Lessons Learned from Some Priority Disputes in the History of Psychology (e.g. Pavlov v. Twitmyer) and in Related Disciplines (e.g. History of Medicine)

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This is an expanded version of a Presentation in the Key L. Barkley Symposium on the History of Psychology Southern Society for Philosophy and Psychology. Louisville, KY
People in general and scholars in particular bestow considerable esteem upon those whose discoveries, inventions, theories, or methods fundamentally change scholarship, research, or the worlds in which we live. Thus, it is very important that priority be rightfully attributed to those who deserve it. (Thomas, 2015)

"There is strong motivation for the establishment of priority; it is considered as rewarding to the scientist(s) credited with it because discovery is crucial to science. Indeed priority has been called the “central focus of science” (Brannigan, 1981)." (Windholz & Lamal, 1993, p. 339)


LESSON 1

...proving priorities is tantamount to playing Russian roulette, even when the game is entered into by experienced and knowledgeable players, who have a good idea in which chambers the bullets are loaded, for there is always the danger that some fact or prior deed, lurking in the literature, unseen, or unrecognized, or forgotten, will be discovered to ultimately shoot one dead. (Wolfe, 2001, p. 504)

Who Discovered the “Conditioned Reflex”? 

It is widely accepted that Ivan P. Pavlov “discovered” the **Conditioned Reflex** (his term was **Conditional Reflex**), and the most cited date is 1904 when he discussed it during his Nobel Prize address (Physiology, digestive system research).
HOWEVER . . .


**Dallenbach:** Assigned priority to Twitmyer in 1902 based on the submission of Twitmyer’s dissertation at the U. of Pennsylvania.

**Coon:** Edwin B. Twitmyer shared priority with Pavlov by reporting his discovery of the conditioned knee reflex in 1904 at a meeting of APA.

**Dallenbach and Coon:** Discussed factors contributing to Twitmyer’s obscurity with Coon addressing that matter in greater depth.

Several History of Psychology textbooks began to recognize Twitmyer.
Sigizmund G. Vul fson, born in today’s Poland, earned a medical degree in Estonia. Then he went to Pavlov’s Laboratory to earn a Ph.D. degree. In his dissertation (1898) Vul fson discovered “Psychic Reflexes.”

One example among others: Vul fson exposed a dog’s nose to a glass of carbon bisulphide causing the dog to turn its head away and to salivate. This was repeated several times.

“Now we substitute surreptitiously an identical glass containing water. The dog salivates again although with a smaller quantity.” (Windholz, 1986, p. 142)


LESSON 1 (Wolfe’s Russian roulette analogy) IS CONFIRMED.
Coon’s (1982, p. 259) “... S. G. Wolfson [among others] ... quickly and enthusiastically embraced [Pavlov’s] the discovery [of the conditioned reflex] and its implications for the study of the central nervous system.”


Merton (1968) quoted Matthew 26:29 from the *King James Bible*.

For unto everyone that hath shall be given and he shall have abundance [Pavlov] ; But from him that hath not shall be taken away even that which he hath [Vul fson/Wolfson].
The Franz-Kalischer Dispute Over who First Combined Animal Training and Brain Exirpation to Study Brain Functions


In his autobiographical chapter (1932) and after reporting commendations from Sir Charles Sherrington and Sir Edward A. Shapey-Shafer for his new method, Franz continued:

A further and much later commendation came in a less pleasant fashion. This was the appearance of an article by Kalischer in which he appropriated the training-extirpation method as his own. . . . . To this I protested because I could see no reason why the method, if of any worth, should be labeled “made in Berlin.” Kalischer’s article was, however, as complimentary as is all plagiarism. (Franz, 1932, p. 96)


Regarding their dispute, Kalischer’s most salient point was his assertion that others had preceded both him and Franz. He identified two researchers and briefly described their observations (presumably, but not conclusively, experiments), but he cited no References.

Franz did not respond directly to Kalisher's two examples, but he had cited three similar ones in the 1907 monograph and he had discussed why they were not comparable to his “special method.”
Franz (1902) clearly preceded Kalischer (1907).

However, both claims were described vaguely. For example, Franz used the phrase “special method” to contrast his method with previous studies that had involved animal learning or memory and experimental brain damage. Both Franz and Kalischer let their methods “speak for themselves” rather than providing precise accounts of why their methods were unprecedented.

**LESSON 3:** To assess a priority claim properly, it must be sufficiently well described. Nevertheless, those who assign credit for priority in this case assign it to Franz, rightfully so in my view.

Might Wolfe’s Russian roulette someday defeat Franz’s priority claim? Details of Franz’s “special method” make it unlikely. His method included:

1. Using multiple learning tasks so that findings were not task dependent. 2. Describing his surgical methods carefully to maximize replication. 3. Presenting brain diagrams to show location and surface extent of extirpations. 4. Extirpating different brain areas to assess area/function relationships. 5. Extirpating some animals before training to assess effects on learning, and extirpating other animals after training to assess effects on memory. 6. Showing that only bilateral lesions affected learning and memory. 7. Showing that extirpated animals with memory loss could relearn and that following a second extirpation with memory loss, the animal could again relearn.


In aggregate, his findings led to his theoretical anti-localization view for “higher-order learning,” a position expressed in “New Phrenology,” his SSPP presidential address in 1912. Franz, S. I. (1912). New Phrenology. Science,
In the Barkley Symposium (2001), I described how Crawford W. Long, in Jefferson, GA on March 30, 1842 (not published until 1849) was the first to use anesthetic ether for surgery. Long was severely criticized and largely denied priority credit in medical historical literature due to his delay in publication. Long described three good reasons for his delay.

• Long suspected the anesthetic effects might be due to some kind of patient-self induced *mesmerism*, and he wanted controls for that.

• After reading in 1846 about William Thomas Green Morton’s claim for discovering anesthetic ether, **Long decided to wait to see if claims earlier than his would be forthcoming.**

• **It took several years in his small country practice to accumulate the control cases he felt he need to exclude mesmerism. Most relevant:**

• He amputated two fingers from a patient’s hand, one with and one with benefit of ether. Only ether prevented pain. (1843)

• He excised three cysts from the head of a patient, and he used ether only for the 2nd excision. Only ether prevented pain. (1845)

1. **Morton, a dentist, served as the anesthesiologist** for neck surgery performed by Chief of Surgery, John C. Warren, on **October 16, 1846**, at the **Massachusetts General Hospital in Boston, MA**.

   Mass General today maintains the operating theater as a museum known as the Ether Dome, and the Mass General website clearly implies that anesthetic ether was discovered there in 1846. Elsewhere on the website, they downgrade the discovery claim and instead describe it as the “first public demonstration” of anesthetic ether.

2. **In his failed effort to patent ether**, a chemical well known and in the public domain, **Morton disguised it with color and aromatics and gave it the name Letheon**

3. **Morton waged a several-decades-long battle in the U. S. Congress** to receive recognition and a large monetary prize for the discovery of anesthetic ether.
Morton lost his battle with the U. S. Congress.

Long’s statue was unveiled in Statuary Hall in the United States Capitol on March 20, 1926. This replica is on the Courthouse Lawn in Danielsville, GA, Long’s Birthplace.
4. Boston Gardens includes a stature to commemorate Boston as the location of the discovery of anesthetic ether.

The statue has four inscriptions. One of them is

“To commemorate that the inhaling of ether causes insensibility to pain. First proved at the Mass. General Hospital in Boston, October AD MDCCCXLVI.”
5. Did Mass General provide the “first public demonstration” of anesthetic ether?


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*The First Operation with Ether*
Robert Cutler Hinckley
Completed 1893 or 1894

*Ether Day, 1846*
Warren and Lucia Prosperi
Unveiled, October 16, 2001

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How many persons were present at this “first public demonstration”?

Three physicians in Hinckley’s painting testified before U. S. Congress in 1849 that they were not present, and others in the gallery have been proven not to have been present (http://neurosurgery.mgh.harvard.edu/History/artists.htm). Fewer are shown in the Prosperi painting. Let’s say, very generously, that 50 people were present.
Long produced affidavits from three witnesses to his surgery, but Sims (1877) documented the presence of six witnesses.


Interpolating between Boston’s populations in 1840 and 1850, one obtains a population of 119,482 for Boston in 1846 which indicates an estimated 0.0004% (50/119,482) of Boston’s population witnessed the surgery at Mass General. I believe a high estimate of Jefferson’s population in 1842 would be 500 meaning that an estimated 0.01% (6/1,373) of Jefferson’s population witnessed Long’s surgery.

So, what does it mean to claim “first public demonstration”? 
It would appear that the “Matthew Effect” might apply to BIG cities like Boston and BIG hospitals like Massachusetts General versus small towns like Jefferson and a small country medical practice when it comes to the claiming to be the site of an important discovery.

I suppose Long’s supporters will have to take solace where they can.


Chapter 5 “Crawford Long and Surgical Anesthesia”