

MEDICAL



COLLECTORS



ASSOCIATION

NEWSLETTER NUMBER 11  
November 1987

Dear Colleagues:

This Eleventh Newsletter is the last of this year and marks the fourth year of the Medical Collectors Association. The most important items of which you should have taken note are the Registration Form for the Third Annual Medical Collectors Association Meeting and the Renewal of Membership for 1988.

I have set the dues for 1988 at the same level as in previous years. As in past years, we will not plan to send out a second general notice and are dependent on all of you to promptly return to us the Renewal Forms and fees. Persons who do not renew for membership next year will not receive future mailings of the Newsletter and will not be eligible for participation in the annual meeting. Please help us make our secretarial task somewhat less formidable by returning the Renewal Notice to us at your earliest convenience. It is also very helpful if you do not intend to continue as a member, to please let us know that so that our records can be accurate.

I believe that we are all greatly indebted to Dr. Larry Vincent who has generously agreed to manage the Third Annual Meeting. This promises to be an extremely interesting and exciting meeting. All inquiries concerning the meeting, as well as the registration fees should be sent directly to Larry. At the present time, although several people have agreed to speak, there are still places open. Anyone who has some interesting material which he/she would like to present should contact Larry Vincent at his/her earliest convenience. In addition, those of you attending the meeting should plan to bring along any objects that you wish to discuss or have identified. Dr. Vincent has also sent me the enclosed brochure which describes the visit to Patterson's Mill which is planned as part of the meeting. The previous two meetings, I believe, have been great successes and we look forward to everyone possible participating in the future meeting to continue this tradition.

At the present time, no one has come forth to volunteer for conducting the Fourth Annual Meeting. I believe that since the first three meetings have been held on the east coast, it would be highly appropriate to move to some place on the west coast so that members of the association who have locations more convenient to that area can attend. Is there anyone among the membership who is interested in hosting the next meeting? Unlike the previous meetings where we have restricted it to highly populated areas in order to insure adequate attendance, I think that the meeting is now well-enough founded so that anyone with a real interest who wishes to run the meeting can step forward regardless of location. Please contact me as soon as feasible so that I can bring any suggestions to the attention of the membership and we can choose the date and site for the Fourth Annual meeting.

Founder: M. Donald Blaufox, M.D., Ph.D.

Mailing Address: M. Donald Blaufox, M.D., Ph.D. • 1300 Morris Park Avenue • Bronx, New York 10461 • (212) 904-4011

I returned recently from attending the Scientific Instrument show, which was run by Peter Delehar in London on Sunday, October 25th. This was a most delightful experience. Several members of the Association were there, including Drs. Gimesh, Warren, Coffeen, Mrs. Elizabeth Bennion, and Messrs. Middleton and Waterman, as well as their respective wives. Other members may have been present but I did not encounter them. The array of instrumentation in the medical field was simply mind-boggling. It would have been impossible to attend that show and not come away with something of great interest and value. Unfortunately, the dollar/pound ratio has continued to decline, having fallen about 10¢ during the one week that I was there, so that I cannot state that bargains were very prevalent. There will be another show in the spring and I heartily recommend anyone who is interested in an in-depth opportunity to purchase antique medical devices, as well as scientific instruments, to attend this exciting event. In addition, most of the English dealers who have shops around London, were quite busy hosting collectors from all over the world.

A library exhibit on the evolution of the stethoscope is being planned at the Albert Einstein College of Medicine and will be on display from August through October 1988. Anyone who has some interesting artifacts or material that they think might be suitable for this exhibit and who is interested in participating should contact me. The exhibit will include both actual stethoscopes and books describing them, as well as some material from the collections of Nolie Mumey and Dr. John Somberg.

Dr. Anne Young has written to me to make note of the fact that she hopes to attend the next Medical Collectors Association meeting. In order to do this, she has decided to put up for sale a number of very attractive leech jars. These are specified in the Offerings Column, but anyone wishing to get further information about the possibility of purchasing a leech jar from Dr. Young should write to her at "1, The Beeches, Lydiard Millicent, Swindon, WILTS, SN5 9LT, England, or telephone her at (0793) 770483.

Dr. Stanley Burns has brought to my attention that his book "Masterpieces of Medical Photography" has been chosen as one of the best new photography books of 1987 by the International Center of Photography. It will be featured at the ICP's Midtown Review on exhibit at the Midtown Center from November 13th to January 9th. Anyone who is interested in purchasing that book or attending the exhibit should contact Dr. Burns at (212) 758-3075, or 30 East 60th St., Suite 1504, New York, N.Y. 10022.

I mentioned in the last Newsletter, the availability of Audrey Davis' and Mark Dreyfuss' new book "A Bibliography of Medical, Dental, Optical and Pharmaceutical Company Trade Literature 1700-1939". I have received my copy of the book and found it a most valuable resource. It can be obtained from the Medical History Publishing Associates, One Claremont Court, Arlington, Massachusetts 02174.

I have received a letter from a Lisa D. Paul, who has asked for information concerning external temporary pacemakers. The notice of her quest is to be found at the end of the Travel Review by Professor Pengelley and anyone who has any information for her is kindly requested to respond.

Several other features of this Newsletter deserve some comment. Once again I have not received from members any photographs of objects which need identification. Is it possible that no one has any items whose use is unknown to them. If you have any interesting, unidentified items, please send me a 5" x 7" photo so that we can keep

the Identification Column operating and active.

We feature, once again, various aspects of bleeding in this issue of the Newsletter and it is highlighted by a copy of Dr. Young's series of articles on bleeding antiques, which she was kind enough to make available to me for distribution to the membership. Also, Dr. Helfand has renewed his supply of historical images of the drug market and a very interesting description of Allcock's Porous Plasters is included in this issue.

Dr. Pengelley reviews Holland and Sweden for us in this Newsletter. Those of you who are anxious to see all of the reviews that Professor Pengelley has written, are reminded that the entire text is now available as a small Travelogue, which can be obtained by writing directly to him.

Those of you who are travel-minded and would like to go to some more exotic places may take note of the announcement by the Scientific Instrument Society concerning their visit to Moscow and Leningrad in May 1988. Their original deadline was October 1st, however, I would hope that anyone interested in participating in this tour could still get aboard if he/she contacted them early.

I have also included with this letter two interesting brochures, one from the Medical Museum of the University Hospital in London, Ontario; and another from the Academy of Medicine in Toronto. Both of these are quite interesting exhibits and are easily accessible for anyone who happens to be traveling through Canada. They are included for your convenience.

It seems inevitable that I must conclude each Newsletter with a plea for some participation from the membership. Active communication has slowed up considerably and I received very few items from members which could be included with the Newsletter. I am sure that all of us have interesting things which we would like to share with the membership and I urge you to pass along to me anything that you might think of interest, including items for identification, brief articles or anecdotes or mention of events which you would like to share with the membership.

I look forward to seeing all of you at the meeting in May and I hope to receive some contributions for future Newsletters from as many of you as possible.

Best wishes for a Happy Holiday Season.

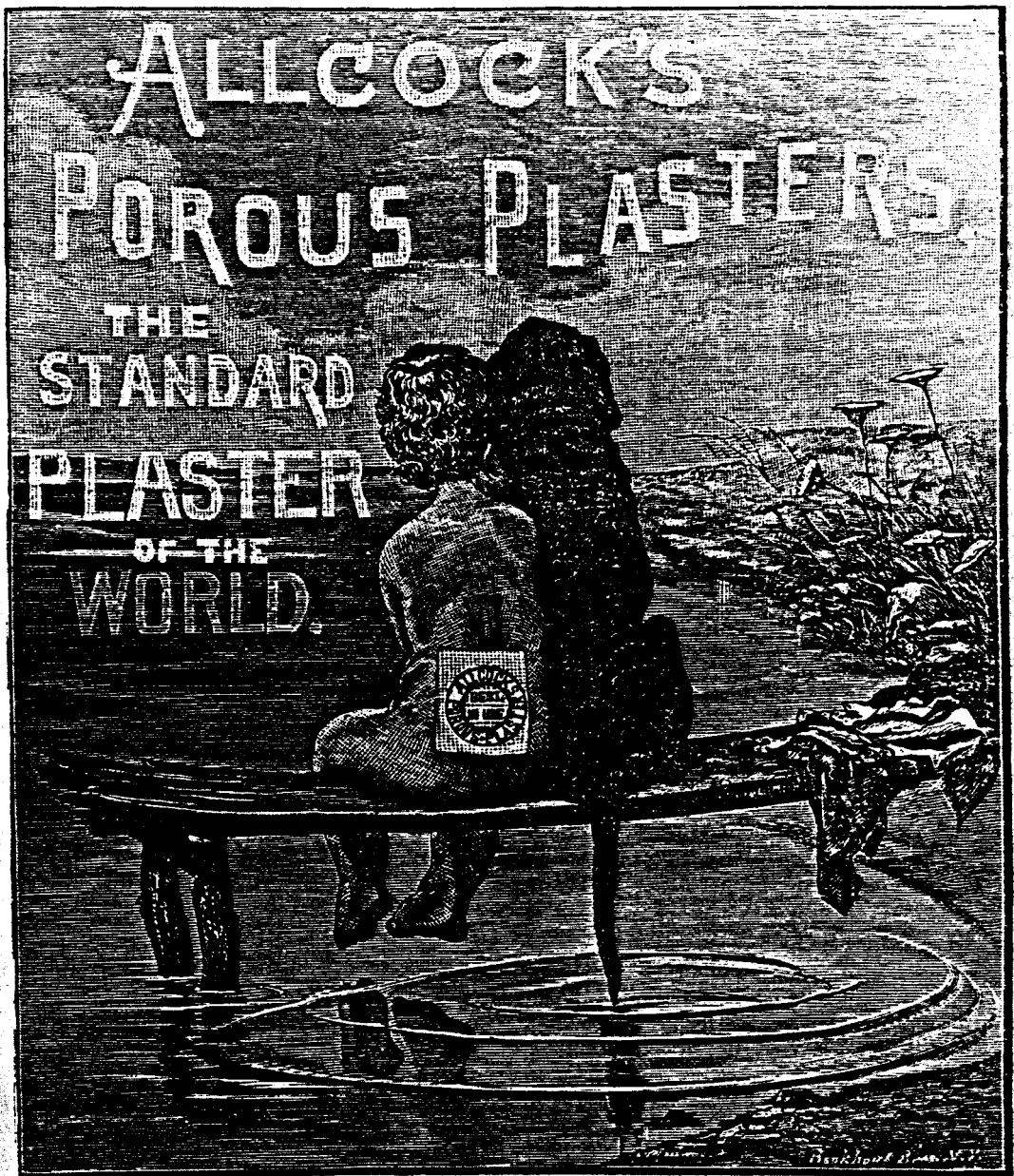
Sincerely,  
M. Donald Blaufox, M.D., Ph.D.

# Historical Images of the Drug Market— II

by William H. Helfand

ALLCOCK'S POROUS PLASTERS were made in Sing Sing, now Ossining, New York by the Porous Plaster Company. It was a large and successful business that also marketed Brandreth's Vegetable Universal Pills, and employed about 150 people at the time this advertisement appeared. The plasters were first marketed around 1860 by Dr. Thomas Allcock who developed a new method of manufacturing them by punching holes in order to allow accumulated moisture to escape. A quotation from one of the numerous pamphlets published to promote Allcock's Porous Plasters notes the difficulties that the new design was able to overcome: ". . . there was for many years a demand among the trade for a plaster to take the place of the old Pitch Plaster. Many were the attempts to comply with this demand, but

none proved of any value. The difficulties to be overcome were multi-form; in one case the plaster would soon become hard and brittle, while in another the gums which entered into the composition would become so soft, that, in removing the face cloth, as much of the plaster mass would adhere to it as remained on the back of the plaster; and still another, and without doubt the greatest of all the difficulties to be overcome, was the fact that a plaster, even when perfectly made, would on application to the body, cause such a profuse perspiration that in a very few hours it would be forced off by the accumulation of moisture between it and the surface of the body." The woodcut illustration of the boy and his dog and the caption beneath it appeared in the October 13, 1888 issue of Harper's Weekly. (Original size 4<sup>3</sup>/<sub>4</sub>" x 6") ▶



**ALLCOCK'S POROUS PLASTERS** have the endorsement of the highest medical and chemical authorities, and millions of grateful patients who have been cured of distressing ailments voluntarily testify to their merits. Beware of imitations, and do not be deceived by misrepresentation. Ask for **ALLCOCK'S**, and let no explanation or solicitation induce you to accept a substitute.

# UNITED STATES PATENT OFFICE.

JOSEPH H. GUILD, OF RUPERT, VERMONT.

## IMPROVEMENT IN MEDICINE-PACKAGES.

Specification forming part of Letters Patent No. 216,192, dated June 3, 1879; application filed March 31, 1879.

*To all whom it may concern:*

Be it known that I, JOSEPH H. GUILD, of Rupert, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Medicine-Packages; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to packages for holding medicines; and consists in providing the package or casing with a mouth at the upper end and a removable screw-cap, so as to form an air-tight medicine-package, and protect the contents, during transportation and use, from air or moisture.

It further consists in graduating the screw-cap in size, so that it will hold one dose of the medical preparation to be inclosed in the package, and in providing the package, at its upper end, with an outside cover, having a compartment inside, to hold the preparation for burning, when such is desired, and another compartment for holding a stirrer and other small articles used in connection with the medicine, as hereinafter shown and described.

In the accompanying drawings, Figure 1 is a side elevation, partly in section. Fig. 2 is a plan of the outside cover inverted. Fig. 3 shows, in perspective, the outside cover detached.

A designates the main casing of the package, usually made of sheet metal, and having a mouth at the upper end formed with a thread to receive a screw-cap, *a*, so that the package is air-tight when closed. The said cap *a* is

usually made of a size to hold one dose of the medical preparation contained in the package, and is used for measuring it.

B indicates the outside cover, which fits to the sides of the package at the top, as shown in the drawing. About its interior the cover B is provided with a rim or flange, C, depending from the inner side of the top of said cover, so that an inner compartment or vessel for holding a quantity of the preparation is formed, also space or another compartment, D, is left outside of the rim C to receive certain small articles used in connection with the medicine, as a stirrer, *b*, a few matches, *c*, &c.

The package constructed as shown is especially adapted for holding and using medicinal preparations which are administered by igniting them to create vapors for inhaling. The cap *a*, being removed and held in an inverted position, is filled from the package A, and emptied into the vessel C formed within the cover B. The contents are then ignited by means of a match, *c*, and stirred by using the stirrer *b*, usually formed of a piece of wire.

Having described my invention, I claim—

The case A containing medicine to be used by inhalation, having the stopper-cap *a* of the proper size for measuring the medicine, and the top or cover B of the case provided with the rim C, forming the compartment to hold the medicine while burning, and the compartment D for carrying the matches and stirrer, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH H. GUILD.

Witnesses:

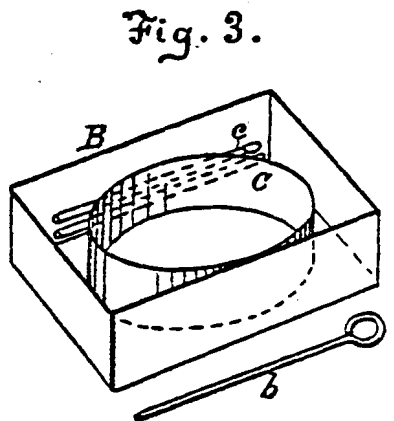
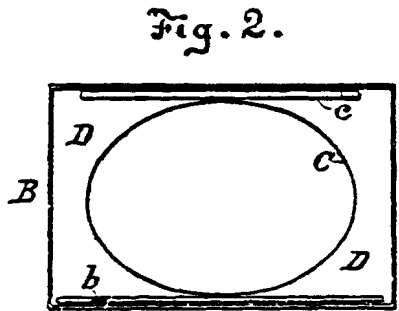
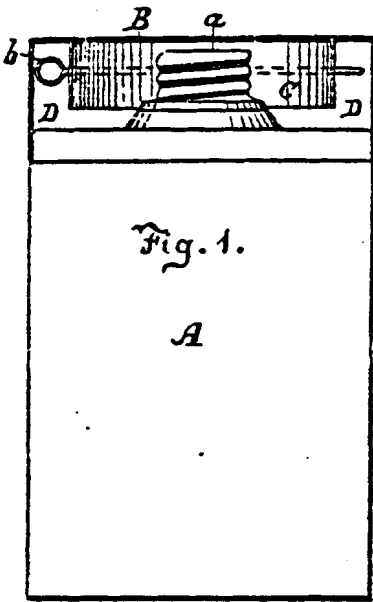
LYMAN FARRAR,

CORNELIUS M. SHELDON.

J. H. GUILD.  
Medicine-Package.

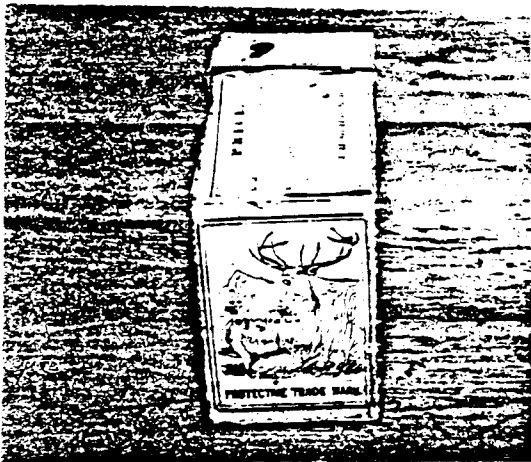
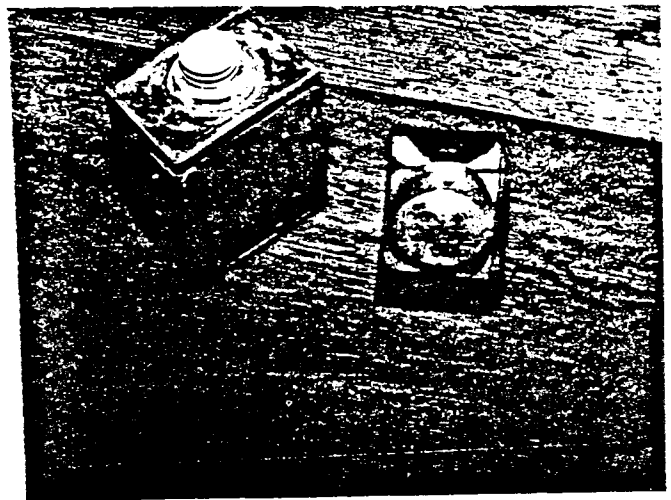
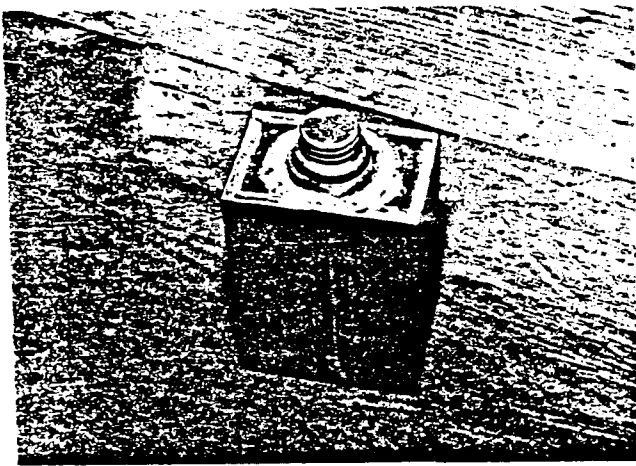
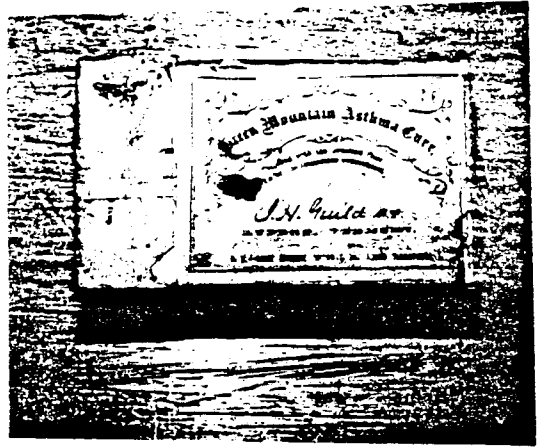
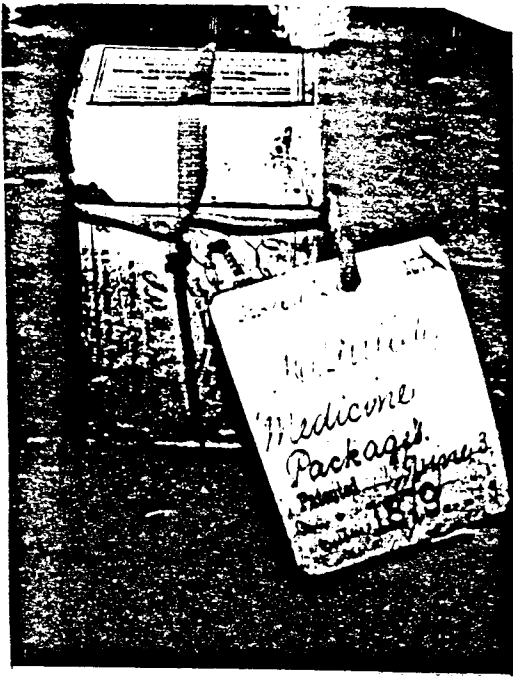
No. 216,182.

Patented June 3, 1879.



Witnesses :  
W. Berris  
H. A. Daniels

Inventor :  
J. H. Guild  
By G. B. Towler  
Attorney.





CAN YOU IDENTIFY THIS

Material:

Maker:

Presumed Use:

Date:

WE HAVE NOT RECEIVED ANY ITEMS FOR

IDENTIFICATION - CAN THIS BE SO

Modern medicine is successfully employing leeches in microsurgery

# NEW USE FOR AN OLD TREATMENT

FOR MORE THAN A DECADE, European physicians have used blood-sucking leeches to treat various ailments. But, until recently, their use here has been virtually nonexistent.

Now, despite the leech's outmoded and unsavory public image—and the American medical establishment's predilection for using only the very latest technology—leeches are playing an important role in one kind of microsurgery and in a host of research projects.

At the Albert Einstein College of Medicine and Montefiore Medical Center in the Bronx, N. Y., microsurgions use the European medicinal leech (or *Hirudo medicinalis*) to help them reattach severed or damaged fingers. According to Dr. Benish Strauch, chief of plastic and reconstructive surgery, the leech can mean the difference between failure and success in such procedures.

In microsurgery, doctors reconnect nerves, arteries and veins of severed fingers with sutures so fine, they are barely visible to the naked eye. Often, however, veins are too delicate to suture.

As a result, fresh blood flows into the finger through the repaired arteries, but there is no route for its return. The blood accumulates, causing pain and swelling. Pressure builds, impeding circulation and, eventually, cells are deprived of oxygen and nourishment. The stage is set for death of the finger. To save it until the damaged blood vessels can grow and restore circulation, doctors usually remove the fingernail or prick the fingertip so it bleeds. But repeated pricks can damage the tissue, and they don't always relieve congestion.

Enter the leech. This

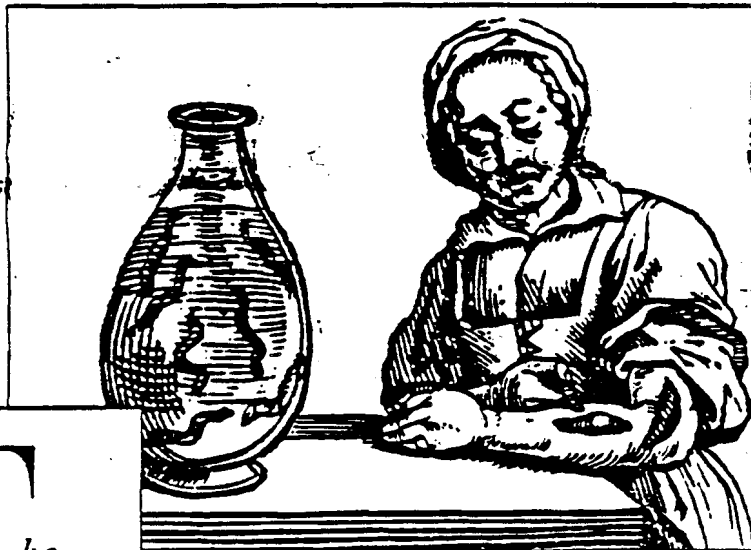
2-inch-long green and brown relative of the common earthworm can drain off about 2 teaspoons of stagnating blood—or six times its body weight—in 20 minutes, says microsurgeon Dr. Jacques Baudet of Bordeaux, France. The procedure, he adds, is practically pain-free.

"When the leech is full," says Dr. Baudet, "it simply drops off, and we

and secretes the anticoagulant hirudin."

Says Dr. Strauch, "It's as if the leeches were designed for the use to which we've put them."

How do patients react to the news that leeches will be used? "At first, they're concerned," says Dr. Strauch. "But when they see it works, they think it's a good idea."



Woman applies leeches to soothe her ailing arm, circa 1639.

The leech drains off stagnating blood, helping surgical wounds to heal

throw it away. The puncture made by the leech continues to bleed for three to five hours because of the anticoagulant—hirudin—which the leech secretes. When the finger begins to turn blue again, it's time for another leech.

"The leech is effective," Dr. Baudet emphasizes, "because it does two things very well—it sucks blood

At present, European doctors apply leeches in more procedures than do U.S. physicians. In England, for example, leeches are used to open black eyes for observation. In one recent case, leeches were used after microsurgions reattached a British steelworker's scalp, which had been torn off in an industrial accident. In France, leeches are used not only to reattach fingers but also in free-flap transfers—where large sections of skin, nerves and blood vessels are moved from one part of the body to another.

In the U.S., however, some researchers have made leeches a focal part of their work.

At Temple University School of Medicine in Philadelphia, Dr. Scott Malinconico and his colleagues isolated a protein from the salivary glands of the South American leech, which often grows to a length of 18 inches. This protein contains an amazing blend of anesthetics, anticoagulants and antibiotics. The researchers believe this extract can be used to treat diseases linked to blood clots, such as heart attacks and strokes.

Researchers at Pennsylvania Hospital's Laboratory of Experimental Oncology in Philadelphia also are working with an extract from the leech salivary gland. Dr. Gabriel Gasic says his studies of lung cancer in mice indicate that the leech extract is a potent, nontoxic agent capable of inhibiting metastases—the spread of cancer from one part of the body to another. In studies conducted with Dr. Luka Milas of M. D. Anderson Hospital and Tumor Institute in Houston, Dr. Gasic has shown that the extract also can reduce the undesirable effects of some cancer drugs.

Other researchers believe their studies of leech nerve cells may one day reveal how human brain cells respond to drugs, how learning and memory take place and may even lead to understanding the causes of certain birth defects.

Despite these advances, there still are people in modern society who apply leeches in traditional ways. (Caution: Leeches may harbor infection.) Some pharmacies here and abroad, for example, sell leeches over the counter to customers who use them to treat black eyes, varicose veins and bruises. Others still believe the once widely accepted medical theory that periodic bleeding improves the health. In medieval times, doctors used the bloodsucking worm so extensively that the leech took its name from the Old English word *laece*, meaning "physician."

"When you bring up the word leech," says Dr. Malinconico, "everyone thinks of a parasite that was overused historically. But there is definitely a sound scientific basis for their current use." □

BY CHERYL MAYS HALTON

No, not the expostulation of a junior acolyte of the Vetting Committee about to have a *crise de nerfs*, but an exact description of my subject, i.e. antiques associated with blood letting.

It is difficult for us in the late 20th century, used to donating our blood in the knowledge that it will be used to save lives, to appreciate that for millennia, from time immemorial until the first half of the 19th century, blood-letting was the standby of medical treatment. It may have developed from the purging and bleeding (sacrificial) rituals of primitive tribes, and it is known from written records that it was used therapeutically by the Babylonians in 2000 BC. It is described in the ancient Indian medical works, the Vedas compiled in c.350 BC or possibly earlier, and was well established by the time of the Hippocratic writings in the 5th century BC. Hippocrates established the humoral theory of disease and felt that bleeding restored the balance of the humours in certain diseases, but used it sparingly. By the 1st century AD Celsus was writing "It is not a new practice to let blood by the incision of a vein, but it is new to embrace this remedy in almost every disease". The humoral theory held sway until the mid-19th century, and so blood letting persisted and was only abandoned when the scientific approach and the beginnings of medical statistics influenced medical practice leading to

# Bleeding Antiques

by Dr. Anne Mortimer Young



To bleed doth chere the pensive, and remove  
The raging furies bred by burning love.

Figure 1. From *Regimen Sanitatis Salerno*, 11th century Latin, translated by John Harrington in the 16th century.

the change from medicine as an art to medicine as a science.

Much has been written about the medical aspects of blood letting<sup>1, 2, 3, 4</sup> less about the instruments used. Mrs. Bennion refers to them in her magnificent book on antique medical instruments<sup>5</sup> and C.J.S. Thompson has a chapter in his book on the history of surgical instruments<sup>6</sup>, but the most detailed

account is given in Davis and Appel's account of the blood letting instruments in the Smithsonian Institution<sup>7</sup>, to which publication I am much indebted. Currently there is much interest in collecting medical antiques, and blood letting equipment, especially that associated with leeching, appears to be the fashionable area at present.

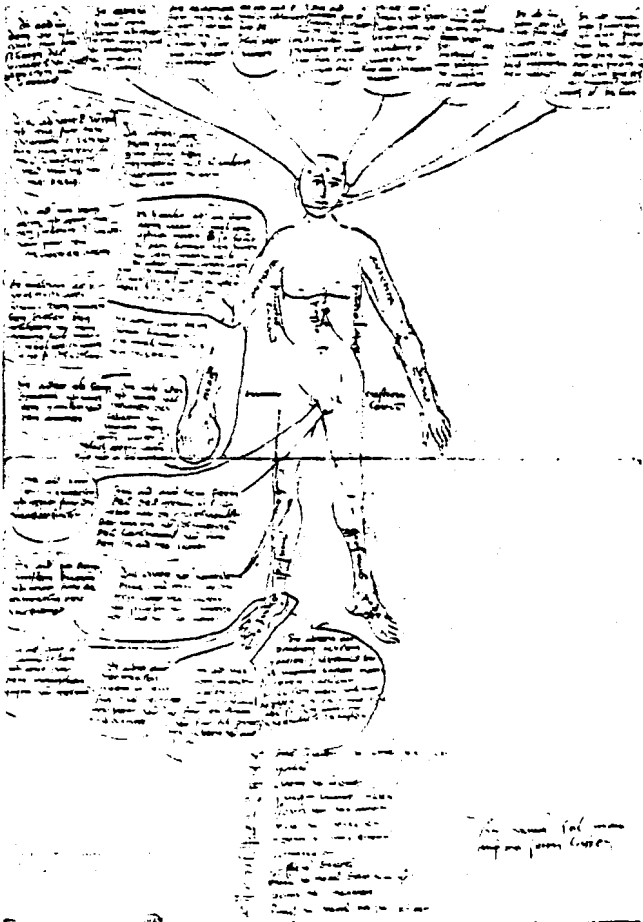
Several different methods were used, each needing its particular paraphernalia, so I shall try to bring order to my account by classifying the instruments along these lines. Direct removal of blood from a major vessel, usually a vein, occasionally an artery — venesection, phlebotomy, "breathing a vein" — is probably the oldest method (figure 1) and will lead to a consideration of lancets, spring-lancets, lancet cases and bleeding bowls (Part 1). Then cupping (Part 2), which required bleeding cups, scarificators and a multitude of patent devices. Finally leeching (Part 3) which involved, in addition to the animal itself, jars, tubes, applicators, transporting boxes and again a plethora of patent devices or "artificial leeches", some of which were quite remarkable. Obviously with such a wide range of equipment, for those interested in this perhaps rather macabre corner of collecting, there will be objects available in all price ranges and I will try to give some indication of this at the end of each part.

## PART 1. VENESECTION

Throughout the ages much attention was paid (and there was much controversy over) the site from which the blood should be taken, and in medieval times not only the disease but astrological

Figure 2. 15th century venesection mannikin by Johannes de Ketham, Venice 1495. Photograph courtesy National Museum of History & Technology, Smithsonian Institution, Washington, U.S.A.

Figure 3. 16th century venesection mannikin by Stoeffler, 1518. Photograph courtesy National Library of Medicine, Bethesda, U.S.A.



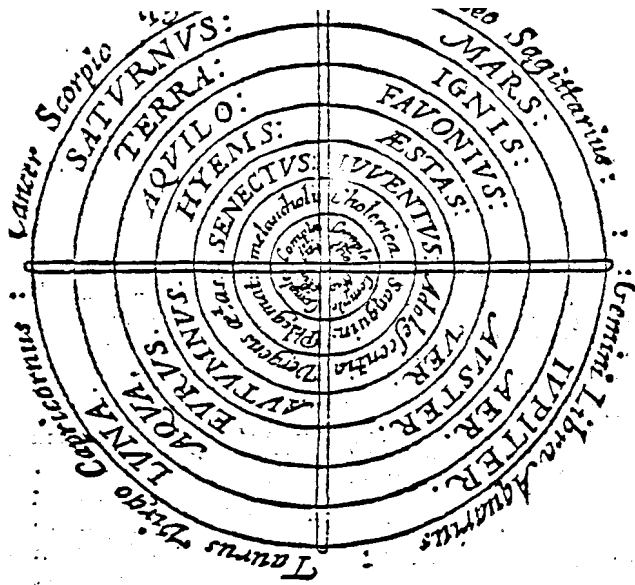


Figure 4. Astrological/humoral diagram from A Rich Storehouse or Treasure for the Diseased by GW, augmented by AT, London 1612.

influences were taken into account. Hence "Calendars for Bloodletting" dating from the 15th century are amongst the earliest printed documents known. Few of us could afford these, I fear, nor the "Venesection Mannikins" (figures 2 and 3) and "Lunar Dials" needed for the astrological calculations. Figure 4 illustrates that astrological and astronomical factors were still regarded as very important in the 17th century.

Rare and very expensive also are the 15th and 16th century lancets which were used for venesection. These evolved from sharp thorns and flaked flints via recognisable surgical lancets (figure 5) of the type excavated at Pompeii<sup>8</sup> to the pattern — the "thumb lancet" (figure 6) — established by the 17th century which then changed little and consisted of a steel blade protected by two guards, the latter made in a

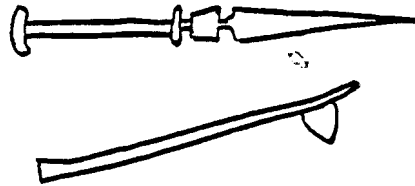


Figure 5. Sketch of Roman lancet and fleam excavated at Pompeii.

variety of materials such as horn, tortoiseshell, bone, ivory, etc.

By the 18th and 19th centuries specialist surgical instrument makers had appeared, supplanting the blacksmiths and cutlers of earlier times, and we now enter the realms of the exquisite. Lancets were cased either singly, when the cases were commonly of leather (figure 7), or in sets containing from two to six lancets, the blades of differing length and shape to suit particular sites

of operation. These étui are similar to those for sewing tools, drawing instruments, etc., but generally smaller, being about 2½ins. x 1½ins. (70mm x 33mm) and slightly tapered. The cases were made in gold, silver (plain, engraved, bright cut, etc.), shagreen, tortoiseshell (plain or carved or decorated with silver piqué), mother-of-pearl, etc. (figure 8). There is a splendid ivory case in the new Wellcome Gallery at the Science Museum and I suspect agate was used although I have never seen an example.

One occasionally finds slightly larger étui with, in addition to the lancets, an extra tool or two such as a combined scoop and forceps (figure 9). This has the owner's name and date engraved on it, "Westly Walker, Surgeon, Preston.

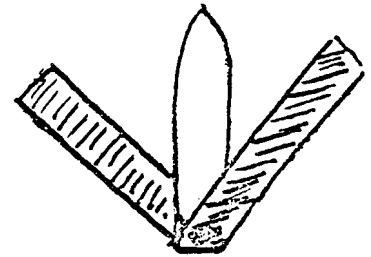


Figure 6. Sketch of thumb lancet.

Lancashire 1824", which makes the dating of this example uncharacteristically easy. Generally it is difficult unless the case is of silver and hallmarked. Figure 10, for example, is hallmarked London 1799. As with many silver surgical instruments, unfortunately hallmarks are frequently missing and one has to look for other clues. Early cases tended to be thick and clumsy (figure 11), later examples more streamlined (figure 12, hallmarked 1858). A knowledge of cut-

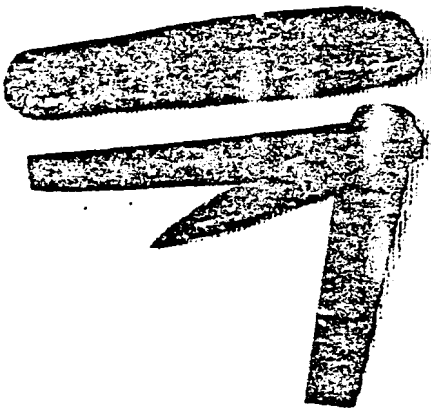
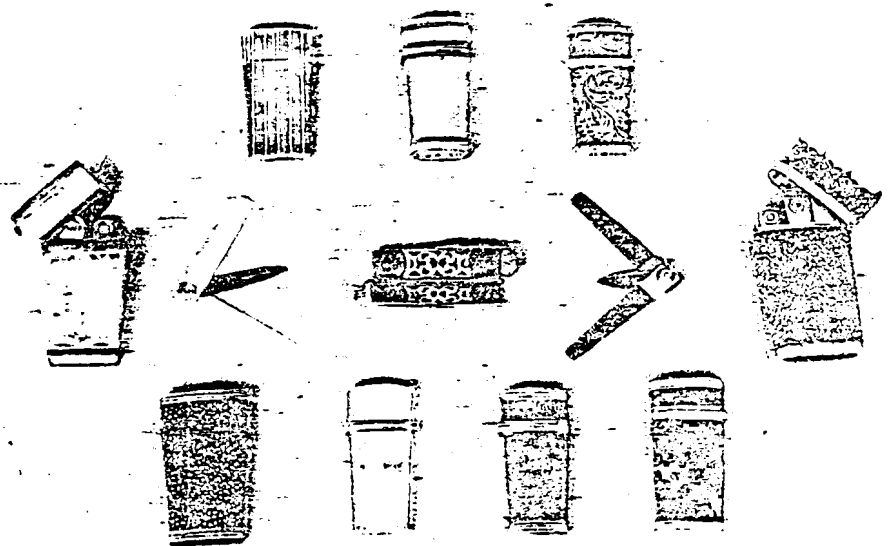


Figure 7. Single leather cased lancet, ?18th century, with blade by T.F. Howard and finely carved horn guards. Case (snakeskin?) 65mm x 15mm.

Figure 8. Collection of 18th and 19th century lancet cases. Top row on left, silver case, 62mm x 30mm. Middle row on right, shagreen case, 80mm x 40mm (at widest part). Central, "bi-valve" design, 70mm x 7mm closed.



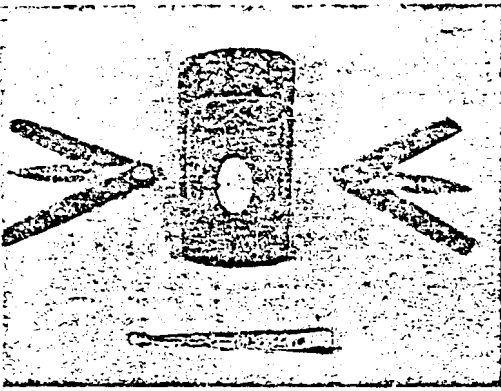


Figure 9. Tortoiseshell and silver piqué lancet case. With scoop/forceps in addition to the four lancets. Engraved "Westly Walker Surgeon. Preston. Lancashire 1824". 90mm x 45mm.

lers' marks and of the dates during which their firms were in business can be helpful. Fortunately Mrs. Bennion in *Antique Medical Instruments* has done valiant work in this field. From her book one learns that Savigny & Co. were in business from c.1720 to 1810 and the presence of "Savigny" lancets therefore indicates a fairly early case. But, as with bottles and accessories in medicine chests, one can never be sure that the étui contain their original lancets. The ones illustrated in figure 13 look "right"

much longer than their English equivalents.

Clearly the blood had to be collected in a vessel, and since the time of Galen (1st century AD) importance had been attached to the quantity removed (Galen recommended "bleeding to syncope", i.e. until the patient fainted, so astonishing amounts were removed, a pint or more and this done not once but on a number of successive days!), so one can find graduated one-handed bowls in Delft and in pewter (figure 16), usually about one pint in capacity. From the 17th century or so physicians felt letting blood rather beneath them, so it was left to surgeons, apothecaries, even bath-attendants and, of course, barber-surgeons. Hence shaving bowls (see figure 17 for a plain Delft example) are sometimes described as bleeding bowls — after all, any handy receptacle could serve the purpose but the indentation which enabled them to fit snugly round the neck when the client was being shaved suggests this was their primary purpose.

In the 18th century ingenious instruments called spring-lancets or "schnepers" were invented on the Continent and became very popular there, less so here except amongst the bath-attendants. They were made of brass, rarely of silver, and early



Figure 10. Silver lancet case with four lancets. Hallmarked 1799. 65mm x 30mm x 7mm thick.

examples show scratch work engraving. A plainer 19th century example is shown in figure 18 and an elegant cased pair with two spare blades in figure 19. The blade is "cocked" by pulling the lever and then released with some force into the vein by pressure on a device such as a button.

**Notes on Prices**

It is difficult to price objects when

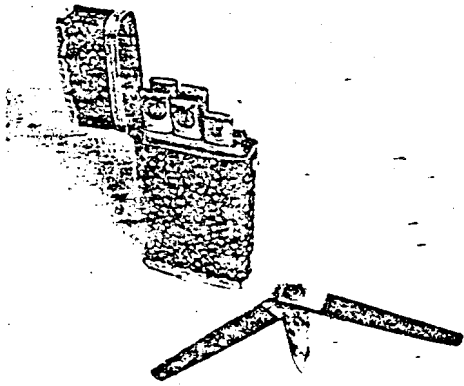


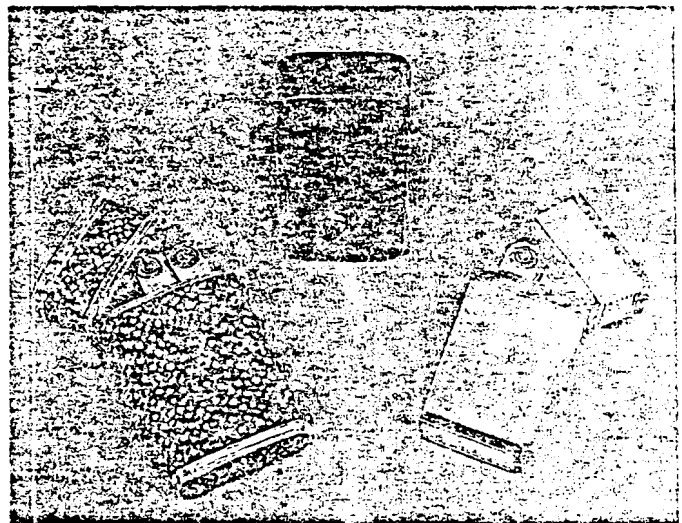
Figure 11. Green shagreen and silver case with six lancets. 80mm x 40mm x 15mm thick.

and have fairly elaborate decoration at the point where blade and guards are joined which is typical of Georgian examples. Contrast this with the plain silver "dot" in figure 12, a later lancet case. A rarer form of case is shown in figure 14, the "bi-valve" type where the blades are held horizontally in a long narrow case. The plainer case is English and engraved "I. Grantham", the more decorated one with the silver tracery is French. Figure 15 shows two unusual Continental designs, probably 18th century, one in papier-mâché, beautifully painted, the other in fish-skin (ray). The lancets in both cases are very

Figure 12. Silver case with two lancets. Hallmarked 1858. 64mm x 26mm x 6mm thick. Tortoiseshell lancet guards 55mm long.



Figure 13. Three decorative lancet cases. Above, ornately carved tortoiseshell in Chinese style. Left, see figure 11. Right, mother-of-pearl, engraved in Chinese style, and silver gilt.



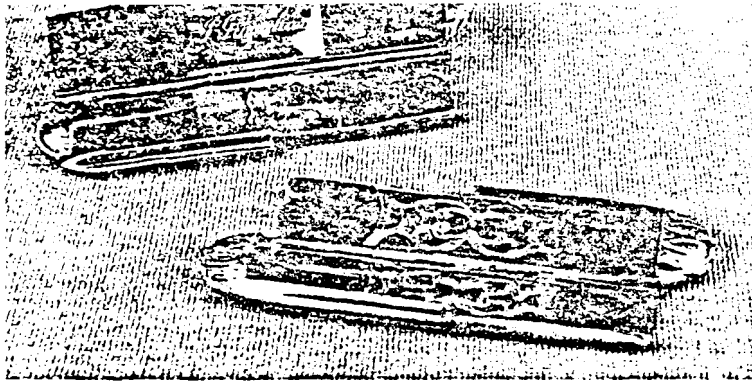


Figure 14. Two unusual silver cases. Above, English, engraved "I. Grantham". Below, French. Both 70mm long.

there are so many variables. Completeness, presence of all the original contents, maker's name, owner's name (especially if someone famous), reliable provenance, scarcity, fashion all affect prices, but I shall try to produce some guide-lines.

Single lancets — "bleeders" — a few pounds.

Lancet-cases — £50-£200 depending on the material from which they are made and the presence or absence of contemporary lancets.

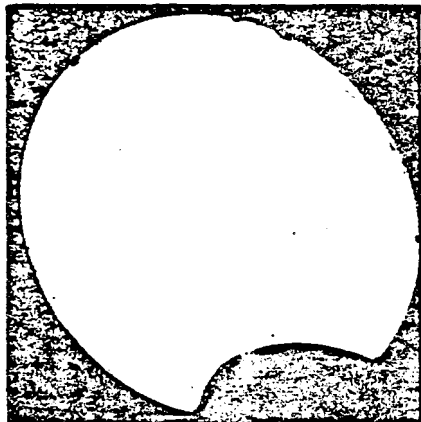


Figure 17. Delft shaving bowl, 240mm diameter.

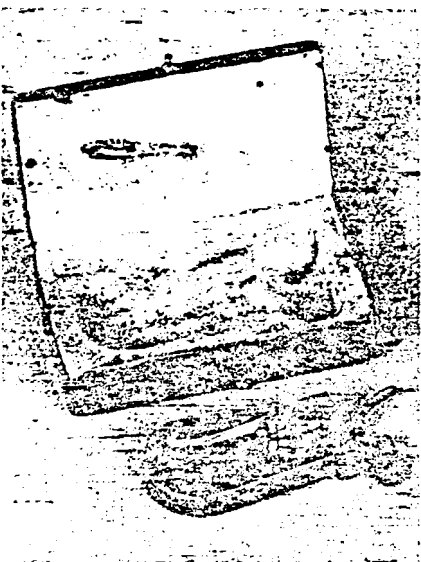


Figure 18. Brass spring lancet and its box, 19th century. 44mm long excluding blade and lever.

Spring-lancets — £50-£150, condition, age and whether in their original cases being very important.

Bleeding-bowls — £200 upwards.

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Figure 19. Pair brass spring lancets, 18th century, in red leather case with two spare blades. Case 70mm x 50mm x 20mm thick.

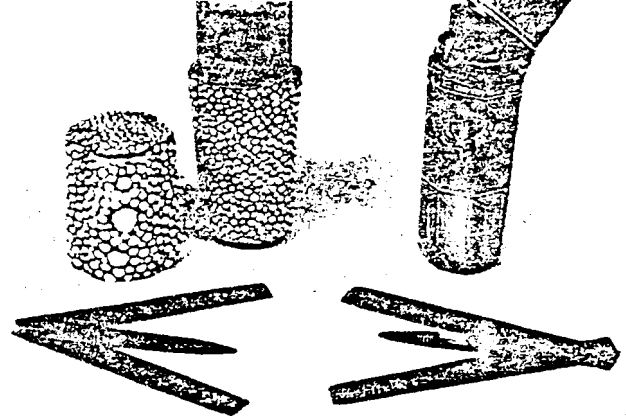
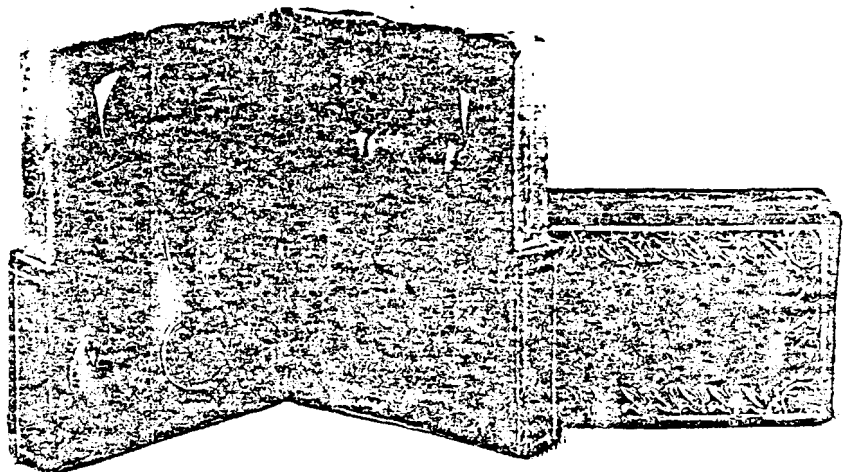
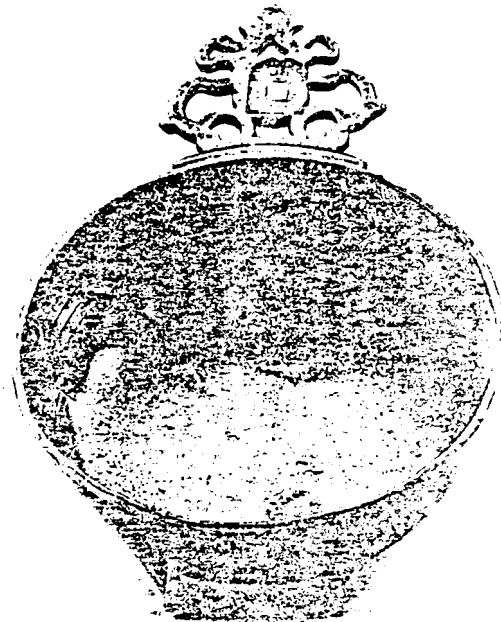


Figure 15. Two Continental lancet cases. Left, ray skin. Right, green papier-mâché with painted decoration. Cases 90mm x 25mm diameter. Guards of lancet shown 75mm long.

Figure 16. Pewter bleeding bowl with graduations. Made by John Foster of London after 1740. Photograph courtesy National Museum of History & Technology, Smithsonian Institution, Washington, U.S.A.



# Bleeding Antiques

by Dr. Anne Mortimer Young

## Part 2. CUPPING

The technique of cupping by which blood is drawn from the smallest blood vessels, the capillaries, has also been practised since time immemorial. Primitive tribes used (and the American Indians still do use<sup>2)</sup> animal horns, but the earliest cups were gourds and it is from the latter that the Latin name for cupping, *cucurbitula*, was derived<sup>3</sup>. A horn or gourd, perforated at the tip, could be applied to the skin and then, by powerful suction on the part of a medicine-man, poisonous matter from snake-bites could be extracted. Later this technique was adapted to blood letting by first burning a piece of tow or lint to make a partial vacuum in a bronze or glass cup (figure 20), applying this to the skin to raise a weal, nicking the skin and then re-applying the cup (a



Figure 20. Cupping glass. 85mm tall, including knob.

partial vacuum having again been obtained as described above) and several ounces of blood could be drawn into the cup depending on its size. Cupping tended to be used more for localised symptoms, headaches for example, than for diseases affecting the whole body. By the early 19th century London hospitals employed professional cuppers, some of whom wrote treatises on the subject<sup>10</sup>, and it is clear that considerable sleight of hand was needed as up to five cups might be used in the same operation and care had to be taken not to burn the patient or spill the blood. Bayfield, cupper at Guy's Hospital, ran three month courses in the early 1800s — 1gn. for students, 3gns. for qualified men.

Nicking the skin several times with a

Figure 21. Paré's scarificator. Photograph courtesy National Library of Medicine, Bethesda, U.S.A.

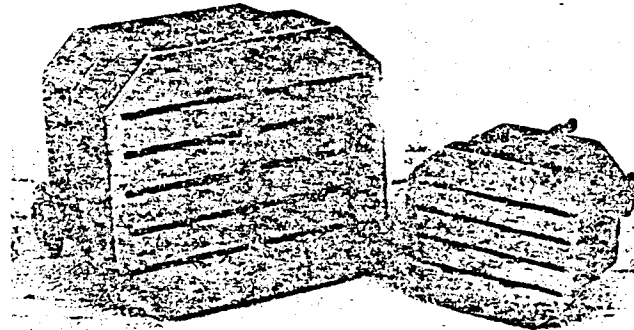
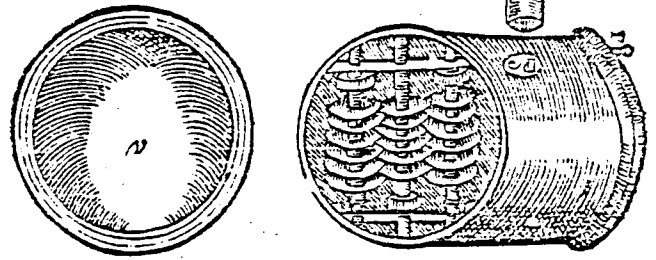


Figure 22. Two brass scarificators, 19th century. Ten bladed on left, 50mm x 43mm x 33mm thick, engraved "Wentworth 1813". Eight bladed on right, 31mm x 28mm x 23mm thick excluding levers.

lancet can be painful and so mechanical devices called scarificators were used which had the advantage of producing several shallow cuts simultaneously, rapidly and relatively painlessly. Paré, a famous 16th century French army surgeon, invented the scarificator (figure 21) but he used it in the treatment of gangrene. In the 17th century a square model was produced and used in conjunction with metal or glass cups for blood letting. Early scarificators were large, cumbersome, ornately decorated and with up to twelve pointed blades. By the 19th century plain silver or brass ones were fashionable (figure 22) and the blades by now were more rounded, the size of the instrument and the number of blades varied according to the part of the body to be attacked — the smaller one in figure 22 would have been used on the temple, the larger on the back perhaps. The mechanism was similar to that in the spring-lancet. In the photograph the blades are shown in the mid-way position. Using the lever they can be locked fully over and then released by pressure on the button. When this is done the blades, which are adjusted for depth of cut, travel so fast through 180° that one cannot see them.

Cupping was sometimes done "dry" when a bruise was raised but no blood removed and this was a form of counter-irritation. Figures 23 and 24 are from a 1694 treatise by Dekkers<sup>11</sup>. The object on the floor beside the splendidly nonchalant man undergoing treatment for sciatica is not, as I had originally thought, a helmet, but a vast cupping glass in which a candle is burning to

evacuate the air. One wonders if the nonchalance survived its application! I have never seen a cupping glass of the Dekkers type — it would be surprising if such fragile objects survived nearly three hundred years.

Cupping glasses and scarificators can be found singly or combined in cupping sets. A selection of the former is shown in figure 25, but the round glass with the wide flat rim (left foreground) is not a cupping glass as it would have been difficult to remove this from the skin as the cups adhered very tightly. A finger-nail could be inserted much more easily beneath the edge of a cup with a folded rim. It may have been a vessel to hold one leech or, more probably, a container for a candle — then hung up as a "fairy-light". A relatively modern, early 20th century French chrome scarificator is shown in figure 26; the action differs from those in figure 22 as in this French model alternate blades move in opposite directions. Figure 27 is a trap for the unwary, being a 19th century scarificator used for vaccination against smallpox and has prongs instead of blades.

Cupping sets are attractive, the boxes of leather or mahogany and velvet lined. Figure 28 shows such a set with two cupping glasses, two scarificators, torch and a bottle for alcohol used to ignite the wick of the torch. The bottles are sometimes mistakenly thought to have contained antiseptic solutions, but these sets antedate the great medical revolution brought about in the late 19th century by the work of Pasteur and Koch on bacteria as the cause of infection, and



Figure 23. Wet cupping for headache. From F. Dekkers, Leiden 1694. Photograph courtesy National Library of Medicine, Bethesda, U.S.A.

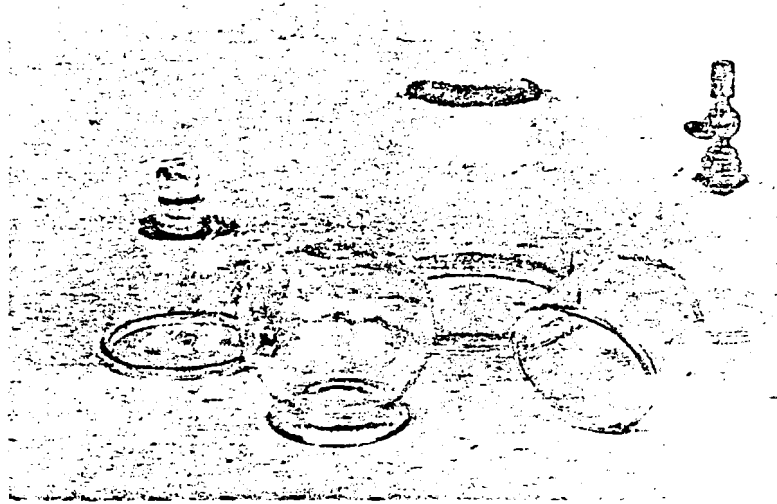


Figure 25. Group of cupping glasses. Note valved cup on right. Left foreground — possibly a small carrying jar for a leech.

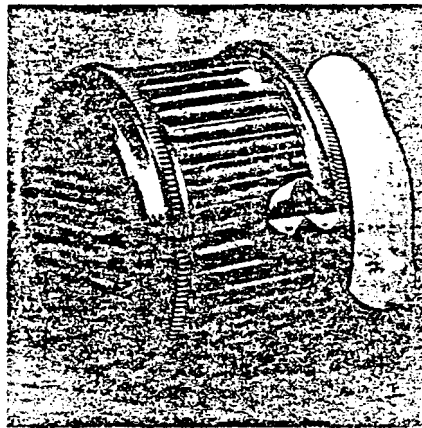


Figure 26. Chrome scarificator, French, 20th century. Ten bladed. 45mm diameter, 30mm wide excluding blade-adjusting handle on right.

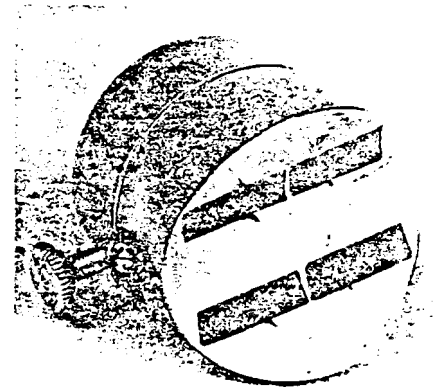


Figure 27. Brass vaccinating scarificator, 19th century. 30mm diameter. 25mm wide excluding lever.



Figure 24. Dry cupping for sciatica. From F. Dekkers, Leiden 1694. Photograph courtesy National Library of Medicine, Bethesda, U.S.A.

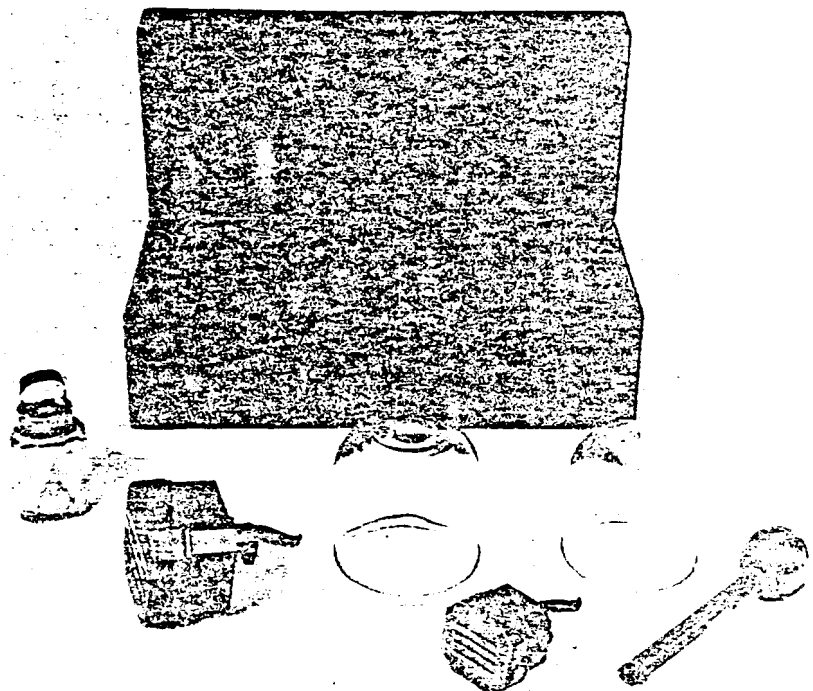


Figure 28. Cupping set. With base handled torch, eight and four bladed scarificators, two cups and alcohol bottle. Photograph courtesy National Museum of History & Technology, Smithsonian Institution, Washington, U.S.A.



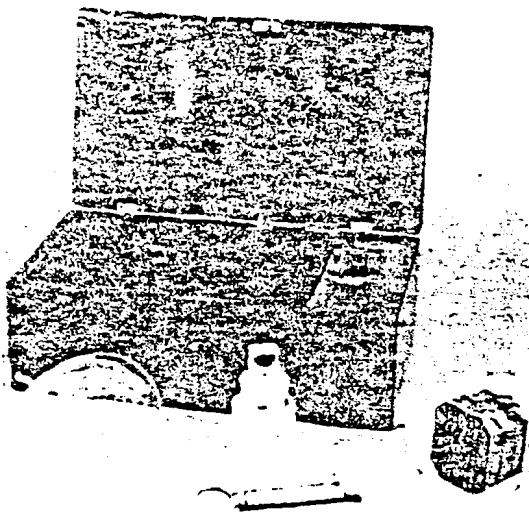


Figure 29. Fox's glass leech. Cupping set with two hanging "glass leeches", ring handled torch as the cupper Bayfield recommended. Photograph courtesy Museum of the History of Medicine, Academy of Medicine, Toronto, Canada.

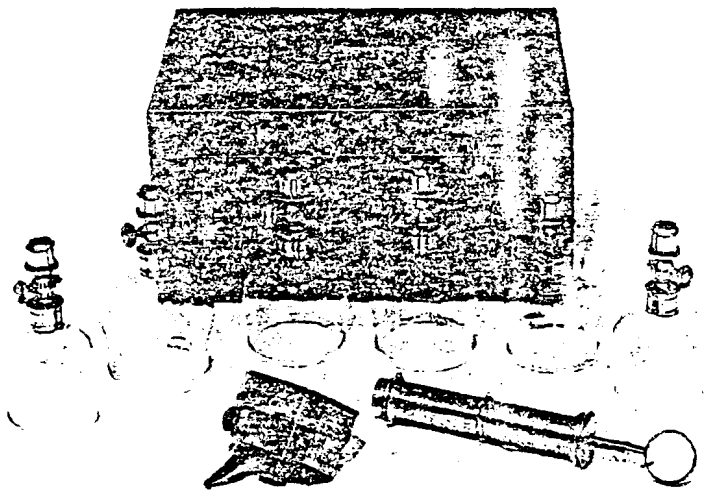
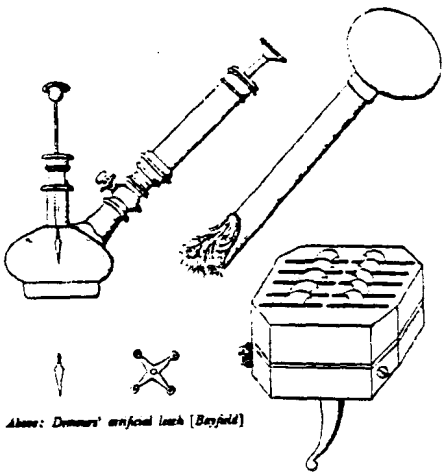


Figure 31. Valved cupping set. With six valved cupping glasses, air-pump and scarificator. Photograph courtesy Phillips.



Above: Demours' artificial leech (Bayfield)

Figure 30. Demours' artificial leech. From A Treatise on Practical Cupping, Samuel Bayfield, London 1823.

Lister on antiseptic techniques to overcome it. Infection must have been a frequent complication of scarifying (and indeed venesection) as blades were merely wiped with sheep's wool or drawn through mutton fat to prevent rust. Figure 29 has curiously shaped cups — these were invented in 1827 by a Dr. Fox, a house surgeon in a Derby hospital and designed (a) to hang downwards from the skin thus imitating a leech, and (b) prevent the patient being singed when tow was ignited inside the cup before its application to the skin.

Many attempts were made to improve the technique of cupping, for example by combining the cutting device and the cup and having a syringe to abstract the air (and to subsequently draw the blood). Bayfield's book<sup>12</sup> has an illustration of such a contraption, known as

"Demours' Artificial Leech" after its inventor (figure 30). Also shown is a standard scarificator and a ring-handled torch of the type which Bayfield used. Like so many of us he was suspicious of new-fangled inventions — more to go wrong, he said. Figure 31 shows a cupping set with valved cups and an air-pump to evacuate the air, thus obviating the need for burning tow. I have included figure 32 as it shows another type of lamp (on the left) found in these sets and also three spare blades for the scarificator. Figure 33 illustrates a dry cupping set — no scarificator — and demonstrates the neatly fitting chamois leather linings between the glass cups to prevent breaking. Finally figure 34 shows a variety of instruments (including rubber cups and glass cups with rubber bulbs to produce the partial

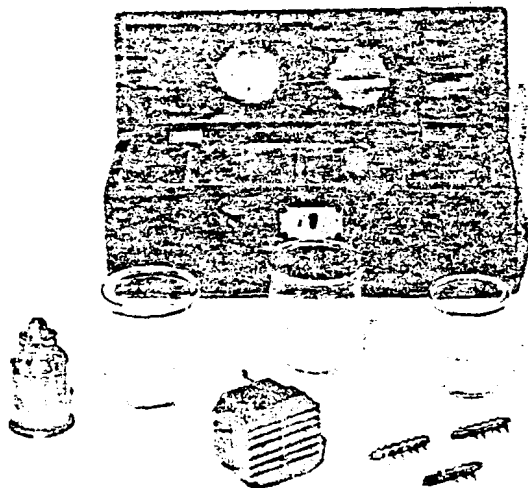


Figure 32. Cupping set showing lamp on left, three glass cups and scarificator with its three spare blades. Photograph courtesy Phillips.

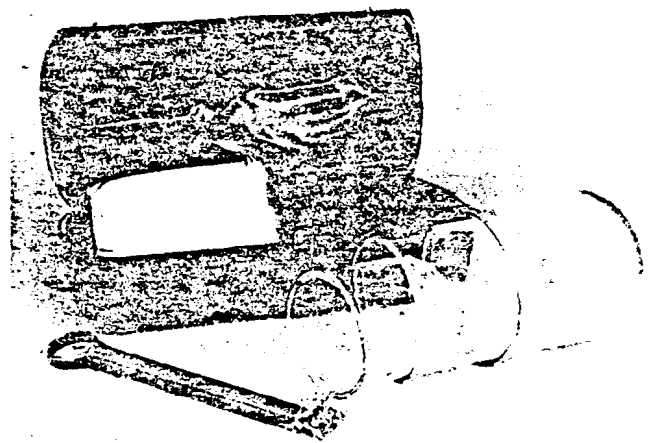


Figure 33. Dry cupping set. With six cupping glasses and ring-handled torch. Red leather case 180mm, 90mm diameter. Silver plate on case engraved "George Millett Davis".

vacuum) made by Tienmann & Co. in 1889. Would that one could still buy a No. 2 cupping set in black walnut case, lined with velvet, for \$15!

**Notes on Prices**

To repeat my remarks in Part 1, it is difficult to price objects when there are so many variables. Completeness, presence of all the original contents, maker's name, owner's name (especially if someone famous), reliable provenance, scarcity, fashion, all affect prices, but here are some guide-lines.

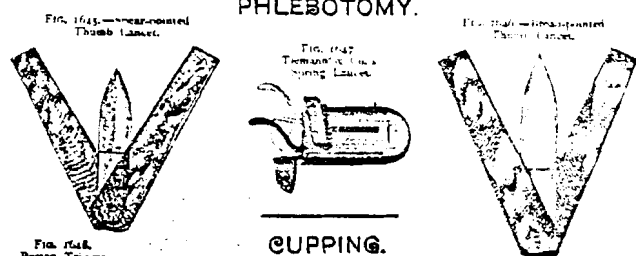
Single cupping glasses — a few pounds.  
 Fitted cupping sets — £100-£800.  
 Scarificators — £50-£150 or more if 18th century and/or made of silver.

**References**

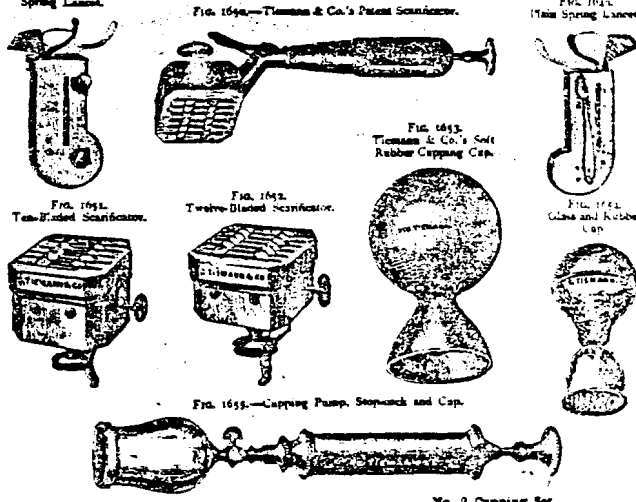
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12. Bayfield. Op. cit., Ref. 10.

*Figure 34. Advertisement for phlebotomy and cupping instruments, New York 1889. Photograph courtesy National Museum of History & Technology, Smithsonian Institution, Washington, U.S.A.*

**PHLEBOTOMY.**



**CUPPING.**



**No. 1 Cupping Set. \$15.**

Contains:

- 1 Brass Cupping Pump.
- 3 Sore-throats.
- 3 Glass Caps.
- 1 Ten-bladed Scarificator.
- 1 Mahogany or Black-walnut Case, lined with velvet.

No. 1. Without Scarificator..... \$10.00  
 Also, Brass Pump.

**No. 2 Cupping Set. \$15.**

Contains:

- 1 Brass Cupping Pump.
- 3 Sore-throats.
- 3 Glass Caps.
- 1 Twelve-bladed Scarificator.
- 1 Mahogany or Black-walnut Case, lined with velvet.

No. 2. Without Scarificator..... \$10.00



### Part 3. LEECHING

There are two main periods when leeching was particular prominent. The first was during the early Christian era when the physician Themison, whose followers founded the Methodic Sect, believed that all diseases were caused either by constriction or relaxation of pores. For the constricted, relaxing treatments were used and bleeding by leeches loomed large. The second period is nearer our own time, the early part of the 19th century, when the word "Leechmania" was used, as under the influence of a Dr. Broussais (whose theories as to the causation of diseases had Methodic elements) leeches were used in enormous numbers. Broussais would advise the application of fifty or more leeches at one sitting, and in consequence the medicinal leech, an indigenous species on the Continent and in Great Britain, became increasingly scarce and the majority had to be imported. In 1802 Wordsworth wrote a poem "Resolution and Independence" on the vicissitudes of a leech-gatherer who had to go further and further afield to find enough to make his living. In France a tax was levied on leeches so accurate figures are available and the importation rose from 3 million a year in 1823 to 14.5 million in 1833. Here too there was a marked increase in their use and the St. Bartholomew Hospital Pharmacy records show that in 1837 96,300 leeches were used on a total of 50,557 patients<sup>13</sup>. Thus the importation, conservation and care of leeches became an important part of a pharmacist's work in the 19th century<sup>14</sup>. Some women made their living by collecting leeches and there is a delightful print (figure 35) from *The Costumes of Yorkshire*, London 1814 — a coloured version is on view in the Wellcome Gallery.

I feel I must write a little about the medicinal leech (*hirudo medicinalis*) as leeches on the whole do not endear themselves to people. The leech is an annelid worm, related to the earthworm but more specialised in that it has suckers front and rear. The smaller front sucker conceals the cartilaginous jaws and teeth and both suckers are used in its locomotion, although it can also swim. There are many species of *hirudinae*; some have probosci rather than jaws and not all feed on mammals. The medicinal leech is larger (2½ ins. x ¼ in. extended, 65mm x 7mm) than its other freshwater relatives except for the huge horse leech which eats its prey — small fish etc. — and is not a blood sucker. A quote by Shipley<sup>15</sup> is worth giving — it may prove surprising, especially the final sentence — "There is no doubt that the Medicinal Leech is one of the most beautiful of animals. Many of its cousins are uniform and dull in colour — 'self-coloured' as the drapers would call them; but the colouration of the

# Bleeding Antiques

by Dr. Anne Mortimer Young



Figure 35. "Leech Finders", 1814. Engraved by R. Hanell after a drawing by George Walker. Photograph courtesy National Museum of History & Technology, Smithsonian Institution, Washington, U.S.A.

Medicinal Leech could not be improved upon. It is a delicious harmony of reddish-browns and greens and blacks and yellows, a beautiful soft symphony of velvety orange and olive and black, the markings being repeated on each segment, but not to the extent of a tedious repetition. So beautiful are they that the fastidious ladies who adorned the 'salons' at the height of the leech-mania during the beginning of the 19th century used to deck their dresses with embroidered leeches, and by repeating the design one after the other constructed a chain of leeches which, as a ribbon, was inserted around the confines of their vestures". I have found another reference in the French medical literature in which such garments were described as "les robes à la Broussais" but have had as yet no success in tracking down an illustration.

Pharmacists kept their leeches in jars which are now much coveted. From Agnes Lothian's paper<sup>16</sup> I learned that early (i.e. late 18th century) jars were of creamware and made at Leeds potteries, e.g. Harley, Greens & Co., and also the Castleford pottery. The Wedgwood factory too made creamware jars. A common pattern was a bulbous body on a pedestal with a domed perforated lid and "LEECHES" in black, gold, dark red or blue inscribed on the body (see figures 36 and 37). Straight sided jars

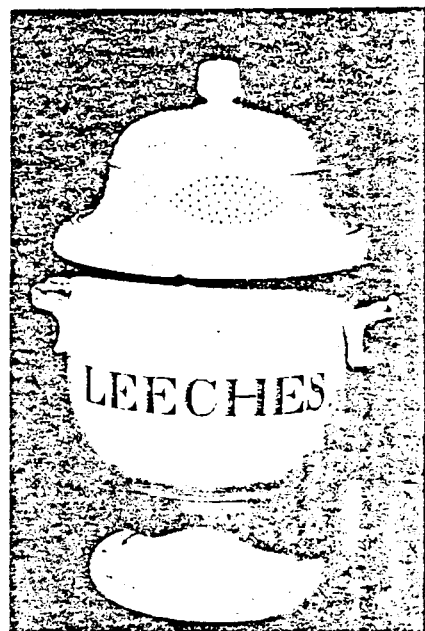


Figure 36. English creamware leech jar, 18th century, 405mm tall. Photograph courtesy Phillips.

were also made (figure 38) but less commonly. Then, in the 1830s, brown stoneware containers were made, often with the royal arms on the front in relief. I frequently see drug jars of this type but have not encountered a leech jar. Late Georgian and Victorian jars were made in the Staffordshire potteries, tended to be brightly coloured (figure 39) and formed part of sets of three jars, the others, without perforated lids and slightly smaller, being marked "Honey" and "Tamarinds". Bright green, blue, or maroon jars with cream handles and



Figure 37. Beautiful creamware leech jar with gilt decoration, 350mm tall.

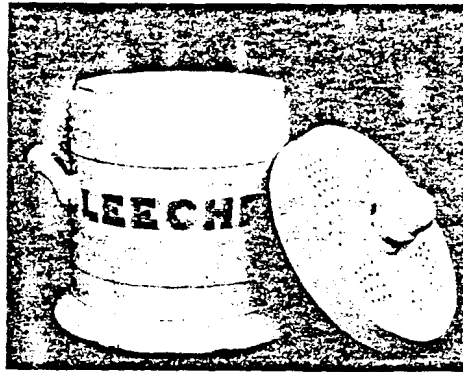


Figure 38. English leech jar, 18th century, 210mm tall.



Figure 39. Leech jar by Alcock, 19th century, 320mm tall.

knobs and gold lettering made these an attractive feature of the pharmacist's "window-dressing". On the base of the jar in figure 39 is an impressed mark "ALCOCK" over a beehive swarming with bees and also the figure "2" — these jars were made in three sizes. Other manufacturers apart from Alcock & Co. of Cobridge and Burslem, Staffs., made such sets with the leech jar vase-shaped, but the jars for honey and tamarinds cylindrical. Various names may be found impressed on the bases but these do not always represent the manufacturers as some shop-fitters (e.g. M. Tomlinson of Hulme, Manchester) had their names impressed instead. That these highly coloured elaborately decorated jars were primarily intended for show is confirmed by the fact that they are found under the heading "Show Jars" in Solomon Maw's catalogue of 1839. A pair of very large jars as in figure 40 are shown in the Smithsonian Catalogue and said to have contained leeches. We would identify this as a pot-pourri container, but anything with a perforated lid could be used for leeches.

The leeches, or the bulk of them, were



Figure 40. Enormous jar of a type said to have contained leeches, 750mm (29 1/2 ins.) tall.

kept in much plainer earthenware, stoneware (figure 41) or glass (figure 42) jars in the "back-shop". There were a variety of patented jars, e.g. Buckle's "Improved Leech Conservatories" made of earthenware with metal clamps to hold the perforated lids in place were made in sizes ranging from half pint to four gallons in capacity. The larger jars had perforations in the upper part of the body rather than the lid. Some patented glass jars were bizarre, one had inward-pointing projections terminating in air holes, others, e.g. Shillock's patent leech jar, had metal perforated discs, the idea being that the leeches would clean themselves when wriggling through the perforations<sup>17</sup>. A glance through the Patent Office records might well reveal a host of yet more bizarre containers. A French version, complete with perforated liner, is shown in figure 43. "Sangues" literally translated means "blood-suckers", a very reasonable name! Our use of the word "leech" is interesting as in medieval England the same word was used for doctor. One theory is that both words derived from the Anglo-Saxon *laece* "to heal" but there are other

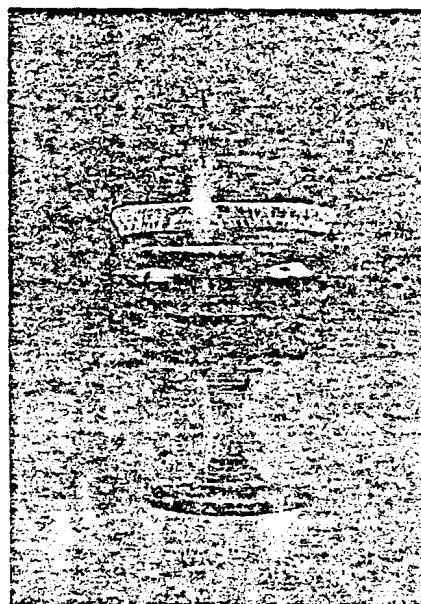


Figure 42. Glass leech jar, 19th century, with leech in residence.



Figure 41. Earthenware leech jar, 19th century, 280mm tall.

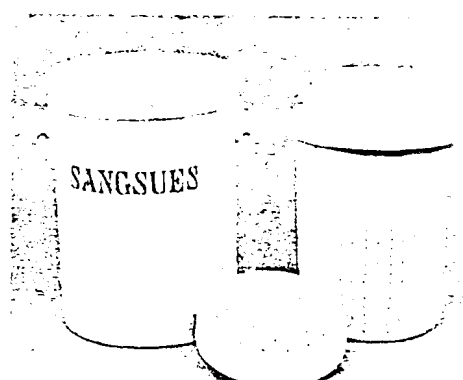


Figure 43. French leech jar, 19th century, 330mm tall including cover. Note perforated inner lining.

uns when the weather is most variable—as in spring and autumn.

For the cure of the acute rheumatism, the most eminent medical practitioners have adopted the following method with success.—Frequent bleeding, with numerous leeches to the joint affected; the body to be kept open by refrigerant catarrics and cool opening liquors, such as decoctions of tamarind, cream of tartar, whey, &c. The diet should consist of light broths or gruel, carefully abstaining from the use of animal food, and encouraging perspiration by warm bathing and lying in bed. Occasional blisters to the part affected also often give great relief.

In the cure of chronic rheumatism, nearly the same kind of treatment should be adopted, except that rather a more generous diet may be allowed, with the moderate use of wine, and as much exercise as the patient can well bear, for the purpose of restoring the vital energy of the system in general, and more especially of the part affected.

To these general rules we may add, that mercurials, with the volatile tincture of gum guaiacum, by perseverance, may be regarded as the best remedy in this disease.

Of the tincture, one drachm is sufficient for a dose, to be repeated three times a day, or oftener, as occasion may require.

For the sciatica and lumbago, we recommend the following recipe, which the late Dr. Fothergill always used with success:—Six grains of calomel made into a pill with conserve of roses. To be washed down by the following draught:—

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Figure 44. Leeches used in rheumatism. From A Catechism of Medicine or Golden Rules for the Preservation of Health, Pinnock's Catechisms, London 1822.

*Handwritten text, likely instructions for leech use, mentioning 'Let the leech bite the part...' and 'Apply the leech...'*

Figure 45. Instructions written by a physician c.1830.

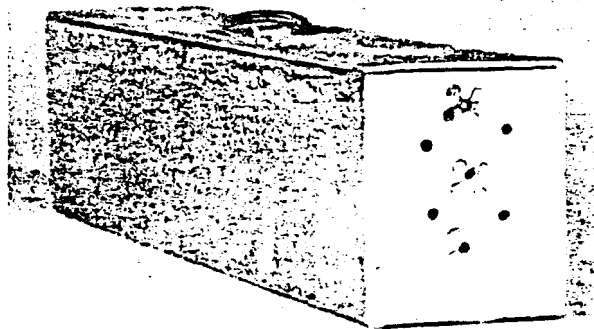


Figure 46. Pewter leech box c.1850, 160mm long.

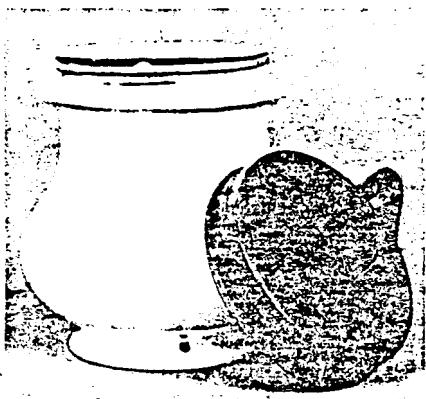


Figure 47. Portable leech jar, French, 19th century. 160mm tall including handle, lid 90mm diameter.

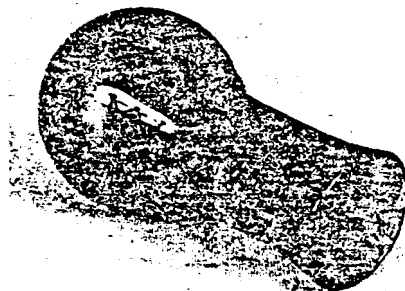


Figure 48. Leech applicator? Ruby red glass. 115mm long.



Figure 49. Leech tube. Glass, 95mm long.

Difficulty was experienced at times in persuading a leech to bite and then milk, sugar solution and even blood was applied to the skin. Another dodge was to place the leech in a wine-glass and invert this on the relevant spot — the leech would then as often as not cling firmly to the glass and not descend on to the skin. This makes me doubt that the dark red glass object in figure 48, sold to me as a "leech applicator" was used in that way — perhaps a Club member can identify it for me? When it was deemed necessary to apply them inside the mouth or in other orifices, leech tubes (figure 49) were sometimes used; alternatively string was tied to the tails so that they could be retrieved.

The interest at present being shown in antique leech apparatus may partly be explained by the publicity the leech has had recently by its making a limited therapeutic come-back for the treatment of severe bruising around the eye<sup>19</sup> and in plastic surgery<sup>20</sup>. To reassure the nervous, I can state from experience that the bite of a leech is virtually painless and also they are used once only to avoid any risk of cross infection. In the 19th century pharmacists "milked" the creatures so that they could be re-used after a day or two. This was necessary as one good feed, during which the leech takes about an hour to extract half an ounce or so of blood, lasts a leech a year — and leeches will only feed when they are hungry.

**Bleeding in Veterinary Medicine**

Antique veterinary equipment is now

theories<sup>18</sup>. Because the doctor was called a leech it has led to the mistaken belief that leeches were used extensively in the Middle Ages. This is not so as there are few references to their use in the "Leechdoms" (collections of remedies) but many involving "Wortcraft" (use of herbs) and "Starcraft" (reliance on astrology).

Leeches were used in an astonishing number of ailments including acute rheumatism (see figure 44 from Pinnock's *Catechism of Medicine*, London 1822) and pain in the abdomen (figure 45, handwritten instructions from a physician to a children's nurse in 1830). It is interesting to note that it was suggested that further bleeding could be encouraged by the use of a linseeds plaster and that amadou (a fungus used as a styptic) was used to stop it finally. Leeches would be transported to the house in a leech box made of silver, Sheffield plate or pewter (figure 46); in France ingenious pewter, or pottery,

containers with perforated pewter lids were used (figure 47). Just as any vessel with a perforated lid could be used as a container for leeches, so could any box with holes (small ones!) be used to transport them. It is therefore important not to be misled by, for example, bait containers or sprinklers for spices or sugar!

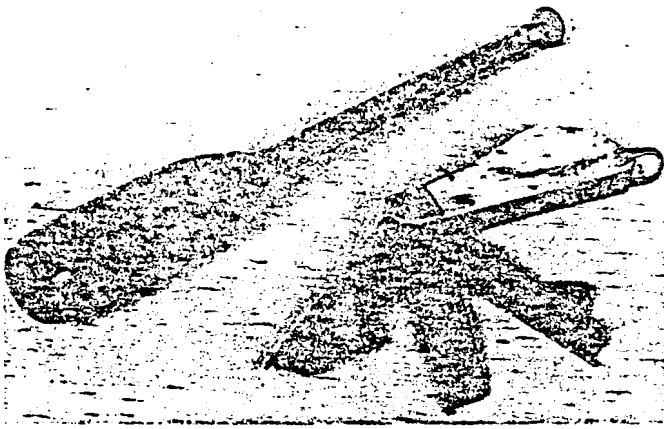


Figure 50. Bleeding stick and veterinary fleam. Lignum vitae stick, 250mm long. Horn-cased fleam, 92mm long. Brass casing engraved "P W WILL'S".

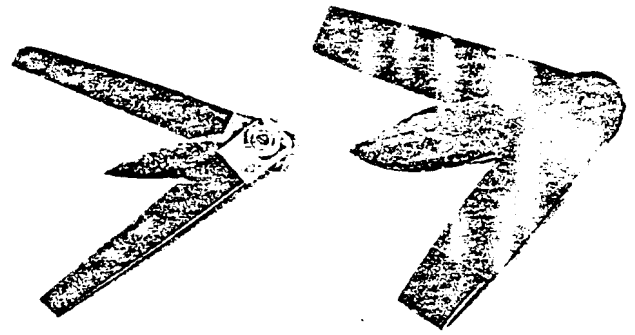


Figure 51. Human and animal lancets. Left, human blade, 40mm long. Right, veterinary blade, 60mm long.

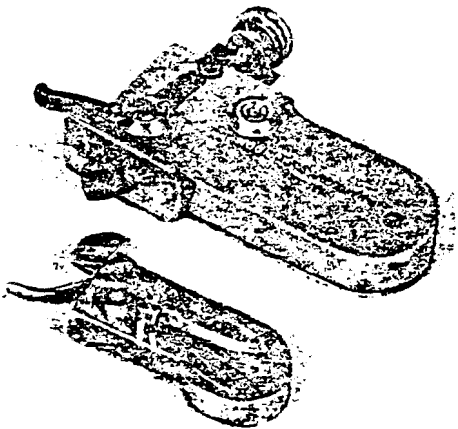


Figure 52. Human and animal spring lancets. Above, veterinary, 70mm long excluding lever, marked "Millican, Strand, London". Below, human, 44mm long excluding lever.

collected, and I was surprised that animals too were bled, though not to my knowledge cupped or leeches. It should not have surprised me as veterinary fleams (figure 50) are commonly found. Less commonly available are the bleeding sticks (one is shown in figure 50) which were necessary to knock the blade through the animal's hide. Lancets were also used for blood letting in animals as were spring-fleams. Figures 51 and 52 show examples side by side with their human equivalents.

It is interesting that medical and surgical antiques have become so popular, and not only with doctors who might well study them if attracted to the history of the profession. Pharmaceutical and dental artefacts are also sought after and now veterinary by-gones too are showing signs of price escalation. One reason must be that the instruments, cases, jars, etc., are superbly made and often beautiful; another the realisation that a study of artefacts and ephemera can provide major insights into social his-

tory. But perhaps also important is the reaction against today's less personal (though unarguably much more efficient) medicine with the use of either plain unadorned tools capable of being sterilised, or "throw-away" plastic equipment. Will these, I wonder, in view of their ephemeral nature become "collectables" in the future?

#### Notes on Prices

Once again I must repeat that it is difficult to price objects where there are so many variables. Completeness, presence of all the original contents, maker's name, owner's name (especially if someone famous), reliable provenance, scarcity, fashion, all affect prices, and these are only guide-lines.

Leech jars are currently fashionable and range from £80 for glass ones to £600 or more for the beautiful pottery ones. It will be interesting to see if the high prices will be maintained or drop for a time and then climb again as has happened with medicine chests. Leech boxes — £20-£100 or more if silver. French leech carrying pots — £500. Live leeches may be obtained from R. Brooks and Co. (J.L.H. Lucas), Alpha House, Slough. They cost £2 each plus V.A.T.

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**MEDICAL MUSEUMS OF THE WORLD**

**PART X**

**HOLLAND AND SWEDEN**

**BY**

**PROFESSOR E. T. PENGELEY**

## HOLLAND

Holland, bordering on the North Sea and surrounded by powerful neighbors, has had a stormy history. Despite this the country has emerged today a small, independent and very prosperous nation. Over the centuries a high culture has evolved, particularly in art. From our point of view, and of the utmost importance, was their development of the magnifying lens and subsequently the microscope. The importance of the latter to modern biology and medicine can certainly not be overrated. The capital is The Hague (Den Haag), but Amsterdam is by far the largest, and in many ways the most important city.

### LEIDEN

Location - 15 kilometers northeast of The Hague and 35 kilometers southwest of Amsterdam.

Train - From The Hague or Amsterdam direct.

Road - Take the E10 from The Hague or Amsterdam and exit at Leiden.

Leiden is on what is referred to as the Old Rhine, and is connected by canals to Holland's two chief ports, Rotterdam and Amsterdam. It is an ancient town, criss-crossed with canals, and its industries are mainly weaving and bulb growing. As well as these industries it is an academic town containing the oldest and most important university in Holland. The University of Leiden was founded in 1575 as a reward to the inhabitants for their courageous defense against the Spaniards in 1574. It quickly established an international reputation, which it has maintained ever since.

**Museum Boerhaave**  
**(The National Museum for the History of Science)**  
**University of Leiden**  
**Steenstraat 1a**  
**Leiden**

Opening Hours: Monday - Saturday 10.00-16.00, Sundays 13.00-16.00. The times may however vary with the season of the year. Very good literature is available, much of it in English. There is a small charge for admission.

This museum is near the railway station, and is part of the university. It is one of the top medical museums in the world. It is particularly famous for its collection of microscopes, and most of all for the fact that one can see here some of the original microscopes of Antoni van Leeuwenhoek (1632-1723). It is natural that he is somewhat of a Dutch hero.

### Antoni van Leeuwenhoek

Antoni van Leeuwenhoek was born in Delft into a middle class artisan family. He had an average education for the time, and in 1654 at the age of 22 set up as a shopkeeper. In the same year he married one Barbara de May, the daughter of an English cloth merchant. In 1660, at the age of 28, he gave up shopkeeping



and entered the civil service. In one capacity or another he remained in this for the rest of his life. In 1666 his wife died, but five years later he was married again to Cornelia Swalmius, whom he outlived by 29 years.

Until Leeuwenhoek was nearly 40 we have no knowledge that he did anything which could be described as scientific. However, at that time he started, quite independently on his own, to grind simple lenses and construct these in the form of what we now call microscopes. He ground over 500 lenses during the rest of his life, and the magnifying power of these was truly remarkable. One of his lenses survives which has a magnifying power of 270! Having accomplished this remarkable feat, he set out to explore in an amateur's way a whole new vista of biology which was opened up to him. In particular, he discovered what we now call microorganisms and understood their nature. He clearly saw and described a whole range of these, including bacteria, protozoa, rotifers and many more. Of equal importance, he was probably the first person to ever see sperm, and over a period of 40 years he accurately described these in arthropods, mollusks, fishes, amphibians, birds and mammals. He certainly knew they had a reproductive function, though it is questionable whether he understood the true nature of the fertilization of an egg by a sperm. Having seen all this, it is a pity, though perhaps inevitable for his time, that he had no concept of a cell.

Leeuwenhoek had no scientific training, never attended a university and had little idea of how to make his discoveries known. However, in 1676 he communicated some of his findings in a letter to the President of the Royal Society of London (see under London). In subsequent years he wrote over 100 letters to the Royal Society, and it is a great tribute to that body that they published these letters so that his observations and theories gradually became known. In his later years the importance of his work became widely recognized, and he was internationally honored. However, this in no way altered the nature of his simple and industrious life in Delft, where he died in 1723 at the age of 91.

Leeuwenhoek's biological contributions were great, but his microscopes were perhaps even greater. He would have been happy to know that over two centuries later, during World War II, and while under Nazi occupation, his native countrymen made the next major advance in microscopy by developing the "phase-contrast" microscope.

### Museum Boerhaave

The displays at this museum are extensive and include astronomy, medicine, biology and microscopy. The medical displays illustrate the development of such things as kidney machines, electrocardiograms, pharmacology, ophthalmology, dentistry, treatments of many kinds and various instrumentations. All in all remarkable and beautifully prepared exhibits.

The microscope collections are just as good. The "piece de résistance" is a case containing two microscopes made and used by Antoni van Leeuwenhoek himself, one in brass with a magnification of 125, and one in silver with a magnification of 80. There is also an exact copy of one of van Leeuwenhoek's microscopes with a magnification of 70; it is focused on the wing of a fly, and the visitor is permitted to look through this and see what van Leeuwenhoek himself actually saw, which was a great deal! Then there are displays of lens grinders, reading glasses going back to the 15th century, hand drawn illustrations of plants and

animals done by early microscopists and the progression of these into the 19th and 20th centuries. There are also extensive displays showing the complete progression of the microscope in the 18th, 19th and 20th centuries, with examples from the major manufacturers of different countries. Finally there is an extensive historical library with some priceless holdings going back as far as 1484.

I have certainly seen no finer biological and medical museum in any country, and with the help of its enthusiastic, knowledgeable and cooperative staff it is a pleasure to visit.

## SWEDEN

Sweden, on the Baltic Sea, has a long tradition of excellence in a variety of human endeavors, and is today certainly one of the most socially advanced countries in the world. Time and time again, one is struck with the wealth of scientific ideas which originate in Sweden, and the Swedes continue to maintain incredibly high standards. I cannot refrain from pointing out that this state of affairs is at least in part due to the fact that they have managed to keep their population small and more or less stable, and also to have stayed out of any major war for nearly 200 years!

### UPPSALA

Location - 70 kilometers northwest of Stockholm.

Train - Direct from Stockholm.

Road - Take the E4 from Stockholm direct to Uppsala.

Uppsala is a very ancient city, astride the River Fyris. It is the metropolitan see of the Swedish State Church, with a magnificent Gothic cathedral built between 1230-1435. It's university was founded in 1477.

### **Gustavianum Uppsala**

Opening Hours: Monday - Friday, 8.00-16.00. There is no charge for admission.

This is a unique Anatomy Theatre located in the main square of Uppsala just behind the cathedral. It was built in 1663, and was a copy of the Anatomy Theatre in Padua, Italy (see under Italy) of the previous century. It was a gift to the University of Uppsala from one of its professors, Olof Rudbeck (1630-1702), who, in 1650 when only 19 years old, discovered the lymph system--no mean achievement! The theatre is all hand carved wood, very lovely, and the second oldest in the world.

Before closing this section on Sweden, I feel compelled to point out that by far their most famous scientist was the great botanist, Carl Linnaeus (1707-1778), who was, by the way, a medical doctor! Sweden has carefully preserved his memory in many places, but they are all botanical in nature, thus I have not included them here. However, I would be happy to advise anyone on these, if they contemplate going to Sweden.