

# HEROIN® and ASPIRIN®

## The Connection! & The Collection! - Part II

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The next issue of *Bottles and Extras* will conclude this article with Part II, which will begin with “The History of Aspirin.”

In Part I, the history of Heroin was covered. Part II concludes the article with the History of Aspirin.

### II. History of Aspirin

The roots of aspirin are deep and go back in history over twenty-five hundred years. As early as 500 BC Chinese healers used willow bark as a remedy.

Hippocrates himself, the Greek father of modern medicine (460–377 BC), suggested chewing willow bark to lower fever and reduce pain. It was he who held the recipe for the pain reliever and fever reducer made from the bark and leaves



Figure 24



Figure 25

willow bark to treat sciatica and other ailments.

In the early 1700s European settlers encountered “Indians” (Native Americans) using willow bark medicinally.

In 1763 the Royal Society of London published an article by the Rev. Edward Stone, “*Account of the success of the Bark of the Willow in the Cure of Agues*,” officially reporting what had been folklore for centuries. More specifically, he told of fifty feverish patients treated with willow bark. (That was the first known human

clinical trial of willow bark as a medicine.)

Two Italians, Luigi Brugnatelli and Joanes de Fontana, in 1826 found that the active ingredient in willow bark was salicin. Three years later, in 1829, a French chemist Henri Leroux, in his laboratory, obtained salicin in its pure form.

A well-known folk medicine of the day in Sweden, which was a good pain reliever, was meadowsweet (spires ulmaria).

In 1831 a Swiss pharmacist from Berne, Johann Pagenstecher, extracted a substance from meadowsweet, which later prompted a German chemist Karl Jacob Lowig, in 1835, to obtain an acid from the substance Pagenstecher had extracted. Lowig named it “salicylic acid.”

Charles Frederick Von Gerhardt, a Professor of Chemistry at France’s Montpellier University, first synthesized the active ingredient in 1853 by combining salicylic acid with acetic acid.

### Creation of Aspirin®



Figure 26

In 1897, Felix Hoffmann, a chemist with Frederick Bayer & Co. [Figure 26] who was anxious to find a drug to help relieve the painful symptoms of his father’s arthritis, modified salicylic acid to acetylsalicylic acid to

make it less harsh on the stomach. Actually, Hoffmann on instructions from his boss, researcher Arthur Eichengruen, discovered a new process for modifying salicylic acid to produce acetylsalicylic acid (ASA) – later named “aspirin.”



Figure 27

ASA would have an “enfeebling” action on the heart. “The product has no value,” he pronounced confidently. But the real

problem was almost certainly that he had another product on his mind whose impending success he was anxious not to jeopardize. This, of course, was heroin.

On March 6, 1899, Friedrich Bayer & Co. patented the new compound and began the distribution of ASPIRIN® in powder form.

At the turn of the twentieth century, Bayer distributed aspirin powder in envelopes free to many physicians to give to their patients. Aspirin® was an immediate success and very soon was the number one drug worldwide.

It was sold only as a powder for just a short time. The company’s switch from



Figure 28

dyes to pharmaceuticals was so rapid the first lots of aspirin as a powdered drug were compounded and placed in recycled beer bottles wrapped in towels for protection. That was before the company decided to invest in suitable equipment, proper facilities for its production and sale in

cork-stoppered paper-labelled generic medicine bottles [Figure 28]. The tablet form of the drug, the first water-soluble pharmaceutical drug ever produced, was introduced in 1900. Its launch also marked the commercial introduction of the first-ever compressed tablet drug. This new method eliminated



Figure 29

the need to package individual doses in paper bags or envelopes and thus cut costs by half. It was around 1915 that Aspirin® began to be marketed in small tins in addition to bottles [Figures 29, 30, and 31]. Bayer retained many of the methods used previously in the sale of dyestuffs in highly competitive markets: sales representatives, advertisements in trade journals, and the use of patents and



Figure 30



Figure 31

trade names. By restricting its marketing to the pharmaceutical and medical professions, Bayer avoided the unseemly trappings of the nostrum trade and established itself as a member of the “ethical” medicine fraternity.

**Aspirin and Hemophilia**

**– A true story**

Generations of inbreeding had led most of the royal families of Europe to be affected by various genetic diseases, the most prominent being hemophilia, a lack of clotting factors in the blood that can cause victims to literally bleed to death from the slightest cut.



Figure 32

The tsarevich (Czar) heir to the throne of Russia was one of those affected. His physicians prescribed aspirin, the wonder drug from the West. As aspirin is a blood thinner, this actually worsened the hapless boy’s condition. Gregory Efinovich Rasputin (1869-1916) [Figure 32], a charismatic monk, advised the royal family to shun the impious potions of the western heretics and to adopt his

brand of faith healing. Removing the aspirin treatment led to an improvement in the tsarevich’s condition, thus sealing Rasputin’s influence over the queen. (Many historians believe Rasputin’s influence was one of the factors leading to the weakening of the Russian monarchy, leading to its eventual overthrow in 1917, followed by the rise of communism there.)

**Aspirin in the 20<sup>th</sup> century**

In 1917 Bayer’s patent on Aspirin® ran out, allowing other companies to sell acetylsalicylic acid. Bayer retained the trademarked name, “Aspirin,” at least temporarily.

Aspirin’s success ended up costing the Bayer Company a great deal of money, when the U.S., England, France, and Russia forced it to surrender the Aspirin® trademark to them, as part of Germany’s war reparations at the close of World War I. Bayer was forced to give up the trademark in 1919, as part of the Treaty of Versailles, which explains why aspirin, stripped of its trademark, is now a generic name and is written in the lower case. (Bayer also held, and had to give up, its trademark to Heroin® at the end of World War I.)

As early as 1903, the medical profession accepted Aspirin® as a safe and effective remedy for backache. That was the first of a variety of acceptances of Aspirin® by doctors.

Until 1915 Aspirin® was only available by prescription. After that Aspirin® became



Figure 33



Figure 34

available without a prescription [Figure 33].

In 1929 Bayer toured America in a car plastered with aspirin advertising [Figure 34].

By the 1930s, aspirin was considered the number one painkiller. Numerous authors have mentioned it in their books. Many of them, like Thomas Mann and Franz Kafka, believed in its pain relieving and anti-inflammatory effects and said so. By 1933 it was accepted as a safe and effective remedy for arthritis.

Aspirin is known almost everywhere from New York to Tokyo, from Berlin to Sydney. The product has been advertised heavily over the years. It came in containers of cardboard during World War II [Figure 35].



Figure 35

In 1948 Dr. Lawrence Craven, a California general practitioner, noticed that the 400 men he prescribed aspirin to as a blood thinner hadn’t suffered any heart attacks. After that observation, he regularly recommended to all patients and colleagues that “an aspirin a day” could dramatically reduce the risk of heart attack. Despite publishing his results first in the Annals of Western Medicine and Surgery, and later after a more extensive study in the Mississippi Valley Medical Journal, Dr. Craven’s reports were generally ignored.

It took the scientific community more than a decade to recognize Vane’s contribution. In 1982 Sir John Vane was finally awarded the Nobel Prize in Medicine for reporting the inhibition of prostaglandinsynthesis by acetylsalicylic acid.

Children’s Chewable Aspirin was introduced in 1952.

In 1969 Bayer Aspirin tablets were included in the self-medication kits taken to the moon by the Apollo II astronauts. Aspirin proved very effective in combating the headaches and muscle pains that frequently resulted from long periods of immobility.

Further research proved, in 1975, that low-dose aspirin prevents heart attack in people with some types of heart disease.

Just three years later, in 1978, research proved that aspirin reduces the risk of stroke.

Collecting of aspirin memorabilia is carried on today and many things are made to celebrate the continued success of aspirin such as these gold cuff links used to contain aspirin tablets on a shirt with French cuffs [Figure 36].



Figure 36

### How aspirin works

"In 1971 British pharmacologist, Sir John R. Vane discovered aspirin reduces the production of hormone-like substances called prostaglandins, which are produced in tissues throughout the body. Prostaglandins have many functions. They are part of the chemical messenger systems involved in feeling pain, fever, the redness and swelling that can accompany injuries, and even in contracting certain muscles, for example, the uterus. Since aspirin lowers the amount of prostaglandins, it can help alleviate conditions like pain, fever and the discomfort of menstrual cramps. Aspirin also reduces production of substances involved in the early stages of our body's blood clotting mechanism. That is why doctors may prescribe aspirin, as part of a regimen including diet and exercise, for appropriate individual with cardiovascular disease."

In 1982 more studies proved that aspirin reduces the risk of heart attack in men at high-risk for heart disease.

Toleraid® microcoating (clear-coat) was added to Genuine Bayer Aspirin in 1984 to make the tablets easier to swallow.

In 1988 the use of aspirin expanded beyond pain relief to that of a potential lifesaver. The FDA approved aspirin for reducing the risk of recurrent MI

(myocardial infarction) or heart attack and preventing MI in patients with unstable angina. The FDA also approved the use of aspirin for the prevention of recurrent transient-ischemic attacks or "mini-strokes" in men and made aspirin standard therapy for previous strokes in men. In the same year preliminary studies suggested that aspirin aided gallstone treatment.

A study, in 1989, revealed that low-dose aspirin taken every other day reduced the risk of heart disease by nearly 50 percent in healthy men. In the same year studies indicated that aspirin may slow the development of cataracts.

Aspirin is over 100 years old. In 1990 studies proved that aspirin taken every other day reduces migraine attacks.

Studies of aspirin proved that it helps prevent colon and rectal cancers (1991). Other studies demonstrated that aspirin reduces the risk of heart attacks in women (1991).

In 1999 Genuine Bayer Aspirin and Extra Strength Bayer Aspirin Gelcaps were introduced.

Needless to say, aspirin use has broadened significantly to include much more than headaches and pain. This remarkably simple drug derived from the bark of a willow tree has become the most prevalent compound ever devised in the history of pharmacology.

After a century of active proliferation and ever-wider acceptance and use, aspirin was formally inducted into the Smithsonian Institution's National Museum of American History in 1999.

To-date, no drug has been able to rival the success of aspirin – the first every synthetic compound.

Collectors of aspirin memorabilia (bottles, tins, advertising and history) can be proud of their accumulations of a very historic and important pharmaceutical product.

Americans consume over 50 million aspirin tablets every day – which is over 15 billion tablets a year. In the U. S. alone,

more than 10,000 tons is used annually.

Aspirin has already established a solid reputation for itself in many areas as chronicled here. The next 100 years will show us what other possibilities it might have both for patients and collectors.

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