wilkins; 1958. $20.00
Waters RM. Chloroform: A Study after 100 Years. Madison: University of Wisconsin Press; 1951. $20.00

The Book Corner
by Peter McDermott, M.D.
The Bulletin is launching a new feature—book reviews. We will attempt to survey the entire spectrum of human knowledge and select materials for your consideration. We invite you to offer reviews of your own and to suggest recent publications that you believe merit the attention of other readers.

The Measure of Reality by Alfred W. Crosby (Cambridge University Press, 1997)

This well-written, sprightly little book seems intended, if not destined, for a general readership. The author, whose earlier works include The Columbian Exchange, Ecological Imperialism, and Germs, Seeds and Animals, has struggled to extract from his work in the early modern period a history of measurement and the categorical imperatives of time and space. His contention is that Europeans' success in science, commerce, art, music, and complex bureaucratic governance systems was based upon their shift from a qualitative to a quantitative attitude toward the world. Plato and Aristotle celebrated an antimetrological approach to description and analysis of the universe, using forms and abstractions as interpretive tools. For Aristotle reality was real, but mathematics and measurement did not particularly improve one's understanding of it. The "how" and the "why" of the European departure from their intellectual traditions is the theme of this book.

Crosby locates this shift in thinking to the rather precise interval of 1275-1325. With the invention of the first (European) mechanical clock and the cannon, time and space were quantified: marine charts, measured songs, geometric painting, and double-entry bookkeeping made their appearance. The abacus and the counting board were joined by Arabic numerals and the zero (all these innovations constituting "necessary but insufficient conditions") eased the expression of large numbers. The rising merchant class insinuated itself into the traditional elite just as the university added the virtues of mathematics to the growing language of science.

Crosby uses a rich collection of sensory evidence to make his point. Beginning his narrative with Bruegel and continuing with the great perspectiver, Alberti, the Renaissance artists and Pacioli's late 15th century work on mathematics, he moves from the visual arts, through music into mathematics which we business (bookkeeping) with art.

Crosby concludes with the "new model," the perceptive: the visual model, in which vision and quantification were married. "Visualize it" and the possibilities of measuring it increase. Durer's cartographic approaches to art owe more than a little to Ptolemy and Alberti. Galileo owed more than a little to his father's musical theory and sonic perspectives.

As I said, this book is attractive. It has a valuable collection of references in the footnotes which would have been more useful as a bibliography. Small error: he places Lucretius in the 1st century A.D. A mistake none of us would make.
Sweden... Continued from Page 1

think about it." My intention was to become a surgeon, but I promised to consider his offer. Shortly after, Sweden's first plastic surgeon, Allan Ragnell, who had studied in England, told me that he could not do his work without a specialist in anaesthesia. Later he called me and said: "Nosworthy is in town. Do you want to meet him?" Michael Nosworthy was a consultant anaesthetist at St. Thomas's Hospital in London. I met Nosworthy and during our talk we discussed for some hours the rapidly developing field of anaesthesiology. I realized the developmental lag in Sweden, and the necessity of Sweden's advancement in the new specialty in order to be in the forefront of anaesthesiology, as it was in other medical specialties. Nosworthy also made plans for my training. His advice to me was: "You must be able to give better anaesthesia than the nurses. I will send a letter of recommendation to Professor Waters in Madison, Wisconsin, U.S.A. If you go to England you will watch; in the U.S. you will work." Nosworthy became my godfather in anaesthesiology! Since Dr. Nosworthy was a friend of Professor Waters', it was soon arranged for me to join Professor Waters' department in Madison. This was the Mecca of anaesthesiology. In 1927, the first independent department of anaesthesiology in the United States was established in Madison, and in 1933 Waters received the first professorship in anaesthesiology in the world. On that occasion he declared: "It is the aim of the Department of Anaesthesiology in Madison to serve as an interpreter of pharmacological, biochemical and physiological information as well as to apply such knowledge of safe pain relief for patients, and to the aid and improvement of modern surgical techniques, to better education of medical students and graduates, and perhaps to the development of a little better anaesthetic procedure."9

In October 1938, I arrived at Professor Waters' clinic and started as a junior resident, with free board, lodging and laundry and 25 dollars a month. I spent 16 months there. What struck me the most was that a professor and his staff devoted all their time to anaesthesia. Here, the patient was always attended by a doctor, and anaesthesia was always viewed in the context of pharmacology, biochemistry and physiology. The methods varied: intravenous, inhalation, regional and rectal anaesthesia. Muscle relaxants were not yet introduced. We had weekly seminars about literature and interesting cases. Before going home I travelled to the most prominent anaesthesia departments in the U.S. to pick up knowledge and made many friends for life. I arrived back in Sweden during the war, on April the 8th, 1940, and started at the newly opened Karolinska Hospital University Clinic in Stockholm as the first professional anaesthesiologist, working full time and being paid by the hospital. This was the first hospital connected appointment in anaesthesiology in Scandinavia, and maybe also in continental Europe outside England.2

It was obvious that the most urgent need was to raise the general standard of anaesthesia throughout the country. To accomplish this task, I began by teaching doctors, students and nurses the fundamentals I had learned from Dr. Waters. When a new specialty is introduced, the patients' needs are the first priority, followed by teaching and research. The important improvements that were introduced within weeks were simple and inexpensive: preoperative evaluation, risk grouping, premedication with mor- phine-scopolamine, Guedel's anaesthesia chart, the anaesthesia record with regular registration of pulse rate and blood-pressure, the free airway with Waters' anatomically correct airway and nasal tubes or endotracheal intubation. Oxygen therapy and the importance of the head down position at fall in blood-pressure instead of injecting anaesthetics was introduced.

Careful personal supervision: one must be able to see, hear or feel every breath. At the end of the operation the patient should be so awake that he responds to questions and is able to control his airway. The operation table was our recovery room in the beginning. These factors, adopted from Waters' department, constitute the basic elements of safe anaesthesia.

I tried to convince the surgeons, most of whom I knew as a member of the Surgical Society, of the importance of the new specialty by showing results. In 1944, I could present data that showed a decrease in surgical mortality after greater abdominal operations from about 12-15% in Swedish hospitals without an anaesthesia specialty, down to 7.3% in the Karolinska Hospital and the Serafimer Hospital (also in Stockholm), where principles of modern anaesthesia were practised, a decrease of about 40%.

There is no doubt that modern anaesthesia contributed to reduce or eliminate the old myth: "The operation was successful, but the patient died."5

During this time, I also published many articles and lectures extensively, in order to establish the new specialty Students and doctors from all over the country, and from abroad, came to the Karolinska Hospital to learn modern anaesthesia. After the war, I sent my first three assistants to Madison for further training. They were Olle Friberg, Eric Nilsson, and Karl-Gustaf Dhuner. They soon became chairmen of major anaesthesia clinics established in Stockholm (Sabbatsberg), Lund and Gothenburg respectively. They, in their turn, educated new doctors in anaesthesia.

The period, 1945-55, was filled with intensive development. The specialty was recognized as an important branch of medicine. New positions were opened all over the country. The number of trained anaesthesiologists did not, however, meet the need. The science of anaesthesiology flourished and the research activities were intense. The Swedish Anaesthesiology Club, later the Swedish Society of Anaesthesiology and Intensive Care, was founded in 1946 to promote scientific exchange. Some contributions from this time of Swedish anaesthesia research had international impact. Some examples were: The introduction of lidocaine; arguments for fine gauge spinal needles; the permanent intravenous cannula for intravenous anaesthesia and fluid therapy (originally designed by the surgeon Olofsson for administration of heparin, but later adapted for use in anaesthesiology); Eric Nilsson's thesis "On the treatment of barbiturate poisoning" (the Scandinavian method that became a classic); Thesleff and von Dardel, who introduced succinylcholine clinically for muscle relaxation.7 The Scandinavian Society of Anaesthesiologists was also created during this period (1950), together with the publication of our periodical Acta Anaesthesiologica Scandinavica.

In the period 1955-65, anaesthesiology became more and more established and subspecializations began in thoracic-, neuro- and paediatric anaesthesia. The Engström respirator was constructed and respiratory problems came into focus, especially with the development of open-chest surgery, where Martin Huson Holmdahl and Olof P. Norlander contributed with excellent investigations. The intensive care units were developed under the guidance of anaesthesiologists. Professorial chairs in anaesthesiology were established at the universities in Sweden. The first chair in anaesthesiology after proposals since 1956, was introduced at the Karolinska Institute. I became the holder of this position in 1964. Further chairs were established; at the University of Uppsala in 1965 (Martin Huson Holmdahl), in Lund 1967 (Eric Nilsson) and in Linköping 1970 (Bertil Löfström). In 1974, 1 was succeeded by Oluf P. Norlander. He died in 1988 and his successor is Sten Lindahl. Professor Lindahl has his basic anaesthesia education from Waters' pupil Eric Nilsson. Most present professors of anaesthesiology in Sweden are actually second or third generations of the "Waters' tree." By this multiplying factor, Ralph Waters, who died in 1979 at the age of 96, actually still influences Swedish anaesthesiology.
Today, 1998, we have in Sweden about 1400 anaesthesiologists and academic chairs at all universities. This rapid development reflects the need for the services provided by the specialty of anaesthesiology. Now anaesthesiologists are leading in or contributing to several medical fields, also outside the operating theatre: intensive care, resuscitation, pain treatment, hyperbaric oxygen treatment and many others. It has been a fantastic and wonderful experience for me to take part and to follow this enormous development from the start. The fact that anaesthesiology has formed a specialty of its own, separated from but in close cooperation with other disciplines and has also to follow the development of the basic sciences, such as pharmacology, physiology, neurophysiology, biochemistry, molecular biology, etc. Therefore, there will be a steady development and progress in the future. This can be readily documented from the topics of our regional and international congresses.

We ourselves are human beings, where the anatomy does not change. Our weakness is, however, also the same: the human factor. Accidents do occur even in modern anaesthesia with its technical resources. I believe that we still need the devices of our old emblems: The Association of Anaesthetists in Great Britain and Ireland has In somno secutitas, the Royal College of Anaesthetists, England has Divinum sedare dolo, the American Society of Anaesthesiologists has Vigilance, the Canadian specialty has We watch closely those who sleep and the Swedish Society of Anaesthesiology and Intensive Care has Sapientissima (not only put to sleep, but also awaken).

I have also a personal and private emblem, designed by nurse students after my lectures, the Four S’s (Figure 1). It is in fact, in a nutshell, a summary of my thesis from 1945. The motto is: Give the blood oxygen, give the heart blood, and keep the airway free, which I used in my teaching for the students.

In the future, we will no doubt have an increased armamentarium of anaesthesia possibilities for each patient and each operation, which makes the choice of anaesthesia more difficult and important. I will, once more, refer to one of our great pioneers, Stuart Cullen, and quote his advice: “What is the safest and best anaesthetic in my hand for just this patient, for just this operation and for just this surgeon, and how can I make it most comfortable for the patient?” I think it is important to meet and investigate the patient with your own eyes, and not only look at laboratory data, before deciding the method of anaesthesia. We must also more often consider the patient’s own wishes and feelings. Never make anaesthesia more complicated than necessary. A local anaesthesia for a minor operation is often less dangerous than a general anaesthesia with its risk for respiratory complications. A spinal or epidural anaesthesia to an obese and muscular man for an operation below the umbilicus is often the better choice than a general anaesthesia with a possible difficult intubation. If we consider every anaesthesia as a challenge and not

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Presented by Dr. Gwen Wilson
The First Wood Library-Museum Laureate of the History of Anesthesia
at the 150th Anniversary Celebration of W.T.G. Morton's first demonstration of ether

Mr President and Colleagues,

I would like to say that there is nowhere else in the world that I would rather be today than in Boston, and I wish to thank you for the invitation to be present on such an auspicious and historic occasion.

When Jacob Bigelow, after watching W.T.G. Morton's success, commented, "This is something which will go round the world," I wonder if he envisaged this celebration 150 years later? I also wonder if he ever knew that within eight months of his prediction, it had come true, and anaesthetics had been given in Australia, about as far from Boston as one can get?

One of the most fascinating and rewarding periods of my life was the time during which I studied just how the word of that radical change in medicine went round the world. At the time I was living in a small coastal town in New South Wales, and even the postman was intrigued.

He asked my secretary what I was doing? Why was I getting letters from England, South Africa, America, Mauritius, India, Ceylon, Singapore and Malacca?

It is rather ironic that when I decided to study medicine, I was advised by my high school to give up history and study science instead. This I did, so that later the picture of Australia as it was in 1846-47 came as a revelation.

The isolation of those English speaking communities, not only from the rest of the English speaking world, but from each other, was almost unbelievable.

There was, at the time of our special news, no cable connection even with Tasmanian island settlements, let alone the rest of the world. A lady from America, an entertainment group, as we sat next to each other in an airport bus in London, in 1982, unknowingly summed up this isolation very neatly. She asked where I was from, and when I said "Australia" she gave me a wondering look and said "Australia! My dear, what is that near?"

Like most Pacific islands, Australia isn't "near" to anywhere and homesickness and hunger for news from "Home"—England or Europe—is vividly portrayed both in newspapers and dozens of diaries of voyages in our libraries.

"Ships" was the magic word, and anything to do with shipping, whether it was changes to the ships or their routes, which might shorten the time for reception of news, was fully discussed in the surprising number of newspapers.

When a ship arrival was signalled, people rushed to the wharves, rival reporters pushed to get dahlias to go out to it and grab its newspapers, the signal stations on each headland hastily wrote information about port and date of departure from "home" which they fixed to their flagpoles, and editors prepared special editions.

Just as the 1840s brought a vital change in medical history, so they brought vast change in maritime history, and the two revolutions are inextricably and forever mingled.

Before those years ships sailed from England, Europe or America to Eastern countries by one of two routes, down or across the Atlantic to latitudes of 35 to 45 degrees, where they either turned east and sailed with the trade winds towards Africa and the Cape of Good Hope ("The Cape Route") or turned west and sailed round the notorious Cape Horn, against the trade winds. Naturally, the latter route was least used for the outward journeys, but most commonly for the return voyage, when they again sailed with those westerly trade winds. The sailing time to Australia varied from 120 to 140 days, and to read passengers' diaries or ships' logs is to be struck with awe and wonder that the news of anaesthesia ever reached Australia and New Zealand, let alone the fact that within a very short space of time anaesthetics were given in those countries by brave men who made their own ether, constructed their apparatus from a drawing in the "Illustrated London News," and persuaded patients to let them "give it a go" as we say in my country.

The towns were small, and any disaster would have been known immediately, with dire results for both their practices and the new method of pain relief.

One of the most spectacular of the voyage diaries was written by Mrs. Fanny Perry, wife of the first Bishop of Melbourne. She and the Bishop sailed on the "Stag" which left Portsmouth on 6th October 1847, to sail via the Cape Route, and reached Melbourne on January 14th, 1848.

Mrs. Perry was hoisted on board Stag in a sling and on deck was immediately struck by the sight of the animals and poultry being carried. Several cows and sheep, together with bales of hay, on the poop deck, cows of fowls tied to the portside rails and coops of ducks and geese tied to the starboard rails and a pen of pigs under the ship's boat. The boat itself was crammed with spare sails, ropes, sail cloth and timber for masts and spars.

Since the ships varied in size from only 300-500 tons they too were crammed. Their holds, only opened twice on the long voyages were filled with cargo, newspapers, mail, passengers' large trunks, and migrants' furniture. The migrants' cabins were filled with more furniture, favourite plants and even pets. Mrs. Perry had her canary, and his singing wasn't very welcome when she and the Bishop were violently seasick as the small ship tossed and dropped in heavy storms and winds.

Some of the diarists mention the smelliness of the ships due to the animals and the mildew in the cabins after water from rain and waves had coursed down the walls of cabins in the storms. One and all the diarists mention the continuous unending noise. The creaking ships' masts and spars, the animals, the sailors noisily scrubbing decks at dawn, the ships' fiddlers accompanying every activity with jigs and reels and sea shanties.

All the diaries also speak of the glories of nights and days when the ships were becalmed in the tropics. The ships' captains might be anxious about the delays to the voyage, but those going for the first time from North Star to Southern Cross welcomed the days when they could sit on the decks and watch the sailors swimming and fishing, and the calm bright moonlight nights when they could even sit outside and read in that light.

Mrs. Perry gives wonderful descriptions of the occasions when the ships "spoke" to each other in encounters in the vast oceans. "Speaking" meant that the ships approached each other as closely as possible, and if it was calm, dropped boats and crew members to exchange news. If the ship was bound for "home," England and Europe, the passengers rushed below to write letters to family and friends. If it was a faster, bigger ship going east, newspapers and mail were transferred, to appease the colonists' hunger for news.

If the weather was stormy, Mrs. Perry was terrified the ships would collide, but watched with interest as the captains exchanged news with flags, using the universal "Marriott code."

Again, one and all, the diaries mention the excitement aboard when the ship's so-called "Southing" was done and she reached the southern latitude of the trade winds, turned east and flew along towards the new lands with the help of these winds. That was all very fine in the southern summer, but in winter the ships would encour-
ter storms and icebergs and fogs and sometimes even collide with the icebergs and have to limp to the nearest port for repairs and even food, again with delay to the voyage.

Mrs. Perry, a vivid writer, gives an excellent and thrilling summary of the distances. Somewhere, south of the Cape, on 16th December 1847, she wrote "In October we went 2,783 miles, in November 3,300, December to this day 2,826, making a total of 8,945 miles and leaving a remainder to be done of 5,600 miles." Some journey, on a ship of 400 tons.

From these descriptions we can see that our news did not have an easy passage when the Mountstuart Elphinstone, the Prince of Wales and the Niagara brought it to Sydney in late April and early May, 1847, printed in the English newspapers and journals of late December 1846 and January 1847.

Australia is a big country, and as my research progressed and I visited other State libraries, my eyes were opened wide about transport in the 1840s. In Adelaide the news arrived in the so-called "splendid" time of 2,783 miles. "Some journey, on a ship of 400 tons."

Our news and its results had progressed a long, fascinating way from Boston. Braganza arrived at Singapore on March 14th and her newspapers were transferred to Lightwing which left Singapore for Adelaide on 19th March, and news of anaesthesia was first published in Australia in the "South Australian" by 4th May, the day after Lightwing arrived. One hundred days of steam and sailing was a big improvement on the Cape route voyages, and it is no wonder that in our special year the Australian newspapers were full of lobbying by the P & O steamer service to be extended to Australia.

(Naturally, with interstate rivalry which exists to this day, those on the East Coast of the continent wanted the steamers to come from Singapore through Torres Strait, while isolated Perth, Albany and Adelaide wanted the service to come to them through the Indian Ocean.)

Although Adelaide was first to publish the news of anaesthesia, it was the last of the Australian colonies in which anaesthetics were administered in 1847. Administration began on 30th September, and was given by Dr. Benjamin Archer Kent, who had emigrated from England in 1840.

There are a number of mysteries connected with the first anaesthetics in Australia, and the long delay between May, 1847, when the news arrived in Adelaide, and September, when the first anaesthetic was given there, is one of them.

On the surface it would appear that Kent awaited the arrival of apparatus from England, since the description of the newly arrived apparatus in an Adelaide newspaper is separated only by a semicolon from the description of Kent's anaesthetic, but I find this hard to believe. Kent in 1840 brought with him not only South Australia's first steam engine, but a complicated apparatus for making bricks and a pre-fabricated house. He assembled the apparatus, built the house and later adapted the steam engine for milling flour, and it would seem making the anaesthetic apparatus would have been simple for such a man.

It is of interest that two pieces of apparatus had arrived, and one of them had a connection for the use of oxygen during the anaesthetic. It surprised me to find that oxygen was commercially available in a small colony only 11 years old and isolated from much of the world, but surprises are one of the joys of the study of history.

Perhaps Kent was waiting for such an adjuvant, since the operation was for a breast removal, and is a very early record in Australia of ether being administered continually during the surgery.

On the far away East coast of Australia the ship Mountstuart Elphinstone, named for a former Governor of India, and making its only recorded voyage to Sydney and New Zealand, arrived in Sydney on April 28th, 1847. She had left London on 23rd December 1846, and although that was too early for her to carry reports of the anaesthetic in London, she carried the periodical "Bell's Messenger" which had quite a long article on the Boston anaesthetic and described Morton's apparatus.

Editors of Sydney newspapers, as were editors of newspapers in England, were skeptical of what Robert Liston called the "Yankee Dodge," and no word of the description in "Bell's Messenger" appeared in Sydney publications, but the Editor of the "Maitland Mercury" in the busy town of Maitland, north of Sydney, must have had a feeling about the future, for on the 8th May, 1847, the "Mercury" carried the "Bell's Messenger" news of Boston. This was the first publication on the vast eastern coast of Australia and the news was brought by another small historical steamer from Sydney to the Hunter River port of Newcastle and Maitland. Thistle, Rose and Shamrock were the first iron ships ever to come to Australia. Thistle and Rose plied between Sydney and Maitland, and Shamrock plied between Sydney and Launceston, in Tasmania. Rose at this vital time was laid off for repairs, so Thistle was responsible for the Maitland publication. A month later Shamrock also joined our history, as well as Australia's marine history, as we shall see.

Perth, in Western Australia, and its port, Fremantle, were perhaps the most isolated places in the world to receive the news of anaesthesia in 1847. They had been without mail, newspapers and cargoes for seven

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Australia... Continued from Page 7

months when the “long awaited” William Wise arrived on 5th June. No ships, even from other Australian ports, had called there. Those 1,100 people in Perth and 426 in Fremantle knew nothing of family events in England, world events or decisions of the British Government which might affect them, and any requests to the Colonial Secretary in London or requisitions from the Colonial surgeon had waited some 11 months for replies. The excitement when William Wise arrived may be imagined and is vividly described in the special issues of the newspapers.

For me, those newspapers were the key to further knowledge of how our news penetrated the world in 1847, and further confirmation of our links with maritime history.

In the Perth Inquirer of 9th June 1847, which had a paragraph on the new method pain relief, the editor stated that William Wise news had been acquired from the Oriental Steamship Pekin, which had arrived in Gage Roads, off Fremantle. Pekin rescued her, and they berthed at Fremantle together. My thoughts as I watched the America’s Cup yacht race in Gage Roads in 1987 on the television were a mixture of history and patriotism.

There is no record of an anaesthetic in Western Australia in 1847, but Champion, on her return voyage to England carried a list of requisitions from the Colonial Surgeon to the Colonial Secretary, and among these was not only a quantity of ether, but, of all things, a resuscitation apparatus.

It may be only a coincidence, because Perth had had bad weather, floods and a number of drownings, but that is another of our mysteries.

On the Eastern side of Australia, while the Editor of the “Perth Inquirer” was preparing his publication of Pekin’s news of pain relief, anaesthetics were actually being given in Sydney and Launceston in Tasmania, and it is because of debate in Australian medical journals about which was the first of these anaesthetics that I am in Boston today. I thought, as an anaesthetist, that I might solve this puzzle (and so I did). It took 14 years to do so, and during that time other queries raised their heads, and we still cannot state with certainty who gave the first anaesthetic in Australia. Let us have the positives first.

As I have said, the “Yankee Dodge” tended to be ignored by editors in Australia, and so it was after Prince of Wales had anchored in the dusk outside Sydney Harbour and the reporters had had their race to get to her and grab her newspapers on 5th May, 1847. For days the Sydney newspapers were full of the news from home. Politics, sport, and even fashions were reported, but no word of our miracle.

Then, on 15th May, 1847, Niagara arrived. The Editor of the “Sydney Morning Herald” stated that “she brought no fresh news to add to that conveyed by Prince of Wales.” Nevertheless in his issue of 17th May, 1847, there was anaesthesia. Why the difference?

Niagara had had what was still a fairly usual voyage for ships coming from England. She had left London on 19th January 1847. Most ships left England from Portsmouth or Plymouth, to avoid delay from rough weather or high winds and seas in the English channel.

As happened to Niagara, if the sailing ships encountered such weather, they were, in the familiar terminology of the era, “held at the Downs,” which means anchoring in calmer waters at Deal, a channel port, for days and sometimes a week or two, until the rough seas and adverse winds abated.

Niagara was held at the Downs for several days, and in an ironic way this was lucky for anaesthesia, because when the voyage was resumed she “spoke” to the Faerie Queen 47 days later.

Faerie Queen had sailed from Liverpool, and carried both Liverpool and London newspapers to 1st February which were transferred to Niagara.

On 18th May, the “Sydney Morning Herald” enlarged on its short note on 17th May about the introduction of anaesthesia and gave quite a full description of an anaesthetic at Bristol.

The Symposium on the History of Anaesthesia, commencing at Rotterdam in 1982, provide a wonderful source of information, and after my paper in London in 1987, Dr. Peter Baskett of Bristol pointed out to me that this had possibly been the first anaesthetic in Bristol on 31st December 1846. I checked with F.F. Cartwright’s great book, English Pioneers of Anaesthesia, and found that the Bristol anaesthetic had indeed been a special one. It was the first recorded instance of the patient being “kept under” for the whole length of an extensive operation, rather than the “single dose” techniques used to that date in America or England.

This must have been the difference which persuaded the Editor of the Sydney “Herald” that anaesthesia really had something to offer, and sure enough, the first anaesthetics were given less than a fortnight later by John Belisario, a prominent dentist in Sydney.

The port at Hobart, in Tasmania, a small island off Australia’s South Coast, was visited by many ships. The Japanese whaling fleets, the ships sailing west from Cape Horn and east from the Cape in Africa, and ships from Sydney, Melbourne or Adelaide, which of course carried newspapers from those cities.

Hobart editors, however, as had happened in Sydney, ignored the news of anaesthesia when it first must have arrived. This was even so after the arrival of the Lady Howden from England on 27th May, 1847. Newspapers

ticle in the London Medical Gazette on an unusual anaesthetic he had given, and mentioned other administrations of ether, and with him on the ship he had a Hooper’s apparatus (and, presumably, ether). One anaesthetic was given at Port Louis, on the Western side of Mauritius, and the other, for an amputation of an arm on May 23rd at Grand River Hospital on the Eastern side of the island.

These anaesthetics were described not only on the Cape Town papers, but in the “Perth Inquirer” of August 4, 1847. Perth had waited a long time for William Wise, in June, but in July Arpenteur and Champion had arrived simultaneously. Arpenteur had come from Mauritius via India, and had stranded herself in Gage Roads, off Fremantle. Champion rescued her, and they berthed at Fremantle together. My thoughts as I watched the America’s Cup yacht races in Gage Roads in 1987 on the television were a mixture of history and patriotism.

There is no record of an anaesthetic in Western Australia in 1847, but Champion, on her return voyage to England carried a list of requisitions from the Colonial Surgeon to the Colonial Secretary, and among these was not only a quantity of ether, but, of all things, a resuscitation apparatus.

Ptakin was a large new steamer of 1,182 tons, built specially to institute a big change in P & O services to the East. When she arrived at Cape Town on 1st April, 1847, she was making her maiden voyage to Bombay, in India, and a remarkable voyage it was. Bombay was the nearest port to Suez, but when the Oriental service was inaugurated the strong influence of the East India Company had prevented P & O from using it, and Galle in Ceylon had been substituted. Now that influence had waned, and P & O seized the opportunity. Ptakin was to sail from Bombay to Hong Kong, and her passengers, mail and newspapers would no longer have to be transferred to smaller ships at Galle.

The ship had already created maritime history when she arrived at Cape Town in a record 45 days from Southampton carrying the largest mail which had ever arrived at the Cape, and English newspapers to 15th February, 1847, plus 70 first- and 22 second-class passengers. As she steamed from Cape Town on 8th April she joined anaesthetic history. In her wake she left the first anaesthetic in South Africa, given by the dentist Alfred Raymond on 17th April, 1847, the supply of our news to Perth and Fremantle, and, amazingly, the first anaesthetics on the island of Mauritius. I say amazingly, because the anaesthetics were given by Dr. Thomas Bell, ship’s surgeon on the Ptakin.

Even before he joined Ptakin, to sail on 15th February, Bell had already published an ar-
from ships at Hobart were conveyed to the tiny town of Launceston on the northern coast of Tasmania in coaches travelling over rough roads and beset by bushrangers, usually ex-convicts, all year round. Small and distant from shipping routes Launceston may have been, but the Launceston Examiner recognised the value of the news from Boston, which was published in the issue of June 2, 1847.

In less than a week a brave Launceston doctor, William Russ Pugh, gave what is almost certainly the first anaesthetic for a surgical operation in Australia, at the tiny private hospital, St. John’s, which he and his partner had established.

I have spent years trying to discover why it was Pugh, in Launceston, of all doctors in Australia, who pioneered anaesthesia, but without success. In a paper in 1947 which celebrated the 100th year since Pugh’s anaesthetic it was stated that he was the nephew of Robert Brown, the famous botanist who first described “Brownian Movement,” but search of all the Brown archives in the Botanical Section of the British Museum show no such connection. These archives, however, did reveal letters from Jacob Bigelow to Brown, telling of Booth’s visit to Boston and America in 1846 and trying to persuade Brown to undertake a similar visit—it only cost $5 a day! So I did discover why Bigelow wrote to Booth, his fellow botanist, and set the news of anaesthesia on its way round the world.

Booth must have wished his visit to Boston had lasted until October 16, to judge by the speed with which he acted in London. The news from Bigelow on 17th, and the first anaesthetic in London on the 19th December, 1846.

Incidentally, when St. John’s Hospital in Launceston had to be closed in 1857, due to cessation of convict transportation and the opening of Launceston Hospital to the general public, sometime in the 19th century the building was re-named “Morton House.” So far we have not found out why or how this came about, but it is surely not just coincidence.

On 7th June 1847 William Russ Pugh walked across the square in the centre of Launceston from his house and his laboratory to St. John’s Hospital, there to meet not only the patient, but an audience which included the editor of the “Launceston Examiner” and other doctors. He had prepared his own ether and constructed his apparatus from a drawing in the Illustrated London News of January 9th.

Not only the Editor of the “Examiner” sat down that day and wrote of the success; Pugh himself wrote a long article that same afternoon which was later conveyed to Sydney in the “Shamrock” and published in the July issue of Australia’s first medical journal. So far as I can find, no other journal of the period, anywhere, contains a description of an anaesthetic which was written on the same day as the first administration was given. This is more or less the equivalent of the difference between the ship’s log of daily events and an account of the voyage written when port was reached.

New Zealand, the end of the long line from Boston, was in 1847 luckier than poor isolated Perth, for it was a frequent stopping place for ships completing the journey by crossing the Pacific and rounding Cape Horn to the Atlantic and America and Europe.

Nevertheless the news, after its long voyages, was printed in the “Wellington Independent” of July 7th 1847, thus fulfilling Jacob Bigelow’s prediction, and when the first anaesthetic in New Zealand was given by Dr. Marriott on September 26th, 1847, the circle had been completed in less than a year of that prediction.

I said earlier that there were mysteries surrounding the first anaesthetics in Australia, and two of these mysteries are tantalizing.

The first concerns the anaesthetic itself. In the July 6th, 1847, issue of the Sydney Morning Herald was a copy of a letter printed at the request of Captain Phillip Parker King, an important man, who was at that time in charge of the huge acreage and settlement of the Australian Agricultural Company, established at Stroud, close to Maitland. The letter is intriguing to say the least. It was written by Dr. Colin Buchanan, medical officer to the Company, and describes an anaesthetic he gave to one of the company’s employees, several days after a previous note to King.

The letter begins, “I wrote to you on the 21st.” Did Buchanan refer to 21st May, which would make it the first in Australia, or did he mean 21st June? This would have made it an early anaesthetic, but not the first. The brave doctor further confuses the issue by saying “not being aware of the kind of apparatus used for the inhalation of ether, I tried the simple bladder and mouthpiece, similar to what is used in the inhalation of nitrous oxide, and first tried the ether on myself.”

If his anaesthetic was given a few days after 21st May, Buchanan could have seen the description of Morton’s apparatus in the “Maitland Mercury” on 8th May. If it was not given until after 21st June, then the description of Belisario’s anaesthetic and other anaesthetics in England were available to him from the Sydney papers, which faithful Thistle delivered daily to the Hunter River region.

Dr. Richard Bailey has established contact with Buchanan’s descendants, but there is no record in family archives of such an event, and the Agricultural Company’s records for that period have been destroyed.

I myself think the letter was written after the 21st June. Not only would the smart Editor of the Maitland Mercury not have missed an early anaesthetic in his own area, but why did he print a copy of the “Herald” letter in the “Mercury” of 21st July unless he thought this would be news of his public?

I am, however, very interested in the fact that, so far from each other, Crawford Williamson Long in America, and Colin Buchanan in tiny Stroud in Australia, had both observed nitrous oxide inhaling parties, and used their observations as the basis of their anaesthetics.

The other mystery surrounding the first anaesthetics in Australia concerns the arrival of the news. Sydney should have had that news before South Africa or the ports on the P & O Line.

My search of the shipping archives in the State Library came to an abrupt halt when studying the arrivals of ships in February 1847. There in black and white before my astonished eyes was the record. Robert Pulsford departed Boston 21st October 1846, arrived in Sydney Harbour 5th February 1847. I rushed to the newspaper section of the library. Yes, there was a Boston newspaper brought by Robert Pulsford, but no, this one remaining paper carried no news of Morton’s anaesthetic, given only five days before the ship sailed, and published in the Boston newspapers of 17th October 1846.

I already knew of the Sydney editor’s lack of interest in the “Yankee Dodge,” but search of all the country papers held by the library showed no sign of the news either.

Robert Pulsford made a remarkable voyage of 106 days from Boston to Sydney. We know she came by the “Cape Route” because she “spoke” to the Union off St. Paul’s Island in the Indian Ocean, but Professor Cousins in South Africa has carefully checked that she did not call at Cape Town.

These facts aroused other questions in my mind. Most ships at this time still sailed by the old “Mercator” charts, described in 1569 in the book Mercator was the first to call an “Atlas.” Mercator believed the shortest distance between two points was a straight line, and designed his routes accordingly, but between 1842 and 1847 Australian newspapers had been full of the rival claims of Lieutenant Maury of the United States and John Towson of England. Towson believed that since the world was a globe the sailing route was a great circle, and the higher the latitude the smaller the circle. Maury, who had studied hundreds and hundreds of ships’ logs, based his plans for new routes on winds, tides

Continued on Page 17
History of Anesthesia: Early Use of Nitrous Oxide

by A.J. Wright, MLS
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During the past one hundred and fifty years a number of gases have been adopted into anesthesia practice—ether, chloroform, cyclopropane and others—which have disappeared from the clinical armamentarium as better agents appeared. Yet the oldest gas used for surgical pain relief, nitrous oxide, remains a frequently used agent in certain types of surgeries and dental procedures.

Nitrous oxide was first identified around 1774 by the great English chemist, Unitarian minister, author and all-around radical Joseph Priestley. Although Priestley suggested a potential medical use for the various gases with which he experimented, this potential was not tested until the late 1780s when English physician Thomas Beddoes began efforts to adapt gas inhalation for therapeutic uses. Beddoes' work eventually led to the founding of his Pneumatic Institution near Bristol, the hiring of a young Humphry Davy as research assistant and their experimental work over more than a year with nitrous oxide. ¹ In one of the closing paragraphs of his great monograph describing this research, published in the summer of 1800, Davy left us this tantalizing observation: "As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place." ² Thus the concept of surgical pain relief via gas inhalation appeared at the very beginning of the nineteenth century. The medical community of the day met Davy's suggestion with stunning disinterest.

Yet knowledge of nitrous oxide did not disappear entirely from public view. Medical and chemistry textbooks, literary and other satires, and public and classroom demonstrations of nitrous oxide's remarkable effects on humans served as channels in which information about the gas survived for the next four decades.³ At one such public demonstration in December, 1844, in Hartford, Connecticut, dentist Horace Wells reconstructed Davy's observation about nitrous oxide and began experiments with the gas on himself and then his patients. In the following month he persuaded one of America's most famous surgeons, John Collins Warren, to let him demonstrate the gas in the operating theater of the Massachusetts General Hospital in Boston. When the patient cried out during the operation, Wells was hooted from the room by the medical faculty and students in attendance and the demonstration was widely perceived a failure. Almost two years later, in the same room, William Morton successfully demonstrated ether anesthesia for the same surgeon, and the battle over who "discovered" anesthesia began.²

Wells continued to use nitrous oxide even after his Boston "failure" and Morton's demonstrations in October and November, 1846. The following article, written by Dr. E.E. Marcy of Hartford, describes a case of August 17, 1847, in which Wells administered nitrous oxide to one of Marcy's patients who had a testicle removed. After describing the successful surgery, and the patient's assertion that after a brief initial pain the rest of the surgery was painless, Marcy proceeds to vigorously defend nitrous oxide as a better agent than ether. Marcy continued to defend Wells and "his" gas even after Wells' suicide in early 1848.⁴

References
2. Davy H. Researches, Chemical and Philosophical; Chiefly Concerning Nitrous Oxide... London: J. Johnson, 1800, p. 556.

Marcy EE. Removal of a large scirrhus testicle from a man while under the influence of nitrous oxide gas. Boston Medical and Surgical Journal 37(5):97-99, September 1, 1847.

The subject of the operation was a young man, 24 years of age. He had been afflicted out exposing the patient to any of the untoward effects which result from the use of ether. The latter article offers a more deleterious effect upon the nervous system than the former, as is indicated by the pain in the head, lassitude, &c., which follow its use. Another still more important objection to the use of ether, arises from its injurious effect upon the patient commenced inhaling the gas at half past 1 o'clock P.M., and after about one minute from this time the operation was commenced. At the first incision there was a slight manifestation of pain (the full effect of the gas not having yet been received), but from this instant until the diseased mass was removed, and all the bloodvessels [sic] secured (there being quite a number which required ligatures), there was not the slightest consciousness of pain on the part of the patient. We were satisfied that this was the fact during the operation, from the placid and happy expression of his countenance, from the entire absence of all muscular efforts, and from the natural and unconcerned state of the pulse (this having remained without any apparent variation during the whole period). The operation was necessarily tedious and protracted on account of the great size of the gland, the extensive and firm adhesions of the integuments to the diseased structure, and the unnatural enlargement of several arteries which required ligature. The whole period consumed, from the commencement of the operation until the vessels were secured, was not far from fifteen minutes. On questioning the patient afterwards, he asserted that he experienced a slightly painful sensation at the commencement of the first incision, but from that time until the dressings were applied he was entirely unconscious of any pain!

After the operation, he expressed himself as feeling perfectly well, except some smarting in the wound; no pain or other unpleasant feeling in the head or any other part of the body; pulse regular and natural, as before the operation.

August 18th.—Since the operation, the patient has suffered no pain or other unpleasant symptoms. Pulse 82, and moderately firm. Expresses a strong affection for the gasbag, and an earnest desire to retain it in his possession as the grand balm for the pains and troubles of this life.

The above case affords additional testimony (if this was required) that the nitrous oxide is capable of banishing sensibility in the most severe operations, and that, too, without exposing the patient to any of the untoward effects which result from the use of ether. The latter article offers a more deleterious effect upon the nervous system than the former, as is indicated by the pain in the head, lassitude, &c., which follow its use. Another still more important objection to the use of ether, arises from its injurious effect upon the...
RESERVATION FORM

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Anesthesia History Association

MONDAY, OCTOBER 11, 1999

Hotel Adolphus
Dallas, Texas

6:30 p.m. — No-Host Social Hour
7:15 p.m. — Business Meeting and Dinner
8:15 p.m. — Pepper Jenkins and JFK: A Moment in Dallas that Lasted 25 Years
Adolph "Buddy" Giesecke, Jr., M.D.

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blood. It has been found by experiment that the arterial blood becomes slightly charged with carbon after the inhalation. The effect of this upon the system must be very injurious; for unless the due proportion of oxygen be retained in the arterial blood, diminished nervous force and vital energy, with other states which at least predispose to disease, must be induced.

The above objections will not hold good in relation to nitrous oxide, as its constituents are the same as common air with an increased proportion of oxygen; while the ether bears no analogy to air, and will therefore be more prone to give rise to injurious consequences. The effect of ether upon the circulatory vessels is in the first instance extremely violent, succeeded by an alarming state of depression in their action. The effect of the gas is much milder upon these vessels, and never need be carried to such an extent as to be followed by any depression. When Dr. Wells made the great discovery, in 1844, that the inhalation of nitrous oxide gas would render the body entirely insensible to the pain of surgical operations, the question suggested itself to me, as well as some others in this city, whether sulfuric ether might not answer as good a purpose as the gas. This subject was fully discussed at that time by a number of professional men here, and a trial made with the ether; but the general opinion was then formed, that the nitrous oxide was on many accounts preferable. Numerous trials with both these substances, from that period to the present time, have demonstrated conclusively that this opinion was correct.

I am informed by Dr. J.M. Riggs, of this city, that he has used the gas constantly since Nov., 1844, and with uniform success. He has performed more than one hundred dental operations on patients while under its influence, and with more uniform success than has resulted from the use of ether.

Dr. Wells has used the gas in only about fifty instances, on account of his relinquishing his professional business for a time. We are assured by both these gentlemen, that in no instance have they been troubled by muscular efforts on the part of their patients. Indeed, it may be asserted with safety, that so far as muscular action is concerned, it possesses a decided advantage over the ether. We are aware that it has been impudently asserted by certain interested persons who have never given the protoxide a trial in an operation, that the patient will become "dancing mad," &c. &c. But facts prove this to be far from the truth. So far, then, the gas is preferable to the ether.

Another superiority which it possesses over the ether, is that its after-effects are far less unpleasant—less headache, less lassitude, and less depression of the nervous system, always resulting from its use. Ether generally causes troublesome choking and cough; the gas scarcely ever. Ether is objectionable on account of the unpleasant smell which it communicates to the room; the gas possesses no disagreeable odor. Ether abstracts largely from the oxygen of the arterial blood, thus becoming a direct source of disease; the gas has no such effect. Ether gives rise to pains in the head, lassitude, impaired vital energy, and other symptoms indicating serious depression of the nervous system; the gas rarely produces any of these effects, and if ever, only in a slight degree. In order to produce the full effect of the ether, it is customary to reduce the patient to a state of stupor; the gas is capable of rendering the body entirely insensible to the pain of the most severe surgical operation, without putting the patient to sleep, or causing any stupor! We have often observed patients watch the progress of severe operations upon their own persons, with countenances as smiling and happy as if they were enjoying a delightful treat.

We firmly believe that the gas would have long since entirely superseded the use of the ether, had it not been for the trouble attending its preparation. We trust, however, that in future this slight inconvenience will not prevent the surgeon, who has the welfare of his patient at heart, from making use of the agent so manifestly superior in its effects.

The State Legislature of Connecticut, which has just closed its session, has, after a due consideration of the evidences, fully recognized Dr. Horace Wells, of Hartford, as the sole discoverer, and have passed him a vote of thanks for this great discovery, which consists, as the vote expresses it, in the use of "nitrous oxide gas or ether in surgical operations." Thus the question of priority is finally settled by legislative enactment.

E. E. Marcy, M.D., Hartford, August 21, 1847

Sweden... Continued from Page 5

as a routine task, I think we can reduce the anaesthetic accidents even more in the future.

I wrote the following in an article in 1844, in order to stimulate the interest for the new specialty: "In conclusion, I would maintain that anaesthesiology conceals far more variation and interest than many physicians may suspect. Each administration of an anesthetic drug is unique, and even where the same drug is used, not two cases are exactly alike. For the true anaesthesiologist, the management of an anaesthetic is a continued and fascinating study, a never-failing source of applied physiology and pharmacology in the human being, with its shifting nuances of pulse, blood-pressure and respiration in response to different concentrations and actions, is a delightful and as yet little explored field of scientific research." (translation from Swedish). I am sure this statement still is in many ways true, also in the fields of intensive care and pain treatment, that have developed as other cornerstones of our specialty.

Finally, I want to thank all other pioneers of Swedish anaesthesiology, who usually alone on their post, for many years, in all hospitals in the country, contributed to the establishment of the new specialty. The important contributions from the anaesthesia nurses are also warmly appreciated. I also thank Professor Sten Lindahl and all other good friends at the Department of Anaesthesiology and Intensive Care at the Karolinska Hospital, for making me belong to the clinic even after my retirement, and for arranging this symposium to celebrate my 90th birthday. At last, but not the least, my thanks go to my wife Ulla, my early assistant and co-worker, who shared all this with me, and made it possible.

References
Mortality during the First 25 Years of General Anesthesia in America: Contemporary Outcome Studies

by Doris K. Cope, M.D.

Early Record-Keeping

In the 1860s during the American Civil War, massive battlefield casualties, the spread of infectious diseases like measles and erysipelas, and overcrowding of military prisons often taxed the resources of both armies in providing adequate medical care. One Union surgeon, Dr. Edmund Andrews (Figure 1), in spite of his heavy daily workload, was frustrated by his inability to follow his patients from initial care in the field hospitals through their post-operative treatment in hospital boats or general hospitals. Dr. Andrews was exceptional among physicians of the time in his efforts to carefully collect data from each of the patients that he treated in the field. Within a few months after caring for the wounded in battles fought near Vicksburg, Mississippi, he published a report in the Chicago Medical Examiner entitled “Complete record of the surgery of the battles fought near Vicksburg, December 27, 28, 29 and 30, 1862,” in which he methodically reviewed the outcomes in hundreds of his patients. In addition to the completeness of his records, he carefully categorized all of his surgical cases by regiment, injury, operation, anesthetic technique and included follow-up reports on each patient varying in time from days, in some cases, to over a month. In his article he contended that without adequate record-keeping, “…the enormous statistics of almost all our great battles have been lost to the profession, and the vast and costly experience of so much blood and death have been rendered worthless for the settlement of the many questions in practical surgery.”

Lack of outcome data not only affected the individual surgeon but the state of medical practice as well. “It is a painful fact, that after these battles the results of the various operations and injuries remained entirely unknown to the original operators, and they gained almost nothing by their experience, except the skill of hand acquired in their manipulations.” After presenting detailed tables and supporting text he concluded with the comment: “…it is peculiarly gratifying to me that at length we are able to bring the maxims of military surgery to the corrective test of a large collection of facts, obtained on the western fields.”

Observations Derived from Review of Cases

Practical conclusions drawn from these data included the observation that most gunshot injuries were sustained on the right side of the body as the skirmishers delivered their fire from behind the right side of the trees where they stood while sheltering their left sides. Another pertinent clinical observation by Andrews was that contrary to external appearances, a gunshot wound entering a limb anteriorly generally caused hundreds of shattered pieces of bone, thus was more likely to require amputation than a shot traveling in a posterior to anterior direction in which case splinters were driven outward with less resultant injury. He noted that often a posterior wound “was so hideous, that it is not uncommon for the inexperienced operator to be moved by it to cut off the better limb and save the worse.” These lessons he illustrated after the war in his popular lecture series in Chicago in which he shot cadavers and dissected the damaged areas for medical students. Fortuitously, Andrews also became interested in comparing the effectiveness and risk of death from chloroform and ether general anesthesia. This is where our anesthesia story begins.

Biographical Notes on Edmund Andrews

Edmund Andrews was born in Putney, Vermont, in the US. on April 22, 1824. He was descended from a long line of Congregational ministers who originally settled in Hartford, Connecticut in 1640. As a result of his own efforts and his mother’s teaching, Edmund Andrews matriculated as a sophomore at the University of Michigan when first it opened in Ann Arbor in 1846, the year of the first public demonstration of ether anesthesia. In addition to premedical studies, he worked his way through college by teaching vocal music and directing a church choir, while still finding time to serve as the president of his college’s literary society. Upon graduation, he spent a year observing medical practice in the office of a Dr. Zina Pitcher, later to become the tenth president of the American Medical Association. During this interval he supported himself by teaching school and functioning as the University’s Superintendent of Grounds and Buildings. Andrews then entered the first class at the University’s medical department, attending class while working as Demonstrator of Anatomy with the responsibility of obtaining necessary cadavers for the school. After receiving the M.D. degree in 1852, he remained at the University for two years as Professor of Comparative Anatomy before accepting the position of Lecturer on Comparative Anatomy at Rush Medical College in Chicago, where he again had the responsibility of obtaining anatomic materials. He became a noted teacher and lecturer and, in 1859, a founding member of the Chicago Medical College, later to become Northwestern University.

During his early medical practice in Chi-
cago, he demonstrated his eclectic interests and effervescent personality by innovative contributions in such diverse areas as geology, natural science, medical education, poetry, music, Church organ design and construction. He also contributed important new techniques to the medical specialties of urology, military surgery, orthopedics and colon-rectal surgery. In 1861, after the outbreak of the War Between the States, he served on the staffs of Generals Sherman and Grant at Shiloh, Corinth and Vicksburg. He refused several assignments to Union Army Headquarters to remain in the field in order to treat wounded soldiers.  

**Nitrous Oxide-Oxygen Anesthesia**

During this time, in addition to a Vicksburg battle outcome study published in 1863, Andrews carefully recorded the type of anesthetic used for each of his surgical cases. He decided to favor nitrous oxide over ether or chloroform because the rapid induction afforded early recovery and minimal post-anesthetic distress. However, he also observed the rapid onset of asphyxia with nitrous oxide. After mulling the problem over, he decided to try adding free oxygen to improve the safety of N₂O. Coincidentally for Andrews, he was unaware that Benjamin W. Richardson of London, successor to John Snow, and at that time the greatest authority on all matters anesthetic, had already decided that mixing oxygen with nitrous oxide was "unsafe" and "not successful." This widely disseminated opinion was sufficient to deter other investigators from experimentation with oxygen enrichment of nitrous oxide anesthesia except the practical Andrews, who continued his experiments.

Thus, three years after the ending of Union and Confederate hostilities in 1868, Dr. Andrews published another paper titled "The Oxygen Mixture, a New Anesthetic Combination." In this report he cited nitrous oxide and oxygen anesthesia employed in five preliminary experiments on rats followed by a description of administration of nitrous oxide and oxygen to four patients. "Every surgeon who has seen the prompt and pleasant anaesthetic action of the nitrous oxide gas, so much used by dentists, has wished that in some way it might be made available in general surgery. The patient usually goes under the influence in 30 to 40 seconds, and wakes with equal promptness, without vomiting or other unpleasant symptoms, all of which is in striking contrast with the slowness, the nausea, and the discomforts of chloroform and ether. There have been, however, great obstacles to the use of the gas, owing to its evanescent action. The oxygen contained in it is in a state of chemical combination, so that it is not available for oxygenation of the blood; hence if any attempt is made to continue its action, the patient becomes purple in the face, showing all the signs of asphyxia; subsultus tendinum then supervenes, and shortly after he almost ceases to breathe, and, if allowed nothing but pure nitrous oxide, would doubtless die in a few minutes. I have for some time been experimenting, to see whether by the addition of free oxygen to the nitrous oxide, a mixture would not be obtained, by which a patient might be anaesthetized for an indefinite period without danger of asphyxia, and thus render gas available for the most prolonged operations of surgery." Further, in this same set of experiments Andrews describes the first attempt at carbon dioxide absorption in a closed anesthesia delivery system via use of lime water spray. Not until 10 years later, on November 11, 1878, at the French Academy of Sciences did Paul Bert (Claude Bernard's disciple) report on the successful amputation of a dog's leg under nitrous oxide-oxygen anesthesia. Bert's anesthetic rendered a dog insensible, with muscle relaxation prior to operation, and so resulted in the demonstration of the safety of nitrous oxide-oxygen anesthesia to a wide audience.

**Anesthesia Case Reports**

Throughout his practice, Andrews kept record books of over 10,000 surgical cases with detailed histories and outcome for each patient. These were maintained at the hospital, at home, his office and even on occasion in the dispensary. Assigning a number to each case to avoid duplication, he carefully bound the records in sequence. Later he cross-referenced cases of the same type or in the same patient. An example of a case study in which he compared different general anesthetics in the same patient is shown by Case 6064. The report reads: "Mixed gas anesthesia, pure gas anesthesia, sulfur ether anesthesia in the same patient. October 3, 1868, Mrs. Beber very anxious temperament ingrowing toe nail. Two months ago I took sulpho ether for operation on left foot for the nail. Got to sleep

Continued on Next Page

Figure 2. Personal correspondence from Dr. W. Cheevers, City Hospital, Boston, September 4, 1869.
Outcomes...Continued from Page 13

slowly felt no pain. Six months ago—took pure nitrous oxide for extraction went to sleep in about a minute, felt no pain, face blue, was wild a long time after waking and felt uncomfortable several days. Today took gas mixed with oxygen for extirpation of other nail. Anesthetized in minutes, no blueness of lips. Kept inhaling 3 minutes from beginning. Wakes up wild after three minutes more. Continuous wild 15 minutes, but recovered quicker and with more comfort than from pure nit [sic] ox gas.\(^9\)

First Outcome Study on the Morbidity of General Anesthesia

Beginning in 1867, Edmund Andrews began to systematically investigate the morbidity of general anesthesia. Although his contemporaries, Drs. M.M. Perrin and Lallemand of France had deemed a comparison of anesthetic mortality an impossibility, Andrews persisted. In the introduction to his study he stated: "Other surgeons seem to have been equally hopeless of success in this matter, so that our best works on anaesthesia are often perfectly silent, on the important point of the relative dangers of the different articles. Yet this is the very thing on which the surgeon most needs light, at the present time. It is well known that chloroform is by far the most convenient article for use, and, therefore, always to be preferred, if equally safe; but if it is materially more dangerous than ether, the conscientious surgeon will choose the latter, for the sake of the safety of his patient. This is, therefore, a question of tremendous magnitude, possibly involving thousands of lives in its decision, hence the surgical profession will not quietly acquiesce in the opinion that its solution is impossible."\(^10\)

Certainly Andrews could not ever have been said to quietly acquiesce in the face of difficulty. He solicited data from the government, large teaching hospitals, and searched the British and European literature. In addition, he obtained data regarding nitrous oxide general anesthesia from dental practices. Methods were described as follows: "In obtaining these facts, my method of procedure was, take from the records of each hospital (where reliable records existed), the number of anaesthesias and the number of resulting deaths. Reports of deaths, not accompanied with the number of anaesthesias, and reports of anaesthesias, not stating the number of deaths, are rigidly rejected. Where reliable records did not exist, I obtained, by personal consultation with the house surgeons, a careful statement of the annual number of anaesthesias, based on the known average frequency per week, and carried this estimate over any period, during which the same offers could certify positively as to the number of deaths... In deciding what deaths were really caused by the anaesthetics, I have generally followed the opinion of the officers reporting them; but where this could not be obtained, I have adopted the principle, that for a death to be fairly attributed to the anaesthetic, it must be immediate, or nearly so, and there must be no other probable cause present. These rules exclude a great number of deaths, vaguely reported as due to chloroform and ether. Thus, out of 21 reported to the Surgeon-General of the U.S. Army, as caused by chloroform, only seven were found fairly attributable to that agent. It is not possible to keep absolutely clear of all errors, on this point, but I think I have obtained a close approximation to the truth; and as I have pursued exactly the same course with ether as with chloroform, the errors, if any exist, must be fairly distributed on both sides of the question, and the results of the comparison of the two anaesthetics cannot vary much from mathematical verity."

Since information concerning the morbidity and mortality of ether or chloroform anesthesia during first 25 years after their introduction is almost wholly anecdotal, it is interesting to examine correspondence re-

Finally, if we summarize the whole matter, it seems that the various anaesthetics have the following rates of mortality:—

<table>
<thead>
<tr>
<th>Anaesthetic</th>
<th>Deaths</th>
<th>Administrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sul. Ether</td>
<td>1</td>
<td>23,204</td>
</tr>
<tr>
<td>Chloroform</td>
<td>1</td>
<td>2,723</td>
</tr>
<tr>
<td>Mixed Chloroform and Ether</td>
<td>1</td>
<td>5,588</td>
</tr>
<tr>
<td>Bichloride of Methylene</td>
<td>1</td>
<td>7,000</td>
</tr>
<tr>
<td>Nitrous Oxide</td>
<td></td>
<td>75,000</td>
</tr>
</tbody>
</table>

Chicago, No. 6, 16th. St.
April 5, 1870.
received from large hospitals in response to his queries. Surgeons from the Alms-House section of Philadelphia Hospital responded that both ether and chloroform were administered by four attending surgeons: one who used “all together chloroform” which he even gave successfully to an 8-day-old patient; “two surgeons who gave primarily ether; and a fourth surgeon who uses more ether than chloroform.” Also in Philadelphia at the Pennsylvania Hospital “sulphuric ether is used in this institution in all operative cases requiring an anesthetic to the immediate safety of the patient” without any known deaths.

Dr. William Cheever, one of a long line of Boston surgeons at the City Hospital in Boston, immediately understood Andrews’ methodology and was able to calculate the death rate from ether anesthesia in 8,760 cases over five years. Also from Boston, Dr. Hodges from the Massachusetts General Hospital (MGH) wrote that “two patients were killed by chloroform... by Dr. J.C. Warren when that anaesthetic was first introduced, and since those cases, which occurred on the same day, nothing but ether has been used.” In another response from the MGH, one Elliott Richardson, a resident surgeon in 1869, commented on his own interest in deaths from anesthesia and his preliminary attempts to “score” or “tally” the use of ether anesthesia. However, since it was given so frequently and “so absolutely safe is it considered” his attempts at documentation were discontinued. He claimed that “students, nurses, and even patients administer it [ether] with perfect safety without any particular watching of pulse or any anxiety about respiration, the sponge being removed only when snoring becomes marked.”

On July 3, 1869, the U.S. Governmental Surgeon-General responded in typical bureaucratic fashion by referring Andrews to a governmental form, circular No. 6 SGO page 87. After asking for a more specific response, Andrews was sent another letter which again directed him to the same printed circular with the explanation: “In reply I would say, that the inquiry you make, if I comprehend it, would involve the re-examination of many thousand reports, and that the clerical force at my command is inadequate for such special inquiries without interrupting the regular work of digesting the surgical statistics of the office.” Obviously the importance of surgical morbidity from general anesthesia was not considered worthy of “interrupting the regular work.” However, from this medical director’s office, the conclusion was that “chloroform was administered in not less than 80,000 cases” with 21 deaths. Yet even after giving the requested statistics, the answering official, George A. Otis, protested with the comment: “It is simply impossible for me to interrupt my own inquiries to enter upon investigations involving much labor and the employment of numerous clerical assistants. On so large a subject as that to which you refer, it would be necessary to consult many thousand reports.” It is interesting to note the degree of bureaucratic inertia prevalent 130 years ago.

By contrast, the response from Cook County Hospital in Chicago, to this day known as a hospital with mostly indigent patients and large caseloads, appeared to be very simple and direct as it appears to have been quickly jotted down without wasted energy on a scrap of paper: “On surgical side anaesthetics administered about 456 times—one death. Ophthalmic and aural ether administered about 95 times—no deaths. Two patients however stopped breathing and had to be resuscitated. On obstetrical side about 24 times chloroform.”

Dr. Andrews published his compiled findings, three years later in 1870 in the Chicago Medical Examiner. The mortality data for general ether anesthesia, derived from 92,815 cases in 12 hospitals, was 1 death per 23,204 cases. This contrasts with the chloroform morbidity calculated from 117,078 cases at 23 hospitals which was calculated to be 1 death per 2,723 cases. Mixed chloroform and ether anesthesia resulted in 11,176 reported cases with 2 anesthetic deaths for a rate of 1 death per 5,588 cases.

However, when compared to the mortality of ether and chloroform general anesthesia, the statistics for nitrous oxide anesthesia obtained by the Colton Dental Association (the same Gardner Quincy Colton who supplied Wells with N₂O) showed nitrous oxide to be quite safe with no reported deaths occurring in 75,000 cases. To the American data, Andrews added reports from the English and European literature revealing the safety of chloroform, ether and even bichloride of methylene. His concluding table demonstrates the overwhelming safety of nitrous oxide anesthesia in 1870.

Conclusion

In the 1860s, a commonly held regional and international belief was that one anesthetic agent was superior to all others and therefore should be given to all patients. Therefore a continuing trans-Atlantic debate was carried on regarding the safety of ether versus chloroform anesthesia, albeit with anecdotal reports and a gamut of opinion ranging from the position that all anesthesia was dangerous and experimental, to the stance that many more lives were saved by surgery and anesthesia than were lost. Problems of under-reporting and the rarity of an anesthetic death in a single practitioner’s lifetime contributed to the frustration of con-
From the Literature

by A. J. Wright, M.L.S.
Department of Anesthesiology Library, University of Alabama at Birmingham

Books


Articles/Book Chapters/Reviews


Belkin NL. Surgical scrubs—where we were, where we are going. Today's Surg Nurs 20(2):28-34, March/April 1998 [3 illus., 3 tables, 23 refs.]


Bill Marinko to retire after 35 years with ASA. ASA Newsletter 63(3):20, March 1999 [illus.]


Blau JN. Soranus of Ephesus on migraine. Lancet 353:678, February 20, 1999 [correspondence] [3 refs.]


Greene NM. In memoriam: Gwnifer C. Wilson, MD, MBBS, DA (Syd), FANZCA, WLM Laureate of the History of Anesthesia. NYSSA Sphere 51(1):6-18, January-March 1999 [portrait].


Jackson DD. You will feel no pain. Smithsonian 229(2):187-196, February 1999 [2 illus., 26 refs.].


Lawin P. The historical development of intensive care in Germany. Contemporary Medicine's Anesthesist 48(1):26-35, 1999 [German] [see article by Lawin P above].


ducting outcome studies. Still another study was undertaken by French physicians in Lyons in 1859 in which chloroform morbidity was estimated as one death in 6,000 patients. However, the authors balanced their findings with the conclusion that an unknown number of lives were indeed saved by chloroform anesthesia. 19

In 1859 John Snow analyzed 50 deaths associated with the administration of chloroform concluding that “cardiac syncope” and not pure anesthetic effect was the cause of death. 20 Twenty years later, the Hyderabad Commission Reports, published at the beginning of 1890, stated that the principle cause of anesthesia death was overdose. Andrews's study, undertaken at a time between these two investigations, was exceptional in that he contrasted different anesthetics, including mixtures of agents, to compute a relative danger from each. He presumed that in a series as large as his, risks pertaining to particular patients, surgeons or institutions and errors made by approximating cases, would translate across all of the anesthesia groups examined.

Clearly this early outcome study has many shortcomings, not the least of which was the approximate nature of the calculations of the number of anesthetics and anesthesia-related deaths. Another realistic confounding factor was bias in favor of nitrous oxide administered in dental procedures, which presumably are shorter and have less risk of mortality than general surgery performed in sicker patients. Other essential influences not considered in Andrews's study were the sociological factors prevalent at the time. Extremely ill, poor, or desperate patients were more likely to be hospitalized in the 1860s as compared to the less sick or more prosperous patients who usually received medical care and anesthesia at home. Thus hospital reports did not reflect an entire general population undergoing surgery. However, the collection of such a large number of cases from so many different institutions, so early after the introduction of general anesthesia, was highly informative.

For a medical educator with a busy professional and personal life, Dr. Edmund Andrews pursued the question of anesthesia safety to a remarkable degree for a surgeon of his time or at any other time. It is interesting to contemplate how the indefatigable Dr. Andrews might have fared with the modern statistical techniques of meta-analysis and the assistance of computer technology. In his investigation of oxygen enrichment of nitrous oxide, CO₂ absorption in the anesthesia circuit, careful record keeping and comparative outcome studies, the remarkable Edmund Andrews ranks ahead of his time as a paragon of practical Midwestern common sense and energetic determination.

Acknowledgments
The author acknowledges the courtesy of Dr. William K. Beattie, retired Professor of Medical Bibliography, Northwestern Medical School, Chicago, for his suggestions; the Northwestern University Medical Library, Historical Education for making the Edmund Andrews Surgical Case Books available, and Patrick Sim of the Wood Library-Museum for his assistance.

References

Editorial Staff Note
A curious coincidence occurred during the production of this issue of the Bulletin! My husband (an anesthesia department chair) held chair’s rounds (journal club) at our house, and the topic was outcomes research. I had no idea this was the topic, but happened to glance at the journal articles he had given to his residents. When I saw the early (1953) outcomes study, and then looked through the stack, I asked, “Is this about outcomes? I just happen to have a really early outcomes study that’s going into the Bulletin!!” I shared this article with Edmund Andrews; the residents were quite fascinated and I got in a good plug for the study of anesthesia history.

Australia... Continued from Page 9
and seasons, and claimed in the newspapers that Towson's routes were simply his routes by another name. Towson disputed the claim. Maury's work was published for the first time in 1847. Was Robert Pulford's rapid voyage an attempt to establish its contribution to navigation?

Another question rose with regard to the crew of Robert Pulford. Had any of its sailors been amongst those to whom Morton spoke when he paid his visits to the waterfront in Boston to find volunteers for practice of his new method of pain relief before he made his demonstration? If so, did they gossip on the Sydney waterfront?

Of course, had the news been received from Robert Pulford it would have been of the use of “Letheon” as Morton called his ether, so the Australians would have had to wait a while for information about a new agent, and wait for samples of it, before anaesthetics were given right “round the world” from Boston, but I firmly believe that some day some document will be found which will show that Bigelow's prediction came true in the shortest possible time.

Today I feel I'm completing the last section of our circle from Boston and back again, and I hope this rather long paper has shown you that although Australia is not “near” to anywhere, we appreciate and adopt new ideas with speed.

Thank you.

Literature... Continued from Page 16
1999 [Norwegian; correspondence].
Tribute. Robert Alvin Berman, M.D. NYSSA Sphere 51(1):37, January-March 1999 [illus., including issue cover].
Young CT: Transfusion medicine in Rhode Island. Med Health R 82(2):73, February 1999 [correspondence].
Thomas Drysdale Buchanan (1876-1940)

by P.M. Dearborn
Reprinted from The Quarterly of Phi Alpha Gamma, May, 1940

They buried Tom from All Angels Church on Easter Sunday. Some hundreds of devoted friends, colleagues and former patients joined the family in this last visible token of respect. Old and young, rich and poor, professional and lay, they sensed the tasteful Easter decorations common to many churches on this Sunday of Sundays; they saw the beautiful floral tributes from societies and individuals grouped about the red-rose covered casket; they listened mutely to the short and impersonal Episcopal ritual, not meant as an emotional appeal but offered alike for saint and sinner and they doubtless approved the solo rendition of “Nearer My God to Thee,” “Lead Kindly Light,” and “Abide With Me.” But what were their innermost thoughts before, during and after these simple services? One cannot answer with certainty for face to face with matters eternal, most people are not articulate. Anyone’s guess may be as good as another’s but to me it seemed the end on this earth of a good man’s service to humanity.

It was not surprising that Thomas Drysdale Buchanan was as Scotch as the skirl of a bagpipe, for his father, James Drysdale Buchanan, was a native of Glasgow and his mother, Margaret Leslie, hailed from Paisley, both in the old country. Born in the Chelsea section of New York City on March 9, 1876, Tom went through the elementary grades and graduated from Public School No. 55 on West Twentieth Street. He then attended Columbia Grammar School and Paine’s Business College. Taking a job in a Wall Street firm, Tom came to the conclusion after less than a year that he wanted to be a doctor, like many of the Buchanan clan in Scotland including the uncle for whom he was named. One can imagine it probably pleased his father because his brothers James and William and sister Isabella did not follow the family trend. However Tom had the pleasure of seeing his nephew, Kenneth Wallace, graduate from the New York Homeopathic Medical College in 1916 after becoming a member of Alpha Chapter ofPhi Alpha Gamma.

The class of 1897 numbered only seventeen but they had more than their share of mischief-makers and Tom was the elder with practical jokes, parodies and doggerel (some contributed to the Chironian of which he was a staff member) plus a bit of the Sailor’s Hornpipe and the Highland Fling thrown in for good measure. Even at this early date he smoked cigarettes and evolved a system whereby he got plenty without the formality of purchase. Truly symptomatic of financial wizardry! Perhaps after all Tom might have succeeded in Wall Street. When he graduated from the Flower, as we old-timers always called the homeopathic college, he was just past twenty-one and despite a valiant blond mustache, was young and looked it. For one year from June 1, 1897 he acted as house surgeon in the Metropolitan Post-Graduate School of Medicine on East 84th Street. For the balance of 1898 he served as an intern in the Flower Hospital and hugely enjoyed his ambulance ride with the greatest of ambulance drivers, Bill Casey, and his well trained horses, formerly the property of the New York fire department.

The seven students who gathered about a radiator in the museum of the New York Homeopathic Medical College on March 25, 1894 hardly suspected that a medical Greek letter fraternity of national scope would result from their efforts. It may truthfully be said the ideals and spirit of the Founders have resulted from their efforts. Anyone’s guess may be as good as another’s but to me it seemed the end on this earth of a good man’s service to humanity.

To judge a physician’s professional career by his medical college and hospital appointments may be sufficient proof of achievement but to say he was the leader in his specialty can only be determined by a doctor’s colleagues. From the simplest beginnings of ether and chloroform administrations, Tom had the brains and will to raise himself to the level of any and the peer of most workers in anesthesiology. For nearly forty years, representative surgeons learned to rely upon the appreciation of its proper use served to soothe many a wearied and unhappy being. A master of mimicry, a student of dialect and a clever magician, he never failed to observe the proprieties of the occasion. Tom never talked out of turn but even listened to others tell his own yarns months after their creation in his fertile imagination. Never once during the long years of our friendship did I hear him make a faux pas. He knew his audience whether one or a crowd; he entertained them at all times and intrigued them with the impossible. His command of ridicule was keen but kindly and never bitter. Tom was happiness personified.

Tay-Day-Bay will live in the memory of all readers of our fraternity Quarterly for his original contributions in the vernacular which Tom knew so well how to use. He gently ripped to pieces theory and practice, the past, present and future, individuals and groups, invariably to the great delight of his general readers as well as those so well torn up. They often came back wit proper retort and added to the merry nature of our fraternity sheet. Who will ever forget the passage at arms, covering many years, between the erudite Clifford Mitchell of Chicago and our New York Tommy? They were bosom friends and the best of fraternity brothers. Members of the Helmuth, Unanimous, Meissen and Anesthesia Travel Clubs need no reminder of the “parties” Tom fathered either in a solo sense or as the chairman of the Program Committee. With a large acquaintance among professional entertainers, he often chose a few good numbers to fill out a program of his own creation. New words to an old tune, clever magic, limericks, captions on cartoons or imaginary news sheets—one was as easy for Tom’s mental agility and keen humor as another. Medical Board dinners lost their monotony when Tom spoke his piece. The same may be said with even greater emphasis when local or national fraternity gatherings fell to his lot to entertain.

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soundness of Tom’s judgment. His calmness under stress was a distinct asset. His colleagues in anesthesia willingly accorded him the honors that were theirs and by so doing, demonstrated their own good judgment of the man and his ability.

The scramble to gather to one’s self positions in hospitals and medical colleges when as young doctors we are thrown out to earn a living, can easily by the cause in later years of surprise and merriment. Thus we note with pleasure that Tom was appointed Attending Physician to the Outpatient Department of the Flower in 1898, genito-urinary surgery (1899) and surgery (1900), Attending Surgeon to the Five Points House of Industry and Physician to St. Mark’s Day Nursery. Tom delighted to tell how he started in anesthesia “I was a junior at the old Homeopathic College and at that time it was the practice to take on four seniors to do the anesthesias for the clinics. Naturally, I was anxious to be selected as one of the four who were to do the anesthesias for old Dr. Helmuth’s clinic. In trying to get this experience, I finally got hold of a junior surgeon and asked him if he would allow me to give an anesthetic and he said, ‘Yes indeed, you bring me a case for surgery and I will let you give the anesthetic.’ So I did. And that was about the only instruction I had in anesthesia, it being more than most interns received at that time.” Tom became in 1899 the first Anesthetist selected as one of the four who were to do the anesthesias for New York, to the Flower-Fifth Avenue Hospital, and to the Fitzkin Memorial Hospital, in addition to his more active work already outlined. While he did not write any textbooks, his pen was responsible for many clear and concise articles on anesthesia, shock, the organization of post-graduate activities in teaching anesthesia, new technique and equipment.

Naturally the teaching of anesthesia began. He was a Founder, Past President and Representative of the American Society of Anesthetists on the American Board of Anesthesiology of which he was President. Tom held Certificate No. 1 of this Board. He helped to establish the headquarters of the American Society of Anesthetists and devoted energy and time to the museum and library of this association. Whenever or wherever the progress of his specialty was concerned, Tom was ever in the foreground as evinced by his active participation in the New York Anesthetists (president), the Eastern Society of Anesthetists (vice-president), the Southern Association of Anesthetists, the Middle West Anesthesia Society, the International Anesthesia Research Society, the Associated Anesthetists of the United States and Canada and the Anesthetists Travel Club, a group of fifteen congenial anesthetists of North America which has met for eleven years without organization or officers. Tom was on the committee that arranged the exhibition on anesthesia, shown at the New York World’s Fair in 1939.

It was Tom’s interest in anesthesia and his sense of duty as a real American citizen that led to his acceptance of a Captain’s commission in the World War. He entered the United States Army on September 13, 1918, and organized the Army School of Anesthesia at General Hospital No. 14, Fort Oglethorpe, Georgia. Then he was transferred to do a similar job and became Chief Anesthetist in the Camp Hospital at Camp Upton, New York and in the General Hospital No. 9 at Lake-wood, New Jersey. His service was interesting professionally although he had no overseas duty. Honorably discharged on May 5, 1919, he became a Major, Medical Reserve, in 1921 with special assignment to the Surgeon General’s Office to draft plans for a Division of Anesthesia. A member for many years of the New York Athletic Club and the American Legion, Tom was likewise a lifelong member of Continental Lodge No. 287, Free and Accepted Masons. A staunch Republican and a Presbyterian with later Episcopal affiliations—will suffice to sum up his political and religious creeds.

A happy and contented home life is an asset to anyone and emphatically so to a professional man. Anna Marie Kuper who was married to Tom in the old Westminster Presbyterian Church on April 14, 1901, might well say that Tom was invariably happy and considerate but she provided the quiet and serenity that Tom needed. Their union was blessed with a daughter, Marie, born in 1911. She graduated from Vassar College in June 1932, married James R. Clarke shortly afterwards and made Tom a grandpa by the advent of Thomas Buchanan Clarke and James Stephen Clarke, a lively pair just suited to their grandfather’s tastes—for after all, men are boys, a bit grown-up. One hates to contemplate what these boys will have missed as time goes on but if a guess may be hazarded, it’s Tom who is the real loser. Tom’s whole family are now united at Locust, New Jersey, on the Shrewsbury River, the summer home of the Buchanans for the past thirty-nine years. This is where Tom started his real and fictional studies of the blue crab, observations that disclosed a scientific side of Tom’s mind that no one suspected but which even he questioned and ridiculed.

A brave soldier does not need to be huge of stature or mighty of muscle. Tom was neither and had no delusions in this or similar respects. He employed the mental stamina his Maker gave him with which to face life’s problems and his steadfastness may well have been predicated upon the stern moral teachings of his Scotch Presbyterian background. Never aggressive, he knew how to stand up for his opinions and fight for them when necessary. Devoted to his family, friends, and associates, he was proud of his descent, early education, and affiliations. He was honest with himself and exhibited the finest bravery in the last months of his life, when he well knew what lay ahead and he chose to fight to the end. He gave an anesthetic on the morning of March 21, 1940 and died that evening at eight. It was his second coronary attack; the first having occurred in September 1939.

This is not the time or place to quote Tom’s wise and foolish sayings and verses but mention must be made of his contributions to his specialty like the Buchanan Oral-Pharyngeal Rebreathing Tube and the Buchanan Ether

Continued on Next Page
Annual Meeting and Dinner
Anesthesia History Association

MONDAY, OCTOBER 11, 1999
Hotel Adolphus
Dallas, Texas

6:30 p.m. — No-Host Social Hour
7:15 p.m. — Business Meeting and Dinner
8:15 p.m. — Pepper Jenkins and JFK:
A Moment in Dallas that Lasted 25 Years
Adolph “Buddy” Giesecke, Jr., M.D.

Cost: $65.00 per person
Mail reservations no later than September 24 to:
Douglas Bacon, M.D.
6494 Old Post Circle
East Amherst, NY 14051-1513

Dr. Buchanan... Continued from Page 19

Drop Cup and his scientific and other published articles such as his paper on anesthesia written for the Encyclopedia Americana. Apart from a recital of his professional activities and associations, I can only write as a tried friend of forty-four years; one who knew him before he became a physician, who became acquainted with little Marie when she was a day old and watched her career with satisfaction, who knew Tom fraternally, socially, and professionally as few have known him. Tom’s friends believed in him not only because of his splendid achievements but because they knew he seldom showed poor judgment. However being human and imperfect, he erred like the rest of us was ever willing to admit it with good grade. If there is a word of sadness in these lines of mine, it is unintentional for contemplation of a life of good deeds calls for no expressions of sorrow, no matter the degree of mourning. To be cherished in the hearts of his friends might well be Tom’s notion of an epitaph.