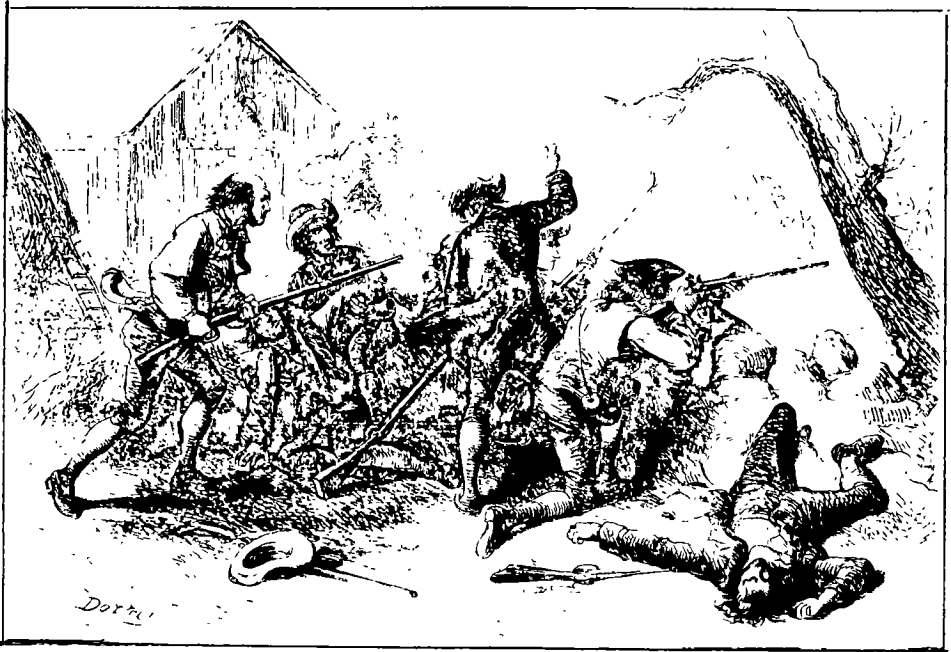


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# MEDICINE and SURGERY during the AMERICAN REVOLUTION



# Introduction:

Although the practice of medicine and surgery dates back for more than two and a half millennia, it is sometimes hard for us to realize that as little as two hundred years ago the healing arts were in many instances still in the dark ages of ignorance. Even the stethoscope was yet to be invented.

*On the other hand some of the procedures and instruments in existence at that time have come down to us today with little change. As a result some of the items in this display have been authentically reproduced from modern articles with only minor modification.*

When this exhibit was first conceived, it was surprising to find that so few actual items were still extant. A few collections do exist, but the hope of obtaining enough pieces to make a meaningful display soon had to be abandoned. Since the intent was to portray the practice of medicine as it existed in Morristown during the Revolutionary War, there was no alternative but to fabricate anew many of the items that extensive research revealed as appropriate to the period.

It should be noted that this exhibit is not a complete picture of what any given doctor might have used, nor of all of the instruments and materials that were available then. In a fledgling country that still relied on the Old World for its medical knowledge, doctors imported or improvised the tools of their trade. Thus, this display is representative of what was typically in use.

Space limitations prevent acknowledging all of the people who contributed time, talent and materials that have made this display possible. A few volunteers of Morristown Memorial Hospital deserve special mention for their diligent efforts and long hours over many months; *Fred Kammerer* and his wife *Hedwig* whose resourcefulness and strict adherence to detail were invaluable in locating and recreating many of the objects included; *Ellis Sadosky* whose exhaustive research gave the exhibit direction and uncovered artisans who could supplement what could be produced in hospital facilities; and *Otto Rentsch* whose talent in metalworking transformed raw materials and today's instruments into those of yesteryear. We also express our gratitude to *Henry Alff* for his help in recreating the pill roller, to *Horace Casterline* for turning out the wooden pill boxes for the physician's saddle bags, and to *Dr. John Tintle* for his knowledgeable advice and for providing the musketballs. To these and all of the others whose valuable contributions have resulted in this informative exhibit, we are eternally grateful.

*Morristown Memorial Hospital*

# Medicine and Surgery during the REVOLUTIONARY WAR



American medicine, *at the time of the Revolution*, was an infant science, not nearly so advanced as the Colonies' politics. But medicine was forged in historical partnership with politics during the War of Independence, and it was to grow and change as a result in the years that followed.

The eve of the Revolution saw medicine practiced by physicians the majority of whom were unlicensed and untrained. Only two medical schools existed in America before the outbreak of fighting; learning by apprenticeship was the rule. It is estimated that out of about 3,500 doctors here in the mid-18th century, fewer than 300 had formal training of any kind.

For civilians, it was often the housewife, armed with home-grown herbs and a stock of superstitious folk remedies, who saw to health needs. Or the clergyman, doubling as doctor, viewing illness as the result of sin. Quacks abounded, and even those medical men with training treated symptoms rather than causes of disease, and relied heavily on the healing powers of nature.

The life expectancy of the 1700's — 35 years — attested to the hit-or-miss character of medical practice, the toll of unchecked epidemics to the ignorance of principles of contagion and sanitation. The population was regularly ravaged by smallpox, typhoid, yellow fever, measles and a variety

of fevers and “fluxes” thought to be caused by polluted earth and marsh gases. It was the unusual colonial family which didn’t lose a number of children to disease, and women, bearing children frequently under poor conditions, had a high mortality rate. Lice flourished in a population which found bathing dangerous, and a full set of teeth was a rarity.

Medical remedies could be as rigorous and dangerous as the ailments they sought to cure. Copious bleeding, said to have hastened the death of George Washington, was a favorite of country and military doctor alike. Its purpose was to relax the “tension” of a feverish illness or infection. Many tools once used for the purpose have survived. Strong natural purgatives and emetics were also widely used to restore the proper balance of “body humors” thought to produce good health.

If a bone were badly broken or a limb uncontrollably infected, amputation was the treatment of choice. The patient lucky enough to survive the shock of surgery with no anesthetic beyond a tot of rum or some tincture of opium often succumbed to infection brought on by lack of antiseptic surgical conditions. Blistering, leeching, “cupping” to bring blood and congestion to body surfaces, applications of powdered dung, ground beetles and moss, and other practices which sound incredible today were all part of the physician’s practice in Revolutionary America.

Perhaps the only treatment which would be considered a medical advance was the practice of smallpox inoculation which gained growing acceptance during the war years. Both the British and American armies were decimated by smallpox epidemics — one broke out in the Colonial army less than a week after its arrival in Morristown in 1777 — and Washington gave a sizeable boost to the practice by ordering the inoculation of his troops and recruits

*The death of Washington*



who had not had the disease. Small amounts of matter from actual pox were inserted under the skin on threads or directly into an opened vein. A light case of the disease was thus produced which protected the individual from a fatal case, although a few instances are on record of patients having died as a result of inoculation.

With the outbreak of hostilities between America and England, medicine was forced to change to meet war demands. With a few notable exceptions such as the Pennsylvania Hospital, founded by Benjamin Franklin and Dr. Thomas Bond in 1751, and New York Hospital, chartered in 1771, hospitals were set up on a temporary basis in private homes or barns to house specific epidemic outbreaks among civilians. More hospitals were organized along these lines and others specifically built to care for disease and casualties among Revolutionary troops, but they remained fearsome, ill-equipped places where contagion raged and many died as a result of conditions. One estimate puts the number of hospital deaths for soldiers at one out of four, while chances for survival on the battlefield were 98%.

After the Battle of Bunker Hill in 1775, the Continental Congress established a Hospital Department, eventually divided into four geographical divisions, to service the army. It was an efficient idea which worked out less than smoothly. A preoccupied Congress, shortages of drugs, food and clothing, lack of qualified personnel and bureaucratic mismanagement led to medical chaos in many areas.

Three main types of hospitals served Revolutionary troops: the general hospital, an "intensive care" establishment housed in public or private buildings and run by the Continental military; the flying hospital, also manned by Continental personnel, a mobile affair in a hut or tent containing a few emergency beds and a surgeon's table; and the regimental hospital, run by the regimental surgeon for larger numbers of soldiers. These were usually specially constructed for the purpose.

One such regimental hospital was constructed by Dr. James Tilton in Morristown (some accounts place the hospital in Basking Ridge). Ventilated by a single window, it was modeled something like an Indian hut, with a small opening in the roof where smoke could escape. The fire was built in the center of the room to warm patients, who lay on the earthen floor, and the smoke was thought to combat infection. New Jersey, often referred to as the Cockpit of the Revolution, had at least five general hospitals and more than 10 temporary regimental and flying hospitals.

Surgery, in the main, was limited to the setting of bones, the removal of external growths and easily reached bullets, and amputation. Use of anesthesia in surgery was 70 years into the future; antiseptics, almost 100 years away. A primitive sort of antiseptics was accidentally discovered at one military post in New Jersey when Dr. Charles Gilman spilled rum on a badly infected hand, the result of a wound sustained at the Battle of Harlem Heights. Observing the subsequent cure of the infection, he then ordered that all wounds be covered with rum-soaked cloths. There is no evidence, however, that the practice spread.

Sharp tools, strong assistants to restrain the patient, available rum or opium and speed were the surgeon's chief assets. Still, he lost countless patients to shock, blood loss and infection.

Drugs and medical tools were in short supply during the Revolution after the British cut off supplies previously imported into the Colonies. Medicine chests typically containing a variety of medicines such as Jesuits' bark (a forerunner of quinine), emetics and purgatives, splints, lint, bandages, scales and surgical tools were privately assembled or issued by the Hospital Department, but they were difficult to come by and frequently confiscated by the enemy.

The French alliance which developed late in the war improved both the supply situation and the medical knowledge of American physicians, and this country also became more sophisticated in producing its own pharmaceutical supplies.

Medicine could be called primitive at the time of the Revolution, but it was on its way. The "heroic practices" of bleeding and purging, the dangerous surgery, the ignorance of sanitation and contagion persisted into the next century. Still, a number of benefits can be noted. More attention was beginning to be paid to formal medical education and licensing practices. The importance of public health and hospital conditions was recognized, and the regular exchange of knowledge through newly-organized medical societies and publication of medical texts had begun.

*A look at Revolutionary medicine is a look at the beginning of a process, and the process continues with the growth of American medicine today.*





**Dr. William Ledell's Medicine Chest:**

Ledell, married to Phoebe Wick, was Tempe Wick's brother-in-law. He was the family physician, and for a long period the only doctor in Mendham, then known as Black Horse.

The chest has a hidden compartment which opens by means of a lever inside the front compartment. Knobs are ivory.

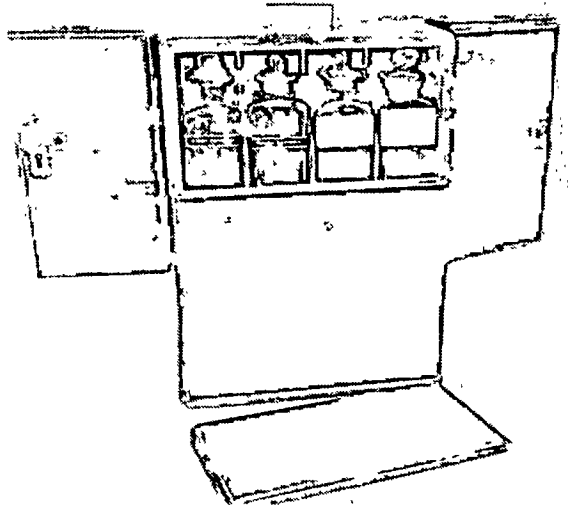
*Labeled bottles in hidden compartment read:*

**Laudanum** (*tincture of opium used as a pain killer, for diarrhea and as an anesthetic during surgery*)

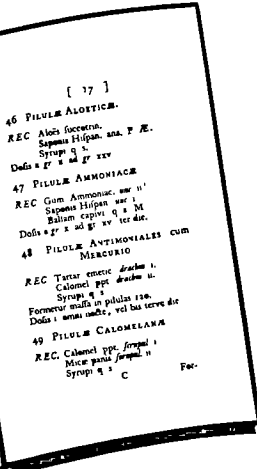
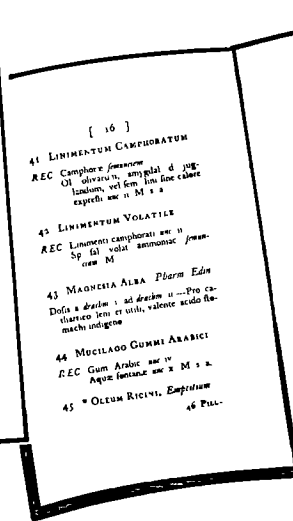
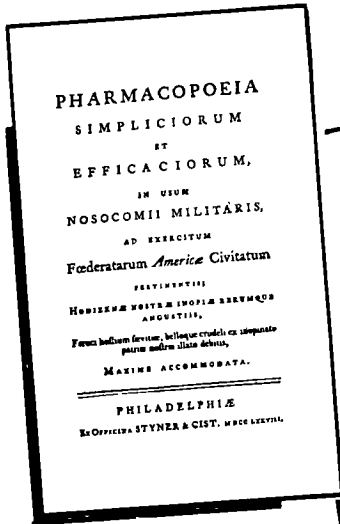
**Cremor Tartar** (*used as a cathartic*)

**Spirits Lavender** (*a carminative to relieve gastric distress*)

**Elixir Paregoric** (*camphorated tincture of opium introduced in the early 18th century for diarrhea, pain, cough and nausea*)



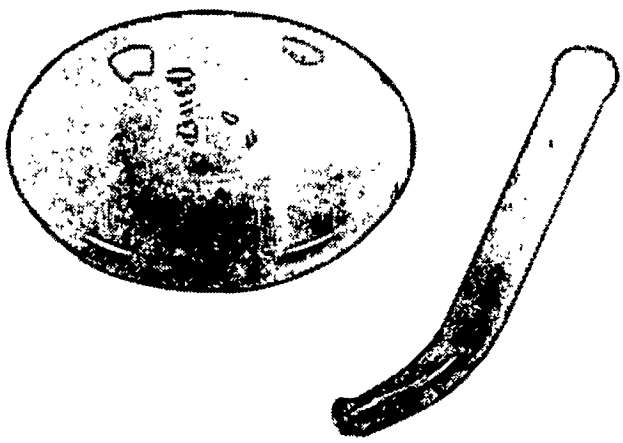
*Donated by Helen Pierson, R.N.*



First Pharmacopoeia published in the Federated States of America, this formulary is commonly referred to as the Lititz Pharmacopoeia. Lititz was a communal village in Pennsylvania founded by Moravians.

Written entirely in latin, the book contains 100 preparations divided into two parts: formulas used internally, and those used externally or surgically.

This exact facsimile was published by John M. Scarchuk, Coventry, Connecticut, as an American Revolution Bicentennial contribution.

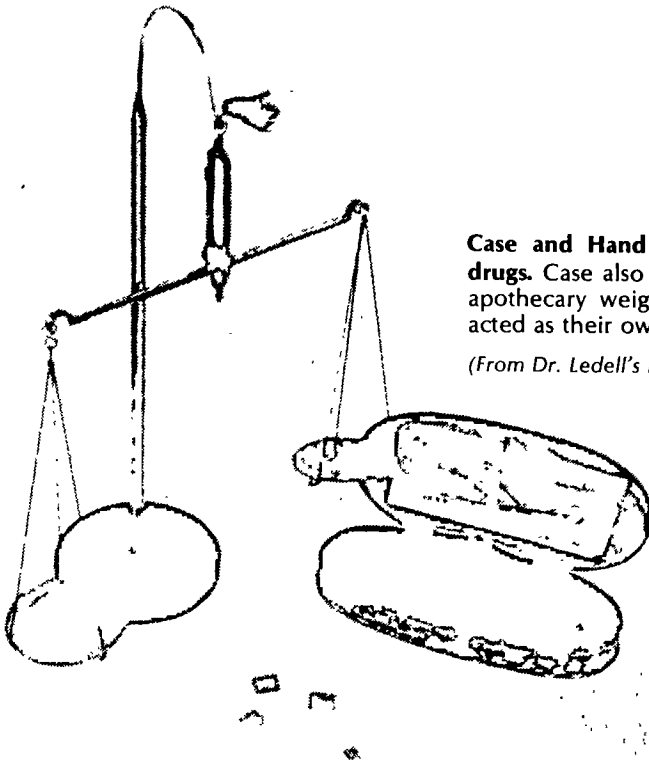


**Glass Container and Tube**, hand-blown, found in Dr. William Ledell's medicine chest. Its use remains a mystery, but suggestions as to its function include:

**Inhaler.** Container filled with volatile liquid or solid, and vapor breathed through tube.

**Mixing apparatus for volatile liquids.** Hole on side for pouring.



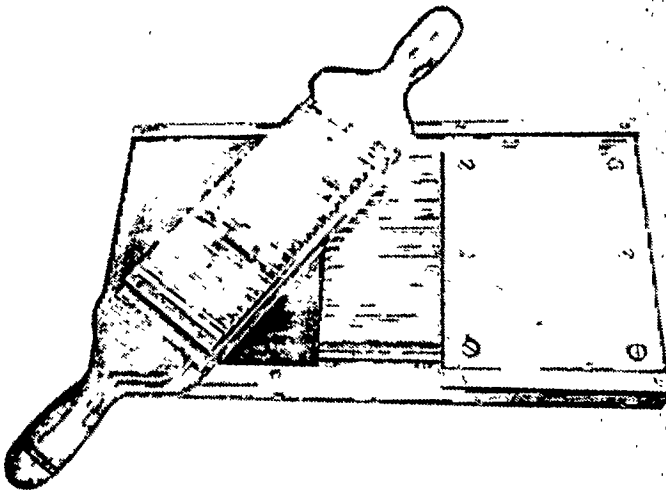
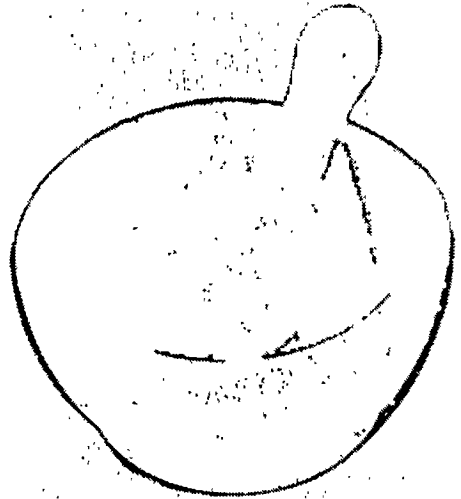


**Case and Hand Scale for weighing drugs.** Case also contained four brass apothecary weights. Most physicians acted as their own pharmacists.

*(From Dr. Ledell's Medicine Chest)*

**The Mortar and Pestle** for grinding leaves, stems, roots and medicines has been used for centuries, and the design is essentially unchanged today. Revolutionary ones were of wood or metal.

*(From Dr. Ledell's Medicine Chest)*



**Eighteenth Century Pill Roller.**

Medicine was mixed with a binder, such as cornstarch. The "dough" was rolled into cylinders and placed between the brass corrugations of press and board and sliced into dose-sized portions.

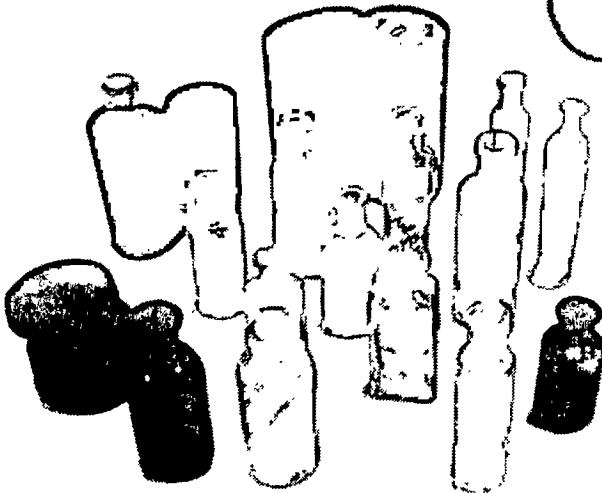
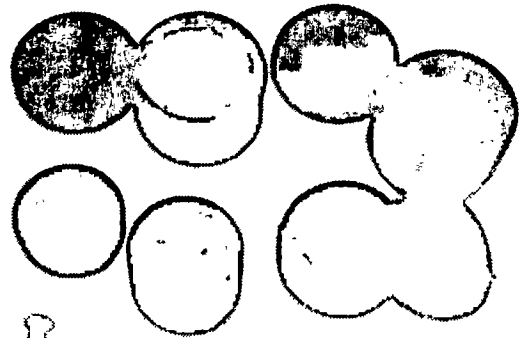
*(Reproduction)*



**Saddle Bags** were one badge of the early American medical practitioner. The original model for this reproduction contained, among other remedies, tins of cinchona (made from Jesuit's bark, used to treat malaria), "powders for fits", castor oil, and mysterious black pellets with an unreadable label.

*(Reproduction)*

*(Bottles courtesy of Wheaton Village, Millville, N.J.)*



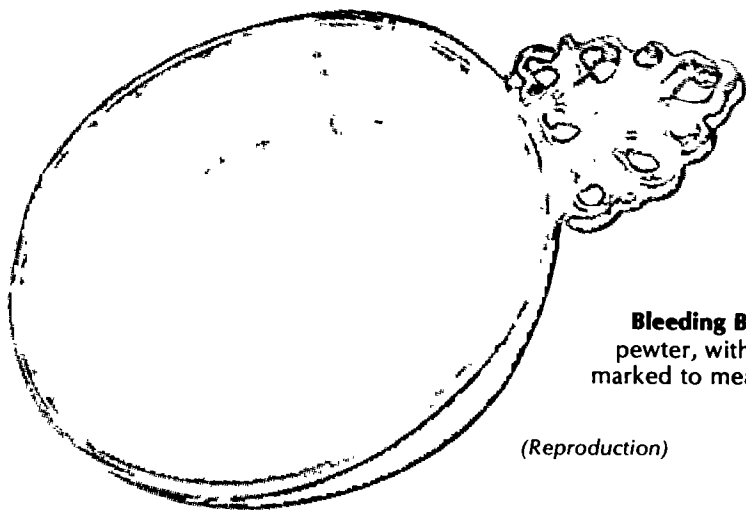
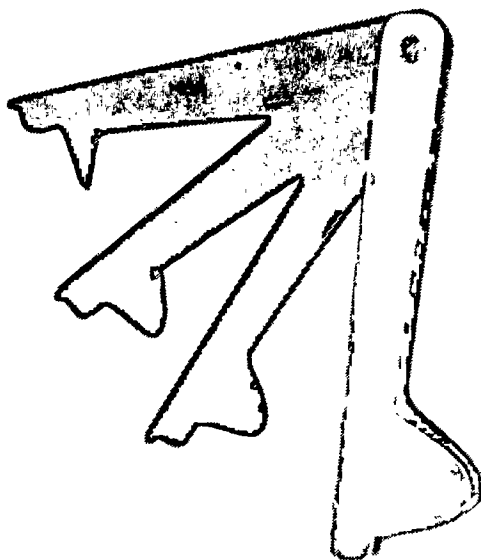
**Wooden Boxes and Tins** contained the doctors supply of solid, ground or powdered remedies. Liquid portions were carried in glass bottles.

*(Reproductions)*

*"More Americans died of the Lancer than the lance."* The practice of copious blood-letting to restore the balance of "body humors" weakened and no doubt killed many Revolutionary patients. The quote reflects the fact that medical practices of the times were frequently so rigorous as to make one's chances of survival greater on the battlefield than in a hospital.

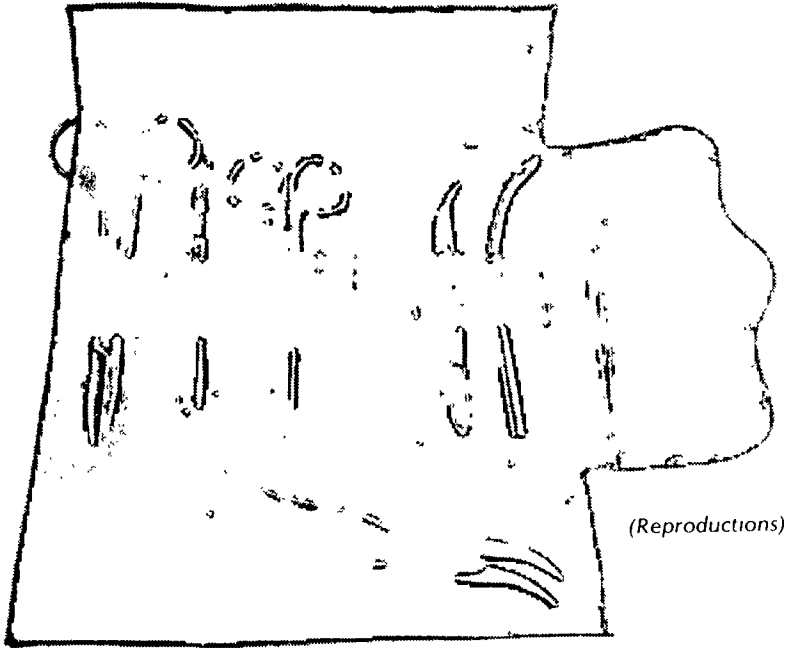
This multi-bladed lancet was used to open the patient's vein; blood, as much as 10-12 ounces daily, might be collected until the doctor was satisfied that the patient was progressing.

*(Reproduction)*



**Bleeding Bowl** made of pewter, with graduations marked to measure ounces of blood let.

*(Reproduction)*

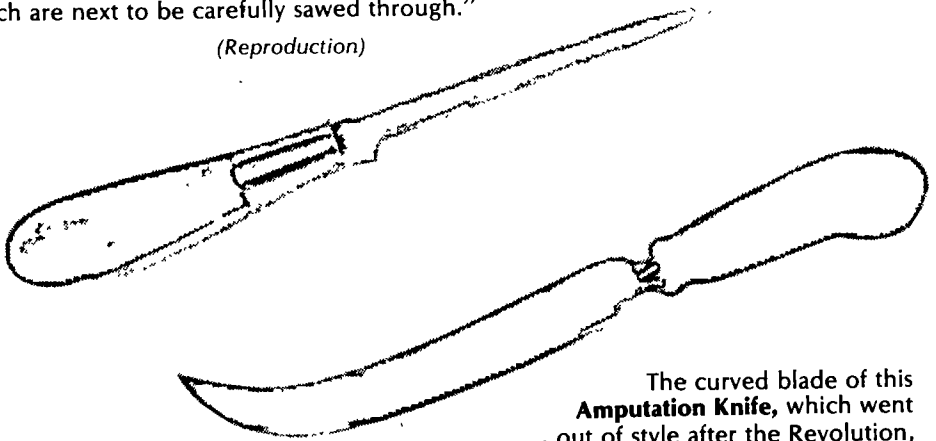


(Reproductions)

**Field Surgeon's Kit.** This type of leather instrument case was probably a wartime physician's most useful possession. This one contains scissors, a scalpel, two kinds of forceps or bullet extractors, seton needles and tweezers.

**The Catlen,** a standard amputation tool. "The Interosseous ligament must then be separated by the Catlen or the point of the amputation knife, pushed between the bones, which are next to be carefully sawed through."

(Reproduction)

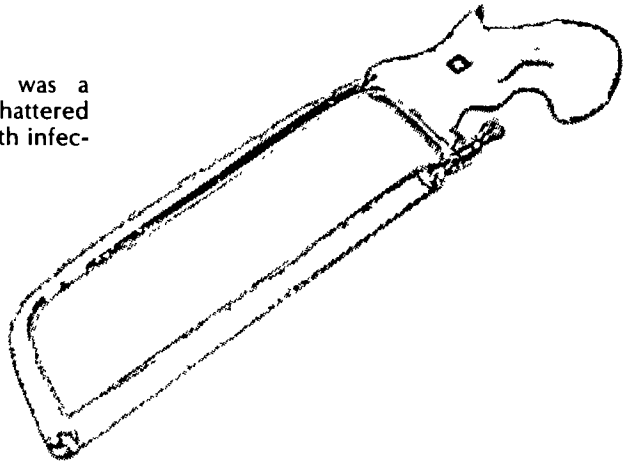


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The curved blade of this **Amputation Knife**, which went out of style after the Revolution, was used to make deep incisions where a small opening was required.

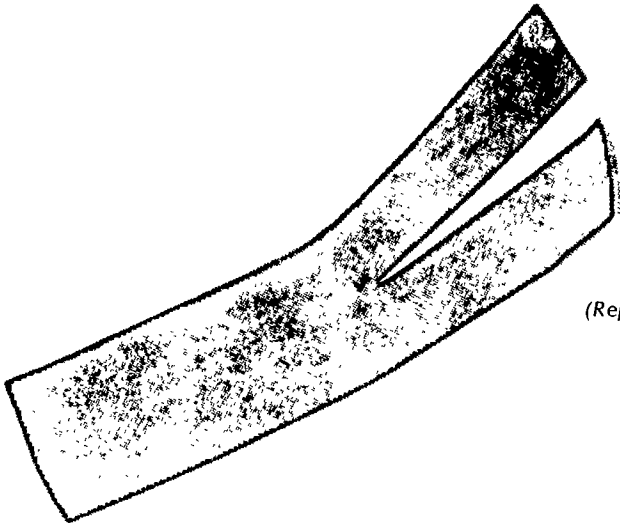
**Amputation saw.** Amputation was a common treatment for limbs shattered on the battlefield or afflicted with infection or gangrene.

Working as quickly as possible against shock and blood loss, the surgeon dosed the patient with rum or opium (*when available*), covered the patient's ears to block out the noise of the saw, and used a variety of sharp implements. The stump was then cauterized with a hot iron or hot oil and usually bound with cloth or buckskin sutures.



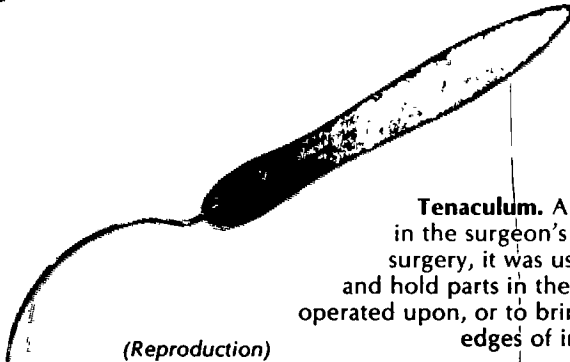
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**Leather Retractor** for muscle and flesh exposed bone for the amputation saw. The surgeon generally required two assistants to hold the patient in place during the operation. If opium or rum were not available, the patient might have to "bite the bullet" against the pain.

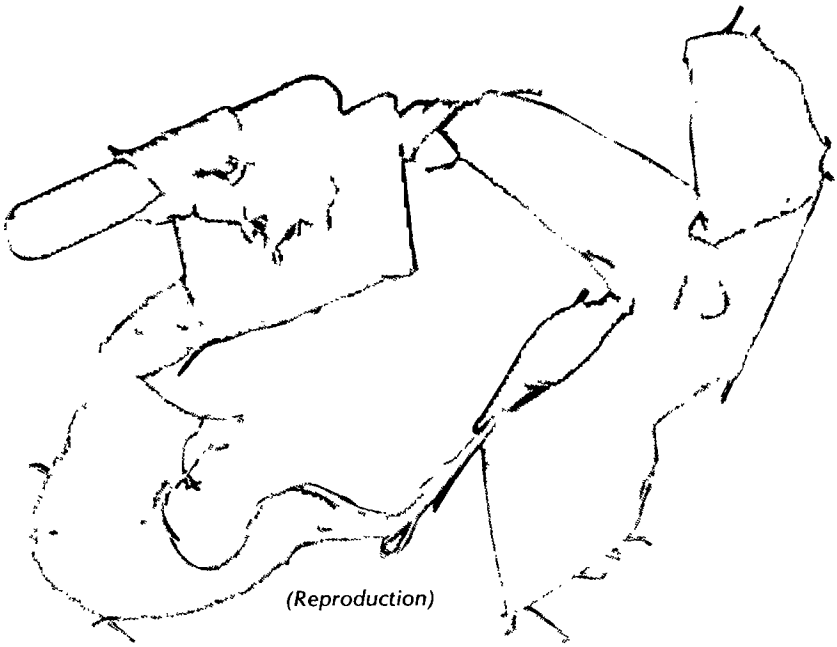


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**Tenaculum.** Another tool in the surgeon's kit. During surgery, it was used to seize and hold parts in the area being operated upon, or to bring together edges of incised skin.

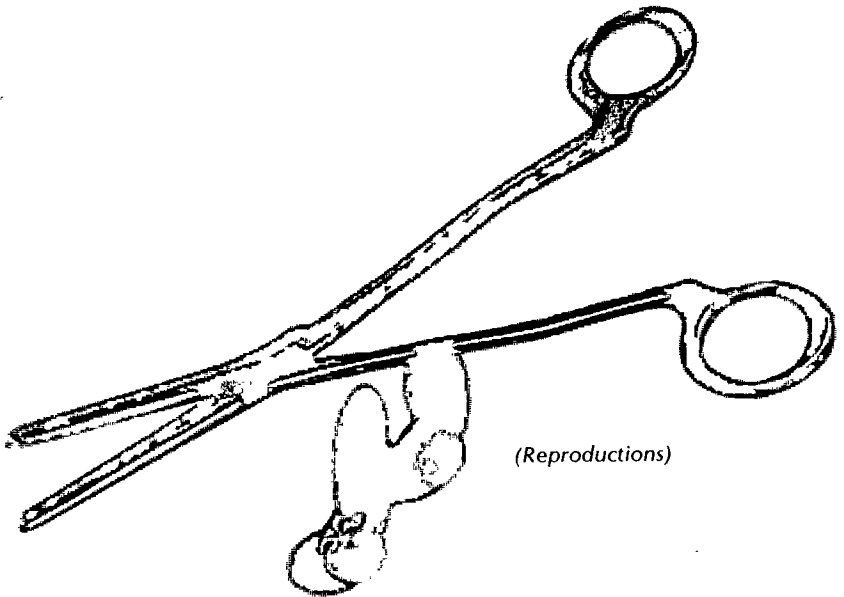


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**Tourniquet** made of linen. While the circulatory system was not fully understood in the 18th century, the practical function of stopping blood flow by pressure was put to frequent use by the Revolutionary medical man.

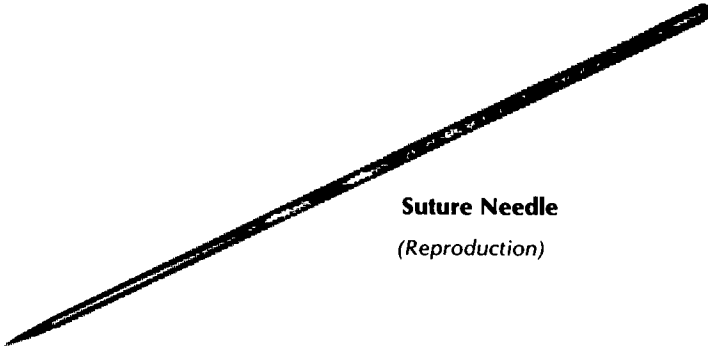
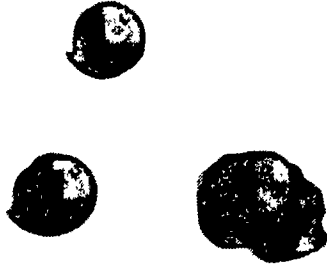


*(Reproductions)*

**Bullet Extractor.** The cup formation on the end of this style of extractor made recovering a musket ball easier, but surgeons were reluctant to probe too deeply, and many a soldier carried a permanent souvenir of his encounter with the enemy. If he were lucky, infection did not set in.

**"Bite the Bullet"** was more than an idle phrase during the Revolution. Bullets or musket balls were used during surgery to help the patient endure the pain of undergoing a procedure without anesthesia.

*(Reproductions)*



**Suture Needle**

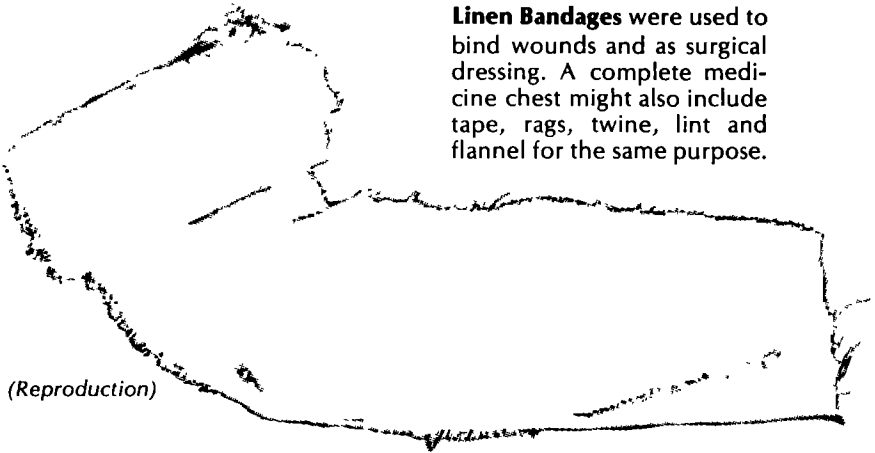
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**Lint** for compresses was made by picking woven material. A one-pound supply of it was a typical ration for an army medicine chest ordered by the Continental Congress to supply a given region during the war.

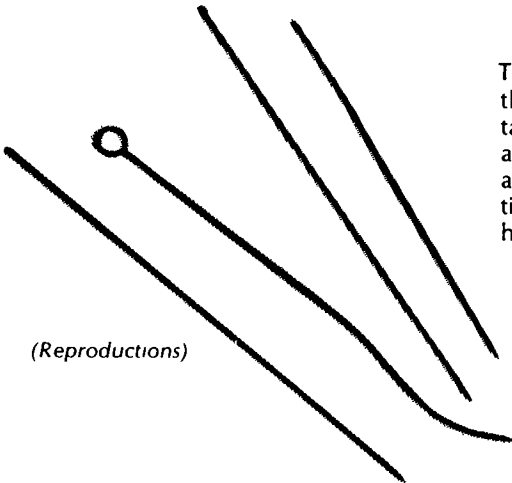
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**Linen Bandages** were used to bind wounds and as surgical dressing. A complete medicine chest might also include tape, rags, twine, lint and flannel for the same purpose.

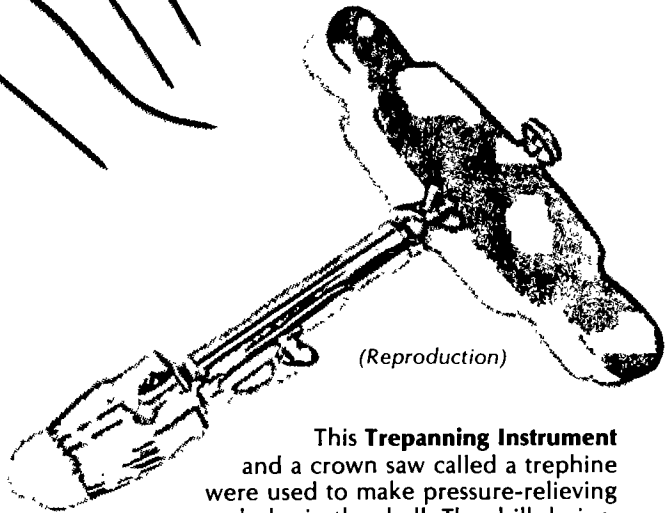


(Reproduction)

The **Seton Needle** was used, often with thread or hair, to create a counter-irritation. It was drawn through the skin and left in place to cause a discharge in an effort to cure a larger area of infection, or to cure a general ailment which had not responded to other remedies.



(Reproductions)



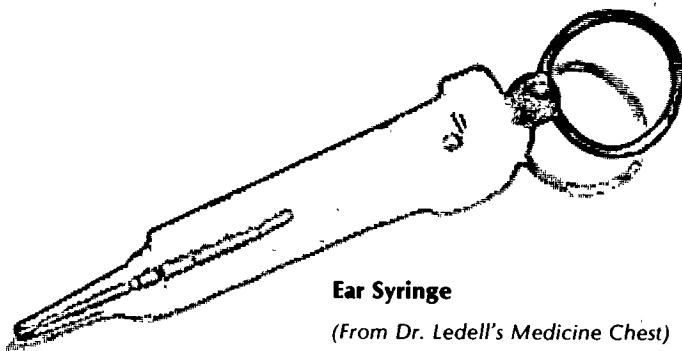
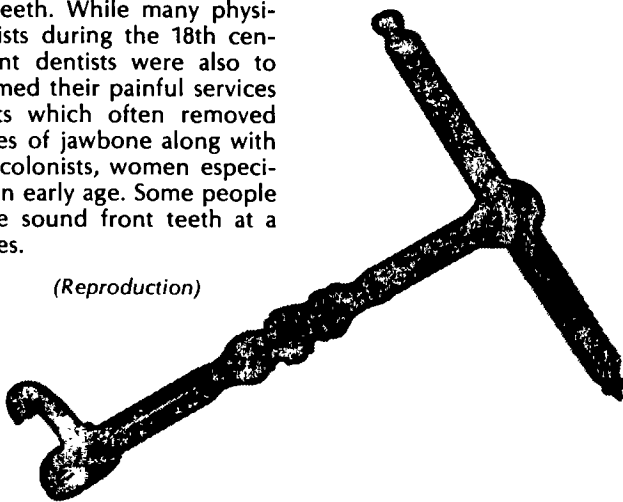
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This **Trepanning Instrument** and a crown saw called a trephine were used to make pressure-relieving holes in the skull. The drill design, except for the handle, is strikingly similar to that of present-day surgical instruments used for the same purpose. *Historical findings indicate that this kind of operation is thousands of years old, and was performed in ancient Egypt.*



A **Turnkey**, such as this one, and dental forceps were used to extract teeth. While many physicians doubled as dentists during the 18th century, untrained itinerant dentists were also to be found. They performed their painful services with crude instruments which often removed healthy teeth and pieces of jawbone along with an ailing tooth. Many colonists, women especially, were toothless at an early age. Some people elected to sell valuable sound front teeth at a profit for use in dentures.

*(Reproduction)*



**Ear Syringe**

*(From Dr. Ledell's Medicine Chest)*

**Pewter Hot Water Bottle** of the type found throughout the Colonies in Revolutionary times. This one was found in New York's Catskill region.



## Bibliography

*Charles Knowles Bolton*, **The Private Soldier Under Washington**, Charles Scribner's Sons, N.Y., 1902.

*David L. Cowen*, "Medicine in Revolutionary New Jersey", pamphlet #12 of Bicentennial series **New Jersey's Revolutionary Experience**, New Jersey Historical Commission, 1975.

*Richard I. Dudley, M.D.*, "Military Medicine in the Revolutionary War, Morristown, New Jersey", **Morristown Memorial Hospital Journal**, January, 1975; "Smallpox in Early America", **Morristown Memorial Hospital Journal**, Spring, 1976.

*C. Malcolm B. Gilman, M.D.* "Military Surgery in the American Revolution", **The Journal of the Medical Society of New Jersey**, August 1960.

*George B. Griffenhagen*, "Drug Supplies in the American Revolution", **Contributions from the Museum of History and Technology**, U.S. National Museum Bulletin 225, Smithsonian Institution, Washington, D.C., 1961.

*Robin O'Connor*, "American Hospitals: The First 200 Years", in **Hospitals**, Journal of the American Hospital Association, January 1, 1976.

*Harold L. Peterson*, **The Book of the Continental Soldier**, Stackpole Company, Harrisburg, Pa., 1968.

*Fred B. Rogers, M.D. and A. Reasoner Sayre*, **The Healing Art**, The Medical Society of New Jersey, Trenton, N.J., 1966.

*Silvi Taylor*, "Colonial Medicine, not so Revolutionary", in **Spectrum**, magazine of the University of Texas Health Science Center, Dallas, Tex., Summer, 1976.

"A Bicentennial Salute to American Dentistry", *special issue* of **Dental Management**, July 4, 1976.

**New Jersey Medicine in the Revolutionary Era, 1763-1787**, *an exhibition*, the New Jersey Historical Society, 1976.

**200 Years of American Medicine, (1776-1976)**, *an exhibit* at the National Library of Medicine, Bethesda, Maryland, U.S. Department of Health, Education and Welfare, Publication No. (NIH) 76-1069.



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*Saddle bags made by  
Dan Hopkins, Bernardsville.*

*Musketballs cast by  
Dr. John Tintle, D.D.S., Chester*