Original Contributions of Latin-Americans to Anesthesia

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Most Chapters in text books of Anesthesia dealing with the history of this specialty include the same events told in a different manner with certain emphasis on certain regions of the world, the country on which language the book is written and/or the special subject of interest to the author. Since most books in Anesthesia have been written in the English language, by English speaking authors, there has been a certain tendency to have certain origins of this specialty emphasized; after all the first anesthetics were given in Georgia and Massachusetts1,2, followed by its application and ample promotion in the United Kingdom as John Snow administered ether and chloroform within a month.3

Nevertheless, there is a considerable number of important and original contributions made by non-English speaking authors dispersed among the non-English medical literature that deserves recognition, debate and consideration as to the role they might have had on the advancement of this our beloved Specialty. With this preamble, we would like to describe some events that merit acknowledgement not only because they were innovations at the time, but also because some of them were conducted under hardship, the participants had limited economical resources and little technological support but that also suggests that the protagonists had a great deal of ingenuity, courage, clear thinking and perseverance. Specifically, these events were carried on by colleagues from Latin American countries, most of their deeds were published in non-indexed journals and therefore many of them were forgotten or ignored.

First Anesthetics in a War

An important historical event needs mentioning as a point of clarification since prior to its finding it was thought that the first anesthetic in a war conflict was administered in the Crimean War in 1854.4 Nevertheless, historical data revealed otherwise. When WGT Morton administered in Boston the first public ether anesthetic on October 16, 18461, the United States and the Republic of Mexico were engaged in a war initiated about seven months earlier by the separation of Texas from the latter and its recent admission as a State into the former. Soon thereafter Morton offered to train military surgeons on etherisation. On the other hand, once the news of the first successful ether application was known, a military surgeon in semiretirement in New Orleans, Dr. Edward H. Barton (Figure 1) proposed to the War Department the possible application of ether to the battle field and requested full reinstatement; by December President Polk had approved the request so Barton would receive instruction on the use of Letheon and could then administer it to injured soldiers.

Figure 1: Military surgeon Edward H. Barton commissioned by the U.S. War Department to use Letheon on injured soldiers undergoing surgery.

Since the land campaign commanded by General Zachary Taylor, through Texas, and northern Mexico appeared to be slow and costly in supplies and casualties as demonstrated from the fierce battles of Palo Alto, Resaca de la Palma, Buena Vista (Angostura) and Monterrey, President Polk and the War Department agreed that General Winfield Scott would initiate what appeared to be a shorter campaign by landing in Vera Cruz and advancing toward the capital.

On February of 1847, Barton was sent by way of La Havana, to join the fleet blockading the central part of the Mexican Gulf under Scott’s command. On early March, the first American troops landed south of the port and entered Vera Cruz after running into mild resistance. In the process of disembarking, a German porter recently recruited, was accidentally shot in his legs when a musket discharged spontaneously while he was unloading a wagon. After attempts to save the porter’s legs failed, Continued on page 4
Anesthesia Foundation
Book/Multimedia Education Award

The Anesthesia Foundation announces the Book/Multimedia Education Award to be presented 2003 at the American Society of Anesthesiologists Annual Meeting.

This prestigious award will be awarded tri-yearly for excellence and innovation in books or multimedia with significant impact on the science and practice of anesthesiology, critical care, or pain medicine. Multiple authors are eligible with the stipend being divided between the first and senior authors.

The award is $10,000, plus expenses for winners and guests to attend the Academy of Anesthesiology 2004 Spring meeting in Victoria Island, Canada.

Deadline for receipt of contributions is November 15, 2002.

For further information and specific criterion please contact:

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Anesthesia History Association
Sixth Annual Resident Essay Contest

The Anesthesia History Association (AHA) sponsors an annual Resident Essay Contest with the prize presented at the ASA Annual Meeting.

A 1,500-3,000-word essay related to the history of anesthesia, pain management or critical care should be submitted to:

William D. Hammonds, M.D., M.P.H.
Chair, AHA Resident Essay Contest
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School of Medicine
Dept. of Anesthesia
200 Hawkins Drive, 6 JCP
Iowa City, IA  52242-1079
U.S.A.

The entrant must have written the essay either during his/her residency or within one year of completion of residency. Residents/Fellows in any nation are eligible, but the essay MUST be submitted in English. All submissions must be typewritten.

An honorarium of $500.00 and a certificate will be awarded at the AHA's annual dinner meeting at the ASA.

The award-winning residents will be invited to present their essays in person at the annual spring meeting of the AHA and their work will be published in the Bulletin of Anesthesia History.

All entries must be received on or before August 15, 2002.
Letter to the Editor

Dear Dr. Cope:

Recently I received from a friend anesthesiologist, a donation for the Museum of the History of Anesthesiology of Puerto Rico and the Caribbean two interesting articles:

1. A Squibb ether can (see photo). Used many years ago for administering open drop ether anesthesia. It is unopened and still full of ether.

2) An interesting device I had not seen before or read about. It looks and could be a precursor of the presently used LMA Device.

Perhaps the photo enclosed if published in the Newsletter requesting readers to send any information or reference they might have concerning its inventor and use might be obtained from them.

Looking forward to meeting you again, with my best wishes.

Cordially yours,

Miguel Colon-Morales, M.D.

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The Bulletin, formerly indexed in Histline, is now indexed in several databases maintained by the U.S. National Library of Medicine as follows:

1. Monographs: Old citations to historical monographs (including books, audiovisuals, serials, book chapters, and meeting papers) are now in LOCATORplus (http://locatorplus.gov), NLM's web-based online public access catalog, where they may be searched separately from now on, along with newly created citations.

2. Journal Articles: Old citations to journals have been moved to PubMed (http://www.ncbi.nlm.nih.gov/PubMed), NLM's web-based retrieval system, where they may be searched separately along with newly created citations.

3. Integrated History Searches: NLM has online citations to both types of historical literature -- journal articles as well as monographs -- again accessible through a single search location, The Gateway (http://gateway.nlm.nih.gov).

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it was decided to amputate both. It was reported that in spite of the surgeon's skills and expediency, the porter screamed, cried and swore throughout the first amputation so the second was postponed. On the next day, the 29th of March, Barton assisted by military surgeons Drs. Harney, Porter and Laub, proceeded to administer the first anesthetic in a war according to the technique he had been instructed on with an inhaler similar to the one Morton used in Boston six months earlier. It was noted that the porter slept through the whole operation, "without moving one muscle" under the effects of Letheon and woke up cheerful and without a complaint at the end of it.5

John Porter wrote a treatise on military medicine6 at the end of the war, since he apparently acquired more experience with ether during the remaining of the War his comments were not encouraging since he stated that anesthesia was dangerous and unnecessary in injured soldiers who were expected to tolerate the pain and suffering of these brief procedures. He reported several near lethal experiences in injured hypovolemic soldiers probably from overdose as ether would vaporize more readily in warm Vera Cruz in the Spring and in the Summer of 1847 in the Mexican altiplano at 7400 feet high, than at sea level in Boston, in the Winter of 1846.5

Scott's army moved westward to the next largest city, Xalapa where General Antonio Lopez de Santanna, by then the Mexican president, had fortified two promontories that dominated the road where the troops had to go through. On one, Cerro Gordo, seven gun batteries were in place to bombard the approaching invading army. At night an American battalion led by captain Robert E. Lee, commander of engineers, circumvented the promontories and climbed Cerro Gordo rushing the batteries and turning them against the Mexican army camped before Xalapa. A fierce battle followed in which lieutenant George B. McCleland and captain P.G.T. Beauregard distinguished themselves at the battle of Cerro Gordo. Eventually the American forces entered Xalapa on April 18. Porter described that nearly a dozen of injured soldiers had surgical procedures under letheon.

Of interest was the finding of a daguerreotype published in the Xalapa’s newspaper showing the Mexican military surgeon Pedro Van der Linden about to start a leg amputation in a Mexican soldier that appears asleep, while the group is taken prisoner as bayonets (supposedly in the hands of American soldiers) guard them, implying that Van der Linden, a bright young surgeon of Dutch descent had administered ether to the soldier about to be operated7 (Figure 3). He eventually was freed and rejoined the Mexican army caring for soldiers in the battles of Padierna, Molino del Rey and Chapultepec along with other distinguished physicians such as Jose Pablo Martinez del Rio y Miguel Jimenez who apparently also gave ether inhalation for amputations. Whether they obtained the ether from their American counterparts or they had it send from abroad, is not known, but Martinez del Rio (Figure 4) later on claimed that he had received bottles of ether and chloroform from the United Kingdom and had trained other military doctors to administer it with a handkerchief8,9; though this fact has not been confirmed.

Important Anesthetic Experiences in the XIX Century

Initially, advances were prevalent in two countries, whether this was due to daring physicians willing to undertake new approaches or simply that the events were duly recorded either in newspapers or medical publications. Specifically in Brazil two adventurous surgical interventions presented challenges far out of the ordinary anesthetic techniques to facilitate the performance of these unusual operations.

In 1866, Pacifico Pereira10, a surgeon in Bahia, excised a sublingual osteoma of the mandible using ether applied topically over the mucosa producing local frosting and vasoconstriction. Notoriety to medical advances came about, this time when the parents of xyphopagous sisters asked the distinguished surgeon of the times Alvaro Ramos, to separate them (Figure 5). Realizing that this was a major undertaking, Dr. Ramos requested four “narcotiza-dores” as those
experienced on anesthesia were called in similarity to the German term “narcosis” attributed for anesthesia. In 1899 Rosalina and Maria underwent chloroform anesthesia for the operation. Drs. Miguel Couto and Antonio Leao Rosalina with Maria underwent chloroform anesthesia attributed for anesthesia. In 1899 Rosalina and Maria underwent chloroform anesthesia for the operation.

Drs. Fajardo and Miguel Pereira took care of Maria. Drs. Miguel Couto and Antonio Leao Rosalina with Maria underwent chloroform anesthesia attributed for anesthesia. In 1899 Rosalina and Maria underwent chloroform anesthesia for the operation. Drs. Fajardo and Miguel Pereira took care of Maria.

Figure 4: Dr. Jose Pablo Martinez del Rio who joined the Mexican forces when hostilities broke, claimed to have received ether and chloroform from abroad in early 1847.

Recognizing the importance to keep a record of changes of vital signs during surgery and anesthesia, a form of anesthetic record was first used in 1903 at the Hospital da Santa Casa da Misericordia in Rio de Janeiro on a patient by the name of Cristina da Costa Rezende who received a general anesthetic with sulphuric ether; there was no mention of who was the surgeon, nor who the “narcotizer” was, but it did indicate that the operation had lasted one hour and 13 minutes.

The other country where records have been available was Colombia. Interesting findings related to resuscitative events seem to predate others reported. Records show that Dr. Restrepo of Medellin, Colombia in 1882 performed the first mouth to mouth respiration on a patient anesthetized with chloroform that had stopped breathing, then proceeded to introduce a rubber catheter in the trachea, alternating mouth to tube respiration with bilateral external compression of the ribs, sternum and epigastrium.

The patient recovered.

In 1891 a senior medical student Teodoro Castrillon from Bogota measured the barometric pressure in Bogotá and estimated the partial pressure of oxygen, noticing that the former was only 540 mmHg and the latter 108 mmHg; he then proceeded to write his thesis entitled “Anesthesia in Altitude” determining that anesthetics such as ether and chloroform should be given with oxygen or air flow in cities like Bogotá located at nearly 8000 feet high (2700 m). Later on, once graduated, Castrillon also described a case in which he was able to electrically stimulate the phrenic nerves in a patient that had become apneic under anesthesia with chloroform for a “supracondilear” amputation. The patient breathed during the apneic period and woke up as the depth of anesthesia was lightened, again with complete recovery. Also a well-known anesthetist from Medellin, Luis F. Bernal proposed to set up a protocol with the following steps in case of cardiac arrest during anesthesia:

- a) Cease to administer the anesthetic
- b) Place the patient in a Trendelenburg position
- c) Reinitiate breathing through a rubber tube placed in the trachea, 7-10/min
- d) Open the left chest and massage the left ventricle
- e) Eliminate the secretions from the airway
- f) Inject stimulants, like caffeine
- g) Administer saline solution intravenously.

Undoubtedly this was an advanced protocol for 1900.

The Birth of Intravenous Anesthesia by Infusion

Watching the perilous inductions of ether or chloroform anesthesia in the teaching hospital “Hospital Juarez”, Miguel Garcia Marin, a 3rd year medical student at the National University of Mexico figured that there had to be a better way. He set up to find it. Intravenous administration of fluids was being discussed as possible treatment for dehydration from diarrheas, so metal needles were available. He figured that alcohol, perhaps one of the oldest fluids that put people to sleep, could be used as a drug to produce anesthesia so surgery could be performed. In his own home he set up a small animal laboratory and began to administer intravenous infusions, using needles connected to a rubber IV tubing coming from a bifurcated “Y” one attached to a bottle containing 50% alcohol diluted in 25% glucose and the other 5% dextrose in distilled water (Figure 6). Early in the experiments he noted hematuria, which subsided when he diluted the ethanol in 25% dextrose. He established protocols to administer different rates into 90 doves, 17 hens, 72 dogs, 8 turkeys and eventually two monkeys (Figure 7) while measuring vital signs, urine output and any other event.

He determined the required flow rates to produce sedation, light anesthesia and profound level of anesthesia. Eventually when Garcia Marin was on the fifth (last) year of medical school, through the recommendation of one of his professors Dr. Ulrich and his uncle who was a representative in the Mexican Congress, he was allowed to give a demonstration on a volunteer, but only a prisoner from the Lecumberri Penitentiary, who had a death sentence, was willing. With the promise of an indult if he survived, he agreed to undergo the test with IV alcohol. The young student demonstrated his abilities and the judge let the surviving prisoner go free.

Next, Garcia Marin went on to give 53 anesthetics for major surgical procedures (Figure 8) while studying the effects of IV alcohol on renal and hepatic functions as well as on the vital signs. Moreover, by securing an intravenous line to administer

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Figure 6: Schematic representation of the IV pole with two bottles connected to a bifurcated “Y” line and into a single rubber tubing, a stopcock attached to the needle for infusion of alcohol by Garcia Marin.

the alcohol, it became evident that it was helpful to administer intravenous fluids and to have rapid access to the circulation for the administration of resuscitative medications. From his initial experience he learned the value of giving atropine and morphine IM as premedication that made the induction smoother; he also determined the dose of indifference to be 1 ml/kg and to achieve anesthesia patients usually required 2 to 3 ml/kg. From the observations in animals he determined the lethal dose to be 5 to 6 ml/kg of the above noted solution. For patients he mixed 40ml of 96 proof alcohol in 40ml of 25% dextrose in water, alternating with the flow of the other bottle that contained 5% dextrose in water.

Through his influential uncle the recent graduate received a government grant to travel abroad. He chose to go to London and Paris where he demonstrated his technique, most of the time successfully. Eventually the young physician returned to Mexico in 1931 to find his technique in the midst of a bitter controversy. A few months after receiving a medal of praise from the Mexican Congress, Luis Garcia Marin found himself in the midst of a turbulent debate, which ended with one of the least wise decision that the Mexican Academy of Surgery has ever handed down which banned Intravenous Anesthesia with Alcohol because it produced thrombophlebitis. Although alcohol at the concentrations used by Garcia Marin has the potential to produce irritation of the veins endothelium, one can not help but to think, what a waste of talent; if he would have been encouraged to learn other anesthesia techniques or to improve his approach, instead of running him out of town, his experience acquired before the age of 33 years could have been very valuable as intravenous anesthesia with thiopental and other agents was about to be introduced.

Peridural Anesthesia

Next, a phase of fascination with regional anesthesia, more specifically with peridural anesthesia as it is called in most of the Spanish speaking countries based on the fact that the so called epidural space surrounds the dural sac brought about a series of observations on this anesthetic technique. The most recognized contributor was Alberto Gutierrez (Figure 9), an accomplished surgeon from Buenos Aires, who taught Anatomy at the University; as many other surgeons like Bier, Matas, Crile, etc. let their curiosity lead them to the obvious mystery over which they frequently had to depend on others, pain and anesthesia. In his earlier professional years as a surgeon along with surgical themes, he wrote on approaches to the brachial plexus, “splanchnic anesthesia”, local anesthesia for biliary surgery, and ablation of the II and III divisions of the trigeminal nerve, calcaneous spurs and local anesthesia for abdominal surgery. In the early 1930’s he began to give anesthesia for his own operations following Pages and Dogliotti’s technique.

Realizing that sometimes the “loss of resistance approach” was misleading or not easy to locate precisely where the epidural space (ES) was, he decided to look for another method. Based on his expertise in anatomy he explored the precise identification of the negative pressure in the epidural compartment. By introducing the needle tip very slowly, he punctured first the peridural space, injected about 4/5 of the dose and then continued to advance the needle into the subarachnoid space where he injected the remaining 1/5. He then reversed the order, injecting into the intrathecal space first, and then gradually withdrew the needle until the flow of CSF stopped, there he injected the respective dosage of anesthetic. So he developed a precise skill to identify one or the other space at will. Then conceived the idea of advancing the needle with a drop hanging from the hub through the ligamentum flavum and watching it get “sucked” as the peridural space was entered.

So the “hanging drop” method was created (Figure 10) and in a way the Combined Spinal-Epidural technique with one needle was also designed. Even today, many colleagues consider it to be the safest approach to identify the ES, although it requires precision and skill. Gradually his interest shifted toward anesthesia, though he continued to have a busy surgical practice, Gutierrez went on to report large series of cases totaling over 12000 epidural anesthetics.
that he himself performed and operated on most of the patients, too. In the process, he compared different local anesthetics, though he preferred procaine 2%. He also measured the negative pressure in the ES, as well as the difference at the thoracic and lumbar levels and determined the distance from the skin to the point at which the ligamentum flavum was penetrated in over 2000 cases noting than in 90% of patients it was shorter than 6 cm. Other observations made by Gutierrez included the gradual progression of the onset of sensory and motor blockade, as well as the demonstration that epidurally injected procaine was found in the subarachnoid space 2 to 4 hours later.

With the ever present desire to find easier approaches to identify the ES, Juan Nesi from Buenos Aires and later in Caracas described the technique of the “bubble in the syringe” in 1958. He noted that the
shape of a small bubble in a syringe containing fluid will change its shape when pressure is exerted on the plunger and the tip of the needle is in the ligamentum flavum, but the fluid will leave the syringe without changing the shape of the bubble as soon as the bevel was in the ES (Figure 12). Bustos33, also from Buenos Aires, in 1964 described the “sign of the foam” to the joint return of bubbles and fluid appearing at the hub of the needle when the bevel was in the ES, after the fluid in the loss of resistance syringe had been injected. Plaza Quijada34 from Caracas, in 1967 reproduced the same sign of the foam but coming through the proximal end of the catheter that had been placed in the ES after the test dose was given. That same year, Ricardo Sanchez and co-workers35 from the IMSS in Mexico observed the direction taken by lumbar epidural catheters when advanced 20 cm cephalad. Injecting a small amount of contrast media, they noted that 48% followed a cephalad direction, 33% curled up, 12% bent over and went caudad and the remaining 6% left the spinal canal through one of the lateral foramen. These observations confirmed the unwritten rule of not inserting catheters more than 4 cm otherwise no one can predict where they will end up. Llerena36 also from Mexico City in 1969, ingeniously described an alternative to identify the ES without a syringe by inserting, into the hub of a needle the distal tip of the needle when the bevel was in the ES, after the fluid in the loss of resistance syringe had been injected. In the late 50s, Jose Usubiaga a young, brilliant anesthesiologist from Buenos Aires assembled a group of investigators that conducted a variety of remarkable clinical studies including the treatment of postdural puncture headache with large volumes of epidural saline41, quantified the transfer of local anesthetics across the placenta42 and from the peridural to the intrathecal space43; Wikinski, Usuibiaga and Morales also described the mechanism for the appearance of convulsions from excessive dosages of local anesthetics in man.44 With great interest on regional anesthesia Jose also wrote the most extensive review of the complications of epidural anesthesia45 as a warning for improvement in the technique.

Regional Anesthesia

In the meantime other advances were taking place in other aspects of Regional Anesthesia. In 1931, the same Miguel Martinez Curbelo46 in la Havana performed a series of supraclavicular blocks of the brachial plexus, with patients in the sitting position (Figure 13); in this position, the shoulder drops making the nerve trunks more superficial and the lung more distant, allowing easier access to the perineuromascular sheath. In 1939 Alfonso Albanes47 from Rosario, Argentina treated a number of patients that had shoulder arthritis with repeated blocks of the cervicothoracic sympathetic ganglion. Bertola46 modified the interpleural block for biliary surgery, injecting the local anesthetic in the thoracic paravertebral compartment demonstrating the parallel continuity of the retrocostal space along the spine using a radio opaque resin to demonstrate it (Figure 14).

Though Bier’s technique of intravenous regional anesthesia (IVRA)48 was introduced in 1908, after a certain period of popularity it had fallen into inertia, until 1945 when Luis Garcia Herreros, a Mexican Military physician reported 104 cases of upper and lower extremity blocks using procaine and tetracaine without apparent complications.49 Enzo Mourigan Canale50 from Montevideo in 1946 described 55 cases treated with 0.5% procaine and in 1954, Flavio Kroeff Pires from Porto Alegre, Brazil proposed to re-inflate and deflate the cuff repeatedly to prevent complications at the end of the procedure51 preceding the usually quoted publication in English.52 Zerkeniatti53 in 1972 proposed the use of a double cuff to prevent the pain from the one single tourniquet. Subsequently, Almiro Dos Reies from São Paulo studied extensively this technique, describing the effects of ischemia and pharmacokinetics and pharmacodynamics of several local anesthetics53; he also published a comprehensive monograph on IVA53 followed by another on the proper use of limb tourniquets and their possible complications.54 The first application of epidural blood patch was reported by Gormley55 in three patients that had developed post dural puncture headache in 1960. Soon thereafter, Edgar Martinez Aguirre56 from Caracas reported a series of 100 patients that developed this complication with high rate of success. Spiegel from Rio de Janeiro57, Baquero y Vasquez from Mexico City60 and Fortuna from Santos61 published their experience with caudal anesthesia in children in the 60’s; Estela Melman and her group62 published a large series of epidural and regional blocks in infants.

Figure 12: Schematic representation of the sign of the “bubble” in a syringe method to find the epidural space described by Juan Nesi.

Figure 13: Supraclavicular brachial plexus block on a sitting patient by Miguel Martinez Curbelo.
and children in 1975 though they seldom receive recognition in pediatric regional anesthesia reviews.48

Since then this technique has been used in millions of patients.

In 1989 Jorge Barrios-Alarcon et al65, from São Paulo, Brazil proposed the alternative use of dextran 40 for the treatment of PDPH with a similar rate of success and without the potential hazards of the injection of autologous blood into the ES. Castaños et al66 also showed that hemodilution and epidural anesthesia would reduce the blood viscosity and increased the PaO2 of patients having hematocrit levels above 70% in La Paz, Bolivia, at 14,000 feet high.

Alberto Torrieri from Buenos Aires et al67 described the first single-double lumen needle (Figure 15) used to provide Combined spinal-epidural anesthesia to patients undergoing major orthopedic procedures. Ricardo Plancarte et al68 from Mexico City demonstrated in 1989, the feasibility and epidural anesthesia would reduce the blood viscosity and increased the PaO2 of patients having hematocrit levels above 70% in La Paz, Bolivia, at 14,000 feet high.

In 1949, Aranes and Blusque Castellanos added intermittent boluses of thiopental and meperidine to an intravenous infusion of procaine69 creating another attempt to total intravenous anesthesia. This work was presented at the 1st Latin American Congress of Anesthesiology in Buenos Aires, at what turned out to be the first true international congress in Anesthesiology preceding the Paris International Congress held in 1951. Two novel ideas were proposed at that meeting a “consultation room” and a “recovery room.” Later on Wikinski et al70 studied the pharmacokinetics and pharmacodynamics of procaine IV and related them to the levels of anesthesia obtained. This technique became very popular in Argentina and other South American countries where millions of anesthetics were administered with “Procaine a la Argentina,” until the 1980s when fluorinated hydrocarbon anesthetics were introduced. It is worth mentioning that only one case of malignant hyperthermia was reported during this period. R. Caldero-Barcia and his associates48 in the Hospital de Clinicas in Montevideo studied the physiology of uterine contractions by cannulating the uterine cavity and vessels of mothers in labor. They also observed the effects of regional anesthesia and magnesium sulfate on uterine contractility as well as on maternal and neonatal vital signs (Figure 16).

The Postanesthetic Recovery Score first proposed in 197071, in its original form or in one of its modifications has become the standard of care in nearly all of the American continent and other countries in establishing the physical condition of patients recovering from anesthesia and surgery as well as their discharge eligibility.

Preoccupation with the prevention of the undesirable effects from ketamine, as well as unconventional indications have motivated a number of investigations. Albin et al72 prevented the psychogenic disturbances with tetrahy-droamiquidinic acid (THA), while Martinez Aguirre claimed to reverse them with 4-aminopiridine73; the same group74 demonstrated that ketamine produced adequate analgesia and muscle relaxation when used with the technique of regional IV anesthesia and Jose Islas et al75 demonstrated the central analgesic effects of ketamine when administered by the epidural route to patients in the postoperative period.

On a similar vein, A. Osvaldo Auad87, from Buenos Aires, showed in 1985 that epidural clonidine potentiated morphine analgesia in the treatment of patients with recalcitrant chronic pain. Del Castillo and Katz described the location and expanded the understanding of

Other Contributions

Luis Agote72 described in Buenos Aires the technique of clotting prevention by a precisely titrated dosification of Na citrate facilitating the development of blood banking making blood transfusions available to every one that needed them. On what appears to be the premier recommendation for moment to moment monitoring of patients under anesthesia, the picturesque
the acetylcholine receptors, Usubieta et al. described the interaction of neuromuscular relaxants drugs and local anesthetic agents in 1965. First Galindo in 1974, then Kennedy and Galindo suggested the concept of presensitization with non-depolarizing agents before giving succinylcholine and confirmed some of their interactions.

Contributions...Continued from page 9

References


From the Literature

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

Note: In general, I have not examined articles that do not include a notation for the number of references, illustrations, etc. I do examine most books and book chapters. Books can be listed in this column more than once as new reviews appear. Older articles are included as I work through a large backlog of materials. Some listings are not directly related to anesthesia, pain or critical care but concern individuals important in the history of the specialty [i.e., Harvey Cushing or William Halsted]. Non-English articles are so indicated.

Columns for the past several years are available in the “Anesthesia History Files” at http://www.anes.uab.edu/anesthes/anesthist.htm as “Recent Articles on Anesthesia History.” I urge readers to send me any citations, especially those not in English, that I may otherwise miss!—A.J. Wright ajwright@uab.edu

Books


Articles and Book Chapters
Ball C, Westhorpe R. Intravenous induction agents: benzodiazepines. Anaesth Intens Care 30:3, 2002 [cover note; 1 illus., 7 refs.]

Ball C, Westhorpe R. Induction agents: “Avertin.” Anaesth Intens Care 29:571, 2001 [cover note; 1 illus., 5 refs.]

Bollet AJ. Civil War Medicine: Challenges and Triumphs. Galen Press, 2002. [Has some material on anaesthesia pp 76-81; blood transfusions pp 185-186; and opium and morphine pp 238-242]


Brown T. Popular Patents: America’s First Inventions from the Airplane to the Zipper. Scarecrow Press, 2000. [Includes Jackson and Morton’s patent for anesthesia, pp 27-28; and two other inventions Jackson tried to claim for himself: Schonbein’s guncotton pp 98-99 and two other inventions Jackson tried to claim for himself: Schonbein’s guncotton pp 98-99 and Morse’s telegraph, pp 176-178]

Buzello TF, van der Schyff SG. Curare in medicine: in search of a disease (a historical perspective). Eur J Anaesthesiol 18, suppl 23:106, 2001 [abstract; 1 table, 8 refs.]


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MedNuggets

by Fred J. Spielman, M.D.
Department of Anesthesiology, University of North Carolina

An examination of the literature on the subject reveals that a number of workers have come to the conclusion that there is some peculiarity in the physiology of the pregnant woman which renders her unsuitable for the induction of spinal anesthesia.

— F. Barnett Mallinson
British Journal of Anaesthesia 16:22, 1938-9

The anesthetist has a useful role in the diagnosis and treatment of coma. Coma is not unlike surgical anesthesia; in fact anesthesia is correctly defined as a state of coma.

— E.A. Rovenstine
Anesthesiology 6:1, 1945

The more you use it (spinal anesthesia) the less confidence you have in it.

— Harold Wellington Jones
Annals of Surgery 96:85, 1932

The mistake lay in the assumption that fatalities under anaesthesia must be due to excess of the anaesthetic. This is an error which it seems extremely difficult to overcome in the minds of surgeons.

— Yandell Henderson
Surgery, Gynecology, Obstetrics 19:386, 1914

Somewhere there is a paradox in the fact that to take out a lung requires more training and experience and learning and judgment than it does to take away consciousness, yet the loss of consciousness has immeasurably greater effect on the individual.

— Henry K. Beecher
Surgical Forum 5:679, 1954

The choice of anaesthesia and the technique of the actual operations are matters which must always be largely governed by personal preference and by local conditions.

— Reginald Payne
British Journal of Surgery 27:740, 1939-40

The surgeon who has not tasted anaesthesia for his surgery under the best possible auspices has something to look forward to, the value of which he perhaps does not yet appreciate. A higher quality in anaesthesia than the present best is surely still to be attained and never before has there been such active effort in seeking it.

— Ralph T. Knight
Surgery 18:130, 1945

Anesthetics are among the most potent and dangerous drugs used in the practice of medicine; they penetrate to every cell and organ of the body and may cause almost instant or delayed death by their toxic effects.

— Frank H. McMechan
Journal of the American Medical Association 104:1428, 1935

Today’s widening scope of surgery, allowing help to even the poorest of “risks” depends on team-work. The problems are discussed by all who can bring their special knowledge into play. The anesthetist should not and cannot be missing from this team and must be as conversant in present-day medical knowledge as the best on the team.

— Stanislaw B. Donigiewicz
Canadian Anaesthetists’ Society Journal 5:75, 1958

The first problem for both the anesthetist and the surgeon to work out after the operation is decided upon, is to determine what anesthetic is to be used, in the particular case at the time. Here the anesthetist should be consulted and his experience becomes invaluable to the surgeon in making this determination.

— A.R. DaCosta
Current Researches in Anesthesia and Analgesia 16:18, 1938

The condemnation of an agent as the cause of death is still too frequently quoted as the responsible offender. Such condemnation of agents is unjustified and the responsibility should be placed upon the person at the head of the table.

— Paul H. Lorhan
The American Surgeon 18:727, 1952

On no account should a practitioner endeavour to administer an anaesthetic whilst acting as operator also.

— William W. Mushin
Anaesthesia 9:232, 1954

The leaders of medicine and surgery today realize the seriousness of carrying a living being to that level of insensibility which, in many respects, simulates death, and also recognize that the anesthesia is, in most instances as important as the operation.

— Sidney Cushing Wiggen
New England Journal of Medicine 204:1283, 1931

For the surgeon, then, the question has come to be not “what anesthetic” but “what anesthetist”?

— Edward M. Livingstone
American Journal of Surgery 19:67, 1933

Many other similar types of work no doubt exist in other spheres of medicine where by reason of his special knowledge or technical skill the anesthetist is the person best qualified to take charge. It is of great importance that we should take every opportunity to extend these sections of our specialty as it may well be that before long our standing in the medical world will be judged rather by the quality of our clinical work than by our technical skill.

— A.R. Hunter
Anesthesiology 13:108, 1952

Literature . . . Continued from page 12

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Patterson R. Charles Thomas Jackson, MD, Vesuvius, and the idea of surgical anesthesia. 

Continued on page 16
The Wood Library-Museum Book Signing at the ASA Annual Meeting in New Orleans October 15, 2001

From left to right: Dr. Kathryn McGoldrick, Dr. John Steinhaus, Dr. Eli Brown, Mrs. Peggy Fink, Dr. Carlos Parsloe, and Dr. Thomas T. McGranahan.

Mrs. Peggy Fink autographs Careers VI for Dr. William Hammonds.

Dr. Thomas McGranahan and Mrs. Peggy Fink sign copies of Careers VI for Dr. John Neeld and Dr. John Steinhaus.

Dale C. Smith, Ph.D., 2001 Lewis H. Wright Memorial Lecturer, accepts appreciation scroll from Dr. Kathryn McGoldrick.
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Shephard DAE. John Snow and resuscitation. Resuscitation 49:3-7, 2001 [3 illus., 16 refs.]


Takeda F. The development of use of oral morphine within the last 10 years in Japan. *Eur J Pain* 5(a):79-82, December 2001

von Hintzenstern U, Petermann H, Schwarz W. Early contributions from Erlangen to the theory and practice of general anesthesia with ether and chloroform. 2. The animal experiments of Ernst von Bibra and Emil Harless. *Anaesthesist* 50:869-880, 2001 [German; 6 illus., 31 refs.]

The Board of Trustees Meeting, October 15, 2001 in New Orleans. From left to right, seated: Dr. Charles Tandy, Mr. Patrick Sim, Dr. Kathryn McGoldrick, Dr. Donald Caton, Dr. Dale Smith, Dr. Jonathan Berman, and Dr. Doris Cope. From left to right, standing: Dr. Elliott Miller, Dr. Selma Calmes, Dr. Douglas Bacon, Dr. Lydia Conlay, Dr. George Bause, Dr. Jeffrey Casick, Dr. William Hammonds, Dr. George Sheplock, Dr. Susan Vassallo, Dr. Mary Ellen Warner, and Dr. Adolph Giesecke.