

## **ZOMBIE MEDICINE**

*A physician friend of mine introduced me to an expression I'd not heard before – “zombie medicine.” He was aware that economist Paul Krugman sometimes uses the zombie metaphor to describe “a proposition that has been thoroughly refuted by analysis and evidence and should be dead – but won't stay dead.” (NYT Oct. 14, 2013) My friend suggested that in a medical context the metaphor implies adherence to conventional thinking despite good evidence to the contrary; flawed concepts that are difficult to eradicate – like a zombie plodding ahead, unstoppable.*

Medical history provides many examples of clinging to incorrect doctrines. For example, William Heberden's classic description of angina pectoris (1768) included only three women out of nearly one hundred cases and about a century later, William Osler wrote that angina is a rare disease which occurs “almost exclusively in men.” Such authoritative statements delayed recognition of the true prevalence of this heart disorder in women until relatively recently.

Since time immemorial gullible people have fallen prey to unscrupulous charlatans and hucksters and our own time is no exception: witness such familiar fads as copper bracelets, coffee enemas and the like. Health spas still have adherents who regularly “take the waters”, homeopathy has its devoted followers and cupping continues to be popular in parts of Asia – and Brooklyn. But of particular concern is when doctors themselves are deluded – not by hokum, or false claims, but by what they believe to be valid science. When respected medical authorities promote treatments, people usually listen -- credentials lend credibility.

Surely the King of the Zombies was Galen of Pergamon (b. 130 A.D.) who taught that health or illness were a matter of balance between four fundamental “humors.” If one of them got the upper hand, the proper corrective was to restore

its opposite and although the concept was entirely based on speculation, it persisted for nearly two millennia and even longer when transformed to something similar. During the Middle Ages Galen was considered infallible – to criticize him was near heresy. In 1543 when Andreas Vesalius dared to question Galen’s anatomic findings, that were based mainly on dissections of monkeys, his former mentor Jacobus Sylvius raged that he was “a madman...whose pestilential breath poisons Europe.” But Vesalius was not a lone voice against Galenic hegemony; among those before him was the rebellious Swiss alchemist Paracelsus who advocated directly observing nature rather than relying upon ancient texts, and burned Galen’s and Avicenna’s books.

During the 18<sup>th</sup> century, the goal of so-called “heroic” treatment continued to be to balance opposing forces and especially to rid the ailing body of bad humors. This country’s leading exponent was the versatile Benjamin Rush whose favorite regimen was to “bleed, blister, puke and purge.” Few patients escaped either his lancet or his fearsome “thunderbolts” -- giant pills composed of equal parts of calomel (mercurous chloride) and jalep, both potent laxatives which presumably would expel toxic bile. Rush patented the concoction and if using his bilious pills didn’t necessarily cure, at least recipients knew that they’d been treated – after all their teeth were likely to fall out from mercury toxicity. When a visiting English physician William Cobbett remarked that during a yellow fever epidemic Dr. Rush killed more people than he cured, the offended Philadelphian successfully sued for libel – Cobbett scuttled home before having to pay the \$8,000 fine. Indeed the true heroes of Benjamin Rush’s brand of “heroic medicine” were those who survived it.

Of many medical zombies who ruled the earth during the early 19<sup>th</sup> century, perhaps the most ferocious was Francois Broussais. When he died in 1838, an obituary noted “we may safely enroll the name of Broussais among the glories of France.” Yet his name is hardly remembered today. His major claim to fame was as founder of what Broussais called “physiological medicine” which emphasized

the importance of function rather than pathologic anatomy. According to his theory all diseases were due to “irritability” of tissues, the “cry of suffering organs” aggravated by excessive bleeding and hyper-stimulation caused by chemical agents. There were no specific diseases, clinical signs and symptoms were merely the end-result of chronic unrecognized inflammation. In a way, “Broussaism” was a variant of Galenic theory -- if not imbalance of four humors then “irritation” as a unitary explanation for almost anything, from fever to flatulence. The way to restore physiologic balance was seductively simple: a near starvation diet, judicious use of antiphlogistics (anti-inflammatory medicines) and bleeding – not by lancet but by leech. Sometimes called “The Prince of Leeching,” Broussais so captured the day that during the 1830s on average 60 million leeches were used each year – when France ran out of the local variety in 1832, it imported forty million annelids and an international Leech Trade emerged to meet insatiable global demands.

Francoise Broussais denounced all prior medical systems from the time of Hippocrates and Galen to his own day and his sarcasm directed against rivals could be brutal -- he described Laennec’s new stethoscope as a “useless curiosity.” As for the despised English:

*They should stop gorging themselves with tea, alcohol and too substantial food. Their doctors should abstain from purging them at every instance...they should confine themselves to combatting the inflammation by a few capillary haemorrhages [leeches] and one would no longer see in their country such a large amount of engorgement, spleen, hypochondria, melancholy and dropsy which shorten the lives of the youngest and most robust. It is chronic enteritis, that unrecognized and badly treated disease, which depopulates England.*

During the 1820s one of his students wrote, “Monsieur Broussais is unquestionably the most remarkable medical writer of the present age. Splendid

works, celebrated lectures, and a great number of proselytes, have in a few years spread far and wide his name and opinions.” The great man agreed. Broussais acknowledged that his doctrine had earned “the grand astonishment and admiration of the world” and predicted that it soon would “exert an influence more marked than that exerted by vaccination.” But the results of his treatments were disappointing and Broussais was accused by rivals of falsifying his claims.

By 1833 when Oliver Wendell Holmes (1809-1894) arrived in Paris for two years of post-graduate study, Broussais’ reputation was in eclipse, his authority eroded by younger members of the faculty who exposed the absurdities of his doctrine and the consequences of treatment by starvation and leeching. Years later Holmes recalled:

*Broussais was in those days like an old volcano, which has pretty nearly used up its fire and brimstone, but is still boiling and bubbling in its interior, and now and then sends up a spurt of lava and volley of pebbles.. His theories of gastroenteritis, of irritation and inflammation as the cause of disease, and the practice which sprang from them ran over the fields of medicine for a time like flame over grass of the prairies...Broussais’ theories languished and well-nigh became obsolete, and this no doubt added vehemence to his defense of his cherished dogmas.*

Although the “savage old man” Broussais was spent by the 1830s, Oliver Wendell Holmes had other notables, past and present, to criticize. With Benjamin Rush clearly in mind, he recalled that “the lancet was the magician’s wand of the dark ages of medicine. The old physicians not only believed in its general efficacy as a wonder-worker in disease, but they believed that each malady could be attacked from some special part of the body – the strategic point that commanded the seat of the morbid affection.” Holmes had contemporary zombies to confront beside the burnt out likes of Rush and Broussais – indeed he was the nemesis of all zombies.

Oliver Wendell Holmes and other young Americans in Paris were captivated with the emerging French enthusiasm for “therapeutic nihilism” – it was preferable to allow nature to heal than to prescribe useless or injurious remedies; doctors should wait watchfully and supportively for the illness to run its course. As Holmes famously said, “if the whole *materia medica* as now used, could be sunk to the bottom of the sea, it would be so much the better for mankind – and all the worse for the fishes.” The American students idolized their mentor Pierre Louis whose statistical analyses proved that bloodletting was ineffective, but their orthodox brethren back home sneered at this effete French passivity -- what was needed was to “break” disease.” Nevertheless, by mid-19<sup>th</sup> century the skeptics prevailed and the aggressive style of treatment gave way to one of moderation. When the so-called “regulars” were forced to acknowledge that the outcomes of their approach often were no better than those of the “irregulars,” many patients turned to purveyors of alternative approaches: eclectics, herbalists, botanists, hydropaths, vegetarians, spiritualists. Then, as now, the popular justification was that at least “it can’t hurt” – not very different from Galen’s injunction to “do no harm.”

Although the German physician Samuel Hahnemann (1755-1843) never visited the United States, his doctrine of homeopathic medicine had an enormous impact and more staying power than Broussaism. Starting in about 1796, the scholarly but outspoken Hahnemann began lambasting traditional practitioners, whom he derided as “allopaths,” and designed his own medicinal substances which consisted of infinitesimal amounts of drugs diluted with alcohol and elaborately mixed and rubbed. In 1843, the same year that Hahnemann died, Holmes scoffed that homeopathy was “a mingled mass of perverse ingenuity, of tinsel erudition, of imbecile credulity, and of artful misrepresentation.” The introduction to his speech to the Boston Society for the Diffusion of Useful Knowledge titled “Homeopathy and Its Kindred Delusions” revealed the self-styled “Autocrat of the Breakfast Table” at his sarcastic best:

*When a physician attempts to convince a person, who has fallen into the Homeopathic delusion, of the emptiness of its pretensions, he is often answered by a statement of cases in which its practitioners are thought to have effected wonderful cures...Those kind friends who suggest to a person suffering from a tedious complaint that he "Had better try Homeopathy," are apt to enforce their suggestion by adding that "at any rate it can do no harm." This may or may not be true as regards the individual. But it always does very great harm to the community to encourage ignorance, error or deception in a profession which deals with the life and health of our fellow-creatures...It may be thought that a direct attack upon the pretensions of Homeopathy is an uncalled for aggression upon an unoffending doctrine and its peaceful advocates. But a little inquiry will show that it has long assumed so hostile a position with respect to the Medical Profession, that any trouble that I, or any other member of that profession, may choose to bestow upon it may be considered merely a matter of self-defense.*

Oliver Wendell Holmes went on to rebut each of Hahnemann's "delusions" in seventy-four pages but, his words notwithstanding, by the late 19<sup>th</sup> century almost ten thousand healers practiced homeopathic medicine, 10% of all doctors nationwide. Its popularity was greatest among the country's influential and wealthy, and why not? After all, it was gentle and seemed to be based on scientific sounding principles. Moreover, homeopaths encouraged such common sense activities as eating well, exercising vigorously, fresh air and sunshine while orthodox physicians spent their time promoting bleeding and purging. To defend against incursions by economic competitors, in 1847 the "regulars" (including Holmes) formed the American Medical Association which promptly banned members from comportsing with homeopaths and their ilk. However, the orthodox physicians were divided in their own house and some surgeons were happy to accept referrals from the unworthy homeopaths.

Another time Holmes spoke to the Boston Society for Medical Improvement about “The Contagiousness of Puerperal Fever” but because it was published in the obscure *New England Quarterly Journal of Medicine and Surgery* it attracted little attention. He argued that physicians’ unwashed hands were responsible for transmitting puerperal fever from patient to patient which, naturally, enraged many of his colleagues. A leading obstetrician of the time Philadelphia’s Charles D. Meigs scoffed that these were the “jejeune and fizenless dreamings” of a sophomoric writer.

Four years later, another young iconoclast, Hungarian-born Ignatz Semmelweis published much the same findings concerning preventable maternal deaths. In a controlled experiment he found that having obstetricians wash their hands in a chlorinated-lime solution dropped maternal mortality from 10% to below 1%. He, too, was derided by the medical establishment and, for him personally, the result was tragic. Semmelweis lost his hospital position, was forced to move from Vienna to Budapest and when he wrote angry letters accusing European obstetricians of being irresponsible murderers, he was said to be insane (even his wife agreed.) No doubt he was unbalanced to a degree and in 1865 the forty-seven year old physician was forcibly committed to an asylum. He died there two weeks later, possibly as a result of injuries sustained when beaten by guards, and it wasn’t for nearly another three decades as a result of Pasteur’s work that Ignatz Semmelweis’s findings gained acceptance. In our time, reference sometimes is made to a so-called “Semmelweis Reflex” or “Semmelweiss Effect” which refers to a tendency to automatically reject new knowledge that contradicts established beliefs – in effect, “zombie medicine.”

Given the choice of accepting empirical evidence or clinging to misguided or mindless beliefs, many people, if not most, would choose the latter. A case in point was “autointoxication,” an ancient theory based on the belief that putrifying waste products located in the intestines can poison the body and are a major contributor to most diseases. The concept had a revival during the 19<sup>th</sup> century

when colonic irrigation achieved what has been described as “a triumph of ignorance over science.” Among those who encouraged an aggressive approach to promote health and “cleanse the body of filth” was a dour Presbyterian minister in Bound Brook, New Jersey, Sylvester Graham (1794-1851) who had a stern message: “If it feels good, don’t do it.” Graham advocated hard mattresses, open bedroom windows, vigorous exercise – and chastity – but equally important was a high fiber vegetarian diet. He developed a biscuit made from molasses and whole wheat flour that had no additives that’s still with us today: the Graham cracker! When introduced in 1829 he claimed that regular use would cure indigestion, poor circulation, insanity --and also would reduce lust.

That message must have appealed to Dr. John Harvey Kellogg (1852-1943) another food faddist who also was engaged in “warfare with passion.” Adopting some of Graham’s natural ways of promoting health, he opened a “University of Health” in Battle Creek Michigan that was staffed by 800 to 1,000 and treated a wealthy and celebrity clientele. Patients at his sanitarium were kept busy sunbathing, doing breathing exercises, eating Corn Flakes and, most important, having frequent enemas because he believed that 90% of illness originated there. A special machine could instill 15 gallons within a few seconds. This was followed by purifying yogurt – half by mouth, half per rectum – and the result was a “squeaky clean” colon.

The yogurt idea was adopted from the Russian immunologist Elie Metchnikoff (1845-1916), director of the Pasteur Institute and Nobel Laureate in 1908. He favored the magical properties of a drink popular among Bulgarian peasants that was made from fermented yogurt (*kefir*) that contained lactic acid. When ingested regularly it would normalize gastrointestinal flora (like today’s probiotics), improve digestion, enhance the immune system and slow the aging process. But Metchnikoff and Kellogg differed over just what to eat. The former feared that raw food contained dangerous microbes and was an unreconstructed flesh-eater. In describing “Metchnikoff’s Mistake” Kellogg wrote that he “eats a pound of meat

and lets it rot in his colon and then drinks a pint of sour milk to disinfect it. I am not such a fool. I don't eat meat." Metchnikoff drank sour milk every day of his life until his death in 1916 at the age of 71; Graham groused that this was premature, that he would have lived longer if he wasn't a carnivore.

The death blow to Galen's old zombie should have occurred with publication of Rudolph Virchow's *Cellular Pathology* (1858) and the advent of Pasteur's germ theory, but it didn't entirely happen. Broussais' discredited theory reemerged transformed -- the culprit shifting from irritation/inflammation to infection. In 1900, the British surgeon William Hunter identified "oral sepsis" as a cause of a multitude of diseases. Soon Frank Billings in Chicago was claiming that tonsillectomies and dental extractions cured "focal infection" which otherwise might effect distant organs. Charles Mayo and other luminaries supported the theory and by 1930 excision of focal infections was considered a rational form of therapy thought to resolve many cases of chronic disease.

Starting about 1908 the acclaimed English surgeon Sir W. Arbuthnot Lane (1856-1943) took a novel approach to "colonic inertia" by performing colectomies. Arguing that modern society was ruining health, he promoted sunlight, physical exercise and a high fiber diet which could prevent cancer. By the 1920s Lane abandoned total colectomies in favor of a modified procedure: lysis of what he described as congenital bands of adhesions in the bowel wall which contributed to constipation, stasis and "flooding the circulation with filthy material." Dr. Lane developed a loyal following and a profitable society practice, but fell into disfavor with many of his medical colleagues. He abandoned practice to market a redesigned toilet to create a more "natural" position for the prolonged colonic ablutions that were necessary two or three times every day. Today, "Lane's Disease" is still in vogue, listed as a cause of chronic constipation with colectomy prescribed to treat refractory cases.

Perhaps the most zealous American proponent of Lane's "surgical bacteriology" was Dr. Henry Cotton (1876-1933), medical director of the Trenton State Hospital, who identified focal infection as the main cause of schizophrenia, manic depression and masturbation. The challenge was to locate the offending pocket of pus and the most convenient starting point was the mouth. Beginning in 1916 Dr. Cotton began removing his mentally disturbed patients' teeth and tonsils even if there were no abnormal signs and, if that didn't do the job, he probed deeper and removed internal organs: gall bladders, spleens, reproductive organs. If abdominal X-rays revealed retention of fecal matter or if the patient suffered from constipation, he would remove their entire colon. In one twelve month period there were 6,472 dental extractions performed at Trenton State Hospital, 542 tonsillectomies and 79 colectomies. He claimed up to 85% cure rate and justified one third mortality of colectomized patients because this radical procedure was done only as "a last resort" for end-stage patients. Cotton believed his own theory enough that he extracted both of his sons' teeth – each of them later committed suicide.

Some called Henry Cotton "the new Lister." The president of the New Jersey Medical Society proclaimed, "Dr. Cotton has built a foundation for the benefit of the health of the people of which every succeeding generation will reap the benefits and generations to come will rise up and call him blessed." The president of the AMA proclaimed Trenton State to be "one of the country's great institutions...a monument to the most advanced civilization of her people." A reporter for the New York Times enthused that Cotton's brilliant work was "the most searching, aggressive and profound scientific investigation that has as yet been made in the whole field of mental and nervous disorders." But his results seemed too good to be true and, finally, an independent investigator who reviewed the records of 645 major operative cases done between 1918 and 1932 found disturbing results: mortality of 44.7% (138/309) for those receiving colectomies; 13.7% of 336 given Lane's "pericolonic membranotomies" and many fewer "cures" than Dr. Cotton had reported. But long after his theory was discredited,

surgical attacks on presumably infected teeth and tonsils continued unabated. Millions of tonsils were sacrificed prophylactically in order to eliminate focal infection and even today some advocates of “biological dentistry” recommend tooth extraction and oral surgery to remove foci of infection which might cause systemic disease. Once again, it was difficult to slay the zombie.

Yes, Europe was a hotbed of zombies during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. In 1889 the distinguished French physician Charles Brown-Sequard read a paper at a scientific meeting in Paris which shocked the audience. He described how over a period of two weeks he’d injected himself with a solution of ground testicles of dogs and guinea pigs and noted a marked increase both in strength and stamina, improved mental energy and regular bowel movements: “All has changed and I have regained the full force that I possessed.” These salubrious effects persisted for about a month after the last injection and then wore off. To his credit, Brown-Sequard made his data available for all to review and refused to endorse any products capitalizing on his discovery. But that didn’t deter others. Russian-born Serge Voronoff popularized grafting monkey testicles into human scrotums with astonishing rejuvenative results. When the Viennese physiologist Eugen Steinach theorized that ligation of the vas deferens would cause testicular secretions to “back up” resulting in improved vigor, potency, hair growth and eyesight, people clamored to be “steinached.” Irish poet William Butler Yeats lauded his “second puberty” although Sigmund Freud was less enthusiastic with his own response. “Glandular fever” gradually abated but not before an American huckster William “Doc” Brinkley became fabulously wealthy grafting goat testes into failing males – he promised to make “every man the ram that am with every lamb.” Although the monkey business eventually fell out of favor, current enthusiasm for testosterone injections is evidence that this zombie still has life.

Indeed all the zombies are not dead yet! Some are hidden in plain sight – stubborn to the end. Ancient methods of cupping and acupuncture have great

staying power and still are widely used. The Food and Drug Administration permits sale of leeches for use in microsurgery to relieve venous congestion and has supported research to explore its value in different diseases. Vitamin and supplements sales exceed \$11 billion a year while homeopathy's proponents claim over 200 million followers worldwide. Infected gums and teeth as the cause of systemic disease still has serious supporters and the beneficial use of cleansing enemas persists in the public mind. More than a century after Elie Metchnikoff's observations about the efficacy of yogurt, we are witnessing a boom in the use of probiotics ("good germs") being marketed to improve health. Indeed, there's current enthusiasm for fecal transplants to treat ileitis and colitis. Zombie-redux? Perhaps.

Social historians like to study how changing notions of illness reflect prevailing cultural conditions – how and why what's considered "wrong" now once seemed "right." More important is how in the future we will respond when what's considered "right" proves to be "wrong." To this day many people, including physicians, are reluctant to change their beliefs after previously accepted ideas have been proven to be incorrect? If medical history teaches nothing else, it should be that zombies exist in all times and a continuing challenge is to discover where they are hidden. Where are our zombies?

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#### PRINCIPAL SOURCES

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