

EVANGELICAL GYNECOLOGIST: THE MYCOLOGICAL CAREER OF HOWARD A. KELLY, M.D.

In the fateful year 1919, on the heels of the Great War that found France a shell-shocked, corpse-strewn battlefield as Germany departed licking its wounds only to try again another day, the world had also been laid waste by the worst influenza pandemic in history. From an army camp in Kansas, influenza spread in 1918 from the U.S. through Europe and the world beyond, killing 50 million people by 1920; its severity is easily comparable to the Black Death of bubonic plague that devastated Europe in the 14th century. The horrific magnitude and historical circumstances of the course of the pandemic has been admirably described by John M. Barry in *The Great Influenza*. Barry, in order to set the stage properly to assess the dimensions of the pandemic and the medical response to it, found it necessary

first to describe the state of American medicine during the decades preceding the Great War. Yet, in order to evaluate American medicine adequately, Barry was obliged to take a further step back to depict the state of medicine as practiced at the Johns Hopkins Hospital and Medical School in Baltimore, Maryland. At the turn of the 19th century, Johns Hopkins was the pre-eminent medical establishment of the age, and its revolutionary system of conjoining a hospital and medical school based on experimental research and laboratory education in a university setting changed the course of teaching and practicing medicine in the United States.

The Johns Hopkins Hospital opened in 1889, following the founding of Johns Hopkins University in 1876, and the

medical school opened in 1893, with an enrollment of a handful of students. Dr. William Henry Welch (1850-1934) stood at the head of the Johns Hopkins University School of Medicine as its first full-time faculty member, and he recruited three physicians, William Stewart Halsted (1853-1922), Sir William Osler (1849-1919), and Howard Atwood Kelly (1858-1943) who, with Welch, have since been venerated as the Johns Hopkins "Big Four." Each of their individual careers is amply impressive of itself; collectively, they advanced medicine with dramatic innovations in surgery, pathology, gynecology, obstetrics, clinical practice, education, and public health. Welch has been called "the single most powerful individual in the history of American medicine."¹ At Johns Hopkins he introduced a

German system of laboratory education after his studies with the bacteriologist Robert Koch in Berlin, emphasizing the importance of bacteriology in the treatment of infectious disease. Incredible as it seems today, Welch “felt it necessary to defend scientific medicine from the charge of being impractical.” In doing so, he and the Johns Hopkins physicians changed medicine forever. The standard biographical history is *William Henry Welch and the Heroic Age of American Medicine* by Simon and James Thomas Flexner, which remains a classic starting point for understanding the impact of Dr. Welch and the regime that laid a new foundation for medicine in America.² He was also memorialized in the name of a toxic bacterium causing food-borne illnesses, *Clostridium welchii* (now *C. perfringens*). Perhaps most famously, the “Big Four” made a lasting impact in cultural history in the painting, *The Four Doctors* (1906), by John Singer Sargent, which depicts Drs. Welch, Halsted, Osler, and Kelly in flowing black robes posing confidently in all their formidable majesty amidst medical folios and a globe of the world.³

Recent attention on the Hopkins Big Four has focused on William Halsted. Gerald Imber’s *Genius on the Edge: The Bizarre Double Life of Dr. William Steward Halsted* explores Halsted’s brilliant contributions to surgery in the context of his lifelong addiction to morphine.⁴ Halsted’s posthumous notoriety was such that the name “Halstedians” was once proposed for a society of physicians who were narcotic addicts. Halsted’s colleague in surgery, Howard Kelly, while adding equally to the collective esteem of the Johns Hopkins faculty in surgical talent and innovation, could not have been more unlike him. An evangelistic Christian, Kelly joined Johns Hopkins the year its hospital opened, and he quickly made a name for himself as one of the finest, if not *the* finest, surgeons of his time. His specialty was gynecology, and his career at Johns Hopkins spanned three decades, until his retirement in 1919. Kelly served on the medical faculty as Professor of Gynecology (for a time including obstetrics), authored *Operative Gynecology* (1898) and *Medical Gynecology* (1908) that became the standard textbooks in the field, and

developed several important surgical innovations and devices, two of which (the Kelly speculum and Kelly clamp) bear his name and are still in use today. While at Hopkins he joined the staff of a small Baltimore hospital that became the Howard A. Kelly Hospital, with which he was associated until 1940. Kelly developed surgical procedures for the repair of the female sexual organs, urinary tract, and kidneys; and his voluminous publications (18 volumes on surgery and over 500 medical articles) focus not only on medicine but veer into religion and natural history. He was also one of the first to realize the potential of radioactivity in radium to treat cervical cancer, and he became so interested in acquiring radium that he developed a mining partnership with the U.S. Bureau of Mines. Howard Kelly was a surgical wizard: widely popular, his speed in the operating room was thought astonishing, and he charged astronomical fees from some yet accepted no fee whatever for the majority of his medical and surgical services – a sort of Robin Hood of medicine. He was acquainted with most everyone from Madame Curie and Billy Sunday to the grandson of Lewis David von Schweinitz – for one of his interests in natural history centered on mushrooms.⁵

Dr. Kelly and his family lived in the Bolton Hill district of Baltimore at 1406 Eutaw Place; the hospital that bore his name was located nearby at 1418 Eutaw. His interests in nature study were widely varied: geology, mineralogy, conchology, botany, and astronomy all claimed his attention at one time or another, but before his passion for mycology dominated his love of nature, herpetology stood out in high relief. He loved to collect, study, and play with snakes. He gave demonstrations of how to handle snakes and expertly milked rattlesnakes of their venom. He was once bitten (literally) but was not twice shy. At his home he kept several dozen cages for his menagerie of reptiles collected on excursions in Maryland and Florida. He and his wife, Laetitia Bredow, had nine children; his home was crawling with kids and snakes. Herpetology may seem an utterly incongruous pastime in light of the force that gave his life meaning beyond a stellar medical career and ample love of nature: his devotion

to the Bible as the word of Christ. Kelly was a devout Episcopalian, and the Bible was the rock on which he lived, studying it daily in Greek and Hebrew. It was not only his constant companion; the Holy Writ was the divine bridge of spiritual intercourse with *everyone* he encountered. Under his boutonniere, Dr. Kelly wore a small lapel button bearing a question mark. When asked what the question was, he would blithely respond, “What do you think of Jesus?”⁶ His fervid Christianity did not stop with outward show; he supported missionaries, delivered sermons in Maryland churches (all denominations), and avidly took on the singular role of Baltimore’s vice crusader for years. Dr. Kelly’s renown was propelled, it seemed, by the synergy between his successes as a Johns Hopkins surgeon and as reformer for the Baltimore community. He spoke out against white slavery, and came down especially hard on regulated prostitution, castigating it for its promise of immunity from punishment and assumption of the necessity of sin.

Howard Kelly’s intense interest in the natural world began in his childhood days. He collected snakes, and he played with them fearlessly. During his teenage years, he methodically dissected frogs and snakes. On a trip to Canada he discovered a cache of Ojibwa skulls and trucked them all back to Philadelphia for his natural history cabinet. Before he reached the age of 20 he immersed himself in the works of Virgil, Wordsworth, and Coleridge, imbibing their poetical perspectives on agricultural cycles and natural phenomena, all the while passionately seeking out snakes, owls, and minerals. He began to investigate the medicinal value of plants as his interest in medicine grew. Kelly studied botany at the Academy of Natural Sciences of Philadelphia under John H. Redfield and Thomas Mehan and encountered two of the most notable paleontologists of the nineteenth century, Joseph Leidy and Edward Drinker Cope. It was Cope who sparked his enthusiasm for herpetology.⁷ Initiating his medical studies in New York, he rapidly became interested in surgical cases, yet described himself as a “Lecturer in Zoology.” Throughout, he disdained any study on Sundays, even reading or drawing,



Dr. Howard Kelly with clam, nd.

in order to consecrate the Lord's Day. Kelly's interest in Bible study and the temperance movement developed apace with his passion for natural history; he attended temperance lectures, including a Baltimore revival meeting of Dwight Moody, America's foremost evangelic preacher. By disposition an extrovert, Kelly spent a summer out West where he learned to brand cattle, use a lasso, hunt antelope, and skin beaver and rabbits. In his formative years he began to teach Sunday school and simultaneously to write articles on methods of examining the urinary organs. Kelly's exuberant engagement with life was multifaceted and astonishing, encompassing the roles of surgeon, gynecologist, naturalist, preacher, and even cowboy and, later, mycologist.⁸

Kelly developed a deep fascination with mycology as he prepared to retire from Johns Hopkins. He had already published on botanical history; his *Some American Medical Botanists*

(1914) derived from an earlier article in the *Journal of the American Medical Association*. Around 1915, four years short of his official retirement from Johns Hopkins (though maintaining his practice at the Howard Kelly Hospital), he discovered the pleasures in mushrooming, quickly incorporating this hobby into his general inquiry after the natural world. He began to collect fungi systematically, keeping species lists and copious diary notes. His interest encompassed mushroom identification, mycophagy, the history of the discipline, the research of contemporary mycologists, and mycological illustration. As a scholar and completist, he began to amass what became an enormous library of mycological literature, purchasing expensive volumes from booksellers in America and Europe. From his initial captivation with mushrooms through the 1920s and into his later years, Dr. Kelly promoted mycology as a salubrious pastime, sharing his interest with family and friends. He later

regretted to some that he discovered it so late in life, but his interest was never casual, for he ended up becoming a dedicated patron of mycology and lichenology. As most amateurs do, he grew fond of edible fungi, and in one diary entry he recorded enjoying a breakfast of *Pleurotus ulmarius* and a supper of "milk toast *a la Suisse*" with *Coprinus micaceus*, a *Lepiota*, and two species of boiled *Pleurotus*.⁹ Yet this was never a selfish indulgence, for true to his medical and spiritual callings, he believed knowledge of edible fungi would be helpful to campers and others. Dr. Kelly's summer camp on Ahmic Lake in Ontario, Canada became a personal mecca in the summer months for a lengthy communion with nature and the pursuit of wild mushrooms. To his rustic log cabin at Magnetawan on Ahmic Lake came family, friends, and several notable mycologists to spend weeks amidst the rich panoply of mushrooms in the romantic desolation of the Northern woods.

For middle-class urban dwellers in the years surrounding World War I, amateur mycology was a marginal yet growing specialization of nature study. One peak of popularity had occurred in the 1890s, with the dominance of Charles McIlvaine (whose impassioned espousal of mycophagy was never far removed from proselytization, a kind of personal Chautauqua) and the emergence of amateur mushroom associations including the long-enduring Boston Mycological Club. McIlvaine's *One Thousand American Fungi* was a dependable if unwieldy tome for the serious amateur, and the fact of its publication in a second edition in 1912 attests to an enduring market of mushroom enthusiasts in the Progressive Era. Naturalist Emma L. Taylor Cole came out with a slim volume, *Guide to the Mushrooms*, in 1910 as *Mycologia* was in its first year of publication with William A. Murrill at the helm. Murrill, too, was a popularizer, writing books on every aspect of nature study, later launching an amateur group in 1920, the Yama Farms Mycological Club, which included the naturalist John Burroughs. In Cincinnati, Curtis Gates Lloyd published the idiosyncratic *Mycological Notes* to tweak the

sensibilities of the taxonomists as he pursued his own inexhaustible enumeration of the fungi. Aside from these, possibly the strongest, though uncoordinated, interest in mushrooms arrived in waves of immigration from Europe where mushroom hunting for the table had proliferated as a cultural and family tradition in many countries. The schoolteacher Myron Hard noticed Bohemian laborers from a wire nail factory regularly gleaning a mushroom harvest from the countryside surrounding Salem, Ohio.¹⁰ This occurred wherever an immigrant community from Italy or eastern Europe imported old world traditions into the new, as mushrooms gained a reputation as “vegetable meat” and “beefsteak of the poor.” The *New York Herald* characterized the fad of mushroom collecting as “some kind of national movement to prevent the enormous annual waste of mushrooms in the United States, estimated to be equal in food value to the entire agricultural product of the country.”¹¹ Yet even so estimable a figure as Harry Hopkins, who became head of the Works Projects Administration and Secretary of Commerce under Franklin D. Roosevelt, enjoyed collecting mushrooms with the social reformer Dr. John A. Kingsbury in New York in 1916.¹² Into this milieu

arrived Dr. Howard Kelly of Johns Hopkins, who situated mycology somewhere between therapeutics and theology as he studied his species, mixed with the mycologists, and built a magnificent library of mycological works covering the literature from Atkinson to Zahlbruckner.

Mencken vs. the Boob Bumpers

Henry Louis Mencken (1880-1956) was America’s leading independent intellectual in the decade after World War I. Free-thinking, feisty, and analytic, he unapologetically skewered the foibles of humankind in articles published in, first, the *Baltimore Herald*, and then the *Baltimore Sun*. An editor of *Smart Set* from 1908 to 1923, he and George Jean Nathan founded the magazine *American Mercury* in 1924. Mencken has been called a “literary Vesuvius” and an “American Voltaire.” His output was prodigious, and he excelled in vituperative and colorful essays, jousting iconoclastically with all the exemplars of mediocrity at which he took aim. He gleefully flayed the stupidities of unquestioning patriots, literary busybodies, hunkorous millionaires, third-rate scholars, rustic ignoramuses, half-wit and devious politicians, and the lot of frauds, yokels, and vulgarians

that, as he suggested, comprised the bulk of the human race. His books ranged from *Damn! A Book of Calumny* to *The American Language*. His biographer Carl Bode said that Mencken “raised impertinence to an art”¹³ in conducting what amounted to one-man guerilla warfare on the cultural conservatism of the times. The weapons he used in his personal crusade against anti-intellectualism and philistinism were his wit, scorn, and superior knowledge, all three of which were evidenced with extraordinary flair in his writing on his rapid ascent as a journalist.¹⁴ Mencken pilloried the unthinking masses as the “booboisie,” and he singled out religious charlatans such as Billy Sunday as “boob bumpers,” exposing their hype, hypocrisy, and depressing effect on culture and society. Though recognized as America’s public intellectual for decades, he will be forever associated with his native city, Baltimore, Maryland where he worked as writer his entire life. One of the most notorious of his blistering attacks on the backwardness of American culture was “The Sahara of the Bozart,” an essay that mercilessly skewered the American South as a wasteland devoid of intelligence and culture. The title itself is a crabby piece of irony and ridicule: *beaux arts* refers to fine art and a style of architecture, as in the interior of Grand Central Terminal. Mencken deeply admired Thomas H. Huxley, the foremost exponent of Charles Darwin’s ideas about evolution, and his on-the-scene reporting of the Scopes “monkey trial” in 1925 was a high point in his brilliant career debunking self-righteous Biblical hogwash in defense of scientific truth. Henry Mencken believed that the critic’s role is to be a catalyst, sparking fresh appreciation of ideas, language, and art.¹⁵

Mencken’s pointed characterizations of the Johns Hopkins doctors are irreverent, often hilarious. His persistence in cleverly deflating the hubris of the high and mighty and airing out the soiled laundry of humanity was a touchstone of his stance as a journalist, and he gave no safe quarter to the Johns Hopkins Big Four.¹⁶ In his diary he satisfied himself privately with wry comments on, for example, the ironies in William Halsted’s smoking and tachycardia. Though he considered Halsted the most brilliant of the four, he probably had no inkling



Esther, Titia, Howard, and Olga Kelly, Magnetowan Camp, Ontario, Canada, nd.



News headline, Baltimore Sun, 1922

of his morphine addiction else it too might have been unceremoniously examined. Mencken's private opinion of Dr. Welch was unflattering in the extreme. Though they interacted publicly, Mencken consigned to his diary his belief that Welch was not just lazy and selfish, but one of the laziest and most selfish men he had ever met – a shameful publicity-hound.¹⁷ By contrast, President Herbert Hoover orated, "Dr. Welch is our greatest statesman in the field of public health."¹⁸ His 1935 homage to Welch (one can scarcely call it an obituary) in the *Baltimore Sun* consisted wholly of remarks contrasting Welch's gourmandize and avoirdupois with his surprising longevity and a lifestyle totally at odds with medical common sense:

A year or so before his death I happened to sit beside him one day at lunch. The main dish was country ham and greens, and of it he ate a large portion, washing it down with several mugs of beer. There followed lemon meringue pie. He ate an arc of at least 75 degrees of it, and eased it into his system with a cup of coffee. Then he lighted a six-inch panatela and smoked it to the butt. And then he ambled off to attend a medical meeting and to prepare for dinner.¹⁹

Mencken reserved his most scathing critique for Howard Kelly. Oddly enough, the doughty journalist actually had a good measure of respect for Kelly, seeing him correctly as a man of principle. But that was the outer limit of

his respect, and he did not hold back in the ridicule he gleefully put forward on Kelly's reformist tendencies. He called him "Doctor Evangelicus," and not only enjoyed taking aim at the profound inconsistency of Kelly's belief in the Bible and simultaneous adherence to the tenets of medical science but also at blasting away full-bore at his crusading exercises against the familiar triad of vices that plagued the Progressive Era: alcohol, prostitution, and gambling. Kelly availed himself as a public target for Mencken because his own crusade was public, vociferously so. He edited a Maryland newspaper, *The Christian Citizen*, which decried all the social vices and sought even to close down "places of amusement" on Sundays, not to mention "bawdy houses" and saloons. Mencken saw this regime as complete anathema and branded Kelly a menace to "practically everything [civilized] men esteem."²⁰ The positions of Mencken and Kelly were diametrically opposed on every major moral issue of the day. Kelly held fast to an uncompromising position on the evils of drink, causing Mencken to froth with righteous ebullience on the natural right of a man to hoist a stein of beer at the first intimation of thirst. Mencken considered Prohibition an unmitigated disaster and its perpetrators guilty of a messianic delusion; among his many encomia to alcohol when the Volstead Act took effect, he proposed a "festschrift to ethyl alcohol on its deathbed" entitled *Hic Jacet C₂H₅OH*, i.e., Here Lies Ethyl Alcohol.²¹

Despite sniping at each other in public, Mencken and Kelly were friendly (or at least, civil) on social occasions, dining and taking tea together at one time or another. Yet their public asseverations one against the other were deadly serious, often wildly comic. Mencken's biographer Carl Bode called Kelly "Mencken's hair shirt" for sending him a steady stream of pious letters and evangelistic tracts, soliciting his advice on best practices of reforming prostitutes, and even once inviting him to dinner at his home with none other than Anthony Comstock, the self-appointed anti-obscenity czar and erstwhile postal inspector who founded the New York Society for the Suppression of Vice. Ten years into their "friendship," Kelly and Mencken had

occasion to travel together by train from a medical banquet in Washington back to Baltimore. So exasperated was Mencken at Kelly's long-winded sermonizing on themes from his "barbaric religion" on this trip that Mencken famously quipped, "Three separate times I was on the point of jumping out of the train-window."²² Mencken insisted that Howard Kelly was "the most implacable Christian I ever knew, at least among educated men," and some of his pronouncements were so harsh as to seem libelous. In fact, Mencken went to extremes by belittling Kelly's medical expertise, dismissing his surgical talent as the craft of a mere mechanic, falling far short of innovators of the stature of Halsted. This kind of *ad hominem* attack was patently unfair and undoubtedly a result of Mencken's scratching his "hair shirt" too vigorously: he scarcely knew when to let up in his broadsides against Kelly's religious pomposities. Kelly was Mencken's local *bête noire*, and he smirked that Baltimore's great evangelist physician "couldn't distinguish the difference between a section of sarcoma and a slice of beefsteak."²³ Mencken mercilessly lampooned Kelly and his "theological dissipations," as in this squib, a cartoon caricature of a typical day in the life of the good doctor:

Before cock-crow in the morning he has got out of bed, held a song and praise service, read two or three chapters in his Greek Old Testament, sung a couple of hymns, cut off six or eight legs, pulled out a pint of tonsils and eyeballs, relieved a dozen patients of their appendices, filled the gall-stone keg in the corner, pronounced the benediction, washed up, filled his pockets with tracts, got into a high-speed automobile with the Rev. W. W. Davis, and started off at 50 miles an hour to raid a gambling house and close the red light district at Emory Grove, Maryland.²⁴

Kelly himself was indeed implacable, for *he* never gave up trying to save Henry L. Mencken for Christ and reform the jaded journalist's view that this world is "a cosmos that we all infest." In 1916, Kelly started a prayer list in his diary; the first name on it was H. L. Mencken. He

admitted that Mencken was clever but felt sure that he prostituted his natural abilities, exemplified in the proverb: “the wicked is snared by the transgressions of his lips.” In one exchange in the *Baltimore Sun*, Dr. Kelly fired back at Mencken with a hyperbolic salvo of fish-words derived from Latin and Greek that sounds like a passage lifted right out of *Finnegans Wake*:

In Which Dr. Kelly Develops A Most Unexpected Sense of Humor And Slays That Devilish Philistine, Mencken, With Jaw-Breaking Epithets Gathered From Every Fish-Market Known To Classical Dictionaries.

To the Editor of the Sun – Sir: If Mr. Mencken would put a photospectroheliograph on his ramshackle tergiversating cerebrum, I think he would discover that he was something of a synentognathous physoclistous levirate leventine belone with perissodactyl affinities; in other words, an acanthopterygian lophobranch not far removed from a plectognathic sesquipedalian orthopter. My opinion of my mendacious friend is summed up briefly in the expressive, hemisemidemi-quaver, orthrophoitosukophantodiktalaporos. This is my most gentle response to his last innocuous blustering. Howard A. Kelly²⁵

To Dr. Kelly, H. L. Mencken may indeed have been a fishy, attention-grabbing orthopter, a godless mechanical bird flapping its wings profanely to advertise all the cardinal sins. But to Mencken, Howard Kelly was an overzealous shitepoke who left behind a trail of inexplicable and misguided nonsense each time he took flight into the absurd reaches of his high holy sermonizing.

It’s a pity that Dr. Kelly failed to introduce Henry Mencken to the delights of mushroom identification; if he had we might have seen popular articles on mycology in the *American Mercury* or *Baltimore Sun*. In the very year of Mencken’s near-leap from the

train window, the *Sun* actually did run an article, “Dr. Kelly Hunts Mushroom in Park.” A *Sun* reporter interviewed Kelly about his interest in mycology and his favorite local mushroom haunt, Baltimore’s Druid Hill Park. The article commenced:

When tennis and golf and zoo-visiting begin to pall as outdoor diversions the sport-loving Baltimorean can hie himself (or herself) to Druid Hill Park and chase the elusive mushroom to its lair. Dr. Howard A. Kelly, reformer, surgeon and mycologist, has made a mushroom survey of the park and has communicated the result to *The Sun*.²⁶

Druid Hill Park is a 745-acre park, now home to the Maryland Zoo, and whose northern extremity contains undeveloped forest growth, some of the oldest in Maryland. Kelly described finding there *Amanitopsis vaginata* var. *plumbea*, *Psalliota arvensis*, and *Hypholoma lacrymabundum*. He cautioned collectors about the “Paneoli” growing in the park that produce “curious symptoms, a form of intoxication, with hallucination, anxiety, profuse sweat and an affection of the optic nerves causing objects to swim around and assume variegated colors.” Here was a medical doctor, a surgical innovator who had no hesitation to deploy radium, then an unknown, to treat cervical cancer, recognizing and describing an otherworldly experience triggered presumably by psilocybin in 1922, decades before the psychedelic Sixties, and one wonders whether he associated this phenomenon in any way to religious experience. But Kelly had no frame of reference to situate this strange phenomenon *as* transcendent or spiritual; its symptomatology fit no preconceived category of experience other than “intoxication.” Therefore, it was the *toxic* that he emphasized, and a “victim” of this mushroom intoxication need only send a specimen to Dr. William Ford of Johns Hopkins University for analysis, whom Kelly touted as “the greatest living authority on mushroom poisoning.” He even invited readers to send their specimens to his home on Eutaw Place for identification, with instructions to “put

each one in a little bag or cone of tissue paper (never cotton), with the name and addresses of the sender and the place and time of finding.” Dr. Kelly waxed nostalgic about mushroom hunting in Druid Hill Park: “It is pleasant to recall that Druid Hill Park was a favorite hunting ground for Miss Banning a generation ago. Miss Banning and Mr. McIlvaine are the only two mycologists of note we have in Maryland.”²⁷

Kelly was particularly curious about the career of Mary Elizabeth Banning, an amateur noted for her unprecedented series of watercolor illustrations compiled in *The Fungi of Maryland*, which she donated to the New York State Museum in the care of Charles Peck. Not surprisingly, Kelly’s interest in Mary Banning developed a religious overtone when he learned that her mycological pursuits had a missionary purpose: she once stated that her original motivation for her lavishly colorful studies of the fungi of Maryland was to educate students in a mission school about the world of mushrooms.²⁸ For similar reasons, Kelly was also drawn to the career of Lewis David von Schweinitz, the reputed “father” of American mycology, who was a Moravian minister. Religious practitioners among the mycologists were not the only ones who received his admiration however, for Kelly dedicated himself to the full breadth of mycology. As a gregarious person with wide-ranging interests in natural history and with his national prominence as a Johns Hopkins surgeon, he swiftly and easily gained the acquaintance of contemporary workers in the field. He corresponded with the botanists and mycologists of the New York Botanical Garden, including Gertrude Burlingham, William Murrill, Fred Seaver, Mary Eaton, John Hendley Barnhart, George Nash, and John Kunkel Small. As his enthusiasm for the subject mounted in 1918, Kelly wined and dined the mycologists of the day as if he was courting a young flapper. He lunched at the Maryland Club in Baltimore with Albert Blakeslee and Herbert Whetzel and met with George Atkinson at Lake Placid and William Murrill in Washington, DC. With Murrill he traveled to Virginia to meet Murrill’s brother-in-law where Kelly saw a magnificent specimen of *Clitocybe*

illudens for the first time. In 1919, he met with Curtis Gates Lloyd to discuss fungal nomenclature. Lloyd's advice to Kelly was to learn Kauffman's nomenclature which followed "the European system."²⁹ He took Lloyd's advice a step further by becoming close friends with Calvin Kauffman himself.

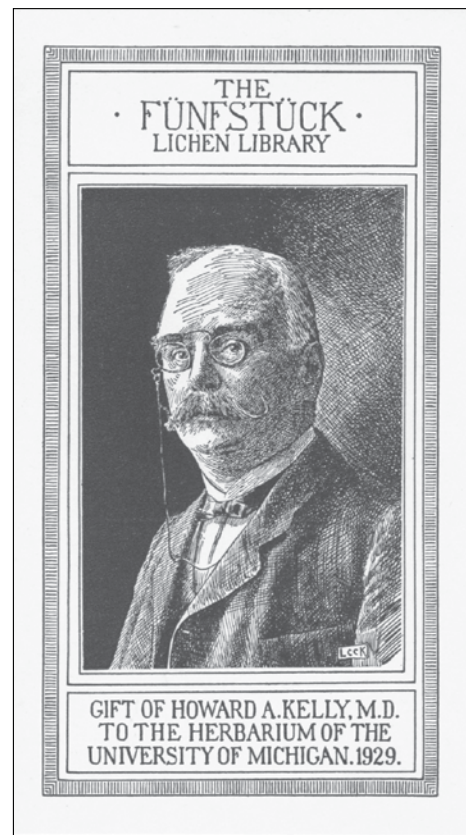
Kelly's plunge into mycology was total, and his approach was broadly holistic. His philosophy about mushroom identification involved the necessity of observing the totality of characteristics in a specimen in a process that was first analytic, then synthetic, and once again analytic. After some practice, minor anatomical characteristics become increasingly important the more one knows, he believed; and that one will value the characters best when one knows all the species in any given genus. In his diary he listed not only the specimens he collected and identified but made curious notations on mycology and mycologists, even noting that *Lactarius deliciosus* was painted on the walls at Pompeii. His observations on Charles Peck are particularly sympathetic (Peck, too, was a religious man), full realizing that the famed New York State Botanist was a solitary worker with meager institutional support for the duration of his career. Kelly's observations about Peck were further informed by private discussions with Cornelius Shear and William Farlow. Shear attributed Peck's interest in the fungi to Moses Ashley Curtis and revealed that Peck suffered from an inflamed eye and chronic indigestion, that he constantly kept a bottle of milk within easy reach for use as an antacid, but that even in old age he had the enthusiasm of a boy first enjoying the marvels of the fungi.³⁰ William Farlow distrusted Peck's identifications, intimating that he would consult with Peck in Albany, borrow his specimens and, without betraying his intentions, smuggle them off to Europe for the famed pharmacists Boudier and Patouillard to examine and pass judgment. When the French mycologists identified Peck's specimens as Old World species, Farlow would enter their opinions on Peck's vouchers. Dr. Kelly, however, was not one to be enthralled by mycological gossip, and he made a trek to the museum in Albany to consult with Peck's successor Homer House and

see for himself where Peck toiled over specimens and to pay his devotions to the watercolors of Mary Banning's *Fungi of Maryland*, which he pronounced an "astounding interesting volume."³¹

Louis Krieger and the Great Catalogue

Howard Kelly had an expert eye for illustration and consistently retained the services of talented illustrators in all of his scientific pursuits, professional and amateur. The first and foremost was Max Brödel, a German artist who, at Johns Hopkins, created the first academic department of medical illustration. Brödel illustrated Kelly's two-volume textbook *Operative Gynecology*, remaining fast friends with Kelly for life. Another was Louis C. C. Krieger (1873-1940) who became known as the finest mycological illustrator of the age. Krieger was born in Baltimore and began his career with the USDA where he worked under Thomas Taylor in the Division of Microscopy, illustrating government publications, including bulletins on edible and toxic fungi. For ten years, from 1902, he worked for William Farlow at Harvard University as one of two artists creating the illustrations for *Icones Farlowianae*. At Harvard, Krieger created four hundred aquarelles of fungi and algae. He then moved to the U.S. Plant Introduction Garden in Chico, California, collected mushrooms in the Sacramento Valley, and painted studies of *Opuntia* (prickly pear cactus). Through his friendship with the Johns Hopkins toxicologist William Ford, Krieger became known to Howard Kelly at the moment when mycological studies fully consumed Kelly's attention. In December 1918, Louis Krieger began his service as an illustrator and amanuensis for Kelly, a relationship that was to last a decade and bear fruit in several notable projects.

With Krieger on retainer as mycologist and illustrator, Kelly first planned to write a book on the fungi with Krieger's artwork. The plan had three results, though not the original one intended. In 1919, Kelly published, not a book, but an article in *The Therapeutic Gazette*, "Mushrooms and Toadstools" with Krieger's pencil



Howard Kelly bookplate for Moritz Fünfstück Lichen Collection, 1929.

drawings.³² Second, Krieger published an article in the May 1920 issue of *National Geographic*, "Common Mushrooms of the United States" which introduced the allurements of mycology to a national audience. Third, in addition to his work as illustrator, Krieger set to work cataloguing the growing collection of books, articles, and manuscripts of Dr. Kelly's personal library of mycology. In actuality, Krieger was a database manager. He kept a personal, life-long mycological index of the fungi he collected, and his work as a chronicler and copyist might easily be overlooked in the light of his artistic productions. His work was done entirely by hand. Like many others, he collected Peck's annual Report of the State Botanist assiduously (from around 1891) and strove to keep a complete set. Krieger first wrote to Peck as "Dr. Farlow's artist." The comparative scarcity of information on the fungi at century's turn is striking compared with today's hyper-accelerated transmission of data and photos, for Krieger mentioned to Peck that he *copied by hand* the available issues of the annual report on mushrooms when unable to

acquire a copy of his own. He wrote to Peck on several occasions attempting to be included on a subscription list but regretted that he had neither published papers nor mycological specimens to exchange in return. In a later turn of events, Kelly assisted Krieger to find employment at the New York State Museum when his service at Eutaw Place came to an end. At this juncture, Louis Krieger began work on a guide to New York State macromycetes, better known as *The Mushroom Handbook*.

The Mushroom Handbook was first published under the title *A Popular Guide to the Higher Fungi (Mushrooms) of New York State* in 1936. Still a serviceable guide for those unperturbed by species names that are long out of date and out of fashion, Krieger's handbook is not only a guide to common mushrooms, but an introduction to the basics of mycology. The text ranges over general topics from spore dissemination to the fungal life cycle, and it handily introduces the novice to the unfamiliar territory of microscopy, cultivation, and collection for the herbarium. Krieger discusses such phenomena as the negative geotropism of *Amanita* and was the first to explain in an American guide the dimorphism of *Entoloma abortivum*, then known as *Clitopilus abortivus*.³³ Louis Krieger was a bit of a Renaissance man, and he discoursed freely about the benefits of mushroom-hunting, the aid that amateurs provide to science, and was wont to compare a colorful *Russula* with a painting of Titian or Rubens. The Dover reprint of 1967 features a biographical preface and appendix on nomenclatural changes by Robert Shaffer of the University of Michigan Herbarium. Shaffer characterized the guide as a "mycological textbook for amateurs," and that's precisely what it is. In his acknowledgments, Krieger noted above all "the gentleman who made the book possible: Dr. Howard A. Kelly, the writer's cherished friend and patron."³⁴ Krieger was not the only author touched by Dr. Kelly's natural history stimulus, for William Sturgis Thomas (founder of the "second" New York Mycological Society) acknowledged Kelly for "his interest and valuable suggestions" in his *Field Book of Common Mushrooms* published in 1928.³⁵

During his years with Dr. Kelly, Louis Krieger created over 300 illustrations of mushrooms. As before, he used photographs as models for his artistic renderings, following McIlvaine's delineation of groups by spore color. He also worked on Kelly's great catalogue. The *Catalogue of the Mycological Library of Howard A. Kelly* (1924) is a bibliographic snapshot of the state of mycological knowledge in the 1920s. Compiled by Krieger, the bibliography describes the contents of Kelly's library, from single journal articles to classics of mycological literature, European and American. Krieger began to compile Kelly's catalogue at Harvard while working for Farlow; by 1924 there were 400,000 entries. In the preface Kelly writes at his most sprightly, as if he were in conversation about his favorite hobby, defending mycology before medicine, and arguing that since medicine is allied with the natural sciences, it should come as no surprise that a physician might seek to amplify his knowledge by way of studying the fungi. He observed that few physicians pursue this calling, singling out Ezra Michener, William Herbst, and Jacob Weist as exceptions, and designating "that late lamented master" William Farlow the greatest of all, though Farlow had never actually practiced medicine. If the paltry cross-fertilization of medicine and mycology should cause disappointment, Kelly explained, the numbers of clergymen who have turned to this obscure science more than compensates. The Rev. Miles Joseph Berkeley, the Abbe Giacomo Bresadola, and Lewis David von Schweinitz thus found a front-row pew in Kelly's private camp meeting of mycologist-clerics. With these patron saints securely on the dais, he then consecrated mycology by way of a derogatory swipe at sports, claiming it "so infinitely superior to golf and baseball and other distractions over which my fellow mortals squander so much of precious time of their brief mundane allotment."³⁶ After reviewing the American literature of value to the amateur – Nina Marshall, McIlvaine, Peck – he singled out Kauffman's *Agaricaceae of Michigan* as the *ne plus ultra* of works that should command the attention of anyone interested in the fungi.

So much for Dr. Kelly's preface; the collection itself was gargantuan: an archive of original artwork and documents appended to a library of books. It contained over 7000 titles on mushrooms, lichens, and myxomycetes in English, Spanish, French, German, and Italian; original watercolors by Lewis David von Schweinitz; Charles McIlvaine's original paintings and photos from *One Thousand American Fungi*; manuscript letters from von Schweinitz, McIlvaine, and Peck; mushroom photographs of Murrill, Kauffman, and Beardslee; a personal herbarium of 2000 specimens; Krieger's key of 400,000 cards; 300 Krieger paintings; wax replicas of fungi; lichen exsiccata donated by Moritz Fünfstück, and more. As Kelly advanced into his golden years, he decided to donate the collection to a repository where it would remain permanently useful. Just as Mary Banning had sent her *Fungi of Maryland* out of state, so too Howard Kelly decided to donate his entire mycological collection to the University of Michigan. Kelly's relationship to the university was strong: he had already been awarded the title of Honorary Curator of Reptiles and Amphibians of the Museum of Zoology in 1923. His friendship with Calvin Kauffman was instrumental in his decision, and he arranged to have the collection named in honor of Louis Krieger to recognize his role in helping to assemble it, compiling the catalogue, and for his unique contributions to mycology. In 1928, as Krieger wrote to Kelly from the Cuba Sugar Experiment Station with an update on his mycological index, a tabulation of fungal species and their inter-relationships begun in 1902, Kelly in turn informed him about the Louis Krieger collection in Michigan. Kelly believed Krieger to be a "true scientist," and though Kelly himself did not represent his own contributions to the field as anything beyond that of an amateur, he was convinced the satisfactions of "amateur" knowledge were equal to that of a professional, especially when assistance to the professional was an intrinsic part of the amateur's experience.³⁷ Curiously, Krieger published a kind of pendant to the *Catalogue* in 1924 – a "phantasy" entitled *The Millenium of Systematic Mycology*. In this fairy tale of eight

pages, a mycologist working on a monograph of *Inocybe* dreams he has died and gone to heaven to find all the fungi bearing labels with species names in consummate perfection. He notices, however, that there is no authority name with the binomial species name. He puzzles over this until he learns that since God the Mycologist had created, *and labeled*, all the fungi, an authority name is utterly superfluous. Krieger sent a copy of his tale to Fred Seaver in New York who replied, “the thought that impressed me most was that anyone could even dream of finding *two* mycologists in heaven.”³⁸

The Holy Grail: *Selecta Fungorum Carpologia*

Howard Kelly’s summer retreat at “Indian Point” in Magnetawan, Ontario was a haven for his contemplation of nature that he enjoyed sharing with family and friends. The log cabin there had been built around 1897, where the river flows into Ahmic Lake. After a time, his wife Laetitia was disinclined to travel so far north with their large family in tow, so Kelly established another summer residence closer to home in Bel Air, Maryland named *Liriodendron*, after the genus of tulip trees. Yet it was Magnetawan that catalyzed the magnetic attractions of the natural world in Kelly’s mind, and several Johns Hopkins associates followed him there, erecting cabins of their own nearby. These included Max Brödel and Thomas Cullen. There were a constant stream of visitors; among them in 1919 and 1920 were mycologists Henry Beardslee and Gertrude Burlingham. Dr. Kelly had introduced himself to Burlingham in 1918, requesting information on Mary Banning with the notion of writing a short memoir about her. Their correspondence blossomed into a friendship, and Kelly invited her to spend two weeks at Magnetawan entirely at his expense in August 1920. Mailing travel directions in July, he told her, “Prof Beardslee is here with his wife and the fungi are literally popping!”³⁹ Burlingham published “Notes on Species of *Russula*” in *Mycologia* with a short account of the trip, reporting a new species, *Russula kellyi*, named in Dr. Kelly’s honor. He appreciated both her tribute and her advice on *Russula* and *Lactarius* and

remained in contact for years afterwards. He referred to her friend and illustrator Ann Hibbard as “the mycologist who paints,” always appreciating the necessity of fine illustration. They exchanged mycological updates periodically, and he found her susceptible to expressions of religious faith as well, so she received copies of *The Christian Citizen* along the way. On her return to New York, he confided to her, “I am always glad to have our dear friends with us at meal times when we read together the Word, somehow it sanctifies every relationship. We do not speak often enough of Christ I am sure in our daily relations. How much time we spend on botany, and how gladly we speak of it when we are interested, but it is not so with our faith, is it?”⁴⁰

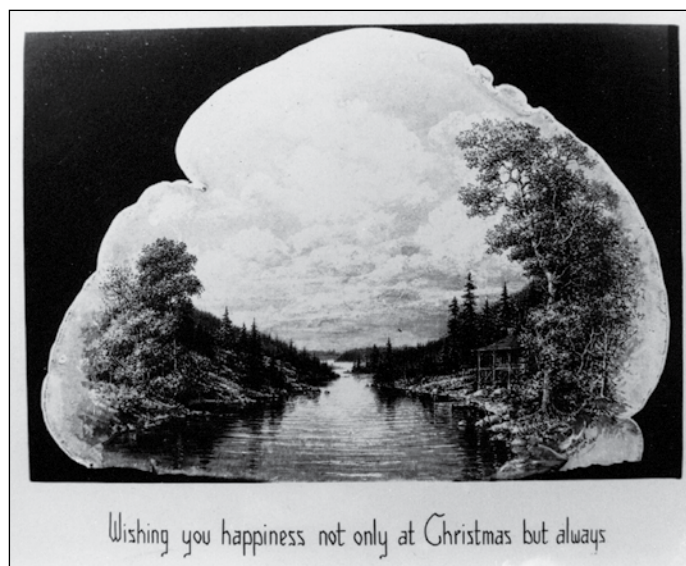
Gertrude Burlingham’s *Russula kellyi* is a standard honorific, the kind of homage that can be awarded only within the precincts of science. Howard Kelly had the social and scientific prestige that might garner such recognition, and his patronage of the east coast mycologists assured that they would take him seriously. Yet the obverse to his infatuation with methodologies of how to learn mushroom species was, no surprise really, his reverence and delight in nature experienced as the work of God. That mushrooms were evanescent marvels, the least conspicuous of nature’s living abundance, gave them a Christian prestige that Kelly sought to find validated in mycology as substantiation of his sympathetic intuition. This intuition about nature, attainable by any person of faith as the glory of God’s creation, was shared with others freely. Mary B. Dixon Cullen, the wife of surgeon Thomas Cullen (Kelly’s protégé and successor at Johns Hopkins), remembered Dr. Kelly in a tribute written just after his death. The Cullen summer camp was across the lake from the Kelly’s at Magnetawan, and

she recalled their happy excursions into the woods and the rapturous feelings that Kelly elicited in their deep communion with nature:

These hours in the woods are among my most treasured memories. He drew my attention to exquisite flowers, ferns, moss, vines, lichens, fungi, the delicate colors and forms of mushrooms and the austere beauty of rocks, millions of years old. At his camp, on a high elevation, he erected an observatory, purchased a telescope and on clear nights showed us the wonders of the sky – the moon, the planets, stars, and constellations. Through these revelations Dr. Kelly has given me joy, refreshment and above all else, immortal inspiration.⁴¹

To an informed naturalist today, “rocks millions of years old” and “wonders of the night sky” immediately provoke reflections on evolution and the age of the universe. In Mary Cullen’s reminiscence, these are nowhere evident. Rather, her memory was aglow with the ineffable beauty of moss and mushrooms in a pristine woodland setting, an exquisite spiritual moment mediated through the eyes and words and mind of an outspoken churchman of great moral authority who encountered nature as Christ visualized.

Howard Kelly was not a visionary of the attainments of St. John of the Cross, the



Wishing you happiness not only at Christmas but always

Max Brödel illustration on *Ganoderma applanatum*, nd

Christian anchorites, or William Blake. Nor was he a deist who found divinity revealed only in nature but not in the Word of God, i.e., the Holy Bible. Yet his experience of mushrooms in nature was inflected by spiritual associations in a fairly complex way, and he would find the means to ensure that his mycological legacy would reflect this permanently. In the half-century just past, any mention of mushrooms and spirituality in the same sentence virtually assures one that the subject at hand is “entheogenic” fungi. Not so with Kelly, or at least not quite. As mentioned, Kelly knew of hallucinogenic fungi, but he lacked the psychosocial context and the personal experience necessary to bring the realization of their entheogenic potency fully to consciousness. Incredibly, he had traveled to Oaxaca in 1911 to explore mines in a search for radium and was thereby a hair’s-breadth from the source of Mazatec culture that figured so integrally in R. Gordon Wasson’s experience with mystical mushrooms forty odd years later. When Kelly visited Oaxaca, he wasn’t seeking *Psilocybe mexicana*, whereas Wasson was. *Psilocybe*, or something like it, was a prime focus of Wasson’s determined quest, described in ample detail in *Mushrooms, Russia, and History*. However, Dr. Kelly did have one associate at Johns Hopkins that might have reached a realization of the entheogenic phenomenon – this was William Webber Ford (1871-1941).

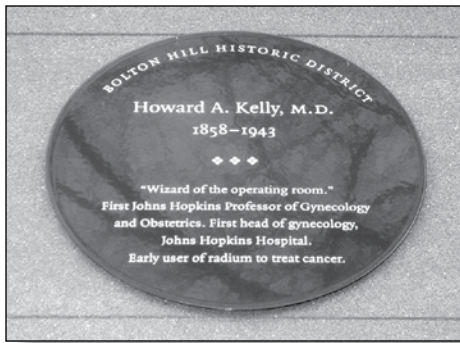
In the years when Kelly’s mushroom enthusiasm was at its height (1918 to 1924) William Ford was the head of the departments of bacteriology and immunology at Johns Hopkins School of Public Health.⁴² In 1907, Ford’s paper on “A Clinical Study of Mushroom Intoxication” appeared in *The Bulletin of the Johns Hopkins Hospital* alongside Kelly’s “Method of Preserving Outlines of Visceral Lesions” on his system of the graphic representation of abdominal tumors. Some species of the genus *Panaeolus* had gained a reputation for “stimulating the nervous system,” and Ford recognized that *Panaeolus papilionaceus* and *P. retirugis* produced “hilarity and mild intoxication” when eaten, a phenomenon Capt. McIlvaine pointed out in *One Thousand American Fungi*. Ford surveyed mushroom toxins in “The Distribution of Poisons in

Mushrooms,” a talk delivered to the Boston Mycological Club and published in *Science* in 1909. Kelly himself made a diary entry about a “poisoning” due to *Panaeolus papilionaceus* and claimed to have “analyzed” *Psilocybe ammophila*.⁴³ Ford also analyzed the truly dangerous toxins and identified the toxic principle of *Amanita phalloides* that he called amanita-toxin, resistant to both heat and digestion (and later resolved into two separate toxins).⁴⁴ While questions remain about just what psychoactive species were involved and how they interpreted their properties, neither Kelly nor Ford reached the breakthrough revelation about these fungi that Richard Evans Schultes and Robert Gordon Wasson would reach many years later.

That entheogenic fungi were absent from Kelly’s deeper worldview is immaterial; he might have rejected them outright as a profanation of the soul. Yet he received a beneficent illumination from mushrooms all the same. Kelly’s diary is a bizarre concatenation of Christian homiletics and species lists of fungi. In his pocket notebooks mushroom collection lists were juxtaposed with moral pieties and reflections on the spiritual presence of Christ. Like alternating current, meditations on the meaning of the Bible reversed flow into notes on the lineage of mycological ideas from Linnaeus, Fries, and Persoon. He confided in his diary that four immediate advantages of Christian belief were that God is known through Christ, the Bible is immediately available as the revealed word of God, that the difference between right and wrong can be immediately apprehended, and that Christ imparts power to govern and guide everyday life.⁴⁵ There is no doubt that Howard Kelly believed this with every fiber of his being and kept it always in mind. He lived his religion and practiced what he preached. But how could he possibly reach a further realization of Christ through mycology? He found it in two fellow believers, perhaps the most ostensibly devout Catholics in the annals of mycological science: the Tulasne brothers. Louis René (1815-1885) and Charles (1816-1884) Tulasne were respectively lawyer and physician by training but worked together as mycologist and illustrator to produce one of the most astonishing

treatises on fungi in the history of the field, *Selecta Fungorum Carpologia*, published in Paris in three volumes from 1861 to 1865, describing the life-histories of the Pyrenomycetes and Discomycetes. Their revolutionary advance was an understanding that many fungi are *pleomorphic*, i.e., having two different states or spore-stages: the anamorphic, or sexual state, characterized by sexual spores, and the teleomorphic, or asexual state, characterized either by the absence of spores or by asexual spores called conidia. These states have long been known as “perfect” and “imperfect” states of fungi, and in a given species one form is often widely divergent in appearance, habit, and genesis from the other. The Tulasne brothers’ life-long study of plant pathogens in the orders of rusts (Uredinales) and smuts (Ustilaginales) reached its pinnacle in the description of pleomorphic fungi set forth in *Selecta Fungorum Carpologia*. The taxonomy of these fungi is often exceedingly complex; this brief account is a mere simplification.

“Carpology” is the study of the structure of fruits and seeds (in this case, spores), and the full title of the Tulasne brothers’ masterpiece is “*Selecta Fungorum Carpologia, exhibiting especially those facts and illustrations which go to prove that various kinds of fruits and seeds are produced, either simultaneously or in succession, by the same fungus.*” The illustrations are of singular importance: Charles Tulasne’s meticulous line drawings of ascomycetes with wriggling hyphae, bursting pycnidia, and wildly biomorphic stromata are among the most life-like and mesmerizing in mycological literature. The illustrations of *Selecta Fungorum Carpologia* pull the beholder into a surreal microcosm of bizarre and energetic organisms that teem with life and menace, a world of frozen motion that in every detail is alien, almost shocking. Their intent, however, was not pure surrealism (although in retrospect it is that), but the glorification of God in all of His Creation. This is what attracted Howard Kelly to the Tulasne brothers’ magnum opus, for in the prolegomena to their description of the successive states of microscopic fungi, the Tulasnes explained fungi as a manifestation of divinity. They stated:



Memorial plaque at Howard Kelly residence, 1406 Eutaw Place; Baltimore, Maryland.

“we will endeavour to bring forth, from even the very smallest of his creatures, the praise of Him ‘by whom all things were made, who is before all, and in whom all things consist, unto whom, immortal, invisible, the only GOD;’ as Paul says (*Coloss.i.17; I Timothy.i.17*), ‘be honour and glory for ever and ever.’”⁴⁶ The brothers defined their purpose with ample scriptural quotation, as Kelly vastly appreciated, to reveal the presence of God in “insignificant” organisms as they described scientifically, “in fact and illustration,” just how these organisms behaved and propagated. They allowed that God was the “Supreme Artificer” who made nothing in vain in the hierarchy of life, and that “lower” life-forms are as worthy of regard as the most noble. The divine goodness of the Lord established an equilibrium in nature that a disciple of Christ would value by praising God in all, even the fungi, which as the most humble are transposed by the authors, incredible as it seems, into avatars of Christ. The Tulasne brothers adored the fungi, seeing in them the very image of God. Even the heraldic emblem that adorns the frontispiece of their book depicts a scene of teeming conidia multiplying endlessly toward an erupting volcano, all surrounded by a floral garland from which depends a rosary and crucifix. An excerpt will offer a glimpse of the awe and devotion expressed by these Catholic mycologists:

Fungi are a daily evidence that life arises from death. Since the time when the primeval types of every creature received from the eternal Creator the breath of life implanted in their form, each of those creatures hands on in its turn to its posterity the force and

power of the same life which it inherited from its ancestors, and then is doomed to return to the dust from which its body was built up. ... Yet, since on the one hand not even the smallest atom of the visible world can perish unless it is destroyed by the Omnipotent himself, and on the other hand life is sustained by the alternate and never ending interchange of exhausted or used up and rejected material, it is plain that the inhabitants of the earth to-day, to whatever branch of the animal or vegetable kingdom they belong, not only enjoy a continuance of the life of their parents, but also are clad in the venerable dust. So, with the will and help of GOD, death brings forth life to the very end of time; from the first to the last creature of its kind a single series, life received and transmitted so long as it shall please the supreme Lord. But the mode in which each soul both of animals and of vegetables forms for itself a body out of the surrounding material constitutes a wonderful link of spiritual appearances with visible nature.⁴⁷

Such an important work should merit wide dissemination, but the *Selecta* had been written in Latin. Dr. Kelly, enthralled by a perspective that so resembled his own, saw fit to sponsor a translation of *Selecta Fungorum Carpologia* into English. Through the offices of two well-known mycologists, Cornelius Lott Shear of the USDA and A. H. Reginald Buller of the University of Manitoba, he contracted the services of William Bywater Grove (1848-1938) to translate the Tulasne masterpiece into English. Grove, a classics scholar and headmaster for the Birmingham School for Boys, was just the person for the job. He was author of *The British Rust Fungi* (1913) and had a special appreciation of the Tulasne brothers’ accomplishments. Kelly proposed underwriting the translation in 1923, which was accepted warmly by Buller and Shear who oversaw the project, negotiating with Oxford’s Clarendon Press while Grove handled the translation. Grove questioned whether he might omit certain passages or reduce the multitude of Tulasne spore names to a common synonym,

but Shear made it clear that “every word from cover to cover, including not only the Prolegomena but also the preface and the scriptural quotations” must be translated. He added, “these last appeal, particularly, to Dr. Kelly, and I think perhaps had something to do with his decision to assist in this good work.”⁴⁸ Grove assented but admitted that the preface “reads exactly like a sermon.”⁴⁹ He wrote to Kelly on August 17, 1928 informing him that the translation was completed at last and asked whether Kelly would permit his dedicating the translation to him. After consultation with Buller and Shear, he retracted the offer as inappropriate, and Kelly agreed completely. For the translation, he paid Grove \$750, the equivalent of nearly \$10,000 today. Among the multitude of his good works, Kelly now had the translation of a mycological classic to his credit, one whose entire spirit, though grounded plainly in science, was also grounded in a vision of Christ whose resurrection inhered in the life cycle of the fungi.

Under the spell of the Tulasne brothers, Kelly brought out a book of his own to explain his peculiar commitment to science and religion. *A Scientific Man and the Bible* was issued in 1924, and Henry Mencken snapped at it like a hungry lion after a gobbet of meat with a review in the *American Mercury*. He commended Kelly for his frankness and courage but complained, “How am I to convince you that one of four men who laid the foundations of the Johns Hopkins Medical School – the daily associate and peer of Osler, Welch and Halsted – is here on exhibition as a Fundamentalist of the most extreme wing, compared to whom Judge Raulston, of Dayton, Tenn., seems almost an atheist?”⁵⁰ Raulston, of course, was another of Mencken’s favorite hang-ups, the butt of his outrage in reporting the celebrated Scopes “monkey trial” in 1925. Mencken’s *Baltimore Sun* articles on the trial have been collected in a neat volume, *A Religious Orgy in Tennessee*. In his dispatches from the trial, he poked fun at Dayton as a town made up entirely of Doctor Kellys, but sternly accused “Evangelical Christianity” to be “founded upon hate,” whereas “the Christianity of Christ is founded upon love.” He taunted Kelly: “I propose that

Dr. Kelly be sent here for sixty days, preferably in the heat of summer. He will return to Baltimore yelling for a carboy of pilsner and eager to master the saxophone. His soul perhaps will be lost, but he will be a merry and happy man.”⁵¹ In his book review, he called Kelly “insane” for beliefs that rendered his clinical acumen paradoxical and recalled Kelly’s conversion experience in a Colorado blizzard as a defining moment. In that early experience, Kelly had been stricken with “snow blindness” (photokeratitis), and he was overcome by a “great light” which he accepted as a luminous encounter with God. Mencken harped, “How would any ordinary medical student interpret that great light? How would an ordinary ice-wagon driver, or chiropractor, or Methodist bishop, or even catfish interpret it? Obviously, he would refer it to the violent conjunctivitis from which he was suffering – in other words, to a purely physical cause. But not Kelly. After fifty years of active medical practice he still *believes* that the glare was due to the presence of God!” According to Mencken, such beliefs swiftly ushered Kelly into the “intellectual Bad Lands” making him a “violent enemy of objective fact.” Giving a little ground, he admitted that Kelly did not apologize for his beliefs, “nor does he try to bring them into grotesque and incredible harmony with scientific facts.”⁵² But conspicuously absent from Mencken’s unsubtle diatribe was the record of Kelly’s accomplishments in medicine, not to mention his unsolicited generosity in supporting mycological publication and research financially.

Kelly simply did not accept the divorce between science and religion as did Mencken because he was uninterested in the unprovability of religious belief as fact; instead, his life was based on an unshakable faith that bolstered him as physician and reformer. On one occasion however, Kelly took pleasure in engaging a scientist, a fellow mycologist, in a peculiar conversation about dogma. When the mycologist stated unequivocally that he hated dogma in response to Kelly’s leading question, Kelly needled him by expressing regret that this was a pity, since science itself

was erected on dogma, that there was nothing so dogmatic as science, that indeed scientific laws and facts were nothing less than a tissue of dogmatic assertions. If the dogmas of science, Kelly maintained, are the foundation for a reliable understanding of the material universe, we must admit as infinitely more important the religious dogmas upon which our religious convictions are based, in particular the convictions of the Christian faith. If we accept the dogmas of scientific men as part of everyday belief, he seemed to say, then how could we deny the dogmas of Christian belief, supported by the millions of believers, their testimonies, and the experiences of religious men. This is entirely specious reasoning that rests on a confusion of dogma and belief as well as a disregard of the hypothesis of falsifiability of scientific propositions. Yet he couldn’t help but consider harmonizing the Bible with science on occasion and complained that the emphasis on evolution was “foolishly” applied to every natural phenomenon.⁵³

Many scientists have maintained the seemingly incompatible views of science and religion despite the work of debunkers such as Henry Mencken or Richard Dawkins. A notable instance is Albert Einstein, whose cosmic religiosity never posed an obstacle to his scientific thought; he called religion “an attempt to find an out where there is no door.” Einstein adopted an expansive view; Max Born stated “he had no belief in the Church, but did not think religious faith was a sign of stupidity, nor unbelief a sign of intelligence.”⁵⁴ Philip Henry Gosse remains a classic example of one that attempted unsuccessfully to reconcile deep religious convictions with Darwin’s theory of natural selection. The story is told quite poignantly in *Father and Son* by his son, the literary critic, Edmund Gosse, who mused, “There is a peculiar agony in the paradox that truth has two forms, each of them indisputable, yet each antagonistic to the other.”⁵⁵ The elder Gosse was an enthusiastic natural historian, whose adherence to Genesis was shaken by the challenge posed in Darwin’s theory. His book *Omphalos* was an attempt to reconcile the two belief systems by positing the absurd notion that God “hid” fossils in the

earth’s crust to test unbelievers. His son described the resulting embarrassment over *Omphalos*:

My Father, and my Father alone, possessed the secret of the enigma; he alone held the key which could smoothly open the lock of geological mystery. He offered it, with a glowing gesture, to atheists and Christians alike. This was to be the universal panacea; this the system of intellectual therapeutics which could not but heal all the maladies of the age. But, alas! atheists and Christians alike looked at it, and laughed, and threw it away.⁵⁶

As a magisterial leader of medical science, Howard Kelly never embarrassed himself with the unscientific tactics of Philip Henry Gosse, for he was never really perturbed by the dissonance of incompatible beliefs. Science today would eagerly borrow Mencken’s vitriolic assessment of fundamentalism to attempts by contemporary “creationists” to insinuate their unscientific agenda in education, a political agenda that has no equal merit in public education. Creationism is nothing but indoctrination. And yet when we look back at Kelly and Mencken, we need to recognize that both were impelled by a moral imperative to disseminate knowledge and uphold truth. The lesson to be learned from them resides in fully understanding both poles of their intellectual battle.

That Kelly somehow experienced Christ in mushrooms is perhaps more difficult to understand. His outlook partakes, to an extent, in what William James labeled “the religion of healthy-mindedness.” Studying the fungi may seem an odd form of pursuing happiness, but many have discovered unique pleasures in this outré, unfashionable hobby without burdening it with labels and doctrines. Kelly captured the aesthetics of perceiving the fungi when he reflected on his discovery of a dainty little *Mycena*:

...the hand that fashions Nature thrills us with interest by all it accomplishes with exiguous

resources. ... The same is true of fungi – mushrooms, toadstools, and their ilk. The groundwork idea is that of a parasol and nothing more: a stalk lifting it from the ground and a veil to protect the spores until they mature under their efficient cover. But lo, what an infinite variety! What marvels of provision for disseminating their spores! It was only a little toadstool which gave me the greatest thrill I have ever experienced in the field of Nature. I wish I could communicate it in the telling. It was not its size, for it was only about an inch tall, growing on an island near my camp, looking at first sight like any ordinary fungus; its beauty lay in the exquisite amethystine luminosity of the numerous translucent mycelial threads enveloping its lower stem-like beauty so often evanescent, for it faded in an hour or two after picking. And where, for example, can we find colors more glorious than in many of our fungi?⁵⁷

This “groundwork idea” deserves comment: the immanence of the Creator lies implicit in this expression; but rather than revert to his everyday messianism, the evangelical doctor stood down from the pulpit on this occasion simply to drink in the captivating beauty of the fungi. All the same, his observation is certainly the record of an epiphany: “It was only a little toadstool which gave me the greatest thrill I have ever experienced in the field of nature.” This echoes the typical sentiment of the mushroom enthusiast, but Dr. Kelly was no ordinary amateur. Indeed, his sentiment seems an overstatement, for Kelly was an outdoorsman of wide experience, whose forays spanned the continent and whose interests in natural history were not those of a dilettante. Earlier, in the preface to his *Catalogue*, he singled out the stipe-and-cap umbrella shapes of mushrooms as “modifications of one fundamental idea.” Focusing on the umbrella shape as a Platonic form slights the multifarious variety of form in the ascomycetes and polypores; but Kelly, if not quite attempting an argument from design to glorify the Supreme Artificer *a la* Tulasne, was surely suggesting that something akin to the *urpflanze* of Goethe (if not the hand of God) was also the basis of design in the world of fungi.

The marvelous beauty of mushrooms persists in the astonishing loveliness that recapitulates this fundamental form in endless variation. Our easy familiarity with mushrooms, smothered over with scientific data, has turned such an observation into cliché, but the truth that Kelly grasped deserves deeper phenomenological and historical inquiry.

One wonders at the superior fortitude of a man like Howard Kelly, whose drive was not drivenness, whose dynamism did not terminate in burn-out, and any one of whose accomplishments might have been satisfactory (or stupendous) for another individual. Unlike Philip Henry Gosse, the two temperaments of Howard Kelly did not demand reconciliation, for the swinging pendulum of his twin commitment to science and religion seemed nestled in a furious, atomic oscillation, giving heat to his character and purpose to his career. Where Mencken carped on about an irreconcilable and perplexing dichotomy, Kelly only plunged ahead healing bodies and saving souls. Yet there was a psychological duality around which was tightly coiled the strangely varied ensemble of Kelly’s interests and talents – on the one hand, the unconditional surrender to the living presence of Christ that fired his evangelism; on the other, a passionate fascination with manifestations of nature in which lingered the potency of evil and death: radioactive isotopes, poisonous reptiles, and toxic fungi. Why did Kelly gravitate to these things above all others? Was his evangelical enthusiasm a penitential offset to his everyday familiarity with human female genitalia and reproductive organs? The female body was indeed still shrouded under the cloak of Victorian repressions at the time he wrote *Operative Gynecology*, yet few other men of his time understood the mechanics of the womb as he did. Here was a vice crusader who took up undulating serpents – and sported with them! Here was a soldier for Christ whose scribbled devotions to the Lord were interspersed with species lists of fungi! Here was a moment of enthusiasm for mycology that seemed to have luminesced like an incandescent coal in the life of Howard

Atwood Kelly, then faded and pitched into oblivion through the dark days of the Great Depression and World War II. Yet this mycological spark, caught perhaps from Mary Banning and Charles McIlvaine and transmitted mysteriously through Howard Kelly to Guy Nearing, Gordon Wasson, and Harry Knighton, is the very spark that ignites the imaginations of so many in their pursuit of mycology today.

Louis Krieger’s last years were plagued with a double misfortune: the suicide of his wife and his daughter’s resultant emotional trauma. He managed to scrape by on a tiny pension, living with his sister in Vineland, New Jersey. He sent a desperate letter to Kelly in 1940, gratefully acknowledging his spiritual advice and pathetically beseeching his former patron with the question of whether God forgives suicides. We do not know whether Kelly responded, though it was certainly in character to reach out to a friend in need. Henry Mencken saw Kelly on a final, sad occasion at Max Brödel’s funeral in 1941. Age had transformed the once robust doctor, and Mencken confided to his diary that Dr. Kelly appeared “shrunk and pathetic.” Two years later, he couldn’t refrain from taking a final, private swipe at Kelly, recording in his diary that while Howard and Laetitia Kelly lay on their deathbeds two of their sons were furiously enjoying a craps game at the Maryland Club, a cruel observation to be sure. One month to the day before Kelly’s death, a tragedy befell him: his grandson Lt. Howard A. Kelly III was killed in action on an American bombing mission in Africa. Dr. Howard Kelly died on January 12, 1943 as the world plunged deeper into the catastrophe of World War II. An obituary appeared in *Mycologia*, and a U.S. liberty ship, an emergency cargo vessel of the U.S. Maritime Commission, was named the *Howard A. Kelly* in his honor and launched on March 18, christened by his daughter Olga as it slipped into Baltimore Harbor.⁵⁸ In his final days, did he offer his supplications to the Lord for personal salvation, or for a world gone insane in a frenzied Armageddon of bloodshed and horror? On the day he died, Soviet armed forces turned the tide against the Nazi siege of Leningrad, and President Franklin Roosevelt was in

flight across the Atlantic, headed for a conference at Casablanca with Winston Churchill and the Allied command. Harry Hopkins, the former mushroom enthusiast, was at Roosevelt's side, but fungi were farthest from his mind. The only mushrooms available for years to come were those arising as clouds from the fury of aerial bombardment, engulfing the obliterated cities of Europe and Asia.⁵⁹

Acknowledgements

Grateful thanks to the living descendants of Dr. Howard A. Kelly, particularly to Dave Davis and W. Boulton Kelly, Jr., for their invaluable assistance and for permission to reproduce the photographs herein. Thanks also to Dr. Victor Marrow, Executive Director of the Office of Funded Programs of Johns Hopkins University School of Medicine for his stimulating ideas and enthusiastic support, and to Marjorie Kehoe of the Alan Mason Chesney Medical Archives for her assistance and guidance. *Thanks to all!*

Endnotes

1 John M. Barry, *The Great Influenza* (2005, Penguin), p. 180.

2 Simon Flexner and James Thomas Flexner, *William Henry Welch and the Heroic Age of American Medicine* (1993 [orig. 1941], Johns Hopkins University Press).

3 For the John Singer Sargent portrait, see http://jssgallery.org/Paintings/The_Four_Doctors.htm.

4 Gerald Imber, *Genius on the Edge: The Bizarre Double Life of Dr. William Stewart Halsted* (2010, Kaplan Publishing).

5 There is no recent, scholarly biography of Howard Kelly. See Audrey W. Davis, *Dr. Kelly of Hopkins: Surgeon, Scientist, Christian* (1959, Johns Hopkins University Press).

6 Thomas S. Cullen, "Dr. Howard Atwood Kelly" (1943, *The Johns Hopkins Alumni Magazine*, 31:3/4).

7 Louis C. C. Krieger, *Catalogue of the Mycological Library of Howard A. Kelly* (1924, Baltimore).

8 The Alan Mason Chesney Medical Archives, The Johns Hopkins Medical Institutions, Howard Atwood Kelly

Papers, Diary, Box 24, folder 2; [hereafter, HAKP].

9 *Ibid*, Sept 14, 1919

10 Myron E. Hard, *The Mushroom, Edible and Otherwise* (1961 [orig. 1908], Hafner).

11 *New York Herald*, May 21, 1911.

12 Robert E. Sherwood, *Roosevelt and Hopkins: An Intimate History* (1948, Harper), p. 27.

13 Carl Bode, *Mencken* (1986, Johns Hopkins University Press), p. 4-5.

14 *Ibid*, p. 79.

15 *Ibid*, p. 250.

16 Charles Stewart Roberts "Mencken and the four doctors: Osler, Halsted, Welch, and Kelly" *Proceedings, Baylor University Medical Center*, 2010, 23(4):377-88.

17 H. L. Mencken, *The Diary of H. L. Mencken*, ed. by Charles A. Fecher (1989, Knopf), pp. 61-2.

18 Flexner and Flexner, *op. cit.*, p. 3.

19 H. L. Mencken, *A Mencken Chrestomathy* (1982, Vintage), p. 3.

20 Charles Stewart Roberts, *op. cit.*, p. 380.

21 H. L. Mencken, *Letters of H. L. Mencken* (1981, Northeastern University Press), p. 101.

22 Carl Bode, *op. cit.*; p. 151.

23 Charles Stewart Roberts, *op. cit.*, p. 381.

24 H. L. Mencken, quoted in Roberts, *op. cit.*, p. 379.

25 *Baltimore Sun*, January 13, 1927.

26 *Baltimore Sun*, May 28, 1922.

27 *Ibid*.

28 HAKP, Diary, Box 26, folder 6, p. 141.

29 HAKP, Diary, Box 26, folder 6.

30 HAKP, Diary, Box 26, folder 6, pp. 115-18.

31 Gertrude Simmons Burlingham Papers, LuEsther T. Mertz Library, New York Botanical Garden; Kelly to Burlingham, January 21, 1919; [hereafter GSBP].

32 Howard A. Kelly, "Mushrooms and Toadstools" *The Therapeutic Gazette*, July 1919.

33 Louis C. C. Krieger, *The Mushroom Handbook* (1967, Dover), p. 251; 300-01.

34 *Ibid*, pp. 15-16.

35 William Sturgis Thomas, *Field Book of Common Mushrooms* (1936, G. P. Putnam's), p. x.

36 Louis C. C. Krieger, *Catalogue of the Mycological Library of Howard A. Kelly*, p. ii.

37 HAKP, quoted from *Johns Hopkins Hospital Bulletin* (1933), 53(2): 94.

38 Fred Jay Seaver Papers, LuEsther T. Mertz Library, New York Botanical Garden; Seaver to Krieger; December 10, 1924.

39 HAKP, July 20, 1920.

40 GSBP, Kelly to Burlingham, August 31, 1920; Burlingham, "Notes on Species of *Russula*," *Mycologia* 16(1): 17 (1924).

41 Thomas S. Cullen, *op. cit.*

42 Elizabeth Fee, *Disease and Discovery: A History of the Johns Hopkins School of Hygiene and Public Health, 1916-1939* (1987, Johns Hopkins University Press), p. 114.

43 HAKP, Diary, Box 26, folder 6, p. 119.

44 William W. Ford, "The toxicological constitution of *Amanita phalloides*" *Journal of Experimental Medicine*, 1906, 8:437-50.

45 HAKP, Diary, Box 26, folder 6.

46 Louis Rene and Charles Tulasne, *Selecta Fungorum Carpologia* (1861, Paris), translated by William Bywater Grove, p. 6.

47 *Ibid*, pp. 9-10.

48 USDA Agricultural Research Service Collection, Cornelius Lott Shear Papers, May 25, 1924.

49 *Ibid*, March 14, 1924.

50 H. L. Mencken, "Fides Ante Intellectum" [review of *A Scientific Man and the Bible* by Howard Kelly] in *Prejudices* (2010, Library of America), Vol. 2, pp. 449-52.

51 H. L. Mencken, *A Religious Orgy in Tennessee* (2006, Melville House), pp. 44, 48.

52 H. L. Mencken, *op. cit.*, 2010; pp. 450-52.

53 HAKP, Biographical Mss, Chapter Seven: Hobbies, pp. 5-7; Diary, Box 27, folder 7.

54 Ronald W. Clark, *Einstein: The Life and Times* (1971, Avon), p. 516.

55 Edmund Gosse, *Father and Son*, (1970 [orig. 1907], Penguin), p. 74.

56 *Ibid.*, p. 77.

57 Kane, Paul "Howard Atwood Kelly," *Nature Magazine*; August 1931, pp. 104-06.

58 Bessie B. Kanouse, "Doctor Howard Atwood Kelly," *Mycologia*, Jul-Aug 1943, 35(4):383-4.

59 The phrase "the fury of aerial bombardment" is borrowed from a poem of the same title by Richard Eberhart. ♣