# AMERICAN INSTITUTE OF THE HISTORY OF PHARMACY

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This slide presentation was compiled and produced by Robert McCarthy, Ph.D., Professor and Dean *Emeritus* at the University of Connecticut School of Pharmacy for his class "The History of American Pharmacy." Prof. McCarthy created this version of the slide talk for his class in the Spring of 2016.

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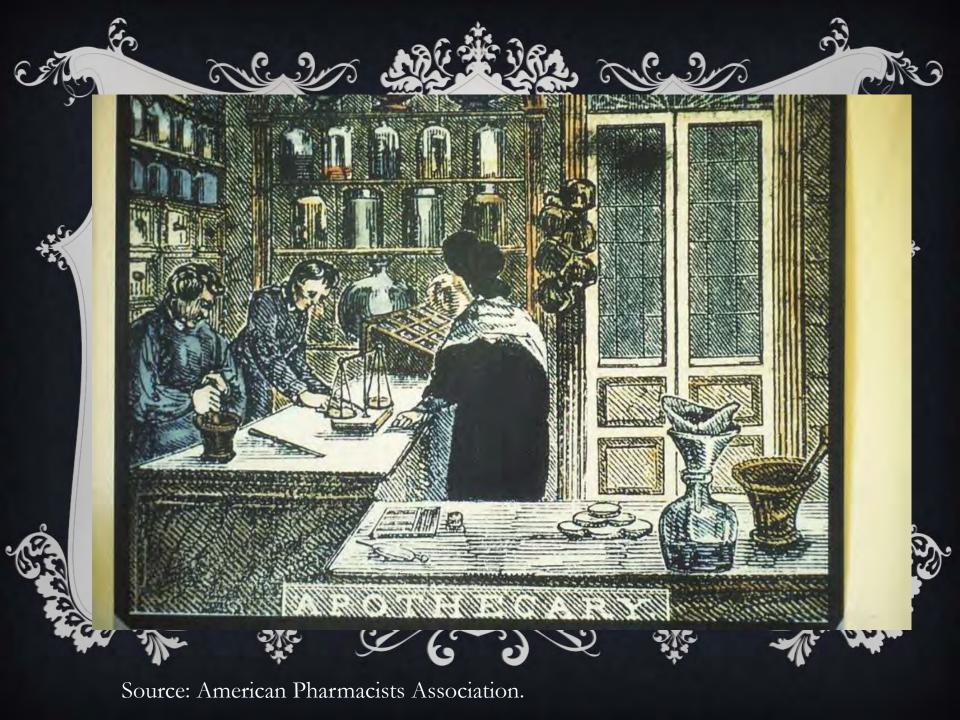
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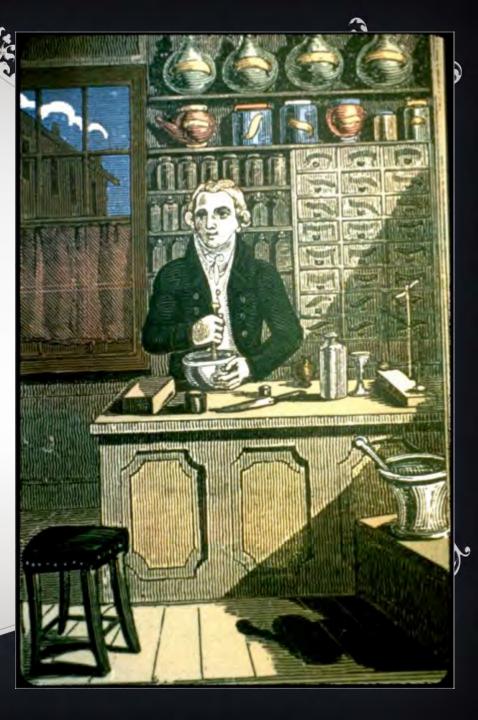
The History of American Pharmacy

Spring 2016



American pharmacy comes from roots in modest English shops as well as wholesalers (druggists) & general stores

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 ✤ 1638: John Johnstone (in future New Jersey), a Scottish apothecary founded a settlement there.

 I653: Gysbert van Imbroch (in future New York), a Dutch surgeon, who practiced medicine and sold drugs in a general store; may have operated the first "drug store" in North America as part of a multi-purpose dispensary.

#### New England

- 1630: Boston is founded and Governor John Winthrop and his son took an avid interest in preparing medicines; they employed a trained British apothecary, Robert Cooke, to assist them, importing herbs from Europe; the younger Winthrop also prepared compounds from saltpeter, antimony, mercury, tartar, sulfur, and iron and became one of the first people in North America to prepare pharmaceuticals.
- 1646: The first mention of a dispensary in British North America operated by William Davis of Boston.
- Elizabeth Gooking Greenleaf (1681–1762), the first woman to practice as an apothecary during the colonial era; in 1727, she opened an apothecary shop with her husband in Boston.



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Governor John Winthrop by Robert Thom, Parke-Davis series

\* 1729: Irish immigrant Christopher Marshall established an apothecary shop in Philadelphia, which ultimately manufactured pharmaceuticals, served as a drug wholesaler (druggist) to physicians and large landholders, and trained apothecaries; during the American Revolution, he supplied medicines to the American troops under General George Washington; in 1805, his daughter Elizabeth became the first American woman apothecary; in 1821, his son Charles became the first president of the Philadelphia College of Pharmacy.

 Apothecary (Physician or Pharmacist)-a preparer and compounder of medicinal products

Pharmacist /Druggist (Pharmacist Owner)

Drug Clerk (Employee Pharmacist)

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✤ Materia Medica-a collection of the therapeutic properties of medicine (pharmacology)

- ✤ Health practitioners were few among early settlers
- "Heroic Medicine" (Dr. Benjamin Rush)
- ✤ Home remedies, home medical books
- Physician-run apothecary shops

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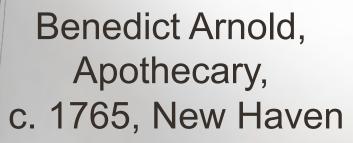
- Druggists
  - Wholesale medicines
  - Patent medicines (nostrums)
    - Luden's Cough Drops, Fletcher's Castoria (now Laxative)

✤ Almost all medicines imported from England

Revolutionary War led to development of domestic sources of medicine

 Growing up in Connecticut, Benedict Arnold trained as an apothecary in Norwich; starting in 1764, he owned and operated a drugstore in New Haven.

Most compounding occurred in physician's offices; number of non-physician pharmacy practitioners was small



## Benedict Arnold,

Has just imported (via New-York) and fells at his Store in New-Haven,

#### A very large and fresh Affortment of DRUGS and CHYMICAL PREPARATIONS 1

E SSENCE Water Effence Balm Gilead Birgamot Lemons Tincture of Valerian Pectoral Ballam Honey Bateman's Pectoral Drops Britich Oil Godfrey's Cordial Turlington's Balfam Life Balfam Health Eaton's Styptick Francis' Female Elixir Greenough's Tincture for the Teeth Spirits Scurvy Grafs Eau de Luce Æther. Bateman's Cordial Elizir Boftock's Elizir Daffy's Elixir Hooper's, Locker's & Anderion's or the Scotts Pills Tames's Fever Powder Oil Rhodium Lavender, Mace Cinnamon, Cloves Rofemary, Raifins Figgs, Currants, Almonds, Tamarinda, Spaw&pirmont waters Rofe Water Cold Cream Pomatum Ladies Court Plaifter Dryden's Virgil

Weft and Littleton on the Refurrection Hebrew Bibles Hiftory of the late War Real Chriftian New whole Duty of Man Row's Letters and Mifcellapies Young's Satires and Complaint Paradife Loft and Regain'd Watta's Poems, Sermons, Pfalms and Hymns Letter Writer Spectator Female ditto Martin's Philofophical Grammar, and Philofophia Brittannia Freemafon's Pocket Companiea Dryden's Poems Ben Johnfon's Works Prior's Poems Pope's &Swift's works Locke on Human Underftanding Mariner's Compais & Kallenders Prefent State Europe Complete Houfe. Wife Ward's Mathematics Clarke's Nepos Virgil's Delphos Tully's Orations

Berryftreet Sermons Addifon's Works Rambler Guardain Smollet's hift. England Chefelden's Anatomy Sharp's Surgery Hudibras Lady's Library Tom Jones Pamela Dialogues the Dead Apophthegms of the Ancients Dodfley's Poems Attorney's Practice King's Bench and Common Pleas Virtue the Source of Pleafure Chamberlain's Midwifery Love's Surveying Latin, Greek and French Grammare Swan's Sydenham New Duty Man Armftrong on Health Pleafares Imagination Law's Call Francis's Horace Solyman & Almens Almena & Hamet Raffelais Triffram Shandy Yorrick's Sermons Joseph Andrews Ariftotle's Works Lambert's Works





- 18<sup>th</sup> and Early 19<sup>th</sup> Century Drugs
  - Anodynes (pain relievers): opium and laudanum (opium, saffron, and Canary wine)
  - Anti-arthritics: Epsom salt or cinchona
  - Anti-dysentery: ipecac, paregoric
  - Anti-pyretics (for fever): emetics, cinchona, laxatives, and cold baths
  - Emetics (to induce vomiting to treat food poisoning): tartar emetic, ipecac, honey
  - Muscle spasms: opium, wine, cinchona, and oil of amber
  - Intestinal irritation: purgatives or cathartics including Glauber's Salts, Plummer's Pills, ipecac, jalap, calomel, salme, rhubarb, castor oil, and Epsom salts
  - Sudorifics or diaphoretics (to induce perspiration): camphor, Dover's Powder (opium and ipecac), and rhubarb
  - Diuretics (to treat edema by increasing urine flow): milk, extracts of dandelions, juniper berries, and lemon juice

- Hospital Pharmacy
  - Dr. Thomas Bond and Benjamin Franklin established Pennsylvania Hospital in 1751 in Philadelphia, North America's first hospital.
  - 1752: Jonathan Roberts, America's first hospital "pharmacist"; like most early hospital pharmacists (including at the Massachusetts General Hospital) he was an apprentice physician
  - Roberts' successor proposed separating pharmacy practice from medical practice.
  - By 1811, the New York Hospital employed a full-time pharmaceutical practitioner.
  - Most 19<sup>th</sup> century (and before) patients were treated at home, limiting the need for hospital pharmacists.

#### Hospital Pharmacy

- The demand for hospital pharmacists increased during the Civil War; these individuals had expertise in drug preparation manufacturing and in buying drugs.
- With an increase in immigration to the U.S. after the Civil War, demand for hospitals also increased to meet the expanding population; the growth in the number of hospitals also led to an increased demand for hospital pharmacists as hospitals realized it was more cost-effective to fill prescription in-house rather than use community pharmacies.

Early 1800s: formal instruction in medical schools versus apprenticeship model

Physicians began to write prescriptions for apothecaries to compound and dispense leading to a growth in pharmacy

✤ 1808: Massachusetts Pharmacopoeia

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✤ 1820: Pharmacopoeia of the United States of America

- First two schools of pharmacy established
  - Philadelphia College of Pharmacy (1821)
  - Massachusetts College of Pharmacy (1823)

✤ In the 1830s, physicians generally supported the emergence of pharmacy and establishment of pharmacy schools.

- \* Establishment of the American pharmaceutical industry
- Potent drugs were added to the materia medica

 ✤ Between 1820 and 1860, the practice of pharmacy emerged from the practice of medicine

- Apothecary shops became more standardized in the stock they carried; patent medicines became very profitable
  - Drugs and medicines
  - Surgical supplies
  - Artificial teeth and limbs
  - Dyestuffs

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- Essences
- Chemicals

- ✤ By the 1840s, tensions grew between physicians and pharmacists
  - The focus of pharmacists shifted to directly caring for patients versus doing the bidding of physicians.
  - Apothecaries began to fill prescriptions without physician authorization.
  - Medical schools increased the number of graduates, many of whom wanted to practice in cities, leading to a direct conflict with pharmacists in their care of patients.

 Inferior drug products being shipped from Europe becomes an even more serious problem in the 1840s

- Increased regulation of the European drug market
- Alkaloidal chemistry allowed for extraction of the active ingredient from the plan (unfortunately, these plants were often sent to America absent the active drug)
- Drug Importation Act of 1848—established examiners at several points of entry to check quality, purity and fitness

Although initially successful, the Drug Importation Act of 1848 eventually failed because of the appointment of incompetent inspectors (as a result of political cronyism); the failure of this law led to a convention of pharmacists in NYC in 1851, which ultimately led to calls for a national pharmacy organization (APhA).

