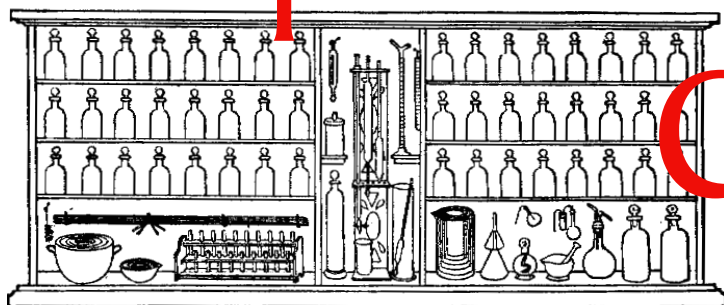


# Apothecary's Cabinet



No. 2, Spring 2001

News and Notes from the American Institute of the History of Pharmacy

## A Century of Change: The Coming of Miracle Drugs

The history of drugs in the 20th century has completely changed the face of therapeutics. Many illnesses that would have crippled, tortured, shamed, and doomed the patient have been vanquished, to such an extent that the overall life expectancy in the United States—47 in 1900—grew to 75 in the 1990s. In part this resulted from public health advances, improvements in surgery, and medical technology, and changes in lifestyle. But to a significant extent this is the outcome of a vast network of dedicated researchers, evolving sciences, committed institutions, economic and political circumstances, and courageous practitioners and patients that

together created a revolution in drug therapy and the way we deal with disease.

Many of the earliest therapeutic advances in the period under study originated in Germany. In 1890 Emil von Behring and Shibasaburo Kitasato in Berlin drew on work about the nature of immunity and the specific character of diphtheria when they discovered an effective antitoxin for diphtheria from blood serum of

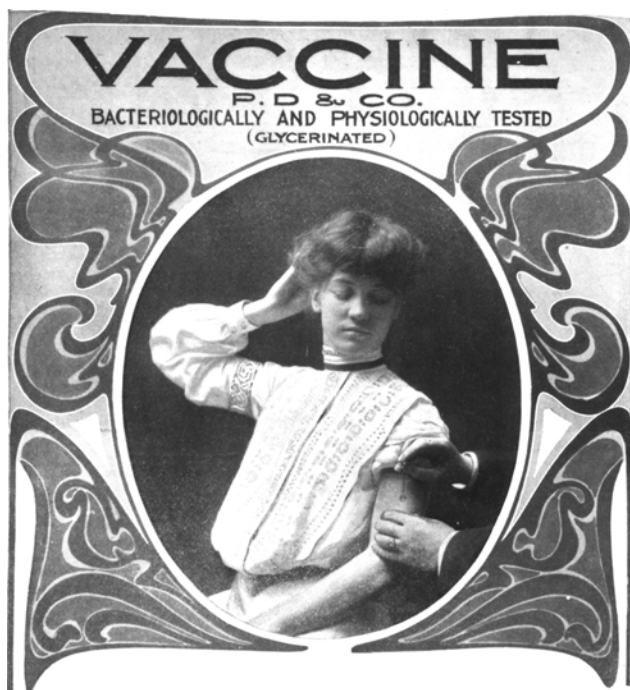
animals injected with diphtheria toxin. This effort launched a wave of interest in controlling infectious diseases through so-called serum therapy. With varying degrees of success, researchers used serums against tetanus, typhoid, rabies, pneumonia, meningitis, and other diseases.

Paul Ehrlich's contributions, which earned him the accolade of "father of chemotherapy," had an even broader

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The American Institute of the History of Pharmacy is a unique organization dedicated to the preservation of pharmacy's heritage. The *Apothecary's Cabinet* is a new publication from AIHP that takes a popular look at the history of pharmacy in its many facets. We welcome your comments and submissions.

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*Parke Davis & Co. emphasized the scientific basis of their product testing in this 1903 advertisement. (From The Apothecary and New England Druggist, 1903.)*

impact on therapeutics. Stemming from his earlier work on the selective affinity of certain tissues for certain dyes, Ehrlich showed the world that one could design a compound to attack a specific disease organism—a “magic bullet”—when he introduced arsphenamine (Salvarsan, or 606) as a treatment for syphilis in 1910. Ehrlich’s work generated enthusiasm for the chemotherapeutic approach, but researchers for the most part failed to develop any chemical

agents against bacterial diseases for a quarter-century after arsphenamine.

Though the germ theory of disease was the essence of chemotherapy, it was useless in—and even hindered—understanding deficiency diseases that resulted from the absence of a vital substance. For example, beri-beri investigators isolated about two dozen organisms, each allegedly the culprit in this disease. Agricultural chemists at Wisconsin and Yale who were researching nutrition were among those in the first third of the 1900s to link the lack of specific trace nutrients with several diseases. Basic advances in endocrinology and hormone deficiency diseases preceded several notable developments in this area. For example, John J. Abel and Jokichi Takamine discovered epinephrine (Adrenalin) at the turn of the century. Edward Calvin Kendall isolated thyroxine in 1914 as a treatment for goiter, and 34 years later he and colleagues unveiled cortisone, which spawned scores of compounds for symptomatic relief of rheumatological, dermatological, and other ailments. Perhaps the most celebrated discovery came in 1922, when Banting, Best, Macleod, and Collip at Toronto announced the discovery of insulin as a treatment for diabetes mellitus. One of the most culturally prominent developments to come out of this field was the introduction of the contraceptive pill by Gregory Pincus and others in the late 1950s.

When Gerhardt Domagk of I. G. Farben began his search for a chemotherapeutic agent

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THE AMERICAN INSTITUTE OF THE HISTORY OF PHARMACY is incorporated under Wisconsin statute 180 as a non-profit organization devoted to advancing knowledge and understanding of the place of pharmacy in history. It publishes *Pharmacy in History*, *Apothecary’s Cabinet*, occasional monographs, and pamphlets; it fosters humanistic teaching in pharmaceutical education; confers awards for outstanding achievement in its field; sponsors historical meetings and exhibits; collects and preserves source materials; and serves as a center for research and information.

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against bacterial diseases in 1927, most researchers had given up hope that such a treatment would ever be found. In 1932 Domagk discovered that an azo compound cured mice of hemolytic streptococcal infections. Soon after Farben introduced this compound as Prontosil in 1935, workers at the Pasteur Institute found that only one-half of the molecule was responsible for its therapeutic activity, a substance called sulfanilamide, which had been prepared almost 30 years earlier. This discovery led to a litany of molecular modifications by World War II that lessened sulfanilamide's toxicity, broadened its therapeutic impact, and facilitated its administration. Effective against many streptococcal, meningococcal, and pneumococcal infections, the sulfa drugs quickly superseded serum therapy.

The rise of penicillin and the antibiotics represents the golden age of chemotherapy and arguably was the most important development in therapeutics of any kind. Penicillin was isolated by Alexander Fleming in 1928, but its clinical value was not known until Howard Florey, Ernst Chain, and their colleagues announced their results in 1940. Penicillin was comparatively nontoxic, and certain staphylococcal, streptococcal, and other infections that even the sulfas could not treat were susceptible to it. A crash wartime program in the United States and the United Kingdom led to mass production of penicillin by 1945. In the course of the project, researchers learned valuable information about the antibiotic's chemistry that stimulated creation of improved semisynthetic penicillins in the next decade.

A frenzy to discover other antibiotics in soil, sewage, rotting foodstuffs, and pathological specimens—anywhere microorganisms might exist ensued. Selman Waksman and his colleagues discovered streptomycin in 1943, the first chemotherapeutic agent for tuberculosis. The same family of soil microorganisms from which streptomycin was isolated produced chloramphenicol (Chloromycetin, 1947), the first broad-spectrum antibiotic and the first to be manufactured synthetically, and the tetracyclines chlortetracycline (Aureomycin, 1948) and

oxytetracycline (Terramycin, 1950), also useful against a wide range of pathogens. In 1948 Florey's group analyzed a fungus, recently discovered by Guiseppe Brotzu, that produced an antibiotic active against a wide spectrum of pathogens. This was cephalosporin C, the first of that class. Among other qualities, this agent overcame some of the resistance difficulties encountered with penicillin. There has not been a new class of antibiotics introduced in nearly 40 years. That, coupled with the rise of resistant pathogens concomitant with irresponsible use of the antibiotics, has renewed concern about the therapeutics of bacterial diseases.

Just as the sulfas and antibiotics completely changed the treatment of infectious diseases, a host of post-World War II products had an equally dramatic impact on psychoses and neuroses. J. F. Cade discovered the value of lithium salts in bipolar disorder in the late 1940s, but this did not achieve widespread adoption for another quarter century. French surgeon Henri Laborit's search for a drug useful against surgical shock in 1949 led him to discover the ataractic side effect of chlorpromazine (Thorazine), which was introduced into



*Photomicrograph of penicillin-producing mold growing on agar. The branching ends give the genus its name of Penicillium, from the Latin for brush. (From A Review of the Present Information Concerning Penicillin, Abbott Laboratories, 1944.)*

psychiatry in 1952 and immediately reduced the need for hospitalization. Meprobamate (Miltown), which arrived in 1953, was the first of several popular minor tranquilizers that included chlorthalidopoxide (Librium, 1960) and diazepam (Valium, 1963). Fluoxetine (Prozac), first marketed in 1987, has achieved near legendary status in a wide array of disorders.

Cardiovascular diseases and cancer are the leading causes of death in the United States today, and a variety of products have emerged to fight these illnesses. Cancer has come under attack from several lines of inquiry. Charles Huggins' investigations in the 1930s revealed the value of hormones in treating some cancers. In 1940 he reported that diethylstilbestrol caused the regression of prostate tumors. His results were confirmed and extended by others; for example, the demonstration of the value of tamoxifen (Nolvadex) in breast cancer in 1971. Famed textbook authors Louis Goodman and Alfred Gilman discovered a less bellicose application of a poisonous gas in wartime. Their research in the 1940s helped uncover the antineoplastic properties of the nitrogen mustards and similar compounds. Mechlorethamine (mustargen or mustine) was the most prominent product of this wartime research program, which preceded the introduction of chlorambucil (Leukeran, 1952) and other alkylating drugs.

The development of antimetabolites supplied another major means of treating cancer. Sidney Farber demonstrated the value of the folic acid antagonist aminopterin in acute myeloid leukemia in 1947. A similar but safer drug, methotrexate (Methopterin), emerged in the same year. George Hitchings' studies of the biosynthesis of nucleic acids in the 1940s yielded the purine antagonist 2,6-diaminopurine, but it was supplanted by 6-mercaptopurine (Purinethol), which Burroughs Wellcome introduced in 1952. Other useful drugs in cancer have come from plant alkaloids, such as the isolation of paclitaxel (Taxol) from the Pacific yew (1966) and the serendipitous discovery of vinblastine (Velban) in 1958; mitomycin (1956), doxorubicin (Adriamycin, 1967), and other rare antibiotics that have antitumor activity; and the prod-

ucts of accidental discoveries, as was the case with cisplatin (Neoplatin), which came on the market in 1978.

Some of our most useful cardiovascular drugs were around long before the 20th century, but 20th-century research brought many drugs to bear on hypertension, arrhythmia, and other elements that compromise cardiovascular function. Nitroglycerine's antianginal effect on smooth muscle led researchers at Hoechst to develop the antispasmodic fenpiprane (Aspasan) in 1942, a prototype for what came to be identified as calcium antagonists, such as prenylamine (Synadrin, 1958), verapamil (Cordilox, 1962), and diltiazem (1971). One of the earliest developments in the search for antiarrhythmic drugs came in the 1910s with the revelation that quinidine, the optical isomer of quinine, possessed marked antiarrhythmic action. Surgeon Frederick Mautz, reasoning that a local anesthetic applied directly to the heart would alleviate this condition, had favorable results in 1936 with procaine. Procainamide (1951) overcame some of procaine's problems, though there was difficulty maintaining plasma levels of procainamide, a problem that disopyramide (Norpace or Rhythmolan, 1962) solved.

Quite different lines of research have produced the most innovative drugs for hypertension. Raymond Ahlquist theorized in 1948 that two different types of receptors existed for adrenalin and similar substances. Irwin Slater and colleagues at Lilly verified Ahlquist's ideas in 1957 when they discovered that the bronchodilator isoprenaline acted as an adrenalin antagonist on the heart. Three years later, James Black and others at Imperial Chemical discovered an effective beta-adrenergic blocker, pronethalol (Alderin), that acted singularly on the heart. Modeled on pronethalol, ICI's propranolol (Inderal) went on the market in 1964.

In a tradition that hearkened back to Ehrlich, Withering, and even Paracelsus, in 1919 Viennese medical student Arthur Vogl observed the powerful diuretic effect of the relatively new mercurial merbaphen (Novasurol), which he was administering for syphilis. Within five years another mercurial, Mersalyl, superseded



*Though this essay focuses on ethical pharmaceuticals, patients frequently reached for patent medicines like Mrs. Winslow's Soothing Syrup for amelioration of their complaints, particularly before 1906, when such nostrums were unregulated in this country. Mrs. Winslow's, for example, was a teething syrup laced with morphine and alcohol (and labeled for neither) that killed many babies. (AIHP Slide Talk, "Nineteenth-Century Proprietary Medicine Trade Cards," by William H. Helfand.)*

merbaphen. Observations of the diuretic effect of sulfanilamide and the challenge of fashioning a drug that facilitated salt excretion led to the discovery of chlorthiazide (Saluric) by Karl Beyer and colleagues at Merck Sharp and Dohme. Introduced in 1957, it became the template for numerous subsequent thiazide diuretics.

Space unfortunately prevents a discussion of other important changes in pharmaceutical therapeutics in the 20th century, such as the growth of anesthetics, analgesics and their popularity, antivirals and their impact on AIDS

(and vice versa), and many other advances. But this is intended only as a quick walk—or more accurately a gallop—through the history of therapeutics, to convey a sense of how things have changed during the past 100 years. This summary has not developed one area that pharmacists know well: that every product mentioned here has had adverse effects on patients, some certainly more than others. Any celebration of a century of progress in therapeutics should never forget this, nor the importance of constant vigilance, communication, education, and, of course, research into new and better pharmaceuticals.

*by John P. Swann\**

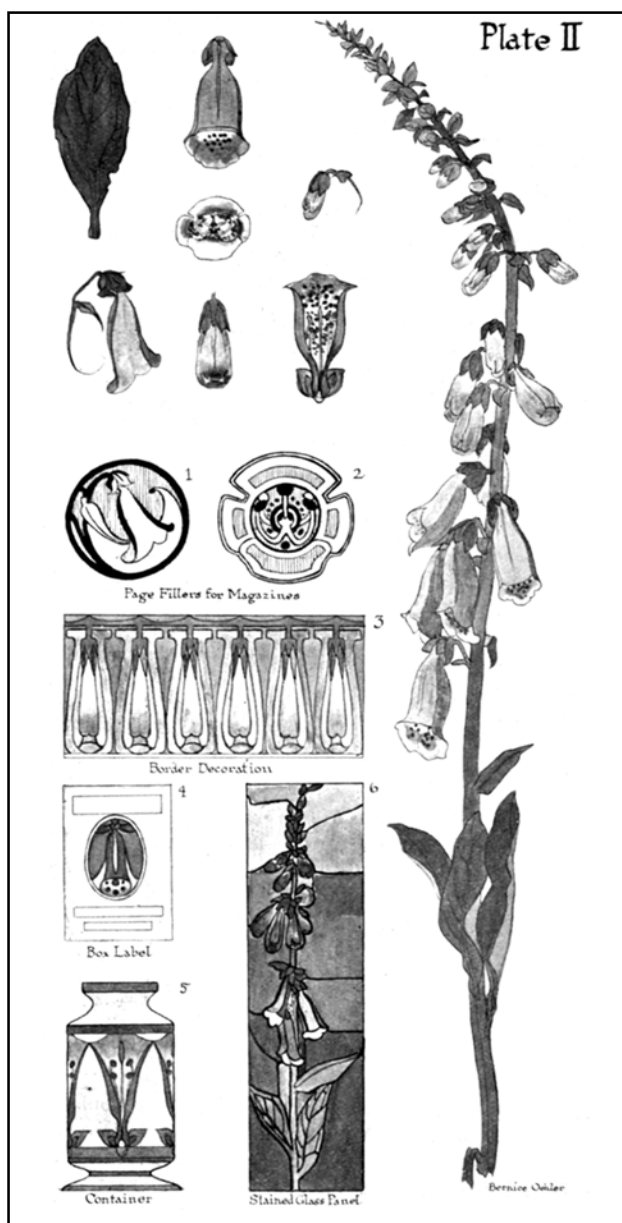
\*Historian, Food and Drug Administration. This article was originally published in *Pharmacy Times* vol. 63 (1997): 30-34.

## Member News

The American Pharmaceutical Association announced the awarding of the APhA Remington Honor Medal for 2001 to **Jerome A. Halperin**. The award will be presented during the APhA Annual meeting in San Francisco, March 16-20.

**Dominic A. Solimando** has been selected to receive the Distinguished Achievement Award in Hospital and Institutional Practice from the APhA.

Long-time AIHP member and well known pharmacist, **George F. Archambault** died 1 January 2001 in Bethesda, Maryland. He was 91 years old. Trained as both a pharmacist and a lawyer, Archambault served for many years in the U. S. Public Health Service. During his long career he received many honors, including the Remington Honor Medal and the Whitney Award. He served as president of both the American Society of Hospital Pharmacists (1954-55), and the American Pharmaceutical Association (1962-63).



### Decorative Style in American Pharmacy

In the first third of the twentieth century there were attempts within the community of pharmacy to bring a sense of design into the drugstore. The plate shown above illustrates a range of decorative elements that could be used in a pharmacy—from designs on the drawer-pulls and jars to stained glass. Bernice Oehler presented these designs in 1918 based on foxglove, after her attention was called to the subject by Edward Kremers (“Medicinal Plants and Designs,” *Pharmaceutical Experiment Station, University of Wisconsin*, circular 3, June, 1918). Dean Muldoon at Duquesne School of

Pharmacy also proposed including plant-based designs in decorative elements in the pharmacy (Hugh C. Muldoon, “Beauty in Drug Store Design,” *American Druggist* 90 (October 1934): 56-57, 178).

### AIHP Celebrates 60 Years

On 22 January 1941 in a microscopy laboratory at the University of Wisconsin School of Pharmacy the American Institute of the History of Pharmacy was founded. For the 50th anniversary, the Institute commissioned a retrospective portrait of the event by artist Steve Hough. This interpretive charcoal drawing shows the founders George Urdang and Edward Kremers (seated in front from left to right), with Lloyd M. Parks, Louis W. Busse, Arthur H. Uhl, and Jennings Murphy standing behind (left to right).

To celebrate the founding 60 years ago, a reception will be held Monday 22 January 2001 in a room just down the hall from the founding site. At this celebration we will be both looking back at our 60 years at 425 North Charter Street and forward to our future in Rennebohm Hall, the new home of the School of Pharmacy and the AIHP.



The mission of the American Institute of the History of Pharmacy is to contribute to the understanding of the development of civilization by fostering the creation, preservation, and dissemination of knowledge concerning the history and related humanistic aspects of the pharmaceutical field.

# Smoke Ball Cure

by William H. Helfand

Analysis of the Carbolic Smoke Ball showed that its principal ingredients were glycyrrhiza and white hellebore (*Veratrum veride*) along with a tarry substance which gave it a smoke odor of carbolic acid. The product had been patented by Frederick Augustus Roe in England in 1889 as a device to facilitate the distribution, inhalation and application of medicated powders. As the illustrations in the advertisement show, it was designed to be inhaled, and was claimed to provide a cure for coughs, colds, influenza, and a host of related ailments.

The cornerstone of its promotion beginning in 1891 was an offer to pay a reward of 100 pounds "to any person who contracts the increasing epidemic, influenza, colds, or any disease caused by taking cold, after having used the Carbolic Smoke Ball according to the printed directions supplied with each ball." This risk-free offer convinced one Louisa Carlill to purchase the product, and when she later developed influenza, her husband applied for the reward. Ignored, he sued, the

judge assigned to the case found in the plaintiff's favor, and on further appeals, the decision stood. The case, *Carlill v. Carbolic Smoke Ball Co.* soon attained the status of a leading case, and as pointed out in an extensive paper on its history, became the "vehicle whereby a new legal doctrine was introduced into the law of contract" (A. W. B. Simpson, "Quackery


and Contract Law: The Case of the Carbolic Smoke Ball," *Journal of Legal Studies* 14(1985): 345-89). The decision became a classic in illustrating the responsibilities one assumed in making use of a one-sided or unilateral contract. Not surprisingly, another result of the case was a change in the text of advertising messages used by the proprietors of the Carbolic Smoke Ball.

## CARBOLIC SMOKE BALL

WILL POSITIVELY CURE

COUGHS <small>Cured in 1 week.</small>	CATARRH <small>Cured in 1 to 3 months.</small>	HOARSENESS <small>Cured in 12 hours.</small>	THROAT DEAFNESS <small>Cured in 1 to 3 months.</small>	INFLUENZA <small>Cured in 24 hours.</small>	CROUP <small>Relieved in 5 minutes.</small>
COLD IN THE HEAD <small>Cured in 12 hours.</small>	ASTHMA <small>Relieved in 10 minutes.</small>	LOSS OF VOICE <small>Fully restored.</small>	SNORING <small>Cured in 1 week.</small>	HAY FEVER <small>Cured in every case.</small>	WHOOPING COUGH <small>Relieved in 5 minutes.</small>
COLD ON THE CHEST <small>Cured in 12 hours.</small>	BRONCHITIS <small>Cured in every case.</small>	SORE THROAT <small>Cured in 12 hours.</small>	SORE EYES <small>Cured in 12 minutes.</small>	HEADACHE <small>Cured in 12 minutes.</small>	NEURALGIA <small>Cured in 12 minutes.</small>

As all the Diseases mentioned above proceed from one cause, they can be cured by this remedy.



Free Trials at our Consulting Rooms.  
For Inhalation Only.

### £100 REWARD

WILL BE PAID BY THE

## CARBOLIC SMOKE BALL CO.

To any Person who contracts the increasing Epidemic,

## INFLUENZA,

Colds, or any Diseases caused by taking Cold, after having used the CARBOLIC SMOKE BALL according to the printed directions supplied with each Ball.

### £1,000 IS DEPOSITED

With the ALLIANCE BANK, Regent Street, showing our sincerity in the matter.

During the last epidemic of INFLUENZA many thousand CARBOLIC SMOKE BALLS were sold as preventives against this disease, and in no ascertained case was the disease contracted by those using the CARBOLIC SMOKE BALL.



Free Trials at our Consulting Rooms.  
For Inhalation Only.

## THE CARBOLIC SMOKE BALL,

**TESTIMONIALS.**

THE DUKE OF PORTLAND writes:—"I am much obliged for the Carbolic Smoke Ball which you have sent me, and which I find most efficacious."

MR. F. L. MURPHY, Barrister, writes from No. 25, Mark Lane, E.C. 3:—"Lady Moore and my children have derived much benefit from the Carbolic Smoke Ball."

LADY MONTAGU writes from Condon, Cary Crescent, Torquay, 12th January, 1891:—"Lady Montagu believes the Carbolic Smoke Ball to be a certain cure and a cure for A.C.O.D., and will have great pleasure in recommending it to her friends. Lady Montagu is positive the Carbolic Smoke Ball will have all the success its merits deserve."

LADY ELMORE writes from Spurgeon Hall, Northampton, 14 January, 1891:—"Lady Elmore is pleased to say that the Carbolic Smoke Ball has given every satisfaction; she considers it a very good remedy."

MR. A. GRANTHAM writes:—"She finds the Carbolic Smoke Ball has been a great deal of good."

MR. J. ANTHONY PATTY writes:—"Madame Patti has found the Carbolic Smoke Ball very beneficial, and the only thing that will enable her to rest well at night when having a severe cold."

AS PRESCRIBED BY

**SIR MORELL MACKENZIE, M.D.**

HAS BEEN SUPPLIED TO

**H.M. THE GERMAN EMPRESS.**

H.R.H. The Duke of Edinburgh, K.G.  
H.R.H. The Duke of Connaught, K.G.  
The Duke of Argyll, K.T.  
The Duke of Fife, K.T.  
The Duke of Manchester  
The Duke of Newcastle  
The Duke of Norfolk  
The Duke of Rutland, K.G.  
The Duke of Westminster, K.G.  
The Duke of Richmond & Gordon, K.G.  
The Marquis of Salisbury, K.G.  
The Duke of Wellington  
The Marquis of Ripon, K.G.  
The Earl of Derby, K.G.  
Earl Spencer, K.G.  
The Lord Chancellor  
The Lord Chief Justice  
Lord Tennyson

**TESTIMONIALS.**

The Hon. Mr. LORIMER writes:—"The Carbolic Smoke Ball has benefited me greatly."

The MARCHIONESS DE SAINTE writes from Falmouth House, Reading, 14th January, 1891:—"The Marchioness de Sain has daily used the Smoke Ball since the commencement of the epidemic of Influenza, and has not taken the influenza, although surrounded by those suffering from it."

DR. J. RUSSELL HARRIS, M.D., writes from 6, Adam Street, Adelphi, 24th September, 1891:—"Many domestic cases of post-nasal catarrh, which have resisted other treatment, have yielded to your Carbolic Smoke Ball."

A. GIBSON, Esq., Editor of the *Lancet*, writes from 17, Strand, W.C., 14th February, 1891:—"During a recent sharp attack of the prevailing epidemic, I had some of the symptoms and dangerous catarrh and bronchial symptoms. I resorted at once to the use of the Carbolic Smoke Ball."

The Rev. Dr. CHRISTOPHER A. W. REAGAN, D.D., writes from Brompton, Devon, Surrey, 1891:—"My share in a large public institution has brought me daily, during the recent epidemic of Influenza, in close contact with the disease. I have been perfectly free from any symptoms by having the Smoke Ball always handy. It has also wonderfully improved my voice for speaking and singing."

The originals of these Testimonials may be seen at our Consulting Rooms, with hundreds of others.

One CARBOLIC SMOKE BALL will last a family several months, making it the cheapest remedy in the world at the price, 10s., post free.

The CARBOLIC SMOKE BALL can be refilled, when empty, at a cost of 5s., post free.

ADDRESS—

## CARBOLIC SMOKE BALL CO.,

27, PRINCES STREET, HANOVER SQ., LONDON, W.



Van Schaak, Stevenson & Reid's Price Current & Illustrated Catalogue, 1875.

## Early Drug Wholesalers

Excerpt from *In Service to American Pharmacy: The Professional Life of William Procter, Jr.*, by Gregory J. Higby (1992), pp. 5-7.

For those not familiar with the history of American pharmacy, the term *druggist* can be confusing. Within the drug trade itself, the term has generally applied to wholesale distributors of drugs. Yet these same businessmen often sold retail as well, confusing matters. Moreover, in the American vernacular, retailers of drugs and medicines have been called druggists. For clarity's sake in the next few paragraphs, I will use instead another common term of the nineteenth century for such middlemen: *jobber*. Throughout this book, however, *druggist* will identify a wholesaler of drugs.

The drug jobber sometimes imported his own drugs and medicines, but usually bought them from an importer or broker. His clientele can be divided into two broad categories: those who bought in person and those who communicated by mail or telegraph. General wholesalers from the interior traveled once or twice a year to Boston, Philadelphia, or New York to place large orders, usually spreading out their business among several jobbers. In addition, local retail apothecaries came in person to place stock orders and look for bargains. By visiting in person they could judge the quality of the merchandise before buying. In contrast, country physicians and storekeepers (including retail drug sellers) usually corresponded with jobbers. Because they could not examine medicines before purchase, small buyers from the interior usually dealt with only one jobber and on credit of six months. Jobbers guarded

their reputations closely since they relied heavily on the trust of physicians and retailers in the West. By the late 1850s, the drug trade developed to the point where jobbers specialized by serving one or two segments of the drug distribution network.

Out where drugstores and doctors were far between, country general stores sold a wide variety of drugs and medicines. Advertisements in newspapers placed by big city jobbers promised the highest quality cinchona bark, opium, jalap, calomel, ipecac, and chamomile. Of course, patent medicine orders were "thankfully received." In an economy starved for currency, bartering dominated country store business. Consequently, jobbers back in Philadelphia or New York had to be ready to accept farm produce in exchange for their merchandise.

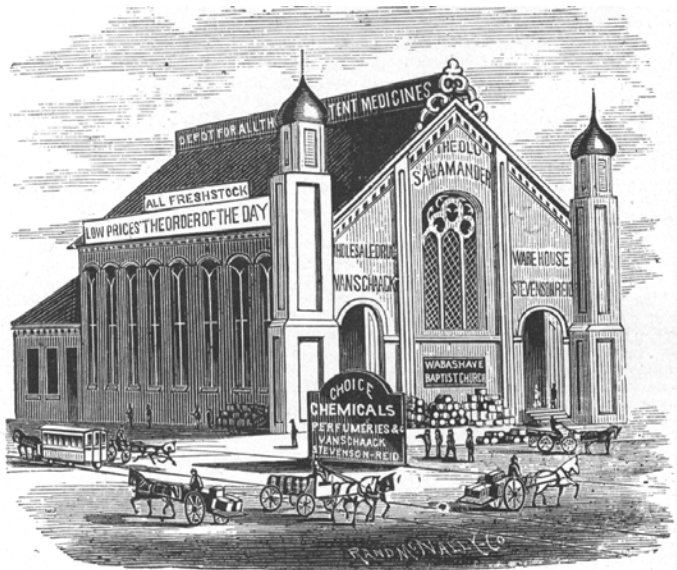
Physicians, especially those who did not keep shops but just ran an office or part-time practice, were in a more difficult position. They rarely traveled to the big cities to order drugs from jobbers and relied on cash transactions or, at best, short-term credit. The doctoring business, however, was notoriously cash poor, with almost all services done on credit. It is not too surprising then that physicians in the interior generally welcomed the arrival of drugstores to their localities. When a physician wrote out his prescriptions, his fees were for service only and he could spend less of his hard-to-obtain currency on drug supplies.

For physicians and domestic healers, country

apothecaries served as secondary wholesalers of drugs and medicines as well as general retailers, apothecaries required a critical mass of population and currency, and therefore arrived in a settlement only after it was well established.

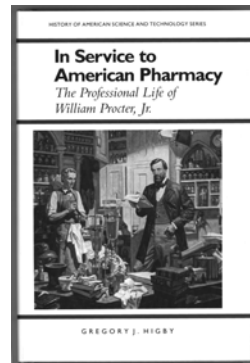
In the country, the “dividing line between a drugstore and a general store was often not distinct. Drugstores sold dye-woods, turpentine, alcohol, liquor, paints and varnishes, glassware, often a line of notions and some groceries, non-proprietary drugs such as calomel and quinine—and of course patent medicines. So did the general store.” And the grocery line of general stores carried spices and herbs like cloves and mints used in domestic healing. Patent medicines were especially attractive to general storekeepers because of their high markup, or what was known in the retail trade as “regular drug store profit.”

Apothecaries were not especially fond of competition from general stores and tended to couch their criticism in sarcastic language. In an editorial, Procter wrote, “In our country villages . . . a large amount of medicines are sold by country store keepers who know as much about [cinchona] bark, rhubarb, and opium, as they do about algebra and conic sections.”



After the Great Fire in Chicago, Van Schaack, Stevenson & Reid occupied the Wabash Avenue Baptist Church until they could rebuild their warehouse on the original site. (From the Van Schaack catalog, 1875.)

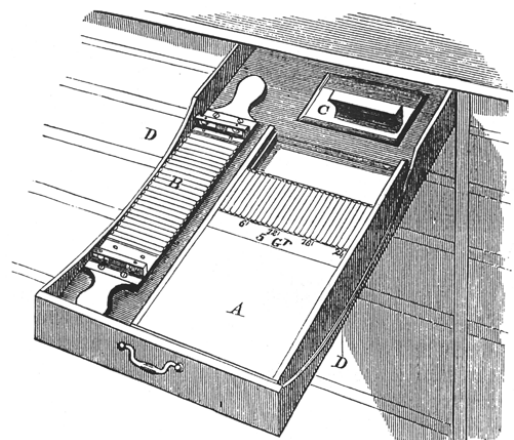
**Join Now** and get an **autographed copy** of *In Service to American Pharmacy: The Professional Life of William Procter, Jr.*, by Gregory J. Higby.



To Join AIHP, send a check or credit card information to AIHP, 425 N. Charter St., Madison, WI 53706. Individual regular memberships are \$50, student memberships are \$20 (send name of school and expected date of completion for student membership).

See [WWW.AIHP.ORG](http://WWW.AIHP.ORG) for information about joining, or call 608-262-5378. Mention *Apothecaries Cabinet* to get the autographed copy of this book. (Offer good until March 15, 2001.)

## What Is It?



See page 14 for the answer.

# Pharmacy in the Museum World

If you visit the Professional Compounding Centers of America, Inc., in Houston, Texas, you can see this Bromo-Selzer display in their **Pharmacy Compounding Museum**. Also on display are antique weights and measures, an early ointment mill, and an 1890 dispensing counter, fully restored to its original condition. Under the direction of AIHP-member Lawson Kloesel, the museum is open by appointment only (phone (281)933-6948, email [lawson@thecompounders.com](mailto:lawson@thecompounders.com)). The Professional Compounding Centers of America, Inc. is located at 99012



S. Wilcrest, Houston, TX 77099. Information about this and other pharmacy museums is contained in the AIHP publication: *A Guide to Pharmacy Museums and Historical Collections in the United States and Canada*, by George Griffenhagen, Ernst W. Stieb and Beth Fisher. Copies are available from AIHP, 425 N. Charter St, Madison, WI 53706, and on the website publications catalog: [www.aihp.org](http://www.aihp.org).

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## News & Notes

### Medical Diversity in Early America “O, What A Fine Thing Is Health”

**Conference at Colonial Williamsburg,  
1-3 March 2001**

This conference at the Williamsburg Institute will examine “the practice of medicine, its material culture and scope. It will provoke a deeper appreciation for the medical accomplishments and illustrate the change-over-time impact of various medical topics from the colonial period to the present.”

A number of presentations may be of particular interest to historians of pharmacy. Friday, 2 March: “The Trade in Medicinal Leeches in British America,” by Roy T. Sawyer; Saturday, 3 March: “The Early New England Apothecary,” by Norman Gevitz; “Eighteenth-Century Experimental Treatment,” by Robin Kipps; “Comparative Pharmacy,” by Kris Dippre; “Jamestown Rediscovery: Artifacts

of Health in Early Colonial Virginia,” by William M. Kelso, Ashley McKeown, and Beverly Straube; “An Examination of 18th-Century Occupational Hazards with Comparisons to Some Historic Area Trades,” by Susan Pryor, and Sharon Cotner; “Military Medicine During the Revolution,” by Dave Pondolfino.

For information about the conference, and registrations information, contact the conference registrar Toni Engle at (757)220-7182 or email [tengle@cwf.org](mailto:tengle@cwf.org).

### Youngken Herbarium Donated to American Botanical Council

Thanks to a donation by the Massachusetts College of Pharmacy and Health Sciences (MCPHS) in Boston, the American Botanical Council in Texas has acquired the Heber W. Youngken, Sr., Her-

barium, which it will house in their new herbal education center and library.

The collection, believed to contain more than 14,000 sheets of medicinal, spice, dye, and allied plants has been in storage, untouched, for some 50 years. It reflects the interests of Youngken, an internationally known authority on the taxonomic and morphologic aspects of pharmacognosy who retired from the Massachusetts College of Pharmacy in 1956 at the age of 70, as well as speci-

mens added by other collectors. An article describing the acquisition of the collection, in *Herbalgram* #49, presents anecdotes about Professor Youngken's remarkable style and knowledge of plants—many of them from his students who now carry on the tradition of pharmacognosy. It is a rare opportunity to preserve the record of plants—some of which not be available in the region—as well as the record of a dedicated pharmacognosist.

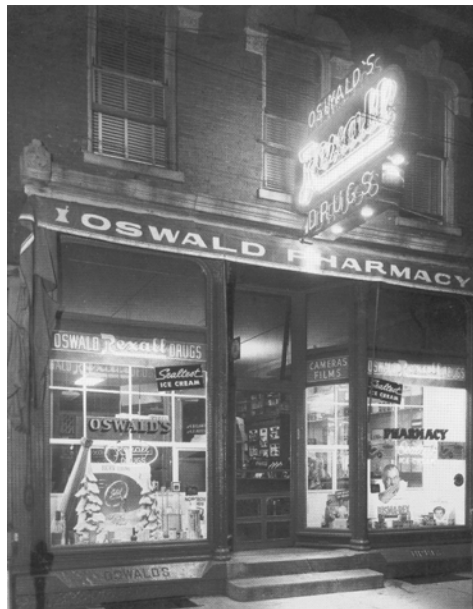
## 125 Years of Pharmacy

Oswald's pharmacy in downtown Naperville, Illinois, is celebrating 125 years of business. From the time that William Wallace Wickel and Sarah Ann Wickel bought the pharmacy from two Naperville physicians in 1877 (the pharmacy opened in 1875), the pharmacy has been under family ownership. Through sons-in-law and daughters-in-law the pharmacy has been an integral part of downtown Naperville community.

The history of the drugstore appears in a picture-filled publication showing the pharmacists, pharmacy, and patrons over the years. For information about the booklet, contact the pharmacy at 630-355-2500.

“For generations, Oswald's Pharmacy has been one family meeting the needs of Naperville's families.”

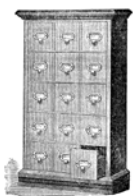
—Bill Anderson, proprietor



*In 1915 “Doc” Wickel (who bought the pharmacy in 1877) sold the store to his son-in-law, Louis Oswald. From that time on the storefront has carried his name.*



*Oswald's had a soda fountain from 1917 to 1960. (Photo taken after 1956 remodeling.)*



## COLLECTOR'S CORNER

**FOR SALE:** Pharmacy Museum Memorabilia, late 18th Century through mid 20th Century. Includes 20 gallon Red Wing crock used at Stricker's Drug Store (Latrobe, PA), soda fountain (David Stricker created the Banana Split), and a pestle used on the Peary Expedition when the North Pole was discovered. Elegant fixtures (1850) from a Scotland pharmacy. \$95,000 or a reasonable offer. Will sell memorabilia and fixtures separately but memorabilia must go first. Jacob L. Grimm, 209 S. Market St., Ligonier, PA 15658 (724) 238-6893; e-mail grimm209@helicon.net

**WANTED:** Surgical and medical antiques from the 18th and 19th Century. Also wanted: Surgical and medical prints and books from the 18th and 19th Century. Please call (515) 267-1821, fax (515) 267-9026, write Alan R. Koslow, 2716 Jordan Grove, West Des Moines, IA 50265 or e-mail koslow@home.com

**FOR SALE:** Own a piece of the financial history of the drug, chemical, pharmaceutical and health care companies. Stock/Bond certificates (canceled) are both history and an artform. Most priced under \$7.00 each. Send SASE for list. Interested in buying similar items. Wayne Segal, Box 181, Runnemede, NJ 08078. e-mail WaynePharm@aol.com

**GOOD HEALTH TO ALL FROM REXALL!** I collect anything made for The Rexall Store. Especially want early consumer products and pharmacy items manufactured by the United Drug Company (1903-46, Boston). Also Rexall AD-VANTAGES magazines, calendars, almanacs, photos, and other franchise and advertising materials. United Drug brands:

Puretest, Firstaid, Elkay, Kantleek, Jonteel, Liggett's, Fenway, Harmony (cosmetics), Electrex (appliances), Old Colony (inks), Klenzo, etc. What have you? Frank Sternad, P.O. Box 560, Fulton, CA 95439; (707) 546-3106, e-mail fasternad@iscweb.com

**WANTED:** Apothecary jars, mortars & pestles and pharmacy memorabilia including advertising cards, displays, cabinets, etc. Please call (602) 443-9358, fax (602) 443-0185 or write Edward Saksenhaus, 8430 E. Appaloosa Tr., Scottsdale, AZ 85258.

**FOR SALE:** Apothecary Antiques including drug jars, apothecary bottles, manufacturing tools, medical instruments including leech jar and various dental items; books dealing with the above subjects available, catalogues issued. Always buying similar items or collections. John S. Gimesh, MD., 202 Stedman St., Fayetteville, NC 28305; (910) 484-2219.

**WANTED:** Show globes, fancy apothecary bottles, porcelain jars, trade catalogs, window pieces, patent medicines, and advertising. Mart James, 487 Oakridge Rd., Dyersburg, TN 38024; (901) 286-2025; e-mail: kjames@usit.net

**WANTED:** Books & journals on Pharmacy (pre-1920), Pharmacognosy, Herbal/Botanic Medicine, Eclectic & Thomsonian Medicine, Phytochemistry, & Ethnobotany. I will purchase one title or entire libraries. David Winston, Herbalist & Alchemist Books, P.O. Box 553, Broadway, NJ 08808, (908) 835-0822, fax: (908) 835-0824, e-mail: dwherbal@nac.net

**WANTED:** Pharmacy antiques 1950s and before. Old medicine bottles Rx

or OTC, tins, vials and related items. USP 1990 with NF. Contact Dr. Earl Mindell (310) 550-0161 or fax (310) 550-1150.

**FOR SALE:** E.R. Squibb antique pharmaceutical medicine bottles, tins, vials, and related items. I have approx. 400 items (1900-1960). Also have antique clock, signs, and magazines. Would like to sell custom made oak cabinet. Prefer to sell collection as a whole. Call Dennis Bailey (847) 451-0283.

**AIHP WILL BE MOVING**—Back issues of *Pharmacy in History* **FOR SALE**, \$2.50 per issue (that's \$5 off the cover price). For a complete list of available issues, see our website ([www.aihp.org](http://www.aihp.org)) or call (608)262-5378.



Container

\* \* \* \* \*

*The AIHP brings together those who wish to buy, sell, or trade artifacts or books related to the history of pharmacy. Free classified advertising is available to members (\$5.00 a line to non-members). Send copy to Apothecary's Cabinet, AIHP, 425 N. Charter St., Madison, WI 53706, or [NOTES@aihp.org](mailto:NOTES@aihp.org).*

# Tying the Knot—*Secundum Artem*

by David L. Cowen

THE recent concern with tamper-proof packaging has brought to mind that tying the knot was once part of the art of the apothecary.

The first textbook on pharmacy that was published in the United States—the American edition by William Procter, Jr., of Theophilus Redwood's translation of Friedrich Mohr's German work, published under the title, *Practical Pharmacy: The Arrangements, Apparatus and Manipulations of the Pharmaceutical Shop and Laboratory* in 1849—devoted almost six pages and fifteen illustrations to "On Tying Knots." "There is some art in the tying of a string," Mohr pointed out, "an inconvenience is not unfrequently associated with a badly constructed knot." He went on to give precise directions on the tying of knots at which the pharmacist should be adept.

First, there was the "capping knot" for which Mohr gave explicit directions and provided an illustration. (See Fig. 1). There followed directions for the "binding knot," to be used "in fitting together glass tubes with india-rubber connectors"; for the "pyrotechnical knot" for the same purposes; and for the "champagne knot," also for tying down corks. The name of the

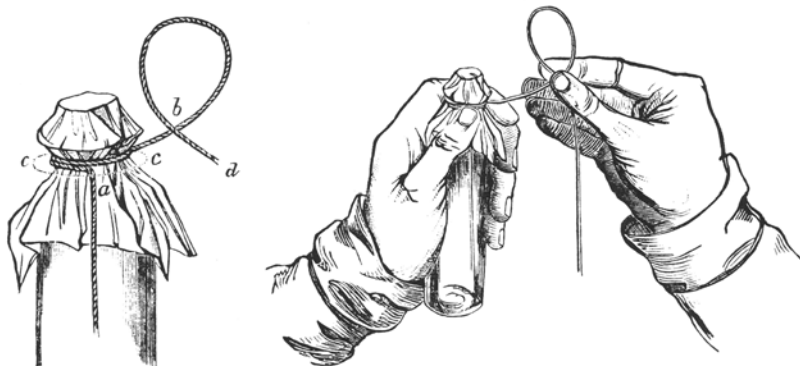
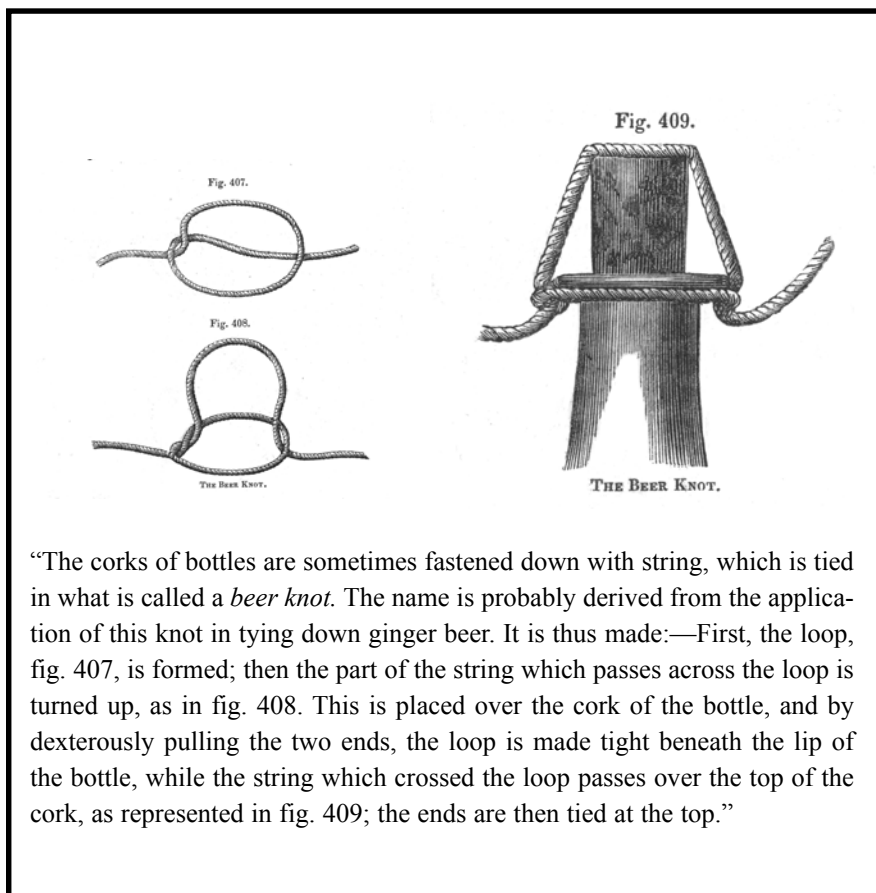


Figure 1.

beer knot, Mohr guessed, was "probably derived from the application of this knot in tying down ginger beer." The classier champagne knot, as to be expected, was "a more secure knot

than the beer knot."

The pharmacist of the past needed nimble fingers for pill rolling, powder paper folding, and knot tying, among other manipulations.



# Drachms & Scruples

## Pharmaceutical terms according to the Oxford English Dictionary

**cerate** (n.) A kind of stiff ointment composed of wax together with lard or oil and other ingredients.

**mull** (v.) 1. a. trans. To grind to powder, pulverize; to crumble (cf. Sc. MOOL v. 1). Obs. exc. dial. pill (n.) 1. a. A small ball or globular mass of medicinal substance, made up of a size convenient to be swallowed whole.

**confection** (n.) 5b. A medicinal preparation compounded of various drugs; in later use, spec. one compounded with a sweetening and preserving agent.

**tincture** (n.) 7b. A solution, usually in a menstruum of alcohol, of some principle used in medicine, chiefly vegetable, as tincture of opium (laudanum), but sometimes animal, as tincture of cantharides, or mineral, as tincture of ferric chloride.

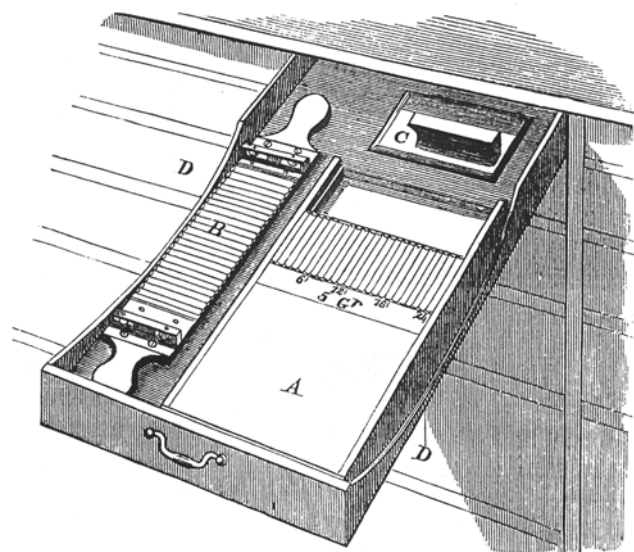
**menstruum** (n.) 2. A solvent; any liquid agent by which a solid substance may be dissolved.

**grain** (n.) 8. The smallest English and U.S. unit of weight ; now = 1/5760 of a lb. Troy, 1/7000 of a lb. avoirdupois.

**avoirdupois** (n.) 2. The standard system of weights used, in Great Britain, for all goods except the precious metals, precious stones, and medicines. The a. pound contains 7000 grains. The a. weight of the United States agrees with that of Great Britain in the pound, ounce, and dram; but the hundredweight contains in U.S. 100, in G.B. 112 lbs., and the ton of 20 cwt. differs accordingly.

**congius** (n.) 2. Pharm. The pharmaceutical name for a gallon, represented in prescriptions by the letter C.

### What is it?



This is a pill machine placed in a special drawer constructed under the dispensing counter for its storage. Here is the description that accompanied this illustration from Mohr, Redwood, and Procter's *Practical Pharmacy* (1849): "The pill-machine A, is fixed in a shallow drawer, immediately under the top of the counter, a place being left on one side for the cutter B, to lie in when not in use, and another place at the back for the roller C. The two sides of the drawer, at D, D, are cut down, as shown in the drawing, to make room for the lateral guides of the cutter." The drawer is rigged with a stop that holds it in place while the operator uses the machine.

After the appropriate ingredients are mixed together, the pill mass is first rolled on a flat surface into a pencil-sized cylinder. This is placed on the machine across the raised ridges of the machine (A). The cutter is then placed on the machine below the pill mass with its edged surface down. By moving the cutter up across the pill mass, pills are cut and deposited in the small tray at the top of the machine. These are then taken out and finished into spheres using the roller C or the operator's fingers. They were then dusted or coated as per the recipe. When the operation was complete, the drawer was closed and the prescription counter returned to its usual state.



## A Backward Glance at American Pharmacy

EDITED BY GREG HIGBY

100 Years Ago

"Drug circles in Chicago were intensely excited last week over the lawless actions of some half dozen women followers of Dowie, the faith-cure leader. Incited by the tactics of Mrs. Carrie Nation, whose saloon smashing proclivities have created so much consternation in Kansas, they proceeded to wreck drug stores on the grounds that drugs were the agents of the devil. The women wore automobile coats and concealed their implements of destruction under them. As they left the drug stores they sang hymns, and as the policemen did not know what they had been up to, they escaped arrest. The drug store of Charles G. Foucek . . . was the first place visited. After upbraiding him for selling drugs, the leader gave a signal and the smashing of shelves and showcases and boxes began. The druggist was also attacked with canes and umbrellas, but he summoned his clerks, who armed themselves with buckets of water, and the women were finally dispersed. The same tactics were employed in [four other] drug stores." (*American Druggist*, vol. 38 (February 11, 1901): 93.)

75 Years Ago

"Since the coming of prohibition the drug store has had come into its ranks men from the liquor trade who have opened alleged drug stores; some of these came in with the hope of getting permits to dispense whiskey on physicians' prescriptions. Others of the same ilk have started what they call drug stores which they maintain for the purpose of selling booze substitutes. . . . Vendors of tincture of ginger are to be found on every side; there were some men in the liquor business in the old days, and . . . bootleggers today, who will not sell to school children, but the high school jellybean can find a drug store that will sell him "Jake" which has more kick in it than a Kentucky distiller ever put in his bourbon. There is no law, municipal, state or nation, that prohibits the sale of Jake. It is a United States Pharmacopoeial preparation, the federal government has ruled that it may be sold if the ginger content prescribed by the revision committee be doubled." (*American Druggist*, vol. 74 (January 1926): 23.)

50 Years Ago

"When penicillin and streptomycin were introduced, they were administered parenterally—thus most of the distribution to patients was via hospitals and doctors. Later oral and other dosage forms of penicillin were introduced and some of the business moved into the drug store's Rx department, but the bulk still remained in other hands. However, the more recent introduction of so-called "wide spectrum" antibiotics—aureomycin, chloromycetin, and terramycin—has changed the distribution picture. These were originally introduced in oral form which could be administered to the patient at home via Rx. As a result of the new trend, it is now estimated that \$1 out of every \$4 spent by non-hospitalized patients for medicines goes for antibiotics. In 1950, druggists sold 60% of the nation's penicillin and 41% of its streptomycin." (*American Druggist*, vol. 123 (January 1951): 70.)

25 Years Ago

"[T]he Study Commission [on Pharmacy] holds . . . that pharmacy is a health service and a subsystem within . . . the health care system. We regard that total system not as a service system, but rather as a *knowledge* system the product of which is a *service*. The system discovers knowledge about man in health and disease through research in the physical, biological, behavioral and social sciences. . . . It is the opinion of the Study Commission that when pharmacy is viewed as a knowledge system, which it surely is, it must be adjudged as clearly both effective and efficient in delivering its product. However, it must be adjudged as neither effective or efficient in delivering its knowledge to those who prescribe, dispense and consume drugs. Pharmacy is falling short of its full potential for this reason." (John S. Millis, *American Journal of Hospital Pharmacy*, vol. 33 (February 1976): 134.)



Esther Smith and the motorcycle helped solve two delivery problems for the Young-Casselmann Drug Co., in San Francisco in 1942: a wartime shortage of gasoline and male drivers. Her principal job was delivering emergency prescriptions. (AIHP Drug Topics Collection)

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