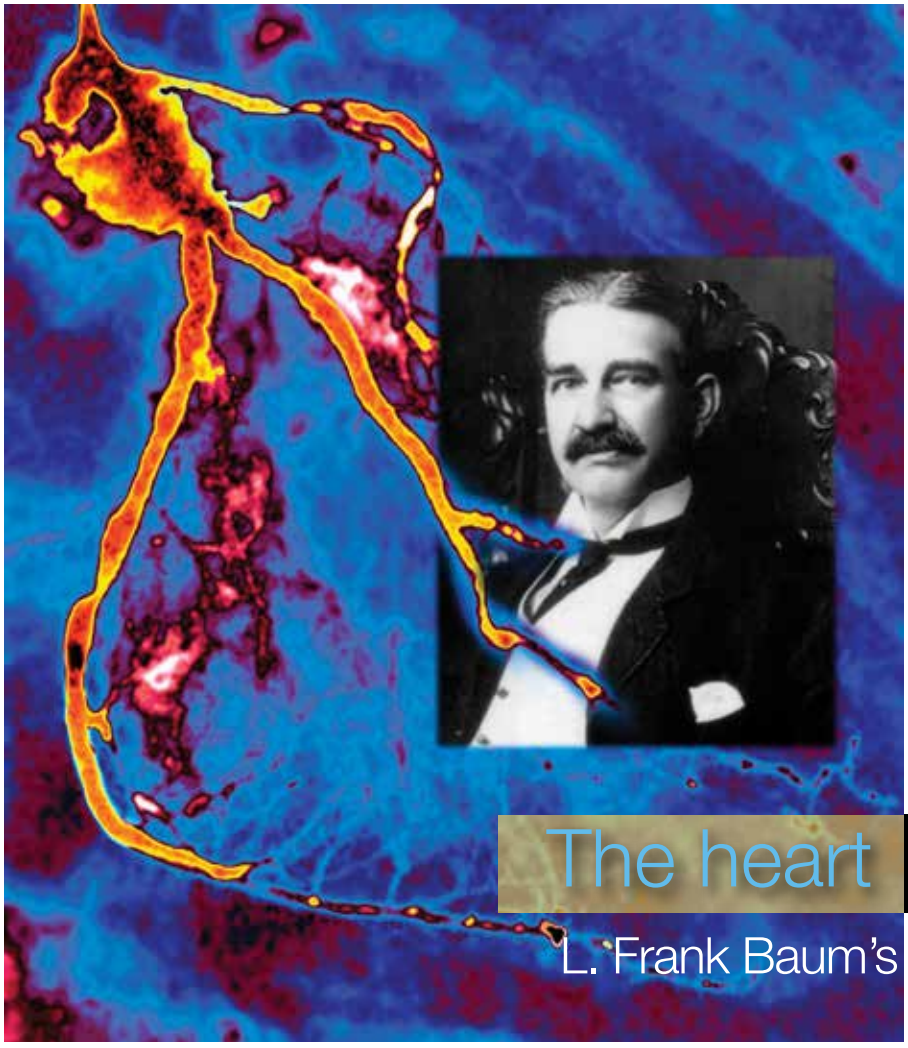

The heart of Oz

L. Frank Baum's cardiac disease

Inset in image of narrowed coronary arteries (CORBIS), **Lyman Frank Baum, author of *The Wonderful Wizard of Oz*.** Getty Images.

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The legendary author of the Oz stories, L. Frank Baum, succumbed to congestive heart failure in 1919 at age sixty-two.[1–4] He died almost twenty years after publication of his first successful novel, *The Wonderful Wizard of Oz*, which has remained enormously popular in print, on stage, and in the movies.[5] Baum subsequently wrote thirteen Oz novels, the last, *Glinda of Oz*, literally on his deathbed. Many productive authors have had their careers cut short by serious illness, but this was not true in Baum's case. It is probably accurate to say that heart disease finally enabled him, after a life of repeated failures in several occupations, to find his true calling.

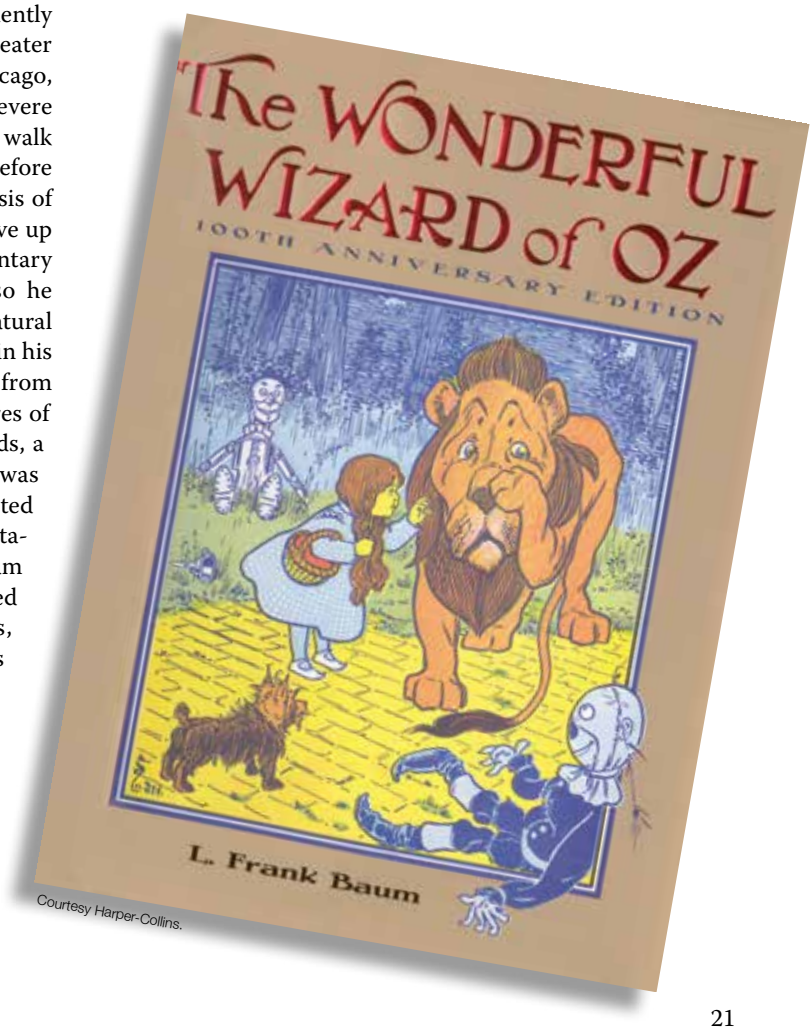
Baum was born in 1856 in Chittenango, a small town in upstate New York. His father, a barrel maker, moved to nearby Syracuse in 1861, and, after several successful business ventures, purchased a splendid farm just north of the city. Nearby was the Plank Road, a toll road farmers used to bring their produce to market downtown. Worn planks were constantly being replaced by a Tin Woodman (or "Tin Man"), the basis for the character that would reappear in Baum's fiction years later. Young Frank was a frail, sensitive child, less physically active than other children ostensibly because of a defective heart.* He had "heart attacks" manifested by syncope, often

* The textual references to his health, enclosed in quotations, refer to unsubstantiated medical opinions taken from Baum's biographies. His oldest son and biographer believed that the cardiac problem was congenital.

provoked by emotional stress. At age twelve he was sent 200 miles from home to a military academy in Peekskill, and had a severe episode after being disciplined. This led to an early departure from Peekskill, down its Main Street paved with yellow bricks. Many other early experiences and locations found their way into his later stories. In 1881 Baum married Maude Gage, a student at Cornell, the daughter of Matilda Gage, a leader in the Women's Rights movement and a colleague of Susan B. Anthony. Baum always had great respect for his mother-in-law and strongly supported her work. Shortly before the wedding, Baum had another "heart attack," but afterward he was apparently stable for many years and able to work at various occupations to support his growing family

Baum worked successively and sometimes simultaneously as a farmer, actor, playwright, theatrical producer, salesman for petroleum products, variety store owner, business manager for a baseball team, newspaper publisher, and traveling salesman of fine china. Despite early success in some of these endeavors, all were ultimately failures and the family frequently hovered on the brink of financial disaster. Seeking greater opportunity, he moved to South Dakota and later to Chicago, where, in 1897 at age forty-one, he developed several severe nosebleeds and gripping chest pains that caused him to walk the floor in agony. He had experienced similar pains before leaving South Dakota, where a physician made a diagnosis of "angina." A heart specialist in Chicago advised him to give up his work as a traveling salesman and seek a more sedentary occupation.[1] He decided to publish a trade journal so he could spend more time with his family. Baum was a natural storyteller. His children and their friends often gathered in his study late in the day hoping to hear a new installment from his fantasy world. One day as he recounted the adventures of a girl named Dorothy and her three extraordinary friends, a child in the audience asked Baum what this magical land was called. Looking across the room at a filing cabinet, he noted the label O–Z on the bottom drawer and, without hesitation, replied, "It is called the Land of Oz."[1] Eventually Baum would create a fantasy land of great complexity, inhabited by separate nations (Munchkins, Winkies, Quadlings, Gillikins) and ruled by good and wicked witches. Baum's greatly admired mother-in-law may have been the inspiration for the good witch. After connecting with the illustrator William Wallace Denslow, Baum was ready to publish *The Wonderful Wizard of Oz*.[5] Released in 1900, the book was a critical and financial success, as were many of his subsequent children's novels about Oz and other magic worlds. Between 1900 and 1910, Dorothy became one of the ten most popular names for girls.[6]

With his success, Baum became able to enjoy a more agreeable, though less healthful, lifestyle. He chain-smoked good cigars and upgraded his diet. He had meat and eggs for breakfast, with five cups of coffee laced with heavy cream and sugar. His dinner usually included a thick cream soup, roasted meat, and a rich dessert.[1] In 1909 he moved to a mansion in Hollywood, California, but bad investments in theater and motion pictures led to bankruptcy. From 1914 on, he experienced a succession of serious health problems.[1] He developed tic doloreux, which lasted for the remainder of his life. He had more frequent attacks of chest pain and irregular heart rhythms, with progressive dyspnea. Attacks of abdominal pain were diagnosed as gall bladder disease. Cholecystectomy was recommended, but Baum postponed the operation until December 1917. The surgery was successful, and a "badly inflamed appendix" was also removed in a four-hour procedure.



Courtesy Harper-Collins.

It was determined postoperatively that the prolonged operation had further damaged his heart.[1] He also developed "kidney trouble" in the hospital and doctors feared he might not live. After five weeks he was discharged home with a recommendation of bed rest for at least six weeks. In fact, he never left his bed, but, propped up on pillows and smoking a cigar, continued to write his last story in pencil. He took morphine for pain; we have no knowledge of other medications. In May 1919 his heart action became more erratic and dyspnea increased. After completing the manuscript for *Glinda of Oz*, he lapsed into coma on May 5, but aroused briefly the next day to utter his last words: "Now we can cross the shifting sands"—probably referring to the impassable desert surrounding the Land of Oz.[1p271]

Baum left his wife only a little over $1,000, but royalties from his books continued to support the family. In 1933, his eldest son sold film rights to Samuel Goldwyn for $33,000. Goldwyn resold the rights to MGM for $75,000 in 1938. The blockbuster movie *The Wizard of Oz* filmed that year broke many attendance records, but did not generate a profit on its initial release because of high production expenses. On worldwide release in 1949, however, it broke many attendance records and attracted large television audiences with revenues to match.[7] One might expect that Baum's reputation would have been sustained by the popularity of the movie, but most of his books went out of print and some were banned by schools and public libraries because some religious groups objected to the depiction of "good witches" and to females assuming traditional male roles. Indeed, the Land of Oz was usually ruled by powerful women, while the male characters were often weak, defective, or fraudulent.[3] During the anti-communist McCarthy era, Baum's books were labeled "socialist" because of the Tin Woodman's comment in the fifth book: "Money is not known in the land of Oz. We have no rich and no poor; for what one wishes the others all try to give him, in order to make him happy."[3p310] Despite waning book sales, the land of Oz has thrived in television and DVDs, as well as in new theatrical interpretations, such as *The Wiz* and *Wicked*. Lately, new editions of his novels have appeared and new Oz novels have been published by his devoted followers.

What type of heart disease could Baum have had? As a boy, he was frail and sensitive and his episodic syncope was attributed by his physician to heart disease—a convenient and incontestable but never substantiated diagnosis. His biographers have assumed that his heart disease was either rheumatic or congenital.[1–4] Before his marriage at age twenty-six he had a "heart attack" consisting of nausea and dizzy spells, suggesting the possibility of neurocardiogenic or vaso-vagal syncope, but after his marriage these attacks no longer occurred. Congenital cardiac anomalies must be considered, but these diseases are usually associated with a cardiac murmur and/or cyanosis. Neither was ever described in Baum's case. There was no childhood illness resembling rheumatic fever, although many individuals with known rheumatic valvular disease offer no such history. It is possible that he could have lived to age sixty-two with congenital or valvular heart disease, but this would not account for the progressive chest pain, which was his most prominent symptom. A diagnosis of coronary heart disease seems more plausible. At age forty-one he saw a "heart specialist" in Chicago for nose bleeds and gripping chest pain and was advised to follow a more sedentary life style. His risk factors for coronary heart disease included heavy cigar smoking and a high fat diet. In 1915, he is described as having severe attacks of "angina" associated with the strain of his business venture into motion pictures. However, in 1915 "angina" was a descriptive term for chest pain but with no clear association to coronary heart disease. Later that year he developed symptoms of cholecystitis and in 1917 underwent removal of the gall bladder and appendix. His biography describes a four-hour procedure that is said to have "further damaged his heart" and probably also his kidneys, but no other details are available.[1] He remained in bed for the remainder of his life. Just before his death in 1919, his heart action was said to be erratic and he had difficulty breathing. This might reasonably be ascribed to atrial fibrillation or frequent atrial or ventricular premature beats and congestive failure. With the limited data available, any diagnosis in Baum's case is largely conjectural, but we would propose coronary heart disease as the best possibility for his final illness. This conclusion also implies that the syncopal episodes in early life may not have had a cardiac cause.

Baum's life changed in 1897 when he was advised by an unidentified physician to find sedentary work. His son described this encounter with a "Chicago heart specialist" at a time when cardiology was not an established specialty.[8] Even a decade later only a few pioneering general physicians or internists had sought recognition as heart specialists after post-graduate training in European medical centers. Frequently their attempts to claim special skills were opposed bitterly by their peers. The most notable of these early cardiologists in Chicago, Dr. James B. Herrick, was still practicing general medicine in 1897.[9] It is conceivable that Baum was his patient since his office was only a little more than a mile from Baum's home. Up until the mid-twentieth century, consulting internists were often referred to as "heart specialists" and Herrick assumed this title in 1900.

What technologies to diagnose heart conditions were available during Baum's lifetime? The stethoscope had been described by René Laennec in 1819,[10] and was widely used during the last half of the nineteenth century. Most of the classic murmurs and heart sounds had already been described prior to Baum's death.[11] The determination of systolic blood pressure by palpation using a sphygmomanometer, was reported in 1896, but a comprehensive description of the Korotkoff method for identifying systolic and diastolic pressures by auscultation did not appear until 1910.[12] The technique was not widely used until 1918 or later, when convenient office models

became available. It is possible that Baum's blood pressure was never measured. Wilhelm Röntgen produced the first x-ray image in 1895. The technique was used to detect foreign bodies, bullets, and kidney stones during the next decade. The technology was refined by General Electric engineer William Coolidge in 1913. The Coolidge tube used a high vacuum and a tungsten filament that produced more intense and reliable images than earlier equipment.[13] The previously developed fluorescent screen was adapted for clinical work by Thomas Edison. Both the x-ray and fluoroscope found use in the study of chest disease, especially tuberculosis, later in the second decade of the twentieth century. Heart size could also be estimated. Thus, it is possible, but unlikely, that Baum had a chest x-ray or chest fluoroscopy during his last years. In 1901, Willem Einthoven invented the string galvanometer to record the electrical activity of the heart, using a 600 pound device that required five people to operate.[14] By 1909 the first electrocardiograms of atrial fibrillation and wave form abnormalities during an attack of angina pectoris had been reported. However, it was not until 1920 that electrocardiographic machines that could be moved to the bedside were available commercially. It is possible that such a study was performed on Baum before his death in 1919. However, there is no evidence that any of the aforementioned diagnostic methods were used in his case.

Even considering the sparse medical descriptions of Baum's last years, it seems likely that his final illness was coronary heart disease. Assuming that this was true, could his "heart specialist" in Chicago in 1897, or the physicians who saw him in 1915 for "acute attacks of angina," or those who attended him during his final years, have recognized this illness? Probably not. The term "angina pectoris" was well known in Baum's time, since it was first used by William Heberden in 1772 in his paper, "Some Account of a Disorder of the Breast," published in *Medical Transactions of the Royal College of Physicians in London*.[15] Originally in Latin, this paper was later translated by Heberden's son. Heberden was a remarkably astute clinician who documented almost 100 cases of angina in his practice and described its association with exertion and its radiation to the left (and occasionally the right) arm. But he never connected the symptoms to a disorder of the heart. This connection was first made by his friend Edward Jenner

Illustration by W. W. Denslow from the original *The Wonderful Wizard of Oz*.

Illustration by W. W. Denslow from the original *The Wonderful Wizard of Oz*.

(better known for his work in smallpox) in 1778, but the idea, although suspected by others, lay dormant for many years. Its awakening is attributed to the same Chicago physician James Herrick in 1912, who published a case report entitled, "Clinical Features of Sudden Obstruction of the Coronary Arteries."[16] This paper pointed out that sudden occlusion of a coronary artery was not always immediately fatal, as was commonly believed at the time. But Herrick's observation was not widely accepted. In his autobiography published in 1949, Herrick wrote "The publication aroused no interest. It fell like a dud."[9p196] Two of his follow-up papers in 1918 and 1919 drew more attention from interested readers, perhaps because the 1919 publication included two three-lead ECGs—an emerging and exciting new technology.[17] Unfortunately, these two tracings were recorded forty-one and 178 days after the "coronary thrombosis." The first classic three-lead ECG of an acute myocardial infarction was not published until 1920 by Harold Pardee.[18] This tracing is a classic example of an acute inferior wall myocardial infarction with ST segment elevation and Q waves in leads II and III.

In William Osler's 1912 *Principles and Practice of Medicine*, there is no mention of diseases of the coronary arteries. In 1915, the textbook *Medical Diagnosis* by Arthur Latham and James Torrens included detailed descriptions of valvular heart disease, but the pathology of angina pectoris was said to be obscure.[11] By 1919, the year of Baum's death, the eighth edition of Osler's textbook reported that angina pectoris was a disease rarely seen in hospitals. Osler reported seventeen postmortems in his hospital, thirteen of which showed coronary arteries blocked with thrombus or embolus. He concluded that there was no satisfactory explanation for angina.[19] Therefore it would appear that in 1919, coronary heart disease as a cause for angina, congestive heart failure, and death was just coming into clinical consciousness and was not widely appreciated. Even if Baum died, as we suspect, of coronary heart disease, his physicians would probably not have been able to recognize it. Baum, ever prescient, envisioned the distant future of cardiology when he arranged a heart transplant for the Tin Woodman.

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