# Foreword

When you take the chance of writing a book when so many others exist, you have to get on together two trends somehow contradictory.

A book is a expression of self (even if it is fiction or a professional one), an unrecognized triumph of subjectivness.

You must kneel you subjectivness and the privilege of hobby in favor of the reader.

Written for the students this book is actually addressed to residents. I had the luck of having a couple of bright and pleasant residents which indirectly stimulated me.

I'll never forget the intellectual joys which I had during my contact with Dr. Sergiu Crivda, the one which opened the intern school of anesthesia at Panduri.

This book is written for answering the questions of young and nonconformist minds.

From here comes the title of colloquial anesthesia. The anesthetics facts are not soldierly mowed, but focused on differential scales. It is risky because some may like it and some may not.

Both in music and in anesthesia the same score can be approached differently. I hope that my interpretation will limit it self on being colloquial without being baroque.

Every book it is written put of other books and out of magazines. In this case the book risks of becoming a chimera, a animal made out of other animal parts.

The thing that should forge the chimera into a whole is the vision of the one who has experienced it.

The one who begins to practice anesthesia walks through a gate on which is written "…lasciati ognia speranza". It is not about the patients, it is about the anesthetists.

Society needs some one to blame.

Into a high risk profession you will be charged with every mistake you do without extenuating circumstances (not to talk about immunity) as a result of everything you did right.

Who start on high risk medicine must understand that the social reports are not based on honest-mindedness; they don't represent a social contract, but are based on power reports.

The key word is "Manage yourself".

The book is addressed to the young colleague who is obliged to manage by himself. Maybe a part of anesthesia's history may be a little bit excessive.

But I believe that one will understand anesthesia only by becoming a anesthetist himself.

And I don't forget for a second Puskin who wrote" The boor has no parents".

Bibliography may be a little excessive. On one hand when it comes to ideas and information the right of property must be respected but on the other hand any medical statement must confront with the risk of being debatable.

Given the fact that there will be persons who will criticize the book, I found it useful to armor it with other opinions. Let them criticize more persons.

The book has the advantage of addressing to young people.

"Guilty is the whole past and holy is only the beginning."

If they will curse it they will be probably right. It is hard to conciliate both sides.

I hope that this book will not fall under the sasesc saying: “A lots of noise and little wool sad the devil as the has mowing the pig”.

## Divinum est sedare dolorem

*The surgeon is nothing more then a savage with a scalpel.*
*Henry Hickman*

Born in 1846 anesthesia developed chaotically, long periods of stagnations which were broken only by improvements or progresses.

Anesthesia is a term introduced by the Greek philosopher, Dioscoride from Sicilian. In the first century he appointed the effect of the narcotic made out of laurel plant, a solaneceu rich in alkaloids which induce delirium, parasimpaticolitice substances such as hyoscyamine, atropine and hyoscine.

Dioscoride had a really dangerous job: he was the surgeon of the Roman emperor Neron.

He recommended the usage of the plant per bone or for inhales in amputations or for the labors of childbirth.

This plant has sedative effects, antispasmoic, antiswelling.

The Babylonians priests used it 2000 years before Christ in initiation rites for its narcotic.

In Ancient Egypt the sun god Ra used to put to sleep his daughter the goddess Hator with laurel because she was preparing to slather mankind.

Hipocrate too recommended the usage of this plant in vaginal or rectal administration. It is plant which made career until the 18$^{th}$ century, and it still used today by the African healers, but which left its mark on our civilization through the term introduced by Dioscoride.

But what does the term anesthesia means?

In accordance with Encyclopedia Britannica which takes credit for the scientific definition of terms, anesthesia is “a flaw of felling” and as we call it insensitiveness.

Insensitiveness is a therapeutic ideal compared to the other extreme of sensorial stimulation- pain.

To Hipocrate, father of medicine we attribute the statement which we keep in latin “divinum est sedare dolorem”.

Otherwise, God in his work had taken the same precautions.

In the Old Testament Yahve” puts the man to sleep, removes one of his ribs (out of which He will create the woman) and closes back the flesh” (Genesis 2, 12). From the beginning of time man tried to insensibly himself through means of plants such as: poppy, laurel, jasmine, romaine, Indian hemp, bear’s foot, saffron, mulberry tree, hops, nepenthes(magical drink against sadness), helenium.

Pliniu, for pain recommended the inhale of smoke made from burning a crocodile skin.

But there was a great distance between plants and alkaloids, and the results were unsatisfying. Overdose risk to be deadly. Celsus, a roman medic heeded “The medic must not give in to the patient screams”…

A higher doze and you would risk sending you patient across the river Stix.

Egyptians used a mixture of opium (morphine) with hyoscyamine and hyoscine.

We can't talk about the history of anesthesia without talking about opium and poppy. Opium was the poppy juice. Opium was the diminutive form for the greek opos-suc. So opium would translate itself as "suculet".

Opium contains about 20 alkaloids. They started to be discovered about two centuries ago. In 1803 morphine was isolated, 1832 codeine and in 1845 papaverine.

The social-political history of opium and drugs can't be understood without recent fundamental biological discoveries.

The mad rush after drugs was for satisfying an endogenous need.

Between the years 1970-1975 the cerebral receptors for opioids are identified and in 1975 Hughes identifies three families of endogenous opioid peptid.

Opioids are as a matter fact endogenous product which we manufacture for natural modulation of the afferent nociceptiv activity at a spinal and supraspinal level.

The analgesic used in modern anesthesia only copy what Mother Nature long invented!

Cannabis, mentioned in the oldest sacred Hindus text Atharva-Veta, the favorite drink of the god Shiva was used at the end of the first century AC by the Chinese as a anesthetic under the name of mafo sam.

Opium was used by Sumerians which called the poppy "the happiness plant". Egypt was in antiquity the largest center in trading with narcotics. The largest producer for the entire east Mediterranean was the island of Cyprus.

Today Cyprus is a large wine producer but back in antiquity it produced poppy.

Opium was used not only for the medical treatment but also as an aphrodisiac and way to get closer to the gods.

To export opium to other countries which spoke a language unknown to the Cypriots they created vessels for safe keeping shaped as a poppy flower.

Such vessels were found inside the Egyptian pyramids.

Greeks associated poppy with the goddess Nox, the goddess of the night, and with Morfeu that made mortals fall asleep by touching them with a poppy flower.

Opium was used by Hipocrate, Galien, Dioscoride to treat snake bites, asthma, epilepsy and colic.

Romans worshiped the poppy so much that the poppy flower was on one side of their coins.

The poppy cultivation began in India in the $9^{th}$ century along with the invasion of Arabs and Persian. The Turks introduced the incision of the bulb and then ingather the coagulated juice. Since the $18^{th}$ century in was inhaled as smoke.

Under the Mongol emperors opium was used as a state monopoly, monopoly later taken over by the British in the Eastern Indies. A famous name comes in opium's career: Paracelsus outs in practice in the $16^{th}$ century laudanum a mixture of 10% opium in hydroalcholic extract. Paracelsus laudanum, used as analgesic it is used even today. With laudanum Alexandru Odobesc killed himself in 1895 because he was in love with a woman 30 years younger then him.

In 1680 Sydenham praised the opium:

"Through the remedies which almighty gave to man none is as universal and as efficient as opium".

Sidenham, a famous name in medicine history, had an important name in its revalorization. In $17^{th}$ century appears a scientific therapy based on experience. The prescription of opium becomes more effective and more disciplined.

Sydenham was a ardent circulator and opium was considered almost a cure-all.

But the usage of opium as an anesthetic crucial was another moment in history. In the early middle Ages (18th century), a doctor from Bologna, Theodoric from Luca reinvents a kind of inhalant narcotic and publishes this technique. You take a sponge and imbue it with opium, laurel, and jasmine. You let the sponge dry and you put them to preserve. Before the surgical intervention the sponges are kept for an hour in hot water after which the patient takes a deep breath through these sponges until he falls asleep.

In 1911 Buxton discovers these therapeutically association in ancient Egypt and he propose as premedication the mixture of morphine-atropine.

The Inca people chew leaves of coca and then spit in their wound.

It is notable that the chewing of coca leaves fights efficiently against the tooth ache.

Because it is alkaline it crosses out the stomach aches.

Even nowadays the Anza inhabitants still use the coca leaves which they chew to use them as cataplasms to ease the rheumatism or sprain pain.

The medieval Spanish conquerors of the south America first name these sacred plant of the inhibitors " the devils charm", they were in the end-after they banned it to recognize its utility.

The plants ineffectiveness led to physical means of in sensitize. In China and in Abisinia, for castration they would use as a mean of anesthesia knock-outs.

The wreck of an English battle ship from the 16th century brought a surprise: the doctors cabin had amongst other endowments a wooden hammer. The hammer was used to hit the patient in the head so you could amputate him.

Others choke their patient by the neck. The term carotid comes from the Greek caroun it means to fall asleep.

On fresco from Saqqarah there are painting of healers which are pressing against plexus, particularly the brachial plexus.

The in sensitize was pushed to the limits to phlebotomy. Others practice the cooling of the part that is about to be operated on- this is called crioanalgesia.

Crioanalgesia was restarted by Napoleon Bonaparte's surgeon; during the battle from Eylau(1807) which was fought in the frost amputations were practically painless.

The baron Larrey, the great army's surgeon, the one that Napoleon declared in his will the honest man that he meet was wounded three times in the battle field and France made him three monuments.

Later they used cooling through vaporization for the anesthesia. They used a highly volatile liquid, the ethyl chloride.

The credit goes to a Swiss from Geneva, P.V. Redard, which accomplished the local anesthesia through cooling in 1890.

All this methods of anesthesia were faulty because one of the principal virtues of surgery is the speed of execution. They practiced high speed surgery.

The surgeon William Cheselden remained in history because he could amputate a lower limb in ten seconds and could extract gravel from the bladder in less then a minute.

The imperfection of the anesthesia methods made the French Academy in 1828 to pronounce on the first attempt for a general anesthesia.

It would be a crime to expose a single human being to such danger.

What was not understood for centuries is that to aggression the body reacts through adaptation reactions which involve amongst other a redistribution of blood, so called volemic centralization.

The adaptation reactions exaggerated as intensity or excessively prolonged in time generates a pathology of its own, a pathology which develops by its own, explosively, and led to decease.

Pain control is not only a thing related to humanism or pity but a biological necessity for interruption of a self-destructive vicious circle.

Only recently it was understood that one of the fundamental biological value of man is represented by volemia. It is a apparent paradox. The water represents more than half of a mans weight. In the vascular tree there is 12-13% of the water inside a man. Losing 40% of that water would led to death.

The poor hipovolemic patients were let to bleed to death all in the name of science. The road to hell is paved with good intentions. This aphorism is an epitaph of numerous medical theories.

The history of anesthesia isn't one made only out of suffering because the lack of drugs but it is also a history of fundamental misunderstanding of the biology of the act of aggression, known today as the aggresology.

In 1825 a young man of 25 years old (he had only 4 yeas until he would die) accomplished the first painless operation (experimented on an animal) realized through gas inhale. H.Hikman studied controlled asphyxia and secondary analgesia.

Nevertheless his studies were not considered the beginning of anesthesia.

A disturbing question is rising: do they really want to discover anesthesia?

The surgeon needs the drama of the intense moments. The pain gives the stake to the game; it is what makes the pressure rise.

For surgeons if anesthesia would be realized that would mean that " their work giving champions would not take place on the living flesh of man but on the semi cadaver on which the student learn anatomy in med schools. Over with the glorious days". (J.Peter)

Here's the praise SCREAM made in Medical Science Dictionary by Percy, one of the greatest doctors in the Napoleons army.

"Les chirurgiens sollicitent a leur malade de se plaindre. Ils veulent qu'il crie. Chaque cri dilate, détent tout ce que la douleur a serre, empêche les congestions, facilite le cours du sang dans les poumons, dégage le cœur, et ramène sans cesse l'ordre.".

The next statement about anesthesia belongs to the great Magendie which medically worship: "the lost of consciousness is a degrading and hideous thing that any brave man should not accept".

In 1839 when the idea of anesthesia was floating in the air, the great French surgeon Velpeau was writing: "To get rid of pain during surgical interventions is a chimera what we are not allowed to cultivate. The cutting instrument and pain are nowadays in surgery two words that can't exist one without the other this association must imperatively be accepted."

In our days, in Romania when a veterinary castrates the sows without anesthetic, when a brethren hues and cries the doctor replies "let the others know that the doctor is here"

In the eve of the French revolution the pain obtained from the medical and philosophical point of view a special statute.

Based on the papers written by Locke and Condillac the humorous hypothesis is replaced by the vitalist hypothesis.

Everything is sensibility, nervous system. Pain is useful, necessary as a strategy of incitation, of reanimating the vital energy of the patient.

The first surgical anesthesia doesn't belong to Europe but to Japan. In 1805 the Japanese doctor Hanoaka Seisho draw upon the papers of a Chinese from the second century AD and adapting them to the European spirit which came into Japan with the Dutch merchants, after experimenting on animals he went to surgical anesthesia.

He made over 100 surgical anesthesias without a single decease.

First anesthetic used, through which anesthesia was induced, that satisfied the biological exigency of a surgical act was the administration through inhale of dietilic ether.

This substance, a volatile liquid, was obtained in 1540 by an extremely young German botanist named Valerius Cordus.

He named this substance "sweet vitriol oil". Why sweet? Paracelsus also involved in the ethers saga, said about this substance "that is so sweet it could be ingurgitated by sleeping chickens and they would still wake up unharmed".

In 1730 a German chemist that professed in London gave to the sweet vitriol oil the name of ether. The name comes from ancient greek, aither means upper atmosphere, more precisely "the substance that penetrates into the cosmos, out of which the stars and the planets are made". The noun comes from the verb aithein-to light up, to shine (ether is through this related with aestas-summer in latin and with the aestival term).

It was known as elationer in medical environment.

In 1842 ether was used in a surgical intervention but the ones that made the intervention didn't officially declared the surgery so C. Long and W. Clark had to give up the glory to William Morton, a dentist that publicly administrated ether while the surgery professor J. Warren operated on a cervical tumor

Morton kept the secret about what gas he had administrated. The administration was made through a inhalator made by J. Wightmna, the first device in the history of anesthesia.

Morton had no benefice from the introduction of anesthesia; he died in misery but in 1926 in Washington a monument was raised in his memory.

After three years from the first anesthesia made by Morton, Snow builds another anesthetic device for the administration of ether: a vaporization chamber heated, cannular for adduction of the mixture of air-ether and a inhale mask with a exhale valve.

The improvement of ether administration was recorded in 1877 when L. Ormsby used a elastic balloon which had inside a sponge soaked with ether.

A year after ether was introduced a new anesthetic was assessed, chloroform.

Chloroform was characterized by the physiologist Fluorens as "being more wonderful but more terrible".

Chloroform has been synthesized in 1821 by Liebig, Guthrie and Souibeiran. It was simultaneous and independent discovered in New York, Darmstadt and in France. First it was used by Holmes Coote but the one that made it famous was the Scotsman obstetrician J. Simpson.

Unfortunately chloroform turned out to be dangerous drug: ten times deadlier than ether. Small doses of chloroform led to an energetic stimulation and as a result to agitation of the cardiac rhythm. The first who demonstrated that superficial anesthesia with chloroform can produce ventricular fibrillations was Goodman Levy in 1911.

In 1902 an Australian from Melbourne described death through vegetal inhibition during a chloroform anesthesia.

The first deadly accident when anesthesia was used due to the use of chloroform but not related to this aspect.

Anesthesia was “helped” by the administration of brandy through the mouth. Today this procedure would be considerate a criminal mistake.

Back than the risk of swallowing the gastric acid and the so called Mendelson syndrome (chemical pneumonia post inhale of the swallowing of the gastric acid) were ignored (the world became aware of this risk in 1946).

Accident also happened because of a third anesthetic gas, nitrogen protoxide.

The gas was produced in 1772 by J. Priestly (theologian and chemistry experimentalist), and in 1800 H. Davy observed the analgesic properties.

In 1874 in England, Thomas Huxley made a statue for Priestly with the occasion of a hundred years since the oxygen was found (Priestley also discovered siphon by putting carbon dioxide under pressure in water).

Nitrogen is pentavalent so he has five oxides.

Davy published in 1800 a 580 pages paper “Researches chemical and philosophical, chiefly concerning nitrous oxide and its respiration”.

Faraday, his famous student, managed in 1823 to liquefy the nitrous oxide.

The heir of Davy to Royal Institution was W. Brande, which published in 1863 a manual, “Chemistry”, for the med students in which he presents the nitrogen protoxide: “This gas is a narcotic poison that when inhaled by an animal it steals its life away. However it can be administrated to a human being but in a limited quantity. It is the hilarious gas.”

The hilarious gas, physiologically considered inert proved nowadays to be biological aggressive.

Protoxide causes analgesia with a state of cerebral excitation (it was “hilarious gas” and used as such by drug addicts) but not surgical anesthesia.

It was used by G. Colton and H. Wells.

Wells was experimented on his own body removing one of his teeth being dizzy from the protoxide. Trying to get credit he was pushed to suicide. He killed himself anesthetic: he opened his veins in the bathroom, in hot water, breathing ether.

Fewer than 70% concentration nitrogen protoxide gives loses of memory and analgesia. A higher concentration would lead to neurological damage or even death. In 1868 E. Andreews administrated in a mixture with 20% oxygen; physiologist Paul Bert propose its administration with oxygen in condition of hyperbaton, which is correctly thought but extremely uncomfortable to practically realize it so it was abandoned.

Bert’s technique resolved a controversy in favor of the nitrogen protoxide: has the protoxide any anesthetic qualities or it acts as a result of asphyxia?

The method of administration of the nitrogen protoxide is based of the inhale of pure nitrous protoxide until the signs of acute hypoxia. The administration of the gas came to a cease and the patient would breathe normally. For 30 seconds after the cease the patient could endure painless minor operations.

In England J.T.Clover introduced in 1862 a inhale device for chloroform. Clovers device allowed the administration of chloroform in a fixed concentration. A precise quantity of the anesthetic was introduced in a jar that already contained a precise volume of air. This mixture was in a bag that the anesthetist carried in his back while the anesthesia was administrated.

In 1869 in London, Clover introduce an improved device for nitrogen protoxide administration (which led to a larger acceptance of nitrogen protoxide a dental anesthetic)

In 1908 Ombredanne smartens up the device for ether administration. This device would work for about half a century. Ombredanne wasn't a anesthetist. He was a surgeon, a surgeon teacher for children in Paris. He elaborated some techniques regarding urology surgery.

When the device is half opened it administrates 15, 67% oxygen and 4,3% carbon dioxide. A higher concentration of ether would lead to a smaller percentage of oxygen. Usually the patient in spontaneous breathing snorts.

A long period of time chloroform and ether divided the world in geographical regions. The chloroform was used in Scotland, Europe and in the south of SUA while the ether was used in England and in the north of SUA.

From the three substances that anesthesia started with only the nitrogen protoxide survives, and it is used a diluting agent in the inhaled gas mixture: high concentration of oxygen have a toxic effect and so it must be diluted.

In 1866 protoxide was available compressed until liquefaction in transportable metal cylinders. This made it be used as adjuvant to other inhale able anesthetics, especially to ether.

Thanks to the Hewitt's paper work the usage of nitrogen protoxide with oxygen was generalized. Through this method general anesthesia could take place that didn't involve muscle relaxation.

For abdominal interventions they would use ether or chloroform. In 1912 the three gases were combined. The induction was made through the inhale of nitrogen protoxide –oxygen followed by the administration of a volatile anesthetic. The cause was the invention of the flow meter: in 1912 the flow meter with bubbles made by Boothby and din 1913 Gwathwey flow meter.

At the end of the 19$^{th}$ century the first didactic papers on anesthesia appear. The first one belonged to D. Buston "Anesthetics, their usage and the way to administrate them", in 1893 Hewitt's paper entitled "Anesthetics and their administration".

In time other volatile drugs appeared like ethyl chloride (1896), cyclopropane (1933).

Between the discovery and the clinical usage of cyclopropane was about half of century. It was a drug with a extremely fast induction, two- three breaths from a mixture of cyclopropane oxygen in equal parts, but unfortunately it could explode at the slightest spark or flame.

It was a convenient but expensive drug, which lead to a little revolution in anesthesia: the appearance of the respiratory circuit with reinhales. Wales the one that introduced the cyclopropane, conceived a two way circuit with valves that allow reinhale. He added to this circuit a balloon because the anesthetic disheartened the respiration and the respiration needed support.

From the second half of the 20$^{th}$ century the halogen hydrocarbons were introduced. These contained fluorine, fluorine being connected to carbon through chemical junction of high energies, the substance was tougher to metabolize and so less toxic.

The pharmaceutical researches wanted to obtain a drug with a rapid dynamic (short induction, and quick awakening from the anesthesia), that would not sensitize the heart and with minimum toxicity.

To the halotan were brought the reproaches that is was very toxic, investigating 856000 cases they found that 95000 of them had a lethal hepatic affection.

The metoxyfluorine, a drug abandoned produced renal dysfunctions because some of its metabolites.

The volatile halogen anesthetics were involved in the starting of a syndrome due to the abnormal movement of the calcium in the canaliculated muscular cell-malignant hypothermia.

One of the ways to administrate anesthetics was through veins straight into the blood. But who to get to the vein?

For the intravenous administration or for the intramuscular administration you must have a syringe and a needle with lumen. The surgical needle “compact”, without lumen, used for suturing wounds, was highly used in the second century BC. When did the needle with lumen appeared?

There have been discovered needle with lumens dating from the galo-roman period.

In the same period the syringe with piston was invented.

Through Alexandria the greek science was taken over by the arab science. Through this way the Arab Ammar from Cairo asserted the paternity of the needle with lumen.

Usually in the Europe the paternity of intravenous administration is attribute to the architect of the St. Paul cathedral from London, Sir Christopher Wren how practiced experiments of perfusion on dogs in the company of the famous physician Boyle.

In 1656 Wren tried to put mixture with opium into a dogs vein using as device a feather, connected to a tank represented by an animals bladder.

Wren’s experiments were realized to verify William Harvey’s theory of sanguineous circulation (published in 1628) and to put a stop on his own curiosity in a punctual problem: was the sanguineous circulation responsible for the quick collapse that was induced by a snake bite?

From one mistake to another until the final victory! Harvey discovered circulation starting from a theoretical-philosophical abstract assumption. Aristotel considered that the circle was the perfect geometrical shape. Wrong assumption or a philosophy that we don’t understand?

Wren group worked on at least a man, a convict wrongdoer, which in the end lived to see another day.

At the experiment even participated the famous anatomist Thomas Willis the one that described the arterial circle from the base of the brain that carry his name.

Wren, who didn’t knew the needle with lumen practiced not puncture but venous cannula as he describes it:

“You put a ligature on the veins, you open up the vein in the hearts direction and you insert in the vein a thin syringe or a feathers tube onto which you tighten a bladder that contains the substance you want to inject.”

Beside Wren there were numerous German “infusers” like the medicine professor from Kiel, Johan Daniel Major or the Brandenburg elector prince’s medic, Sigismund Elsholtz.

They administrated intravenous opium, camphor, acids, alkaline substances, they studied the hydric overcharging and they discovered gaseous embolism. The intravenous administration of drugs took the name of “surgical enema”. The German surgeon Mateus Gostfried Purman from Silesia administrated to himself two times

(1670 and 1678) medicines intravenous and not only that he lived but he cured himself. The one that reinvented the needle with lumen was also a German surgeon, right after the Napoleon's wars.

Carl Ferdinand von Graefe (1787-1840), military surgeon during the Napoleon's wars, director of the Surgical Clinic of the Berlin University invented a device which he named Phlebotom. He published this procedure of venous approach in 1831. He introduced in a needle a sharp chuck to punch through the skin and through the vein without the need of a surgical approach.

His instrument was curved and he used it not only to extract (to make bleedings) but also for administrations (transfusions and perfusions).

The ones that reinvented the needle with lumen and the syringe did it with honest-mindedness. They must be quoted as co-discoverers. There were many centers of discoveries that we must consider as independent.

The hypodermal syringe was realized in 1838 by a French man from Lyon-Charles Gabriel Pravaz(1791-1853). On the American shore of the Atlantic Zophar Yayne from Illinois designed in the year 1841 a syringe that attached it self on short beak, hollow inside, presenting a lateral opening near the angle. In 1853 Daniel Ferguson realized a syringe with platinum (*trocar-romana)*, presenting a lateral oblique opening. *Trocar-romana* was embedded in another tube which also had a lateral oblique opening. Through rotation the two openings would overlap and the injection could be done. By some, Ferguson was the first man that used the lumen needle with a sharp angle, allowing the punching of the skin and which was connected to a syringe.

In 1844, Francis Rynd, an Irish surgeon from Dublin, invented …*carul-romana* hypodermic. In 1853 A. Wood from Edinburgh practically reinvents the hypodermic needle and syringe. Practically Alexander Wood thought that Ferguson's needle can be used for deeper injections, punching through the skin (hypo- dermic).

The generalization of the syringes usage with intravenous administration is indirectly own to the German scholar Paul Erlich who invented the cure for syphilis, the Salvarsan. The Salvarsan could only be administrated intravenous and in 1910 the syringe with intravenous administration became world wide rampant.

In 1872 a French surgeon from Bordeaux, Pierre-Cyprien Ore tried to use the intravenous way for anesthesia induction.

The substance that he had, chlorine hydrate had a low safety rate.

Morphine was used as premedicatian since 1869 by Claude Bernard. Schneiderlein proposed a total non-inhale anesthesia, based on the association between morphine-hyoscine. Unfortunately the attempt was compromised by death through cardiac arrest.

The antagonist of the action of respiratory break-down, the nalorphina was yet to be discovered in 1942.

A new era in anesthesia was opened by a German chemist Emil Fisher (1852-1929). He synthesized the barbitures. In 1902 the parbital(veronal), dial(1924) etc. In 1939 the year when the First World War started, two Germans from the Hoechst, Schaumann and Eisleb company, synthesized pethydine. This was administrated in SUA in 1947 by Neff and in England by Mushine (its utility in abdominal surgery had the disadvantage that it produced the shrinkage of Oddin's sphincter). Neff propose balanced anesthesia associating *meperidina-RO* with barbiturates and curare. In 1960 fentanyl is introduced, in 1961 *droperidol-RO,* and in 1977 *propofol-RO.*

Intravenous anesthesia massive debut was practically in 1932 with the sodium Epivan introduced in Germany by Reinoff (the barbiturate with quick action) and in

two years time on the other side of the Atlantic with *pentiobarbital(Pentotal)-RO* through Lundy's anesthetic activity; the administration began at the University of Winsconsin clinic, where one of the first anesthesia department appeared, but from the famous Mayo clinic the anesthetic was massive used and known to Americans….

Lundy understands that barbiturates can't give more than hypnosis and restarts the concept from 1869 belonging to Claude Bernard regarding "combined anesthesia" (the mixture morphine-chloroform), concept that was improved by Dastre and Morat with atropine. Atropine was made in 1831 by the German chemist Mein from the plant Atropa belladonna. A form of combined anesthesia that proved to be a failure not knowing yet the correct way to assist the respiration was the attempt of Arthur Lawen from Leipzig to supplement ether anesthesia with the administration of curare. He tried to lower the ether dose which he suspected to be toxic for the lungs, provoking pneumonia. This anesthetic initiative from 1912 was premature and destined to fail.

The anesthetic combinations have previous come in different forms.

In 1864 a surgeon from Munchen, J.N. von Nussbaum administrated before the operation morphine (isolated from opium in 1806 by the chemist F. Serturner) to elongate the effects of the chloroform.

In 1874 a French naval military surgeon name Forne used as induction for chloroform anesthesia chlorine hydrate administrated per bone.

In 1908 George Washington Crile(1864-1943) introduced the concept of *anociasociere-RO,* administrating simultaneously general anesthesia and loco-regional).

It was a exceptionally intuitive anticipation of the pain's mechanism and of the way to fight the neuroplastical consequences of the pain.

In 1926 Lundy proposes the concept of balanced anesthesia: a combination o various drugs, administrated before the anesthesia, and of different anesthetic agents. They wanted to accumulate the advantages offered by them and to minimize the disadvantages and the risks.

In 1941 intravenous anesthesia with barbiturates fashion produced a large scale drama. The military naval base from the islands of Hawaii in SUA, Pearl Harbor was attacked by Japanese aviation.

The wounded were anesthetized with intravenous barbiturates administrated in *bolus???-RO* , in higher doses to the hypovolemics. What the japans didn't kill the American military doctors did.

Both volatile and intravenous anesthetics produce a depression depending on the dose of the central nervous system functions that can stretch from a minimum sedation to deep coma.

Anesthesia involves taking the risk of affecting the vital functions.

Anesthesia means titrating the effect, observe the response to the drugs and their interactions and if needed a quick response to adverse reactions of the anesthetics.

Anesthesia could be put into practice in acceptable judicial and moral conditions only after the setting into place of the respiratory function contro and *(aici nu am inteles cuvantul ….hemodinamicii sau termodinamicii)*

Mans lung is in fact a system of bellows that can be activated by applying an outside force.

To apply an outside force, to inspire the lung (because of its elasticity it can deflate itself) one must catheterize the air passages.

The notion of air passages it's terribly new. About trachea (tarchus=rough) we used to think is the air passage through which the air flows towards the heart to cool down the boiling blood.

Vesalius was the one that showed that trachea lead the air to the lungs. He putted this discovery into practice. In 1543 he sustained an animal, which chest he opened, by blowing into him air with a pump, air blown in through a tube which was in the trachea.

A hundred years later Hooke was repeating the same experiment in front of the members of the Royal Society from London. In 1827 J. Leroy published studies regarding lung ventilation on animals. The same studies were conducted by Magendie.

The first application of the tracheal intubations to administrate volatile anesthetics goes to J. Snow. Intubation was applied by surgeons for the need of surgery on the facial massif and the higher air passages. The German surgeon Trendelenburg (known in medicine mostly for a false assumption: the so called Trendelenburg position that would improve the venous return to the shocked and hypovalemic) used tracheal intubations after tracheotomy.

O'Dwyer .introduced Tran larynx intubations, his technique was taken over and popularized by W. Macewen from Glasgow (1880) and by the Czech Maydle.

The separation of the air passage from the digestive way is made by the pharynx's *meşajul-RO*. In 1906 Green proposes the usage for this purpose of tightening a balloon applied to the probe. Putting this in practice was due to the experiments made by Arthur Guedel in 1926.

One of the people that were extensively preoccupied by the usage of tracheal intubations for the administration of inhale anesthesia was the German F. Kuhn from Kasse which even published a monograph on this matter.

The translarynx intubations method required the identification through palpation of the epiglottis and the superior part of the larynx. The tolerance to these maneuvers performed before anesthesia was enriched through application of cocaine. Even more, Kuhn propose to the patient to become accustomed with the tube by practicing every day for a few days.

Because the cases that required intubations were rare (related to the topography of the intervention) they couldn't accumulate a lot of experience in this area.

Situation changed in the First World War. The huge number of patients with the face gimped revolutionized jaw-facial surgery and intubations. The practice in endotracheal anesthesia started in England during the First World War and is due to Magill.

The indirect laryngoscopy was described in 1855 by Manuel Garcia, Spanish singing teacher living in London. The needs of anesthesia required a technique of direct laryngoscopy.

The first laryngoscope was conceived by a German from Berlin, Albert Kirstein in 1855. However in the peoples consciousness the credit for designing the first laryngoscope goes to an American Chevalier Jackson (1865-1958, Philadelphia), in fact the device was a tongue lifter that allowed the larynx to be inspected. Thus the larynx intubations were not done by palpation but by seeing.

Magill builds his own laryngoscope. Anesthesia was very generous with Magill because it turned him into Sir Yvan Magill.

One of his students- N.A. Gillespie, working in SUA, at Winscousin published a monograph of tracheal intubations: Endotracheal Anaesthisia.

In 1941 the straight blade laryngoscope imposed, device belonging to Robert Miller, an American from San Diego.

Miller’s laryngoscope was burdened the epiglottis.