

HISTORY OF PHARMACY SIG NEWSLETTER

Pharmacy Chronicles: Past, Present, and Future

WELCOME MESSAGE FROM THE CHAIR, HISTORY OF PHARMACY SPECIAL INTEREST GROUP

Dear Readers,

This will be my final “message from the chair”. I’ve previously written about the things we typically associate with the history of pharmacy. I guess that for most of us, our first collectible was a mortar and pestle. For some, that was the end of it, but for others, it was only the beginning. I find the history of pharmacy to be very interesting, especially the traditional historical topics. But what to write for a newsletter? With that in mind, I’ll segue down a path that many don’t associate with the History of Pharmacy SIG.

I’ve had two principles that guided me as long as I’ve worked with students. First, “Do no harm” and second, “If it was your family member, what would you want to be done?” These have served me well

and I’ve done my best to adhere to them.

One of the reasons that history is important is that we hope to learn from it and not repeat our mistakes. When it comes to “First do no harm” and pharmacy’s historical mistakes, have we learned?

In 2022, Purdue Pharma settled a claim for \$6 billion. Johnson & Johnson, AmerisourceBergen, Cardinal Health, and McKesson settled claims for a total of \$26 billion related to the opioid crisis. Glaxo-SmithKline paid \$3 billion in 2012, and Pfizer settled for \$2.3 billion in 2009. You don’t have to be a rocket scientist to figure out that a lot of harm was done for pharmacy-related companies to pay such large settlements/fines.

An interesting article pub-

lished in BMC in 2016 stated that 462 medicinal products were withdrawn between 1950 and 2014. Of these, only 43 were withdrawn worldwide and 179 from only one country. The most common reason for withdrawal was hepatotoxicity. The median interval between the first reported adverse reaction and withdrawal was six years.¹

The United States General Accounting Office (GAO) published a study in 2001 “Drug Safety: Most Drugs Withdrawn in Recent Years Had Greater Health Risks for Women.”² Between January 1997 and November 2000, eight of the 10 prescription drugs withdrawn posed greater health risks for women than for men.² For some drugs, this was because women were prescribed the drugs more frequently (Pondimin [fenfluramine], Redux [dexfenfluramine], Rezulin [troglitazone], and Lotronex [alosetron]). Four other drugs (Seldane [terfenadine], Posicor [mibefradil], Hismanal [astemizole], and Propulsid [cisapride]) posed greater health risks for women even though they were widely prescribed for both sexes.

Some will argue that the

INSIDE THIS ISSUE:

| | | | |
|-----------------------------------|------|---|----|
| Meet the Editors | 2 | Armies on Speed: Amphetamine Use in WW II | 7 |
| Editor's Message | 2 | The Flower that Bloomed in Adversity: Discovering Digoxin for Dropsy | 8 |
| SIG Officers | 2 | Soda Fountains, Soda and Their Pharmacist Inventors | 9 |
| News | 3, 4 | Cora Dow, the Leading Lady of Chain Pharmacy in the 19th Century | 10 |
| Xavier Pharmacists' Series | 5 | Pharmacy Through the Lens of Hollywood V: “The Three Stooges Meet Hercules” | 11 |
| Peer Reviewed Articles | 6-21 | About the SIG | 22 |
| Show Globes: A Symbol of Pharmacy | 6 | | |

Continued on page 3

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Thank you ...

The Editors would like to thank the volunteers who performed the peer reviews and editing for this issue.

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Message from the Editor

Welcome We are very pleased to present the 12th issue of the History of Pharmacy SIG Newsletter. It is difficult for me to imagine the success this newsletter would achieve. Back in 2014, when Dave Baker, the then chair of the HoP SIG first suggested a newsletter, Ettie Rosenberg and I, as inaugural and associate

editors, respectively, had a bit of trouble filling the 12 pages of the first annual edition. Now, we have a robust bi-annual newsletter, including peer-reviewed articles. Additionally our reach goes beyond the members of AACCP, as the newsletter is available to members of AIHP. Check out old editions on their

website: <https://aihp.org/historical-resources/aacp-hopsig-newsletters/>. The interest in the history of pharmacy IS alive and well! I am so pleased to be part of it!

This newsletter would not be possible without your continued support. We sincerely thank you for your articles, helping with

peer review and readership. Please contact myself or Bernie Olin to volunteer or discuss a possible article.

As we emerge from the COVID-19 pandemic and survey the changes to pharmacy and the world from pandemic experiences, it is more important than ever to include the teaching of pharmacy's history to today's students. We must

Continued on page 3



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S I G O F F I C E R S

ANNOUNCEMENTS

Message from the Chair...

Continued from page 1

Food and Drug Administration's (FDA) approval process is tainted or greatly influenced by large *Pharmaceutical* Research and Manufacturers of America (PhRMA) companies. In the GAO study, Lotronex and Duract were only on the market for nine and 11 months respectively before being withdrawn.² Did the FDA do its due diligence for drugs that were removed from the market in less than 12 months due to serious adverse effects? Just last year, three members of an FDA advisory committee resigned in protest when a new Alzheimer's disease drug, aducanumab, was approved but showed a lack of efficacy.³

Was the 1980s and 1990s the heyday of pharmacy practice, when Gallop's poll rated us as America's Most Trusted Profession? Or, are our best days ahead of us? Today's practice seems to be more of a collegial process and the efforts being put into interprofessional education should only make it more so.

I appreciate the opportunity to serve as the History of Pharmacy SIG chair for the last 12 months and I sincerely appreciate the assistance provided by AACP; previous officers and officers elect; and especially the members who put together the History of Pharmacy Newsletter.

—Tony Dasher,
SIG Chair

1. Onakpoya, I. J., Heneghan, C. J., & Aronson, J. K. (2016). Post-marketing withdrawal of 462 medicinal products because of adverse drug reactions: a systematic review of the world literature. *BMC medicine*, 14, 10. <https://doi.org/10.1186/s12916-016-0553-2>

2. <https://www.gao.gov/products/gao-01-286r> accessed 5/3/2022

3. *BMJ* 2021;373:n1503 <http://dx.doi.org/10.1136/bmj.n1503>

RECOGNIZE YOUR STUDENTS FOR THEIR ACTIVITIES RELATING TO THE HISTORY OF PHARMACY!

The American Institute of the History of Pharmacy offers certificates to students to recognize their achievements in the area of History of Pharmacy. Nominate deserving students at the link below. The certificates could be sent directly to the students or to the schools for presentation at an awards ceremony. Link:

[#AIHP/ Student recognition certificate](#)

Message from the Editor...

Continued from page 2

watch ACPE closely to be sure that teaching the History of Pharmacy is included in Standards 2025. With such a packed curricula, it makes sense to link HoP to other standards, including professionalism, leadership, entrepreneurship and interprofessional education. We include in this newsletter an overview of how Xavier University integrates HoP into the curriculum and perhaps that will give you some ideas for your institution. We include articles on Show Globes and Soda Fountains, both demonstrating the historical roots of entrepreneurship in the profession. We continue our Movie series with "The Three Stooges Meet Hercules", perhaps not the most accurate depiction of the profession, but amusing nonetheless. Please enjoy this edition and we look forward to hearing from you with your ideas for articles and feedback.

—Cathy Taglieri, PharmD.,
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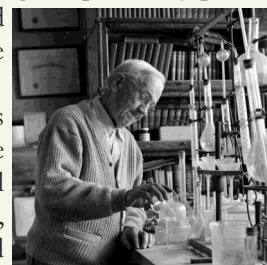


PREPARING LEADERS IN PHARMACY FOR 101 YEARS — IDAHO STATE UNIVERSITY COLLEGE OF PHARMACY

By Lee Ann Waldron, Idaho State University

The year 2020 marked 100 years for the Idaho State University College of Pharmacy. In 1918 Norman Adkison, president of Idaho Technical Institute (ITI), now known as Idaho State University (ISU), decided to begin the first pharmacy school in Idaho, at the request of many pharmacists in the state. Adkison called upon Eugene O. Leonard to begin outlining and planning the pharmacy program. Few knew that Leonard would then serve as the dean of the college for 30 years.

On April 17, 1920, it was announced that pharmacy would be offered that fall. There was no formal or nationally accepted accreditation, but ITI's program was recognized



Founding Dean Eugene O. Leonard

—continued on page 4

Preparing Leaders in Pharmacy for 101 Years...

Continued from page 3

throughout the nation, appearing on approved program lists published by state boards of pharmacy. In September 1920, the first three students enrolled in the two-year Ph.G. (Pharmacy Graduate) program. In 1922, the three-year Ph.G. was implemented as well as the Ph.C. (Pharmaceutical Chemist) program.

In 1930, a bill was passed requiring all candidates for the license to obtain the four-year B.S. degree. During the Great Depression in the 1930s, students paid a total of \$30 per semester for tuition and \$28 per month for room

and board. Enrollment increased steadily, from 36 to 133 students over the decade. The College implemented a new five-year B.S. in Pharmacy in 1957. That same year, the College was accredited and received an "A" rating.

In 1976, enrollment reached its highest ever at 337 students, likely due to the Federal Health Professions Scholarship program. The 70s also saw the initiation of clinical pharmacy courses, pharmacy administration, and continuing education positions.

In the 80s, the College was reestablished into separate academic departments, the Department of Pharmacy Practice and Administrative Sciences and the Department of Biomedical and Pharmaceutical Sciences. The Doctor of

Continued on page 22



AMERICAN INSTITUTE OF THE HISTORY OF PHARMACY UPDATE

It's been a busy winter and spring at AIHP! Here is a summary of our recent work and activities:

New NEH Grant to Expand Access to AIHP's Historical Collections: AIHP is excited to announce that its host institution, the University of Wisconsin-Madison School of Pharmacy (UWSoP), has been awarded a \$326,000 grant designed to significantly increase the public's ability to discover, use, and access the Institute's important historical collections. The grant will fund work to complete an online accessible inventory of the collection, catalogue and generate digitized images of artifacts and ephemera in the collection, and create an online accessible digital library. AIHP Historical Director Lucas Richert, PhD is the grant's Principal Investigator and Project Director.

Call for Nominations for the 2022 Edward Kremers

Award: AIHP is accepting nominations for the 2022 Edward Kremers Award through May 15, 2022. AIHP awards the Edward Kremers Award to recognize the author(s) of a specific book, or a series of related articles, published within the past five years, in the field of the history of pharmacy and pharmaceuticals that exhibits high standards of scholarship, superior quality, and distinguished merit. Click here for more information: <https://aihp.org/awards-grants/awards/kremers-award/>

AIHP PhD Research Support Grant Awarded: The Institute recently awarded a \$2,000 AIHP PhD Research Support Grant to Taylor Dysart, a doctoral candidate in the Department of History and Sociology at the University of Pennsyl-

vania. The grant will support Ms. Dysart's dissertation research, currently titled "The Scientist and the Jaguar: Enchanting Plants and the Politics of Knowledge in the Northwestern Amazon, 1849-2000." The AIHP PhD Research Support Grant Program provides financial support for doctoral students pursuing academic research related to the history of pharmacy and pharmaceuticals. AIHP has awarded more than 65 PhD research support grants since 1985.

Call for Nominations for Certificates of Commendation:

AIHP is now accepting nominations for 2022 Certificates of Commendation. AIHP awards Certificates of Commendation to recognize activities or historical endeavors by individuals or organizations that (i) advance knowledge or understanding of the history of pharmacy and pharmaceuticals; or (ii) utilize the history of pharmacy and pharmaceuticals to entertain, inform, or educate or to address or advance understanding of contemporary issues. Certificates of Commendation are not intended to recognize individuals for academic achievements or for peer-reviewed publications. The deadline for receipt of nominations is August 1. Click [here](#) for more information about submitting a nomination.

AIHP Honors 50-Year Members: The Institute is honoring the 20 individuals who have been AIHP members for 50 years or more. Institute President John D. Grabenstein recently sent a letter to each honoree to thank them for their half-century of loyal support for the Institute and its mission. The names of the honorees and the year they became an AIHP member are available at: <https://aihp.org/aihp-honors-50-year-members/>

Clinical Pearl — Teaching the History of Pharmacy

XAVIER PHARMACIST SERIES AT XAVIER UNIVERSITY OF LOUISIANA

BY AHLAM AYYAD



The history of pharmacy is a fundamental component in every pharmacy student's career path. At Xavier University of Louisiana College of Pharmacy, an entire pharmacy series has been developed and incorporated within the curriculum. The focus of this series is to discuss professional development, personal growth, social awareness, and the history of pharmacy. History has always been a part of foundational content, but incorporating this specific series within the curriculum has reinforced the pharmacy legacy. Currently, there are three parts to this series, Xavier Pharmacist I-III. Each part is a pass/fail 1 credit class that starts in the fall of the first semester in pharmacy school and continues consecutively.

Assessments mainly consist of post-reflections and a team professional challenge that emphasizes important concepts and ideas discussed throughout the semester. Requirements for this assignment included a recording of students working in groups. This sparks students' creativity and innovation by utilizing multimedia and other resources to complete their team professional challenge.

In addition to the history of pharmacy, implicit bias, health equity & distributive justice, and other topics are discussed to promote practice readiness. Pharmacy career pathways, professionalism, leadership in pharmacy, the mission of Xavier College of Pharmacy, and the Xavier Pharmacist Legacy are discussed. Although this Xavier Pharmacist series was implemented last year during the pandemic, it has been a successful journey thus far. It is not a surprise that teaching styles have been adjusted given current circumstances.

Some techniques we've implemented within this series that particularly focus on pharmacy history include Socratic discussions, Zoom breakout rooms, and Kahoot interactive quizzes. Socratic discussions give students the opportunity to speak on concepts focused on in class and encourage other students to participate. Zoom breakout rooms help students familiarize themselves with their col-

leagues and help students collaborate with one another. Kahoot is another wonderful and entertaining method of assessing students' retention of information. Kahoot is typically done at the beginning or end of class to help start discussions or reemphasize important concepts. Students really enjoy these interactive quizzes and are more willing to participate. Considering Zoom fatigue, this was a great outlet for both parties to enjoy.

While I am only the course coordinator of one part of the Xavier Pharmacist series, this series could have not been complete without the creators of this course Dr. Kirchain, Dr. Rapp, Dr. Kennedy, Dr. Lemieux, and Mr. Schexnayder. I would like to also acknowledge Dr. Jamero, Dr. Jackson, Dr. Hayes, and Dr. Williams for presenting and/or participating in class discussions.

**—Ahlam Ayyad, Pharm.D.
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SHOW GLOBES: A SYMBOL OF PHARMACY

BY MELANIE A. PIERCY AND JANE E. KRAUSE

Description and Early Beginnings

Pharmacy show globes (also called show jars) have been associated with the pharmacy profession for centuries and appear to have originated in England.^{1,2,3} Show globes are clear glass containers with a stopper that is filled with colored liquid and displayed in the apothecary or community pharmacy (i.e., commonly displayed in the window).³ In addition to its colorful liquid, pharmacists often used silver spheres or mirrors to reflect light onto the globes. Some show globes are made of etched or cut glass, giving the globe more beauty, depth, and shine.

Although many sizes were produced, the typical show globe is one-half to two gallons in size and measures approximately 12 - 24 inches in height.³ Show globes may have two or three tiers, with one globe and stopper as a tier, and each tier tapers towards the top. Show globes were suspended from the wall or ceiling in the pharmacy using iron brackets for support or were free-standing on wooden, iron, or glass pedestals or stands.

While the exact time and place of their creation is unknown, it is believed that show globes have been a symbol of pharmacy since the 17th century in England and since the 18th century in the United States.² When introduced in England, the show globe served a practical purpose.³ The streets in England were often narrow, winding roads with little lighting and the show globe helped to serve as a source of light to attract customers. Additionally, during a period of low literacy, the show globe served as a symbol that this business was a pharmacy.^{2,3} Since storefronts did not differ greatly from one another, the show globe became the well-recognized symbol of pharmacies, much in the same way a red and white-striped pole signifies a barber-shop.²

By the late 1700s, show globes were exported to the United States, as evident in New York advertisements.³ While

show globes may have originated from carboys in England, they evolved in the United States into diverse and elaborate forms.⁴ Lithographs of the design of pharmacies in the United States in the 1800s (interior and exterior views) illustrate that show globes were often placed in the window of the pharmacy and/or on a cabinet toward the front of the pharmacy.⁵ By the 1870s, pharmacy equipment catalogs contained many illustrations of show globes, and during the 1890s, the catalogs contained color representations of show globes and other supplies.³ By 1890, American manufacturers, such as the Whitall, Tatum and Company offered show globes which incorporated gas or oil lighting from inside.

APhA Resolution

As show globes grew in popularity, they became a well-recognized symbol of the pharmacy profession.³ In 1931, the American Pharmaceutical Association (APhA) adopted a resolution to make the show globe a symbol solely of the pharmacy profession. "The displaying of the show globe filled with colored liquids by establishments not under the direct supervision of legally qualified pharmacists is deceptive and should be prohibited by law or by regulation of Boards of pharmacy".³ Because of this, many states allowed only pharmacies to display show globes.⁶

Show Globe Theories

Many theories on the origination of pharmacy show globes exist.^{3,4,7} Although there is no one theory that historians agree upon, the different viewpoints offer interesting perspectives on the history and development of this pharmacy symbol.³

Many of the theories involve Anglo-Saxon roots, thus it appears that show globes likely originated in England and were later introduced to countries under British influence, such as the United States, Canada, Australia, and New Zealand.³ In addition, most historians agree that show globes were used for attracting customers and as a sign of the

-continued on page 12

Armies on Speed: Amphetamine Use in World War II

BY **BRANDEE WRIGHT AND VICTORIA MILLER**

World War I ended on November 11, 1918, with the signing of the Treaty of Versailles, which detailed the surrender of Germany to the once Allied forces of Great Britain, France, Italy, and Russia. The treaty caused the cessation of the four-year global conflict, but it also set the stage for events leading to World War II. The Treaty of Versailles and the warfare of World War I left Germany in shambles, allowing the National Socialist German Worker's Party (Nazi Party) and its leader Adolf Hitler to seize power.¹ In 1939 Adolf Hitler and Joseph Stalin, leader of the Soviet Union, signed the German-Soviet Nonaggression Act, declaring if one of these countries were to become involved in a war, the other would remain neutral.² Hitler took advantage of this agreement and on September 1, 1939, nine days after the treaty was signed, Germany invaded Poland. In support of Poland, Britain and France declared war on Germany on September 3, 1939, and World War II officially began.^{1,2} The United States did not participate in World War II until an infamous day in 1941 when 360 Japanese aircraft attacked Pearl Harbor in Oahu, Hawaii. Within hours of the attack, the United States declared war on Japan, and the worldwide aspect of the war began.¹ The world was divided into two major alliances: the Allied Powers, consisting of Great Britain, France, the United States, and the Soviet Union, and the opposing Axis Powers of Germa-

ny, Italy, and Japan.² In times of mass genocides, gruesome human experiments, nuclear weapons, and unimaginable trauma, both powers took desperate measures to keep their soldiers alive and fighting.

One measure that was utilized involved the use of stimulants to help promote wakefulness and improve the mood of soldiers who were engaged in combat.³ The United States and Britain often used a stimulant called Benzedrine (amphetamine) while Nazi forces used Pervitin (methamphetamine). Amphetamine is a synthetic stimulant and was first created by a Romanian chemist, Lazar Edeleanu in 1887. An American chemist named Gordon Alles continued to research amphetamines and hoped to develop a medication that could be used for bronchodilation and decongestion. He ended up synthesizing the amphetamine sulphate salt form in 1927. After Alles sold his patent, Benzedrine sulfate began to be marketed in the 1930s for depression, narcolepsy, obesity, Parkinson's disease, schizophrenia, sexual dysfunction, addiction, common colds, and hyperactive behavior. There was also a Benzedrine decongestant inhaler that was sold by Smith, Kline, and French in the United States.⁴

Methamphetamine became available to the Germans when it was synthesized in Nazi Germany by Fritz Hauschild in 1937. This three-milligram "magic" pill was manufactured by Temmler-Werke, a German

pharmaceutical company, beginning in late 1938 and was marketed under the name "Pervitin".⁵ Pervitin was an over-the-counter medication used as an antidepressant, which also increased alertness and led to a state of euphoria. Doctors often prescribed Pervitin for productivity, and it was also used recreationally at parties.³ Otto Ranke, a military doctor and director of the Institute for General Defense Physiology at Berlin's Academy of Military Medicine, began studying the effects of Pervitin in 1938.⁶ One of his first tests were conducted using university students. A description of the experiment states that he separated 30 university students into four groups. Two of the groups received different dosages of Pervitin in the evening, and the other two groups received dextrose. He required that the students solve different tasks through the night, especially in the area of mathematics. Dr. Ranke ended up stopping the experiment early the next morning because one of the students began having heart palpitations. Even with the adverse effects experienced by one of the students, he concluded that Pervitin could be used to improve wakefulness and was superior to caffeine. He completed several more similar tests. Dr. Ranke did not give an order for Pervitin to be administered to soldiers, but many medical officers began dispensing Pervitin to soldiers and officers. Pervitin tablets were more commonly used, but

-continued on page 13

The Flower That Bloomed in Adversity: Discovering Digoxin for Dropsy

By Sierra Meyers

Digoxin is a well-versed medication best known for its uses in chronic heart failure and atrial fibrillation, as well as its infamous toxicity associations. The history behind the origination of digoxin and its evolution to implications in practice today is a fascinating story. This article takes a closer look at the discovery of digoxin and its uses of the past, specifically for the treatment of dropsy.

William Withering, an 18th century British botanist and physician, is credited for his erratic use and discovery of the toxic adverse reactions of *Digitalis*, the scientific name of the foxglove flower or plant.^{1,2} *Digitalis* gets its name from the finger-like, elongated shape of the flower.³ The plant is native to the Eastern hemisphere, particularly Europe, the Mediterranean region and the Canary Islands.⁴ One of the first documented uses of foxglove for disease state management dates back to the early 1200s, where reports in the Welsh pharmaceutical book *Meddygon Myddmaw* describe *Digitalis* use for headaches and spasms.⁵ Its uses are mentioned again in the 15th century for epilepsy and tuberculosis and the 16th century in the *London Pharmacopeia* for dropsy.⁵ Up until Withering's practice, however, *Digitalis* was not widely used due to reports of toxicities when taken by mouth.⁵

Digitalis has approximately twenty different species of flowers.³ The cardiac glycoside digoxin was first isolated from *Digitalis lanata* from the *Scrophulariaceae* family in Britain in 1930 by Dr. Sydney Smith.^{5,6,7} Digoxin's cardiac effects are known to be mediated through the Na⁺/K⁺ ATPase pump in the heart via several direct and indirect mechanisms.⁸ The foxglove plant is toxic if ingested, and small differences in doses and concentrations can have life-threatening consequences in terms of adverse drug reactions. Therefore, the serum drug levels of digoxin must be performed to monitor potential digoxin toxicity. The therapeutic level of digoxin is also different depending on which disease state is being treated. In the management of heart failure, for example, that level is 0.5 to 0.9 ng/mL.⁸

Today, we know edema is a classic sign of uncontrolled congestive heart failure. But during the beginning of William Withering's practice in the 1700s, "dropsy" was the term used to describe edema before it was discovered that cardiac dysfunction could be the culprit of fluid overload symptoms. To say dropsy was excruciating would be an understatement. The progression of the disease would lead to gallons of liquid filling a patient's arms, legs, and every other part of their body. The uncontrolled swelling would morph a person's body into bizarre shapes and put so much pressure on the lungs that eventually the patient drowned in their own fluids.¹⁰ Patients who could not afford a physician would seek treatment from English folk healers in rural areas.¹⁰ Withering heard of the positive outcomes with the folk healers' potions. Most potions were made up of many different ingredients, so Withering set a mission to disclose the efficacious part of the concoction.¹⁰ And so, the foxglove plant was identified.

Withering treated many patients with foxglove during a ten-year period from 1775 to 1785.¹¹ You could think of this somewhat as a ten-year clinical trial phase where he experimented with prescribing different dosages of foxglove for dropsy and other disease states. He went on to write a book about his successes and lessons learned about the treatment titled "An Account of the Foxglove, and Some of Its Medical Uses: Practical Remarks on Dropsy, And Other Diseases". His work noted the toxic side effects seen in large doses such as profuse nausea and vomiting, vision changes, objects appearing green or yellow, slow pulse, unconsciousness, convulsions, and death.^{3,11} It also highlighted that the diuretic effects of foxglove were independent of the dosage.¹¹

During this era, Europe was battling another epidemic in addition to dropsy cases. The White Plague, known today as tuberculosis, was spreading rapidly across the nation. Also called "phthisis" or "consumption", the White Plague

-continued on page 15

SODA FOUNTAINS, SODA AND THEIR PHARMACIST INVENTORS

BY *DANA L. SINGLA*

Getting the "Pop" Into Soda

Natural mineral water was used in Europe for hundreds of years for its healing properties.¹ It was thought to be a magical cure for a long list of ailments that could be improved by bathing in or drinking the water.² People sought to take the medicinal waters from their natural sources; however, packaging and transporting the water was challenging, so chemists and apothecaries created their own. The name soda water originated from the addition of either sodium carbonate or bicarbonate (soda) to the water to improve the taste and increase pH.

The first chemist to artificially produce carbonated water was Joseph Priestley, the British chemist who identified the element, oxygen. In 1767, he infused water with gas produced by fermenting yeast mash resulting in lightly carbonated water. In 1783, Swiss scientist, Johann Ja-

cob Schweppe, improved on Priestley's process and invented a manually-cranked compression pump for carbonating water.¹ This was the start of his well-known company.

Benjamin Stillman, a chemistry professor at Yale University who believed carbonated waters had medicinal properties, is considered the creator of the carbonated drink industry.¹ He sold bottled carbonated water at his local apothecary shop and wanted to increase production. At that time, corked stone-ware bottles were used to store carbonated water. Due to the inability of the cork stopper to form a tight seal, the water frequently lost its carbonation before getting to market. Stillman designed the first large-scale carbonation apparatus in 1809, and sold carbonated water at two pump-rooms in New York City. The pump rooms, with elegant finishes including marble counters and brass soda dispensers, were designed

to cater to an upscale clientele and provide a spa-like atmosphere where people could relax, read and enjoy the health benefits of carbonated water.

In 1813, Charles Plinth invented the soda siphon, which allowed soda water to be dispensed from the container without compromising the carbonation of the remaining soda water.¹ Although this solved some of the issues with getting the carbonated water to market without losing its carbonation, the main drawback was that it had to be refilled at a carbonated

lined cast-iron box in which sulphuric acid and calcium carbonate from marble chips were mixed to generate carbon dioxide. The gas was placed in a tank partially filled with water and the tank was hand-rocked for 15-30 minutes to incorporate the gas into the water. The Liquid Carbonic Company was started by pharmacist, Jacob Baur, in 1888. It manufactured carbon dioxide by removing it from the air and concentrating it in tanks.³ Baur's Liquid Carbonic soda fountains made it easy to start a soda fountain.

LEMONADE
AND
SODA - WATER MACHINE.

NATHANIEL GEORGE WILCOCKS,
ENGINEER AND
Soda Water Machine Manufacturer.

There are over 1000 Manufacturers in the United Kingdom using these Machines for making

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| Soda, Potass, Seltzer, Carrara, Lithia, Magnesia, and Tonic Waters, etc.; |  | Lemonade, Ginger Beer, Ginger Ale, Orangeade, Gingerade, Nectar and Champagne Cider. |
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No. 1 COMPLETE, WITH DOUBLE FILLING STAND FOR SIPHONS OR BOTTLES.
The Theory and Practice of Soda Water Manufacturing reduced to its simplest form by
**MONDOLLOT'S PATENT CONTINUOUS
SODA WATER MACHINERY,**
Specially contrived to avoid the use of the Gasometer.
MOST SIMPLE TO WORK AND ENTIRELY AUTOMATIC.
GOLD MEDAL: PARIS, 1878.

liquid facility. Approximately 20 years later, in 1832, American inventor, John Matthews, created a lead-

Figure 1: Early soda machines from the 1870s.¹

-continued on page 16

Cora Dow the Leading Lady of Chain Pharmacy in the 19th Century

BY RUCHI VYAS

Cora Dow:

Margaret Cornelius Dow (“Cora Dow”) owner of The Dow Drug Company, was a pharmacist by training but picked up many other titles as she expanded her business and set precedents for future pharmacy practice.¹ Cora (1868-1915) was born in Paterson, New Jersey and moved to Cincinnati in 1870, where her father began his “patent drug” business.¹ Cora prepared for her pharmacy career by enrolling in the Cincinnati College of Pharmacy program from 1886-1888 after her father fell ill in 1878.³ As an only child, she inherited her father’s business after he passed away in 1889.^{2,3} Cora was notable for her development of chain pharmacies, wholesale distribution, and advertising within the profession of pharmacy.^{2,4} Her advancement of the profession was uniquely intertwined with her investment in employing women and serving women customers but was contradictory to her beliefs opposing the women’s suffrage movement.

Cora’s Impact as an Entrepreneur

Cora’s innovative business ideas and values proved successful from her determination to grow her business allowing for lasting impacts on today’s pharmacy practice. Cora’s philosophy for her pharmacy business was to offer quality products, attract both men and

women customers, and offer cut-rate prices.³ For example, her dissatisfaction with the quality of ice cream being sold at her drug store, lead her to purchase a series of businesses that would supply her own pharmacies with quality products.³ As a result, she manufactured and distributed ice cream, hygiene products and drug products.³ As her wholesale empire continued to grow, Cora was able to offer cut-rate pricing at her stores, thereby selling under the normal retail selling price and attracting more customers.³ She opened her second store in 1890 and rapidly expanded her business to eleven stores total until she passed away of tuberculosis in 1915.³ Her business ideology made the goods sold at her store more accessible with one location even offering 24-hour service.³ Her ideas were unconventional and caused a great deal of pushback; however, the practices she began at that

time continue to be used today in wholesale drug distribution and retail pharmacies.³

Cora’s Approach to Women in the Workforce

Cora’s outlook on the woman’s suffrage movement diverged from the practices she upheld when running her pharmacy business. While close to half of her employees were women, she publicly disapproved of the women’s suffrage movement. She stated, “no woman needs to vote and no woman needs to insist on her rights... [Her] sex gives her more than her rights at the hands of honest, upright men,” describing her disagreement with the push for women’s deviation from traditional gender roles.³ Additionally, while she paid men and women the same wage⁵ which was unusual for that time; she still believed women should not have the right to vote as it would

-continued on page 19



Pictured left, on the street corner in a populous suburb known as Walnut Hills is Cora’s tenth Dow’s Drug Store.^{2,3}

Source: Cincinnati & Hamilton County Public Library, (2020)

Pharmacy Through the Lens of Hollywood V: “The Three Stooges Meet Hercules”

By David M. Baker and Eric C. Nemec



The fifth in our leading-role pharmacist character movie articles, the 1962 movie, “The Three Stooges Meet Hercules,” portrays an independent community pharmacy in the early 1960s in Ithaca, NY.² Interestingly, despite movies having been produced in color for decades, this movie was produced in “glorious black and white.”³



Larry and Moe talking about Larry’s “pepper-upper” cocktail at the soda fountain in the Ithaca Pharmacy.¹

Released: January 26, 1962

Playing Time: 1 hour, 29 minutes

Availability: DVD format; and on various online streaming services.

Production Company: Columbia Pictures

Director: Edward Bernds

Writers: Elwood Ullman (screenplay) & Norman Maurer (based on a story by)

Cast:

Moe Howard - Moe

Larry Fine - Larry

Curly Joe DeRita - Curly Joe

Vicki Trickett - Diane Quigley

Quinn K. Redeker - Schuyler Davis

George N. Neise - Ralph Dimsal/ King Oedius

Samson Burke - Hercules

Marlin McKeever - Ajax (The Siamese Cyclops)

Mike McKeever - Argo (The Siamese Cyclops)

Emil Sitka - Shepherd/Refreshment Man

Hal Smith - King Theseus Of Rhodes

John Cliff - Ulysses

Lewis Charles - Achilles The Heel

Barbara Hines - Anita

Terry Huntingdon - Hecuba

Diana Piper - Helen

Gregg Martell - Simon³



Movie Summary

“The Three Stooges Meet Hercules” opens with a review of heroes through history, positing the greatest was the mighty Hercules. However, he would not have been, if not for three unique individuals - Larry, Moe, and Curly Joe. After the introduction, the Stooges (the “boys”) are seen working in Ithaca Pharmacy, often called Dimsal’s Drugs, due to its owner being Ralph Dimsal. Larry is working on a “pepper-upper” cocktail at the soda fountain while Curly Joe is triturating a counteracting “super-tranquilizer” (or “calm-down” pills) with a mortar and pestle. While seemingly a backdrop to the film’s introduction, these compounds will later contribute to their ability to time travel and assist “Hercules” in many of his tasks.²



Curly Joe compounding the “calm-down” pills behind the counter at Ithaca Pharmacy.¹

After some slap-stick comedy, the entire pharmacy shakes, causing multiple items to fall off the shelves. Moe says it’s due to the next-door neighbor’s experiments. That neighbor, Schuyler, has been working for some time on a “space-time conveyer,” a.k.a., time machine. Moe goes to see what happened, while Curly Joe and Larry promise

-continued on page 20

Show Globes: A Symbol of Pharmacy

Continued from page 6

pharmacy profession.

One theory connects the show globe with the landing of Romans in Ireland.⁴ Supposedly, an advance party of Julius Caesar's forces located a landing site opposite a pharmacy, which displayed show globes in its windows. The pharmacist agreed to place lighted lanterns behind the show globes, which would serve as beacons for the landing forces. It is suggested that Caesar, in appreciation for this gesture, decreed that apothecaries would be permitted to exhibit show globes in their windows as a symbol of their profession. However, this theory allegedly took place centuries before there was a separate profession of pharmacy.

Another theory states that show globes originated in the Middle East during the period of Islamic domination.⁴ At that time, pharmacies were open to the street. The pharmacist often exhibited precious wares in elaborate jars, which might be interpreted as a precursor to show globes. However, there is no evidence that the show globe was ever used as a symbol of pharmacy in the Middle East.

During the Great Plague in London (1665-66), many physicians were unable to provide effective medical assistance.⁴ Seizing upon this opportunity, pharmacists expanded their medical activities and placed containers of colored liquids in their windows to assure the public that they were still ready to provide needed help. However, it is difficult to understand why what was essentially a notice to provide medical help developed into a pharmacy symbol.

Another theory suggests that show globes originated from vessels used for maceration of crude drugs that were often kept in the front windows of pharmacies.⁴ Since maceration is a universal process, this suggests that the show globe might have gained worldwide acceptance as a symbol rather than primarily in England and British-influenced areas. In addition, because shop windows were relatively small and streets narrow, maceration vessels were more likely exposed to the sun in the backyards of the shops rather than in shop windows.

Yet, another theory suggests that in certain coastal towns of England, apothecaries displayed green and red globes in the shape of ships' lanterns in their windows to advertise their

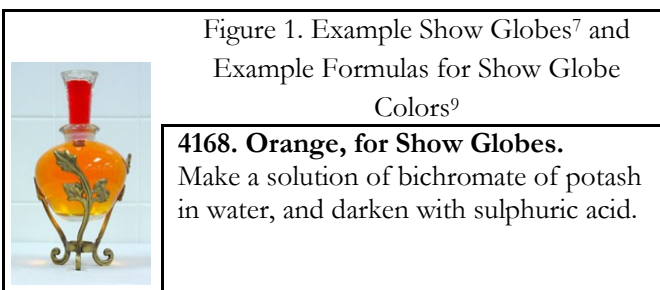
services to sailors who may have been injured.⁴ While British apothecaries often had a surgical as well as a pharmaceutical function early on, it doesn't explain why an advertisement to supply surgical services would evolve into a pharmacy symbol.

A common theory regarding show globes states that pharmacists would color the show globe liquid red to warn if there was an epidemic in the town and green if there was not.⁷ Red color in the show globe was intended to warn people to stay away from town. However, during epidemics or quarantines, a warning sign was generally placed on the door of the house, posted outside of town, or printed in the newspaper.

It is important to include that Professor George Urdang (1882-1960), a historian of pharmacy in Germany and the United States, offered his own theory regarding show globes.⁸ Namely, that the show globe had its origins about 1550 in the shops of the "preparers of chemical medicines" in London, called the "chymists," and was later adopted by the apothecaries. In other words, since the dispensing chemists evolved into the British pharmacists, the symbol carried forward as well.⁴

Published Show Globe Colors

The Era Formulary, published in Detroit, Michigan (D. O. Haynes and Co.) in 1893, contains three pages (50 formulas) for compounding various colored liquids for show globes.⁹ The formulas were written using the apothecaries' system of measurement (Figure 1 and Figure 2). Adding the colors to the show globes was a way for the pharmacist to show his/her expertise in mixing chemicals.² Often the pharmacist would use various liquids of different densities to layer colors in stripes. The ability to extract and mix was a sign of a competent and skilled pharmacist, and a show globe, as the centerpiece of the shop display window, illustrated this to all who passed by.



-continued on page 14

Armies on Speed...

Continued from page 7

methamphetamine was also given to soldiers in the form of chocolate bars: Fliegerschokolade (flyer's chocolate) and Panzerschokolade (tanker's chocolate). Soldiers who took Pervitin were said to have improved endurance, enhanced alertness, and increased concentration, all while having decreased feelings of hunger, pain, and fear. Łukasz Kamiński, author of *Shooting Up: A Short History of Drugs and War*, stated "It was hoped to turn the Luftwaffe pilots, Wehrmacht soldiers, and Kriegsmarine sailors into superhuman warriors, or in a word, to produce an army of true Aryan heroes."⁵ Other scholars have debated that the development of super soldiers was not the true aim of amphetamine use during World War II and that targeting fatigue and morale were the overall goals for use. Changes in military technology required longer and more precise operations where duties may last up to twelve hours at a time, and it was thought that stimulant use could help to abate fatigue.³

The use of stimulants was put to the test in 1938 when Wehrmacht medical officers dispensed Pervitin to soldiers before the successful siege of Czechoslovakia.⁶ Pervitin was once again used in September 1939 during



Figure 1: Patowary, K. *Amusing Planet*. <https://www.amusingplanet.com/2020/05/pervitin-wonder-drug-that-fueled-nazi.html>. Published May 25, 2020. Accessed September 12, 2021

the invasion of Poland.⁶ Warsaw, the capital of Poland, became surrounded by Germany and East Prussia from the north and Silesia and Slovakia in the south. Facing an army of nearly 1.5 million troops, Warsaw fell to the Axis powers on October 6, 1939. This swift victory for Germany coined the term blitzkrieg, or "lightning war".^{1,2} As the German occupation expanded, so did the use of Pervitin and Isophan, an alternative form of Pervitin manufactured by Knoll Pharmaceutical Company. By the spring of 1940, over 35 million tablets of Pervitin and Isophan had been distributed to German soldiers. The historian Nicolas Rasmussen concluded, "The German blitzkrieg was powered by amphetamines as much as it was powered by machine." Eventually, German soldiers began experiencing side effects of Pervitin including dependence, hallucinations, exhaustion, circulation issues, aggression, and even death.^{5,7} As the adverse effects of Pervitin became more prevalent, the German military began to limit the once copious amounts of Pervitin.⁸ It is unknown if the influence of Pervitin led to the inhumane and barbaric acts of the German soldiers or if the acts were the result of the psychological trauma of war and cultivated racism.

Although Germany was the major consumer of Pervitin, they were not the only country using amphetamines for battle. Japan, the United States, and Great Britain also provided their soldiers with stimulants to gain a tactical advantage over the other.^{5,9} Japan's military used Philopon (methamphetamine) for their combat soldiers and kamikaze pilots. Before their missions, kamikaze pilots were presented with honorable warri-

or ceremonies, as well as high doses of Philopon. As a reminder of why they were fighting, Japanese soldiers had the option of taking amphetamine tablets pressed with the emperor's seal.⁹ Amphetamine use was also seen in the Allied Powers in the form of Benzedrine tablets (commonly known as "Bennies" by the Allied soldiers). It is estimated 13 to 55 million tablets of Benzedrine were used by American soldiers and citizens during this time.³

World War II is known as the deadliest conflict in history in which over 40 million people lost their lives, but it was also the most pharmaceutically enhanced war at that time.^{2,8} Much information was learned about the use of amphetamines and possible benefits and side effects during this period of world history. Times of war can call for drastic measures, and the broad use of amphetamine products in the military forces of both the Axis and Allied Powers speaks to this premise.

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-continued on page 14

Show Globes: A Symbol of Pharmacy

Continued from page 12

Figure 2. Example Show Globes⁷ and Example Formulas for Show Globe Colors⁹

| | |
|--|---|
|  | <p>4176. Dark Blue for Show Globes. Sulphate copper 160 grains. Solution potash 1 pint. Glycerine 1/4 pint. Water 16 pints. Dissolve sulphate of copper in sufficient water, add to the solution potash, then glycerine, until complete solution results. Finally add the remainder of the water.</p> |
|  | <p>4210. Purple, for Show Globes. Salicylic acid 1 grain. Alcohol 2 drams. Tincture of iron. . . . 5 drops. Water, sufficient. Dissolve the acid in the alcohol; to it add, first, the tincture, and then enough water to produce desired color.</p> |

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Show globes hold a significant and intriguing history as a symbol of the early pharmacy profession.³ Show globes gave a degree of beauty and sophistication to pharmacies and while their use has disappeared over the years, pharmacy historians and enthusiasts continue to collect these works of art.

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Armies on Speed...

Continued from page 13

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The Flower That Bloomed in...

-continued from page 8

killed millions of people, particularly those of lower socioeconomic status.¹² Unfortunately, William Withering contracted the bacterial disease. His practice was impactful up until his death from tuberculosis in 1799 at age 58.¹¹ Withering had many successes and contributions to science during his lifetime, but we must also recognize the folk healers as contributors to the discovery of digoxin.

Pharmacotherapy management has drastically improved over the years for both chronic heart failure and atrial fibrillation. Digoxin is still available today for both FDA approved and off-label usages, but other treatment options have become standard of care in its place. This is not totally surprising as even Withering quoted using *Digitalis* as last line therapy in his book, "...whilst I was less expert in the management of the *Digitalis*, I seldom prescribed it, but when the failure of every other method compelled me to do it".³ His book presents details of only 163 patient cases within those ten years.¹¹ Withering also recognized that the experimental trials with dosing of foxglove were arguably necessary, stating "...if the properties of that plant had not been discovered, by far the greatest part of these patients would have died".³ Today, foxglove plants are grown around the world and are readily available for purchase and gardening in the United States. Foxglove is eye-catching and unique, but beware of its underlying lethal properties.

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Picture from: <https://flowermag.com/growing-foxglove-plant-and-foxglove-flowers/>

Photo by: Michael Warwick/Shutterstock

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Soda Fountains...

Continued from page 9

Why Drugstores?

Due to the purported health benefits of soda water, soda fountains were first situated in drugstores.¹ Pharmacists' compounding skills enabled them to make syrups and flavorings which they often used to mask the bitter taste of liquid medicine like quinine and iron. Pharmacists also started adding health-providing ingredients, like sarsaparilla and phosphoric acid. As a means of advertising, syrup companies provided pharmacists with free syrup dispensers.



Figures 2 and 3: Cherrie Punch and Orange Crush syrup dispensers ^{4,5}

Prohibition, which legally banned the manufacture and sale of alcohol in the US from 1920–1933, was another reason that soda fountains were located in drugstores.⁴ During Prohibition, alcohol was still available at the drugstore and could be legally prescribed by physicians and dispensed by pharmacies with proper licensing. For example, pharmacy customers could purchase their medicinal liquor and then sit down at the fountain for a drink with their friends. Despite medicinal alcohol sales, soda fountains were viewed as a wholesome and healthy alternative to the saloon and the word “soft drink” came about to

distinguish a soda water cocktail from a “hard drink” that contained alcohol. By the early 1920s, almost every drugstore had a soda fountain.³

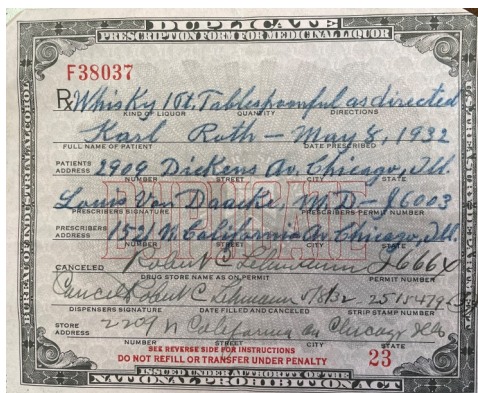


Figure 4: 1932 Prescription Form for Medicinal Liquor (authors private collect).

Soda and the Temperance Movement

In the early days of soda fountains, there were no laws regulating the sale of drugs or additives, so many sodas sold in the 1800s included narcotics or stimulants.¹ Prior to the first federal drug laws, “nervines” were often added by pharmacists to provide an “edge” to their beverages. This category included strychnine, cannabis, morphine, opium, heroin, and cocaine. Cocaine was isolated in 1855 and was considered a marvelous cure-all that could not harm. Customers frequented soda fountains in the morning to get a refreshing “pick-me-up”.

By 1900, Americans started to notice the dangers of unregulated medications.¹ Coca-Cola® was created as an alternative product to replace the morphine addictions of soldiers after the Civil War. In 1886, Coca-Cola® ran its first advertisement as a health drink or brain tonic, “containing the properties of the wonderful Coca plant and the famous Cola nuts.”

The Coca plant contained cocaine, which is a coca leaf extract; the



(Figure 5: An early advertisement for Coca-Cola®.)

African kola nut has high caffeine content,¹ In 1906 the Pure Food and Drug Act was passed, requiring that eleven ingredients considered addictive and/or dangerous be listed on the drugs label, including alcohol, cocaine, caffeine, morphine, and cannabis. After the passage of this act, most of the cocaine and a large portion of caffeine was removed from Coca-Cola®. Finally, in 1914, the Harrison Narcotics Tax Act, which prohibited cocaine and opiates in over-the-counter products including beverages, was enacted, leaving soda to rely on sugar to keep customers happy.³

Soda Jerks and Early Flavors

Soda jerks were as skilled as bartenders at mixing drinks.¹ The name evolved from soda clerk due to the jerking movement of the arm that was required to operate soda taps and was the official title of the drugstore assistants who operated the soda fountain. This coveted position was given to young men with entertaining personalities who worked their way up to the position.

Around 1900, the medical profession realized there were no health benefits to carbonated water, so soda

Soda Fountains...

Continued from page 16



Figure 6: Drugstore soda jerks at work.⁵

water simply became a cold treat.¹ Lemon-flavored drinks were the first flavor fad because people were familiar with lemonade, and lemon syrups were often used to flavor medicines. Citrus-flavored sodas were popular and easy to make because it was simple to extract and preserve their essential oils. Chocolate, vanilla, cherry, and winter-green were also popular, and each soda fountain created new and different flavor recipes. Although most soda mixtures used simple syrup for sweetening the drink, flavors were much tarter than today's sodas. Old-fashioned soda shop recipes are available online, like the "Big List of Old-Fashioned Soda Fountain Drink Recipes" from PrairieMoon.⁷

American Pharmacist-Invented Soda Brands That Are Still Around Today

Detroit pharmacist, James Vernor sought to develop a syrup formula to help with an upset stomach.⁸ In 1862, he went off to fight in the Civil War, and left his syrup behind in an oak barrel. When he returned in 1865, his ginger-ale syrup had a very

distinct flavor after aging in the oak barrel. Vernor's Ginger Ale® was created and sold at the soda fountain in Vernor's drugstore in 1865; it quickly became popular, and in 1896, Vernor closed the drug store to focus on soda sales. Vernor's Ginger Ale® claimed to aid in digestion, due to the large quantities of ginger extract in the original formula.⁹

Philadelphia pharmacist, Charles E. Hires, was served root tea on his honeymoon in 1875⁸. He subsequently developed and started selling root tea packets but eventually decided people might like to buy a ready-made drink instead of homebrew, and in 1884 he changed the name from "tea" to "beer". The formula combined 25 herbs, berries, and roots with carbonated water. An 1887 advertisement for Hires Root Beer® mix described it as a "delicious beverage, possessing properties which will change any morbid action of the stomach, fever, and kidneys, and keep them in a healthy condition, promoting strength and vigor."¹⁰

Dr Pepper® is the oldest major soft drink national brand in America.¹¹ The formula, with 23 secret ingredients, was created in 1885 by pharmacist Charles Alderton. It was sold in Morrison's Old Corner Drug Store in Waco, Texas, and the name Dr Pepper® was given to the drink by the store owner. It was marketed as a brain tonic and known for its distinctive flavor. In 1904, it was introduced nationally at the World's Fair in St. Louis, MO. After the passage of the 1906 Pure Food and Drug Act, it was

marketed as a "pure food beverage," because it did not contain dangerous drugs like caffeine or cocaine.¹⁰ However, in 1917, caffeine was added, which, along with its high sugar content, enabled Dr Pepper to be marketed as a pick-me-up at "10-2 and 4



Figure 7: Famous Dr Pepper advertising slogan.⁵

o'clock," the hours when blood sugar levels decreased.

In 1886 at Jacobs's Pharmacy in Atlanta, Georgia, pharmacist Dr. John Pemberton sold the first glass of Pemberton's French Wine Coca.⁸ Due to the enactment of a temperance law, the wine was replaced with sugar and renamed Coca-Cola®. In 1888, Pemberton sold his interest in the company to pharmacist, Asa G. Candler, who made the beverage a worldwide success. Today, Coca-Cola® is the world's most valuable soft drink.¹² In September 2021, the company was valued at \$33.17 billion, which is 180% of Pepsi's total worth and 911% of Dr Pepper's.

Coca-Cola® is recognized for its innovations in advertising.¹³ In 1891, calendars were used for advertising, followed by soda fountain urns and clocks in 1896 and magazine ads in 1904. In 1907, the company began to

-continued on page 18

Soda Fountains...

Continued from page 17

include athletes in its advertising, starting with famous baseball players. In 1925, the secret formula for Coca-Cola® was locked in a vault by the company's Board of Directors. At the same time, billboard advertising was introduced and in 1928, Coca-Cola began its association with the Olympic Games.

Santa was not always known as the jolly, plump, white-bearded man in the red suit that we know today.¹³ In 1931, illustrator Haddon Sundblom was commissioned by the Coca-Cola® company to "paint a Santa that was both wholesome and realistic." He drew upon his Scandinavian heritage and the Clement Moore poem, "A Visit from St. Nicholas," to create the big, red, jolly vision of Santa that the company used for more than thirty years.



Figure 8: Figure of Santa for Coca-Cola®, advertising campaign.¹³

That is how Santa, as we know him today, came to be.

North Carolina pharmacist, Caleb Bradham, served a mix of sugar, water, caramel, lemon oil, kola nuts, nutmeg, and other additives to create "Brad's Drink" in 1893.¹⁴ Developed

to aid in digestion, with one of its main ingredients being the digestive enzyme pepsin, it was renamed Pepsi® in 1898 and was marketed as "The Original Pure Food Drink" after the passage of the 1906 Pure Food and Drug Act. Pepsi-Cola® went bankrupt twice due to sugar price fluctuations by 1931. On three occasions between 1922 and 1933, the Coca-Cola® company declined offers to purchase the Pepsi-Cola® Company. In 1941, candy manufacturer, Loft Inc., purchased the company after Coca-Cola® refused to lower the price of its syrup for use in its retail stores. Over time, Pepsi® became a serious rival of Coke®. The Pepsi Challenge was one of its most successful advertising campaigns and is the reason Coca-Cola® changed its formula with New Coke®.

In 1905, Georgia pharmacist, Claud Hatcher, started producing and bottling RC Cola®.¹⁵ The RC Cola® company had many innovations. It used the first taste tests to prove that it was a better soda and boasts many other industry firsts including the first aluminum can, the first diet cola, and the first caffeine-free diet cola. Royal Crown Cola® never reached the market share of its major competitors, Pepsi® or Coca-Cola®, during the cola wars of the 1980s.⁸

The Decline of the Soda Fountain

Numerous changes in the late 1920s and 1930s led to the decline of the soda fountain. At the turn of the 20th century, glass manufacturers were finally able to meet demands for the production of soda bottles and bottled soda sales thrived.¹ One important contributor to the success of the bot-

tled soda industry was William Painter, who invented the crown cap in 1892, which is still in use today. The cap eliminated the sanitation and leakage issues that occurred with faulty corked bottles. Soda was bottled and sold everywhere, so people no longer needed to go to the drugstore for a soda. By the end of the 1920s, Coca-Cola® bottle sales topped soda fountain sales. Additionally, soda dispensers, which mixed soda and syrups consistently in one apparatus, changed the way soda was made and eliminated the need for syrup dispensers and hand mixing.³ Popular brands at the time, like Coca-Cola® and Pepsi®, began supplying soda dispensers at no cost to drugstores where soda became uniform in taste and brands become recognizable. Prohibition was repealed in 1933, and after World War II, America's growing car culture made roadside stands, like Dairy Queen, the popular social gathering place. Many homes now had refrigerators. Thus, soda sales at soda fountains declined.

Today the soda fountain has become a part of American nostalgia and only a few vintage soda fountains still survive. The legacy of pharmacist-created soda flavors is still strong, with many of the brands now recognized worldwide.

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References (begin on page 19):

-continued on page 19

Cora Dow the Leading Lady of Chain Pharmacy...

Continued from page 10

change the traditional life of women and complicate the economy.^{1,2} She noted, "as far as the brains and ability of the women, I think they compare favorably with the men, and the ratio of success is not controlled by sex,"³ as her rationale for hiring women into her business. Another reason Cora believed women should be incorporated into the profession was to improve the experience of her women customers. She saw the need for women to be able to approach a pharmacy in which they could consult women pharmacists if they preferred.³ Although Cora's public stance opposed the women's suffrage movement, her actions of employing women, making pharmacy storefronts more accessible to women and paying women and men the same wage were modern approaches to the integration of women in society.



Cora Dow (1868-1915)³

Source: Henderson p.101 (2004)

Conclusion

Cora's innovative and entrepreneurial approach to running her pharmacy business offered practices that are apparent in today's pharmacy industry.

She empathized with women and created jobs for them to ease the drug purchasing experience for women customers. She valued quality products and offered better prices for her customers by taking wholesale distribution and advertising into in her own hands. In a short number of years, her business quickly expanded and provided increased accessibility to her customers. Her tremendous impact on her society and the industry was celebrated by the press, calling her an "indefatigable worker".³ Cora, a leading woman in pharmacy, pushed on boundaries in the pharmaceutical industry and for women's integration in society during the 19th century.

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Continued from page 18

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**Pharmacy Through the Lens of
Hollywood V:
“Three Stooges Meet Hercules”
Continued from page 11**

to clean up the mess in the pharmacy. Upon Moe's return with Schuyler, the state of chaos is even worse as the soda dispenser has been spraying suds everywhere. As the boys start to clean up, the pharmacy proprietor, Ralph Dimsal, shows up, bringing Schuyler's girlfriend, Diane, to work, too. While an argument ensues between Dimsal and the boys about the mess, Schuyler receives an ultimatum from Diane. Schuyler has two more days to finish his invention, or he can forget about Diane, “for good!”²

The boys decide to help Schuyler with his invention. Unfortunately, when they go next door, Schuyler is gone. However, the Stooges decide to rewire his invention according to the schematic they find, which unbeknownst to them, was doctored by Dimsal. The result, after they turn it on, is a jarring and electrifying experience with fireworks provided by a box of firecrackers previously brought in by Curly Joe. The explosions cause Schuyler to show up and Diane to come over from the pharmacy. Since the machine is frothing and shaking, Curly Joe puts some of his “calm-down” pills into it, causing it to settle and then spin off into the past, with everyone but Dimsal holding on.²

The group transports through space and time from Ithaca, NY, in 1962 to Ithaca, Greece in 900 B.C., during lecherous King Oedius's reign, who appears familiar (it is Mr. Dimsal!). Landing in the middle of a battle, the time machine with its riders interrupt the melee, allowing King Oedius to claim they are gods from Olympus sent to help him win the battle.²

When considering time travel “rules,” most default to the “rules” set forth in the 1985 movie, “Back to the Future.”⁴ Even though this movie

predates “Back to the Future,” those theories hold true for the Stooges. Specifically, the Stooges see that Oedius is attracted to Schuyler's girlfriend, Diane (like Dimsal was), and surmise their excursion could be the start of the whole Dimsal family. In other words, one can travel back in time, and change events, resulting in changes to the future. Wondering if this would impact their future employment, they initially do not protest.²

Unfortunately, the Stooges soon realize they backed the wrong army when Ulysses enters and calls Oedius a traitor. They realize their error when Schuyler points out that Ulysses was considered a wise and just ruler. So, they sneak off, help Ulysses escape, and hide in the women's public baths, where they are mistaken for new slave girls from Cythera. Unfortunately, the boys and Schuyler are quickly discovered, caught, and sentenced as galley slaves on a ship, leaving poor Diane with King Oedius.²

Again, the “calm-down” pills play a pivotal role, as Moe doses the water pail, causing Philo, the slave drummer, to pass out. The galley slave crew escape and mutiny on the ship. The ship sinks and the boys with Schuyler wash up on the Island of Rhodes. In the interim, the boys notice that Schuyler, who had always been tall and bookish, developed significant musculature on his right side due to all the rowing on the ship's port side.²

On the island, the boys and Schuyler meet a shepherd, who leads them to the harbor. There, they try to catch a ride on the royal yacht of King Theseus of Rhodes; however, they are again conscripted into the galley. Fortuitously, Schuyler is placed on the starboard side, allowing his muscle development to even out. When meeting with the King on deck, Moe quips that Schuyler looks better than Hercules. Theseus overhears

this, and assumes Schuyler is actually Hercules.²

So, King Theseus offers a deal - if “Hercules” (Schuyler) takes care of the Siamese Cyclops terrorizing Rhodes, the King will grant them their freedom. One more time, the “calm-down” pills serve a pivotal plot point, as Moe throws a bunch of the pills into the mouth of the Cyclops. As the two-headed Cyclops collapses, they celebrate with a parody of the “Rock-a-Bye, Baby” lullaby, “when the pill works, the creature will fill, and down will come cyclops, two heads and all.” Despite Schuyler being knocked unconscious, the boys convince him that he defeated the monster - to increase his confidence.²

Later, back with King Theseus, he proposes another “task” similar to Hercules's labors from Greek mythology. He requests they take care of the Cretan Bull that tore up Crete, and is now tearing up Rhodes. After confirming they still had “calm-down” pills, the boys accept the task with the promise of a big payday. Unfortunately, the boys get a little greedy, and have to deal with some Roman “mafia” types. Ultimately, Schuyler defeats the Bull, they handle the Roman “mafia,” and earn the big payday. With the money, they purchase a galley ship to get back to Ithaca.²

When they arrive in Ithaca, the real Hercules seeks revenge, claiming Schuyler profited from using his name. Right off the ship, the boys and Schuyler go to King Oedius to gain Diane's release, only to be captured by the King's secret trapdoor. In an arranged arena battle pitting Hercules against Schuyler, Schuyler declines the boys' “calm-down” pills and defeats Hercules in hand-to-hand combat. While strangling Hercules, Schuyler offers to free him if he changes his ways, becomes honorable, and helps Ulysses regain his throne. After agreeing, Hercules frees the

-continued on page 21

Pharmacy Through the Lens of Hollywood V: “Three Stooges Meet Hercules” Continued from page 20

boys while Schuyler rescues Diane, escaping with her in his arms.²

The boys, Schuyler, and Diane take a chariot and head back to the time machine, with King Oedius in a “Ben Hur”-like spiked chariot in pursuit. Despite his best efforts, Oedius is unable to stop them. The team reaches and fires up the time machine, and one more time, Curly Joe’s “calm-down” pills allow the machine to function properly. On their way to Ithaca, NY and the 1960s, with King Oedius hanging on, many historic events are seen as they travel through time.²

The time travelers land in Schuyler’s apartment with a crash, causing havoc in the Ithaca Pharmacy, where Dimsal is on duty (this is the last view of the pharmacy interior in the movie). Dimsal runs to the apartment to yell at Schuyler; but instead, the now muscular Schuyler threatens him. Then, after accidentally turning on the time machine, disappearing, and reappearing in a pillory, Dimsal changes his tune and asks for help. While the boys help him in classic slapstick manner, Schuyler and Diane hug and kiss as “The End” appears on the screen.²

Pharmacy Depiction

The Ithaca Pharmacy is shown in the movie after the opening narration for the first 12 minutes, and then again, briefly at the end. It is intended to be an independent community pharmacy of the early 1960s. The exterior - the overhanging tarp, two display windows, and glass front door - are all historically accurate for community pharmacies of the 1960s. Also, the store being independently owned was the norm for community pharmacies of that time.⁵



After the introductory narration regarding historical figures, the movie opens with the front of the Ithaca Pharmacy, located in Ithaca, New York, where the Three Stooges and Diane work.¹

As for the store interior and employee uniforms, the accuracy of the depiction also remains relatively true to the era. The Stooges and Dimsal all wear bowties and white coats (with the exception of Curly Joe) while working in the pharmacy. Moe and Dimsal wear the typical long coat of a pharmacist, while Larry wears the classic short coat for soda fountain workers. The furnishings are also classic for the 1960s: a soda fountain, display cases with open shelving behind them, and self-service displays on tables and the counter-tops. In addition, the store had section signs for “Perfumes,” “Camera Dept,” “Cameras,” “Sundries,” and “Candies.” One funny observation noted in the movie was a sign in the back that reads “You can rely on us for Fine Prescription Service.” The “Fine” prescription service was probably a clever play-on-words, since Larry Fine plays a pharmacist. During the 1960s, soda fountains were still quite common, but slowly losing their presence in American pharmacies as the prescription counter became the center of profitability. However, self-service (evidenced by the signs and counter displays) was also creeping into the pharmacy landscape, even though display cases remained as fixtures for one or two more decades.⁶

As for the portrayal of the prescription area and the typical work

of a pharmacist, the movie depicted an earlier era, more like the 1930s. The opening scene has Larry working the soda fountain, making a “pepper-upper” for people who are worn out. This was probably a tongue-in-cheek reference to Dr. Pepper, the carbonated soft drink created in the 1880s by pharmacist Charles Alderton.⁷ Supporting this proposition is that Larry states he hopes to make a million bucks and stop working for his grouchy boss, Dimsal. Unfortunately, by the 1960s, soda fountains were typically manned by “soda jerks”, not pharmacists; and little product experimentation was occurring there.⁶

Similarly, Curly Joe is seen triturating a compound with a mortar and pestle in the “Prescription Service” area, formulating a “calm-down” pill to counterbalance Larry’s “pepper-upper” drink. In typical Stooges’ slapstick fashion, they toss nonsense pharmaceutical ingredients with names like “Brachazon,” “Bockamanus,” and “Zanacona” over Moe’s head as they work on their respective formulations. Each of the ingredients appears to be in a screw-top glass container, appropriate for the era. However, by 1960, the percentage of prescriptions that were compounded was only 5% of the total dispensed; and at no time are the pharmacists shown doing the counting, pouring, licking, and sticking more commonly seen in the 1960s.⁶

The final observation, more commonly seen in an earlier era, is the number of pharmacists working and the lack of clerks. As previously noted, a pharmacist, Larry, is manning the soda fountain; and another, Moe, is working on center store merchandise. Only Curly Joe appears to be working in the prescription service area. Diane is introduced in the movie as a store employee; however, her designation is not delineated, nor is she shown actually working in the store. With the increase in prescrip-

-continued on page 22

Preparing Leaders in Pharmacy for 101 Years...

Continued from page 4

Pharmacy degree as a single entry-level degree was introduced, as well as a Ph.D. in Pharmaceutical Sciences.

In the 90s, Dean Barbara G. Wells worked to strengthen teaching, research, service programs, and growing scholarship endowments. Leonard Hall received a 10,000 square foot addition for a new classroom, small group teaching room, research lab, and faculty offices.

The beginning of a new century looked promising for the College of Pharmacy. The curriculum and learning strategies were again revised to keep up with modern requirements and technology. In 2009 the College moved from its Boise location to the ISU-Meridian campus site, made possible by a \$5 million gift from the ALSAM Foundation.

As of 2020, the College works hand in hand with the Idaho legislature, supporting and advocating for progression in pharmacy practice laws. Idaho has adopted some of the most progressive pharmacy practice laws in the country, allowing pharmacists in Idaho to treat patients for a number of conditions, providing patients with more accessible care.

While enrollment numbers have fluctuated over the years, ISU has educated approximately 4,500 pharmacists and pharmaceutical scientists throughout the last 101 years preparing graduates to provide distinguished pharmaceutical care.

—Lee Ann Waldron

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Pharmacy Through the Lens of Hollywood V:

“Three Stooges Meet Hercules”

Continued from page 21

tion counts and the profitability of the prescription area that occurred primarily in the 1950s, a more typical scenario would have been one pharmacist in the store with two clerks: one manning the soda fountain and another handling the other counters.⁶

Final Analysis

Overall, the movie is not very historically accurate in depicting a 1960s independent community pharmacy. Of course, the Three Stooges were not known for historical accuracy – they were known for their classic slap-stick comedy. In addition, the pharmacy depictions in this film only comprise about 14% of the total viewing time. So, if one seeks an accurate depiction of 1960s small town community pharmacy practice, there may be better choices. However, if one is

seeking some old-time Three Stooges-style comedy with a little pharmacy mixed in, this movie should “hit the spot.”

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**"THE HISTORY OF PHARMACY LIVES
HERE..."**

**...THE FUTURE OF PHARMACY BEGINS
HERE."**

—UNIVERSITY OF KANSAS, AT LAWRENCE, SCHOOL OF
PHARMACY MUSEUM

About the History of Pharmacy SIG

The academic year (2021 – 2022) marks the fourteenth year since the History of Pharmacy Special Interest Group (SIG) was formalized as an AACP SIG.

As an open academic forum, the SIG strives to facilitate the exchange of ideas and innovation among pharmacy faculty across disciplines; to serve broadly as an accurate information resource for teaching, learning, and scholarship pertaining to the evolution and history of the pharmacy profession; to develop and maintain historical collections of artifacts and school or college museums; and to ensure the lessons, the message, and the legacy of the pharmacy profession is preserved to educate future generations of pharmacy students.

The SIG's mission rests on the premise that the history and legacy of the pharmacy profession will always be relevant to all pharmacy practice areas, including current and future scopes of practice. The History of Pharmacy SIG is relevant to you too! Join the History of Pharmacy SIG!!

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