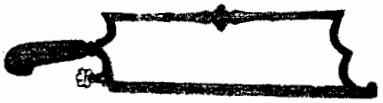
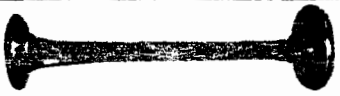
MEDICAL



COLLECTORS



ASSOCIATION

June 1984

Dear Member:

I am delighted to present to you a progress report and the first newsletter of the Medical Collectors Association. You can observe by the letterhead the logo which has been chosen after long and careful consideration. Also apparent is a minor change in name. Some individuals thought that "Club" sounded too informal and, therefore, the word "Association" has been substituted in the name.

The response to a rather casual effort has been extremely rewarding. At the present time forty five people have already joined the association and I am anticipating more from the formal announcement in the newsletter of the Association for the History of Medicine. In this regard, I would greatly appreciate it if any dealer members of the association would include in their forthcoming catalogues an announcement of the organization. The announcement should simply state that a Medical Collector's Association has been formed and further information can be obtained from me at the address below.

The development of a format for a newsletter is not an easy one and I have chosen to allow things to develop in a rather natural manner. Future issues will be dependent upon the active participation of members of the group. I urgently request anyone with any interest in submitting written or photographic material to please do so. Since none of this will be dated it can be submitted at any time and as material accumulates, I can put together newsletters of appropriate size.

Contained in this update is a list of all of the current paid-up members with their addresses and identification as collectors or dealers. I anticipate that a complete list of members will be published with the first letter of each year. I do not plan to update that list during the year, so it will be complete only for the first issue of each year. In addition to the list of members, there is a Wants List and an Offerings List included. As soon as the association reaches a reasonable size, we can consider having specific advertisements for various items. I plan to update the Wants and Offerings List with each issue of the newsletter.

Ongoing sections which are included here and which will be offered in the future include a Patents Section, which contains reproductions of original United States patents and photos of the actual patent models submitted with the applications. An Identification Section includes objects whose identity and use are unknown. The answer to this will be published in a subsequent newsletter if we find it out. Occasionally I would be inclined to publish unusual objects for

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

Mazer Building · Room 324 · 1300 Morris Park Avenue · Bronx, New York 10461 · (212) 931-5770

identification whose use is known by the owner, or objects for which the owner is seeking an ID. Also enclosed is a reprint of an article which I wrote for the JOURNAL OF NUCLEAR MEDICINE and which might serve as a prototype for articles to be submitted for distribution. Items of unusual interest also may be included as photographs.

As time progresses I will begin to formalize these sections. Anyone wishing to contribute any photographic material should do so in black and white, non-glossy finish. Articles should be submitted in a format which is ready for transference to the word processor with as little editing as possible.

Any other ideas for material to be included in the newsletter are greatly welcomed. This should be a community effort, the success of this association depends upon the active participation of all of us.

Individuals who inquired about a meeting should be informed that I am working on this but it will take some time to develop a proper location and format.

I have not yet actively solicited membership from outside the United States, but collectors who have written have been sent applications. There is no limitation on membership and I look forward to receiving the names of individuals any of you may wish for me to contact.

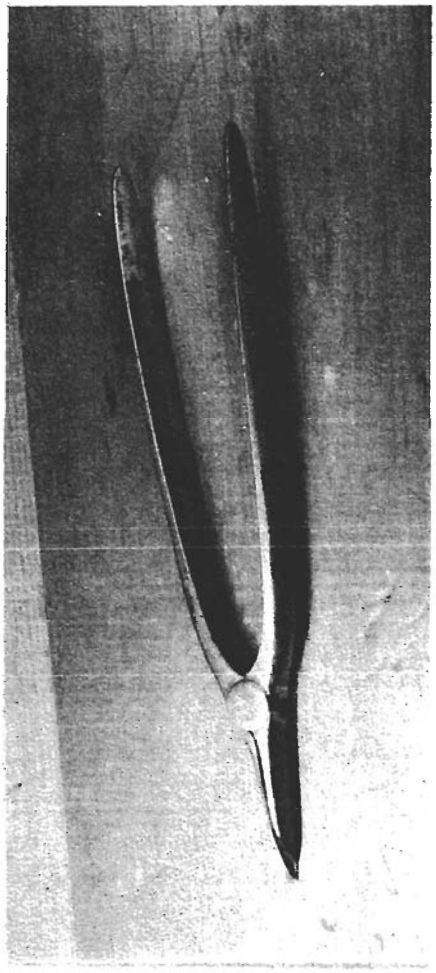
Finally, certificates of membership are being printed and will be mailed to the paid-up members shortly. Please do not hesitate to write to me with your comments and criticism. At the end of this year I will publish a balance sheet to itemize the expenses and let everybody know what membership will cost next year based upon our experiences for this year.

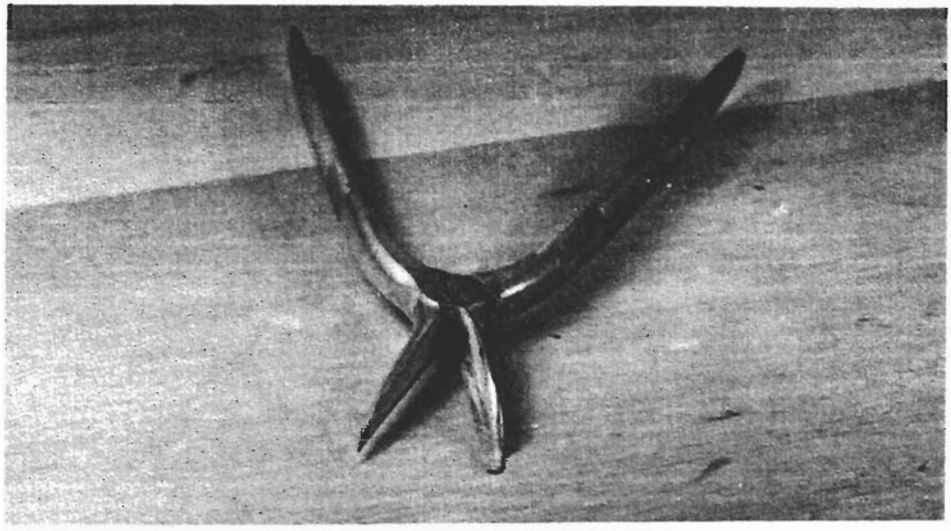
M. Donald Blaufox, M.D.,Ph.D.

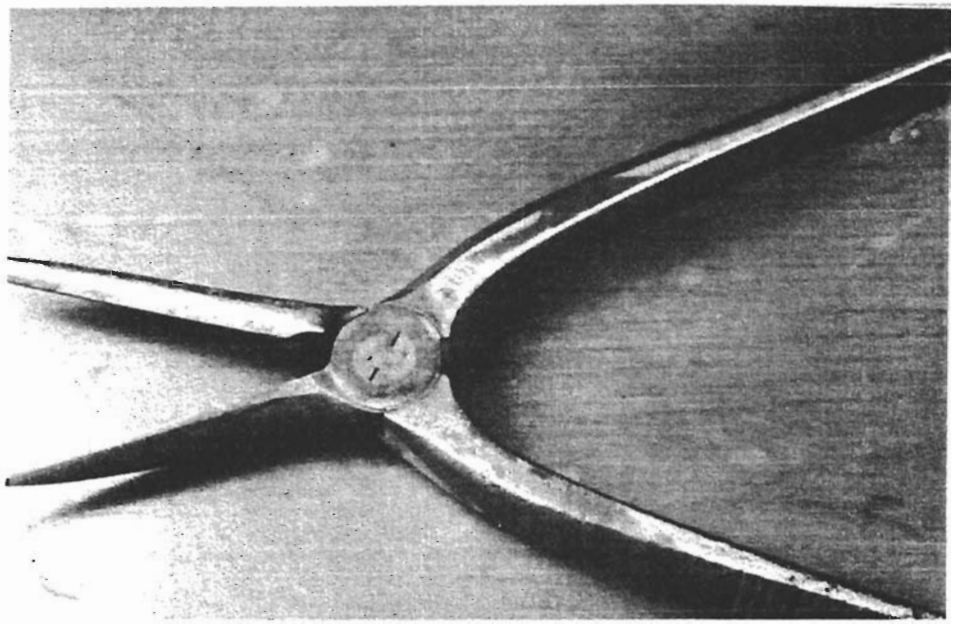
REMEMBER OUR SUCCESS DEPENDS ON CONTRIBUTIONS AND SUGGESTIONS TO THE NEWSLETTER

FROM THE MEMBERS

CAN YOU IDENTIFY THIS? Material: Steel. Date: circa 1850.
Maker: Luer (French). Presumed use: Urologic







I think this is a:

From:

Please return to M. Blaufox, M.D.,Ph.D.

J. W. W. Gordon,

Vaccinating Instrument,

No. 16,478, Patented Jan. 27, 1857.

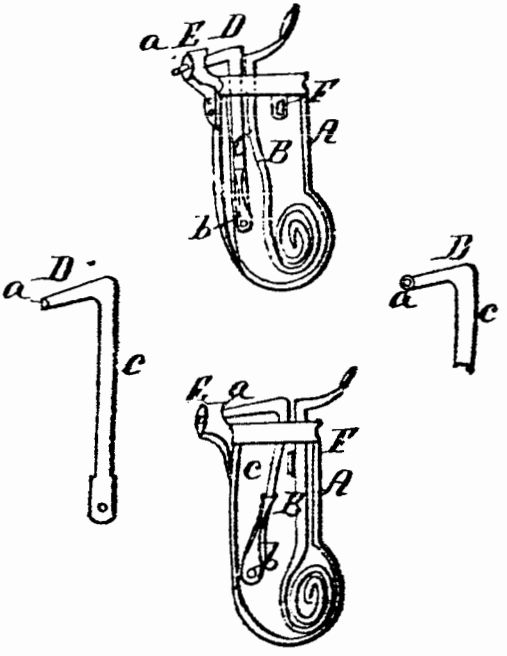
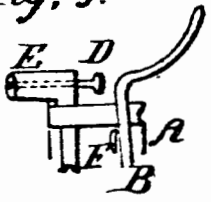


Fig: 5.



UNITED STATES PATENT OFFICE.

JAMES W. W. GORDON, OF CATONSVILLE, MARYLAND.

VACCINATING INSTRUMENT.

Specification of Letters Patent No. 16,478, dated January 27, 1857.

To all whom it may concern:

Be it known that I, JAS. W. W. GORDON, of Catonsville, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Vaccinating Instruments; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

The nature of my improvement consists in so constructing an instrument for vaccinating that by the employment of a cupped end rod or perforator, the virus deposited in said cup may be transferred and deposited, at one operation in the cuticle or true skin at a depth that shall insure its "taking," and without the risk of failure from bleeding at the puncture consequent to the use of other instruments.

The vaccinator may be described as follows: A represents the case of the instrument: B a strong spring: C a driving arm carrying on its upper end the vaccinator-rod D; whose end (*a*) is recessed or cupped for the purpose of holding the virus to be deposited, the edges of said cup, also greatly facilitate the perforation of the epidermis by their sharpness.

E is the tensor, or compressor of the skin, for producing the necessary tightness thereof and also serving as a guide for the depth of deposit of the virus; (it being requisite that a sufficient depth in the cuticle may be obtained, yet without an excess).

b, is a small holding spring moving on the pivot of the arm C, whose office is to keep the arm steady and in place, in its movement.

F is the trigger or catch, similar in its office to that of the ordinary spring lancet.

The term "vaccinator" this instrument truly deserves, as the operation of perforating the skin and introducing the virus is but one operation.

The manner of using it is as follows. Having charged the small cup on the perforator rod with semi-fluid virus or liquid matter, or that rendered so, the arm and rod D are drawn back a slight distance from the face of the tensor E; the tensor is then pressed with its face in contact with the flesh of the subject, and while so held the spring is liberated by pressing on the trigger: the arm *c*, being forced forward, the perforator rod, D, is driven into the cuticle and the virus deposited. The tensor also serves as a guide to the perforator.

The character of the incision is such by the minuteness of the puncture, that the constriction of the cuticle completely prevents any flow of blood, and consequently all liability of washing out the virus is obviated, thus rendering any further attention, such as applying court plaster, &c., over the puncture unnecessary.

Fig. 5 exhibits a modification of the instrument.

In the employment of my vaccinator I have found that by giving a slight obliquity to the entrance of the charged cupped perforator as it passes into the cuticle, that a flap is formed of the epidermis which effectually closes the orifice of the puncture and thus prevents bleeding.

Having thus described by improvement what I claim as my invention and desire to secure by Letters Patent is,

The application of the cup shaped perforator rod D to the ordinary spring lancet in the manner and for the purpose set forth.

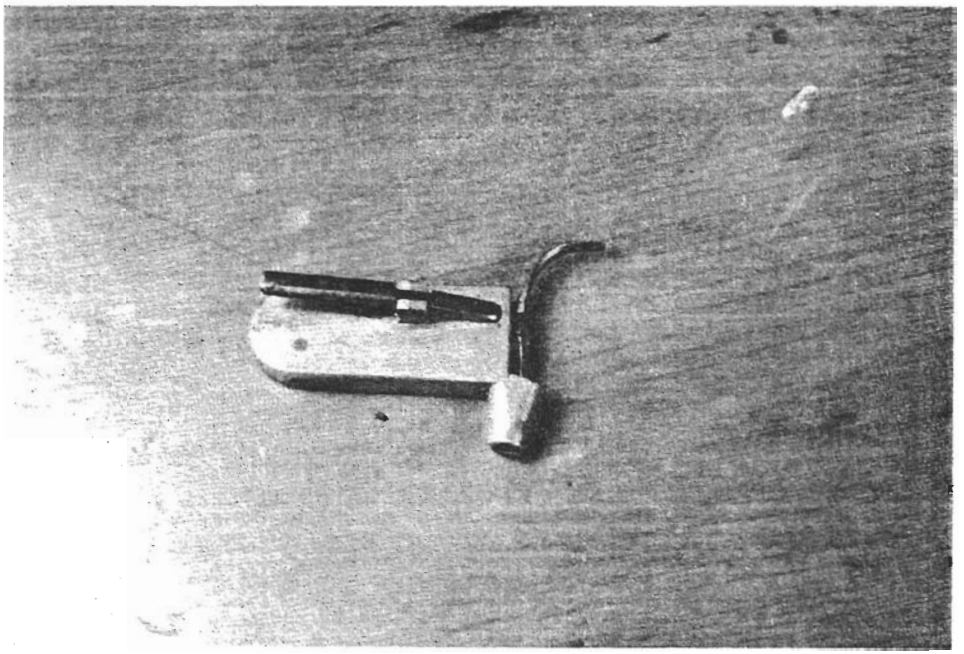
In testimony whereof I have signed my name before two witnesses.

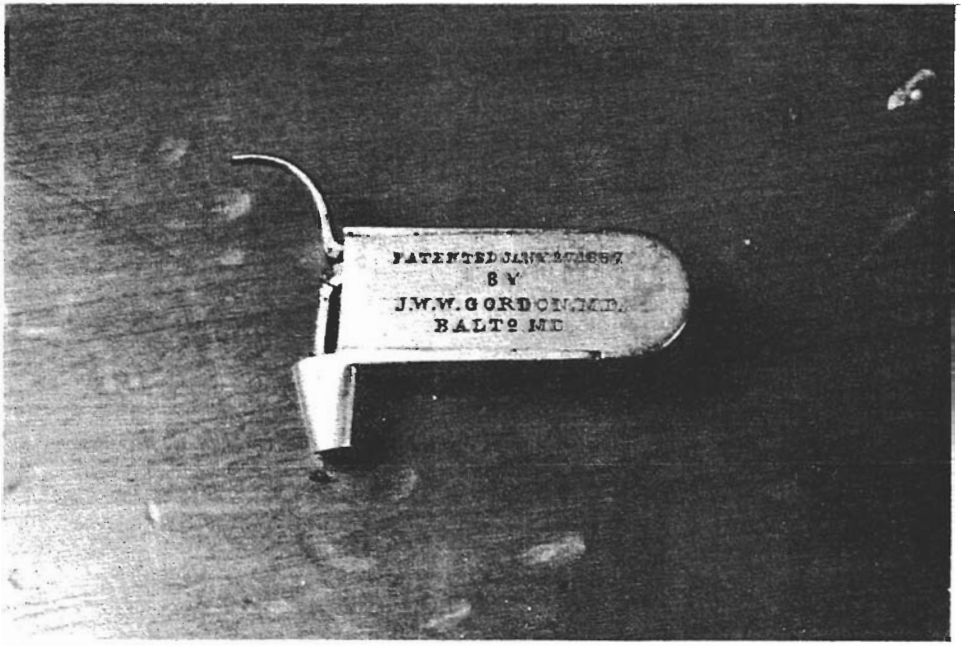
J. W. W. GORDON.

Witnesses:

JOHN F. CLARK,

JOHN S. HOLLINGSHEAD.




PATENTED JAN
BY
J.W.W. GORDON M.D.
BALTO MD

J. F. Tozer,

Vaccinator.

No. 7,560. Patented Aug. 13, 1850.

Fig. 1.

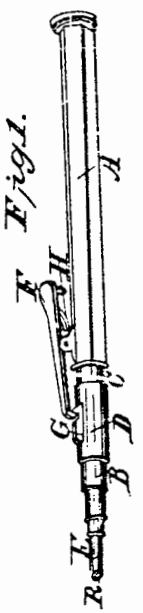


Fig. 2.

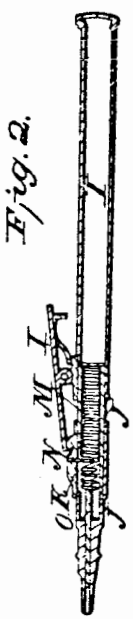


Fig. 3.

UNITED STATES PATENT OFFICE.

J. F. TOZER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN INSTRUMENTS FOR VACCINATING.

Specification forming part of Letters Patent No. 7,560, dated August 13, 1850.

To all whom it may concern:

Be it known that I, JUNIUS F. TOZER, of Rochester, in the county of Monroe and State of New York, have invented a new and useful instrument for the use of surgeons in performing the operation of vaccination, called a "Vaccinator;" and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my vaccinator complete, ready for use. Fig. 2 is a longitudinal section through Fig. 1. Fig. 3 is a perspective view of the inserting-point, enlarged.

A, Fig. 1, represents the handle.

B C, Fig. 1, represent a stationary cylinder, which is fastened into the handle A, Fig. 1.

D, Fig. 1, is a sliding cylinder, which moves on the stationary cylinder B C, Fig. 1.

E, Fig. 1, is the inserting-point.

F, Fig. 1, is a thumb-key.

G, Fig. 1, is a catch, which is fastened to the sliding cylinder D.

H, Fig. 1, is a spring fastened to the under side of the thumb-key F, Fig. 1, by means of which the point of the thumb-key is kept down into the catch G, Fig. 1. Within the cylinder B C, Fig. 1, there is a spiral spring, which acts against a pin, which passes down through the catch G, Fig. 1. This pin, which passes down through the catch G, works in a slot in the stationary cylinder B C. By means of the spiral spring acting against the pin, the sliding cylinder D is driven forward in the direction of B, when the end of the thumb-key, at F, is borne down, so as to raise the point of the thumb-key and of the catch G.

I, Fig. 2, is a section of the handle.

J J, Fig. 2, is a section of the stationary cylinder, (represented B C, Fig. 1.)

K, Fig. 2, represents a section of the catch G, Fig. 1, which is connected with the sliding cylinder D, Fig. 1.

L, Fig. 2, represents a section of the thumb-key, (represented F, Fig. 1.)

M, Fig. 2, represents a spring within the cylinder.

N, Fig. 2, represents the pin which passes down through the catch into the spring M, and compresses the spring M when the catch connected with the sliding cylinder is held back by the key, as represented in Figs. 1 and 2.

O, Fig. 2, represents a section of the injection-piston, which is connected with the spring M, and works in the tube or inserting-point, (represented E, Fig. 1.)

P, Fig. 3, represents the inserting-point (represented E, Fig. 1) enlarged.

I, Fig. 3, represents the end of the inserting-piston when it is driven forward by means of the spring M, Fig. 2.

Having described the parts of my instrument, I will now describe its operation or manner of using it.

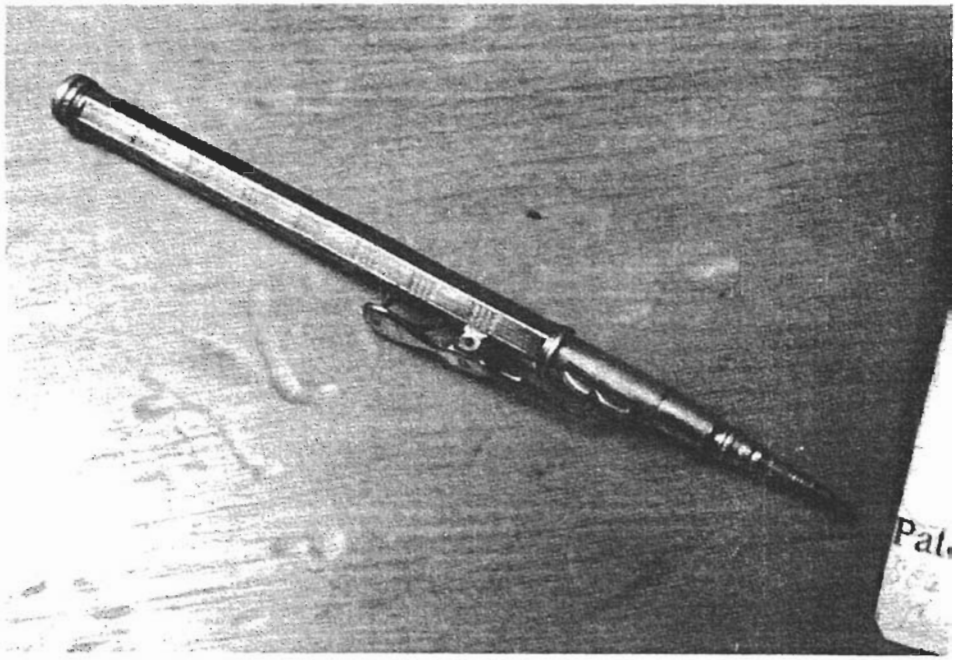
With the point of a lancet I make an incision in the arm of the person to be vaccinated. I then place a small particle of the infection-scab into the end of the inserting-point at R. I then place the inserting-point R, which is cut off obliquely, into the incision made in the arm, which keeps the incision open, and by pressing down the thumb-key at F, Fig. 1, the opposite end of the key is raised out of the catch G, and, by means of the spring within the cylinder B C, the infection-piston is driven forward, and the piece of scab or infection is driven forward into the incision. When the infection-piston is driven forward by means of the spring, it comes out of the inserting-point E at R, as represented I, Fig. 3. After the scab or infection is inserted into the incision, I place over it a piece of court-plaster, or something of a similar nature, and the operation is completed.

What I claim as my invention, and desire to secure by Letters Patent, is—

The sliding cylinder D, in combination with the thumb-key F, spring M, and piston O, for the purposes herein described and set forth.

JUNIUS F. TOZER.

Witnesses:
E. H. HURD,
C. M. MATHERS.




No. 7,560
Jozer.
Vaccinating
Instrument.
Patented August, 13th
1850

Antique Hazards: A Latter Day Encounter with Radium

M. Donald Blaufox and Anthony R. Constable

Albert Einstein College of Medicine, Bronx, New York, and St. Paul's London Hospital, London, England

J Nucl Med 24: 79–82, 1983

During a visit to Europe last fall, I (M.D.B.) chanced upon an auction of antique medical instruments, and, as an active collector, I could not resist leaving a bid on a sphygmograph (Fig. 1). This late-nineteenth-century device for recording the pulse was offered as part of a lot that included a Morton's ophthalmoscope and several unlisted items in a carton. My bid was high, and a large carton of carefully wrapped objects was shipped to me. The sphygmograph was at the top of this "grab bag", which included a variety of other items, mostly related to optics. A small wooden box in the carton contained some cotton-like material and two vials; on one side of one vial was handwritten "Radio Varnish", and on the other vial "Spirit of Turpentine". The reverse side of both vials was labeled "F. H. Glew, Surgical Radiographer, Silver Medal (Highest Award, Paris 1900), 156 Clapham Road, London S.W." (Fig. 2). These rather innocuous-looking objects containing an unidentified clear fluid were of particular interest, since in England the surgical radiographer was the rough equivalent of the radiological technician in the United States, and I thought perhaps I had happened upon some objects historically related to the use of radiation. Shortly thereafter a small corked vial was retrieved from the box containing about three cm^3 of a course pink powder (Fig. 3). Much to my dismay this vial was labeled "Radium Compound" "0.4 Admiralty Specification" "2 gr". Although I assumed that the original contents must have long since been discarded, as a matter of precaution I borrowed a survey meter and discovered that the area in my office, where I had been unwrapping the materials, was the source of 5000–10,000 cps above background. Each of the instruments in the carton, most of which had their original cases, was a source of surface radiation that was best measured with a gas-flow counter and was in the range from three to five times background. There was no question that the vial marked radium did indeed contain radioactive material and that all of the instruments in the box had somehow been contaminated. In reconstructing the process, it was our assumption that the poorly sealed vial of radium had leaked radon, which, decaying within the confines of a box, deposited polonium all over the instruments, leaving a radioactive residue (Fig. 4).

On further surveying of the radium vial, it turned out that it contained about 17 μCi of activity and gave an

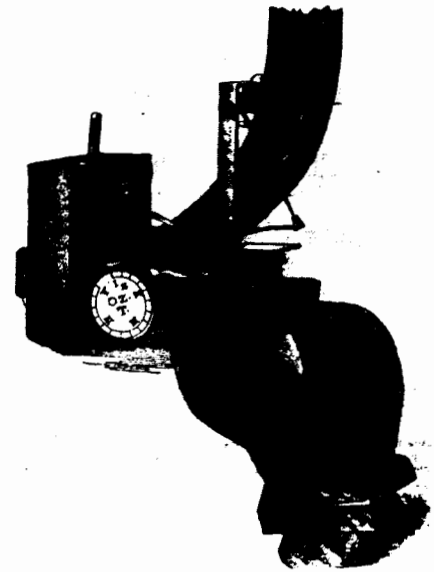


FIG. 1. Picture of a sphygmograph (circa 1890), an early device for recording the pulse. This is Dudgeon's type, which has a pressure-sensitive plate and is strapped to the wrist. Pulsations are transmitted through the plate to a needle that records on a piece of smoked paper moving through the drive mechanism. Result is a tracing of the shape of the pulse, and was surprisingly reliable in the diagnosis of a wide variety of heart diseases.

Received Aug. 2, 1982; revision accepted Aug. 9, 1982.

For reprints contact: M. Donald Blaufox, MD, PhD, Albert Einstein College of Medicine, Bronx, NY.

FIG. 2. Vials of radioactive liquid, the subject of this discussion. Note inscription: F. H. Glew, Surgical Radiographer.

exposure of about 10 mR/hr at the surface. The residue left on the wrapping in the carton, which measured approximately 8 ft^3, gave an exposure of about 1 mR/hr at the surface. Approximately 1.7 μCi and 2.8 μCi was contained in each of the two vials of liquid, which looked rather innocuous and whose labels did not at all imply their radioactive content.

As a result of these findings, I notified the auction house from which the materials had been purchased, and a most interesting series of facts emerged. Mr. Constable, whom I recommended at the request of the auction house, agreed to investigate the origin of the radioactive material. The auction house arranged for Mr. Constable to survey all possible locations of the package immediately for any possible radioactive contamination, and none was found. An unrelated source was discovered coincidentally, namely, a military prismatic compass

FIG. 3. The vial of radium itself. First standard of radium was prepared in 1911 by Mme Curie, and consisted of 21.99 mg of pure anhydrous radium chloride. Honigschmid prepared the modern standard in 1934. Radium was discovered in 1898, shortly after the description of radioactivity in 1896 by Becquerel. If all of the activity is 2 g, as indicated, this would presumably be 120 mg of a mixture containing radium bromide or a similar compound.

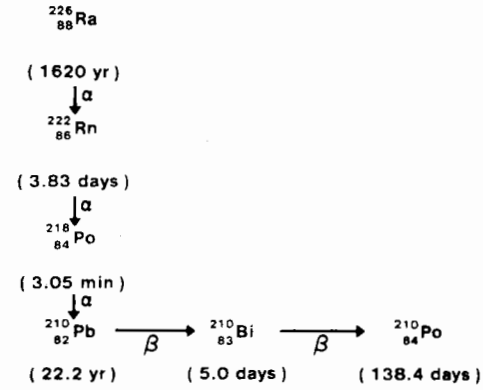


FIG. 4. Modified decay scheme for radium. Solid long-lived radium-226 decays by α emission to radon, a gas that decays by further α emission to polonium-218 (radium A), a solid, which would be deposited in the radon environment. A series of short-lived intermediates then arise through α and β decay in the Pb → Bi → Po series. The more important of these are diagrammed including Pb-210 (radium D), Bio-210 (radium E), and Po-210 (radium F). Pb-210 and Bi-210 are β emitters; Po-210 decays by α emission to stable lead-206. Gamma activity is emitted as well in the course of decay.

which contained about 5 μCi of radium serving to illuminate the dial.

The radium that was among the medical antiques was found to have originated from Dr. John Trotter, an 82-year-old physician of Kilcreggan in Dumbartonshire, Scotland. Mr. Constable visited Dr. Trotter, who explained that the radium and other items had been stored in a bookcase in his father's house and had not been touched for at least 50 yr. His father had died in 1940. Interestingly, the house in which the box had been stored was sold in 1981 to a naval armaments man based on an American nuclear submarine. Dr. Trotter had sent the carton, largely untouched, to the auction house, but he had removed five photographic items. These included developed photographic plates marked 1908, and an Ensign miniature camera from about 1925. They were contaminated with beta emitters whose energies, by liquid scintillation counter, were compatible with lead 210 and bismuth 210. The house where the material had been kept was located at Clynder on property near an American nuclear submarine base. A thorough survey of the entire premises did not reveal any remaining radium. The bookcase had been sold to a local antique dealer and was traced to Glasgow, where the National Radiological Protection Board monitored it and discovered it to be free of radioactivity, confirming that all of the activity had arisen from the radium vial within the confines of the carton and had been deposited on the items because they were sealed in the same container.

Dr. Trotter's father was Mr. John Trotter, an optician of Glasgow. The elder Mr. Trotter, who was the source of the instruments, lived in the large Victorian house at Clynder where Dr. Trotter had spent his childhood. John

was an inventive man and, in 1895, when he heard about Roentgen's discovery of x-rays, he became interested in the subject and constructed his own equipment in the basement of his shop. It was to this basement that the first patients to be x-rayed at the Glasgow Western and Victoria infirmary were brought by horse-drawn ambulance. The instruments found associated with the radium date from approximately the same period (1895–1910). It seems likely that he used the radium for a number of applications, and although there is no record of his having been involved at any point in therapy, it certainly is possible that he or perhaps a colleague was using it for this purpose also. Several prominent Glasgow physicians were associated with Mr. Trotter, including Dr. McGregor, Superintendent of the Glasgow Victoria Infirmary; Col. McIntosh, Superintendent of the Western Infirmary; and Sir George Beatson, of the old Glasgow Cancer Hospital, now the Beatson Memorial Hospital. Mr. Trotter was also a friend of Lord Kelvin.

The radium used by Mr. Trotter originated from Frederick Harrison Glew, a chemist in London. Mr. Glew worked with and contributed to the development of x-ray tubes and published an arteriogram performed on a stillborn infant in 1899. Most of his work was with radium, and he served as advisor to the Ministry of Munitions during World War I. He developed severe radium burns on his hands and died around 1920, presumably of radiation poisoning. He was most active in this field between 1900 and 1910, and is named on the Hamburg memorial as one of the martyrs to radiation.

There are many ironies in this whole adventure, including the fact that the antiques were bought by someone in the practice of nuclear medicine and alert to its hazards. The house from which they originated is near the nuclear submarine base at Coulport and occupied by personnel from that base. The lesson for modern times is, of course, that even at this late date significant contamination with radioactivity from old radium salts is still quite possible, and a variety of sources of this material exist. Antique dealers involved with medical or scientific instruments should be careful about the kinds of things they may encounter, and especially those that may be dangerous. In some ways this is not unlike the recent observation by the NRC of a significant amount of radioactive contamination in gold rings manufactured with radioactive materials that had been discarded as waste.

The discovery of radium captured the imagination of lay people and scientists alike. This remarkable source of radiation at the turn of the century was popularly endowed with magical powers. The dangers were scarcely appreciated, even after investigators experienced repeated radiation burns. Many texts provide laborious calculations of the energy available from radium and

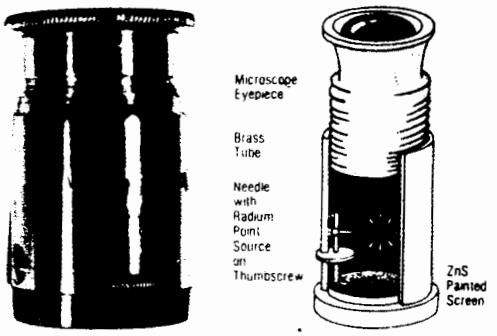


FIG. 5. Crookes spinthariscope. This device consists of a microscope eye piece with a brass tube at the far end of which is a screen painted with ZnS. A needle inserted in the tube is first dipped in a dilute solution of radium, which serves as a permanent source of activity. As the thumbscrew is moved, the needle moves closer to the fluorescent screen, generating bright flashes of light. The device was invented in 1903 (*spintharis* is Greek and means spark). It actually turned out to be useful scientifically, for Rutherford modified it, in 1908, to measure the charge of the α particle. Left is from author's collection, right from M. Brucer, reproduced with permission from Vignettes in Nuclear Medicine #99, Fig. 1, Mallinckrodt, Inc., St. Louis, 1981.

some individuals regarded radium as an investment. Soddy points out that the price of a milligram of radium rose from 8 shillings to 15 pounds between 1903 and 1912. Tousey noted that one gram of highly purified radium sold for $80,000 in 1909 and had increased 50% by 1914.

The fascination is perhaps exemplified by the fact that the spinthariscope—an early scintillation detector of alpha rays emitted by radium and invented by Sir William Crookes—could be purchased easily at a local optician's for a few shillings (Fig. 5).

Because of the mystery and lack of understanding of radium it was used for many medical purposes: It could be applied by an applicator in which radium was deposited or one on which it was painted in a solution of shellac (perhaps the use of Mr. Trotter's shellac but more likely used for luminescence applications). Radium was used in baths. Inhalations of air laden with radon were used, although it was known that "small animals which are allowed to breathe only air pretty well saturated with it die very quickly from its effects". Radium was applied locally in lupus, verruca, eczema, psoriasis, nevi, alopecia, keloids, arthritis, epithelioma, carcinoma of the breast, and even tic douloureux. Radium is also mentioned as having a tonic effect on the heart.

With all of these possible uses, it is actually surprising that radium does not turn up more often. In seeking freedom from disease it has been demonstrated repeatedly that people will eagerly grasp at each new discovery, only to learn the consequences after considerable harm has been done.

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