Heartbeat, Heart Failure, and Homeopathy

9

Homeopathic footprints can be found in cardiovascular medicine. One of medicine's most enduring drugs, nitroglycerin, was introduced by a homeopath in 1847 and was utilized by homeopathy for many years before the regular medical profession applied it for anginal chest pain, for which it has been a mainstay ever since.

Constantine Hering and His Contributions

To make ends meet as an impoverished student, Constantine Hering (1800–1880) agreed in 1820 to write a refutation of the upstart and growing specialty of homeopathy [1] (Fig. 9.1). To the surprise and annoyance of his family and sponsor, Hering was converted as the result of this exercise, becoming a lifelong proponent of homeopathy and, arguably, the most influential person in American homeopathy.

Hering completed his medical training at Leipzig in 1826, but was unable to secure a position that allowed him to practice the way he wanted. As a result, for some years thereafter, Hering was employed in other fields, including mathematics and biology. In 1828, the King of Saxony sent Hering to conduct a botanical and zoological survey in Surinam. In 1835, he settled in the United States, where he established homeopathy as a presence in America with a short-lived medical school in Allentown, Pennsylvania, and then later an enduring school in Philadelphia, where his college became a mecca for homeopathic training. Samuel Hahnemann referred to Hering as the father of homeopathy in America.

Nitroglycerin

Hering remained professionally active up to end of his life. In addition to his far-reaching influence as teacher and mentor, Hering directed many provings of substances that have become part of the homeopathic *pharmacopoeia*. Among these are included *hydrophobinum* for rabies, *Lachesis* (venom from the bushmaster snake), and venom from several other snakes. His claim to fame as a prover of new remedies, however, relates to the original investigations he and his colleagues conducted with nitroglycerine, or to use Hering's term, glonoine/glonoinum, an acronym derived from *Gl*ycyl *O*xyd (glycerin), *N*itrogen, and *O*xygen, with the suffix *-inum* added (Latin: "what is derived"). As noted by Fye, without the unheralded work of Hering and his colleagues, it is quite conceivable that nitroglycerin would never have been introduced into medicine at all, and emergence of the drug as a mainstream treatment for angina pectoris would not have taken place without "the aggressive screening of various compounds by Hahnemann, Hering and their followers" [2].

Fig. 9.1 Constantine Hering. Founder of Hahnemann Medical College, Philadelphia, and pioneer in the medical use of nitroglycerin (Image in the public domain)

J. Davidson, *A Century of Homeopaths*,
DOI 10.1007/978-1-4939-0527-0_9, © Springer Science+Business Media New York 2014

The glonoine story has unfolded over nearly 100 years, involving chemists, pharmacologists, homeopaths, allopaths, and Alfred Nobel, the inventor of dynamite. In 1846, the Italian chemist Ascanio Sobrero discovered how to synthesize nitroglycerin from nitric acid, sulfuric acid, and glycerin. In describing the effects of this highly explosive substance, he noted the severe headache following ingestion of even a small quantity. Hering quickly became familiar with Sobrero's report, saw therapeutic potential of the drug, and between 1847 and 1851 conducted provings on 100 homeopaths. He even engaged the assistance of a Philadelphia medical student, Charles Jackson, who took nitroglycerin himself and experienced the same symptoms that provers had reported. Unfortunately, Jackson, who was studying at the Jefferson Medical School, could not persuade any of his colleagues to study this drug because its homeopathic pedigree was a problem and the explosive nature of nitroglycerin made it seem unsafe. It was to be a full decade before orthodox medicine took any further interest, and even then, it was at the instigation of a homeopath in faraway England.

In 1858, a British surgeon, Alfred Field, had been urged by a homeopathic colleague to try nitroglycerin. Although Field approached this experiment with great skepticism, upon placing a minute quantity on the tip of his tongue, he experienced marked headache, fullness in the neck, and nausea. Despite conducting a number of unsuccessful animal experiments with nitroglycerin at a homeopathic pharmacy, Field wrote that "I still thought I had seen and felt enough of the physiological action of the medicine to justify my cautious employment of it in the treatment of disease." Accordingly, he administered the drug to four patients with complaints of pain: a 68-year-old female patient with symptoms suggestive of ischemic chest pain, two with dental pain, and a fourth with headache. All responded well [3]. His report spurred further pharmacological study of the drug by Fuller and Harley at University College Hospital, London, and by others in Germany and the United States. While these investigators replicated the clinical results, they were unable to provide any clear explanation for the effects. In 1879, Murrell was the first to suggest that nitroglycerin was effective for angina pectoris [4]. Because early homeopathic tests clearly indicated that glonoine caused a panoply of symptoms besides headache, such as "oppression of the chest" akin to a feeling of constriction "as if chains were placed about it, and tightened more and more," and a "sensation of numbness, upward in chest and down left arm," it may be asked why homeopaths failed to emphasize glonoine in the treatment of angina. Certainly, it is fair to say that awareness of angina was low among physicians of all schools at the time as it was believed to be a rare condition, but even so, it remains somewhat surprising that the value of the drug for ischemic heart disease was unrecognized for another 30 years. What can be said, though, is that Hering's provings were a critical first step in the medical use of nitroglycerin. He showed that a powerful explosive could be given as a safe medicine, bringing peace of mind to those who suffer from chest pain due to coronary artery insufficiency.

The nitroglycerin story would be incomplete without mentioning Alfred Nobel. Like Hering, Nobel became acquainted with Sobrero's work soon after its publication and, also like Hering, he recognized considerable potential for the substance. However, Nobel envisaged a totally different use for the compound, wanting to find a method to exploit nitroglycerin's detonative action in a controlled manner. His successful pursuit of this quest is well known, and from the vast fortune he made, funds were set aside to endow the Nobel Prize. Two codas can be added to the nitroglycerin story. Nobel suffered from severe headaches and angina pains in his old age, leading his doctor to recommend none other than nitroglycerin as treatment. Just a few weeks before his death in 1896, Nobel wrote: "…isn't it the irony of fate that I have now been prescribed NGl [nitroglycerine] to be taken internally! They call it Trinitrin, so as not to scare the chemist and the public" [5]. The second coda relates to the much later discovery of NTG's mechanism of action by Murad et al. [6], Furchgott and Zawadski [7], Moncado's group [8], and Ignarro et al. [9] Nitroglycerin releases nitric oxide (NO), which is located in the inner cell lining (endothelium) of arteries and which, when dilated, lowers pressure and relieves angina pain. For their work, many of the above investigators received the Nobel Prize in 1998 [10].

Snake Venoms

Hering should also be remembered for his proving of snake venoms. In 1828, he created the first dilution of snake venom *Lachesis trigonocephalus* (or *Lachesis muta* as it is now known) from the Amazon surucucu snake and published his cases in 1835. It has been said that Hering was the first to take a scientific approach to the study of snake venoms in medicine [11]. Together with rattlesnake and cobra venom, these remedies were incorporated into the homeopathic *materia medica* for treating hemorrhagic conditions [12]. One hundred years later, the same properties were rediscovered, with some acknowledgment of their homeopathic heritage [13] by Peck and colleagues [14]. Peck's work was covered in the popular press, which described how moccasin venom had opposite effects at low and high doses, exactly in accord with homeopathic principles: that is to say that it caused hemorrhage at high dose and staunched bleeding at low dose. Linn Boyd obtained comparable findings for *Lachesis* as an anti-arrhythmic drug (as described elsewhere in this book). Snake venom derivatives are sometimes administered in the treatment of heart disease.

When it comes to the medicinal uses of snake venoms, pride of place goes to homeopathy. Even non-homeopathic

sources credit their introduction to the homeopathic school: besides the reference above to Peck, an article by Reed on rattlesnake venom in epilepsy may be cited. This paper appeared in the Lancet-Clinic, a "regular" American medical journal published between 1876 and 1916; it noted that "The first systematic attempt at the use of snake poison in medicine was made … by Constantine Hering … in 1837." The author then went on to say that "Russell and Stokes, in India, later fed the virus [sic] of the cobra to thirteen subjects and noted a large number of symptoms." He further elaborated that these experiments had elicited symptoms suggesting a role in epilepsy, although homeopaths had not exploited this property of the drug – an action which was to be subsequently applied in regular medicine for some time [15, 16]. Reed's mention of Adrian Stokes (1821–1876) and John Rutherford Russell (1816–1867) is important in that both these physicians were homeopaths and were the first to experiment with cobra venom. They published their work in the British homeopathic literature in 1853 and 1859, which was over 10 years before Sir Joseph Fayrer's classic book on Indian snakes appeared [17]. Fayrer was one of the most eminent doctors in the Indian Medical Service and was rewarded for his efforts by a baronetcy [18]. He and Lauder Brunton conducted several studies of cobra and other snake venoms and were aware of Hering's work. For example, in their 1873 report, Brunton and Fayrer compared their results with those of Hering, noting similarities in the rapid onset of action of snake venom [19]. In America, Silas Weir Mitchell wrote an essay on rattlesnake venom two decades after Hering's publications. In the opinion of one expert, Hering's "excellent symptomatic detail" had been "little recked [by Mitchell] … as to either the rattlesnake itself or to the related South American reptile" [20, 21].

Another homeopath who contributed to the cobra venom story was John Hayward, of Birkenhead in England. Hayward was one of the first to administer cobra venom extract in medical practice, recommending low potencies (1X or 2X) by the oral or subcutaneous routes as lifesaving measures for diphtheria, smallpox, and scarlet fever [22]. Homeopaths have thus played an important part in the original study of snake venoms, their effects, and therapeutic applications. Where orthodox medicine went further, however, was the extent to which it investigated the mechanism of action of venom and their effects of specific body organs. As has been noted elsewhere, Hahnemann and most homeopaths showed little interest in mechanisms, preferring to focus on symptoms.

Hering's Law of Cure

In a third capacity, Hering is remembered for what has come to be known as Hering's law. Hering observed that healing often followed a characteristic pattern in which symptoms improved from the head down, from the inside out, from the most important organs to the least, and in reverse order of their first appearance. Thus, it is that sometimes symptom aggravations occur or that new symptoms and the return of old ones in reverse sequence can be seen. While medicine has largely ignored these phenomena, some contemporary physicians acknowledge that they occur (the "rollback" phenomenon) and that they may be therapeutically significant, for example, in psychiatry [23, 24]. It is interesting, by way of linking traditional homeopathy to modern research, that Brien et al. have developed a rating scale to measure Hering's law of cure and have shown that (1) such a scale can be operationally constructed and that (2) the total score predicts outcome [25].

The Cardiovascular Institute (CVI) at Hahnemann Medical College

In the 1930s and 1940s, a talented group of physicians made groundbreaking contributions to cardiology while Hahnemann was still a nominally homeopathic school. In 1948, they formed the Mary Bailey Institute for Cardiovascular Research, often referred to as the Cardiovascular Institute (CVI), named after Charles Bailey's young daughter, who died from hepatitis. Members of the CVI gained worldwide recognition for their work. At the time of its founding, the CVI was the first of its kind in the United States and the second worldwide. While many were involved in the CVI's birth, the cardiologist William Likoff and the cardiac surgeon Charles Bailey provided substantial leadership, raising the funds to obtain dedicated space. The CVI initially employed around a dozen principal investigators, but by the time of Likoff's death in 1987, it had grown to 55 faculty, 15 trainees, and over 100 support staff, making it one of the largest cardiovascular institutes in the United States [26].

The first member of the CVI team to become well known was *George Geckeler* (1894–1989), a 1919 Hahnemann graduate (Fig. 9.2). In 1939, Geckeler produced a series of heart sound recordings which was distributed commercially by Columbia. These long-playing teaching records, or "stethophones" as they were called, were widely used by US medical students and brought national recognition to Geckeler as an educator. He designed the famous "walk-through" heart on exhibit in the Philadelphia Franklin Institute and in 1956 was featured in *Life* magazine for restoring "Harriet," a unique dissection of the human central nervous system that was in the Hahnemann collection, dating back to the nineteenth century (see Chap. 4). Geckeler was the CVI's first director, and in 1950, he received a grant from the newly established National Heart Institute to support his teaching

Fig. 9.2 George Geckeler. Hahnemann Medical College cardiologist and first director of Hahnemann Cardiovascular Institute (Image courtesy of National Library of Medicine)

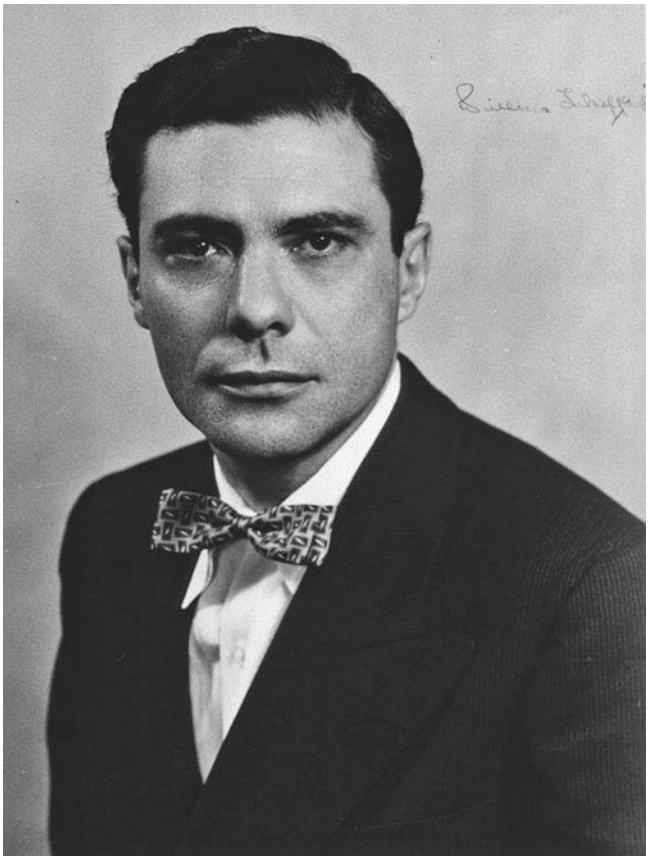

Fig. 9.3 William Likoff. Hahnemann Medical College cardiologist and president. His name was perpetuated through the Likoff Cardiovascular Institute (Image courtesy of National Library of Medicine)

work. Geckeler's career spanned an era that began when Hahnemann was primarily a homeopathic college and concluded after its allopathic refashioning.

One of Geckeler's students, *William Likoff* (1912–1987), a 1938 Hahnemann graduate, joined the CVI group after returning from military duty in World War II (Fig. 9.3). Likoff in turn became a distinguished cardiologist, president of the American College of Cardiology, and executive president of Hahnemann. His legacy endured at the CVI, which was named the William Likoff Cardiovascular Institute.

Charles Bailey was perhaps the most famous member of this group, and, as a surgeon, his story is told in Chap. 4. Likewise, *Kenneth Keown*, the anesthesiologist who was so instrumental in Bailey's triumphs, is discussed in Chap. 5.

Other Contributors to Cardiology

Linn Boyd was a man of many accomplishments and, while known as a cardiologist, merits broader categorization. He is accordingly described elsewhere in Chap. 11. Of the clinical cardiologists, this leaves Milton Raisbeck, whose contributions to medicine will be described here.

Milton Raisbeck

Milton Raisbeck (1888–1988) qualified as an MD at the NYHMC, where he was then appointed to the faculty as instructor in pharmacology and *materia medica*. Raisbeck participated in homeopathic affairs early in his career. He attended a meeting of the Albany County Homeopathic Medical Society on February 10, 1922, where he "gave a stereopticon lecture on electro-cardiographic studies in cardiac pathology." The journal proudly added that "These studies reflected great credit on Dr. Raisbeck," who presented one EKG tracing "that had never before been recorded" and was to "appear in Nelson's loose-leaf set … another assurance that the New York Homeopathic graduates are truly scientific" [27]. (Loose-leaf sets were big business during the first decades of the twentieth century and *Nelson's New Loose-Leaf Medicine* was widely read by those wishing to remain updated about current trends.)

In a lengthy review of a book appraising homeopathy [28], Raisbeck revealed his personal support for scientific testing of homeopathy and the need to move forwards from old-fashioned beliefs [29].

At the 91st annual meeting of the AIH, Raisbeck spoke on the management of chronic congestive heart failure. His recommendations for bed rest, diet, digitalis, and diuretics differed little from what might have been heard from a non-homeopath, and it is striking that he did not include homeopathy in his management plan; his suggested dose of 3 grains (180 mg) digitalis per day was far above the low doses characteristic of homeopathy [30].

Raisbeck conducted a practice in cardiology and held a faculty appointment in the division of cardiology at NYHMC. In 1942, he coauthored a paper with the surgeon Samuel Thompson on surgical treatment of coronary artery disease by creating adhesions of the pericardium (the sac that surrounds the heart) [31]. The authors described a new operative technique in which they used magnesium silicate powder (or "talc") to bring about pericardial adhesion to the heart, which was then followed by a hyperemic reaction producing a collateral arterial circulation to compensate for coronary artery insufficiency. The cases they reported showed encouraging responses.

According to William Beinfield, who trained with Raisbeck at NYMC, Raisbeck was more interested in clinical practice and promoting support for education and research, which may explain his relatively modest output of original research. He was a popular teacher and the residents felt privileged to be associated with the care of his patients. On account of his expertise, he was often the favored cardiologist to care for his professional brethren and their relatives [32].

One of Raisbeck's patients was Miss Ethel Glorney, a wealthy Irish woman. In Miss Glorney's final years, Raisbeck had refused to accept payment for his services but eventually proposed that those monies could be used to fund a foundation, which came into being with Raisbeck as its first president. He remained the foundation's president until 1982, when he was succeeded by Beinfield. In the last year of Raisbeck's long life, he was able to arrange for the Glorney Foundation to endow the New York Academy of Medicine with funds sufficient to support annual training fellowships in cardiology, summer internships for medical students, and an annual lecture and award to honor a distinguished cardiologist. These awards are coveted honors in cardiology, and among the annual lectureship awards are some of America's most famous cardiologists and researchers into heart disease, including a Nobel Prize winner. Through the Glorney-Raisbeck Fellowship program, Milton Raisbeck's name is perpetuated and his contributions remembered. It was appropriate that Raisbeck himself was the first recipient of the Glorney-Raisbeck Award, given posthumously 1 year after his death.

Measuring Cardiovascular Physiology: Nineteenth-Century British Studies

Robert Dudgeon and the Dudgeon Sphygmograph

Robert Ellis Dudgeon (1820–1904) was one of Britain's most influential nineteenth-century homeopaths, serving as editor of the *British Journal of Homoeopathy* for 40 years and president of the British Homoeopathic Society in 1878 and 1890 (Fig. 9.4). Along with Richard Hughes, he was the chief apostle of low-potency homeopathy, adhering to the belief that material drug substance was required for any therapeutic action. Dudgeon was considered to be an independent thinker, unafraid to disagree with Hahnemann.

When Dudgeon died in 1904, the *British Medical Journal* referred to him as "a notable personage, and certainly one of the most distinguished followers of whom the cult of homoeopathy has been able to boast during the past half-century." The obituary noted Dudgeon's creativity and high energy and singled out the Dudgeon sphygmograph as "the handiest and most generally useful of those which have been brought

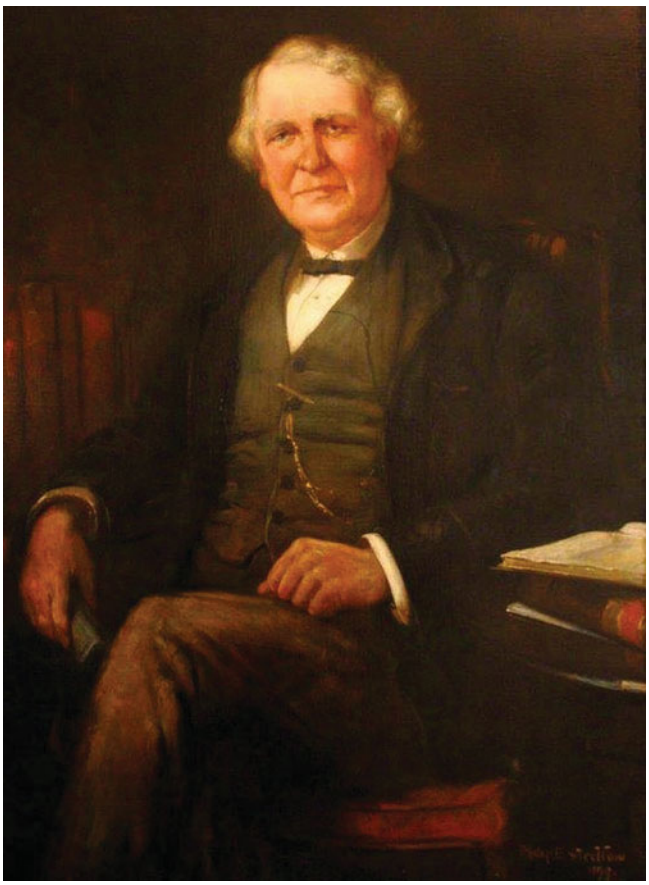

Fig. 9.4 Robert Ellis Dudgeon. British homeopath and inventor of the Dudgeon sphygmograph. Painting by Philip Stretton (By permission, University College London NHS Foundation Trust)

out." It added that this creation "best entitles Dudgeon to a permanent place in the memory of his fellows." The obituary also acknowledged Dudgeon's proficiency in optics; his presentations, papers, and book on the topic; and the design of spectacles which enabled clear vision underwater [33].

The Sphygmograph

In order to noninvasively record variations in the pulse, nineteenth-century physicians and physiologists devised an instrument called the sphygmograph, the first of which was produced in Paris by Marey in 1860, followed by modifications of Fleming in 1877 and Pond in 1879. All of these instruments were cumbersome and little used. The most popular variety of sphygmograph was introduced by Robert Dudgeon in 1881 and enjoyed the advantage of being small and portable (Fig. 9.5). As Lawrence observed, "The Dudgeon soon became the most popular instrument in Britain, rapidly displacing the Marey type," and there are now at least 12 of these in the Wellcome Museum of the History of Medicine [34]. The Dudgeon played an important role in facilitating the growth of experimental physiology and was used by famous experimenters like Lauder Brunton, Sir James Mackenzie, and Thomas Lewis. Mackenzie used the Dudgeon in his pivotal work which laid the foundation of the modern concept of heart failure, calling it "the handiest and most useful" of instruments [35]. The cardiologist, Thomas Lewis, considered the Dudgeon to be "an instrument of considerable delicacy and accuracy" [36]. By 1887, even in Paris, the Dudgeon had supplanted the homegrown Marey apparatus as the sphygmograph of choice among physicians of that city [37] – a noteworthy achievement wherein performance trumped patriotism.

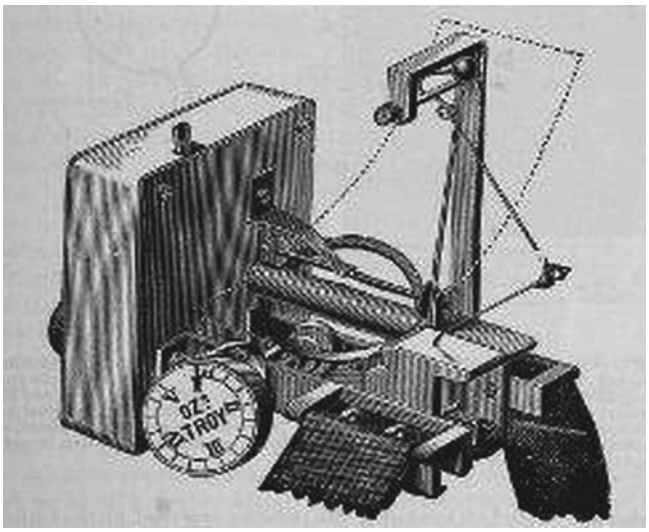

Fig. 9.5 Dudgeon's sphygmograph. Circa 1890 (From Baker et al. [41]. In public domain)

Writing in 1979, Lawrence attested to the long life of the sphygmograph, which entered British medicine as a tool of experimental physiology, "in which field it still survives." He observed that it never made headway into clinical practice where, as a means of measuring blood pressure, it was replaced by manometry (as in the sphygmomanometer) by the 1880s; by the early twentieth century, the electrocardiogram "usurped almost all its other functions." But in the hands of experienced researchers, the sphygmograph proved its worth in facilitating the triumph of experimental physiology [34, p. 100].

Experimental Physiology at Boston University School of Medicine (BUSM)

Further work in cardiovascular physiology was conducted at BUSM during its homeopathic days.

Arthur Weysse

The department of physiology at BUSM began under the leadership of Professor John Rockwell (1888–1998), who was followed by Frederick Batchelder (1902–1921). Both of these men were BUSM graduates, and they built a respected department. In 1899, the department recruited Arthur Weysse, Ph.D., MD., who was a talented Harvard graduate. Although Weysse was not a homeopath by training, almost 20 years of his tenure at BUSM took place during its era as a homeopathic school, where he held a clinical appointment as lecturer in syphilis and for many years taught 12 h of medical urology and syphilology to third-year medical students. He also taught bacteriology between 1899 and 1903. Weysse is best known however as a physiologist and author of a zoology textbook.

It has been stated that Weysse was the first to introduce the auscultatory method into America for measuring blood pressure. Closer scrutiny of this claim more accurately reveals that he was the first to demonstrate a reliable method of using the technique, but that others had published about auscultation within the year previous to Weysse's 1913 report [38]. He most probably was the first to demonstrate diurnal blood pressure and pulse values [39]. Weysse had a distinguished career as both physiologist and administrator, being dean of the graduate school for 11 years between 1922 and 1933 [40].

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