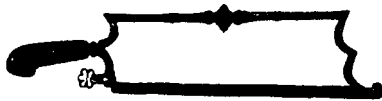
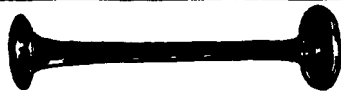


MEDICAL



COLLECTORS



ASSOCIATION

NEWSLETTER NO. 4

July 1985

Dear Colleagues:

Various members have begun to respond to the Newsletter with a wide variety of contributions. Professor Pengelley's travel guide to medical museums is growing rapidly and I am pleased to include in this issue the second chapter which devotes itself to the rest of England, the first section having described the medical museums in London in great detail. Mr. William Helfand has kindly made available to us a number of commentaries on medical ephemera which are reprinted from the journal PHARMACY IN HISTORY, published by the American Institute for the History of Pharmacy.

A number of interesting replies to the "What is it?" column have been received and they are included, along with a new item, for identification in a separate section of the Newsletter. In place of the patent section for this issue, I have included a photocopy of an illustration of "Some Questionable Medical Ethics", which was provided by Dr. Ronald R. Berger. Mr. Barry Wiedenkiller of the Printer's Devil in Boston has been kind enough to supply some flyers which outline medical history in Boston, a copy of which is included with this issue of the Newsletter.

I still have not received any written historical chapters, except for the one provided by Dr. Audrey Davis. Although it is interesting to reproduce materials for distribution which might not otherwise come to the notice of members, I think it is far preferable for us to try to maintain a level of original material. If any of you have any interesting anecdotes, no matter how short, please send them to me so that the entire membership can have the benefit of sharing them.

Mr. Colin Read, who joined the association recently, writes that he is a full-time lecturer by profession. He lectures as a hobby to antique circles, women's groups and medical groups, on his collection which covers various aspects of medical antiques. He inquires whether any members would like to avail themselves of his speaking services. He also writes that he would be happy to offer hospitality to any of the members who happen to be visiting London. Mr. Read suggests showing his collection to any members of the association who happen to be in London and discussing mutual interests over a meal. He is located 15 miles from central London on a good train route and I suggest anyone interested in taking him up on his offer contact him directly.

Mrs. Elizabeth Bennion presented a special sale of medical antiques in New York in May and informed me that invitations were sent to all of the members of the group. I hope that you received an invitation. The show was most interesting, and a number of members of the association attended. In addition, several physicians whom I met there have indicated an interest in joining the group.

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

A report of the American Ophthalmologic Museum meeting in Massachusetts is that the meeting was very successful. Although it was attended by a small number of individuals, I understand that everyone found it to be most productive and enjoyable. In this regard, a large number of people have continually asked me about the possibility of a meeting. I am pleased to report that two volunteers have stepped forward and tentative plans are being made for a meeting of the group. Dr. Audrey Davis of the Smithsonian Institution has suggested the possibility of a meeting of the Medical Collectors group in Washington, D.C., on Friday, April 18, 1986. Tentative plans would call for an optional tour of the facilities of the Smithsonian on the afternoon of Thursday, April 17th, followed by a dinner for the group at some local restaurant that evening. A scientific session would be held on Friday, the 18th, and the meeting would adjourn that evening. Dr. Nicholas Dewey has also proposed the possibility of an international meeting, which would take place in London and Oxford. He has tentatively reserved rooms in Oxford for September 25th through September 29th, 1986 and has suggested that we meet in London for several days prior to those dates and then adjourn to Oxford for a continuation of the meeting. The English meeting would be a much more extensive affair with more elaborate arrangements which would be made by Dr. Dewey. On the basis of these two proposals, I am including with this Newsletter, a questionnaire which I would appreciate your filling out and returning to me so that we can collate the response and determine how to proceed. Both of these meetings will be held if a sufficient number of the membership indicate a genuine commitment to the idea.

Enclosed in this issue is a list of errata and names and addresses of new members. If any addresses are listed incorrectly or names misspelled, please notify me so that I can make the appropriate corrections. We will only print the entire list of the membership once a year and in subsequent issues we will print the members who have joined in the interim. The Wants and Dealers Offerings list will continue to be printed in each issue. I am not sure about the activity in this area. I have not received any offerings from any of the members except for one book. The exchange of materials is, of course, one of the purposes of the association and I think we should all try to make the Wants and Offerings list a meaningful and useful item. This certainly would be expedited by a meeting and is one more reason why I urge one of you to step forward and take on that responsibility.

I hope all of you enjoy the second Newsletter of the year. I expect that the winter Newsletter will be somewhat more comprehensive. In that issue we plan to move across the English Channel and present Professor Pengelley's guide to medical museums in France.

Have a happy and pleasant summer.

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

**REMEMBER OUR SUCCESS DEPENDS ON CONTRIBUTIONS AND SUGGESTIONS TO THE
NEWSLETTERS FROM THE MEMBERS**

QUESTIONNAIRE

IMPORTANT, PLEASE FILL OUT AND RETURN TO M. DONALD BLAUFox, M.D., PH.D.
1300 Morris Park Avenue, Bronx, N.Y. 10461 (USA)

Two meetings have been suggested for the Medical Collectors Association:

1. A full day meeting Friday, April 18, 1986 at the Smithsonian Institution in Washington, D.C., preceded by an optional half-day tour of the facilities.
2. A week-long meeting taking place in Oxford sometime during September 25-29, 1986, and preceded by a several-day meeting in London.

Please answer all of the following questions: (choose one)

1. I will Definitely _____ May _____ Will Not _____ attend the meeting in Washington, D.C.
2. I will Definitely _____ May _____ Will Not _____ attend the meeting in England.
3. I believe there should only be one meeting next year: YES _____ NO _____
4. If there is a dinner associated with the meeting in Washington, D.C. I will attend _____.
5. I plan to bring my wife to the meeting which I attend: YES _____ NO _____
6. I will _____ May _____ Will Not _____ present a paper at a meeting.
7. I think that there should be an opportunity to buy or trade collector's items at the meeting in Washington, D.C.: YES _____ NO _____
8. I think there should be an opportunity to buy or trade collector's items at the meeting in England: YES _____ NO _____
9. I am willing to help in the arrangements for the meeting in:
Washington, D.C. _____ England _____ Both _____
10. I would like to suggest the following being considered for the meetings:

Signature

Please sign this form so that we can identify your response.

CONFIDENTIAL TO PHYSICIANS.

Bloomsburg, Pa., January 1st, 1883.

DEAR DOCTOR:

I take pleasure in calling your attention to the Bloomsburg Sanitarium, an Institution established to supply a need long felt by the general practitioner, of a Climate and Rest Cure where a agreeable climate and scenery coupled with proper hygiene and judicious treatment, may be obtained. In your practice no doubt you have cases which do not, nor will not recover under the best treatment, because of incompatible climate; while others have fallen into an invalid rut, needing a positive change to lift them out of it. Or, if a wife and mother, the conscientious fulfillment of wifely and parental duties will make null and void the very best treatment of the attending physician. Invalid women are more likely to recover if removed from the cares of home and all exciting causes. It is astonishing some times to see with what rapidity persons afflicted with Chronic Invalidism, so to speak, recover through a change of climate and of surroundings. Many are cured in this way that are incurable at home.

This Institution is conducted upon the principle of justice to, and fair dealing by, the medical profession. As an earnest of what we desire to do we make you the following

CONFIDENTIAL OFFER.

For each and every paying patient which you send to this Sanitarium we will remit you two dollars in cash per week as long as the patient remains; or in lieu of this, if you prefer, will receive members of your own family at a discount of one-third the usual charge. To guard against oversight, you should give each patient a letter of introduction to me and should write me personally, giving your diagnosis, that I may treat you with professional courtesy. By this arrangement would you not receive as much in most cases, as you would if they remained at home, and at the same time avoid the risk of your patient falling into the hands of a professional opponent? Then, through change of scene and climate, your patient would receive a new impetus, make rapid recovery and return home with redoubled confidence in your wisdom and skill. Terms for board and treatment \$10 to \$25 per week. More circulars descriptive of the Sanitarium will be sent you at command.

Hoping to hear from you soon I remain, fraternally,

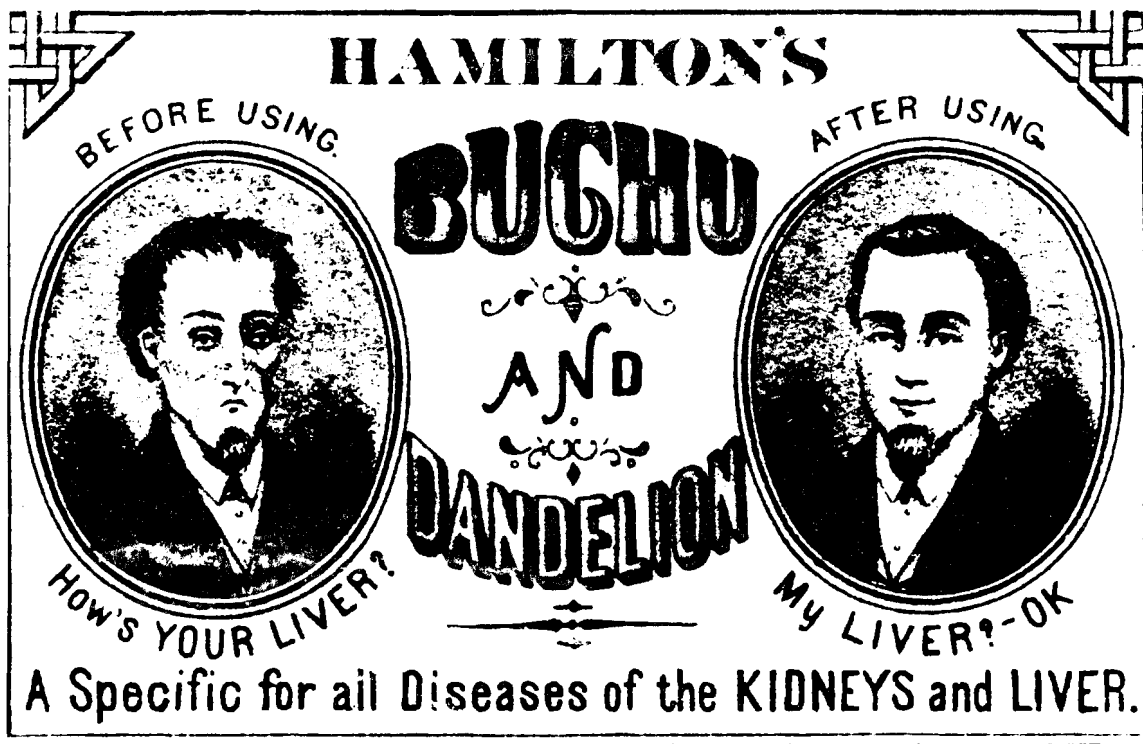
L. A. SHATTUCK, M. D.

N. B.— We call your attention to the following testimonial from the Rev. D. J. Waller, who has been a resident of Bloomsburg for forty-five years and Pastor of the Presbyterian church here until recent years.

"The proximity of the Bloomsburg Sanitarium to my residence enables me to speak emphatically of its character and success. Intimate acquaintance with many patients there of education and refinement, from Eastern, Middle and Western states, has afforded me explicit and uniform assurance of the beneficial results of their treatment here, though many had been treated at various institutions in vain.

I have never heard an exception taken by any one to any of the above points made by the physicians in commendation of the institution, its management or surroundings."

D. J. WALLER.



Historical Images of the Drug Market—III

by William H. Helfand

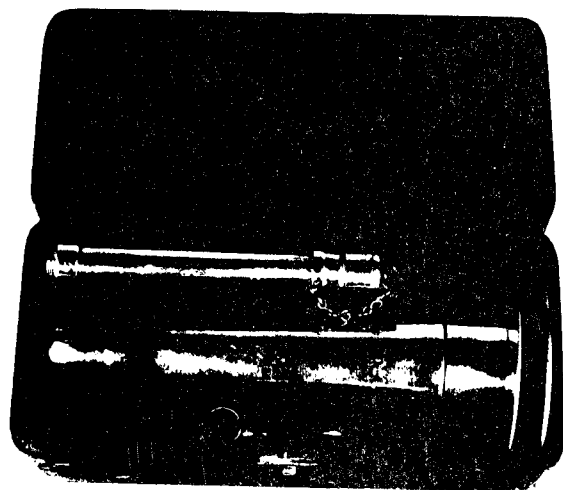
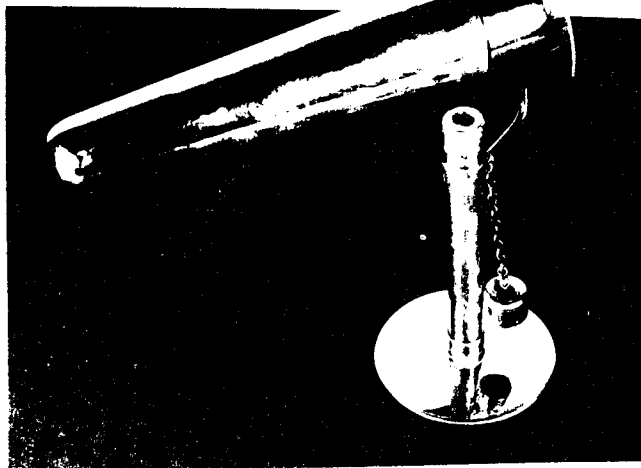
BEFORE-AND-AFTER pictures have long been considered a powerful method of promotion. The technique lends itself to pharmaceuticals in particular because of their promise to provide improvement in health and well being. In this trade card for Hamilton's Buchu and Dandelion, published in 1872, the specific recommendation was for problems affecting the kidneys and the liver. A lengthy text on the reverse of this small card claims effectiveness against a variety of conditions,

including gout, rheumatism, scrofula, diabetes, syphilis and cancer, in addition to the prime indications. The Hamilton card is one of thousands of this type that were given away free by pharmacists and tradesmen after the Civil War, and which were widely collected and pasted into albums by children during the Victorian Era. They are almost as widely collected today, as artifacts of a simpler past. (*Original card, 7 x 10 cm., is in the William H. Helfand Collection.*)

CAN YOU IDENTIFY THIS?

MATERIAL
MAKER
PRESUMED USE
DATE

Silver Plate
Evans and Wormull, 31 Stamford Street
Vaccine Warmer?
1880-1890



I think this is a:

From:

Please return to M. Donald Blaurox, M.D., Ph.D.

CAN YOU IDENTIFY THIS?

Edward R. Burka, M.D., Writes:

Concerning the question of surgical knives or ink erasers, I think I can be of some help to you. I have four of these items in my collection. The answer to your query is that they served as both. If you look in Bennion's book you will find knives similar to these on page 90 (lithotomy knife) and a cranial perforator on page 125. These items were called "arrow head scalpels" and I have one very early one in my possession that is obviously meant as a surgical instrument. It is horn handled, probably from the 18th century, and is fitted with a leather cover for the blade. I have another similar to the bottom one in your illustration, and since the reverse blade edge extends all the way to the handle I believe this is a surgical tool. I have one with a rosewood handle that is obviously an ink eraser, made much later since it consists of steel rather than iron, which is marked "International Stationary Company". This obviously is an ink eraser.

This rather utilitarian design was thus used as both a scalpel (but not as a venesection instrument as thought by Damman), probably for use in lancing boils, as a craniotomy tool and as a lithotomy instrument."

Mr. Richard Strich Writes:

"Re the sketch of the 'Ink Erasers' accompanying our latest bulletin. Attached to the sketch are copies of catalogue pages of a cutlery catalogue of 1885 printed by 'George Wostenholm and Son', a large manufacturer of edged weapons and tools. Also attached is a copied page from 'Bloodletting Instruments' showing item #102 as a phlebotomy knife by 'Rodgers & Co.' which is probably also an eraser either adapted for use or incorrectly identified.

'Rodgers' and 'Wostenholm' were, at the time, competitors. The 'Rodgers' 'Star and Cross' shown on the blade of #102 are famous early trademarks.

The xerox from 'The Book of Knives' may be of peripheral interest.'

Neither 'Rodgers' nor 'Wostenholm' catalogues show surgical items, apparently leaving that to specialized makers."

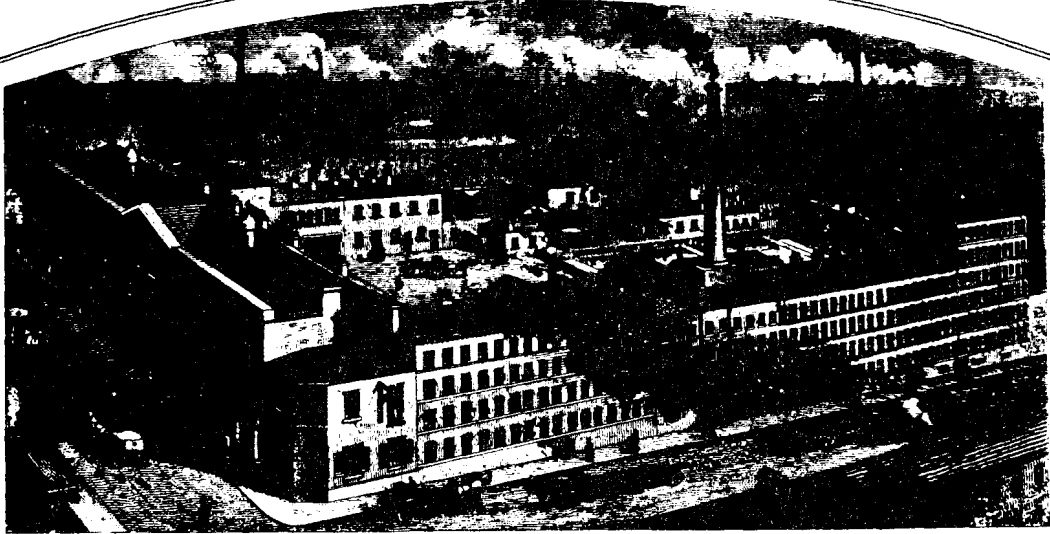
PRIZE MEDALS
 LONDON, 1851.
 LONDON, 1862.
 PHILADELPHIA, 1876.
 SYDNEY, N.S.W. 1879.
 NEW ORLEANS, 1884.

CORPORATE MARKS

I·XL

GRANTED BY THE CUTLERS'
 COMPANY, DEC. 22, 1694

PRIZE MEDALS
 PARIS 1855.
 (THE LARGE GOLD MEDAL OF HONOUR)
 THE ONLY ONE
 AWARDED FOR ENGLISH CUTLERY
 PARIS 1867, JURY
 GOLD MEDAL
 MELBOURNE 1880-1881.



GEORGE WOSTENHOLM & SON, LIMITED,

Washington Works, SHEFFIELD, ENGLAND,

MANUFACTURERS OF THE

CELEBRATED I·XL CUTLERY

PEN & POCKET KNIVES,

Table, Butcher, Bowie, Shoe & Farriers' Knives, Erasers,

RAZORS AND SCISSORS,

AND OF THE

FAMOUS ORIGINAL "PIPE" RAZORS.

AGENCIES:—NEW YORK, PHILADELPHIA, MONTREAL & SYDNEY, N.S.WALES.

G. W. & SON, L^o are also sole manufacturers of the
 TALLY HO! RAZORS & KNIVES AND CONGRUENT RAZORS.

Plate 4. ERASERS AND DESK KNIVES.

GLAZED BLADES, UNLESS SPECIFIED.

(For other Patterns see Plates 3 and 23.)

ALL WITH SHEATHS.

1328	Bone		
,,	Cocoa	...	1329
,,	Ivory	...	1344
1330	Cocoa		
,,	Bone	...	1342
1331	Bone		
,,	Cocoa	...	1332
1334	Cocoa		
,,	Bone	...	1333
,,	Ivory	...	1335
1339	Ebony, Polished		
,,	Bone	...	1352
,,	Ivory	...	1353
1337	Bone, Polished		
,,	Cocoa	...	1338
,,	Ivory	...	1343
1360	Ivory, Polished		
,,	Bone	...	1362
1361	Bone, Polished		
,,	Cocoa	...	1363
,,	Ivory	...	1364
1357	Cocoa, Polished		
,,	Bone	...	1358
,,	Ivory	...	1359
1336	Cocoa		
,,	Bone	...	1340
,,	Ivory	...	1341

GEORGE WOSTENHOLM & SON, LIMITED

CORPORATE MARKS.

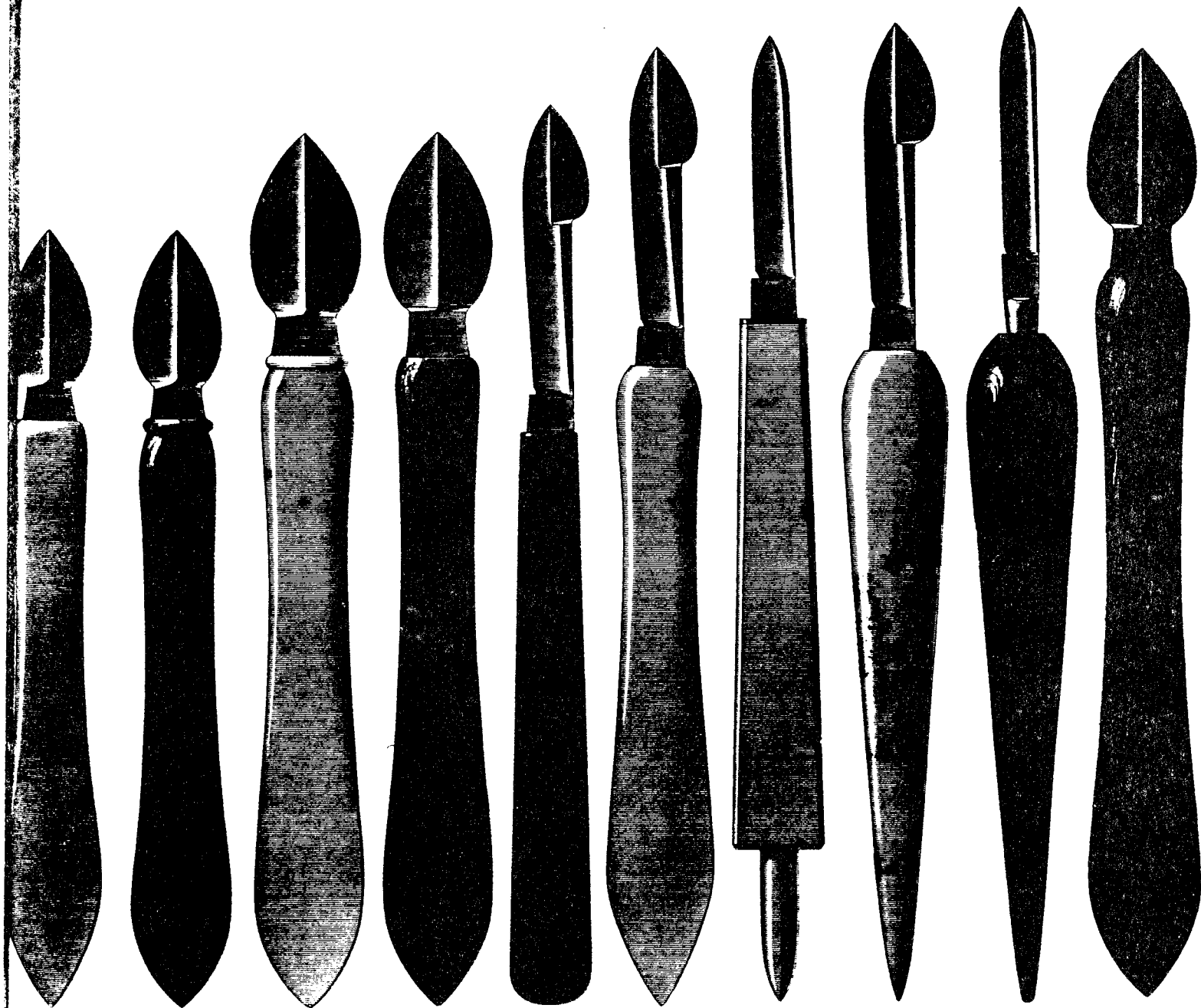
I · XL

GRANTED BY THE CUTLERS' COMPANY DEC. 22ND 1894

WASHINGTON WORKS SHEFFIELD, ENGLAND.

PRIZE MEDALS
LONDON, 1851.
LONDON, 1862.
PHILADELPHIA, 1876.
SYDNEY, 1879.
NEW ORLEANS, 1884.

PRIZE MEDALS
PARIS, 1855.
THE LARGE GOLD MEDAL OF HONOUR
THE ONLY ONE AWARDED FOR ENGLISH CUTLERY.
PARIS, 1867 (Juror)
— GOLD MEDAL —
MELBOURNE, 1880.



1328

1330

1331

1334

1339

1337

1360

1361

1357

1336

FROM THE BOOK OF KNIVES

Before leaving the world of food we can mention the *baker's knife*, which is very thin and sometimes lacks a handle. It is used for tracing light lines on bread to open the dough and let gases escape during baking. The *pastry cook's knife* comes in several shapes. Usually the end is round and the two edges of the blade are parallel. Sometimes the cutting edge has fine teeth. In this category are also *tart slicers*, sometimes sharp-edged, and *spatulas*.

Bakers' knives

It is perhaps natural to discuss surgeons' instruments just after butchers' and bakers' tools, since for centuries surgeons were considered tradesmen because they worked with their hands. Originally they were in the same guild with the barbers. In the time of the surgeon Ambroise Paré (1509-1589), the doctors were clerks, but under the pretext that '*Ecclesia abhorret a sanguine*' (the Church abhors the shedding of blood) they would consider it improper to let the blood of a patient. The surgeons were not fully free of this restriction until 1743, after which they were considered full doctors.

Surgical instruments

Oribasis (fourth century), a famous Greek surgeon, knew how to trepan skulls — and the instrument with which this was done could well be more ancient than the *circumcising knife*. He also used the *scalpel*, various other surgical knives, tools, saws and the cautery. Such treatises as those of Abul Kasim (c. 936- c. 1013) of Cordova and Jean Scultet (1595-1645) may be passed over: the description of their arsenals bring to mind instruments of torture rather than healing; but some of the instruments they mention exist, barely changed, up to today.

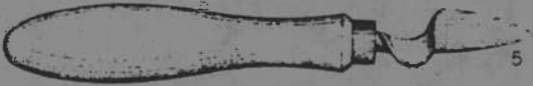
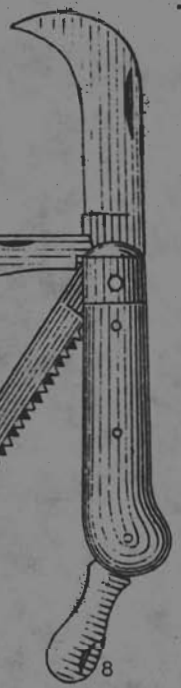
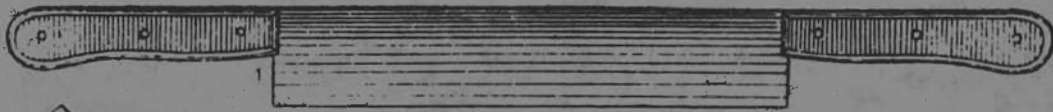
An excellent work, which complements that by the 18th century cutler Perret, is *A Short Description of Surgical Instruments* by 'Henry, Cutler to the (French) House of Peers' (1825). The author describes 200 instruments and apparatuses, classified by type of operation. For childbirth he enumerates forceps, hooks, lever, head piercer, head clamp, the *speculum uteri*, the *scalpel*, the *long blunt-ended knife*, the pelvimeter and laryngian tube. The *straight knife* is used for sectioning the symphysis of the pubic bones; the knife must be strong, fixed without the slightest play on its handle and blunted at its end. As for the *scalpel* used for vaginal caesarean sections, it must be 'rounded and wrapped with stripping up to an inch from its end'. In abdominal caesarean sections 'a *convex* and a *blunted scalpel* are used'.

In the beginning of the 19th century various knives were used for amputation. In the amputation with flaps, more bone is cut than flesh in order to obtain a presentable and sometimes usable stump. The first knife used in such an operation is slightly curved. Later a *simple-edged straight knife* was used, with a slight curve on the spine towards the point. Its edge is similar to that of a *scalpel*. For this knife, the surgeon Garengot substituted one with a straight blade with two edges. The surfaces were not flat, but on each side was a sharp ridge running from the heel to the point. These ridges bevelled out — giving strength to the blade and making the edge very durable. The point was thin, long and particularly sharp. In order to cut flesh and to saw with the same instrument, a knife was invented in Germany in the last century which had sawteeth on a portion of its spine, the rest of the blade being two-edged.



The 'kernelers' or nut-openers (here an unusual example in the form of a key) were in fashion from the 14th to the 17th and even 18th centuries; they were generally made of bronze and their small size was proverbial. Drawing after Victor Gay, *Glossaire archéologique du Moyen-Age et de la Renaissance*.

Professional knives of the 18th and 19th centuries: 1: a cheese cutter (which, strictly speaking, is not a knife); 2: a cod fisherman's knife; 3: a 'bistour'; 4: a scalpel; 5: a preserving knife; 6: a 'cutting needle' (a surgical instrument); 7: a scalpel-razor; 8: a gardener's knife; 9: a 'alette for ears'; 10: a lancet; 11: a 'point-pince cotennary lance'; 12: a 'billonnet'; 13: a wire cutter; 14: a basket worker's knife; 15: a painter's knife; 16: a glider's knife; 17: a sailor's knife; 18 and 19: hot-roaker's knives. After Jules Pagé



2



9



11



10



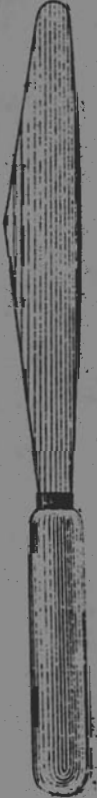
12



13



14



15



16



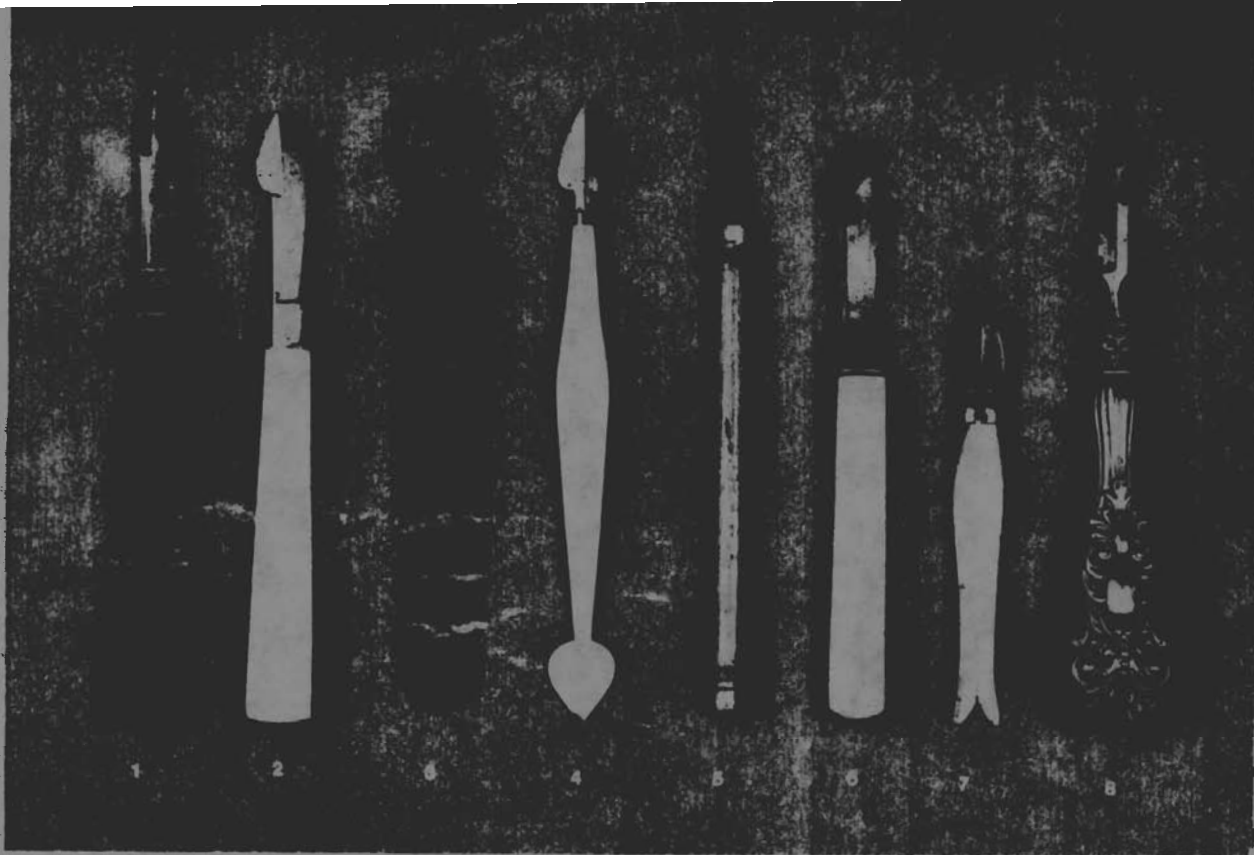
17



18



19



Dr. J. William Rosenthal Writes:

I have included a picture of eight of these which I have in my personal collection and you can see that they are quite varied in material as well as blade design. The handle materials I have are ebony, bone, wood, ivory, mother of pearl and silver. Some of the handle materials, particularly the ornate silver one (No. 8) is, I believe, a case in which the knife blade was embedded in a fancier handle than it had previously been fastened. Other knives, such as number 5, are of the very cheap manufacture and probably this one was truly an eraser of ink of the period.

I have spoken with another collector who says his father regularly used a knife such as number 2 as an ink eraser.

It is my belief that the knives (except number 5) were originally medical knives and when they outlived their usefulness, due to dullness, etc., they were put to other practical uses around the house and office such as erasing ink.

MEDICAL MUSEUMS OF THE WORLD

**PART II
BRITAIN (EXCEPT LONDON)**

By

Professor E. T. Pengelley

BRITAIN(Except London)ALDERSHOT (Hampshire)Location - 35 miles southwest of London.Train - From London (Waterloo).Road - Take the M3 or A30 towards Basingstoke. Near Camberley turn off along the A321 to Aldershot.

Aldershot is the "military town" of England, where soldiers have been trained for over a century. However there are also three excellent historical museums: dental, medical and nursing.

Royal Army Dental Corps Museum
H.Q. and Training Centre
Royal Army Dental Corps
Queen's Avenue
Aldershot

There is no full time curator here, but permission to see the museum may be requested at the main desk of the training center. They are very cooperative, a guidebook is available, and in my opinion the museum is a "little gem." Fortunately its founders concentrated on dental history rather than military history, and the layout of the museum is chronological, starting about 1660 and continuing to the present day. The whole thing is a remarkable documentary of the advance of dentistry for over 300 years. Some of it is pretty grim! In addition to the various, and very interesting, instruments, apparatus etc., the visitor is reminded of the many problems and events which have affected dentistry directly and indirectly. For example as early as the 17th century, military surgeons were required to preserve the soldiers' front teeth so that they could bite through the cartridge when loading their flintlock muskets. With the advance of weaponry, and biting through the cartridge was no longer necessary, the surgeon specialized in the preservation of the molars so that the soldiers could chew their food properly, and the front teeth were no longer considered essential! Vivid displays depict jaw and facial wounds so common in war (particularly in WWI with its trench warfare), and these involved the dentist in their repair. Quite contrary to popular belief, some remarkably good "plastic surgery" was done in WWI, rather than having to wait for WWII, and much of this was done by surgeons and dentists working together. The leader in this area was the New Zealander, Sir Harold Delf Gillies (1882-1960). Of great interest also is a comparison of field dental units of WWII from the British, American and German armies. One is struck at once by the enormous technical superiority of the German unit.

Royal Army Medical Corps Historical Museum
 Koegh Barracks
 Ash Vale
 near Aldershot

One of the earliest recorded references to army medical doctors is found in the Greek poet Homer's account of the siege of Troy (1190 B.C.), and certainly from that time onwards almost all armies have supplied some kind of medical care for their soldiers. This museum displays the development of that care, and consequently is of great interest for the history of medicine in general. The museum is a blend of medical and military history, and the interrelationships of the two. It is open to the public most days by permission from the curator, whom I found very cooperative and full of interesting historical information. A guidebook is available. The displays are arranged chronologically in sections, with the first section covering the period "earliest times to 1660," and continues up to the present day. There is an especially fine collection concerned with the Crimean Era (1854-1857), which was when Florence Nightingale (1820-1910) and her nurses transformed the whole profession of nursing, with all its beneficial consequences (see elsewhere).

Queen Alexandra's Royal Army
 Nursing Corps Training Center
 Farnborough Road
 Aldershot

Within this training center for army nurses, is a small museum devoted to the history of army nursing, and in so doing supplies a history of nursing in general. The museum is open to the public, but only with the permission of the curator, and it is necessary to phone for an appointment (Aldershot 24431). A small pamphlet, as a guide, is available, and an excellent history of Queen Alexandra's Royal Army Nursing Corps may be bought, and I recommend this.

This museum is a blend of military and nursing history, and tends to be photographic except for the displays of nurses uniforms. However, they have various artifacts of the nursing profession and some priceless objects such as the carriage used by Florence Nightingale in the Crimea. The displays are arranged chronologically, and at present the museum is being redesigned and will in due course exhibit many new items from their undisplayed collections. This is the only Nursing Museum I am aware of, and is well worth a visit.

Before leaving Aldershot, the visitor will no doubt wish to see many other things there of historical interest. These are explained in a pamphlet entitled "Aldershot Military Town Trail," which contains directions for seeing such diverse items as a Dakota preserved from WWII and a military horse cemetery!

ASHFORD (Kent)

Location - 50 miles southeast of London.

Train - From London (Victoria).

Road - Take the A20 to the south, and follow this (or the M20) through Maidstone to Ashford.

Ashford, Kent, is not known to have been directly associated with William Harvey (1578-1657), the man who discovered and proved the phenomenon of blood circulation, but the county of Kent is "Harvey Country," so to speak, (see also Folkstone and Hempstead) for it was here that he was born and brought up, and there are two things in Ashford which commemorate the memory of this giant of medicine.

Willesborough is a suburb of Ashford, which has a nice pub called "The William Harvey." However, more important is the fact that in the garden of the pub there is a fine statue of William Harvey. It has an interesting history. About 160 years ago it was sculptured by Henry Weekes, and stood outside the Royal College of Physicians in London. During WWII the college was badly bombed and the statue damaged. While the debris was being cleaned up, and in some way which no one seems to know, the statue found its way to the garden of this pub where it stands today! It is well looked after and interesting to see. Also in Willesborough is the new William Harvey Hospital, and outside the main entrance is a copy of the William Harvey statue at Folkstone. It is very impressive.

BERKELEY (Gloucestershire)

Location - 105 miles west of London, and 12 miles south of Gloucester.

Train - From London (Paddington) to Gloucester, and then by bus or taxi to Berkeley.

Road - Take the M4 to the west as far as exit 20 (which is where it crosses the M5). Take the M5 north to exit 14 and then join the A38 north to Stone. At Stone take the B4509 (left) to Berkeley.

Berkeley (pronounced Barkeley), will remain celebrated for all time as the birthplace and home of one of mankind's greatest benefactors, Edward Jenner (1749-1823), whose monumental work first brought under control the dread disease of smallpox, and which it would now appear, has been eradicated from the earth--we may hope forever.

In a world now devoid of it, it is really very difficult for us to understand the terrible scourge of smallpox. It was highly contagious, and many a doctor contracted it while trying to treat a patient. It killed thousands (particularly children) and left other thousands visibly and badly scarred for life. The disease was probably of eastern origin and was brought to Europe by returning crusaders in the 11th and 12th centuries. From there, in due course, it spread throughout the world. It was a major factor in the virtual extermination of the North American Indian.

Edward Jenner was born in Berkeley, where his father was vicar, but at the age of five both his mother and father died leaving him an orphan under the care of his elder brother, Stephen, another clergyman. At the early age of twelve Edward was apprenticed to a surgeon, David Ludlow, under whom he worked for nine years. Then at the age of twenty-one he went to London to study anatomy and surgery under the most famous doctor of his day, John Hunter (see under London) with whom he corresponded until the latter's death in 1793. In 1773 Jenner returned to Berkeley, established himself in medical practice there, and in due course married Catherine Kingscote. Upon marriage they moved into Chantry Cottage, where they lived (with only short absences) for the rest of their lives.

Jenner, following the accepted practice of his day inoculated many of his patients against smallpox (using fluid from a smallpox pustule) but soon found that some patients were resistant to the disease, and learned further that these patients had apparently all had a disease contracted from cows, known as cowpox. This is a relatively rare and mild disease, though prevalent in western England at the time, and Jenner found that amongst milkmaids and others having close contact with cows, it was generally believed that contraction of cowpox gave protection, if not complete immunity, against smallpox. Thus it occurred to Jenner that if patients were inoculated with the fluid of a pustule of cowpox, from which they would contract cowpox (hopefully in mild form), that this might confer immunity to smallpox. Furthermore, and most important, Jenner hoped to create a reservoir of cowpox by transferring the disease via inoculation from human to human. This indeed proved possible, and it also proved possible to artificially store and ship the fluid obtained from a pustule of cowpox.

Jenner was reluctant to try the crucial experiment, but finally on May 14, 1796, perhaps remembering the famous advice of his former teacher John Hunter "But why think? Why not try the experiment?", Jenner inoculated an eight year old boy, James Phipps, with the fluid from a cowpox pustule obtained from a milkmaid who had the disease. James contracted cowpox, but recovered within a few days. Then on July 1, the same year, Jenner inoculated him with smallpox and to everyone's delight the boy did not contract smallpox.

Jenner understood the importance and potential of his discovery, and in the following year, 1797, he sent a short paper on the subject to the President (Sir Joseph Banks) of the Royal Society. His paper was rejected! However in 1798 he published, at his own expense, a short book describing the nature of cowpox and the immunity (not permanent) it confers against smallpox. The book was entitled "An inquiry into the Causes and Effects of Variolae Vaccinae, a disease discovered in some of the Western Counties of England particularly Gloucestershire, and known by the name of Cowpox." It was the result of enormous perseverance and careful reasoning, and is one of the great works in medical history. With its publication Jenner may be considered the founder of immunology with all the blessings which since have followed from it. He also coined the word virus (Latin = poison or slimy liquid). The process of inoculation with cowpox quickly became known as vaccination (Latin: vacca = cow), and soon spread far and wide.

Mary, Countess of Berkeley (1767-1844), a very influential local woman, persuaded Jenner to vaccinate her large family of children, and through her

Jenner also vaccinated the royal children of George III. This enormously helped to spread and popularize vaccination. By 1801 it was being used extensively in the Persian Gulf and India, and Jenner personally sent vaccine to President Thomas Jefferson of the United States, who vaccinated his family and friends at Monticello.

Fame, honors, but little fortune were poured upon Edward Jenner after his discovery. Yet it is nice to record that despite this he remained a simple country doctor in his native Berkeley. The British Parliament voted him a grant of money, which made life easier for him, and in 1804, although Britain and France were at war, Napoleon Bonaparte had a medal struck in his honor, and in 1805 made vaccination compulsory in the French Army. Also at Jenner's personal request Napoleon released some British prisoners, and in so doing is said to have remarked "We can refuse nothing to that man." Such was Jenner's prestige.

Jenner's wife, Catherine, died in 1815, and he later died of a stroke in 1823. Despite the fact that he could have been buried in Westminster Abbey, he preferred Berkeley Church where his body lies today. The grave is near the altar.

The Jenner Museum was until recently in a small house in Berkeley, but is now located in Chantry Cottage, formerly the Vicarage. I have not yet been to this new location, but I am told by close English friends that it is very good. Much of the material has been loaned by the Wellcome Institute (see under London). Close by is the Jenner Hut or Temple of Vaccinia, where Jenner vaccinated the poor from far and wide. Jenner was born in what is now the post office of the town.

In addition to all the Jenner associations, no visitor to Berkeley will want to miss Berkeley Castle, which adjoins the churchyard on the outskirts of the town. This is the private residence of the Berkeley family, but is periodically open to the public by their permission. Incidentally the Berkeley family goes back 800 years in a direct male line! Of great interest also is that the Berkeley family has always been concerned with the support of potentially great men and their achievements, for not only did they sponsor Edward Jenner, but William Harvey as well. Of further interest is the fact that it was a member of the Berkeley family who gave his library to start the now famous University of California at Berkeley.

In addition to all these interesting things to see at Berkeley, I would recommend that visitors also take the opportunity to see the magnificent Jenner statue in Gloucester Cathedral, and the nearby and fascinating Wildfowl Trust at Slimbridge.

CAMBRIDGE (Cambridgeshire)

Location - 55 miles north of London.

Train - From London (Liverpool Street)

Road - Take the A11 which leads into the M11 at Wanstead. Follow the M11 until it again joins the A11 near Bishop's Stortford. Continue on the A11 until just beyond Great Chesterford, then take the left fork onto the A130, which leads via A10 into Cambridge.

The history of Cambridge goes back to Roman times, but its fame today rests on its University, the origins of which go back nearly eight centuries. Unlike its counterpart, Oxford, Cambridge University has always been scientifically oriented, and has produced such men as William Harvey, Sir Isaac Newton, Stephen Hales, Charles Darwin and Francis Crick, all of whom had an enormous impact on the development of medicine. The main life of the University is on either side of the central street of St. Johns --- Trinity --- King's Parade --- Trumpington, and in order to see this I cannot recommend too strongly that the visitor take a guided "Walking Tour of the Colleges" which starts from the Information Centre on Wheeler Street. There is a small charge and they last about 1 1/2 hours, but there is no better way to see and learn something about Cambridge University. The guides are very knowledgeable, and will show you the many places associated with the historical development of science. I will mention here just two places.

The Old Cavendish Laboratory
Free School Lane
Cambridge

It was here between 1951 and 1953 that Francis Crick and James Watson unravelled the structure of deoxyribose nucleic acid (DNA), the basic material of life, and this was certainly the most important biological discovery of this century. In addition to Crick and Watson, Ernest Rutherford, J. J. Thomson and James Clerk Maxwell all worked within the walls of the Old Cavendish Laboratory. Crick and Watson actually worked in the Austin Wing (clearly marked), and on the wall outside the main entrance is a plaque commemorating the distinguished scientific history of the institute. Of interest also is the little house where Francis Crick lived while working on the structure of DNA. It is at 19-20 Portugal Place, and has a "golden helix" hung above the front door! It is a private residence but visitors can see the outside.

The Whipple Museum of the History of Science
Free School Lane
Cambridge

Open - Monday-Friday 14.00-16.00

This is part of the University's Department of the History and Philosophy of Science. Here in this museum are superb historical collections of microscopes, telescopes, mathematical instruments and apparatus of great variety, much of it used directly in medicine. There is also a library devoted to the history of science.

There is no medical school as such at Cambridge, but there can be few places on earth more interesting for the historically minded scientist to visit.

DOWNE (Kent)

Location - 15 miles south of London.

Train - From London (Victoria) to Bromley South, then by taxi or bus #146 (infrequent) to the village of Downe.

Road - Take the A21 south at Lewisham and follow this through Bromley and on to Bromley Common (near Hayes) and then take the right fork onto the A233. Follow this for about 2 miles where there is a left turn on a small country road to the village of Downe.

Here in this village at Down House, Charles Darwin (1809-1882) lived and worked for the last 40 years of his life. The house is now a museum and is owned and operated by The Royal College of Surgeons.

Down House
Luxstead Road
Downe

Opening Hours - 13.00 - 18.00 daily, except Monday and Friday when it is closed, and it is also closed for the month of February. These times may vary, so try to phone in advance Mr. Philip Titheradge (the curator) at Farnborough 59119. There is a small charge for admission. Guide books etc. are available.

I am sure I do not have to remind any reader of the central place in all modern biology of organic evolution by natural selection, and it was here in this house that Charles Darwin wrote the "Origin of Species by Means of Natural Selection." The house is preserved much as he left it. The whole of the ground floor is open to the public (the upper floors are privately occupied) and comprises six rooms, the Hall, the New Study, the Drawing Room, the Charles Darwin Room, the Erasmus Darwin Room and the Old Study. The contents of each room are well marked, explained and beautifully displayed. They contain a wealth of information about the life and work of Charles and his family. Most of the furniture is original, including his desk and chair at which he wrote many of his works, including "The Origin." The Old Study is much as he would have known it each day as he went into work, including its spittoon and sitzbath! Some of his personal library is still there. The ground floor of the house is truly a thrilling place, but after it has been seen, the visitor should not neglect to walk down to the bottom of the garden and around the Sand Walk, where Darwin used to walk almost every day, and which he called his "Thinking Path." Down House is, so to speak, "The Mecca" of biologists, and will not disappoint anyone interested in the history of biology or even the larger realm of human history in general.

Downe is full of stories about Charles Darwin, and there are other associations which the visitor will hear about, but it is worthwhile mentioning that despite the general hostility of the church and clergy towards Darwin and his theories, there is, on the side of the Church of St.

Mary the Virgin, overlooking a sundial and the village square of Downe, the following inscription:

This Sundial is in memory of
Charles Darwin
1809-1882
who lived and worked in Downe
for 40 years.
He is buried in Westminster Abbey.

Have lunch at The George and Dragon Pub (where Darwin himself drank his ale) and then walk along Luxtead Road to Down House!

EAST KILBRIDE (Lanarkshire), Scotland

Location - About 400 miles north and slightly west of London, and 10 miles east of Glasgow.

Train - From London (Euston) to Glasgow (Central) and then by taxi or bus to East Kilbride.

Road - There are two main routes from London to Glasgow:

1. Take the M1 north to Leeds, then join the A65 to Skipton and on to entrance 36 of the M6. Go north on the M6 around Carlisle and join the A74 which will join the M74. Take exit 6 which leads along the A74 into Glasgow.
2. Take the A1 to Scotch Corner (no relation to the famous beverage!) and turn left along the A66 to entrance 40 on the M6. Follow the M6 north and join the A74, which will in turn join the M74. Take exit 6 which leads along the A74 into Glasgow.

To reach East Kilbride from Glasgow by car take the A749 through Rutherglen to East Kilbride. Upon entering the latter take the Calderwood turning, where there is a sign pointing to the Hunter Museum on Maxwellton Road.

Hunter Museum (or Hunter House)
Maxwellton Road
East Kilbride

Opening Hours - There are no regular opening hours, but in order to see Hunter House it is only necessary to phone in advance to the curator, Mrs. Ellen Keith (East Kilbride 23993) or Mr. R. C. Copeland (East Kilbride 41111). There is a Hunter Trust which administers the museum under the patronage of the Royal College of Surgeons and the University of Glasgow.

Seldom have two such brilliant men come from the same family as William (1718-1783) and John (1729-1793) Hunter, both of whom distinguished themselves as doctors, and left lasting contributions to medicine. Both were

born in the little house, now referred to as Hunter House. For an account of John Hunter, see previously under The Royal College of Surgeons - London, but a brief account of William will be given here.

As a boy William Hunter attended grammar school in East Kilbride, and at 13 he entered the University of Glasgow where he studied the humanities and the classics. After four years at the university he was apprenticed as a medical student to a Dr. William Cullen in Hamilton. It is important to realize that in the 18th century there were still no medical schools as we know them today, and a student of medicine simply picked up as best he could the knowledge of the day, which was not only very little but often wrong as well. Dr. Cullen had a great influence on William, and as a result of this he went on to study medicine at the University of Edinburgh, as well as in London and Paris. He was very impressed with the manner in which anatomy was taught in Paris, by dissection, and on returning to London in 1746 he set up his own anatomy school which was, for its day, of such high quality and so successful that it lasted until his death in 1783. As part of his school he set up one of the first anatomy museums in the world so that students could study the specimens, both normal and pathological on a year round basis. In London, William went from medical honor to medical honor, and finally became obstetrician to the Queen, whom he attended during her first pregnancy in 1762, and it was in obstetrics that he made his greatest and lasting contributions. Prior to this time obstetrics was based on a vast array of ignorance and superstition and was in the hands of quacks and untrained midwives. Hunter led the way in putting it on a scientific basis.

In 1774, after 25 years of study and collecting scientific information, he published his classic work "The Anatomy of the Human Gravid Uterus." It was by far the best book on the pregnant uterus ever published, and with it obstetrics as a science was ushered in. It contained 34 magnificent engravings of the pregnant uterus by the artist Jan van Rymdyck, and was dedicated to the King (George III). The original copy of this with text in both latin and english, together with the hand-done illustrations of the artist are housed in the Special Collections Department of the main library of the University of Glasgow on University Avenue. It may be seen by permission of the librarian, and it is worth the effort!

During his lifetime, and in addition to his museum specimens, William amassed valuable and extensive collections of books, pictures and coins, all of which he left to the University of Glasgow, where they can be seen today (see under Glasgow), and are very impressive. He died in London in 1783, but medicine, and obstetrics in particular, owes an eternal debt of gratitude to William Hunter.

On the outside of the Hunter House is a plaque which reads as follows:

The Birthplace of Two Great Scotsmen
 William Hunter and John Hunter
 Born 23 May 1718 Born 13 Feb 1728
 Died 30 March 1783 Died 16 Oct 1793
 Pre-eminent in Medicine and in Surgery.

The house, including the barn and garden, is much as it was in the Hunters' day and has been nicely preserved, despite a modern development all around it. On the ground floor is a one room museum, with a wealth of interesting Hunterian material as well as various items of medical interest from the 18th century. The visitor can also see by request the tiny first floor room where both William and John Hunter were born. Hunter House is in a somewhat out of the way place, but the effort of going to see the birthplace of these two great Scotsmen is well worth it.

EAST WELLOW (Hampshire)

Location - 85 miles southwest of London, near Romsey.

Train - London (Waterloo) to Romsey, and then by taxi.

Road - Take the M3 or A30 from London to beyond Basingstoke and join the A33 around Winchester. Then fork right along the A32 to Romsey. After Romsey take the A27 towards Salisbury, but after about 2 miles turn left to "The Wellows" and follow the signs to East Wellow.

Church of St. Margaret of Antioch
East Wellow
Hampshire

It is in this churchyard that Florence Nightingale (see under St. Thomas' Hospital - London) is buried. One might have imagined that so great a benefactor of mankind as Florence Nightingale, would have been buried in Westminster Abbey, but during her long life she always spurned publicity and honors, and was no different in death. She is buried in a common grave alongside other members of her family. The grave is easily found, being only a few yards from the main entrance to the church, and has a prominent spire above the tombstone with inscriptions on it of the family buried there. Florence Nightingale is inscribed simply as F.N. with her birth and death dates. Inside the church is a plaque dedicated to her, and on the porch is one of her famous lamps, which her family gave to the church.

The reason Florence Nightingale is buried at East Wellow, is that nearby her family owned a large house there for many years. Embley Park is now a school (Embley Park School), but the outside of the main building is much the same as in the 19th century, and still in the beautiful setting that Florence Nightingale knew. It is located on the south side of the A27, between The Wellows sign and where the road joins the A31 near Romsey. The house is clearly marked at the main gate. There is no harm in driving in to see the exterior and its setting, but the building itself is private.

EDINBURGH Lothian, Scotland

Location - 375 miles north of London.

Train - From London (King's Cross) to Edinburgh (Waverly). From Glasgow (Queens) to Edinburgh (Waverly).

Road - Take the A1 to Scotch Corner, and then fork right to Durham and Newcastle. At Newcastle join the A696 to Ponteland, and at Otterburn this joins the A68 to Dalkeith and Edinburgh.

Edinburgh is one of the most ancient and beautiful cities in Britain, which in addition to many cultural and political aspects, has a famous scientific history centered in its great university, which during the 18th and 19th centuries had one of the most distinguished medical schools in the world.

Sir James Young Simpson Museum
52 Queen Street
Edinburgh

Opening hours - Normal business hours. There is no charge for admission, and it is maintained by the Royal College of Surgeons of Edinburgh.

Sir James Young Simpson has a permanent place in the history of medicine, not only for his great contributions to obstetrics, but above all for his discovery in 1847 of the anaesthetic properties of chloroform. This became the standard worldwide anaesthetic for nearly 100 years, and has only been generally superseded in very recent times.

Simpson was born at Bathgate, the son of a baker, David Simpson. It is said that his mother, who died tragically when he was only nine, decided very early on that young James should be the scholar of the family. He did not disappoint her! While in his early teens, he attended arts classes in Edinburgh, but very soon switched to medicine, and at the early age of 19 became a member of the Royal College of Surgeons. Soon after he was practicing medicine in Edinburgh, with a specialty of obstetrics at which he spent most of his life. It is of great interest that Charles Darwin and James Young Simpson were both medical students at Edinburgh at the same time. However, of even greater interest is that they were both revolted by operations performed without anaesthetics. Because of this Darwin gave up medicine and went on to other things, but fortunately Simpson decided to try to do something about it. It is worthwhile recording in this respect the actual operation which had such an influence on Simpson, because it will help the modern reader to understand how surgery has changed over the past 150 years. This operation was an amputation of the breast of a woman, and was performed by Robert Liston, one of the most famous surgeons of his day. The normal procedure for this was simply to lift up the soft tissue of the breast with an instrument resembling a hook, thus enabling the surgeon to sweep around the mass with his knife, hopefully in two clean cuts! Simpson, like other medical students (all males in those days), had seen other operations and was keen to see this one. However, as Liston picked up his knife,

Simpson observed the horrified look of terror on the woman's face and turned away leaving the room. In those days one of the major attributes of a surgeon was the speed at which he could perform the operation. Operations had to be performed in a matter of seconds, rather than minutes, otherwise the patient would almost certainly die of shock. Liston was a master of the art, of whom Simpson himself remarked that "he amputated with such speed that the sound of sawing seemed to succeed immediately the first flash of the knife." From that moment onwards Simpson determined to try to do something to relieve the pain suffered in operations and since he specialized in obstetrics, he also quickly became concerned to try to relieve the pain suffered by women in childbirth. Doctors at that time had to be somewhat indifferent to the pain suffered by their patients for they could do nothing about it, but Simpson set himself the task of trying to reverse this, and was indeed successful beyond his wildest hopes.

In the first half of the 19th century, mesmerism was popular as a pain reliever. Simpson tried this in 1837, and also other methods as they became available but all were very unsatisfactory. In 1845 there were no safe or reliable methods of testing new drugs, but Simpson and his two assistants, Dr. George Keith and Dr. Matthew Duncan, undertook to test a whole variety of available drugs on themselves. Their method was simple almost to the point of absurdity! After dinner at night, Simpson and his two assistants sat around the dining table, poured out a sample of a drug into a saucer, and proceeded to smell it and describe its effects. They had some horrible experiences, needless to say, and on more than one occasion Simpson nearly died from the effects of the drugs. However they pressed on in their quest, and after dinner on the 4th of November 1847, they all inhaled a sample of chloroform. Very rapidly they became unconscious and slipped under the table. Upon recovery Simpson knew at once that he had discovered something important and hoped it would be the answer to his search. Within a week he lectured on it at the University, within two weeks it was used in an operation at the Royal Infirmary, and within a month Simpson had used it on his female patients in childbirth. It must be pointed out that this was not really the first operation at which an anaesthetic was used, the credit for this is usually given to the two American dentists Morton and Wells (see under Boston and Washington, U.S.A.) who used ether and nitrous oxide. As a result of their discovery (just prior to the discovery of chloroform) Simpson also tried ether in childbirth, but it proved dangerous and very unsatisfactory, while chloroform was quite the reverse, and proved to be very reliable.

One might have thought that Simpson would immediately have been hailed as a great human benefactor, but that was not the case. Many surgeons opposed the use of chloroform in operations, because they thought that the pain suffered during these was good for the patient's character and "moral fibre"! However, it was for its use in childbirth that the worse abuse was hurled at Simpson. Was he not flying in the face of Providence?--for did not the Bible decree "--in sorrow thou shalt bring forth children; --" (Genesis 3:16). Needless to say, there were those (mostly men) who believed passionately that the pains of childbirth were also good for the woman's character! Fortunately, Simpson himself was a devout Christian, and he patiently but firmly answered the abuse of the critics, and the opposition gradually faded. The final "seal of approval" was given in 1853 when no less

a person than Queen Victoria (the titular head of the Church of England) accepted chloroform at the birth of her eighth child. In so doing she did all women a great service. The use of chloroform quickly spread around the world, a new era of surgery was ushered in, because speed was no longer a criterion, and women were relieved of the worst pangs of childbirth. But more than this, Simpson's discovery and humanitarian attitude as an obstetrician, raised the status of women above that of some kind of "second class" human being. Unfortunately, Simpson's fight is still not completely won.

For his services to humanity James Young Simpson was knighted by Queen Victoria in 1866 and when he died in 1870, the city of Edinburgh gave him a funeral the likes of which the city had never seen before or since. It was hoped by many that he would be buried in Westminster Abbey, but his widow, remaining true to the nature of her husband as a simple man, declined the offer.

At 52 Queen Street in Edinburgh stands the house where Simpson lived for the last 25 years of his life, and where also he died in 1870. In his day it was much more than a family residence. Here, he and his assistants dealt with a constant stream of patients, and bedrooms were provided for those who came from a distance. There was also a constant influx of visitors, including medical men seeking advice. Today the house is owned by the Church of Scotland, and used as a haven for those in great distress or trouble. The outside of the house is marked with a plaque which reads as follows:

Sir James Young Simpson
lived in this house from 1845 to 1870
and in 1847 discovered
the anaesthetic power of
CHLOROFORM.

Most of the inside of the house is generally unaltered, but is now used for the purposes of the Church of Scotland. However on the ground floor is Simpson's dining room, in which the anaesthetic properties of chloroform were discovered. It survives intact and is known as "The Discovery Room." You can ask permission of the person on duty for the Church of Scotland to see the room, and they will also give you a pamphlet on the life of Simpson. To me this room is an absolute gem in human and medical history, and still remains much as Simpson and his family would have known it. His huge dining table is still there, together with the cabinets and other furniture that he used while testing the drugs. On the mantle piece are his wood foetal stethoscopes, his crucifix which he used as a knife, his pill box, Lady Simpson's bible, and his brandy decanter, into which he poured the chloroform on the evening of November 4, 1847. This can only be described as "true dedication"! In addition to this memorial to Simpson, the city of Edinburgh has erected a fine statue of him. It is considerably larger than life, and is located on the south side of Princes Street near the corner of South Charlotte Street. He is always depicted smiling, and this surely has some meaning!

University of Edinburgh
 Old College
 South Bridge
 Edinburgh

The origins of the University of Edinburgh go back beyond 1583, but in that year the first students in Arts and Divinity were formally enrolled and from that time onwards it has had a distinguished history, particularly in medicine in the 19th century.

Joseph Lister (see under Glasgow) was in Edinburgh both before and after his stay in Glasgow (1860-1869), which was where he did his monumental work on antiseptic therapy. He was in Edinburgh from 1854-1860 as a young assistant to a famous surgeon of his day, James Syme, and returned to Edinburgh again in 1869 as Regius Professor of Clinical Surgery at the University remaining there until 1877. The house in which he lived during this time is at 9 Charlotte Square (north side) and is marked by a plaque, but it is privately owned. Lister always felt it was the University of Edinburgh that gave him his start in a distinguished medical career, and in gratitude he left all his many honors to the University of Edinburgh. These are located within the Quad of the Old College and are displayed in a large case at the head of the main staircase leading to a beautiful Library Hall. They can be seen with the permission of the Bedellus of the University. It is a truly remarkable display, and gives some indication of the esteem in which Lister was held in his day, as well as what we of later generations owe to him. Above the case is a portrait of Lister by J. H. Lorimer. The Library Hall (built 1827) should also be seen, with its array of busts of all the famous professors of the university, as well as such interesting things as the library table of Sir Walter Scott, and Napoleon's table from his study on the Island of St. Helena. There are a host of other historical associations of the University of Edinburgh, and it was here that Charles Darwin (see under Downe) and his elder brother Erasmus attended medical school. In fact they both lived just around the corner from the Old College at 11 Lothian Street. Their house is now unfortunately completely gone. A victim of redevelopment.

The Royal Infirmary of Edinburgh
 Lauriston Place
 Edinburgh

This is the modern Royal Infirmary of Edinburgh, which is a huge complex of hospitals, dating from 1870. In addition to his professorship at the university, Lister had an appointment here during his second stay in Edinburgh, and he lectured in the so-called Lister Theatre. Also as part of the Royal Infirmary is a James Young Simpson Maternity Wing, and inside the main rotunda is a large and striking portrait of Simpson by Norman Macbeth.

The Old Royal Infirmary of Edinburgh and Surgeons Hall
12 High School Wynd (corner of Infirmary Street)
Edinburgh

These two buildings were originally a high school, then the surgical hospital of the Royal Infirmary, and are now the Geography Department of the University. Both Lister and Syme worked here in the surgical wards and extended the use of antiseptic therapy which Lister had developed earlier in Glasgow. The interiors of these buildings have been much altered since Lister's day but the exteriors are almost the same. It is a tragedy that the fine old lecture theater that Lister used has been altered almost beyond recognition. The fact that Lister and Syme both worked here is commemorated by a nice plaque at the front entrance which reads as follows:

James Syme (1833-1869)
and
Joseph Lister (1869-1877)

While Regius Professors of Clinical
Surgery in the University of Edinburgh
had charge of the wards in this building
then the Old Surgical Hospital
and part of
The Royal Infirmary of Edinburgh

Erected by Surgeons of Toronto-Canada 1957.

The Royal College of Surgeons of Edinburgh
Nicholson Street
Edinburgh

The Royal College of Surgeons of Edinburgh is the Scottish counterpart of the Royal College of Surgeons of England, and is primarily responsible for the maintenance and improvement of the standards of surgery in Scotland. In this regard the college has played a long and distinguished role in surgical history. Both Lister and Syme, as well as Simpson, were Fellows of the college. Like most of these colleges, it is large and imposing both outside and in, and has a fine collection of portraits of its distinguished Fellows. There is also a very valuable and extensive medical library going back five centuries. The library also has a small number of Lister's letters, notes, testimonials etc., but a much larger collection of materials relating to the work of Simpson, which includes many letters and other correspondence relating to anaesthesia as well as his lecture notes. The library is not open to the public, but permission to see it may be requested. One may also ask to see the very interesting museum on the top floor of the building. This is mostly pathology, but there are also some very interesting historical rooms as well. In these rooms are a Lister case with various items which belonged to him, including some of his carbolic acid machines for making carbolic bandages, carbolic acid sprays, various instruments and photographs of his surgical wards. There is also a Simpson case with many items of great interest, and a Benjamin Bell (1749-1806) case. Dr. Benjamin Bell is rightly famous for enormously advancing our knowledge of venereal disease. There are other displays, including a Robert Liston (1794-1847) case, who was referred to earlier, and was known popularly as "the fastest man with a knife!" All in all the Royal College of Surgeons of Edinburgh is a very interesting place.

The Royal Society of Edinburgh
22 George Street
Edinburgh

This is the "younger brother" of the Royal Society of London. Founded in 1783, it has done a great deal to maintain and lift the quality of scientific development in Scotland. The building in which it is currently housed, is very imposing inside with beautiful architecture, and portraits of famous Scots who have been Fellows of the society. The library, which is of the utmost importance in its historical holdings, is unfortunately hopelessly overcrowded. Nevertheless it is a marvelous site to see, and the secretary is happy to give you a short tour of the premises.

The Royal College of Physicians of Edinburgh
9 Queen Street
Edinburgh

The founding of this organization goes back to 1681, and since then its functions have not changed. They are to promote and advance the quality of medicine in Scotland. In this capacity they maintain and improve standards, promote research, organize meetings, etc., and maintain one of the best medical libraries in the world. As well as their modern working library, they have a total of 200,000 volumes going back hundreds of years, and hold virtually every important work in the history of medicine. The college is closely associated with Sir James Young Simpson, who was its President from 1850-1852, and the library holds most of Simpson's own library, his casebooks, lecture notes, letters, etc., a priceless collection. Throughout the building there are huge portraits of famous Scottish physicians, including one of Simpson by Norman Macbeth. The college is not normally open to the public, but interested visitors can ask to be shown over it, and I found those in charge very cooperative.

FOLKESTONE (Kent)

Location - 63 miles southeast of London.

Train - From London (Victoria).

Road - Take the A20 in south London and follow this, or the M20, to Maidstone, Ashford and on to Folkestone.

Folkestone is a seaport on the southeast coast of England, and is one of the traditional gateways to the continent. As such it has a long and interesting history, but to me none of it is more interesting than the fact that this was the birthplace of William Harvey (1578-1657). [See also under Ashford, Hempstead and Padua (Italy)].

At the end of the 16th century, peoples' knowledge of animal physiology was not only primitive, but full of misconceptions. It was known that blood

probably had a nutritional function, but our modern concept of blood as a tissue with many vital functions such as nutritional, respiratory, waste disposal, transport of hormones, etc., was not understood. Peoples' ideas concerning blood and its functions were derived primarily from the Greek philosopher, Aristotle (384-322 B.C.), and the Greco-Roman physician, Galen (d. 200 A.D.), who besides being a very able observer and theorist, was also personal physician to the Roman Emperor Marcus Aurelius (121-180). Unfortunately it takes a good deal of anatomical knowledge to understand how Aristotle and Galen thought of the way in which blood functions, and it is not appropriate to attempt that here. Suffice it to say that neither of them had any concept of blood circulation, and without this, an understanding of its functions is impossible. Galen's view that blood flowed in a back and forth motion, like the ebb and flow of a tide, generally prevailed, and for nearly fourteen centuries his theories went almost unquestioned. It was the young Englishman, William Harvey, who was not only to question them, but to make the revolutionary discovery of blood circulation, and thus lead the way to our present understanding of all the varied functions of this vital tissue. As a result of his discovery Harvey is often described as "the father of modern medicine." Be that as it may, he is certainly the last of the "old" and a giant of the "new."

William Harvey came from yeoman farmer stock, and was the oldest of seven sons. His father was a prominent citizen of Folkestone and became mayor several times. In due course, young William attended King's School, Canterbury and later Gonville and Caius College, Cambridge, where he studied arts and medicine. Upon graduating from Cambridge, Harvey attended the University of Padua, Italy (see under Padua), where he received a doctorate in medicine in 1602. One may ask, why did Harvey go to Padua? The reason is simple. At that time the University of Padua was the leading center of medicine in the world. Amongst Harvey's many famous teachers there was Girolamo Fabricius (1537-1619), who in 1574 discovered the valves in the veins, which permit blood to flow in only one direction. With such discoveries as this at hand, and the stimulating atmosphere of research and inquiry, there can be no doubt that the University of Padua had a profound effect on the development of Harvey's thought.

Upon returning to England Harvey set up in medical practice in London. In 1604 he married Elizabeth Browne, but the marriage although happy, never produced any children. In 1607 Harvey was elected a Fellow of the Royal College of Physicians, where he frequently lectured to students, and was closely associated with the College for the rest of his life. In 1609 he was also appointed physician to St. Bartholomew's Hospital, but even more important, in 1618 he became a physician to King James I, a position which was carried on with the accession of Charles I in 1625, and whom he followed throughout the Civil War. Unfortunately Harvey never had a permanent home of his own. Most of his life he lived at the various houses of his brother or travelled extensively. For a while he lived at a house in Whitehall, but in 1642 it was vandalized and many of his notes, manuscripts, etc. were lost. An even worse disaster overtook his personal library, as this and all his other papers and lecture notes were burnt when the Royal College of Physicians perished in the Great Fire of London in 1666. Thus we are left with very few original documents emanating from the pen of William Harvey. What a tragedy!

As early as 1616, Harvey was conducting original investigations into the motions of the heart, and many other aspects of animal physiology. It was the former that attracted his attention most, and in 1628 his masterwork was published in Frankfurt, Germany. This was written in Latin and entitled "Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus" (Anatomical Disquisition on the Motion of the Heart and Blood in Animals). Medicine and biology have never been the same since! In this work, not only did Harvey clearly put forth the theory that blood circulated within the body of animals, but as a result of careful observation and experimentation he demonstrated this to be a fact beyond reasonable doubt. However new ideas seldom have a smooth passage, and a contemporary of Harvey's, John Aubrey, describes from Harvey's own words the fate of his great discovery, "I have heard him say, that after the Booke of the Circulation of Blood came-out, that he fell mightily in his Practize, and that 'twas believed by the vulgar that he was crack-brained; and all the Physitians were against his Opinion, and envyed him; many wrote against him. With much adoe at last, in about 20 or 30 years time, it was received in all the Universities in the world." Harvey was a giant of medicine, a master observer, theorist and experimenter, and it is on his work and methods that modern medicine rests today. Harvey died in 1657 at his brother Eliab's house in Roehampton (now a suburb of London), and is buried at Hempstead, Essex (see under Hempstead).

Anyone going to Folkestone to see Harveyian history should try to contact Mr. Walter Moncrieff, who runs an excellent men's tailors and outfitters store in Sandgate (town center). Mr. Moncrieff, a former mayor of Folkestone, and later an alderman, is very knowledgeable about matters "Harveyian" in general. He has done an enormous amount to foster Folkestone's relationship with Harvey. Mr. Moncrieff is very enthusiastic, cooperative and full of information. It is known exactly where Harvey was born in Folkestone, but the house no longer stands. However there is a plaque there commemorating the event. It is on the side of a building on Church Street, near the corner of Rendezvous Road, and reads as follows:

Near this spot was born on 1st April 1578
 WILLIAM HARVEY
 The world renowned scientist and
 discoverer of the circulation of the blood.
 His father and mother
 attended the nearby parish church
 and his father was mayor of Folkestone
 in the years 1586, 1599, 1601 and 1611.

In the nearby parish church, there is also a plaque in remembrance of the family. Folkestone has also honored her famous son by erecting a very fine statue of him. It was scuptured by A. B. Joy in 1881 and erected the same year. The statue stands in The Leas (the very lovely promenade) near the bandstand, with Harvey looking out across the sea towards the continent. It is beautifully preserved and cared for, and every year on Harvey's birthday there is a "flower laying" ceremony commemorating this event.

GLASGOW Lanarkshire, Scotland

Location - 400 miles north and slightly west of London.

Train - From London (Euston) to Glasgow (Central). From Edinburgh (Waverly) to Glasgow (Queens).

Road - There are two main routes from London.

1. Take the M1 north to Leeds, then join the A65 to Skipton and join the M6 at entrance 36. Continue on the M6 around Carlisle and join the A74 which will in turn join the M74, and then take exit 6 to Glasgow along the A74.

2. Take the A1 to Scotch Corner, and fork left along the A66 to entrance 40 on the M6. Continue on the M6 and join the A74, which in turn joins the M7. Take exit 6 along the A74 to Glasgow.

Glasgow is by far the largest city in Scotland. Lying astride the River Clyde on the west coast, its history is lost in time, but the name is derived from a Celtic word meaning "dear green spot," and this well expresses the feelings that its modern citizens have for their city. Like Edinburgh, Glasgow has many places of great interest in the history of medicine.

The Glasgow Royal Infirmary
82-84 Castle Street
Glasgow

It was here in the Royal Infirmary between 1861 and 1869 that Joseph Lister (1827-1912) [see also under Edinburgh and London] worked out the basic techniques of antiseptic surgery and first applied them. It is virtually impossible to exaggerate the importance of this event in the history of medicine and human welfare.

Joseph Lister was born in 1827 at Upton, Essex, the second son of Joseph Jackson Lister, a brilliant designer of microscopes, to whom we owe the modern perfection of the objective lens system, which led to the production of the achromatic microscope. Both his father and his mother, Isabella, supplied young Joseph with a happy and intellectually stimulating home, in which, from the very earliest age, he was encouraged to observe, explore and investigate for himself. He attended local schools, where he was a good student, and in 1844 at the age of 17 entered University College, London, receiving a BA degree in 1847. He immediately entered medical school, but his studies were considerably delayed because he contracted smallpox, and did not receive his medical degree until 1852: At the same time he became a Fellow of the Royal College of Surgeons. The following year, however, he was appointed an assistant to James Syme, the famous Professor of clinical surgery at Edinburgh. Here Lister established himself as a brilliant and original investigator, an able surgeon and an excellent teacher. He also married Agnes Syme, the boss' daughter (a good thing to do then as now!), who was his devoted wife for nearly 40 years. Anesthesia, introduced some years before, was now used regularly at operations, and it is interesting to note that Lister, while a student, may have been present in 1846 at University

College Hospital, London, when the first operation in England using ether was performed by Robert Liston (see under Edinburgh). The introduction of anaesthesia for operations was undoubtedly the greatest advance in surgery in all its history, but there remained one overriding problem. Before operations could be considered reasonably safe, there was the problem of infection, the overall death rate from which ran as high as 40%. Lister, a very sensitive man, was appalled at this, and determined to do something about it. His extraordinary abilities were recognized when he was elected a Fellow of the Royal Society in 1860, and the same year was appointed Regius Professor of Surgery at the University of Glasgow, and a year later was appointed to the Glasgow Royal Infirmary. It was here at the Royal Infirmary that his inventive mind was put to work on what we now know as antiseptic surgery. As early as 1861 and again in 1864 Louis Pasteur (see under Paris, Arbois and Dole, France) had published some remarkable work which gave the clue to the possible "germ theory" of infection. Lister quickly became aware of this, and realized that germs might be the cause of operative infections. In 1865 he performed the first successful treatment using a carbolic acid dressing as an antiseptic agent. As his techniques improved the results were almost miraculous, and the death rate from infection dropped dramatically. Lister described his results in a series of papers, the first of which was published in Lancet in 1867. It was entitled "On a new Method of treating Compound Fracture, Abscess etc. With Observations on the Conditions of Suppuration" (suppuration means the formation of pus or festering). It is one of the great works of medicine, and paved the way for a whole new era in surgery and antiseptic therapy of all kinds. Lister's ideas invoked much opposition and skepticism, and his techniques spread only slowly around the world, being gradually improved upon. In 1869 Lister returned to the University of Edinburgh for eight years, then to King's College, London, until 1893. In that year his wife, Agnes, died, a blow from which he really never recovered. Nevertheless, he carried on with his major responsibilities, and honors continued to be showered upon him, including a peerage from Queen Victoria in 1897. He was the first surgeon to ever receive such an honor. He died in 1912 at Walmer, Kent, and although it was universally hoped he would be buried in Westminster Abbey, he himself declined the honor preferring to be buried beside his wife in Hampstead Cemetery (see under London).

Most of the present buildings of the Royal Infirmary date from about 1905-1915 (there has been constant new construction), and despite great efforts on the part of many people nothing survives of the wards where Lister actually did his work. However, his great achievements, not only in antiseptic treatment, but also in early and successful attempts in plastic surgery, are commemorated by two plaques. The first is on the outside wall of the infirmary, and can be seen from Castle Street. It reads as follows:

On this site stood the Surgical
Wards in which from 1861-1869
Joseph Lister
Surgeon to the Royal Infirmary
and Regius Professor of Surgery
in the University of Glasgow
initiated the method of antiseptic treatment.

The second plaque, along with various busts, is inside the lobby of the main entrance, and reads:

LISTER
 From 1861-1869, Surgeon to this
 Infirmary where he originated
 the antiseptic system of surgical treatment.
 Presented to the Infirmary by the past and
 present members of the staff
 1908.

To give some idea of the dramatic success of Lister's antiseptic surgical treatment, when he initiated it in 1865 casualties from operations dropped almost overnight by about two thirds. Yet there were many who for a long time not only doubted the validity of his methods, but positively despised him and considered him a quack.

When Lister died, much of his library was dispersed and sold at auction, but thanks to Professor John Hammond Teacher, some of it was bought in 1913 from the London book dealer Henry Sotheran for the then "horrendous" sum of £29.16.0! and these books are now in a small museum located in the Pathology Department. Actually the major part of this museum is comprised of the pathological specimens of William Hunter (see under East Kilbride), but there are two cases of Lister relics and more may be added when the current renovation of the museum is completed. In addition to Lister's books and manuscripts, there are some of his very interesting and early carbolic acid sprays, a set of his bougies, fermentation tubes and various other instruments. Also preserved is his operating stool and a model of his operating table. The Pathology Department Museum is not open to the public on a regular basis, but permission to see it may usually be obtained by interested visitors.

The Royal College of Physicians and Surgeons of Glasgow
 234-242 St. Vincent Street
 Glasgow

The Royal College of Physicians and Surgeons of Glasgow was founded by Maister Peter Lowe in 1599 under a charter granted by James VI of Scotland. Peter Lowe had spent most of his life up until the age of 50 in the service of the King of France, and was a contemporary of Ambroise Paré (1509-1590) whom he probably knew. It seems likely that he trained in the school at Orleans, and he certainly became a member of the Faculté de Chirurgie in Paris. In any case he set the Royal College of Physicians and Surgeons of Glasgow on a sound footing, which it has maintained ever since, and the college has done an enormous amount over the centuries to advance the cause of medicine. Since the college has had such a long and continuous history, its library contains a copy of virtually every major work published in the field of medicine, and with 300,000 volumes it is one of the great medical libraries of the world. It is interesting that in addition to its priceless medical collections, the library also contains such items as a first edition of Audubon's "Birds of America." For the interest of collectors, a copy of this work was recently sold at Sotheby's in London for over one million dollars!

Joseph Lister was a Fellow of the college, and within the college is a case containing very interesting medical instruments belonging originally to him. They include carbolic acid sprays, a cupping set and microscopes. There is also a so-called "Lister Room" which contains the fireplace from the Lister ward in the Royal Infirmary--a reminder of the main means of heating in those days! The library collections include many books and manuscripts of Lister's, also many of his lecture notes, and even notes taken by his students at his lectures (very valuable to professional historians). They also possess the complete correspondence between Lister and Sir William McEwen (who worked under Lister). This correspondence is very important, because in it is recorded their early ideas concerning the development of antiseptic surgery.

It is a pleasure to record that the premises of the college are beautifully maintained, and continues the tradition of its long history. The college itself can only be used by the Fellows, but interested visitors may ask the Head Librarian to be shown over the building and their priceless collections. I found the staff enthusiastic and cooperative.

The University of Glasgow
University Avenue
Glasgow

The University of Glasgow dates back to 1451. It is one of the main universities of Britain, and has always played a major role in the development of Glasgow and Scotland. Many brilliant people, particularly in science, have studied or developed their ideas there, and their names are recorded on the beautiful front gates of the university. Incidentally, just within the front gates is the Hunter Memorial commemorating the two great Scotsmen William and John Hunter (see also under East Kilbride and London). For our purposes, however, there are two important people closely associated with the University of Glasgow. These are Joseph Lister (see also under Edinburgh and London) and William Hunter.

Lister was Regius Professor of Surgery at the university from 1860-1869, and his great work during these years has been described (above) under the Royal Infirmary. It is remarkable, however, that this great man has left so little trace at the university he served with such distinction! They did have some of his instruments, manuscripts and notes, but even these have been transferred to the Science Museum in London, for incorporation in the "Lister Room" of the new medical science wing (see under London).

Fortunately, it is quite a different story with William Hunter. He attended Glasgow University as a student, but never taught there. However, he always felt that he owed a lot to the university, and when he died he bequeathed to it his huge collections of books and manuscripts, anatomical, pathological and zoological dissections, as well as other items such as minerals and coins. Some of these are housed in the Hunterian Museum, which is open to the public daily 9:00 - 17:00, Saturday 9:00 - 12:00. His art collection is in the Art Gallery, which is also open to the public. His pathological dissections are in the Royal Infirmary, referred to earlier, but

his zoological dissections are in the museum of the Zoology Department of the university, and may be seen upon request at the zoology department office. His anatomical dissections are in the anatomy museum of the Department of Anatomy, and may be seen upon request at the anatomy department office. These anatomy dissections are superb, and are housed in a beautifully well-kept "period piece" museum.

Finally, William Hunter's books and manuscripts are housed in the Special Collections Department of the Main Library, which is just off University Avenue. These may be seen by permission of the librarian in charge. Perhaps their most valued item is not only an original edition of Hunter's "The Anatomy of the Gravid Uterus" (referred to earlier), but also the original hand done illustrations for this by the Dutch artist J. van Rymdyk. There were several engravers. It is very interesting to read Hunter's account in the preface of how the specimens were obtained, and also the time of year they were obtained which was vital to their preservation! The Special Collections Department contains many other priceless medical and biological books, which is consistent with the university's long and distinguished career.

Glasgow is a city not normally on the main tourist route, but it is of great interest for biological and medical history. There are also a host of other cultural aspects. If I may make a suggestion, don't miss a pleasure trip down the River Clyde to "The Isles!"

GOSPORT (Hampshire)

Location - 70 miles southwest of London, on the west side of Portsmouth Harbour.

Train - From London (Waterloo) to Portsmouth and then by taxi or ferry to Gosport.

Road - Take the A3 from London through Guildford and at Petersfield turn right onto the A272 and follow this to where it joins the A32. On the A32 take the left turn to Wickham, Fareham and Gosport.

Gosport is a naval town, and was a major embarkation point for hundreds of thousands of allied soldiers on and after D-day in 1944, and has been a Royal Navy base for hundreds of years.

The Medical Museum
Royal Naval Hospital
Haslar
Gosport, Hampshire

The Royal Naval Hospital, Haslar, is on a spit of land at the southeast tip of Gosport, and as part of the hospital there is a very good medical museum. It is open to the public on a limited basis only, and advanced permission must be obtained by writing the Commanding Officer or phoning

Gosport 070-17-84255. Children are not admitted. Having said this, I had little difficulty and everyone was helpful.

The hospital and the museum were bombed in 1941 and there was much damage. However, everything has been repaired and restored and the medical museum is very interesting. It has three aspects which cannot easily be separated.

1. The purely historical medical aspect.
2. The natural history aspect, which derives from the great Royal Navy voyages of discovery in the 18th and 19th centuries.
3. The superb historical library of about 6,000 volumes.

Some of the priceless books I saw included:

1. "Birds of Australia" 7 volumes, John Gould.
2. "Of the cure of the scurvey" James Lind. 1st edition, 1753, 2nd edition 1757. In which he performed one of the first "controlled experiments."
3. "A Voyage to Jamaica" 1707 by Hans Sloane.
4. "History of the World" Sir Walter Raleigh, 1677. This also contains a history of his life and trial.

There are many collections of medical instruments used by naval surgeons. I mention some of them -- they are quite extensive.

1. Ophthalmic instruments of 1930-1939, which all battleships carried.
2. Superb collections of medical instruments from the English, German and Japanese navies of WWI and WWII, with others going back to 18th and 19th centuries.

There are also many pathological specimens, and displays of tattooing and its dangers. Also some excellent natural history and fossil collections.

Everything in the museum is immaculate, and lovingly cared for by Mr. Tom Parsons, a former Petty Officer in the Royal Navy. The museum is of great interest, and Mr. Parsons very knowledgeable. He will tell you many interesting historical facts -- some with a sigh, such as the abolition in 1970 of the Royal Navy's daily "rum ration"! This was due to the "exacting demands" of the "technical navy."

HEMPSTEAD (Essex)

Location - 38 miles north of London, and about 20 miles south of Cambridge.

Train - From London (Liverpool Street) to Saffron Waldon, and then by taxi to Hempstead.

Road - Take the A11 towards Cambridge, but turn right on the A1063 to Saffron Waldon. At Saffron Waldon take the B1053 to Radwinter and Hempstead.

Hempstead, Essex, is a small village in lovely countryside, but of particular interest, because it is here that William Harvey (see also under Folkestone, Padua and London) is buried, and the village has a long association with the Harvey family.

The importance of William Harvey has been described under Folkestone, his birthplace, so suffice it to say that it is here in Hempstead that his body lies in the very old Parish Church of St. Andrew. The reason for this is that Harvey had no permanent home, but often visited his brother Eliab's home, Wincelow Hall, about a mile from the church. Wincelow Hall was burned to the ground in the 19th century, only the servants' quarters surviving, and a new house has been built on the site of the old. In any case Harvey's tomb is in the Harvey Chapel of St. Andrew Church, and is in very good condition, having recently been restored by the Royal College of Physicians (with which Harvey was so closely associated most of his life). Harvey lies in the center of the chapel in a large sarcophagus made from a single block of Carrara marble. It is very impressive and a fitting resting place for this distinguished man. In a vault beneath the church there lie 49 of Harvey's relatives in plain lead coffins. The vault can only be seen by permission of the vicar, the Rev. Barrie Moss (1979), but if the church is open there is no difficulty in seeing the Harvey Chapel.

MIDDLE CLAYDON (Buckinghamshire)

Location - 55 miles northwest of London.

Train - From London (Marylebone) to Aylesbury and then by bus or taxi to Middle Claydon.

Road - Take the A41 to Watford and Aylesbury. At Aylesbury branch onto the A413 to Winslow and Buckingham, then take the well-marked side roads to Steeple Claydon and Middle Claydon.

Claydon House
Middle Claydon
Buckinghamshire

Opening Hours - This is operated by the National Trust and is open to the public from April to the end of October only. 14.00 - 18.00 daily except Mondays and Fridays when it is closed. There is a small charge for admission and literature is available.

Claydon House has been the seat of the Verney family since 1620. During her life Florence Nightingale (see under London) spent a great deal of time here.

In 1858 Sir Harry Verney (the 2nd Baronet) was married to Miss Parthenope Nightingale, who became Lady Verney and the mistress of Claydon House. She was Florence Nightingale's eldest sister, and for many years after the marriage, Florence was a frequent visitor at Claydon. She had her own bedroom now called Miss Nightingale's Room, and it is beautifully preserved. Many of her personal belongings are here. These include some of her letters, her plans for hospitals, part of her library, prints, nursing badges and some of her own furniture. There is also a portrait of her by W. B. Richmond which hangs over the fireplace, and also photographs of her. Throughout the house there are other reminders of Florence Nightingale's association with it.

Claydon House with its surrounding beautiful park land is a thrilling place to visit, and the association with it of Florence Nightingale makes it even more so.

OXFORD (Oxfordshire)

Location - 60 miles northwest of London.

Train - From London (Paddington).

Road - Take the A40 to the north, which joins the M40 at Denham, and this leads straight into Oxford via Headington.

As early as 872 King Alfred (849-901) founded three seats of learning at Oxford, and these became the nucleus of the University which was well established by the end of the 12th century. For the visitor I cannot recommend too highly the Oxford Information Centre in St. Aldate's --it is a mine of information and they operate "Guided Lecture Tours" on foot, which last about 2 hours. They are popular, and it is well to buy a ticket in advance of departure time. Oxford is not as rich as Cambridge in its scientific heritage, as there was always considerable opposition to science in a clerically oriented institution. Nevertheless in recent times science has flourished, and I will just mention two places of great interest in the history of medicine.

The Main Botanic Garden
High Street
Oxford

Opening Hours - May - September

Weekdays 8.30 - 17.00

Sundays 10.00 - 12.00 and 14.00 - 18.00

October - April

Daily 10.00 - 12.00 and 14.00 - 16.30.

There is no charge for admission and guide books are available.

This was originally founded as a Physic Garden in 1621 and is the oldest in England. Today it is a major center of biological research. However, at the entrance to the Rose Garden, a very important medical discovery is commemorated. It was in Oxford, at a whole variety of places, that the very necessary work of extraction and purification of penicillin was accomplished before it could be used in a therapeutic way (see under St. Mary's Hospital, London). This was done between 1939-1943, and this is recorded on a stone slab. It was given by the Albert and Mary Lasker Foundation of New York, and the names of those responsible for this great achievement are carved on the stone. They are:

E. P. Abraham
C. M. Fletcher
U. E. Forey
N. G. Heatley
J. Orr-Ewing

E. Chain
H. W. Florey
A. D. Gardner
M. A. Jennings
A. G. Sanders

This botanic garden is a great place for the biologically oriented.

The Museum of the History of Science
Broad Street
Oxford

Opening Hours - Monday - Friday 10.30 - 13.00 and 14.30 - 16.00.

The Museum is housed in the Old Ashmolean Building and was established in 1925. It contains an unrivalled collection of early astronomical and mathematical instruments, also instruments of physics, clocks and watches, chemical apparatus, etc. Of particular interest for biologists, is their extensive collection of early microscopes, including a reconstruction of Robert Hooke's compound microscope built before 1665. Hooke's original microscope apparently does not survive, but this reconstruction is based on Hooke's own description in the book, *Micrographia*, published in 1665. There are also fine collections of early surgical and dental instruments, and many things relating to the history of pharmacy. Also on display is some of the apparatus used in the original extraction of pure penicillin, which was done in Oxford (see earlier). The museum has a magnificent historical library in science, and its staff is actively engaged in research into the history of science. All in all it is a great museum for the history of science.

There are many other places of great interest in Oxford, which the guide books explain, but I would like to recommend just two. The superb Ashmolean Museum (Beaumont Street) with its extensive collections of Egyptian, Greek, Roman, Near East and Chinese antiquities. Also the world famous Blackwell's Book Store on Broad Street. In the basement it has a room the size of a tennis court! devoted to academic subjects.

TEDDINGTON (Middlesex)

Location - Southwest of central London near Kingston-on-Thames, but it is now a part of greater London.

Train - From London (Waterloo) by suburban train.

Road - Complicated, and I would not recommend the visitor to drive.

Teddington is the last resting place of Stephen Hales (1677-1761), who was a very important person in the history of medicine. He was the minister of the Parish Church of St. Mary in Teddington for 51 years, and during this time performed brilliant experiments in both animal and plant physiology.

Stephen Hales was born at Bekesbourne, Kent, of an old and prosperous Kentish family, but practically nothing is known of his childhood. In 1696, at the age of 19, he entered what is now Corpus Christi College, Cambridge, and in one capacity or another remained there until 1709, when he was ordained, and went to Teddington as the parish minister. When Hales entered Cambridge, the university was "basking in the glory" of Sir Isaac Newton, who left Cambridge the same year that Hales entered. However, Hales was one of those greatly impressed by the deductive logic of Newton's work, and as a result he took the opportunity of learning some physics and mathematics, which was to stand him in good stead later on. He also learned some natural history and did some early experiments on animals and plants. Amazingly enough, although his major work was yet to come, he was well enough thought of to be elected a Fellow of the Royal Society in 1717.

When Stephen Hales arrived in Teddington, he started his experiments on animals again. However, he soon gave it up, to use his own words, "being discouraged by the disagreeableness of anatomical Dissections." He wished he could apply the same techniques to the study of sap in plants, but despaired of ever succeeding. Nevertheless, he persevered, and in due course his efforts were rewarded. To use his own words again "Having, after other means proved ineffectual, tyed a piece of bladder over the transverse cut of the Stem, I found the force of the Sap did greatly extend the bladder; whence I concluded, that if a long glass Tube were fixed there in the same manner, as I had before done to the Arteries of several living Animals, I should thereby obtain the real ascending force of the Sap in the Stem." So was born the science of plant physiology! Hales took a long time to publish his classic work, but this was finally achieved in 1727 under the title "Statistical Essays containing Vegetable Staticks: Or an Account of some Statical Experiments on the Sap of Vegetables."

Having finally been successful with his experiments on plants, he turned back again to animals, where he succeeded in cannulating both the arteries and veins of several animals (sheep, horses and dogs), and accurately measured their respective blood pressures. This work was published more rapidly and appeared in 1731-33 under the title "Haemastatiks or an Account of some Hydraulick and Hydrostatical Experiments made on the Blood and Blood Vessels of Animals." This was the first time blood pressure was ever recorded.

Of course during all this time his primary duties to his parish came first, and the records clearly indicate he did not neglect them. In 1720 at the age of 43 he married Mary Newce, a parson's daughter, but the marriage ended a year later when she died, probably in childbirth. Stephen Hales was left a lonely man, and he never married again. He had an inquiring mind and was an indefatigable worker. Amongst his other achievements were the measurement of water loss by plants, and he related this to the water present in a given area of soil. He also measured the rate of growth of leaves and shoots, and investigated the influence of light on plants, and was the first to recognize that plants took in carbon dioxide from the air. In addition to measuring the blood pressure of animals, he computed the velocity of blood in the arteries, veins and capillaries, and made the very important discovery that the latter were subject to dilation and constriction, thus greatly affecting blood flow. His contributions to respiratory physiology were impressive, for he distinguished between free gases and the chemically combined forms, measured the size of the alveoli and calculated the surface area of the interior of a lung. He also invented the U tube manometer and measured intrathoracic pressures during normal and forced breathing. He was also a pioneer of public health, and developed a method of distilling fresh water from seawater, and for the preservation of meat and water on long voyages.

In Hales' later years his enormous achievements were recognized, and honors poured in upon him from all over the world. However, he still remained the minister of Teddington until his death in 1761. It is pleasant to record these honors were not confined to his lifetime, for even today the American Society of Plant Physiologists remembers him by making its annual "Stephen Hales Award." He also has a tree named after him, Halesia, a native of Georgia, with which Hales had close connections.

The Parish Church of St. Mary is recorded in the Domsday Book, but it has been rebuilt and modified many times since then, and in the nineteen twenties underwent a complete internal renovation. It is hard to realize that in Hales' day Teddington was a lovely small village, and that he lived the life of a country parson. The church is open at varying times, depending on functions, but is locked most of the time due to the danger of vandalism. However, arrangements can usually be made to see it by applying (preferably in advance) to the vicar, the Rev. Raymond Carter. Stephen Hales is buried at the base of the tower within the church. The inscription on his gravestone is almost completely obliterated with the inevitable wear and tear of over two centuries. However, at present (1985) it is being restored. Right above the grave on the wall of the tower is a plaque erected in 1911, which contains the words of the original inscription. It reads as follows:

Beneath is the grave of Stephen Hales
The epitaph now partly obliterated but
recovered from a record of 1795 is here
inscribed by the piety of certain botanists. A.D. 1911.

Here is interred the Body of
STEPHEN HALES D.D
Clerk of the Closet to the Princess of Wales,
who was Minister of this Parish 51 years.
He died the 4th of January 1761
in the 84th year of his age.

Behind the altar of the church are three beautiful stained glass windows, and one of these is dedicated to Hales with the inscription:

Stephen Hales D.D. F.R.S
who was minister of this parish 51 years
he died the 4th of January 1761 age 84

In the records of the church are preserved some entries in the original handwriting of Hales.

It is really a very pleasant experience to visit this lovely old church, with which Stephen Hales was so closely associated, and I recommend it to all.

This concludes my section on Britain. The next will be France.